BALLISTIC, CRUISE MISSILE, AND MISSILE DEFENSE SYSTEMS: TRADE AND SIGNIFICANT DEVELOPMENTS, NOVEMBER 1992-APRIL 1993

ARGENTINA

ARGENTINA WITH GERMANY

4/19/93

Argentina is taken off the German "H" list of sensitive export control, a category it once fell into because of its failure to ratify the Treaty of Tlatelolco, its lack of a government agency instituting sensitive export control and its development of missile projects. The new status recognizes Argentina's nuclear, chemical and missile nonproliferation policy.

Embassy of Argentine Republic Press Communique, 4/21/93 ***(2935)***.

ARGENTINA WITH IRAQ

4/93

It is reported that some Argentinean Condor 2 related components were discovered in Iraq by the U.N. Special Commission.

Nathaniel C. Nash, New York Times, 3/7/93, p. 10 ***(3195)***. *Jon B. Wolfsthal, Arms Control Today, 4/93, p. 24* ***(3195)***.

ARGENTINA WITH ITALY

4/20/93

An Argentinean magistrate in Buenos Aires asks his Italian counterparts in Rome to assist in the investigation of the relationship between the Italian Foreign Ministry and Italian companies doing business in Argentina, one of which took part in the Condor-2 missile project and benefitted from Iraqi loans made by Banca Nazionale del Lavoro (BNL) Atlanta.

Alan Friedman, Financial Times, 4/21/93, p. 1 ***(2994)***.

ARGENTINA WITH MTCR

3/93

The U.S. State Department confirms that MTCR member nations are assisting Argentina in the disposal of the Condor 2 project's remaining elements.

Nathaniel C. Nash, New York Times, 3/7/93, p. 10 ***(3195)***. *Jon B. Wolfsthal, Arms Control Today, 4/93, p. 24* ***(3195)***.

3/11/93

Argentina is invited to join the MTCR.

Embassy of Argentine Republic Press Communique, 4/21/93 ***(2935)***. *MTCR Closing Press Release, 3/11/93* ***(2576)***.

ARGENTINA WITH SPAIN

9/92

Spanish technicians reportedly visit the Condor 2 missile trials and construction installation at Falda del Carmen, Argentina in order to acquire technology for the Spanish space program. The visit includes a tour of workshops and discussions about fuel, ballistic trials, metallurgy, electronics/control, composite materials and navigation/guidance systems. Spain is interested in using Condor's solid fuel and steerable nozzle system in its Capricornio launcher development program.

International Defense Review, 11/92, p. 1062 ***(3386)***.

12/92

Meetings are held at the Argentine Foreign Ministry between the U.S. and Spanish Ambassadors and the Argentine foreign and defense ministers to negotiate an agreement on the shipment of recyclable parts from the Condor-2 missile to Spain for peaceful purposes such as satellite launches with the Spanish Institute for Aerospace Technology.

J. Olomo y Losada, ABC (Madrid), 1/7/93, p. 24; in JPRS-TND-93-002, 1/15/93, p. 13 ***(2932)***.

2/8/93

Fourteen engines and 30 fuselages from the Condor-2 are scheduled to be shipped to Spain from Puerto Belgrado, Argentina, at Argentine expense aboard the Bahia San Blas transport ship to an undisclosed port, possibly the Rota air and naval base. The missile parts were transported from Cordoba, Argentina, at a slow rate of travel to assure that no frictional movement or violent shocks would cause overheating in the engines' sealant, in a secret operation under the command of Brigadier General Sciola.

J. Olomo y Losada, ABC (Madrid), 1/7/93, p. 24; in JPRS-TND-93-002, 1/15/93, p. 13 ***(2932)***.

3/4/93

Argentinean Defense Minister Erman Gonzales claims that the Condor-2 missile parts sent to Spain were shipped to analyze "whether they can be used for peaceful pur-

poses," but could not confirm that any of the parts had been re-shipped to the U.S. Gonzales says that the entire shipment was "duly controlled by Spanish experts" present at the time of loading.
Telam (Buenos Aires), 3/4/93; in JPRS-TND-93-008, 3/2/93, P. 19 ***(2967)***.

Early 1993

Reports surface that Condor's guidance system was sent to Spain's National Institute of Aerospace Technology in 1991.
United Press International, 4/1/93; in Executive News Service 4/2/93 ***(2881)***.

Argentina with Syria

11/92

Syria and Argentina sign a secret five year scientific agreement whereby state run organizations in both countries will exchange "their respective expertise" in scientific and technical fields; the protocol specifically mentions cooperation in the area of "nuclear energy," but Syria will likely pursue access to Argentina's Condor 2 solid fuel ballistic missile program.
Mednews, 1/11/92, p. 6 ***(2905)***.

Argentina with United States

2/13/93

The U.S. signs a memorandum of understanding that will allow Argentina to purchase U.S. advanced computer equipment, nuclear technology, and aeronautical guidance systems. Argentina in turn agrees to a series of export controls over technology that it has bought from the U.S. or developed indigenously. The event marks the first time that the U.S. has influenced a Latin American country to agree to limit its exports of nuclear, missile, chemical and biological warfare technology.
Nathaniel C. Nash, New York Times, 2/13/93, p. 4 ***(2879)***. *Embassy of Argentine Republic Press Communique, 4/21/93* ***(2935)***.

3/1/93

During a closed door meeting with Argentinean Air Force Chief Jose Julia, U.S. Ambassador to Argentina Terrence Todman inquires about the "missing parts" to the Condor-2 missiles. In compliance with an earlier agreement, Argentina sent Condor 2 missile components to the U.S. via Spain. Todman notes that the U.S. received all of the components with the exception of the "intelligent warhead" which was never sent to Spain. The ambassador also outlines the possibilities for the destruction of the Falda de Carmen facility, where sufficient infrastructure is still present to renew the Condor-2 project. Jose Julia claims that the project is now the sole responsibility of the National Space Activities Commission and that the Condor-2 never had a computerized guidance system. However, there are reports that the Condor's guidance system was sent to Spain's National Institute of Aerospace technology in 1991.
La Prensa (Buenos Aires), 3/6/93, p. 4; in JPRS-TND-93-008, 3/22/93, pp. 19-20 ***(2880)***. *United Press International, 4/1/93; in Executive News Service 4/2/93* ***(2881)***.

ARMENIA

Internal Developments

12/92

The Armenian President's advisor on security Eduard Simonyants refutes the claim that Armenia would use retaliatory weapons, calling it an annoying misunderstanding and political provocation, and states, "Armenia does not plan to manufacture or use nuclear weapons."
Interfax (Moscow), 12/4/92; in JPRS-TND-92-047, 12/18/92, p. 28 ***(2988)***.

Armenia with Azerbaijan

12/92

An Azeri National Security Ministry official states that Armenia is developing a "punishment weapon" by loading radioactive wastes from the Armenian nuclear power station in aircraft bombs and artillery missiles. The U.N. permanent representative of Azerbaijan Gasan Gasanov informs the U.N. Secretary General Butros-Ghali of the weapon's existence and appeals to him to demand an official explanation from Armenia.
Snark (Yerevan), 12/2/92; in JPRS-TND-92-047, 12/18/92, p. 28 ***(3248)***. *Azerinform (Baku), 12/4/92; in JPRS-TND-92-047, 12/18/92, p. 28* ***(3248)***. *Turan (Baku) 12/17/92; in JPRS-TND-92-048, 12/23/92, p. 19* ***(3248)***.

12/92

Azerbaijan fires a new type of rocket from launchers near Mingechaur which explodes in Askeranskiy Rayon; experts conclude, after examination of metallic fragments, that the rocket belongs to the "S-200 unguided missile group" used for air targets. The S-200 is 9.9 m long and 1.5 m wide.
Yerevan Radio (Yerevan), 12/17/92; in FBIS-SOV-92-244, 12/18/92, pp. 79-80 ***(2985)***.

12/7/92

Interior Minister of Azerbaijan Iskender Khamidov declares that he is keeping an eye on what is occurring in Armenia and offers disincentives for the use of military force with the threat of "weapons of revenge," reaffirming that Azerbaijan possesses nuclear weapons and the necessary means for "its transportation" to Armenian territory. Khamidov refuses to clarify what amount and type of weapons Azerbaijan has.
Turan (Baku), 12/7/92; in FBIS-SOV-92-236, 12/8/92, p. 49 ***(2934)***.

2/93

Armenia declares that Azerbaijan has obtained supplies for its 200 km range S-200 Volga (SA-5 'Gammon') air defense missile, which have been modified for use as a ballistic missile against civilian and military targets in Nagorno-Karabakh.
Paul Beaver, Jane's Defence Weekly, 2/6/93, p. 15 ***(3120)***.

AUSTRALIA

Australia with PRC

12/21/92

An accident occurs during China Great Wall's Long March 2E launch of Australia's

Optus B2 satellite from Xichang Launch Facility. The cause of the failure centers around a problem that occurred approximately 45 seconds after the launch, when a small flash appeared around the nose cone of the rocket.
Daniel J. Marcus, Space News, 1/4/93, pp. 4, 20 ***(3236)****. Tim Furniss, Flight International, 2/3/93, p. 20* ***(3237)****.*

12/30/92

Emery Wilson, spokesman for the U.S. firm Hughes Space and Communications Co., announces that ten Hughes personnel will travel to the PRC to investigate a 12/21/92 accident involving the Australian Optus B2 launch aboard China Great Wall's Long March 2E rocket. Hughes is the builder of the Optus B2. Chinese officials believe the rocket was not responsible for the explosion, noting that the launch vehicle performed normally. Aboard the satellite was a solid propellant motor to place the satellite into an elliptical transfer orbit and a motor utilizing four liquid fuel tanks, that would have moved the satellite into a final circular orbit. According to U.S. and European sources, the accident was caused when the Chinese built nose cone shroud covering the satellite shattered when the rocket was reaching supersonic velocity. Telemetry data show that the rocket's second stage booster performed better than expected, possibly resulting from a lighter load because of a loss of components or accidental ignition of fuel. A total of four search teams consisting of Chinese, Hughes and U.S. government personnel will investigate the debris found. Hughes will replace the Optus B2 and deliver it to orbit within 18 months.
Daniel J. Marcus, Space News, 1/4/93, pp. 4, 20 ***(3236)****. Paul Proctor, Aviation Week & Space Technology, 1/11/93, pp. 60, 63* ***(3236)****. Craig Covault, Aviation Week & Space Technology, 1/18/93, p. 28* ***(3236)****.*

3/3/93

Hughes Corporate Vice President Donald Cromer comments that the investigation of the 12/21/93 Optus B2 accident has narrowed the causes to three possibilities: two centering on the satellite and one on the PRC's Long March 2E launcher. Vice President of China Great Wall Industry Chen Shou Che states that they concluded their investigation and had determined that the launcher was not at fault.
Tim Furniss, Flight International, 2/3/93, p. 20 ***(3237)****. Peter B. de Selding, Space News, 3/8/93, pp. 3, 21* ***(3237)****.*

Australia with United States

12/92

The U.S. State Department approves 15 export licenses to sell launch vehicle information to Australia, Italy and Spain. Subsequent reports indicate that the unexpected approval of the licenses "provoked a storm of criticism" from Defense Transportation and Commerce departments. The State Department stood by its original decision in a White House Meeting, where senior administration officials failed to agree on whether to uphold or revoke the licenses. President Bush will make the final decision.The licenses are of concern to Southern Launch Service, a government supported consortium of three Australian companies that want to build a launch vehicle, able to put a 16,000 lbs payload into low Earth orbit. The consortium chose Lockheed Corporation, Calabasas, California as the "technical review authority" for a feasibility study funded by British Aerospace, Australia. British Aerospace, one of the consortium members, is receiving financial support from the Australian government, the South Australian state government and domestic and foreign industry. Lockheed's license request to do the work was approved after a one year delay as was a request by Thiokol Corporation, Ogden, Utah to provide solid rocket motor data.
Andrew Lawler, Space News, 1/11/93, pp. 4, 21 ***(3131)****.*

12/23/92

The U.S. State Department approves 18 licenses to U.S. companies to cooperate with Australian, Italian, Russian and Spanish industry in building and launching rockets.
Andrew Lawler, Space News, 1/11/93, pp. 1, 20 ***(3220)****.*

AZERBAIJAN

Azerbaijan with Armenia

12/92

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Yerevan Radio (Yerevan), 12/17/92; in FBIS-SOV-92-244, 12/18/92, pp. 79-80 ***(2985)****.*

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Turan (Baku), 12/7/92; in FBIS-SOV-92-236, 12/8/92, p. 49 ***(2934)****.*

2/93

Armenia declares that Azerbaijan has obtained supplies for its 200 km range S-200 Volga (SA-5 'Gammon') air defense missile, which has been modified for use as a ballistic missile against civilian and military targets in Nagorno-Karabakh.
Paul Beaver, Jane's Defence Weekly, 2/6/93, p. 15 ***(3120)****.*

BELARUS

Internal Developments

1/6/93

Belarusian Foreign Minister Petr Kravchanko

states, "Nuclear tactical weapons have been completely withdrawn from Belarus. Having become a member of the START I Agreement and the Lisbon Protocol, the Republic has committed itself to withdraw strategic arms within seven years; although, this may happen sooner."
Belinform (Minsk), 1/6/93; in FBIS-SOV-93-006, p. 33 ***(2893)***.

2/4/93

Belarus' parliament ratifies the START I Treaty, the Lisbon Protocol, the NPT, and a Russo-Belarusian agreement on the deployment of Russian strategic assets in Belarus and Belarus Foreign Minister Petr Kravchenko claims that the parliamentary ratification shows Belarus' "balanced and civilized character," and its desire to be a peaceful, neutral and nuclear free state in the center of Europe. The 81 single warhead SS-25 road-mobile ICBMs in Belarus are to be sent to Russia before 1995. The U.S. Clinton administration has promised to reward Belarus for ratifying START I.
Belinform (Minsk), 2/4/93; in FBIS-SOV-93-023, 2/5/93, p. 50 ***(3385)***. *Leonid Tratsevskiy, Itar-Tass (Moscow), 2/4/93; in FBIS-SOV-93-023, 2/5/93, p. 50* ***(3385)***. *Dunbar Lockwood, Arms Control Today, 3/93, pp. 20, 24* ***(3461)***.

3/93

Missile bases near Maloritsa, Brest Oblast are being converted to civilian uses.
Radio Minsk Network, 3/29/93, FBIS-SOV-93-059, 3/30/93, p. 68 ***(3425)***.

Belarus with Multi-Country Group

10-11/92

According to Pentagon sources, details of a U.S. administration officials' proposed three phase plan for protection against limited missile strikes were presented to Russia, Ukraine, and Belarus.

Phase one calls for the U.S. to provide allies with early warning information from Defense Support Program satellites. Phase two calls for technological cooperation between the U.S. and former Soviet states. The second phase will also include sharing of some expertise and critical components. Phase three includes preparation of a multinational, rapid deployment, anti-missile force and a Pentagon proposed Global Protection Center, for detecting and tracking missile launches. It would be built and operated by participating nations and designed along the lines of the U.S.-Canadian early warning center in Cheyenne Mountain, Colorado. After 2000 the force would include planned U.S. space and ground based interceptors. Officials from NATO, Israel, Egypt, Japan, South Korea, and Australia have been briefed about the proposal. Talks continue through 1/93.
George Leopold and Barbara Opall, Defense News, 1/11/93, pp. 1, 28 ***(3044)***.

1/21/93

During a summit meeting, Belarus, Kazakhstan, Russia, and Ukraine again fail to agree on the transfer of all ex-Soviet nuclear weapons to Russia. Russian demands for control over nuclear warheads, ballistic missiles, nuclear weapons on strategic bombers, early warning systems, anti-missiles and anti-aircraft systems were rebuffed by Belarus, Kazakhstan and Ukraine.
Douglas Clarke, RFE/RL Research Report, 1/18/93, p. 5 ***(2898)***. *Interfax (Moscow), 1/22/93; in FBIS-SOV-93-013, p. 12* ***(3290)***. *Andrey Naryshev and Oleg Falichev, Krasnaya Zvezda (Moscow), 1/23/93, p. 1; in FBIS-SOV-93-015, 1/26/93, pp. 12-13* ***(3291)***. *Umit Enginsoy and George Leopold, Defense News, 1/25/93, pp. 3, 27* ***(3254)***. *Mednews, 1/25/93, pp. 5-6.*

Belarus with Russia

11/92

A schedule for the withdrawal of strategic nuclear weapons from Belarusian territory to Russia is drawn up and approved in accordance with a directive by Belarusian Supreme Soviet Chairman Stanislav Shushkevich in which 81 ICBMs will be withdrawn over two years; eight missile brigades will leave Belarus in 1993, and another eight in 1994. Belarus intends to be nuclear free by 12/30/94.
Valeriy Kovalev, Krasnaya Zvezda (Moscow), 11/7/92, p. 2; in JPRS-TND-92-043, 11/18/92, pp. 22-23 ***(2976)***.

12/16/92

The parliament of Belarus calls for the transition to non-nuclear status to be achieved in two years instead of the originally planned seven years. The transition will be considered complete when the 72 strategic missiles stationed on Belarusian territory are transferred to Russia for destruction and all Belarusian servicemen serving in other Soviet republics have returned home. Public opinion in Belarus is in favor of the transition to a non-nuclear status.
Reuter (Kiev), 12/26/92; in Executive News Service, 12/17/92 ***(2977)***.

1/93

According to Russian Federation Minister of Defense, Pavel Grachev, Belarus has ratified all agreements on nuclear weapons and all that remains is to schedule their removal from Belarusian territory and destruction.
Andrey Naryshev and Oleg Falichev, Krasnaya Zvezda (Moscow), 1/23/93, p. 1; in FBIS-SOV-93-015, 1/26/93, pp. 12-13 ***(3291)***.

BOSNIA

Internal Developments

3/93

Bosnian-Serb forces use Soviet-made Frog-7 battlefield rockets in their bombardments.
Zoran Kusovac, Jane's Defense Weekly, 1/16/93, p. 18 ***(3200)***.

BRAZIL

Internal Developments

10/92

Since 10/92, Brazil's Alcantara launching base has experienced budgetary and other difficulties. According to base director Lieutenant Colonel Deucir Lima, "We have received only money for maintenance." A move is underway to privatize the facility.
James Brooke,New York Times,8/2/93, p. A6 ***(2963)***.

BRAZIL-CZECH REPUBLIC

2/93

Brazilian Ministry of Aeronautics spokesman Air Brigadier Ajax Barros de Melo says that more than 100 Brazilian companies are assisting in the construction of the 42 ton, 4 stage Satellite Launch Vehicle (VLS), capable of launching a 440 lb payload into a 435-mile orbit. Melo claims that the program still needs a reliable rocket guidance system. The Ministry of Aeronautics is heading the development of the VLS and its launch base in Alcantara, Brazil.

Leonard David, Space News, 2/15/93, p. 6 ***(2971)***.

3/93

The former director of the Brazilian Aerospace Technical Center (CTA) Brigadier Hugo Piva comments on Brazil's Satellite Launch Vehicle (VLS) program stating that the project "was not for the sole purpose of developing a ballistic missile," and maintains that "We [Brazil] developed everything--propellants, special materials, space technology, calculus methods--from scratch." Piva also insists that no technology was transferred to Iraq or Libya.

Veja (Sao Paulo), 3/10/93, pp. 7, 9; in JPRS-TND-93-008, 3/22/93, pp. 20-23 ***(2991)***.

4/2/93

Brazil launches the VS-40 rocket from its Alcantara air base in a successful step in the developmental program of the Satellite Launch Vehicle (VLS), a 19 m high, 50 ton, four stage, solid propellant rocket, which uses strap on boosters. The VS-40 comprises the third and fourth stages of the VLS; the third stage, the S40TM, having a thrust of 191 kN, a burn time of 58 seconds, a length of 5.4 m, and weighing 5,700 kg and the fourth stage, the S44, having a thrust of 30.8 kN, a burn time of 73 seconds, a length of 1.8 m, and weighing 990 kg. The VS-40 travelled for 24 minutes to an altitude of 1268 km, landing 1,920 km away from its launch point. The first and second stages of the rocket consist of five S43 motors based on the Sonda 4 rocket.

Flight International, 4/14/93, p. 16 ***(2990)***.

6/93

Roughly 200 Brazilian companies have formed the Aerospace Industries Association of Brazil (AIAB). Leading officials from Composite Technologia, Avibras, Electronica Professional and Embraer took the initiative to create AIAB with the goal of promoting their products and of coordinating joint participation in international and national trade shows. The AIAB board of directors elected the chairman and CEO of Tecnasa, Luiz Moreira, as the first president.

Michael A. Dornheim, Aviation Week & Space Technology, 7/21/93, p. 13 ***(2970)***.

Brazil with Russia

10/92

Brazil's largest financial investment government corporation (FINEP) requests to buy Russian solid fuel rocket motors and meets with Russian enterprises interested in rocket motor technical cooperation or the establishment of joint firms.

Anastasiya Romashkevich, Kommersant-Daily (Moscow), 4/14/93, p. 10; in JPRS-TND-93-012, 5/4/93, p. 10 ***(3183)***.

4/12/93

Sergey Glazyev, Russian Foreign Economic Relations Minister, begins a trip to Brazil, Paraguay and possibly Uruguay during which he will sign an agreement on trade and economic cooperation with Brazil, which, according to experts in the Russian Foreign Economic Relations Ministry, could include missile technology, telecommunications and aircraft building contracts. Glazyev is part of a 22 member Russian delegation which will meet with ministers from the Brazilian foreign office, science and technology, industry and commerce and the armed forces chief of staff, and will sign an aerospace agreement. Another goal of the trip is to conclude contracts for the sale of dual use space technology and items produced by the Russian military industrial complex. The Russian delegation will also try to establish stricter controls over these exports. Since 10/92, Brazil has been negotiating with Russia for the purchase of missile manufacturing technology. Brazil is reportedly interested in cooperating with Russia on space technology development, specifically on inertia control of missile carriers.

A. Dory, Voz do Brasil (Brasilia), 3/15/93; in Nuclear Nonproliferation Network News, 5/25/93 ***(2939)***. *Interfax (Moscow), 4/12/93; in FBIS-SOV-93-069, 4/13/93, p. 14* ***(3147)***. *Anastasiya Romashkevich, Kommersant-Daily (Moscow), 4/14/93, p. 10; in JPRS-TND-93-012, 5/4/93, p. 10* ***(3183)***.

CUBA

Internal Developments

6/93

Jane's Intelligence Review estimates Cuba's missile capability as consisting of numerous multiple rocket launchers, an unspecified number of Frog-5 rocket launchers and SSC-2A surface-to-surface missiles. Jane's also states that there is an anti-aircraft missile brigade to defend Havana, which would be comprised of 36 batteries with SA-3, SA-6, SA-7, SA-9 and SA-13 missiles.

Adrian J. English, Jane's Intelligence Review, 6/93, p. 278 ***(2968)***.

CZECH REPUBLIC

Internal Developments

12/31/92

The Czech and Slovak Federal Republic disolve their union and form two seperate nations; they restructure and divide their armed forces and defense equipment including 150 Frog-7 launchers, 477 anti-tank missile launchers, and 14 battlefield ballistic missile launchers.

Paul Beaver, Jane's Defence Weekly, 1/30/93, p. 9 ***(2942)***.

4/93

It is reported that the Czech Republic has one surface-to-surface missile regiment in its army.

Jane's Defence Weekly, 4/24/93, p. 15 ***(3186)***.

COCOM

INTERNAL DEVELOPMENTS

11/23-24/93

COCOM holds a meeting with ex-Soviet bloc countries at which new guidelines for high technology exports with potential military applications to former Warsaw Pact countries are announced. The new COCOM guidelines will allow export liberalization for microprocessors, computers and other electronic equipment, high-tech machine tools, telecommunications optical sensors, navigation and avionics and propulsion equipment. The new COCOM guidelines also include provisions for end-use assurances on demand, on-site inspections, and establishment of a documentation system to track and verify exports and imports. Chairman of the U.S. delegation to COCOM Al Larson says the U.S. offered $11 million to finance technical assistance and training to nations wishing to develop export control procedures. The delegations invited to the COCOM meeting are from the former Soviet Union, Sweden, Switzerland, Singapore, Austria, Finland, Ireland, South Korea, the Baltic States and all the nations of the Eastern Europe except Romania and Bulgaria.

Mednews, 11/23/92, p. 4 ***(3042)***. *Jane's Defence Weekly, 12/5/92, p. 9* ***(3042)***.

COCOM WITH RUSSIA

11/92

At COCOM's Cooperation Forum in Paris, Russian Deputy Foreign Minister Grigoriy Berdennikov announces Russia's newly created internal export control agency, which "...is aimed at preventing the proliferation of weapons of mass destruction and delivery systems [and] we intend to act in such a way that Russia is in no case a source of their proliferation." Berdennikov noted that the U.S. and European states recognize "a need to reform the present system," but that "...there are some restrictions that cannot be eliminated because of the requirements of the nonproliferation of nuclear weapons, missiles, and missile technology."

Izvestia (Moscow), 11/26/92, p. 5; in JPRS-TND-92-046, 12/11/92, p. 22 ***(3324)***.

COMMONWEALTH OF INDEPENDENT STATES

INTERNAL DEVELOPMENTS

1/20/93

Commander in chief of the Joint Armed Forces Marshal of Aviation Yevgeniy Shaposhnikov states in an interview, "The main purpose of the CIS defense ministers' meeting this time [1/21/93 in Minsk] is to finally determine their position on the Strategic Nuclear Forces."

Vadim Solovyev, Nezavisimaya Gazeta (Moscow), 1/21/93, p. 2; in JPRS-TND-93-003, pp. 16-18 ***(2978)***.

CIS WITH IRAN

1992

According to the German weekly Focus, CIS countries supplied an atom bomb which can be dropped from an airplane and a "launcher for missiles with nuclear warheads" to Iran sometime during 1992.

Rossiyskaya Gazeta (Moscow), 1/27/93, p. 7; in FBIS-SOV-93-017, 1/28/93, p. 6 ***(2892)***.

CROATIA

CROATIA WITH SERBIA

12/28/93

The Serbian I Krajina Corps command denies reports that it has used Scud SSMs in the battles for Gradacac, and says that reports repeatedly broadcast by Croatian Radio are another attempt to deceive the world public. They note that the Serb and Muslim forces are so close together on the Gradacac battlefront that there is no need to use long range Scud missiles.

Tanjug (Belgrade), 12/28/92; in JPRS-TND-93-001, 1/7/93, p. 10 ***(3191)***.

EGYPT

EGYPT WITH NORTH KOREA

2/93

Central Intelligence Director R. James Woolsey tells the Senate Government Affairs Committee that North Korea is using Egyptian technology to upgrade Scud missiles, but a lack of specialists has forced North Korea to search for skilled scientists overseas in order "to convert missile manufacturing into a competitive export sector."

David Fulghum, Aviation Week & Space Technology, 3/1/93, p. 25 ***(3222)***.

EGYPT WITH RUSSIA

1/93

U.S. intelligence sources confirm that Egypt, despite categorical denials by an Egyptian spokesman, has hired Russian scientists to work at a factory in Al-Maza near Cairo where they will help Egypt to upgrade its long range missile capabilities to the point where, by 1995, the Egyptians will be able to manufacture missiles able of striking targets 300 miles away.

Charles Fenyvesi, ed., U.S. News & World Report, 1/11/93, p. 14 ***(2888)***.

1/28/93

Director of the Foreign Intelligence Service of the Russian Federation Yevgeniy Primakov announces that U.S. reports on Russian scientists modernizing Egyptian missiles is not confirmed.

Interfax (Moscow), 1/28/93; in JPRS-TND-93-004, 2/5/93, p. 33 ***(3464)***.

EGYPT WITH UNITED STATES

2/93

Egyptian Assistant Minister of Defense Major General Hosni Suleiman states in an interview that Egypt has contracted with the United States for Harpoon missiles in an effort to strenghthen the Egyptian Navy.
Defense News, 2/15/93, p. 46 ***(2907)***.

EUROPEAN COMMUNITY

INTERNAL DEVELOPMENTS

12/21/92

EC representatives express their desire to implement new restrictions on the transfer of dual-use technologies at a 12/21/92 meeting. The new EC export control regulations are to be adopted 3/31/93.
Arms Control Reporter, 3/93, pp. 250.B.5-250.B.6 ***(2984)***.

FINLAND

INTERNAL DEVELOPMENTS

1/26/93

A press release from the Finnish government lists the various recommendations made in a task force report on improving Finnish export control legislation and administration. Among these recommendations is the establishment of an Export Control Unit in the Ministry of Trade and Industry to license exports relating to the COCOM regime, the MTCR, and the Australian Group.
Government of Finland, Press Release, 1/26/93, pp. 1-4 ***(3397)***.

FRANCE

INTERNAL DEVELOPMENTS

2/93

Aerospace industries say that the Exocet 3, faster and stealthier than the Exocet, may be ready for export within three to five years. In a U.S. Defense Department report, officials indicate that 121 states possess the French-designed Exocet missile, the same missile that was used in the Falklands war.
Aviation Week & Space Technology, 2/1/93, pp. 26-72 ***(3258)***.

2/93

Aerospatiale of France is designing a second long range missile called the ASMP-C (a temporary designation). It is a liquid fuel, ramjet propelled, supersonic, conventional warhead missile with a range of 400 km derived from the medium range nuclear ASMP missile. The missile is equipped with an IR seeker, similar to that of the Trigat anti-tank weapon, which enables it to pick out selected targets within several meters. Its warhead may be a derivative of the AS30L laser guided weapon design, developed to penetrate concrete at supersonic speeds. Aerospatiale predicts the missile will be developed in three years by a joint venture with either Matra or Thomson CSF. Matra is currently working on the Apache B, or "Super Apache," cruise missile, which is derived from the Apache anti-ship missile and is a saturation weapon similar to the U.S. Tomahawk. The Apache project could complement the ASMP-C, but conflict may arise with Aerospatiale as that company is already a subcontractor on Apache.
Interavia/Aerospace World, 2/93, p. 46 ***(3317)***.

FRANCE WITH GREECE

1/25/93

Spokesman for Greek Cyprus Andreas Mavrommatis denies allegations that Greek Cyprus has purchased French missiles worth $100 million with the intent of attacking the southern Turkish coastline. A Turkish daily had claimed that the newly purchased French missiles would be able to reach southern Turkish cities, including the port of Mersina, should Cyprus need to disrupt the link between Turkey and the occupied areas.
Cyprus News Agency (Nicosia), 1/25/93; in JPRS-TND-93-004, 2/5/93, P. 18 ***(3105)***.

FRANCE WITH INDONESIA

2/12/93

Indonesian Minister of State for Research and Technology B.J. Habibie, responding to a French offer, including an Ariane Space Rocket to launch the Palapa B-2 Satellite and space cooperation with Indonesia, indicates that costs, time, and risks make the offer attractive, but that the government must study the matter first. France also suggests cooperation between France's Ariane Space and Indonesia's Board of Technical Research and Application, to launch a small rocket produced by the National Aviation and Space Institution (Lapan) free of charge.
Radio Republik Indonesia Network (Jakarta), 2/13/93 ***(3024)****; in JPRS-TND-93-006, 3/5/93* ***(3024)***.

FRANCE WITH OMAN

1/93

Thomson-CSF of France is to export its Crotale NG air defense system to Oman.
Jane's Defence Weekly, 2/13/93, pp. 43-44 ***(3138)***.

FRANCE WITH RUSSIA

11/17/92

The Russian Central Institute of Aviation Motors and France's ONERA successfully flight test a hydrogen fuelled axisymmetric scramjet from atop a surface-to-air missile in Kazakhstan, reaching a peak altitude of 82,020 ft, transitioning from subsonic to supersonic combustion between Mach 5 and Mach 5.5. The scramjet is manufactured by Soyuz Design Bureau with an inlet di-

ameter of 8.9 inches and a total length of 47.2 inches. This test is similar to a Russian test in 1991, but the current test involved an improved engine and rocket control that extended the supersonic combustion burning period to 15 seconds from 5 seconds.
Aviation Week & Space Technology, 12/7/92, p. 19 ***(2959)***.

12/7/92

France's Societe Europeen de Propulsion (SEP) signs 31 contracts worth $10 million dollars with Russian space companies concerning liquid-fueled rocket propulsion and composite materials. SEP also signs contracts with Russia on hypersonic technology in a joint civil-military program concerning reusable space planes and will work with Moscow Aviation under a general cooperation accord. In addition SEP and Energomash conclude a contract for joint studies on hardware purchases.
Space News, 12/7/92, p. 15 ***(3029)***.

France with Saudi Arabia

1/93

France's defense industry awaits finalization of a sale of three air defense frigates to Saudi Arabia. France is hoping to maintain a considerable share in a Middle Eastern arms market that, since the Gulf War, has become increasingly dominated by the U.S.
Jane's Defence Weekly, 2/13/93, pp. 43-44 ***(3138)***.

France with Syria

11/92

Syria's Scientific Research Council (CERS) sends a delegation to France and Germany to purchase dual-use technology including electronic goods and "connectors," which can be used in ballistic missile separation.
Mednews, 12/7/92, p. 5 ***(3444)***.

France with Ukraine

2/5/93

A delegation headed by Valeri Shmarnov, the first deputy director general of the Ukrainian Space Agency, and including officials from NPO Yushoye, Ukraine's largest space organization and the manufacturer of the Zenit launcher, visit Matra Marconi's French and British space centers where they sign a wide ranging agreement to cooperate on satellite communications programs for Ukraine. Matra Marconi will supply the payload and ground station technology and Ukraine will provide the launch vehicle and parts of the aircraft.
Space News, 2/22/93, p. 13 ***(3165)***.

GERMANY

Internal Developments

12/15/92

German Defense Minister Volker Ruehe announces the cancellation of several development programs including a battery operations center for Hawk and Patriot missiles, and terminally guided munitions for the Multiple Launch Rocket System; the cuts do not affect the Taktische Luftverteidigungssystem (TLVS) air defense missile. The cuts come as part of Bundeswehrplan 94, a long range plan to adapt to the new strategic environment. The plan allows for a crisis reaction force including 12 batteries of Hawk and Patriot medium range ABMs and one battery of Roland short range ABMs. A new German tactical air defense system, probably from the French SAMP/T family, will replace the Hawk missile; the Luftwaffe is to acquire 36 launchers and 2000 missiles by the year 2000. The Luftwaffe will also have 3 Patriot squadrons and 2 Hawk squadrons as well as reconnaissance elements. Manufacture of the CL-289 and Brevel reconnaissance drone is to be discontinued after delivery of the first production batch.
Giovanni de Briganti, Defense News, 12/21/93, pp. 3, 21 ***(3114)***. *Heinz Schulte, Jane's Defence Weekly, 1/2/93, p. 4* ***(3114)***. *Heinz Schulte, Jane's Defence Weekly, 1/9/93, p. 6* ***(3114)***.

1/29/93

Paul Muenstermann, Vice President of the German Federal Intelligence Service (BND), gives a lecture in which he expresses concern that the 10 Third World countries which the BND identifies as possessing weapons of mass destruction might also have the means to deliver them, saying, "This means that as soon as tomorrow the security of our country and of Europe may be immediately threatened." He also confirms that one of the areas that the BND will now focus on is the illegal transfer of technology.
Sueddeutsche Zeitung (Munich), 1/30/93, p. 1; in JPRS-TND-93-005, 2/12/93, p. 30 ***(3106)***.

1/29/93

Germany's Leybold AG spokesman Dr. Heidsieck states that Leybold AG has stiffened its policy for supplying dual-use materials saying, "According to our new guidelines, we absolutely do not export when we know, or have grounds for knowing, that our products will be misused by the consumer or end user for the development and production of nuclear weapons or their delivery systems."
Juergen Salz, VDI Nachrichten (Duesseldorf), 1/29/93, p. 5; in JPRS-TND-93-010, 4/16/93, p. 57 ***(3395)***.

Germany with Argentina

4/19/93

Argentina is taken off the German "H" list of sensitive export control, a category it once fell into because of its failure to ratify the Treaty of Tlatelolco, its lack of a government agency instituting sensitive export control and its development of missile projects. The new status recognizes Argentina's nuclear, chemical and missile nonproliferation policy.
Embassy of Argentine Republic Press Communique, 4/21/93 ***(2935)***.

Germany with Iran

12/92

According to U.S., French and German officials, Germany has become Iran's most important trading partner, particularly in ad-

vanced technology; companies that formerly exported sensitive technologies to Iraq have simply shifted supply to Iran. German Economics Ministry figures predict that for 1992 Germany's high technology exports to Iran will double from 1991's $1.8 billion.
Mednews, 12/21/92, p. 1 ***(3107)***.

1992

Germany adopts a new export control law requiring companies to seek licenses for equipment if they "have reason to believe" it will be used for Iranian military endeavors. The "catch-all" clause applies to all equipment regardless of technological level, and is strongly opposed by German companies.
Mednews*, 12/21/92, p. 1* ***(3107)***.

3/93

Germany's air force unveils its reorganization plan, which will include four air divisions to become both offensive and defensive wings, by equipping them with Patriot and Hawk surface-to-air missiles, fighter bombers, and air-defense aircraft. The air force intends to implement the plan by 1995.
Flight International, 4/28/93, p. 13 ***(3039)***.

GERMANY WITH IRAQ

3/93

The State Prosecutor's office in Muenster, Germany, brings charges against Dietrich Hinze and Peter M. Huetten, former business managers of the now defunct H & H Metalform GmbH, for violating foreign export laws by supplying Iraq from 1988 to 1990 with 27,436 individual parts for Scud-B missiles and a "range of machinery for the production of artillery rockets," all valued at 46 million German marks.
DPA (Hamburg), 3/24/93; in FBIS-WEU-93-055, 3/24/93, p. 14 ***(2919)***.

GERMANY WITH ISRAEL

10/92

Within the next five months, Germany will supply Israel with a battery of upgraded Patriot missiles. Originally, Germany planned to give Israel a Patriot PAC-1 battery from its own arsenal, but following the discovery of the first generation Patriot's inability to intercept surface-to-surface missiles, Germany agreed to finance the delivery of an upgraded Patriot battery.
Yedi'ot Aharonot (Tel Aviv), 10/6/92, p. 8; in JPRS-TND-92-037, 10/9/92, p. 13 ***(2846)***.

GERMANY WITH NORTH KOREA

3/93

German Federal Intelligence Service (BND) reports that North Korea commissioned three international shipping companies to transport special metals acquired on Berlin's grey market for the production of missile launch pads.
Focus (Munich), 3/22/93, p. 15; in FBIS-WEU-93-053, 3/22/93, p. 6 ***(3016)***.

GERMANY WITH RUSSIA

8/92

Germany and Russia begin joint testing to develop hypersonic technology in the fields of scramjet air-breathing engines, aerothermodynamics, and materials in order to prove its technological viability. The joint program is part of the hypersonic technology program started by the German Ministry of Research Technology, involving DASA subsidiary MTU in Munich and TSAGI Aerodynamic Research Institute in Shukovskiy.
BMFT Hypersonicc Technology Project Support Team, IAG-Bmbh Dept. TRT; in JPRS-EST-93-011, 3/12/93, pp. 6-7 ***(3342)***. *Flug Revue (Stuttgart), 1/93, p. 77; in JPRS-EST-93-009, 2/24/93, P. 1* ***(3342)***.

11/92

Kayser-Threde of Munich signs contracts for the launch of two German-built microsatellites on Russian Cyclone rockets in 1993.
Space News, 11/23/92, p. 12 ***(2870)***.

GERMANY WITH SYRIA

11/92

Syria's Scientific Research Council (CERS) sends a delegation to France and Germany to purchase dual-use technology including electronic goods and "connectors," which can be used in ballistic missile separation.
Mednews, 12/7/92, p. 5 ***(3444)***.

11/92

The German government decides to stop further sales of dual-use technology to the Syrian Scientific Research Center (CERS), which has been identified as the chief organizer of the Syrian chemical and biological weapons program and as a major procurer for its nuclear and ballistic missile programs. Syrian sources claim that Germany sent letters to all major German research centers cautioning them against such sales, and Syria protests the decision calling it "political hypocrisy."
Mednews, 1/11/93, p. 4 ***(3108)***.

12/14/92

Italian and German officials in Augusta, Sicily detain and search the Estonian ship Waalhaven for Scud missile components allegedly enroute to Syria and North Korea. Although the ship left Hamburg, where the cargo was loaded two days earlier (12/12/92), enroute for Lebanon, the ultimate destinations of the alleged Scud technology are believed to be Syria and North Korea. (Syria's Scud-C manufacturing program has been launched in cooperation with North Korea.) Germany alerted Italian officials, the Estonian owners, and the Dutch firm leasing the ship, that Germany had received reports that the cargo was suspect. The Estoninan owners and the Dutch firm direcrted the ship's captain to anchor in Augusta for inspection. The parts in question, including German machine tools, could extend the range of Scud missiles. According to German spokesman Norbert Schaefer on 12/30/92, "The German government has intelligence information about procurement efforts for the Syrian missile program in Western countries," and that illegal exports could be among the cargo from several Western European countries. The

vessel is allowed to proceed to Beirut after 27 containers are off-loaded in Augusta.
Washington Times, 12/25/92, p. A2 ***(3443)***. *Reuter, 12/30/92; in Executive News Service, 12/20/92* ***(3443)***. *ADN (Berlin), 1/16/93; in JPRS-TND-93-003, 1/27/93, pp. 27-28* ***(3357)***. *BNS (Tallinn), 1/22/93; in JPRS-TND-93-004, 2/5/93, P. 42* ***(2895)***.

1/93

The Estonian Foreign Ministry releases a statement citing the Syracuse County (Italy) court, which ruled that the Estonian freighter Waalhaven was carrying only non-military industrial equipment. Earlier reports indicated that the Waalhaven cargo was suspected of including Scud missile components such as German machine tools.
ETA News Release (Tallinn), 1/13/93; in FBIS-SOV-93-010, 1/15/93, pp. 70-71 ***(3387)***.

GERMANY WITH TAIWAN

1/28/93

The German government approves the sale to Taiwan of Patriot and Ram (rolling airframe missile) systems/components, which is used exclusively for defensive purposes and manufactured under a U.S./German joint venture with the German group DASA. The German companies Diehl, Bodenseewerk Geraetetechnik and Telefunken Systemtechnik. The group operates in the U.S. and supplies propulsion and guidance technology to the U.S. for Patriot missiles.
DDP (Berlin), 2/13/93; in JPRS-TND-93-008, 3/22/93, p. 53 ***(3492)***. *DPA (Hamburg), 2/13/93; in JPRS-TND-93-008, 3/22/93, p. 53* ***(3492)***. *Reuter (Bonn), 2/13/93; in Executive News Service, 2/15/93* ***(3492)***.

GERMANY WITH TURKEY

12/14/92

Turkey and Blohm & Voss and Thyssen Rheinmetall of Germany sign a $510 million contract for two Barbaros class (TRACK IIA) modified Meko 200 frigates armed with NATO Sea Sparrow and Harpoon missiles.
Jane's Defence Weekly, 1/9/93, p. 11 ***(3452)***.

GREECE

GREECE WITH FRANCE

1/25/93

Spokesman for Greek Cyprus, Andreas Mavrommatis, denies allegations that Greek Cyprus has purchased French missiles worth $100 million with the intent of attacking the southern Turkish coastline. A Turkish daily had claimed that the newly purchased French missiles would be able to reach southern Turkish cities, including the port of Mersina, should Cyprus need to disrupt the link between Turkey and the occupied areas.
Cyprus News Agency (Nicosia), 1/25/93; in JPRS-TND-93-004, 2/5/93, P. 18 ***(3105)***.

GREECE WITH UNITED STATES

2/93

U.S. officials are still negotiating the sale of nine Multiple Launch Rocket Systems (MLRS) to Greece. Saudi Arabia originally ordered the U.S. MLRS, but declined to buy them noting that it could not afford the purchase.
Jane's Defense Weekly, 2/13/93, pp. 35-36 ***(3038)***.

HONG KONG

HONG KONG WITH PRC

3/93

Hong Kong's Asia Satellite Telecommunications Co. contracts PRC's Great Wall Industry Corporation to launch the AsiaSat 2 satellite using a Long March 2E rocket in the first quarter of 1995 from the launch site in Xichang, China at a cost of $54 million.
Space News, 3/15/93, p. 16 ***(3189)***.

INDIA

INTERNAL DEVELOPMENTS

9/16-21/92

Indian Scientists from the Defence Research and Development Organization (DRDO) conduct a successful test of the indigenous pilotless target aircraft (PTA), the "Lakshya," at the interim test range near Chandipur, Orissa.
Hindu (Madras); in Asian Recorder, 10/28/92, p. 22676 ***(3411)***.

10/92

India's air force is establishing the organizational structures required to support the Prithvi missile system. The integration of the MRBM will require increased commitments in the areas of maintenance, logistical, and tactical combat support.
Indian Express (Delhi), 10/7/92, pp. 1, 10; in JPRS-TND-92-039, p. 9 ***(2852)***.

10/92

Instrumentation Limited, an Indian firm, develops eight defense item prototypes including a slow relay valve for the Agni, Trishul and Akash missiles. The firm's director says that they received domestic orders for these items worth about 2.5 crore rupees (about $750 million), and secured orders from CIS and Gulf countries for nuclear and industrial projects.
All India Radio Network (Delhi), 10/04/92; in JPRS-TND-92-037, 10/09/92, p. 10 ***(3090)***.

10/18/92

The flight version of the liquid propulsion second stage of the Polar Satellite Launch Vehicle (PSLV) undergoes a successful ground test in Mahendragiri, near Kanniyakumari.
All India Radio Network (Delhi), 10/30/92; in JPRS-TND-92-040, p. 13 ***(3102)***.

12/92

India's Space Research Organization's (ISRO) Liquid Propulsion System Center (LPSC) completes two liquid engine stages required for the PSLV. ISRO receives a second stage

engine, developed by Machine Tools and Reconditioners of Hyderabad LPSC. A PSLV fourth stage engine is also delivered to the PSLV project team located in Valiamala (near Thiruvananthanpuram) after it was tested at the Mahendragiri liquid engine test facility in Tamil Nadu. Another second stage engine constructed by Godrej and Boyce is expected to be delivered soon.

Hindu (Madras), 12/20/92, p 17; JPRS-TND-93-006 3/5/93, pp. 11-12 ***(3431)***. *Hindu (Madras), 12/22/92, p. 4; in JPRS-TND-92-006, 3/5/93, p. 12* ***(3346)***.

12/92

India's Defence Research and Development Organisation (DRDO) conducts successful flight tests of the Lakshya airborne target at the Chandipur range.

Flight International, 12/9/92, p. 18 ***(2943)***.

12/92

The Indian government establishes Antrix, a space equipment sales and export firm in Bangalore, modeled after French space companies and formed to carry out the expansion, commercialization, and privatization of the Indian space program.

Vivek Raghuvanshi, Space News, 12/14/92, p. 25 ***(3315)***.

12/18/92

India test-fires the third stage of the Polar Satellite Launch Vehicle (PSLV) in flight configuration with flex nozzle control. This was the ninth and final in a series of tests conducted at Sriharikota. The propulsion stages of the PSLV have been completely qualified by the success of these tests.

Hindu (Madras), 12/22/92, p. 4; in JPRS-TND-92-006, 3/5/93, p. 12 ***(3346)***.

Early 1993

India tests the Vikram Sarabhai ABR-200 engine, an air-breathing, ramjet engine with possible military applications. The rocket reached Mach 2.3 in a test involving the firing of two sub-orbital sounding-rockets from Sriharikota. The ABR-200 is based on the principle of the ejector ramjet.

Brahma Chellaney, UPI, 1/26/93 ***(3367)***. *Flight International, 2/3/93, p. 6* ***(3092)***.

2/7/93

The tenth test launch of the Prithvi surface-to-surface missile is successfully carried out from a mobile launcher. The latest launch shows that Prithvi is capable of a 250 km range with a 500 kg payload, which makes Prithvi an invaluable battlefield support weapon in its designed use of destroying enemy command centers and tank formations. Two versions of the Prithvi are under development.

Brahma Chellaney, UPI, 2/7/93 ***(3494)***. *Dianamani (Madras), 2/9/93, p. 6; in JPRS-TND-93-011, 4/23/93, p. 13* ***(3409)***. *Dianamani (Madras), 2/9/93, p. 6; in JPRS-NEA-93-036, 3/11/93, p. 44* ***(2999)***. *Asia-Pacific Defence Reporter, 4/93, pp. 23-24* ***(3101)***.

2/19/93

An explosion at India's Armament Research and Development Establishment (ARDE) facility at Pune raises questions about safety standards. The explosion is the newest in a series that has killed or wounded personnel over the years at both ARDE and the Explosives Research and Development Laboratory. The lab authorities are being held responsible for breaching safety regulations in favor of speedy development of new arms. Both laboratories are conducting work on cluster bombs, incendiary bombs and fuel air explosives.

United Press International; in Executive News Service, 2/19/93 ***(3179)***.

2/93

An Indian Defence Ministry proposal includes an investment of two billion rupees to set up large production facilities for the Prithvi missile at Hyderabad factory. Along with the Prithvi, the production of another quick reaction missile, Trishul, will also begin. Prithvi is now under production in the public sector by Bharat Dynamics LTD.

Brahma Chellaney, UPI, 2/7/93 ***(3494)***. *All India Radio General Overseas Service (Delhi), 2/9/93; in JPRS-TND-93-006, 3/5/93, p. 12* ***(3433)***. *Gian Singh, All India Radio General Overseas (Delhi), 2/9/93; in JPRS-TND-93-006, 3/5/93, pp. 12-13* ***(3494)***.

2/93

Central Intelligence Director R. James Woolsey tells the Senate Government Affairs Committee that India is conducting "experimental design work" on air-launched cruise missiles.

David Fulghum, Aviation Week & Space Technology, 3/1/93, p. 25 ***(3222)***.

2/27/93

The new Indian budget, which includes an increase in spending on the space program from Rs 3.68 billion [$141 million] to Rs 5.7 billion [$219 million], is announced. Much of the increase is for India's communications satellite and launching services, which have been under U.S. sanctions since India purchased rocket technology from Russia.

Reuter (New Delhi), 2/28/93; in Executive News Service, 3/1/93 (3100).

3/93

Dr. A.P.J. Abdul Kalam, Scientific Advisor to the Defense Minister, states that Indian scientists at the Defence Research and Development Organization (DRDO) have had major success in developing the phased array radar crucial for the surface-to-air "Akash" missile. This radar can track over 100 targets at a time, and is critical to India's integrated guided missile development program (IGMDP). Dr. Kalam says that the "Prithvi" surface-to-surface missile designed for the Army was ready for production, while the Air Force required more test firing, and that all three versions of the "Trishul" surface-to-air missile were at an advanced stage of development, with the naval version's sea skimming ability being a "real success." Also being prepared is the "Akshya", an indigenously developed pilotless target aircraft (PTA) that the three services want to use for battlefield surveillance.

The Hindu (Madras), 3/2/93, p. 11; in JPRS-TND-93-012, 5/4/93, p. 16 ***(3088)***.

3/1/93

Dr. A.P.J. Abdul Kalam, India's top missile scientist, announces that India is developing missiles that can match "the front-line technologies of major powers such as the U.S. and France and that the phased-array radar for the Akash medium-range SAM, which can track 100 targets simultaneously, has been completed. India has 19 state-owned defense laboratories and 80 private

institutions involved in missile development. By the end of 1993, India will introduce the Prithvi SSM and the Trishul short-range SAM into its armed forces.
Brahma Chellaney, UPI (New Delhi), 3/1/93; in Executive News Service, 3/1/93 ***(3348)***. *Patriot (Delhi), 3/2/93, p. 6; i FBIS-NES-93-052, p. 57* ***(3392)***. *Vivek Raghuvanshi, Defense News, 4/12/93, pp. 4, 29* ***(3306)***.

3/4/93

The Indian government announces that it will delay the launch of the new Polar Satellite Launch Vehicle (PSLV) until the second half of 1993. The new PSLV employs a four stage system of alternating liquid and solid fuel strap on boosters and was designed to put a 1000 kg remote sensing satellite into a 900 km orbit around the poles. India is also developing the Geostationary Launch Vehicle (GSLV), which upon planned completion in 1996 will give India an intercontinental ballistic missile capability.
UPI (New Delhi), 3/4/93; in Executive News Service, 3/4/93 ***(3307)***.

3/6/93

The Indian Space Research Organization's (ISRO) liquid propulsion systems center, in collaboration with the Regional Research Laboratory at Thiruvanthapuram, develops a high-pressure aluminum alloy elbow casting for use in the liquid propulsion second stage of the Polar Satellite Launch Vehicle (PSLV). The castings, used as inlets for fuel and oxidizer in the engine's turbo pump, are made from an alloy of aluminum, silicon and magnesium, which exhibits a very high specific strength and good shock-resistance.
The Hindu (Madras), 3/6/93, p. 4; in JPRS-TND-93-013, 5/10/93, p. 9 ***(3087)***.

3/15/93

India's Defense Minister Sharad Pawar tells the Lok Sabha (Lower House of the Parliament) that the "Prithvi" and "Trishul" missile systems are expected to be integrated into the armed forces inventory during 1993-1994. This decision was reached after repeated successful tests proved the high quality of the missile systems. By 1995, India's "Akash" and "Nag" missiles are expected to be completed, and will likely enter service at that time.
India News, 3/15/93 ***(2946)***.

4/93

India is preparing to conduct another test of the Agni which will involve an increase in the missile's range and payload capabilities.
Asian Defence Journal, 4/93, p. 87 ***(3408)***.

4/93

The Indian Space Research Organisation (ISRO) is planning to launch its Polar Satellite Launch Vehicle (PSLV), an event that would prove India's ICBM capability, in 6/93. The launch will include for the first time the use of the third stage 60 ton Vikas liquid-fuel engine, a product of French-Indian cooperation.
Raj Chengappa, India Today, 4/15/93, p. 346 ***(3390)***.

4/19/93

The Rohini, a 95 kg payload sounding rocket carrying scientific payloads was successfully launched from Sriharikota, India. The rocket, developed by Italian and German scientists, reached its predetermined altitude of 325 km. Chairman of ISRO Professor U.R. Rao was present at the launch.
All India Radio Network (Delhi), 4/20/93 ***(3180)***.

8/18/93

India test fires the 8.5 m, single-stage, liquid-fuelled, Prithvi SS-250 SSM. The SS-250 has a range of 250 km with a 500 kg warhead. Another version of the Prithvi, the SS-150, has a range of 40 km to 150 km with a 1000 kg warhead. Regarding the choice of liquid over solid propellant, former DRDO chief Dr. V.S. Arunchalam explains, "We were looking for a thrust vector control and are using liquid engines, at least until our solid [engine] thrust vector control is ready."
W.P.S. Sidhu, India Today, 9/15/93, pp. 84-85 ***(3309)***.

India with Israel

Late 1992

MALAT of Israel offers to co-develop the Searcher UAV and its secure digital data link with ADE of India. The offer would also involve applying this technology to Indian Air Force Mig-21FL and Mig-21M fighters.
Edmond Dantes, Asian Defence Journal, 12/92, pp. 28-36 ***(3246)***.

India with Pakistan

3/6/92

A Pakistani Foreign Office Spokesman states that India's development of the 2,500 km range Agni missile is counterproductive to improving peace and security in the region and added that Pakistan is "committed" to holding talks with India regarding lethal weapons including missile technology in order to reduce threats to the region. He listed five elements as central to the issue of weapons of mass destruction: biological, chemical, and nuclear weapons, missile technology and overall conventional defense forces. In response to whether Pakistan would like to obtain missile technology, the spokesman states the Pakistan would do everything possible to defend itself against any threat.
Radio Pakistan Network (Islamabad), 6/3/92; in JPRS-TND-92-018, 6/10/92, p. 11 ***(3089)***. *PTV Television Network (Islamabad), 6/3/92; in JPRS-TND-92-018, 6/10/92, p. 11* ***(3089)***.

India with PRC

11/29/92

Indian Space Research Organization (ISRO) Chairman U.R. Rao leaves with a nine-member team of Indian scientists for a nine-day visit to Beijing to discuss areas of space cooperation with the PRC.
Vivek Raghuvashni, Space News, 12/7/92, p. 23 ***(2995)***.

1/93

India and the PRC are looking at areas of cooperation which may entail the launching of Indian satellites aboard Chinese boosters. The Indian Space Research Organization (ISRO) says that the Polar Satellite Launch Vehicle (PSLV) is slated to make its maiden flight in "the next few months." The PSLV 1 will place an engineering model of the Indian Remote Sensing satellite into orbit.
Flight International, 1/20/93, p. 24 ***(3093)***.

INDIA-IRAN

4/1/93

At a two day seminar on Chinese and Indian technology, a senior Indian official says that China and India should "merge their technological strengths" to jointly compete for contracts in the international space market. Prime Minister P. R. Kumaramanglam comments that India has a proven capability in building advanced satellites and China possesses fully developed science, technology and launch programs, and that combining these capabilities could strengthen the two countries positions in the international space market.

UPI, 4/1/93; in Executive News Service, 4/2/93 ***(3168)***.

India with Russia

1/93

Indian leaders voice concern over Russian technology sales to the PRC. In response, Russian President Boris Yeltsin tells leaders of both countries that Russia wishes to have friendly relations with India and the PRC. Yeltsin signs a major Russian-Indian defense cooperation contract which calls for technology transfers from Russia to India as well as co-production of weapon systems for domestic or export use.

Brahma Chellaney, UPI (Delhi), 1/30/93; in Executive News Service, 2/1/93 (3293).

1/28/93

Russian President Boris Yeltsin states that Russia will follow through with its contract to sell cryogenic rocket technology to India despite the protests of the U.S. The 1991 contract, valued at $200 million, includes the sale of two cryogenic space engines along with the technology for their production in India was scheduled to be fulfilled within three years.

Brahma Chellaney, UPI, 1/28/93; in Executive News Service, 1/28/93 ***(3333)***. *Sanjoy Hazarika, New York Times, 1/30/93, p. 2* ***(3333)***. *Vivek Raghuvanshni, Space News, 2/1/93, p. 6* ***(3333)***.

2/1/93

India's Minister of State for Science and Technology, Mr. Kumaramaam states that if Russia were to stop the cryogenic engine transfer, it would set back India's space program only three years, shifting launch dates from 1995 to 1998.

Hindu (Madras), 2/2/93, p. 6; in JPRS-TND-93-008, 3/22/93, p. 25 ***(3432)***.

4/27/93

The Parliamentary Committee for Science and Technology is informed that the transfer of cryogenic engine technology from Russia to India is on schedule, and that the first launch of the Geo-Stationary Launch Vehicle (GSLV) is slated for 1995-96.

All India Radio Network (Delhi), 4/27/93; in FBIS-NES-93-080, 4/28/93, p. 68 ***(2931)***.

India with United States

12/90

India abandons a 1990 deal with Cray corporation of the U.S. for a supercomputer (No. 1205), which was built for the Indian Institute of Science in Bangalore. The deal was abandoned after waiting for the U.S. Bush administration to resolve a two year dispute over how to guarantee that the computer would not be used to make missiles or nuclear weapons.

Stuart Auerbach, Washington Post, 3/19/93, p. C1 ***(3423)***.

1/93

The U.S. threatens to make permanent the sanctions imposed on Russia's Glavkosmos and India's ISRO for the cryogenic engine deal, as both companies are going ahead with the contract.

The Nation (Islamabad), 1/3/93, p. 6; in FBIS-NES-93-022, 2/4/93, pp. 59-60 ***(3412)***.

INDONESIA

Indonesia with France

2/12/93

Indonesian minister of state for research and technology, B.J. Habibie, responding to a French offer including an Ariane Space Rocket to launch the Palapa B-2 Satellite and space cooperation with Indonesia, indicates that costs, time, and risks make the offer attractive, but the government must study the matter first. France also suggests cooperation between France's Ariane Space and Indonesia's Board of Technical Research and Application, to launch a small rocket produced by the National Aviation and Space Institution (Lapan) free of Charge.

Radio Republik Indonesia Network (Jakarta), 2/13/93; in JPRS-TND-93-006, 3/5/93 ***(3024)***.

Indonesia with Russia and United States

4/93

Lockheed corporation is invited by Indonesia to discuss Lockheed's and Khrunichev Enterprises's offer to launch two Indonesian satellites.

Jeffrey M. Lenorovitz, Aviation Week & Space Technology, 4/12/93, pp. 61-62 ***(3421)***.

IRAN

Internal Developments

10/92

Iran has "already installed" eight Scud-B and Silkworm missile "bases" on the island of Abu Musa in the Straits of Hormuz and plans to stockpile an additional 200 Silkworms and approximately 800 Scud-Bs there.

Alsharq Al Awsat; in Mednews, 12/7/92, p. 5 ***(3445)***.

10/92

Iran is said to have decoded the firing and fusing systems of one of two nuclear warheads obtained from Kazakhstan. Work is believed to be progressing on decoding the second warhead.

Assad Homayoun, Washington Times, 1/5/93, p. F3 ***(3448)***.

12/5/92

The Iraqi News Agency (INA) warns of Iran's weapons buildup and says that it was necessary to "observe the size of Iran's armaments and the kind of its [sic] conventional and non-conventional weapons, particularly those related to missile deals and

nuclear arms" that threaten regional security. The warning follows a Washington intelligence report that said that Iran is investing $2 billion a year in weapons programs and Iran could acquire nuclear weapons in less than eight years.
UPI (Beirut), 12/5/92; in Executive News Service, 12/7/92 ***(3036)***.

12/92

According to official Iranian government statements to Iran's parliament, the Ministry of Heavy Industry started a $2.4 billion program to establish a machine-tool industry in Iran. The program will be almost entirely financed by export credits obtained in the West.
Mednews, 12/21/92, p. 3 ***(3455)***.

1/93

Iran has set up a procurement agency for military goods, managed by former diplomat, Jamal Haj Esmaili, in London without the approval of U.K. authorities.
Alan George, Flight International, 1/20/93, p. 4 ***(3453)***. *Press Association (London), 1/20/93; in JPRS-TND-93-003, 1/27/93, p. 10* ***(3453)***.

1/93

Iran has committed itself to $50 billion in defense expenditures over the next five years. By the end of 1992, Iran had an estimated inventory of 800 Scud missiles and 200 Chinese Silkworm missiles.
Assad Homayoun, Washington Times, 1/5/93, p. F3 ***(3448)***.

2/93

In a U.S. Defense Department report, officials indicate that between the years 2000 and 2010, Syria, Iran and the PRC will have cruise missiles with some low-observable or stealth capabilities, and chemical and biological warheads.
Aviation Week & Space Technology, 2/1/93, pp. 26-72 ***(3258)***.

2/93

Iran's Chemical Industries Group is producing solid-fuel propellant powders for Iran's ballistic missile and artillery rocket programs. This plant produces TNT, RDX Hexotol B, Hexotol B4, Hexal, Plastic Explosives (C4) and Nitrocellulose.
Mednews, 3/1/93, p. 1 ***(3491)***.

2/93

Central Intelligence Director R. James Woolsey tells the Senate Government Affairs Committee that Iran along with Syria and Libya have already deployed cruise missiles with precision guidance and countermeasures capable of threatening U.S. naval forces. Woolsey also tempered this news by acknowleding that the Iranian missile program has been slowed by shortages of skilled personnel, science intensive technology, scarce materials and financing.
David Fulghum, Aviation Week & Space Technology, 3/1/93, p. 25 ***(3222)***.

IRAN WITH CIS

1992

According to the German weekly Focus, CIS countries supplied an atom bomb which can be dropped from an airplane and a "launcher for missiles with nuclear warheads" to Iran sometime during 1992.
Rossiyskaya Gazeta (Moscow), 1/27/93, p. 7; in FBIS-SOV-93-017, 1/28/93, p. 6 ***(2892)***.

IRAN WITH GERMANY

12/92

According to U.S., French and German officials, Germany has become Iran's most important trading partner, particularly in advanced technology; companies that formerly exported sensitive technologies to Iraq have simply shifted supply to Iran. German Economics Ministry figures predict that for 1992 Germany's high technology exports to Iran will double from 1991's $1.8 billion.
Mednews, 12/21/92, p. 1 ***(3107)***.

1992

Germany adopts a new export control law requiring companies to seek licenses for equipment if they "have reason to believe" it will be used for Iranian military endeavors. The "catch-all" clause applies to all equipment regardless of technological level, and is strongly opposed by German companies.
Mednews*, 12/21/92, p. 1* ***(3107)***.

IRAN WITH ISRAEL

1/20/93

Israeli Prime Minister Yitzhaq Rabin claims in the Knesset that Iran and several other Middle Eastern countries have been developing a long range missile that would enable Iran to strike Israel and other more distant countries. In response to a motion to the agenda raised by Efrayim Sne regarding Iran's development of nuclear arms, Rabin points out that North Korea gave missile technology to Iran and projects that Iran would develop long range missiles in the next five to ten years. He calls for international cooperation to stop the proliferation of missile technology and weapons of mass destruction.
Qol Yisra'el (Jerusalem), 1/20/93; in JPRS-TND-93-003, 1/27/93, p. 13 ***(3190)***.

2/93

Maj. Gen. Giora Romm, the Israeli defense attache in Washington, says that Iran is not a conventional threat to Israel, but that the Iranian nuclear program together with acquisition of North Korea's 1,000 km range Nodong missile could mean severe problems in the next ten years or less.
Aerospace Daily, 2/8/93, p. 210 ***(3130)***.

IRAN WITH LIBYA

4/93

According to Western government officials, Libya transfers the design of its unsuccessful Al-Fatah missile to Iran; although commonly attributed with a range of 500 km, the Western government officials claim that it really has a range of 950 km. It is likely that Iran and Libya are working on a joint venture to develop or upgrade the Al-Fatah.
Alan George, Flight International, 4/93, p. 4 ***(3321)***.

IRAN WITH NORTH KOREA

12/92

North Korea and Iran sign a five year, military agreement which will take affect in 3/93. The agreement is worth billions of dollars and includes the development of new

missile systems. The agreement also includes: North Korean design and manufacture of two new missiles; "two workshops" constructed in Iran to allow for the maintenance and repair of heavy bombers and fighter planes; and the joint development of speed boats that would carry multiple torpedo launchers.
Amir Tahiri, Al-Sharq Al-Awsat, 12/8/92, p. 3; in JPRS-TND-92-048, 12/23/92, pp. 6-7 ***(3442)***.

1/93

Iran's Revolutionary Guards Commander Mohsen Rezai visits Beijing and Pyongyang in order to conclude new agreements for ballistic missiles and other weapon systems. Shortly before Rezai's departure, a member of the Iranian Parliament announced that North Korea has asked for a cash payment of $2.4 to $2.7 billion to pay for Scud-B missiles delivered to Iran during the war.
Mednews, 1/25/93, p. 3 ***(3454)***.

2/93

CIA chief James Woolsey testifies before the U.S. Congress that North Korea is becoming the primary supplier of missile programs in Iran and Syria, adding that "North Korea apparently has no threshold governing its sales....It is willing to sell to any country with the cash to pay." Although North Korea has enough plutonium for a nuclear device, it has yet to develop a ballistic missile capable warhead, but it is believed to be attempting to make its Scud-C systems nuclear capable by 1995.
John J. Fialka, ***Wall Street Journal****, 2/25/93, p. A10,* ***(3020)***.

2/93

Iran receives "a number of launching pads" and Scud-C surface-to-surface missiles with a range of 500 km as part of a deal Iranian authorities previously signed with North Korea. These missiles supplement about 250 Scud-B missiles supplied to Iran before the Gulf War.
Israel Television Network (Jerusalem), 2/9/93; in FBIS-NES-93-026, 2/10/93, p. 47 ***(2937)***.

3/93

Western intelligence sources comment that North Korea and Iran are engaged in a cooperative effort in which Iran is providing North Korea with $500 million to develop a ballistic missile system capable of striking Japan with nuclear and chemical warheads, and North Korea is to provide Iran with an unknown number of nuclear bombs and plans for nuclear-weapons-reprocessing plants. These reports were denied by North Korea's Korean Central News Agency.
U.S. News & World Report, 3/29/93, p. 18 ***(3021)***. *Reuter (Tokyo), 4/18/93; in JPRS-TND-93-006, 3/5/93, pp. 13-14* ***(3436)***. *Washington Times, 4/19/13, p. A2* ***(3021)***.

3/28/93

A 21 member team headed by Brigadier General Hossein Mantequei, the Revolutionary Guard commander in charge of Tehran's surface-to-surface missile force, arrives in Pyongyang. The prominence of missile experts in the delegation indicates that it has come to observe final tests of the Nodong-1, and to be trained in the missile's operation and deployment. Opposition group leaders say that some members of the delegation are to remain in North Korea for at least a month.
Douglas Jehl, New York Times, 4/8/93, p. A9 ***(3462)***. *Alan Elsner, Executive News Service, 4/9/93* ***(3073)***.

4/8/93

U.S. officials express concern that Iran is finalizing plans to purchase the 600 mile range (960 km) Nodong-1 missile from North Korea.
Alan Elsner, Executive News Service, 4/9/93, ***(3073)***.

IRAN WITH PRC

1/93

Commander of Iran's Revolutionary Guards Mohsen Rezai visits Beijing and Pyongyang in order to conclude new agreements for ballistic missiles and other weapon systems.
Mednews, 1/25/93, p. 3 (3454).

1/93

An Iranian delegation visits the PRC to finalize the purchase of 10 Hega class fast attack missile craft. Negotiations over the Hega sale began in late 1991. While in Beijing, the delegation attempted to purchase a new craft armed with the Ying Ji anti-ship missile which has a 40 km range.
Jane's Defence Weekly, 2/13/93, p. 48 ***(3076)***.

1/8/93

Western diplomatic sources state that the PRC is buying an unknown number of Mig-29's from Iran in exchange for Chinese missile technology and a nuclear power station. The agreement was reached at the end of 1992.
Kyodo (Tokyo), 1/8/93; in JPRS-TND-93-002, 1/15/93, p. 3 ***(3028)***.

IRAN WITH RUSSIA

3/1/93

Iran expresses interest in acquiring Russia's S-300V anti-missile system.
Mednews, 3/1/93, pp. 4-5 ***(3479)***.

IRAN WITH SUDAN

9/1-15/92

Iran is believed to have transported surface-to-surface missiles, among other weaponry to Sudan. These weapons are to be used against rebel troops of the Sudanese People's Liberation Army.
Tariq Hasan, Rose Al-Yusuf (Cairo), 10/19/92, p. 71; in JPRS-TND-92-040, 10/30/92, p. 19 ***(2850)***.

IRAN WITH SYRIA

11/22/92

Syrian Industry Minister Dr. Ahmad Nizam-al-Din meets with Mohammad Reza Nematzadeh, his Iranian counterpart, in Damascus to discuss, among other things, "specifications and calibration" and the establishment of "projects of joint investment." The joint effort to build the North Korean Scud-C may be one such project.
Mednews, 1/11/93, p. 6 ***(2905)***.

IRAN WITH UNITED KINGDOM

3/1/93

The U.K. Foreign Minister Douglas Hurd announces new restricted licensing guidelines for exporting dual-use goods and technologies to Iran. The U.K.'s new criteria for licensing exports are applicable to the lists of COCOM munitions and the atomic

energy lists of the Exports of Goods (Control) Order 1992.
Export Control News, 2/28/93, p. 10 ***(3403)***. *Financial Times, 3/2/93, p. 8* ***(3403)***. *Arms Control Reporter, 3/93, pp. 250.B.5-250.B.6* ***(2984)***.

IRAN WITH UNITED STATES

10/23/92

U.S. President George Bush signs a bill mandating an embargo of items that previously required a validated license for export to Iran.
Export Control News, 11/27/92, p. 3 ***(2957)***.

1/5/93

Reza Zandian and Charles Reeger are arrested in San Diego by the Office of Export Enforcement for attempting to ship two IBM RISC supercomputers to Iran via France after authorities seized ES-9000 computers valued at $2 million the previous day. Zandian set up companies (Lucash Corporation and Iran Business Machines) in Irvine, California for the procurement of computers through a third company that he controlled, Computer World (or CEPAT), located in Argenteuil, France. The two men are indicted on 1/22/93.
Mednews, 4/19/93, p. 4 ***(3487)***.

IRAQ

INTERNAL DEVELOPMENTS

1/93

Iraqi government ministers want recognition forfulfilling Iraq's obligations under the Security Council Gulf War cease-fire resolution. They say that they want a fresh start and that it is now time for further negotiation, but because Iraq has repeatedly been caught cheating by U.N. inspectors, the world does not believe them.
Nicholas Phythian, Washington Times, 2/1/93, p. A7 ***(3211)***.

1/93

Western intelligence agencies believe that Iraq may have been "examining setting up" the Improved Hawk missile system during a confrontation over the no-fly zone in southern Iraq. The Iraqi military has been periodically detected turning on Hawk radar in an attempt to understand how it works. Iraq has promised to return the Hawk missiles and launchers to Kuwait in February.
Defense News, 2/15/93, pp. 3-4 ***(3009).***

IRAQ WITH ARGENTINA

4/93

It is reported that some Argentinean Condor 2 related components were discovered in Iraq by the U.N. Special Commission.
Nathaniel C. Nash, New York Times, 3/7/93, p. 10 ***(3195)***. *Jon B. Wolfsthal, Arms Control Today, 4/93, p. 24* ***(3195)***.

IRAQ WITH GERMANY

3/93

The State Prosecutor's office in Muenster, Germany, brings charges against Dietrich Hinze and Peter M. Huetten, former business managers of the now defunct H & H Metalform GmbH, for violating foreign export laws by supplying Iraq from 1988 to 1990 with 27,436 individual parts for Scud-B missiles and a "range of machinery for the production of artillery rockets," all valued at 46 million German marks.
DPA (Hamburg), 3/24/93; in FBIS-WEU-93-055, 3/24/93, p. 14 ***(2919)***.

IRAQ WITH KUWAIT

11/28/92

U.N. officials say that Iraq has promised to return 75 Hawk surface-to-air missiles that it took from Kuwait during the 1990 invasion; the missiles are intact, but Iraq has yet to account for the launchers and control equipment. Iraq says that it prepared two batteries of the improved Hawk missiles to shoot down coalition aircraft during the Gulf War, but it is unknown whether any were fired. Subsequent talks also involved the return of improved Hawk missiles.
Washington Times, 11/29/92, p. A8 ***(2918)***.

1/93

According to U.N. officials, 200 unarmed Iraqis seize weapons, including four Chinese made "Silkworm" surface-to-surface missiles, stockpiled by the U.N. in Kuwait and take them across the border to Iraq. The move comes one day after the Iraqis removed an estimated five batteries of SA-2 "Guideline" high altitude and SA-3 "Goa" medium altitude surface-to-air missiles from the no-fly zone below the 32nd parallel; the missiles had been deployed there after the U.S. shot down an Iraqi fighter over the area.
Jane's Defence Weekly, 1/16/93, p. 5 ***(2924)***.

2/93

Iraq promises to return to Kuwait the Improved Hawk surface-to-air missiles and launcher later in 2/93 and provides a detailed list of Hawk launchers, missiles, and radars. Previously, Iraq included only the Hawk missiles on the list of items to be returned, despite the fact that Kuwait possessed 12 to 24 Improved Hawk launchers prior to the Iraqi invasion. Kuwait's assistant chief of staff for military intelligence Maj. Gen. Saud Al-Shamlan, comments that, "we are going to get the improved Hawks back, but we do not know their condition, whether they will be usable." The return of the Hawks is important as they currently form the most advanced component of an Iraqi air defense arsenal heavily reliant on aging Soviet SA-2, SA-6 and SA-7 surface-to-air missiles.
Defense News, 2/15/93, pp. 3, 4 ***(3009).***

IRAQ WITH RUSSIA

12/15/92

CIA Director Robert Gates states that Iraq is trying to acquire nuclear technology and materials from Russia.
George Lardner Jr. and R. Jeffrey Smith, Washington Post, 12/16/92, p. A6 ***(3078)***.

IRAQ

IRAQ WITH SOUTH AFRICA

1992

In a book published in the U.S. titled Profits of War: Inside the Secret U.S.-Israeli Arms Network, the author, Israeli secret service defector Ari Ben-Menashe, claims that during the 1980's South Africa's Armscor supplied Iraq with artillery and missiles capable of carrying nuclear warheads, with the approval of then Vice-president George Bush and the endorsement of the CIA.

Arthur Gavshon, Weekly Mail (Johannesburg), 10/16/92, pp. 1-2; in JPRS-TND-92-039, 10/28/92, pp. 1-2 **(2916)**.

IRAQ WITH UNITED KINGDOM

11/9/92

Three executives from the British company Matrix Churchill Ltd. are acquitted of selling to Iraq, between 1989 and 1990, $37 million worth of multi-axis precision milling machines used for the Iraqi Scud B missile program, for making gas centrifuges in the Iraqi nuclear program, and in the manufacture of proximity fuses for artillery shells. It is revealed that the government, including the Department of Trade and Industry (DTI), the Ministry of Defense and the Foreign Office, approved the sales despite a U.N. arms embargo.

Jane's Defence Weekly, 11/21/92, p. 6 ***(3345)***.

IRAQ WITH UNITED NATIONS

10/30/92

U.N. missile inspection team leader Nikita Smidovich says that the team has filled in "many gaps" about Iraqi weapons capability following visits to over 50 sites and hours of conversation with Iraqi officials; the team was following up on reports that Iraq still had as many as 200 Scud missiles. While Smidovich refused to say whether any hidden missiles were discovered, he did say that a lot of information had been gathered and that the conclusion of some of the issues regarding Iraq's ballistic missiles may depend on its analysis.

AFP (Paris), 10/30/92; in JPRS-TND-92-041, 11/12/92, p. 17 ***(2917)***.

1/23-29/93

A seven person U.N. ballistic weapons team lead by Nikita Smidovich arrives in Iraq in order to conduct the first missile inspection of the year. According to the head of the Baghdad office of the U.N. Special Commission Douglas Englund, the team would look for Scud missiles similar to the type Iraq fired at Saudi Arabia and Israel during the Gulf War. Smidovich notes that Iraq is balking at the U.N. demand for long term monitoring of its weapons programs. Four experts remain to observe a missile research base 12 miles north of Baghdad until a long term monitoring agreement is reached. Smidovich also says that the Iraqis indicated for the first time that they might provide details on their chemical and biological equipment and expertise suppliers.

Washington Times, 1/30/93, p. A8 ***(3215)***. *Reuter (Baghdad), 1/26/93; in Executive News Service, 1/25/93* ***(3231)***.

1/25/93

U.N. officials inform the Iraqi government that daily inspections by UNSCOM monitoring team 48 will immediately begin at the Ibn al-Haytham research center and will continue indefinitely because of concerns about missile-related activities at the facility. On 1/26/93, U.N. officials stated that Iraq has placed all of its best rocket scientists and engineers at the Ibn al-Haytham research facility for possible renewal of prohibited work on long-range missiles. These scientists were "the brains" behind Iraqi efforts before the Gulf War to develop or improve a variant of the Russian-made Scud missile, the Badr 2000 two-stage missile with a range of 625 miles, and a three-stage rocket capable of orbiting payloads in space. Scientists at the facility appear to be working on propellants, guidance systems and other missile components. UNSCOM 48 left Iraq on 3/24/93.

Jeffrey Smith, Washington Post, 1/27/93, p. A16 ***(3359)***. *Nizar Hamdoon, U.N. Security Council Document, 4/6/93* ***(3369)***.

1/25/93

The U.N. Security Council decides to continue trade sanctions imposed on Iraq at the end of the 1991 Gulf War in 1991, because the U.N. Special Commission has not finished destroying or uncovering all of Iraq's ballistic missile, nuclear, chemical and biological weapons. The U.N. Security Council president says that "there was no agreement that the necessary conditions existed for a modification of the (sanctions) regime." The Security Council review, conducted every 60 days under ceasefire resolution mandate, revealed that one key obstacle to lifting the trade embargo is Iraq's unwillingness to allow long-term weapons monitoring and refusal to submit data on the weapons that Baghdad possessed in the past.

Reuter, 1/25/93, ***(3079)***.

1/28/93

The Iraqis admit to UNSCOM monitoring team 48 that Iraq had made a deliberate and false statement to UNSCOM monitoring team 3 with regard to missile launchers.

U.S. Mission to the U.N.: Press Release USUN 36-(93) ***(2925)***.

2/12-21/93

Patrice Palanque leads the 50th team of U.N. inspectors in Iraq and concentrates on ballistic missiles, validating "full and comprehensive" assurances made by the Iraqis in 5/92.

Reuter, 2/8/93; in Nuclear Nonproliferation Network News, 2/8/93 **(3366)**. Reuter, 2/9/93; in Executive News Service, 2/10/93 **(3366)**.

2/17/93

The leader of the 13 member U.N. Special Commission (UNSCOM) team of ballistic missile experts inspecting Iraq, Patrice Palanque, says that during an 8 day mission in Iraq which began on 2/12/93, the team had gathered a great deal of information but refused to give information on materials or the site [Taji military camp] at which the information was collected. The site was not on Iraq's list of nuclear, biological, chemical or missile development program sites. Other inspectors, speaking on condition of anonymity, state that the information leads them to believe that Iraq may be actively

pursuing its ballistic missile program despite the terms of the ceasefire agreement ending the Gulf War which require Iraq to disclose and dismantle weapons of mass destruction. Iraq reportedly still has 100 to 200 missiles, although 151 missiles, including 53 Scuds, were destroyed during previous U.N. visits.
Leon Barkho, Reuter, 2/13/93; in Executive News Service, 2/15/93 ***(3368)***. *New York Times, 2/13/93, p. 4* ***(3368)***. *Washington Times, 2/28/93, p. A9* ***(3012)***.

2/22/93

Iraqi forces in the western suburbs of Baghdad aim anti-aircraft guns at and threaten to shoot down U.N. helicopters carrying ballistic missile inspectors as they attempt to overfly a facility to ensure that no materials were removed before ground inspectors arrived. U.N. inspectors working in coordination with a U-2 spy plane visited three sites suspected of housing intermediate-range ballistic missiles.
Michael R. Gordon, New York Times, 2/24/93, pp. A1, A4 ***(3365)***. *Los Angeles Times, 2/24/93, p. A6* ***(3365)***. *Julia Preston, Washington Post, 2/25/93, p. A14. Arms Control Today, 3/93, p. 27* ***(2920)***.

3/11/93

U.N. joint inspection team UNSCOM 53 arrives in Iraq led by American David Franz with members comprised of biological, chemical, missile and computer specialists. The team conducted short-notice inspections of the Muthanna Establishment, the Division of Agriculture and Biology of the Iraqi Atomic Energy Commission, the Salah al-Din Establishment, the Salam factory at Salman Pak, Al-Kindi company, and the Hakam factory. The team also made an unannounced visit to the Faculty of Veterinary Medicine at Baghdad University on 3/14/93.
Nizar Hamdoon, U.N. Security Council Document, 4/6/93 ***(3369)***.

3/17/93

U.N. Security Council sources state that sanctions against Iraq are expected to continue after a 3/29/93 public review. The public nature of this sanction review was initiated by the U.S. so that the council can lay out in precise terms what Iraq must do to comply with Gulf War resolutions.
Anthony Goodman, Reuter, 3/17/93 ***(3080)***.

3/27/93-4/2/93

U.N. Inspector Nikita Smidovich arrives in Iraq with UNSCOM 54, a team of eight specialists, to check several missile-producing facilities for prohibited activity and discuss an "interim monitoring regime" to monitor Iraqi missile plants. Mr. Smidovich indicates that efforts regarding the new regime are proceeding smoothly, but Iraq is still balking at long term inspections. Although Iraq says it has nothing left to declare, U.N. inspectors say 200 of Iraq's former arsenal of 890 Scud missiles are unaccounted for. He also comments that Iraq has the capability and acquired expertise to produce missiles, and that is why it is important to have long-term monitoring activities. According to Smidovich, the Iraqis still would not disclose their arms supply network nor accept U.N. long-term monitoring of their weapons capabilities. Referring to Iraq's ballistic missile program, Smidovich says, "...they [the Iraqis] admit themselves that we do not know the full picture" He mentions the newly established Ibn al-Haytham missile center, which is to produce missiles, whose ranges fall within the ceasefire limitation of 150 km; the monitoring team goes there specifically, and conducts a "technical assessment of the work being done and approach carried over there." Dennis Vincent heads a four member team which remains in Iraq for a several week mission involving routine and surprise inspections.
Washington Times, 1/30/93, p. A8 ***(3215)***. *Leon Barkho, Reuter, 3/27/93; in Executive News Service, 3/29/93* ***(3360)***. *Leon Barkho, Reuter, 4/1/93; in Executive News Service, 4/2/93* ***(3207)***. *Reuter 4/2/93; in Executive News Service, 4/2/93* ***(3208)***. *U.N. Security Council Document, 4/6/93* ***(3369)***.

4/2/93

U.N. arms expert Nikita Smidovich charges Iraqi authorities with lying about the number of sites they have for building short-range missiles. According to Smidovich, Iraq has more than the one site, Ibn al-Haytham near Baghdad, which produces rockets with a range within the 150 km limit allowed by the U.N. Smidovich stated that "There are many other [sites] even if the Iraqis pretend this is the only one."
AFP, 4/2/93 ***(2941)***.

4/15/92

A fourteen member U.N. Special Commission (UNSCOM) team of arms experts led by Igor Mitrokhin leaves Iraq after a seven day inspection of Iraqi chemical weapons systems. Remaining in Iraq are two teams: a team on a short mission to monitor Iraq's ballistic missile factories and verify that no banned missiles are produced, and a resident U.N. chemical destruction team that is to dispose of Iraq's arsenal of toxic gases.
Reuter (Baghdad), 4/15/93; in Executive News Service, 4/16/93 ***(3007)***.

IRAQ WITH UNITED STATES

1/93

The U.S. and its coalition partners warn Iraqi President Saddam Hussein that the SA-2 and SA-3 anti-aircraft missile batteries positioned below the 32nd parallel are to be removed by late 1/8/93. The Iraqi anti-aircraft missile batteries are there to protect Iraqi aircraft flying in the area in defiance of the U.N. no-fly zone.
Aviation Week & Space Technology, 1/11/93, p. 26 ***(2930)***.

1/17/93

U.S. forces attack an Iraqi military-industrial complex known as Djilah park in the town of Za'faraniyah with 40 cruise missiles.
R. Jeffrey Smith, Washington Post, 1/18/93; in Executive News Service, 1/19/93 ***(3361)***.

1/21/93

U.S. forces attack an Iraqi ground radar site in the northern no-fly zone and a senior U.N. official states that five plane loads of inspectors will still go to Iraq despite this attack and one conducted on 1/17/93.
Reuter, 1/21/93 ***(3361)***.

2/93

Reports surface that the CIA knew that the British company Matrix Churchill Corporation was supplying military-related equipment, including machine tools of value to Iraq's nuclear weapons program to Iraq as early as 1987.
R. Jeffrey Smith, Washington Post, 2/15/93, pp. A22-A23 ***(3490)***.

ISRAEL

INTERNAL DEVELOPMENTS

1992

Cost overruns in the Arrow anti-ballistic missile project contributed as a large factor in Irael Aircraft Industries' (IAI) reported losses of $40 million for 1992. The future of the Arrow project will be determined in 1993.

Neal Sandler, Jane's Defence Weekly, 2/6/93, pp. 29-30 ***(3119)***. *Jane's Defence Weekly, 2/13/93, p. 18* ***(3119)***.

1993

IAI will launch the Offeq 3 intelligence satellite using a Shavit booster, which is capable of putting satellites into low orbit. Other sources claim that the Offeq satellite will be test launched in late 1993. The first two Offeq satellites were launched by Shavits.

Flight International, 2/24/93, p. 22 ***(3124)***. *Aluf Ben, Ha'aretz (Tel Aviv), 2/5/93, p. A6; in FBIS-NES-93-025, 2/9/93, p. 40* ***(3124)***.

3/15/93

Emmanuel Gill, president of the Israeli defense firm Elbit, announces that Elbit has purchased 33% of Silver Arrow, the Israeli private unmanned aerial vehicle (UAV) developer, and reveals that a prototype UAV for use with ground forces will be unveiled at the Paris Air Show in 6/93. Silver Arrow has been developing a UAV for surveillance and other missions.

Flight International, 3/31/93, p. 17 ***(3123)***.

ISRAEL WITH GERMANY

10/92

Within the next five months Germany will supply Israel with a battery of upgraded Patriot missiles. Originally Germany planned to give Israel a Patriot PAC-1 battery from its own arsenal, but following the discovery of the first generation Patriot's inability to intercept surface-to-surface missiles, Germany agreed to finance the delivery of an upgraded Patriot battery.

Yedi'ot Aharonot (Tel Aviv), 10/6/92, p. 8; in JPRS-TND-92-037, 10/9/92, p. 13 ***(2846)***.

ISRAEL WITH INDIA

Late 1992

MALAT of Israel offers to co-develop the Searcher UAV and its secure digital data link with ADE of India. The offer would also involve applying this technology to this technology to Indian Air Force Mig-21FL and Mig-21M fighters.

Edmond Dantes, Asian Defence Journal, 12/92, pp. 28-36 ***(3246)***.

ISRAEL WITH IRAN

1/20/93

Israeli Prime Minister Yitzhaq Rabin claims in the Knesset that Iran and several other Middle Eastern countries have been developing a long range missile that would enable Iran to strike Israel and other more distant countries. In response to a motion to the agenda raised by Efrayim Sne regarding Iran's development of nuclear arms, Rabin points out that North Korea gave missile technology to Iran and projects that Iran would develop long range missiles in the next five to ten years. He calls for international cooperation to stop the proliferation of missile technology and weapons of mass destruction.

Qol Yisra'el (Jerusalem), 1/20/93; in JPRS-TND-93-003, 1/27/93, p. 13 ***(3190)***.

2/93

Maj. Gen. Giora Romm, the Israeli defense attache in Washington, says that Iran is not a conventional threat to Israel, but that the Iranian nuclear program together with acquisition of North Korea's 1,000 km range Nodong missile could mean severe problems in the next ten years or less.

Aerospace Daily, 2/8/93, p. 210 ***(3130)***.

ISRAEL WITH PRC

12/92

Israel's President Hayim Herzog and other senior officials visit the PRC's satellite control center in Xian. Chinese hosts express interest in cooperating with Israel to launch Israeli scientific and communications satellites.

Space News, 1/18/93, p. 11 ***(2896)***.

1/93

Pentagon officials confirm that former Defense Secretary Richard B. Cheney received intelligence briefings indicating that Israel passed Patriot guidance and propulsion technology to China in return for M-series ballistic missile information, including the M-9 and M-11 missiles. It is possible that Israel may have passed Patriot technology to China through the Arrow missile defense program.

David A. Fulghum, Aviation Week & Space Technology, 2/1/93, pp. 26-27 ***(3260)***.

1/5/93

CIA Director Robert Gates confirms that the Chinese obtained Patriot anti-missile technology, but would not confirm media reports that Israel gave that technology to China. After sending investigators to Israel to check out an earlier report, a 4/92 State Department report stated that there was no corroborating evidence that Israel had transferred Patriot missile technology to China. Gates now says that there are "disagrements on the question" of whether or not that report underestimated contradictory intelligence. When the State Department report was released, Bush administration officials said that they had closed the matter to avoid harming the Middle East peace process.

Drora Perl, DAVAR (Tel Aviv), 1/6/93, p. 2; in FBIS-NES-93-003, 1/6/93, p. 31, ***(3077)***. *Israel Foreign Affairs, 2/26/93, p. 6* ***(3026)***.

2/7/93

During a visit to Israel by seven PRC scientists, Israeli Science and Technology Minister Shim'on Shetrit and the head of the PRC delegation Vice Minister of the State Science and Technology Commission Li Xiaoshi are scheduled to sign a cooperative agreement on civilian applications of space technologies.

Qol Yisra'el (Jerusalem), 2/7/93; in FBIS-NES-93-025, 2/9/93, p. 40 ***(3125)***.

ISRAEL WITH RUSSIA

3/93

Israel's Elbit corporation is integrating Russian air-defense radar systems with the Israeli Barak point-defense missile for potential sale to Eastern Europe and South-East Asia. Eastern Europe's vast Russian air-defense systems could be a potential market for the Barak missile integrated with the radars of the ZSU-23-4 self-propelled gun or the SA-8 Gecko self propelled surface-to-air missile system. Elbit, which is evaluating the suitability of the different radars, sees Barak's vertical launch as a worthwhile improvement over the Russian missiles.
Flight International, 3/10/93, p. 16 ***(3084)***.

ISRAEL WITH SINGAPORE

2/93

Singapore reveals the existence of the Republic of Singapore Air Force's 128th Squadron which operates from Tengah Air Base utilizing Israel's IAI Scout UAV systems and a more advanced UAV, possibly the IAI Impact.
Jane's Defence Weekly, 2/13/93, p. 23 ***(3257)***.

ISRAEL WITH UNITED STATES

11/23/92

At a three day meeting, U.S. and Israeli officials decide to establish working groups to assist Israel in incorporating U.S. technologies such as enhanced computer processing, missile guidance, and advanced materials and manufacturing parts and processes into Israeli production. The meeting also addresses U.S. concern over Israeli technology transfer policies. U.S. sources say that export licensing to Israel will be dependent upon Israel's adherence to multinational arms control agreements such as the MTCR and CWC; the U.S. must be convinced that Israel will no longer export sensitive technologies to the PRC, South Africa, and several Central and South American nations.
Barbara Opall, Defense News, 11/30/92, pp. 3, 21 ***(3127)***.

12/3/92

The SDI administration announces its intention to establish contacts with the Israeli Ministry of Defense to conduct technical studies on approaches for the boost phase interception of ballistic missiles. The administration believes that Israel possesses unique experience with wartime missile defense and the operation of RPVs.
Aluf Ben, Ha'aretz (Tel Aviv), 12/24/93, p. B3; in JPRS-NEA-93-016, 2/3/93, p. 13 ***(3118)***.

12/92

An Israeli Ministry of Defense team holds meetings for several weeks in the U.S. lobbying for support for a U.S.-Israeli surface-to-air missile defense development project to be conducted within the SDI program. The team proposes a study to assess the use of RPVs to attack surface-to-surface missiles during boost phase when they are still moving slowly. The RPV project in Israel has a budget of $6 million, and is considered as important to national security as the Arrow ATBM project. Advocates of the concept say that it would allow less wartime damage to Israel, and fits well with Israel's doctrine of engaging the enemy on his own territory. Potential enemies may fear having intercepted missile warheads explode over their own territory and this may deter the use of unconventional warheads. Israeli Aircraft Industries has experience in RPVs, and Raphael, another Israeli firm, has experience in infrared guided missiles.
Aluf Ben, Ha'aretz (Tel Aviv), 12/24/92, p. B3; in JPRS-NEA-93-016, 2/3/93, p. 13 ***(3118)***.

1/93

A U.S. Army spokesman says that the Army Advanced Systems Office proposes evaluating the Israeli Arrow theater defense missile and the Theater High Altitude Area Defense (THAAD) system as candidates for the Theater Surface-to-Air Missile (TSAM) system, an "upper tier" weapons system meant to intercept ballistic missiles shortly after they reenter the atmosphere. According to the U.S. Army's recent Science and Technology Master Plan, TSAM will be a medium and high altitude defense system for defending corps size or larger bodies of troops and will also be able to launch short duration, low cost satellites on demand, which will allow the theater commander to augment communications and surveillance capabilities. TSAM is intended to replace the Patriot missile after 2000.
Joseph Lovece, Defense Week, 2/1/93, p. 13 ***(3045)***.

1/14/93

The U.S. Army program manager of the U.S.-Israeli Arrow anti-ballistic missile project Michael Holtcamp claims that electrical adjustments incorporated into the missile were the key to the success of the Arrow's fourth and final test flight. Holtcamp said that the Arrow could now move on to the Arrow Continuation Experiments (ACES).
Defense Daily, 1/22/93, p. 105 ***(3375)***.

2/9/93

At a budget presentation to the Pentagon, Maj. Gen. O'Neill, acting director of SDIO, says that the joint U.S.-Israeli Boost Phase Intercept (BPI) project will need an estimated $140 million in funding through 1994. The U.S. and Israeli governments are to meet some time in 1993 to sign a $5.7 million contract to explore BPI approaches; funding for the study will come from both countries.
Barbara Opall, Defense News, 2/22/93, pp. 3, 20 ***(3129)***.

2/16/93

A senior Israeli military official says that the BPI program would continue even without U.S. funding.
Barbara Opall, Defense News, 2/22/93, pp. 3, 20 ***(3129)***.

2/18/93

An SDIO spokesman says that the U.S. Air Force and joint U.S.-Israeli BPI programs were unrelated to the Raptor Talon program managed by Lawrence Livermore National Laboratory. The Israeli BPI effort is also unrelated to the $479 million joint U.S.-Israeli Arrow project, which is designed to attack Scud-type missiles during reentry phase.
Barbara Opall, Defense News, 2/22/93, pp. 3, 20 ***(3129)***.

2/28/93

The fifth test firing of the U.S.-Israeli Ar-

row missile is conducted from a ship in the Mediterranean Sea to evaluate the solid fuel rocket motor and guidance system. The missile, traveling nine times the speed of sound, comes within 40 m of its target, another Arrow reentering the atmosphere. The test allowed for the evaluation of a series of engineering changes intended to correct guidance, tracking, and overheating complications which caused test failures in the past. This successful evaluation opens the door for additional testing to begin on the Arrow Continuation Experiments (ACES) missile with twice the capability in height and range, and designed to intercept Scud-type missiles, cruise missiles and aircraft using a dual infrared seeker for high altitudes and a radio frequency seeker for low-flying, air breathing systems accompanied by heavy countermeasures.

Alan Ben-'Ami, Qol Yisra'el (Jerusalem), 2/28/93; in FBIS-NES-93-038, 3/1/93, p. 40 ***(3374)****.* ***Aerospace Daily****, 3/2/93, p. 336* ***(3374)****. Barbara Opall and Sharone Parnes, Defense News, 3/8/93, p. 6* ***(3370)****. SDI Monitor, 3/12/93, pp. 62-63* ***(3389)****. Neal Sandler, The Jerusalem Report, 3/25/93, pp. 36-37* ***(3388)****.*

3/93

At a meeting in Washington with Israeli prime minister Yitzhak Rabin, President Clinton declines to commit U.S. funds to the Israeli project for the development of a UAV that fires anti-ballistic missiles; the Israelis will continue the project on their own. The Israeli project calls for a large, long endurance UAV equipped with infrared sensors that would loiter in enemy territory and attack launching Scuds with heat seeking missiles. At the same meeting, Rabin requests a direct link between Israel and the U.S. Space Command at Cheyenne Mountain AB in Colorado, and successfully broaches the subject of allowing Israel greater access to raw information obtained from U.S. satellites operating over such countries as Iran and Iraq.

Flight International, 4/7/93, p. 6 (3122).

3/15/93

At a meeting in Washington with Israeli Prime Minister Yitzhak Rabin, President Clinton states that the U.S. and Israel are to improve strategic cooperation, which many U.S. and Israeli sources claim will come into conflict with U.S. missile technology export controls such as those outlined in the MTCR. The increased cooperation will not mean more aid, but rather technology sharing and cooperative projects such as the Arrow ATBM. U.S. congressional investigators point out contradictions between the Arrow project and the U.S. policy of safeguarding missile technology. A classified General Accounting Office investigation of these contradictions is scheduled for release in the summer of 1993.

George Leopold and Barbara Opall, Defense News, 4/12/93, pp. 1, 28 ***(3128)****.*

3/30/93

A Pentagon official states that the Pentagon and the State Department are considering special exemptions for Israel or changing Israel's MTCR status, both of which would aid U.S. technology sharing with Israel. The official also says that Israel would have to abandon its past practices of unauthorized sales and transfers of U.S. technology in order to qualify for U.S. exemptions.

George Leopold and Barbara Opall, Defense News, 4/12/93, pp. 1, 28 ***(3128)****.*

3/31/93

Maj. Gen. Giora Rom, Israeli defense attache to Washington, claims that Israel would like to become a full MTCR member, but refuses to give details.

George Leopold and Barbara Opall, Defense News, 4/12/93, pp. 1, 28 ***(3128)****.*

4/8/93

Dore Gold, a policy analyst for the Tel Aviv-based Jaffee Center for Strategic Studies, states that MTCR standards would allow the transfer of sensitive technologies to Israel if the U.S. made Israel a full ally.

George Leopold and Barbara Opall, Defense News, 4/12/93, pp. 1, 28 ***(3128)****.*

4/8/93

Michael Holtcamp, Arrow program manager for the U.S. Global Protection Against Limited Strikes (GPALS) office states that during the next several months U.S. and Israeli officials will step up their campaign to lessen technological risks associated with Arrow's components, including the dual-mode seeker. He also said that the Arrow warhead presents less of a challenge than the radome, because a warhead prototype has already been flight tested. An Israeli official claims that the warhead could be tested on the second Arrow-2 test in the summer of 1993.

Barbara Opall, Defense News, 4/12/93, pp. 1, 28 ***(3377)****.*

5/9/93

U.S. and Israeli officials hold semiannual high level talks over two days in order to consider how to address MTCR restrictions while improving U.S.-Israeli strategic cooperation and technology sharing.

George Leopold and Barbara Opall, Defense News, 4/12/93, pp. 1, 28 ***(3128)****.*

ITALY

INTERNAL DEVELOPMENTS

3/93

In an interview with Defense News, chairman of Italy's House Defense Committee Gastone Savio acknowledges that Italy needs to consider new anti-ballistic missiles and ballistic missile defense with the emergence of regional conflict as a significant threat. Savio continues: " We need to carry out some strategic evaluation to set up industrial consortia in order to evaluate new defense and deterrence needs that are completely different from what they were before 1989."

Giovanni de Briganti and Alessandro Politi, Defense News, 3/8/93, p. 30 ***(3167)****.*

4/93

Pier Giuliano Lasagni, Fiat Avio's director of space programs, claims that the Italian company's space division, which is developing liquid oxygen turbopumps for the Ariane rocket's Vulcan engine, had $28 million in sales in 1992. He states that he wants to use the company's experience with Ariane turbopumps to expand the business internationally.

Robina Riccitiello, Space News, 3/29/93, p. 8 ***(3313)****.*

ITALY WITH ARGENTINA

4/20/93

An Argentinean magistrate in Buenos Aires asks his Italian counterparts in Rome to assist in the investigation of the relationship between the Italian Foreign Ministry and Italian companies doing business in Argentina, one of which took part in the Condor-2 missile project and benefitted from Iraqi loans made by Banca Nazionale del Lavoro (BNL) Atlanta.

Alan Friedman, Financial Times, 4/21/93, p. 1 ***(2994)***.

ITALY WITH MULTI-COUNTRY GROUP

1993

Alenia Spazio of Italy plans to increase production of stainless steel alloy liquid fuel tanks for Ariane-4 rocket boosters in 1994 to 30-32 annually; 26 were produced in 1992. The Ariane-4 uses up to 4 tanks.

Space News, 3/15/93, p. 12 ***(3104)***.

ITALY WITH UNITED STATES

12/92

The U.S. State Department approves 15 export licenses to sell launch vehicle information to Italy, Spain and Australia. Subsequent reports indicate that the unexpected approval of the licenses "provoked a storm of criticism" from Defense Transportation and Commerce departments. The State Department stood by its original decision in a White House Meeting, where senior administration officials failed to agree on whether to uphold or revoke the licenses.The licenses are of concern to Italy, which is developing the Scout 2 launcher with the assistance of Loral Vought Systems (formerly LTV Aerospace and Defense), Dallas, the developer of the Scout rocket. BPD Difesa e Spazio, Colleferro, Italy, was to build solid boosters to be attached to the Scout rocket. Since the license was requested , however, the Italian Space Agency has reconsidered. In an effort to avoid heavy dependence on Loral Vought, Italy has decided to develop most of the rocket's technology indigenously

Andrew Lawler, Space News, 1/11/93, pp. 4, 21 ***(3131)***.

12/15/93

Italian magistrate Michele Aiello orders the Italian Space Agency (ASI) to pay $57 million to the University of Rome for its joint Scout program with the American company Loral Vought Systems. The Italian government approved $60 million in funding to the University of Rome, which planned to spend much of the money on U.S. technology. However, ASI favored an all-Italian launcher, and wanted to stop the funding.

Robina Riccitiello, Space News, 1/18/93, pp. 3, 21 ***(3404)***.

12/23/92

The U.S. State Department approves 18 licenses to U.S. companies to cooperate with Australian, Italian, Russian and Spanish industry in building and launching rockets.

Andrew Lawler, Space News, 1/11/93, pp. 1, 20 ***(3220)***.

JAPAN

INTERNAL DEVELOPMENTS

11/17/92

A senior official of the Japanese Ministry of Trade and Industry (MITI) says that Japan is studying the control of materials useful in the production of weapons of mass destruction and that the Japanese plan calls for a ban on exports of materials capable of being used for military purposes to nations pursuing weapons of mass destruction, or countries involved in regional conflicts. This type of "catch all" regulatory ban is the sort enforced in the U.S., Britain and Germany.

Kyodo (Tokyo), 11/17/92; in JPRS-TND-92-044, 11/24/92, pp. 9-10 ***(2921)***.

11/27/92

The second test firing of the modified LE-7 engine by the Japan National Space Development Agency (NASDA) is manually shut down after 21.5 seconds of a planned 50 second test due to a hydrogen gas leak. According to officials, inspection reveals a faulty pressure sensor installation in the engine's hydrogen turbopump.

Aviation Week & Space Technology, 12/7/92, p. 19 ***(2857)***.

12/21/92

Officials with Japan's Ministry of International Trade and Industry (MITI) say that on 1/20/93 Japan will begin to enforce controls aimed at stopping exports of dual-use materials including 200 items in the weapons, atomic energy, and industrial fields. Japanese export controls vis a vis North Korea have been in line with COCOM regulations.

Kyodo (Tokyo), 12/21/92; in JPRS-ND-93-002,1/15/93, p. 4 ***(3173)***. *Mednews, 1/11/93, p. 4* ***(3173)***.

1/93

Japan plans to build a facility worth $160 million dollars to test fighter and missile engines in order to develop Japanese high performance powerplants for indigenous military and civilian aircraft.

Flight International, 1/15/93, p. 3 ***(3027)***.

2/23/93

The Japanese National Space Development Agency (NASDA) successfully conducts a 10 second "captive burn" firing test of the LE-7 designated 303A engine. The engine is connected to an H-2 rocket first stage fitted with a 38 meter dummy launcher at the Yoshinobo launch pad in Tanegashima Space center. This test followed four successful 350 second test firings of the engine between 12/17/92 and 2/2/93. Officials plan to follow the test with a 20 second test firing to examine the interaction between the main stage and the vehicles super cooled liquid-oxygen and liquid-hydrogen LE-7 engine. Another 350 second test is scheduled for 3/5/93 under a fully stacked launcher.

Peter B. de Selding, Space News, 2/22/93, p. 3 ***(3422)***. *Space News, 3/1/93, p. 2* ***(3023)***. *Aviation Week & Space Technology, 3/1/93, p. 20* ***(3422)***. *Tim Furniss, Flight International, 4/10/93, p. 19* ***(3422)***.

JAPAN-KAZAKHSTAN

3/11/93

At a Rome conference, Satoshi Shoji, deputy director for contracts at Japan's National Space Development Agency (NASDA), says that H-2 test launches are scheduled in 2/94, 8/94 and 2/95. The 2/94 launch will carry Japan's Orbital Reentry Experiment, a small capsule developed as part of NASDA's research on a future space plane called "Hope." After the last test, the rocket is to be transferred to Japan's Rocket System Corp., a commercial consortium of 75 companies, which has already received engineers from NASDA to help with the H-2's commercial development.

Space News, 3/22/93, p. 10 ***(3172)***.

3/24/93

A Japanese Ministry of Trade and Industry (MITI) official says that the Center for Information on Strategic Technology, a subsidiary of MITI, is studying the creation of a dual-use database to be introduced in 1993, based on "open sources as well as information supplied by the U.S. government," to pinpoint final users of sensitive Japanese technologies that may have been illegally transferred by a third nation. The Information Access Center, a private company based in Tokyo, Japan, is to begin a similar service in 4/93. The Japanese government hopes to use both databases to control the spread of dual-use technologies.

George Leopold and Naoki Usui, Defense News, 3/29/93, pp. 4, 37 ***(2913)***.

3/25/93

Japan's Security Export Control Committee presents a report to the Japanese Ministry of International Trade and Industry (MITI) giving recommendations and raising concerns about the export of items with military applications that should be controlled, but do not fall under COCOM. The committee recommends that tougher controls are needed than that in the U.S., U.K. and Germany under the "know" standard, in which a company is required to obtain official approval of exports if the exporter knows that the material may be used for military purposes.

Robert Thomson, Financial Times, 3/26/93, p. 4 ***(3262)***. *Arms Control Reporter, 3/93, pp. 250.B.%-250.B.6* ***(2984)***.

4/93

Fuji Heavy Industries is under contract with the Japanese Defense Agency's Technical Research and Development Institute to develop three UAVs. One of the UAVs is a turbojet powered delta wing reconnaissance UAV for air launch from Japan Air Self Defense Force F-4EJs and F-15Js, which has a maximum speed of Mach 0.9 and a range of several hundred kilometers. The new Fuji UAV is much smaller than the BQM-34AJ Firebee target drone built by Fuji under license from the U.S. firm Teledyne Ryan.

Flight International, 4/14/93, pp. 21-27 ***(3133)***.

JAPAN WITH MULTI-COUNTRY GROUP

3/15/93

Japanese officials from the Ministry of International Trade and Industry (MITI) say that they are considering sharing "arms export control know-how" including controls on materials and machine tools with 10 Asian nations, including Indonesia, Malaysia, Thailand, Singapore, and South Korea, as an incentive for them to sign international agreements aimed at curbing the proliferation of weapons of mass destructions.

Kyodo (Tokyo), 3/16/93; in JPRS-TND-93-009, 3/29/93, p. 11 ***(3261)***.

JAPAN WITH NORTH KOREA

12/17/92

Japan's Defense Agency, in a report presented to the Japanese cabinet's Security Council, identifies North Korea's reported development of a long range missile capable of striking western Japan and North Korea's suspected nuclear weapons program as security concerns; an analysis by the Japanese Foreign Ministry echoes these concerns.

Kyodo (Tokyo), 12/17/92; in JPRS-TND-92-048, 12/23/92, p. 2 ***(2914)***.

JAPAN WITH RUSSIA

3/9/93

Japan is planning to assist Russia in destroying the liquid fuel remaining from its intercontinental ballistic missiles scrapped in compliance with the START-2 treaty. In 4/93, Japan plans to send a group of specialists to Russia to determine the means of destroying the fuel.

Itar-Tass (Moscow), 3/9/93; in FBIS-SOV-93-045, 3/10/93, p. 16 ***(3242)***.

JAPAN WITH UNITED KINGDOM

3/93

The United Kingdom's Royal Ordnance rocket motors division completes a contract with Kawasaki Heavy Industries, transferring thrust vectoring technology to assist Kawasaki's guided missile research and development.

Armed Forces Journal International, 3/93, p. 19 ***(3230)***.

JAPAN WITH UNITED STATES

4/22/93

Pentagon officials say that Japan, which is discussing its options with U.S. military officials to counter the North Korean nuclear threat, could rely on U.S. Navy ships for ballistic missile protection or may arm its Aegis destroyers with ballistic missile interceptors. Japan is currently buying Aegis combat systems and upgrading the Aegis radars to track and target theater ballistic missiles. The Aegis contract prohibits the Japanese from upgrading, refitting, or reverse-engineering the Aegis technology themselves.

Inside the Pentagon, 4/22/93, p. 14 ***(3343)***.

KAZAKHSTAN

KAZAKHSTAN WITH MULTI-COUNTRY GROUP

12/92

CIS joint forces conduct anti-missile tests at the Emba test range in West Kazakhstan. Reportedly, targets which simulated ballis-

tic and cruise missiles were destroyed "with an accuracy several times greater than that of missiles used by the allied forces during the Persian Gulf war."
Dmitriy Gutenev, Pravda (Moscow), 12/15/92, p. 4; in FBIS-SOV-92-243, p. 56 ***(2875)***.

1/21/93

During a summit meeting, Belarus, Kazakhstan Russia, and Ukraine again fail to agree on the transfer of all ex-Soviet nuclear weapons to Russia. Russia's demands for control over nuclear warheads, ballistic missiles, nuclear weapons on strategic bombers, early warning systems, anti-missiles and anti-aircraft systems were rebuffed by Belarus, Kazakhstan, and Ukraine. Kazakhstan supports the supreme command of the United Forces of the CIS, which maintains that the term "nuclear forces" include military formations, installations, and maintenance units which have strategic nuclear weapons in their arsenals.
Douglas Clarke, RFE/RL Research Report, 1/18/93, p. 5 ***(2898)***. *Andrey Naryshev and Oleg Falichev, Krasnaya Zvezda (Moscow), 1/23/93, p. 1; in FBIS-SOV-93-015, 1/26/93, pp. 12-13* ***(3291)***. *Umit Enginsoy and George Leopold, Defense News, 1/25/93, pp. 3, 27* ***(3254)***. *Mednews, 1/25/93, pp. 5-6; Interfax (Moscow), 1/22/93; in FBIS-SOV-93-013, p. 12 (3290).*

3/93

Kazakhstan announces its 1993 defense budget totalling R69,326,367,000. This sum includes R25,523,427,000 and R423,587,000 respectively allocated to the CIS Strategic Forces and Baikonur space center.
Arms Control Reporter, 6/25/93 ***(3383)***.

KAZAKHSTAN WITH RUSSIA

1/93

Kazakhstan proposes that a bilateral examination be conducted with Russia regarding the procedure for destruction of nuclear weapons on Kazakh territory.
Andrey Naryshev and Oleg Falichev, Krasnaya Zvezda (Moscow), 1/23/93, p. 1; in FBIS-SOV-93-015, 1/26/93, pp. 12-13 (3291).

1/93

Russia's deputy commander of the Russian Military Space Force General B. G. Kalinichev criticizes the Kazakh government for a lack of monetary support of Baikonur, noting that last year, Russia's Ministry of Defense had paid one billion rubles to Baikonur Cosmodrome. Russian officials have discussed the possibility of transferring all space launches from Baikonur to Plesetsk. However, Russia has no manned vehicle or heavy Proton facilities at the Plesetsk launch site.
Craig Covault, Aviation Week & Space Technology, 2/1/93, pp. 57-59 ***(3414)***.

4/13/93

Russian President Boris Yeltsin requests a meeting with Kazakh President Nursultan Nazarbayev in order to discuss problems related to the Baikonur Cosmodrome Space Complex at a bilateral meeting in 5/93. President Yeltsin wishes to increase cooperation between Russia and Kazakhstan to include the maintenance and use of the Baikonur Cosmodrome.
Roman Zadunaiskiy, ITAR-TASS (Moscow), 4/9/93; in FBIS-SOV-93-069, 4/13/93, pp. 14-15 ***(3058)***. *Igor Romanov, Rossiyskiye Vesti (Moscow), 4/14/93, p. 7; in FBIS-SOV-93-072 4/16/93, p. 16* ***(3058)***.

KAZAKHSTAN WITH UKRAINE

11/17/92

Ukraine's Zenit medium-lift booster is successfully launched from the Baikonur Cosmodrome, Kazakhstan, placing an early-warning satellite into orbit for the CIS military, after a number of unsuccessful launches from 1990-1992.
Tim Furniss, Spaceflight, 12/2/92, p. 22 ***(2987)***.

3/93

Ukrainian officials are seeking an agreement to use the Baikonur space center in Kazakhstan.
Reuter (Kiev), 3/10/93; in Executive News Service, 3/11/93, p. 36 ***(3247)***.

KUWAIT

KUWAIT WITH IRAQ

11/28/92

U.N. officials say that Iraq has promised to return 75 Hawk surface-to-air missiles that it took from Kuwait during the 1990 invasion; the missiles are intact, but Iraq has yet to account for the launchers and control equipment. Iraq says that it prepared two batteries of the improved Hawk missiles to shoot down coalition aircraft during the Gulf War, but it is unknown whether any were fired. Subsequent talks also involved the return of improved Hawk missiles.
Washington Times, 11/29/92, p. A8 ***(2918)***.

1/93

According to U.N. officials, 200 unarmed Iraqis seize weapons, including four Chinese made "Silkworm" surface-to-surface missiles, stockpiled by the U.N. in Kuwait and take them across the border to Iraq. The move comes one day after the Iraqis removed an estimated five batteries of SA-2 "Guideline" high altitude and SA-3 "Goa" medium altitude surface-to-air missiles from the no-fly zone below the 32nd parallel; the missiles had been deployed there after the U.S. shot down an Iraqi fighter over the area.
Jane's Defence Weekly, 1/16/93, p. 5 ***(2924)***.

2/93

Iraq promises to return to Kuwait the improved Hawk surface-to-air missiles and launcher later in 2/92 and provides a detailed list of Hawk launchers, missiles, and radars. Previously, Iraq included only the Hawk missiles on the list of items to be returned, despite the fact that Kuwait possessed 12 to 24 improved Hawk launchers prior to the Iraqi invasion. Kuwait's assistant chief of staff for military intelligence, Maj. Gen. Saud Al-Shamlan, comments

that, "we are going to get the improved Hawks back, but we do not know their condition, whether they will be usable." The return of the Hawks is important as they currently form the most advanced component of an Iraqi air defense arsenal heavily reliant on aging Soviet SA-2, SA-6 and SA-7 surface-to-air missiles.
Defense News, 2/15/93, pp. 3, 4 ***(3009).***

KUWAIT WITH RUSSIA

2/9/93

Maj. Gen. Al-Shamlan, assistant chief of staff for Kuwaiti military intelligence, states that Kuwait is interested in buying Russian air defense and ground systems. Kuwait had Russian SA-6 and SA-8 air defense systems before the war with Iraq.
Philip Finnegan, Defense News, 2/22/93, p. 6 ***(3143)***.

KUWAIT WITH UNITED STATES

1/12/93

Raytheon announces its $327 million contract to supply five Patriot fire units and 210 missiles to Kuwait by mid-1995. Raytheon may also supply an integrated Patriot/Hawk air defense system of six Raytheon Hawk anti-aircraft batteries, plus missiles pending the review of batteries returned by Iraq after the Gulf War.
Aviation Week & Space Technology, 1/18/93, p. 21 ***(3244)***. *Flight International, 1/20/93, pp. 4-5* ***(3244)***.

1/93

The U.S. moves Patriot SAMs back into Kuwait in response to concerns over the possibility of an Iraqi missile attack in retaliation for coalition air raids on Iraqi installations. There remains some doubt as to whether all of Iraq's ballistic missiles have been destroyed despite the efforts of U.N. inspectors.
Duncan Lennox, Jane's Defence Weekly, 2/19/93, p. 78 ***(2926)***.

1/19/93

Kuwaiti Foreign Minister Sheikh Sabah Al-Ahmed Al-Jabar Al-Sabah says, in response to the shipping of U.S. Patriot missiles to Kuwait, that "We asked for that [Patriots] because we have to save our people in Kuwait." Sheikh Sabah did not specify the number of missiles sent.
Asian Recorder, 2/19/93, p. 22935 ***(2911)***.

4/93

Kuwait is to receive Patriot missiles from the U.S. in the latter half of 1993 as part of a defense build up reported to be worth $15 billion by the year 2000. Kuwait will reportedly spend $2.5 billion on Patriot missile batteries and an unreported number of Hawk air defense missiles.
Statesman (New Delhi); in Asian Recorder, 4/23/93, p. 23086 ***(2928)***.

LATVIA

LATVIA WITH RUSSIA

3/93

The last contingent of Russian forces departs the Latvian Banga missile unit camp located in Ventspils Rayon, leaving behind tanks of poisonous missile fuel. According to chief ecologist at Ventspils rayon Karklina, there were 90 tons of "millazh fuel" and 180 tons of "Samin fuel" at the Banga camp as of 11/92.
Radio Riga Network, 3/26/93; in FBIS-SOV-93-059, 3/30/93, p. 84 ***(3201)***.

3/93

The Latvian Bureau for Monitoring the Withdrawal of Troops, operating under the Latvian Council of Ministers, is to present a list of objects not needed by Latvia to the North Western Group of Forces of the Russian Federation, including strategic missile structures and silos. After the Russians dismantle the structures, the land will be restored and returned to the Latvian government.
Radio Vilnius Network (Vilnius), 3/26/93; in FBIS-SOV-93-059, 3/30/93, p. 84 ***(3391)***. *Krasnaya Zvezda (Moscow), 3/30/93, p. 2; in FBIS-SOV-93-060, 3/31/93, P. 87* ***(3391)***.

LIBYA

LIBYA WITH IRAN

4/93

According to Western government officials, Libya transfers the design of its unsuccessful Al-Fatah missile to Iran; although commonly attributed with a range of 500 km, the Western government officials claim that it really has a range of 950 km. It is likely that Iran and Libya are working on a joint venture to develop or upgrade the Al-Fatah.
Alan George, Flight International, 4/93, p. 4 ***(3321)***.

LIBYA WITH RUSSIA AND UKRAINE

4/13/93

Ukrainian Foreign Ministry spokesman Yuri Sergeyev announces that Ukraine seized 80 tons of ammonium perchlorate bound for Libya. The cargo, seized in the port of Ilyichovsk, was to be shipped by the Russian company Paveks to Varna, Bulgaria. From Bulgaria the shipment was to be re-exported to Libya. Western embassy authorities alerted the Ukrainian government of the shipment.
Reuter, 4/13/93 ***(3255)***. *Washington Post, 4/14/93, p. A29* ***(3255)***. *Izvestiya (Moscow), 4/16/93, p. 15; in JPRS-TND-93-011, 4/23/93, pp. 23-24* ***(3255)***.

MISSILE TECHNOLOGY CONTROL REGIME

INTERNAL DEVELOPMENTS

1/7/93

MTCR members issue a joint statement concerning the implementation of the Guidelines, which had been revised in 6/92 at the Oslo MTCR meeting to extend to the transfer of missile related equipment and technologies which may contribute to delivery

systems of weapons of mass destruction.
Japanese Embassy Press Release, 1/7/93 ***(3259)***.

3/8/93-3/11/93

MTCR members meet in Canberra, Australia where Iceland is accepted as the 23rd partner, and Argentina and Hungary submit applications and are guaranteed future membership. At the meeting it is noted that many countries outside the Regime are still abiding by its guidelines, and members make an appeal to other countries to follow suit. Several areas of concern are outlined including the weakness of export controls in states emerging from the former Soviet Union, the failure of key suppliers to join the Regime, and the growing sophistication of the production capabilities of many potential suppliers who also remain outside the MTCR. Partners agree to meet in Switzerland in 11/93.
The Disarmament Bulletin, Summer 93, p. 5 ***(3192)***. *Pacific Research, 5/93, p. 20* ***(3192)***.

6/29/93-7/2/93

The 22 members of the MTCR meet in Oslo, Norway where they agree to keep the 1987 MTCR guidelines for Sensitive Missile-related Transfers as an essential mechanism for the nonproliferation of missiles able to carry nuclear weapons, but extend the scope of the Regime to include missiles that can deliver chemical or biological weapons. New members Greece, Portugal, and Switzerland attend for the first time.
Government of Norway, Royal Ministry of Foreign Affairs, Press Release, 11/3/93 ***(3109)***.

MTCR with Argentina

3/93

The U.S. State Department confirms that MTCR member nations are assisting Argentina in the disposal of the Condor 2 project's remaining elements.
Nathaniel C. Nash, New York Times, 3/7/93, p. 10 ***(3195)***. *Jon B. Wolfsthal, Arms Control Today, 4/93, p. 24* ***(3195)***.

3/11/93

Argentina is invited to join the MTCR.
Embassy of Argentine Republic Press Communique, 4/21/93 ***(2935)***. *MTCR Closing Press Release, 3/11/93* ***(2576)***.

NORTH KOREA

Internal Developments

5/4/93

German Federal Intelligence Service (BND) analysts say that North Korea has "both the capability and the will" to wage chemical warfare and could use 800 km range Scud missiles as a delivery system.
Focus (Munich), 3/26/93, p. 13; in JPRS-TND-93-012, 5/4/93, p. 4, ***(3017)***.

North Korea with Egypt

2/93

Central Intelligence Director R. James Woolsey tells the Senate Government Affairs Committee that North Korea is using Egyptian technology to upgrade Scud missiles, but a lack of specialists has forced North Korea to search for skilled scientists overseas in order "to convert missile manufacturing into a competitive export sector."
David Fulghum, Aviation Week & Space Technology, 3/1/93, p. 25 ***(3222)***.

North Korea with Germany

3/93

The German Federal Intelligence Service (BND) reports that North Korea commissioned three international shipping companies to transport special metals acquired on Berlin's grey market for the production of missile launch pads.
Focus (Munich), 3/22/93, p. 15; in FBIS-WEU-93-053, 3/22/93, p. 6 ***(3016)***.

North Korea with Iran

12/92

North Korea and Iran sign a five year, military agreement which will take affect in 3/93. The agreement is worth billions of dollars and includes the development of new missile systems. The agreement also includes: North Korean design and manufacture of two new missiles; "two workshops" constructed in Iran to allow for the maintenance and repair of its heavy bombers and fighter planes; and the joint development of speed boats that would carry multiple torpedo launchers.
Amir Tahiri, Al-Sharq Al-Awsat, 12/8/92, p. 3; in JPRS-TND-92-048, 12/23/92, pp. 6-7 ***(3442)***.

1/93

Iran's Revolutionary Guards Commander Mohsen Rezai visits Beijing and Pyongyang in order to conclude new agreements for ballistic missiles and other weapon systems. Shortly before Rezai's departure, a member of the Iranian Parliament announced that North Korea has asked for a cash payment of $2.4 to $2.7 billion to pay for Scud-B missiles delivered to Iran during the war.
Mednews, 1/25/93, p. 3 ***(3454)***.

2/93

CIA chief James Woolsey testifies before the U.S. Congress that North Korea is becoming the primary supplier of missile programs in Iran and Syria, adding that "North Korea apparently has no threshold governing its sales... It is willing to sell to any country with the cash to pay." Although North Korea has enough plutonium for a nuclear device, it has yet to develop a ballistic missile capable warhead, but it is believed to be attempting to make its Scud-C systems nuclear capable by 1995.
John J. Fialka, ***Wall Street Journal****, 2/25/93, p. A10,* ***(3020)***.

2/93

Iran receives "a number of launching pads" and Scud-C surface-to-surface missiles with a range of 500 km as part of a deal that Iranian authorities previously signed with North Korea. These missiles supplement about 250 Scud-B missiles supplied to Iran before the Gulf War.
Israel Television Network (Jerusalem), 2/9/93; in FBIS-NES-93-026, 2/10/93, p. 47 ***(2937)***.

3/28/93

A 21 member team headed by Brigadier

NORTH KOREA

General Hossein Mantequei, the Revolutionary Guard commander in charge of Tehran's surface-to-surface missile force, arrives in Pyongyang. The prominence of missile experts in the delegation indicates that it has come to observe final tests of the Nodong-1, and to be trained in the missile's use. Opposition group leaders say that some members of the delegation are to remain in North Korea for at least a month.

Douglas Jehl, New York Times, 4/8/93, p. A9 ***(3462)****. Alan Elsner, Executive News Service, 4/9/93* ***(3073)****.*

3/93

Western intelligence sources comment that North Korea and Iran are engaged in a cooperative effort in which Iran is providing North Korea with $500 million to develop a ballistic missile system capable of striking Japan with nuclear and chemical warheads, and North Korea is to provide Iran with an unknown number of nuclear bombs and plans for nuclear-weapons-reprocessing plants. These reports were denied by North Korea's Korean Central News Agency.

U.S. News & World Report, 3/29/93, p. 18 ***(3021)****. Reuter (Tokyo), 4/18/93; in JPRS-TND-93-006, 3/5/93, pp. 13-14* ***(3436)****. Washington Times, 4/19/13, p. A2* ***(3021)****.*

4/8/93

U.S. officials express concern that Iran is finalizing plans to purchase the 600 mile range (960 km) Nodong-1 missile from North Korea.

Alan Elsner, Executive News Service, 4/9/93, ***(3073)****.*

North Korea with Japan

12/17/92

Japan's Defense Agency, in a report presented to the Japanese cabinet's Security Council, identifies North Korea's reported development of a long range missile capable of striking western Japan and North Korea's suspected nuclear weapons program as security concerns; an analysis by the Japanese Foreign Ministry echoes these concerns.

Kyodo (Tokyo), 12/17/92; in JPRS-TND-92-048, 12/23/92, p. 2 ***(2914)****.*

North Korea with Multi-Country Group

4/3/93

North Korea denies reports in the western press, with a direct reference being made to the Japanese paper "Sankei Shimbun," that it was exporting nuclear warhead capable missiles to Middle Eastern countries, and dismissed these reports as a propaganda plot of the U.S.

KCNA (Pyongyang), 4/3/93; in FBIS-EAS-93-063, p. 28 ***(3015)****.*

North Korea with Russia

10/92

A group of sixty Russian engineers, planning to fly to North Korea to help with the modernization of ballistic missiles, is intercepted by the Russian police. The engineers were from the Makeyev Design Bureau in Miass, which is responsible for submarine-launched ballistic missiles and Scud tactical missiles. The recruiting agent was a Russian posing as a government official, but was actually in the employ of the North Korean embassy.

Steven Zaloga, Armed Forces Journal, 4/93, p. 9 ***(3341)****.*

11/92

Russia releases a top secret document (special file no. P147, Point 75) of the CPSU Central Committee Politburo Session of 2/6/89, which states that "most recently, reports have begun to be actively circulated in the U.S. on the DPRK's creation of a chemical warfare potential, using missiles manufactured under license from us as delivery systems (and) it has emerged from information from our embassy in Pyongyang that this report is not without foundation."

Izvestia (Moscow), 11/21/92, p. 7; in JPRS-TND-92-045, 12/7/92, pp. 17-18 ***(3334)****.*

1/93

North Korea gives assurances to Russian Deputy Foreign Minister Georgy Kunadze that it will not employ Russian missile and nuclear scientists and engineers. The North Korean decision followed U.N. pressure to inspect suspected nuclear waste sites in North Korea and Russian threats to suspend diplomatic relations if demands not to employ Russian technicians were not met.

Washington Post, 2/17/93, p. A2 ***(3074)****.*

2/24/93

Yuriy Bessarabov, a leading expert of Unique Defense Enterprise, says that low wages were responsible for the attempt by 60 scientists from the machine design bureau in Miass, Chelyabinsk region to fly to North Korea to train personnel for North Korean strategic arms development programs. Most of the scientists were strategic missile experts which may indicate that North Korea is seeking assistance in designing a warhead and delivery system for a nuclear device. Larry Niksch, a Congressional Research Service Asian specialist, says that it is possible that North Korea has developed a nuclear bomb but does not yet have a warhead.

Michael Breen, Washington Times, 2/19/93, p. A1, A6 ***(3116)****. Evgeniy Tkachenko, Itar-Tass (Moscow), 2/24/93; in FBIS-SOV-93-035, 2/24/93 pp. 11-12* ***(3116)****.*

4/93

Thirty-six Russian nuclear scientists, who had all been working on the same top secret project, are arrested at Khabarovsk airport while trying to fly to North Korea. It has been speculated that some "authoritive" figures in the Russian leadership may have acted as intermediaries between the scientists and the North Koreans.

M. Maksimovskaya, Ostankino Television (Moscow), 4/2/93; in FBIS-SOV-93-064, pp. 27-28 ***(3337)****.*

North Korea with Syria

2/93

CIA chief James Woolsey testifies before the U.S. Congress that North Korea is becoming the primary supplier of missile programs in Iran and Syria, adding that "North Korea apparently has no threshold governing its sales...It is willing to sell to any country with the cash to pay." Although North Korea has enough plutonium for a nuclear device, it has yet to develop a ballistic missile capable warhead, but is believed to be attempting to make its Scud-C

systems nuclear capable by 1995.
John J. Fialka, Wall Street Journal, 2/25/93, p. A10 ***(3020)***.

OMAN

OMAN WITH FRANCE

1/93

Thomson-CSF of France is to export its Crotale NG air defense system to Oman.
Jane's Defence Weekly, 2/13/93, pp. 43-44 ***(3138)***.

PAKISTAN

INTERNAL DEVELOPMENTS

12/92

Mir Hazar Khan Bijarani, Pakistan's Minister for Defense Production, observes that Pakistan is capable of manufacturing everything for its defense, including nuclear missiles, and has nothing to fear from Indian missiles.
Jang (Lahore), 12/16/92, pp. 5, 8; in JPRS-TND-92-048, 12/23/92, pp. 12-13 ***(3181)***.

1/93

Sikander Zaman, chairman of the Space and Upper Atmosphere Research Commission (SUPARCO), announces that tests of the laboratory model of Pakistan's second satellite have been completed, and that it will be launched in early 1994. He claims that the satellite was designed without outside help, and that an engineering model and then a flight model would follow. Zaman says that SUPARCO will establish an aerospace institute by the end of 1993; SUPARCO's primary objective is the manufacture of rockets so that Pakistan can launch its own satellites.
Jang (Karachi), 1/9/93, p. 1; in JPRS-NEA-93-034, 3/9/93, p. 14 ***(3145)***.

PAKISTAN WITH INDIA

3/6/93

A Pakistani Foreign Office Spokesman states that India's development of the 2,500 km range Agni missile is counterproductive to improving peace and security in the region and added that Pakistan is "committed" to holding talks with India regarding lethal weapons including missile technology in order to reduce threats to the region. He listed five elements as central to the issue of weapons of mass destruction: biological, chemical, and nuclear weapons, missile technology and overall conventional defense forces. In response to whether Pakistan would like to obtain missile technology, the spokesman states the Pakistan would do everything possible to defend itself against any threat.
Radio Pakistan Network (Islamabad), 6/3/92; in JPRS-TND-92-018, 6/10/92, p. 11 ***(3089)***. *PTV Television Network (Islamabad), 6/3/92; in JPRS-TND-92-018, 6/10/92, p. 11* ***(3089)***.

PAKISTAN WITH PRC

12/6/92

Responding to a report alleging that Pakistan had purchased Chinese missiles, Pakistani Defense Minister Glaus Ali Shah comments that he is in no position to challenge the report. Shah minimized the significance of these reports by noting that India has more sophisticated atomic missiles and has been developing atomic missiles for the last few years. He adds that Pakistan has the full right to defend its borders.
The Nation (Islamabad), 12/7/92, p. 12; in JPRS-TND-92-047, 12/18/92, P. 16 ***(3137)***.

12/92

The former chief of staff of the Pakistan Army General Mirza Aslam Beg, responding to a Los Angeles Times report that two dozen M-1 Chinese missiles were off-loaded at Karachi, Pakistan, states, "As regards the M-11 missile system that Pakistan is acquiring from China, it is covered within the six-nation agreement on Missile Technology control to which China is a signatory. The missile has a range of less than 300 km and is not capable of carrying a nuclear warhead. It is neither designed for it nor has the required degree of accuracy." The U.S. says that if the allegations are substantiated, economic sanctions will be imposed on the PRC for breaking previous agreements.
Anwar Igbal, UPI, 12/5/92; in Executive News Service, 12/7/92 ***(2940)***. *The News (Islamabad), 12/6/92, p. 4; in JPRS-TND-92-047, 12/18/92, p. 17* ***(2938)***.

1/93

U.S. intelligence reports indicate that recently the PRC delivered at least 12 M-11 missiles to Pakistan. China admitted to the sale of "a small number" of M-11 missiles to Pakistan in 1991, but claims that they had not yet been supplied.
Hindustan Times (Delhi) and Jane's Intelligence Review (London); in Asian Recorder, 1/29/93, pp. 22880-22881 ***(3407)***.

4/93

U.S. intelligence sources confirm that the PRC, defying the Missile Technology Control Regime by which it agreed to abide, sold M-11 missiles to Pakistan and key missile components to Iran.
Lally Weymouth, Washington Post, 4/12/93, p. A19 ***(3239)***.

PRC

INTERNAL DEVELOPMENTS

10/92

The Chinese Defense Ministry plans to set up a new office to handle armament transactions. Apart from coordinating exports and imports of armaments, another responsibility of the office will be to assure international agencies that the PRC abides by such agreements as the MTCR and the NPT.
South China Morning Post (Hong Kong), 10/2/92, p. 13; in JPRS-TND-92-037, 10/9/92, p. 1 ***(2849)***.

10/29/92

Chinese Foreign Minister Qian Qichen states the PRC's three principles regarding arms exports to the Middle East: "The first principle is that this will increase the legitimate self-defensive capability of the

countries that receive the weapons; the second is that these weapons should not threaten the peace, security, and stability of the regions concerned; and the third principle is that they should not be used in the internal affairs of other countries' or against their sovereignty."
Mena (Cairo), 10/29/92; in FBIS-CHI-92-210, 10/29/92, pp. 15-16 ***(3263)***.

1/93

The PRC is developing new classes of ships that will include surface-to-surface missiles and electronic warfare capabilities that will allow the ships to be effective farther out at sea. The ships include the Jiangwei class frigate, the Luha class destroyer, and a much improved version of the older Luda class destroyer
Nicholas D. Kristof, New York Times, 1/11/93, pp. A1, A4 ***(3238)***.

1/93

According to a U.S. government official, there is no doubt that the PRC has a program integrating Patriot technology in weapons such as the Russian designed SA-10 and SA-12 missiles. The PRC is also using this Patriot technology to develop a defense against the Patriot defense system. The PRC is expected to offer the modified missiles for sale to customers such as Iran as anti-tactical ballistic missiles that have a defense penetration capability against the Patriot.
David A. Fulghum, Aviation Week & Space Technology, 1/18/93, pp. 20-21 ***(3223)***.

2/93

In a U.S. Defense Department report, officials indicate that between the years 2000 and 2010, Syria, Iran and the PRC will have cruise missiles with some low-observable or stealth capabilities, and chemical and biological warheads.
Aviation Week & Space Technology, 2/1/93, pp. 26-72 ***(3258)***.

2/93

Central Intelligence Director R. James Woolsey tells the Senate Government Affairs Committee that the PRC has intensified the U.S.'s concern over technologies such as modern aircraft, SAMs, and nuclear power as it develops them and exports them to the Third World.
David Fulghum, Aviation Week & Space Technology, 3/1/93, p. 25 ***(3222)***.

PRC with Australia

12/21/92

An accident occurs during China Great Wall's Long March 2E launch of Australia's Optus B2 satellite from Xichang Launch Facility. The cause of the failure centers around a problem that occurred approximately 45 seconds after the launch, when a small flash appeared around the nose cone of the rocket.
Daniel J. Marcus, Space News, 1/4/93, pp. 4, 20 ***(3236)***. *Tim Furniss, Flight International, 2/3/93, p. 20* ***(3237)***.

12/30/92

Emery Wilson spokesman for the U.S. firm Hughes Space and Communications Co., announces that ten Hughes personnel will travel to the PRC to investigate a 12/21/92 accident involving the Australian Optus B2 launch aboard China Great Wall's Long March 2E rocket. Hughes is the builder of the Optus B2. Chinese officials believe the rocket was not responsible for the explosion, noting that the launch vehicle performed normally. Aboard the satellite was a solid propellant motor to place the satellite into an elliptical transfer orbit and a motor utilizing four liquid fuel tanks, that would have moved the satellite into a final circular orbit. According to U.S. and European sources, the accident was caused when the Chinese built nose cone shroud covering the satellite shattered when the rocket was reaching supersonic velocity. Telemetry data show that the rocket's second stage booster performed better than expected, possibly resulting from a lighter load because of loss of components or accidental ignition of fuel. A total of four search teams consisting of Chinese, Hughes and U.S. government personnel will investigate the debris found. Hughes will replace the Optus B2 and deliver it to orbit within 18 months.
Daniel J. Marcus, Space News, 1/4/93, pp. 4, 20 ***(3236)***. *Paul Proctor, Aviation Week & Space Technology, 1/11/93, pp. 60, 63* ***(3236)***. *Craig Covault, Aviation Week & Space Technology, 1/18/93, p. 28* ***(3236)***.

3/3/93

Hughes Corporate Vice President Donald Cromer comments that the investigation of the 12/21/93 Optus B2 accident has narrowed the causes to three possibilities: two centering on the satellite and one on the China's Long March 2E launcher. Vice President of China Great Wall Industry Chen Shou Che states that they concluded their investigation and had determined that the launcher was not at fault.
Tim Furniss, Flight International, 2/3/93, p. 20 ***(3237)***. *Peter B. de Selding, Space News, 3/8/93, pp. 3, 21* ***(3237)***.

PRC with Hong Kong

3/93

Hong Kong's Asia Satellite Telecommunications Co. contracts PRC's Great Wall Industry Corporation to launch the AsiaSat 2 satellite using a Long March 2E rocket in the first quarter of 1995 from the launch site in Xichang, China at a cost of $54 million.
Space News, 3/15/93, p. 16 ***(3189)***.

PRC with India

11/29/92

Indian Space Research Organization (ISRO) Chairman U.R. Rao leaves with a nine-member team of Indian scientists for a nine-day visit to Beijing to discuss areas of space cooperation with the PRC.
Vivek Raghuvanshi, Space News, 12/7/92, p. 23 ***(2995)***.

1/93

India and the PRC are looking at areas of cooperation which may entail the launching of Indian satellites aboard Chinese boosters. The Indian Space Research Organization (ISRO) says that the Polar Satellite Launch Vehicle (PSLV) is slated to make its maiden flight in "the next few months." The PSLV 1 will place an engineering model of the Indian Remote Sensing satellite into orbit.
Flight International, 1/20/93, p. 24 ***(3093)***.

4/1/93

At a two day seminar on Chinese and Indian technology, a senior Indian official says that China and India should "merge their technological strengths" to jointly compete for contracts in the international space market. Prime Minister P. R. Kumaramanglam comments that India has a proven capability in building advanced satellites and China possesses fully developed science, technology and launch programs, and that combining these capabilities could strengthen the two countries positions in the international space market.

UPI, 4/1/93; in Executive News Service, 4/2/93 ***(3168)***.

PRC WITH IRAN

1/8/93

Western diplomatic sources state that the PRC is buying an unknown number of Mig-29's from Iran in exchange for Chinese missile technology and a nuclear power station.

Kyodo (Tokyo), 1/8/93; in JPRS-TND-93-002, 1/15/93, p. 3 ***(3028)***.

1/93

Iran's Revolutionary Guards Commander Mohsen Rezai visits Beijing and Pyongyang in order to conclude new agreements for ballistic missiles and other weapon systems.

Mednews, 1/25/93, p. 3 (3454).

1/93

An Iranian delegation visits the PRC to finalize the purchase of 10 Hega class fast attack craft which deploy missiles. Negotiations over the Hega sale began in late 1991. While in Beijing, the delegation attempted to purchase a new craft armed with the Ying Ji anti-ship missile which has a 40 km range.

Jane's Defence Weekly, 2/13/93, p. 48 ***(3076)***.

PRC WITH ISRAEL

12/92

Israel's President Hayim Herzog and other senior officials visit the PRC's satellite control center in Xian. The Chinese hosts express interest in cooperating with Israel to launch Israeli scientific and communications satellites.

Space News, 1/18/93, p. 11 ***(2896)***.

1/93

Pentagon officials confirm that former Defense Secretary Richard B. Cheney received intelligence briefings indicating that Israel passed Patriot guidance and propulsion technology to China in return for M-series ballistic missile information, including the M-9 and M-11 missiles. It is possible that Israel may have passed Patriot technology to China through the Arrow missile defense program.

David A. Fulghum, Aviation Week & Space Technology, 2/1/93, pp. 26-27 ***(3260)***.

1/5/93

CIA Director Robert Gates confirms that the Chinese obtained Patriot anti-missile technology, but would not confirm media reports that Israel gave that technology to China. After sending investigators to Israel to check out an earlier report, a 4/92 State Department report states that it could not find corroborating evidence that Israel had transferred Patriot Missile technology to China. Gates now says that there are "disagreements on the question" of whether or not that report underestimated contradictory intelligence. When the State Department report was released, Bush administration officials said that they closed the matter to avoid harming the Middle East peace process.

Drora Perl, DAVAR (Tel Aviv), 1/6/93, p. 2; in FBIS-NES-93-003, 1/6/93, p. 31, ***(3077)***. *Israel Foreign Affairs, 2/26/93, p. 6* ***(3026)***.

2/7/93

During a visit to Israel by seven PRC scientists, Israeli Science and Technology Minister Shim'on Shetrit and the head of the PRC delegation Vice Minister of the State Science and Technology Commission Li Xiaoshi are scheduled to sign a cooperative agreement on civilian applications of space technologies.

Qol Yisra'el (Jerusalem), 2/7/93; in FBIS-NES-93-025, 2/9/93, p. 40 ***(3125)***.

PRC WITH PAKISTAN

12/6/92

Responding to a report alleging that Pakistan had purchased Chinese missiles, Pakistani Defense Minister Glaus Ali Shah comments that he is in no position to challenge the report. Shah minimized the significance of these reports noting that India already has more sophisticated atomic missiles and has been developing atomic missiles for the last few years; he adds that Pakistan has the full right to defend its borders.

The Nation (Islamabad), 12/7/92, p. 12; in JPRS-TND-92-047, 12/18/92, P. 16 ***(3137)***.

12/92

The former chief of staff of the Pakistan Army General Mirza Aslam Beg, responding to a Los Angeles Times report that 24 M-11 Chinese missiles were off-loaded at Karachi, Pakistan, states, "As regards the M-11 missile system that Pakistan is acquiring from China, it is covered within the six-nation agreement on Missile Technology control to which China is a signatory. The missile has a range of less than 300 km and is not capable of carrying a nuclear warhead. It is neither designed for it nor has the required degree of accuracy." The U.S. says that if the allegations are substantiated, economic sanctions will be imposed on the PRC for breaking previous agreements.

Jim Mann, Los Angeles Times, 12/4/92, pp. A1, A18 ***(3316)***. *Anwar Igbal, UPI, 12/5/92; in Executive News Service, 12/7/92* ***(2940)***. *The News (Islamabad), 12/6/92, p. 4; in JPRS-TND-92-047, 12/18/92, p. 17* ***(2938)***.

1/93

U.S. intelligence reports indicate that recently the PRC delivered at least 12 M-11 missiles to Pakistan. China admitted to the sale of "a small number" of M-11 missiles to Pakistan in 1991, but claims that they had not yet been supplied.

Hindustan Times (Delhi) and Jane's Intelligence Review (London); in Asian Recorder, 1/29/93, pp. 22880-22881 ***(3407)***.

4/93

U.S. intelligence sources confirm that the PRC, defying the Missile Technology Control Regime by which it agreed to abide, sold M-11 missiles to Pakistan and key

missile components to Iran.
Lally Weymouth, Washington Post, 4/12/93, p. A19 ***(3239)***.

PRC with Russia

10/92

U.S. officials express their concern that China's purchase of advanced missile guidance technology, rocket engines, and other military hardware from Russia will enable China to develop new weapons for export to Third World countries. The U.S. is also concerned about discussions between Russia and China for the joint production of tactical missiles and other weapons systems in China, one of these being the S-300 SAM.
Michael R. Gordon, New York Times, 10/18/92, pp. 1, 14 ***(3318)***.

11/92

A Russian "secret enterprise" working with composite materials negotiates a $100,000 contract with the PRC to supply satellite components, with $20,000 of the payment made in currency and the rest in consumer goods. Russia plans to increase the amount of weapons delivered to the PRC by 1994 to $2 billion, thereby repaying its debts to the PRC.
Komsomolskaya Pravda, 12/4/92, p. 3; in FBIS-SOV-92-241, 12/15/92, pp. 13-15 ***(3067)***.

12/92

The PRC is discussing procurement of the DAN UAV, designed for use as an aerial target, surveillance platform, and cruise missile from the Kazan-based Sokol OKB design bureau. The DAN UAV comprises an optional pneumatic ground rail launcher, ground loader vehicle, automatic pre-flight check unit, engine starter, a fuelling truck, mobile electric generator, and three vehicles serving as flight control and telemetry data relay and receiving stations.
Edmond Dantes, Asian Defense Journal, 12/92, pp. 28-36 ***(3246)***.

12/92

Aides within the Bush Administration state that the PRC is attempting to acquire defense technology for guidance systems, cruise missile production and testing of antisubmarine warfare weapons from formerly top secret Russian defense enterprises and design bureaus through unofficial channels as well as by hiring hundreds of technical experts. Russian Federation Vice Premier A. Shokhin admits that this activity is wide spread, and notes that Moscow has suggested to Beijing that they keep each other informed of such unofficial transfers of technology.
Vladimir Skosyrev, Izvestiya (Moscow), 12/4/92, p. 4; in FBIS-SOV-92-234, 12/4/92, pp. 13-14 ***(3428)***.

12/3/92

Chinese Foreign Ministry spokesman Li Jianying dismisses as "exaggerated" a U.S. media report alleging that the PRC is recruiting technical experts and importing cruise missile production technology and anti-submarine warfare (ASW) systems from Russia. The U.S. media quoted an expert from the U.S. administration as claiming that envoys from the Chinese military industrial complex are working in Russia for missile production and technical training purposes.
Pavel Spirin, Itar-Tass (Moscow), 12/3/92; in FBIS-SOV-92-234, 12/4/92, p. 14 ***(3238)***.

12/18/92

Russia and China sign documents, statements, and memorandums of understanding in relation to military and technological cooperation, space exploration, and nuclear energy development. Russian President Boris Yeltsin stated that the agreements will allow China to buy "the most sophisticated armaments and weapons." China is awaiting delivery of the Russian S-300 Air-Defense System.
Pavel Spirin, Itar-Tass (Moscow), 12/3/92; in FBIS-SOV-92-234, 12/4/92, p. 14 ***(3238)***. *Lena H. Sun, Washington Post, 12/19/92, pp. A1, A16* ***(3330)***.

12/29/92

It is reported that several hundred specialists from the former Soviet Union are working in Chinese military plants increasing the accuracy of Chinese missiles. Chinese missions are also engaged in the transfer of technology from Russia regarding cruise missile development, anti-submarine equipment and missile and nuclear test procedures. China has expressed an interest in buying Russia's newest surface-to-air missile system, which is similar to the U.S. Patriot, as well as submarines and satellite equipment.
Yomimuri Shinbun, 12/29/92; in Vasiliy Golovnin, Itar-Tass, 12/29/92 ***(3155)***.
(3238).

1/93

The Chairman of the Russian Federation Committee for Defense Sectors of Industry Viktor Glukhikh states that Russia will deliver to the PRC antimissile systems and aircraft.
Rossiyskaya Gazeta (Moscow), 1/26/93, p. 3; in JPRS-TND-93-004, 2/5/93, p. 36 ***(3468)***.

2/93

U.S. intelligence is "certain" that China has purchased from Russia significant components of long range missiles containing technology that China have been unable to develop on its own.
Rowland Evans and Robert Novak, Washington Post, 2/12/93, p. A27 ***(3162)***.

3/3/93

It is reported that China has purchased at least 100 S-300 air defense systems from Russia, which are now being installed. The Chinese military is also attempting to acquire Russian hardware such as an AWACS early warning system and additional sophisticated missile systems.
South China Morning Post, 3/3/93; in Stephen Foye, RFE/RL News Briefs, 3/1/93, p. 4 ***(3151)***.

PRC with Syria

10/92

According to CIA Director Robert Gates, Syria "appears to be seeking assistance from China and Western firms for an improved capability with chemical and biological warheads."
Arms Control Today, 10/92, pp. 44-45 ***(3401)***.

PRC with United States

11/92

The PRC signs a contract with Garrett Engines, a U.S. company, to purchase a turnkey factory for the production of advanced turbo-fans, which could be used in cruise

missiles. Sources in Washington believe that the PRC is purchasing equipment in the U.S. and Europe for a new project to build a strategic cruise missile.
Mednews, 11/23/92, p. 5 ***(2997)***.

12/4/92

U.S. national security officials meet to discuss the proposed sale of a Cray supercomputer to the PRC. Export officials and commerce officials favor the sale, while Pentagon officials say that the supercomputer could be used for the PRC's nuclear weapons and missiles development.
Bill Gertz, Washington Times, 12/5/92, p. A3 ***(3233)***.
Jim Mann, Los Angeles Time, 12/5/92, p. A16 ***(3233)***.

1/93

The U.S. has added booster units as well as an engine system to the top stage of Chinese rockets which are launching U.S. satellites into orbit. The PRC has already launched three of nine satellites to be launched under an agreement between the two countries.
Manki Ponomarev, Krasnaya Zvezda (Moscow), 1/19/93, p. 3; in FBIS-SOV-93-012, p. 24 ***(3476)***.

1/5/93

CIA Director Robert Gates confirms that the Chinese obtained Patriot anti-missile technology, but would not confirm media reports that Israel gave that technology to China. After sending investigators to Israel to check out an earlier report, a 4/92 State Department report stated that it could not find corroborating evidence that Israel had transferred Patriot Missile technology to China. Gates now says that there are "disagreements on the question" of whether or not that report underestimated contradictory intelligence. When the State Department report was released, Bush administration officials said that they closed the matter to avoid harming the Middle East peace process.
Drora Perl, DAVAR (Tel Aviv), 1/6/93, p. 2 in FBIS-NES-93-003, 1/6/93, p. 31, ***(3077)***. *Israel Foreign Affairs, 2/26/93, p. 6* ***(3026)***.

1/28/93

The U.S. Commerce Department reports that it is reversing its judgement on the proposed sale of U.S. manufactured Allied-Signal aircraft engines to China, stating that the transfer of manufacturing technology and engines containing special digital control technologies identified on the U.S. Commerce Control List did in fact require an export license. There is opposition to the sale in the Defense Department and the Arms Control and Disarmament Agency; one Defense Department official said, "The engines have definite missile applications, and China's record on imprudent foreign missile sales is legendary."
Export Control News, 1/28/93, pp. 15-16 ***(3171)***.

2/1/93

A U.S. analyst comments on a classified Pentagon report indicating that China, Iran and Syria all have aggressive programs to develop cruise missiles that possess stealth capabilities, can carry chemical and biological weapons, and can be operational by the year 2000. Although these countries have indigenous programs, they are also pursuing avenues of joint cooperation. The report states that China is of particular concern as it intends to build a nuclear warhead for its cruise missiles. China's development of a weapon that "no existing anti-missile system will be able to stop" sparks intense debate among military planners.
UPI (Washington); in Executive News Service, 2/1/93 ***(3319)***.

4/93

U.S. State Department official Frank Wisner encourages the Clinton administration to sell the Cray M92 supercomputer, and cruise missile engines to China despite opposition from U.S. intelligence, Pentagon, and the Arms Control and Disarmament Agency (ACDA). Opposition to the sales is based on the argument that the Cray M92, a supercomputer ostensibly used for "weather prediction," could be used for the development of China's nuclear program, and that China might later transfer the computer or its services to Iran.
Mednews, 2/8.93, p. 4 (2996).

POLAND

INTERNAL DEVELOPMENTS

5/93

A group of experts from the Polish Military Technical Academy discover Soviet missile containers, missile fuels, and missile storage facilities at abandoned Soviet clandestine complexes on Polish territory. On the former Soviet base in Borne-Sulimowo, Polish experts find two tanks of "Semina rocket fuel," 2,000 tanks with 30,000-50,000 liter capacities filled with fuels and oil, and nearby in the forest "a store for nuclear weapons has been discovered together with intercontinental missile launchers." At Kluczew, Poland, missile transport containers are found.
TVP Second Program Network (Warsaw), 4/26/93; in JPRS-TND-93-012, 5/4/93, p. 36 ***(3188)***.

RUSSIA

INTERNAL DEVELOPMENTS

9/92

According to U.S. intelligence, SS-18 and SS-24 production has most likely ceased and no Russian ballistic missile submarines are being constructed. However, Russia continues to produce single-warhead SS-25s, has begun the process of retrofitting its Typhoon submarines with the next generation SS-N-20 SLBM, and is replacing SS-18 mod-4 ICBMs with more accurate models.
Arms Control Today, 12/92, p. 12 ***(3281)***.

10/23/92

Russia creates an organization called Motoravifond to coordinate research and development of rocket engines for foreign sales.
Wall Street Journal, 11/11/92, p. A10 ***(3332)***.

RUSSIA

11/92

Russia's first deputy designer general of the Lavochkin Association of Khimki, Alexander A. Rodin, reveals that the Russian government approved of the sale of SS-18 missiles as space launch vehicles and issued a decree in October for the creation of a private company to sell the missile. Rodin further states "We are going to take these missiles and convert them...we plan to do this by early 1995. I imagine there are about 300 SS-18 missiles available--far too many for launcher use. I suppose that those not used will be destroyed." Russia's NPO Machinostroyenia of Moscow intends to use the SS-19 as a space launch vehicle, and the Lavochkin Association is planning to launch a 1.5 ton recoverable capsule to an orbit of 518 km (322 mi).

Space News, 11/23/92, p. 4, p. 24 ***(3035)***.

11/92

Russia's Central Specialized Design Bureau (TsSKB) is developing the "Rus" rocket, which will be built by KB Photon of Samara for the Russian Space Agency. Rus, based on the R-7, will have a new on-board computer-assisted guidance system and will combine three Soyuz stages with one of three interchangeable fairings, depending upon its payload. The new rocket will be able to lift 500-800 kg and is expected to serve Russia's future Mir 2 space station beginning in 1996 or 1997 from the Plesetsk launch facility. A booster unit, developed by Lavochkin Science and Production Association will enable Rus to perform medium and high altitude orbit missions reliably. The "Rus" rocket will be developed without Ukrainian participation.

Space News, 11/23/92, p. 2 ***(2891)***. *Space Update, 1/93, p. 58* ***(2872)***. *Krasnaya Zvezda (Moscow), 3/27/93, p. 4; in FBIS-SOV-93-062, 4/2/93, p. 32* ***(3048)***. *B. Konovalov, Izvestiya (Moscow), 3/24/93, p. 5; in JPRS-USP-93-002, 5/18/93, p. 6* ***(3473)***.

11/92

Russian Federation First Deputy Defense Minister Andrey Kokoshin visits the Rezhitsa Red Banner Guards' Division of the Strategic Rocket forces and declares, "We are standing on the threshold of major decisions with regard to precisely which systems we will adopt, which ones we will develop and modernize further, and which ones we will eliminate..." Russia's Rezhitsa Red Banner Guards' Division, commanded by Major General A. Gribov, is equipped with "hundreds" of MR UR-100 missiles, which will be replaced by RS-12M Topols (SS-25s) based on mobile launchers.

Yuriy Mamchur and Aleksandr Dolinin, Krasnaya Zvezda (Moscow), 11/14/92, p. 1; in JPRS-TND-92-044, 11/24/92, pp. 25-26 ***(3323)***.

11/4/92

The Supreme Soviet ratifies START with a vote of 157-1, with 26 abstentions. However, various members of parliament complain about the expense of dismantling strategic weapons, raise concerns about the U.S. advantage in missile defense research and indicate that START II will face much stiffer opposition.

Dunbar Lockwood, Arms Control Today, 11/92, pp. 26, 31-32 ***(3274)***.

11/24/92

The Missile Artillery Administration of the Russian Pacific Fleet reports that their Pacific Fleet successfully tested a new ballistic missile with "joint missile firings," from the cruiser "Chervona Ukraina" and two nuclear submarines. The head of the Missile Artillery Administration of the Russian Pacific Fleet, Captain Gennadiy Antonov, states that "such accuracy in missile firing in the Pacific Fleet has been maintained over a lengthy period of time...In spite of the numerous difficulties, the operational readiness of the main strike forces of the fleet is steadily increasing".

Itar-Tass (Moscow), 11/24/92; in JPRS-TND-92-045, 12/7/92, p. 21 ***(3033)***.

11/29/92

It is reported that the Russian government has given permission for the use of SS-18 missiles as launch vehicles to place commercial payloads into orbit. Within the former Soviet Union there were 308 missile silos containing SS-18 ICBM's, of which 154 silos must be destroyed according to the terms of START I; the missiles themselves are not affected.

RFE/RL Research Report, 12/11/92, pp. 59-60 ***(3160)***.

12/92

The Russian Defense Ministry plans to propose the construction of a complex for launching commercial satellites at the Plesetsk Cosmodrome.

Reuter, 12/17/92; in Executive News Service, 12/17/92 ***(3469)***.

12/1/92

The Press Group of the Russian Pacific Fleet Commander denies that the Pacific Fleet has a ballistic missile and that the missiles test fired from the cruiser "Chervona Ukraina" and the two nuclear submarines were anti-ship missiles. In fact, the anti-ship missiles tested had been in the navy's armament for a long time.

Krasnaya Zvezda (Moscow), 12/1/92, p. 1; in FBIS-SOV-92-234, 12/4/92, p. 1 ***(3033)***.

12/2/92

According to NPO Lavochkin's chief technologist Yevgeni Antonov, the agency will seek western customers to use decommissioned SS-20's for launching of microgravity experiments. The Russian government has granted permission to use 15-20 of these missiles to place payloads into orbit.

Lon Rains, Space News, 12/7/92, p. 2 ***(2878)***.

12/9/92

A Russian nuclear Yankee I submarine off the coast of the Kamchatka Peninsula launches a RSM-25 missile (range 3,000 km), known in the West as the SS-N-6 "Serb," for the purpose of conducting medical experiments in order to develop super-pure interferon. The nuclear warhead of the missile was removed and replaced with a "Meduza" module in which 900 kg of scientific and technical appliances were placed. During the launch, the module separated from the rocket carrier at 130 km and proceeded to an altitude of 1,000 km.

ITAR-TASS (Moscow), 12/11/92; in FBIS-SOV-92-240, 12/14/92, pp. 9-10 ***(3327)***. *RFE/RL Research Report, No. 50, 12/18/92, pp. 66-67* ***(3327)***.

12/20/92

Russia's Security Ministry announces that 64 missile technicians were barred from leaving the country. Russian authorities also detained scientists attempting to leave the country on 10/15/92 and 11/5/92.

KBS-1 Radio Network, 12/21/92; in JPRS-TND-93-001, 1/7/93, p. 6, ***(3056)***.

12/29/92

Russian Supreme Soviet members meet to discuss negotiations with the U.S. concerning the export of rocket technology and dual use know-how. A member of the parliamentary Committee for International Affairs and Foreign Economic Relations Sergey Mikhailov notes that over 80 provisions in U.S. legislation restrict trade with Russia.

Interfax (Moscow), 12/31/92; in JPRS-TND-93-001, 1/7/93, pp. 19-20 ***(3477)***.

12/29/92

Russian President Boris Yeltsin signs a directive that will place strict controls on Russian exports of dual-use equipment, materials, and the know-how used for nuclear purposes, all of which will be listed and broken down into eight major sections. Russia's new lists on export controls include N/C machine tools and software; dimensions control systems and devices; high-precision linear and angular measuring devices; vacuum and electric arc melting and foundry furnaces; high power presses; resistant devices with relevant software; heavy-duty aluminum; and beryllium.

Interfax, (Moscow), 12/30/92; in JPRS-TND-93-002, 1/15/93, pp. 20-21 ***(3057)***.

1/93

Russia is offering for export both the 9K38 Igla man-portable air defense missile, also known as the SA-16 Gimlet, at a price of $21,000 for the basic gripstock/launcher and $60,000 for each individual missile and the K25 Drasnopol 152-mm laser-guided projectile at a base price of $75,000 per round, with the associated laser designator system at $60,000.

Steven Zaloga, Armed Forces Journal, 1/93, p. 17 ***(2894)***.

1/93

Russia explains that the rumored missile explosion at a secret plant at Krasnoyarsk-35 in Siberia did not occur. An investigation revealed that the temperature control systems in the special freight cars, carrying eight missiles for dismantlement, to include the draining off of the liquid fuel heptyl, failed to operate, but that the missile casing seals did not break and there was no fuel leak.

Izvestia (Moscow), 1/20/93, pp. 1, 5; in JPRS-TND-93-004, pp. 38-40 ***(3328)***.

1/11/93

Russian President Boris Yeltsin issues order N 20-RP that approves a governmental list of equipment, materials, and technologies, used in the manufacture of missiles, whose export is regulated and requires a license. The list includes rocket systems and ballistic missiles capable of carrying warheads weighing over 500 kg and travelling a range of 300 km. The order is followed by Decree No 70 of the Council of Ministers-Government of the Russian Federation on 1/27/93 by V. Chernomyrdin declaring that the Export Control Commission jointly with the Ministry of Foreign Economic Relations and the State Customs Committee will control Russian exports of such items.

Interfax (Moscow), 1/14/93; in FBIS-SOV-93-015, 1/21/93, p. 45 ***(3474)***. *Paul Beaver, Jane's Defence Weekly, 3/6/93, pp. 29-30* ***(3338)***. *Rossiyskiye Vesti (Moscow), 3/17/93, p. 3; in JPRS-TND-93-011, 4/23/93, pp. 17-18* ***(3466)***.

2/93

The Russian Government confirms the list of military hardware, which a recent executive directive places under strict licensed control as it relates to production, export, and import.

Kommersant (Moscow), 2/1-7/93, p. 24; in JPRS-TND-93-010, 4/16/93, pp. 38-40 ***(3267)***.

2/93

Central Intelligence Director R. James Woolsey tells the Senate Government Affairs Committee that Russia and Ukraine are showing a "willingness to sell" MTCR prohibited technology, and that the dual-use technologies used in space launch vehicles are a "real problem" as they represent one of a few areas where Russia and Ukraine can successfully compete with the West. Woolsey also states that Russia still has to establish an effective system for regulating exports of military equipment and technologies related to the development of nuclear, chemical and biological weapons and that while Russian leaders strongly support the establishing of export controls, the enticement of profits, and personnel and funding problems have slowed government efforts to enact controls to prevent the proliferation of weapons and technologies to other countries.

R. Jeffrey Smith, Washington Post, 2/25/93, p. 18 ***(3481)***. *David Fulghum, Aviation Week & Space Technology, 3/1/93, p. 25* ***(3222)***.

2/93

Russia's Chairman of Oberonexport, Major General Sergey Karaoglanov, states that "we are prepared to supply weapons to any country in the Near and Middle East if there is a government decision to that effect." Russia will be displaying a number of weapons systems at the international arms exhibition "Idex '93" in Abu Dhabi, United Arab Emirates, beginning 2/14/93, to include: the S-300 or Tor, S-300 PMU, S-300 V air defense systems; the Tochka-U tactical missile system with a range of 120 km and a circular error probable (CEP) of 50 m; the Msta-S precision weapons system with detection station and 152 mm Krasnopol laser-guided shell; and the Smerch multiple rocket system.

Viktor Litovkin, Izvestia (Moscow), 2/9/93, pp. 1, 5; in FBIS-SOV-93-027, pp. 6-8 ***(3331)***.

2/93

The Russian Defense Equipment Export Agency, VO Oboronexport, is marketing the "Tochka-U," an upgraded SS-21 single stage missile with a range of up to 120 km (due to a new rocket motor) carrying a 430 kg conventional warhead, and a CEP of 76 meters. There are additional improvements such as an advanced electronics kit and an upgraded fire control system within the launch vehicle. With proper training, crews can reload the system's single rail within 25 minutes of firing. In the past, SS-21s have been sold to Libya and Syria.

Mednews, 3/1/93, p. 6 ***(3149)***.

3/93

Production of the liquid-propellant rocket engines for the Energiya-Buran system will be transferred from Omsk's "Polet" Aerospace Association to the "Energomash" Plant near Moscow. The Omsk "Polet"

Aerospace Association has already reduced its production of military items as part of the conversion effort. Finished products of the "Energomash" Plant will need to be transported 2,000 km to the Omsk test rig for testing.

L. Mutovkin and V. Parshin, Russian Television Network (Moscow), 3/1/93; in FBIS-SOV-93-042, 3/5/93, p. 36 ***(3062)***.

3/93

Col. V. P. Bogomolov, senior officer of the combat training administration of the Strategic Missile Forces, states that not every regiment needs training equipment. They can save, he adds, money by rotating soldiers to one test site. Bogomolov calls a test launch during combat training the "crowning achievement of a regiment's tactical training." He says that there has never been an accidental launch out of more than 50 launches at the test range [name and location of range not given]. The minister of defense determines when a test launch is to occur.

Russian Television and Dubl Networks (Moscow), 3/6/93; in FBIS-SOV-93-048, 3/15/93, p. 62 ***(3300)***.

3/93

Russia's Kolomna KB Machine Building offers launch services using the Geo-Physical rocket system "sphere," which utilizes equipment from eliminated SS-23 missiles. In addition to the launch services, Kolomna offers launchings for cooperative research programs, and proportional development and series production of system components.

Tekhnika I Vooruzheniye (Moscow), 3/93, pp. 46-47; in JPRS-UMA-93-015, 5/11/93, p. 75 ***(3308)***.

3/93

The Russian design bureau Zvezda offers for sale an air-launched version of the Kh-35 anti-ship missile, which resembles the U.S. Harpoon missile and is believed to be a development of the SS-N-25. The missile has an inertial guidance system with active-radar homing, a maximum engagement range of 130 km, and is capable of sea-skimming at a height of between 3-5 m. The Kh-35 is still in development and will be available in 1993-94 for approximately $1 million per missile.A ground-based self-propelled system and a fixed-site variant for coastal defense will be available in 1995.

Flight International, 3/3/93, p. 18 ***(3335)***.

3/4/93

The Emergency Medical Treatment Center of the Russian Health Ministry reports that there was an explosion at Okhta's "Plastpolimer" chemical plant in St. Petersburg which is a closed enterprise that produces rocket fuel.

Moskovskiy Komsomolets (Moscow), 3/4/93, p. 1; in FBIS-SOV-93-043, 3/8/93, p. 54 ***(3203)***.

3/11/92

Part of the nucleus of Russia's new navy will be the nuclear powered missile cruiser Petr Velikiy (Peter the Great), which will be equipped with modern weapons, sophisticated control systems and radar facilities, and an anti-ballistic missile (ABM) system. The Petr Velikiy has been under construction for seven years. Early progress on the construction was carried out swiftly although the past two years have seen very little work because of financial constraints.

Krasnaya Zvezda (Moscow), 3/11/93, p. 2; in FBIS-SOV-93-048, 3/15/93, pp. 62-64 ***(3052)***.

3/25/93

Russia's experimental Start-1 rocket, converted from the SS-25 ('Topol') ballistic missile, was launched from Plesetsk carrying a 260 kg dummy satellite into an orbit with a 966 km apogee and a 695 km perigee and an orbital inclination of 75.8 degrees. The rocket, which can actually carry up to a one ton payload, was built by the Votkinsk machine building works in Udmurtia. The conversion and modernization of the SS-25 missile into the Start-1 rocket fully meet the conditions of the START-II Treaty, and will earn commercial profit. Oleg Mikhaylovich Yegorov, the deputy chief of technical testing, says that the SS-25 missile had to be reworked with an extra stage to provide sufficient power to launch a satellite into orbit. In 3/93 Russia intends to launch five satellites from the Plesetsk and Baikonur aerospace fields.

Interfax (Moscow), 3/2/93; in FBIS-SOV-93-040, 3/3/93, pp. 34-35 ***(3142)***. *Russian Television and Dubl Networks, 3/6/93; in FBIS-SOV-93-048, 3/15/93, pp. 67-68* ***(3142)***. *Russian Television Network (Moscow), 3/25/93; in FBIS-SOV-93-056, 3/25/93, p. 43* ***(3139)***. *Itar-Tass (Moscow), 3/25/93; in FBIS-SOV-93-057, 3/26/93, p. 61* ***(3141)***. *A. Shiryayev and S. Teplov, Russian Television (Moscow) 3/25/93; in FBIS-SOV-93-058, 3/29/93, p. 86* ***(3141)***. *Itar-Tass (Moscow), 3/26/93; in FBIS-SOV-93-057, 3/26/93, p. 61* ***(3141)***. *Aleksey Shiryayev, Ostankino Television First Channel Network (Moscow), 3/26/93; in FBIS-SOV-93-059, 3/30/93, p. 57* ***(3144)***. *Jeffrey M. Lenorovitz, Aviation Week & Space Technology, 4/12/93, pp. 61-62* ***(3421)***.

4/93

The Raduga design bureau has developed a new tactical version of the RKV-500 (AS-15 Kent) cruise missile called the KH-68S3.

Steven Zaloga, Armed Forces Journal, 4/93, p. 17 ***(3341)***.

4/93

Soldiers of the Moscow military district air defense were caught after stealing 650 microcircuit cards from missile complexes which contain gold and platinum worth 20 million rubles. One of the thieves, identified as "Captain B," admitted ten other thefts of microcircuit cards.

Valeriy Litvinenko, Itar-Tass (Moscow), 4/7/93; in FBIS-SOV-93-066, p. 38 ***(3146)***.

4/93

The U.S. is concerned that while Russia has eliminated more missile systems than it is developing, it is attempting to improve surface ballistic missiles and will likely introduce three new mobile missiles, silo-based SS-25s, and a new missile to improve the Typhoon submarine-launched SS-20 within the next decade.

Vincent Kiernan, Space News, 4/26/93, p. 17 ***(3304)***. *Defense Daily, 4/27/93, p. 146* ***(3302)***.

4/15/93

Approximately 100 chief designers and directors of Russia's defense industries meet at the Russian Defense Industries Committee and state their desire to reform the arms export system to increase direct commercial arms exports in excess of state orders and inter-governmental agreements. Deputy chairman of the Russian Defense Industry Committee Gennadiy Yampolskiy notes that interest in Russian made arms had increased since the arms show in Abu Dhabi and states, "Arab and Asian countries are willing to buy from us such arms as air-defense

missiles...The buyers are capricious and want us to work with them on an individual basis."
Alla Glebova, Kommersant-Daily (Moscow), 4/16/93, p. 10; in FBIS-SOV-93-0075, 4/21/93, pp. 35-36 ***(3292)***.

4/29/93

The Russian Parliament passes a law making it illegal to export materials, components or services that can be used to build weapons of mass destruction and the missile delivery systems for those weapons.
John Lepingwell, RFE/RL News Briefs, 4/26/93, p. 7 ***(3159)***.

7/21/93

The Chairman of the Russian Federation Supreme Soviet, R.I. Khasbulatov signs a decree on the ratification of international treaties and agreements regarding the control of missile technology, which calls for hearings to discuss the conditions under which the Russian Federation shall join the Missile Technology Control Regime (MTCR).
R.I. Khasbulatov, Vedenostyi Verkovnogo Sovyeta, No. 32, 8/12/93, p. 2171 ***(3350)***.

Russia with Belarus

11/92

A schedule for the withdrawal of strategic nuclear weapons from Belarusian territory to Russia is drawn up and approved in accordance with a directive by Belarusian Supreme Soviet Chairman Stanislav Shushkevich in which 81 ICBMs will be withdrawn over two years, eight missile brigades will leave Belarus in 1993, and another eight in 1994. Belarus intends to be nuclear free by 12/30/94.
Valeriy Kovalev, Krasnaya Zvezda (Moscow), 11/7/92, p. 2; in JPRS-TND-92-044, 11/18/92, pp. 22-23 ***(2976)***.

12/16/92

The parliament of Belarus calls for the transition to non-nuclear status to be achieved in two years instead of the originally planned seven years. The transition will be considered complete when the 72 strategic missiles stationed on Belarusian territory are transferred to Russia for destruction and all Belarusian servicemen serving in other Soviet republics have returned home. Public opinion in Belarus is in favor of the transition to a non-nuclear status.
Reuter (Kiev), 12/26/92; in Executive News Service, 12/17/92 ***(2977)***.

1/93

According to Russian Federation Minister of Defense, Pavel Grachev, Belarus has ratified all agreements on nuclear weapons and all that remains is to schedule their removal from Belarusian territory and destruction.
Andrey Naryshev and Oleg Falichev, Krasnaya Zvezda (Moscow), 1/23/93, p. 1; in FBIS-SOV-93-015, 1/26/93, pp. 12-13 ***(3291)***.

Russia with Brazil

10/92

Brazil's largest financial investment government corporation (FINEP) requests to buy Russian solid fuel rocket motors and meets with Russian enterprises interested in rocket motor technical cooperation or the establishment of joint firms.
Anastasiya Romashkevich, Kommersant-Daily (Moscow), 4/14/93, p. 10; in JPRS-TND-93-012, 5/4/93, p. 10 ***(3183)***.

4/12/93

Sergey Glazyev, Russian Foreign Economic Relations Minister, begins a trip to Brazil, Paraguay and possibly Uruguay during which he will sign an agreement on trade and economic cooperation with Brazil, which, according to experts in the Russian Foreign Economic Relations Ministry, could include missile technology, telecommunications and aircraft building contracts. Glazyev is part of a 22 member Russian delegation which will meet with ministers from the Brazilian foreign office, science and technology, industry and commerce and the armed forces chief of staff, and will sign an aerospace agreement. Another goal of the trip is to conclude contracts for the sale of dual use space technology and items produced by the Russian military industrial complex. The Russian delegation will also try to establish stricter controls over these exports. Since 10/92, Brazil has been negotiating with Russia for the purchase of missile manufacturing technology. Brazil is reportedly interested in cooperating with Russia on space technology development, specifically on inertia control of missile carriers.
A. Dory, Voz do Brasil (Brasilia), 3/15/93; in Nuclear Nonproliferation Network News, 5/25/93 ***(2939)***. *Interfax (Moscow), 4/12/93; in FBIS-SOV-93-069, 4/13/93, p. 14* ***(3147)***. *Anastasiya Romashkevich, Kommersant-Daily (Moscow), 4/14/93, p. 10; in JPRS-TND-93-012, 5/4/93, p. 10* ***(3183)***.

Russia with COCOM

11/92

At COCOM's Cooperation Forum in Paris, Russian Deputy Foreign Minister Grigoriy Berdennikov announces Russia's newly created internal export control agency, which "...is aimed at preventing the proliferation of weapons of mass destruction and delivery systems [and] we intend to act in such a way that Russia is in no case a source of their proliferation." Berdennikov noted that the U.S. and European states recognize "a need to reform the present system," but that "...there are some restrictions that cannot be eliminated because of the requirements of the nonproliferation of nuclear weapons, missiles, and missile technology."
Izvestia (Moscow), 11/26/92, p. 5; in JPRS-TND-92-046, 12/11/92, p. 22 ***(3324)***.

Russia with Egypt

1/93

U.S. intelligence sources confirm that Egypt, despite categorical denials by an Egyptian spokesman, has hired Russian scientists to work at a factory in Al-Maza near Cairo where they will help Egypt to upgrade its long range missile capabilities. The Egyptians have to be able to manufacture missiles able of striking targets 300 miles away, by 1995.
Charles Fenyvesi, ed., U.S. News & World Report, 1/11/93, p. 14 ***(2888)***.

1/28/93

Director of the Foreign Intelligence Service of the Russian Federation, Yevgeniy Primakov announces that U.S. reports on Russian scientists modernizing Egyptian missiles not confirmed.
Interfax (Moscow), 1/28/93; in JPRS-TND-93-004, 2/5/93, p. 33 ***(3464)***.

RUSSIA

Russia with France

11/17/92

Russia's Central Institute of Aviation Motors (CIAM) in association with France's ONERA aerospace research agency successfully flight tests a hydrogen fuelled axisymmetric scramjet from atop a surface-to-air missile in Priozersk, Kazakhstan, reaching a peak altitude of 82,020 ft transitioning from subsonic to supersonic combustion between Mach 5 and Mach 5.5. The scramjet is manufactured by Soyuz Design Bureau with an inlet diameter of 8.9 inches and a total length of 47.2 inches. The fueled scramjet was launched on top of a surface-air missile which was modified by the Fakel Moscow Design Bureau to carry the engine. France contributed $200,000 for the test flight, but did not provide any hardware or participate in any prelaunch ground tests of the test apparatus.

Aviation Week & Space Technology, 12/7/92, p. 19 ***(2959)****. Stanley W. Kandebo, Aviation Week & Space Technology, 12/14/92, pp. 70-73* ***(3415)****. Interavia/ Aerospace World, 1/93, p. 58* ***(3415)****.*

12/7/92

France's Societe Europeen de Propulsion (SEP), signs 31 contracts worth $10 million dollars with Russian space companies concerning liquid-fueled rocket propulsion and composite materials. SEP also signs contracts with Russia on hypersonic technology in a joint civil-military program concerning reusable space planes and will work with Moscow Aviation under a general cooperation accord. In addition SEP and Energomash conclude a contract for joint studies on hardware purchases.

Space News, 12/7/92, p. 15 ***(3029)****.*

Russia with Germany

8/92

Germany and Russia begin joint testing to develop hypersonic technology in the fields of scramjet air-breathing engines, aerothermodynamics, and materials in order to prove its technological viability. The joint program is part of the hypersonic technology program started by the German Ministry of Research Technology, involving DASA subsidiary MTU in Munich and TSAGI Aerodynamic Research Institute in Shukovskiy.

Flug Revue (Stuttgart), 1/93, p. 77; in JPRS-EST-93-009, 2/24/93, P. 1 ***(3342)****. JPRS-EST-93-011, 3/12/93, pp. 6-7* ***(3342)****.*

11/92

Kayser-Threde of Munich signs contracts for the launch of two German-built microsatellites on Russian Cyclone rockets in 1993.

Space News, 11/23/92, p. 12 ***(2870)****.*

Russia with India

1/93

Indian leaders voice concern over Russian technology sales to the PRC. In response, Russian President Boris Yeltsin tells leaders of both countries that Russia wishes to have friendly relations with India and the PRC. Yeltsin signs a major Russian-Indian defense cooperation contract which calls for technology transfers from Russia to India as well as co-production of weapon systems for domestic or export use.

Brahma Chellaney, UPI (Delhi), 1/30/93; in Executive News Service, 2/1/93 (3293).

1/28/93

Russian President Boris Yeltsin states that Russia will follow through with its contract to sell cryogenic rocket technology to India despite the protests of the U.S. The 1991 contract, valued at $200 million, includes the sale of two cryogenic space engines along with the technology for their production in India was scheduled to be fulfilled within three years.

Brahma Chellaney, UPI, 1/28/93; in Executive News Service, 1/28/93 ***(3333)****. Sanjoy Hazarika, New York Times, 1/30/93, p. 2* ***(3333)****. Vivek Raghuvanshni, Space News, 2/1/93, p. 6* ***(3333)****.*

2/1/93

India's Minister of State for Science and Technology, Mr. Kumaramangalam states that if Russia were to stop the cryogenic engine transfer, it would set back India's space program only three years, shifting launch dates from 1995 to 1998.

Hindu (Madras), 2/2/93, p. 6; in JPRS-TND-93-008, 3/22/93, p. 25 ***(3432)****.*

4/27/93

The Parliamentary Committee for Science and Technology is informed that the transfer of cryogenic engine technology from Russia to India is on schedule, and that the first launch of the Geo-Stationary Launch Vehicle (GSLV) is slated for 1995-96.

All India Radio Network (Delhi), 4/27/93; in FBIS-NES-93-080, 4/28/93, p. 68 ***(2931)****.*

Russia with Indonesia and United States

4/93

Lockheed corporation is invited by Indonesia to discuss Lockheed's and Khrunichev Enterprises's offer to launch two Indonesian satellites.

Jeffrey M. Lenorovitz, Aviation Week & Space Technology, 4/12/93, pp. 61-62 ***(3421)****.*

Russia with Iran

3/1/93

Iran expresses interest in acquiring Russia's S-300 V anti-missile system.

Mednews, 3/1/93, pp. 4-5 ***(3479)****.*

Russia with Iraq

12/15/92

CIA Director Robert Gates states that Iraq is trying to acquire nuclear technology and materials from Russia.

George Lardner Jr. and R. Jeffrey Smith, Washington Post, 12/16/92, p. A6 ***(3078)****.*

Russia with Israel

3/93

Israel's Elbit corporation is integrating Russian air-defense radar systems with the Israeli Barak point-defense missile for potential sale to Eastern Europe and South-East Asia. Eastern Europe's vast Russian air-defense systems could be a potential

market for the Barak missile integrated with the radars of the ZSU-23-4 self-propelled gun or the SA-8 Gecko self propelled surface-to-air missile system. Elbit, which is evaluating the suitability of the different radars, sees Barak's vertical launch as a worthwhile improvement over the Russian missiles.
Flight International, 3/10/93, p. 16 ***(3084)***.

Russia with Japan

3/9/93

Japan is planning to assist Russia in destroying the liquid fuel remaining from its intercontinental ballistic missiles, which were scrapped in compliance with the START-2 treaty. In 4/93, Japan plans to send a group of specialists to Russia to determine the means of destroying the fuel.
Itar-Tass (Moscow), 3/9/93; in FBIS-SOV-93-045, 3/10/93, p. 16 ***(3242)***.

Russia with Kazakhstan

1/93

Kazakhstan proposes that a bilateral examination be conducted with Russia regarding the procedure for destruction of nuclear weapons on Kazakh territory.
Andrey Naryshev and Oleg Falichev, Krasnaya Zvezda (Moscow), 1/23/93, p. 1; in FBIS-SOV-93-015, 1/26/93, pp. 12-13 ***(3291)***.

1/93

Russia's deputy commander of the Russian Military Space Force General B. G. Kalinichev criticizes the Kazakh government for a lack of monetary support of Baikonur, noting that last year, Russia's Ministry of Defense had paid one billion rubles to the Baikonur cosmodrome. Russian officials have discussed the possibility of transferring all space launches from Baikonur to Plesetsk. However, Russia has no manned vehicle or heavy Proton facilities at the Plesetsk launch site.
Craig Covault, Aviation Week & Space Technology, 2/1/93, pp. 57-59 ***(3414)***.

4/13/93

Russian President Boris Yeltsin requests a meeting with Kazakh President Nursultan Nazarbayev in order to discuss problems related to the Baikonur Cosmodrome Space Complex at a bilateral meeting in 5/93. President Yeltsin wishes to increase cooperation between Russia and Kazakhstan to include the maintenance and use of the Baikonur Cosmodrome.
Roman Zadunaiskiy, ITAR-TASS (Moscow), 4/9/93; in FBIS-SOV-93-069, 4/13/93, pp. 14-15 ***(3058)***. *Igor Romanov, Rossiyskiye Vesti (Moscow), 4/14/93, p. 7; in FBIS-SOV-93-072 4/16/93, p. 16* ***(3058)***. *Daniel Green, Financial Times, 4/15/93, p. 8* ***(3305)***.

Russia with Kuwait

2/9/93

Maj. Gen. Al-Shamlan, assistant chief of staff for Kuwaiti military intelligence, states that Kuwait is interested in buying Russian air defense and ground systems. Kuwait had Russian SA-6 and SA-8 air defense systems before the war with Iraq.
Philip Finnegan, Defense News, 2/22/93, p. 6 ***(3143)***.

Russia with Latvia

3/93

The last of contingent Russian forces depart the Latvian Banga missile unit camp located in Ventspils rayon, leaving behind tanks of poisonous missile fuel. According to chief ecologist at Ventspils rayon Karklina, there were 90 tons of "millazh fuel" and 180 tons of "Samin fuel" at the Banga camp as of 11/92.
Radio Riga Network, 3/26/93; in FBIS-SOV-93-059, 3/30/93, p. 84 ***(3201)***.

Russia with Libya and Ukraine

4/13/93

Ukrainian Foreign Ministry spokesman Yuri Sergeyev announces that Ukraine seized 80 tons of ammonium perchlorate. The cargo, seized in the port of Ilyichovsk, was to be shipped by the Russian company Paveks to Varna, Bulgaria. From Bulgaria the shipment was to be re-exported to Libya. Western embassy authorities alerted the Ukrainian government of the shipment.
Reuter, 4/13/93 ***(3255)***. *Washington Post, 4/14/93, p. A29* ***(3255)***. *Izvestiya (Moscow), 4/16/93, p. 15; in JPRS-TND-93-011, 4/23/93, pp. 23-24* ***(3255)***.

Russia with Multi-Country Group

10-11/92

According to Pentagon sources, details of a U.S. administration officials' proposed three phase plan for protection against limited missile strikes were presented to Russia, Ukraine, and Belarus. Phase one calls for the U.S. to provide allies with early warning information from Defense Support Program satellites. Phase two calls for technological cooperation between the U.S. and former Soviet states. The second phase will also include sharing of some expertise and critical components. Phase three includes preparation of a multinational, rapid deployment, anti-missile force and a Pentagon proposed Global Protection Center, for detecting and tracking missile launches. It would be built and operated by participating nations and designed along the lines of the U.S.-Canadian early warning center in Cheyenne Mountain, Colorado. Pentagon sources say that the multinational force could consist of improvements to Russia's S-300 missile defense system, upgraded U.S. Patriot missiles, the Theater High Altitude Area Defense system and other planned U.S. and allied anti-missile systems. After 2000 the force would include planned U.S. space and ground based interceptors. Officials from NATO, Israel, Egypt, Japan, South Korea, and Australia have been briefed about the proposal. Talks continue through 1/93.
George Leopold and Barbara Opall, Defense News, 1/11/93, pp. 1, 28 ***(3044)***.

11/4/92

Despite ratifying the START treaty, the Russian Supreme Soviet refuses to exchange instruments of ratification until the three other former Soviet republics with nuclear weapons on their soil accede (as non-nuclear-weapons states) to the nuclear Nonproliferation Treaty, and agree to START implementation measures.
Dunbar Lockwood, Arms Control Today, 11/92, pp. 26, 31-32 ***(3274)***.

RUSSIA

11/16/92

The Inmarsat Organization announces that it has selected the Russian Proton launch vehicle to launch the Inmarsat 3 satellite, in 1995, at a price of $36 million. The Russian launch of the Inmarsat 3 satellite from Kazakhstan's Cosmodrome launch site will require minor modifications.

Space News, 11/16/92, pp. 3, 29 ***(3031)***.

1/15/93

Russia's head of the committee on defense plants and industry, Viktor Glukhikh states that relations with defense plants are being restored in the successor states of the former Soviet Union. A group of committee staffers recently met in Ukraine where they reached an agreement on interaction in the production of helicopters, civil aircraft, motor-making, and some new developments.

Mikhail Shevtsov, ITAR-TASS, (Moscow), 1/15/93; in FBIS-SOV-93-012, 1/21/93, p. 4, ***(3053)***.

1/21/93

During a summit meeting, Belarus, Kazakhstan, Russia and Ukraine again fail, to agree on the transfer of all ex-Soviet nuclear weapons to Russia. Russian demands for control over nuclear warheads, ballistic missiles, nuclear weapons on strategic bombers, early warning systems, anti-missiles and anti-aircraft systems were rebuffed by Belarus, Kazakhstan, and Ukraine. Ukraine insists that only nuclear missiles should be considered strategic nuclear forces and agrees to transfer the 176 strategic nuclear missiles on its soil to Russia, but demands security assurances from both Russia and the U.S., and $1.5 billion to dismantle its missiles. According to U.S. sources, Ukraine rejects security guarantees offered by the U.S. and Russia in exchange for relinquishing its nuclear weapons. Ukraine now demands Russian promises not to cut off energy supplies or resort to other forms of economic coercion. Russian Defense Minister Pavel Grachev asserts that all nuclear forces are subordinate to him. The Ukrainian First Deputy Defense Minister notes that "Ukraine must retain administrative control."

Douglas Clarke, RFE/RL Research Report, 1/18/93, p. 5 ***(2898)***. *Interfax (Moscow), 1/22/93; in FBIS-SOV-93-013, p. 12* ***(3290)***. *Andrey Naryshev and Oleg Falichev, Krasnaya Zvezda (Moscow), 1/23/93, p. 1; in FBIS-SOV-93-015, 1/26/93, pp. 12-13* ***(3291)***. *Umit Enginsoy and George Leopold, Defense News, 1/25/93, pp. 3, 27* ***(3254)***. *Mednews, 1/25/93, pp. 5-6* ***(3289)***.

4/93

Russian Agency Chief, Yuri Koptev announces that Russia won a contract to launch an Inmarsat-3 U.S. satellite (produced by General Electric) into orbit with a Proton Rocket. Koptev also says that Russia could provide the facilities for some of Inmarsat's 16 annual launches which would then "[give] us a stable annual income of $200-220 million."

Guy Chazan, UPI, (Moscow), 4/1/93; in Executive News Service 4/2/93, ***(3047)***.

RUSSIA WITH NORTH KOREA

10/92

A group of sixty Russian engineers, planning to fly to North Korea to help with the modernization of ballistic missiles, is intercepted by the Russian police. The engineers were from the Makeyev Design Bureau in Miass, which is responsible for submarine-launched ballistic missiles and Scud tactical missiles. The recruiting agent was a Russian posing as a government official, but was actually in the employ of the North Korean embassy.

Steven Zaloga, Armed Forces Journal, 4/93, p. 9 ***(3341)***.

11/92

Russia releases a top secret document (special file no. P147, Point 75) of the CPSU Central Committee Politburo Session of 2/6/89, which states that "most recently, reports have begun to be actively circulated in the U.S. on the DPRK's creation of a chemical warfare potential, using missiles manufactured under license from us as delivery systems (and) it has emerged from information from our embassy in Pyongyang that this report is not without foundation."

Izvestia (Moscow), 11/21/92, p. 7; in JPRS-TND-92-045, 12/7/92, pp. 17-18 ***(3334)***.

1/93

North Korea gives assurances to Russian Deputy Foreign Minister Georgy Kunadze that it will not employ Russian missile and nuclear scientists and engineers. The North Korean decision followed U.N. pressure to inspect suspected nuclear waste sites in North Korea and Russian threats to suspend diplomatic relations if demands not to employ Russian technicians were not met.

Washington Post, 2/17/93, p. A2 ***(3074)***.

2/24/93

Yuriy Bessarabov, a leading expert of Unique Defense Enterprise, says that low wages were responsible for the attempt by 60 scientists from the machine design bureau in Miass, Chelyabinsk region to fly to North Korea to train personnel for North Korean strategic arms development programs. Most of the scientists were strategic missile experts which may indicate that North Korea is seeking assistance in designing a warhead and delivery system for a nuclear device. Larry Niksch, a Congressional Research Service Asian specialist, says that it is possible that North Korea has developed a nuclear bomb but does not yet have a warhead.

Michael Breen, Washington Times, 2/19/93, p. A1, A6 ***(3116)***. *Evgeniy Tkachenko, Itar-Tass (Moscow), 2/24/93; in FBIS-SOV-93-035, pp. 11-12* ***(3116)***.

4/93

Thirty-six Russian nuclear scientists, who had all been working on the same top secret project, are arrested at Khabarovsk airport while trying to fly to North Korea. It has been speculated that some "authoritive" figures in the Russian leadership may have acted as intermediaries between the scientists and the North Koreans.

M. Maksimovskaya, Ostankino Television (Moscow), 4/2/93; in FBIS-SOV-93-064, pp. 27-28 ***(3337)***.

RUSSIA WITH PRC

10/92

U.S. officials express their concern that China's purchase of advanced missile guid-

ance technology, rocket engines, and other military hardware from Russia will enable China to develop new weapons for export to Third World countries. The U.S. is also concerned about discussions between Russia and China for the joint production of tactical missiles and other weapons systems in China, one of these being the S-300 SAM.
Michael R. Gordon, New York Times, 10/18/92, pp. 1, 14 ***(3318)***.

11/92

A Russian "secret enterprise" working with composite materials negotiates a $100,000 contract with the PRC to supply satellite components, with $20,000 of the payment made in currency and the rest in consumer goods. Russia plans to increase the amount of weapons delivered to the PRC by 1994 to $2 billion, thereby repaying its debts to the PRC.
Komsomolskaya Pravda, 12/4/92, p. 3; in FBIS-SOV-92-241, 12/15/92, pp. 13-15 ***(3067)***.

12/92

The PRC is discussing procurement of the DAN UAV, designed for use as an aerial target, surveillance platform, and cruise missile from the Kazan-based Sokol OKB design bureau. The DAN UAV comprises an optional pneumatic ground rail launcher, ground loader vehicle, automatic pre-flight check unit, engine starter, a fuelling truck, mobile electric generator, and three vehicles serving as flight control and telemetry data relay and receiving stations.
Edmond Dantes, Asian Defense Journal, 12/92, pp. 28-36 ***(3246)***.

12/92

Aides within the Bush Administration state that the PRC is attempting to acquire defense technology for guidance systems, cruise missile production and testing of antisubmarine warfare weapons from formerly top secret Russian defense enterprises and design bureaus through unofficial channels as well as by hiring hundreds of technical experts. Russian Federation Vice Premier A. Shokhin admits that this activity is wide spread, and notes that Moscow has suggested to Beijing that they keep each other informed of such unofficial transfers of technology.
Vladimir Skosyrev, Izvestiya (Moscow), 12/4/92, p. 4; in FBIS-SOV-92-234, 12/4/92, pp. 13-14 ***(3428)***.

12/3/92

Chinese Foreign Ministry spokesman Li Jianying dismisses as "exaggerated" a U.S. media report alleging that the PRC is recruiting technical experts and importing cruise missile production technology and anti-submarine warfare (ASW) systems from Russia. The U.S. media quoted an expert from the U.S. administration as claiming that envoys from the Chinese military industrial complex are working in Russia for missile production and technical training purposes.
Pavel Spirin, Itar-Tass (Moscow), 12/3/92; in FBIS-SOV-92-234, 12/4/92, p. 14 ***(3238)***.

12/18/92

Russia and China sign documents, statements, and memorandums of understanding in relation to military and technological cooperation, space exploration, and nuclear energy development. Russian President Boris Yeltsin stated that the agreements will allow China to buy "the most sophisticated armaments and weapons." China is awaiting delivery of the Russian S-300 Air-Defense System.
Pavel Spirin, Itar-Tass (Moscow), 12/3/92; in FBIS-SOV-92-234, 12/4/92, p. 14 ***(3238)***. *Lena H. Sun, Washington Post, 12/19/92, pp. A1, A16* ***(3330)***.

12/29/92

It is reported that several hundred specialists from the former Soviet Union are working in Chinese military plants increasing the accuracy of Chinese missiles. Chinese missions are also engaged in the transfer of technology from Russia regarding cruise missile development, anti-submarine equipment and missile and nuclear test procedures. China has expressed an interest in buying Russia's newest surface-to-air missile system, which is similar to the U.S. Patriot, as well as submarines and satellite equipment.
Yomimuri Shinbun, 12/29/92; in Vasiliy Golovnin, Itar-Tass, 12/29/92 ***(3155)***.
(3238).

1/93

The Chairman of the Russian Federation Committee for Defense Sectors of Industry Viktor Glukhikh states that Russia will deliver to the PRC antimissile systems and aircraft.
Rossiyskaya Gazeta (Moscow), 1/26/93, p. 3; in JPRS-TND-93-004, 2/5/93, p. 36 ***(3468)***.

2/93

U.S. intelligence is "certain" that China has purchased from Russia significant components of long range missiles containing technology that China have been unable to develop on its own.
Rowland Evans and Robert Novak, Washington Post, 2/12/93, p. A27 ***(3162)***.

3/3/93

It is reported that China has purchased at least 100 S-300 air defense systems from Russia, which are now being installed. The Chinese military is also attempting to acquire Russian hardware such as an AWACS early warning system and additional sophisticated missile systems.
South China Morning Post, 3/3/93; in Stephen Foye, RFE/RL News Briefs, 3/1/93, p. 4 ***(3151)***.

Russia with Spain

1/19/93

Talks between Russia and Spain on disarmament matters conclude; the countries discuss START-2, a ban on chemical weapons, nonproliferation of weapons of mass destruction, and future cooperation between the two nations. Grigory Berdennikov, Russian Deputy Foreign Minister, states that Russia and Spain have similar views on disarmament problems and a ban on nuclear testing.
Vladimir Shekhovtsov, Itar-Tass (Moscow), 1/19/93; in JPRS-TND-93-003, 1/27/93, p. 18 ***(3178)***.

Russia with South Africa

12/92

The Russian Scientific and Technological Center offers, to launch to nine South African satellites into orbit using converted SS-20 ICBMs. The launches could be from a site near Murmansk in Russia or in South Africa using a Russian launch ramp. The price for the launchings, which remains

negotiable, is approximately 25 million Rand.
Brian Pottinger and Charles Perkins, Sunday Times (Johannesburg), 12/27/92, p. 1; in JPRS-TND-93-002, 1/15/93, p. 1 ***(3196)****. Reuter, 12/28/92; in Executive News Service, 12/28/92* ***(3196)****. Space News, 1/4/93, p. 2* ***(3196)****. SAPA (Johannesburg), 1/21/93; in JPRS-TND-93-003, 1/27/93, p. 1* ***(3196)****.*

Russia with South Korea

10/92

In a report to the National Defense Committee, the South Korean Defense Ministry says it is considering the small scale purchase of Russian weapons to include SA-6, SA-8, and SA-16 missiles for testing and evaluation and for tactical development and acquisition of key technology through the exchange of expert personnel. Such exchanges would make possible the introduction of advanced weapons technology that the U.S. is reluctant to transfer, but may obstruct military cooperation with the U.S. The South Koreans are also considering cooperative arrangements with Russia including an exchange of expert personnel. These purchases and arrangements are intended to provide greater assessment of North Korean capabilities. North Korean arsenals are made up of predominately Russian-made weaponry.
UPI, 10/15/92; in Executive News Service, 10/15/92 ***(2980)****. The Military & Security Notes, Vol. 1, No. 43, 10/30/92,* ***(2980)****.*

12/15/92

The Russian Federation Defense Ministry reports that discussions between Russia and South Korea concerning the sale of Grad multiple rocket systems and "S-300-M-TOR" air defense installations as part of a larger arms sale are underway.
Russian Television Network (Moscow), 12/15/92; in FBIS-SOV-92-242, 12/16/92, p. 18 ***(3161)****.*

6/93

The Russian arms manufacturer, Almaz, signs a letter of intent with South Korean firm Samsung for the joint production of the S-300 anti-missile system. Russia will probably sell a complete S-300 anti-missile system to South Korea.
Space News, 3/1/93, p. 2 ***(3023)****.*

Russia with Tajikistan

3/93

An anonymous source within the command of the 201 Russian Army division claims that Russia will give Tajikistan six rocket launchers as part of a Russian agreement to help create a Tajikistan national armed force. The same source declares that Tajik servicemen cannot effectively handle the equipment that they have been given.
Iterfax (Moscow), 3/28/93; in FBIS-SOV-93-058, 3/29/93, p. 14 ***(3198)****.*

Russia with Ukraine

2/12/92

Lieutenant General Zhivitsa, the acting Chief of the Ukrainian Main Staff, explains that supplies to support Strategic Rocket Force (SRF) divisions at Russian facilities have been stopped; supplies to the Khmelnitskaya and Pervomayskaya divisions have been stopped in response. There is concern that this will lead to a degradation of maintenance and safety which may result in a major ecological disaster. Ten regiments of the Khmelnitskaya division and four regiments of the Pervomayskaya division contain a total of 140 SS-19 missiles (which use the liquid fuel heptyl nonsymmetrical dimethylhydrazine), a highly toxic neuroparalytic, carcinogenic, asphyxiating substance similar to combat toxins. A single missile launch contaminates a 5 km radius when the first stage, containing about 700 kg of unused fuel, falls to earth. The danger of environmental catastrophe prevents the firing of the missiles at the Kamchatka missile range in the Pacific. The disintegration of the Soviet Union broke up the SRF supply system which included procedures for handling the fuel. Heptyl has never been destroyed, nor is there a safe means of storing it. Dismantling missiles under START and the Bush-Yeltsin peace initiatives will be affected by the lack of reserve containers for the fuel; less than 100 heptyl transport containers exist in the CIS. Kazakhstan has about 100 SS-18 missiles which hold twice as much heptyl as the SS-19. There are 308 SS-18s deployed on the territory of the former Soviet Union.
Nezavisimaya Gazeta (Moscow), 3/25/92, pp. 1-2; in FBIS-SOV-92-059, 3/26/92, pp. 4-7 ***(3132)****.*

11/4/92

The Council of Defense Ministers of the CIS, at a meeting in Bishkek, examines a draft agreement on strategic forces within the former Soviet Union, but it is neither initialed by the Ukrainian delegation nor signed by the Russian representatives. Ukraine's desire for financial compensation for the nuclear warheads, and the controversy over the ownership status of the weapons in question has lead tothe current impasse.
Lieutenant Colonel Anatoliy Dokuchayev, Krasnaya Zvezda (Moscow), 11/18/92, p. 1; in JPRS-TND-92-044, 11/24/92, pp. 20-21 ***(2975)****.*

11/10/92

Ukrainian President Leonid Kravchuk states that Ukraine could not afford to transfer the strategic missiles on its territory to Russia "without recompense," as it had done with the former Soviet tactical weapons on its territory.
RFE/RL, 11/20/92, p. 47 ***(2874)****.*

12/23/92

Ukrainian President Leonid Kravchuk states that the 130 Russian-built SS-19 missiles on Ukrainian soil would require Russian assistance to dismantle, but, "if the situation aggravates," the 46 SS-24 solid-fuel missiles in Ukraine, which were built at Pervomaysk, Ukraine, would be dismantled by Ukrainians.
Interfax, 12/24/92; in FBIS-SOV-92-249, 12/28/92, pp. 29-30 ***(3273)****. Doug Clarke, RFE/RL, 12/28/92, p. 12* ***(3271)****.*

1/13/93

Viktor Glukhigh, Russia's Chairman of the Defense Branches of Industry, and Viktor Antonov, Ukraine's Minister for Machine Building, the Military-Industrial Complex, and Conversion, sign several agreements of cooperation in conversion and defense production, which is to include missile construction.
RFE/RL Research Report, 1/11/93, pp. 5-6 ***(3156)****.*

2/93

A wide variety of weapons including mis-

siles are offered for sale by an alledged Russian company at the Universal Ukrainian-Siberian Commodity Exchange (UUSE) in Kharkov, Ukraine. A total of $2 billion worth of goods was on display including 12 launch pads for OTR-300 tactical missiles for $350,000, C-300B [ed. note: S-300V transliteration from Russian] mobile rocket air defense systems (comparable to the Patriot) for $65,000, and Tunguska rocket air defense systems also for $65,000. The director of the UUSE, Evgeny Blinov, states that the weapons are being supplied by a Russian company whose name he would not disclose, but Gennady Shikunov, deputy head of arms sales at the Russian Foreign Economic Relations Ministry, disputes that claim stating that he suspects that the weapons come from army stocks inherited by Ukraine after the Soviet Union disintegrated.

Interfax (Moscow), 2/4/93; in FBIS-SOV-93-022, 2/4/93, pp. 38-39 ***(3320)****. V. Povoloshiy, Komsomolskaya Pravda (Moscow), 2/5/93, p. 1; in FBIS-SOV-93-024, 2/8/93, pp. 32-33* ***(3320)****. Mary Mycio, Los Angeles Times, 2/6/93, p. A8* ***(3320)****.*

2/3/93

Russia and Ukraine adjourn a first round of talks addressing START I issues by drafting three undisclosed agreements that address dismantling schedules, verification procedures, and costs.

Dunbar Lockwood, Arms Control Today, 3/93, pp. 20, 24 ***(3461)****.*

3/93

Ukrainian President Leonid Kravchuk states that Ukraine had suggested to Russia that an agreement be signed whereby Russia would have the right to carry out technical and other supervision of 130 of the strategic missiles in Ukraine. Kravchuk adds that the other 46 missiles in Ukraine were staffed by Ukrainian specialists in conjunction with their Russian counterparts.

Boris Grishchenko, Interfax (Moscow), 3/11/93; in FBIS-SOV-93-047, 3/12/93, p. 1 ***(3277)****.*

4/93

Reports state that Russia's Moscow Thermo-Engineering and Ukraine's Dnepropetrovsk "Yuzhnoye" Science and Production Association are developing a new multi-purpose ICBM, which will be ready for flight tests in 1994. The development of this missile is believed to be part of a larger effort to complete programs adopted within the former Soviet Union's unified state military industrial complex.

Kuranty, (Moscow), 4/8/93, p. 2; in FBIS-SOV-93-067, 4/9/93, p. 62 ***(3050)****.*

4/5/93

Russia's delegation head to START talks with Ukraine Yuriy Dubinin states that Russia has conveyed to Ukraine proposals including the transfer of all nuclear weapons located in Ukraine to Russian jurisdiction, and the removal and transport of all Ukraine's warheads to Russia.

Viktor Zamyatin, Komersant-Daily (Moscow), 4/6/93, p. 9; in JPRS-TND-93-010, 4/16/93, pp. 30-31 ***(3250)****.*

Russia with United Arab Emirates

2/92

A senior Russian Ministry official states that the United Arab Emirates (UAE) is close to purchasing either the S-300 or S-300 V air defense system, which would be integrated into existing communications and radar assets. The UAE will spend more than $700 million on air defense systems between 1992-1995. Russian Defense Minister General Pavel Grachev, says that Russia and the UAE have signed a "protocol of understanding" in which Russia will "positively consider the defense needs of the United Arab Emirates."

Jane's Defense Weekly, 2/13/93, pp. 46-47, ***(3041)****.*

2/17/93

Russia successfully demonstrates, for the first time outside Russia, the S-300 PMU-1 (SA-10) against four targets at the International Arms Exhibition at Abu Dhabi, UAE. Russia is displaying for sale 370 weapon systems including the S-300 PMU-1, the S-300 V, the Tochka-U, the Konkurs, the Metis, the Tor, the Krasnopol, and the Smerch, and also offers maintenance services and personnel training. Russia's Oboronexport Association acts as the middleman for deals. The S-300 and Tochka-U receive "particular" interest from potential customers because in test-firings, they both demonstrate abilities that far exceed those of U.S. missiles used during attacks on Baghdad. Army General Pavel Grachev states, at the Abu Dhabi international arms exhibition, that weapons sales will only occur with the nations that are not potential enemies. He adds that weapons sales will bring in tremendous income, and keep the general designers and the directors of defense industry enterprises inside Russia.

Valentine Rudenko, Krasnaya Zvezda (Moscow), 2/12/93, p. 3; in FBIS-SOV-93-029, 2/16/93, pp. 11-12 ***(3296)****. Philip Finnegan, Defense News, 2/22/93, p. 6* ***(3143)****. Asian Defence Journal, 3/93, p. 102* ***(3295)****. Viktor Glukhin, Delove Lyudi (Moscow), 4/93, pp. 22-23; in FBIS-SOV-93-098, 5/24/93, pp. 39-40* ***(3484)****. Ostankino Television First Channel Network (Moscow); in FBIS-SOV-93-067, 4/9/93, p. 20* ***(3068)****.*

4/93

The UAE is evaluating a Russian alternative to the Patriot.

Philip Finnegan, Defense News, 4/12/93, pp. 10, 12 ***(2902)****.*

Russia with United States

9/21/92

At a meeting of the U.N. General Assembly in New York, U.S. President George Bush and Russian President Boris Yeltsin reaffirm their intention to create a global protection system. The system which was announced on 6/92, includes sharing early warning data, curbing ballistic missile proliferation, and finding avenues for technological cooperation. The U.S. and Russian teams, coordinated by Bush assistant Dennis Ross and Russian deputy foreign minister Georgi Mamedov, separate into three teams that are meeting regularly. The teams will focus on a global protection system, technological cooperation, and nonproliferation. The nonproliferation team from the U.S. will be led by the Arms Control and Disarmament Agency.

George Leopold, Barbara Opall, Defense News, 11/23/92, pp. 3, 20 ***(3059)****.*

10/92

A technology cooperation panel, led by the SDIO director for technology, U.S. Air Force Colonel Peter Warden, meets with Russian officials in New York. At the mid-

October meeting of this technology working group, Russian officials submit "a fairly comprehensive list of topics" for future collaboration including early warning systems, effectiveness of interceptors, and the survivability of satellites when under attack. U.S. experts want information about Russian radar and satellite data, particularly the rate of false alarms generated by the systems. They are also interested in the integration of the Russian warning system, and to what extent the systems suffers from the many ground-based radar sites that were lost with the break up of the Soviet Union.
George Leopold, Barbara Opall, Defense News, 11/23/92, pp. 3, 20 ***(3059)***.

11/18-21/92

A U.S. interagency team, which included the Director of Strategic Defense, Space and Verification Policy Doug Graham as the Pentagon representative, meets with its Russian counterparts as part of the group tasked with defining a "global protection system" and working out "remaining ambiguities." The meetings take place at U.N. offices in New York.
George Leopold, Barbara Opall, Defense News, 11/23/92, pp. 3, 20 ***(3059).***

12/92

Director of the SDIO Henry Cooper reveals that since 6/92, cooperation between the U.S. and Russia on missile defense entails sharing SDIO technology such as GPALS. High level U.S.-Russian working parties have been touring U.S. and Russian weapons plants. Russia may benefit from U.S. early warning sites such as Fylingdales, U.K.
The Sunday Telegraph, 12/13/92 ***(2899)***.

12/7/92

Director of the U.S. Strategic Defense Initiative Organization (SDIO) Henry Cooper says that the Russians are showing great interest in the proposed American global ballistic missile defense system, which could be useful in protecting Moscow from neighbors such as Ukraine, and that he envisions the Russians and Americans sharing command and control, and that there is the possibility of using Russian anti-ballistic missile systems in regional conflicts.
Michael Evens, Washington Times, 12/8/92, p. 8 ***(2922)***.

12/16/92

Russian Space Agency chief Yuri Koptev tells U.S. negotiators that if Russia is prevented from entering the commercial launch market, Russia will sell its rocket technology to nations like Iraq.
Andrew Lawler, 1/4/93, Space News, pp. 1, 20 ***(3480)***.

12/17/92

Russian Prime Minister Viktor Chernomyrdin announces decree number 2349 which permits the Khrunichev factory to sign a deal with Motorola Corporation to launch three commercial communications satellites.
Reuter, 12/17/92; in Executive News Service, 12/17/92 ***(3469)***. *Daniel J. Marcus and Peter B. de Selding, Space News, 1/18/93, pp. 3, 21* ***(3478)***.

12/23/92

The U.S. State Department and Russian Prime Minister Viktor Chernomyrdin approve a joint venture between Lockheed Missiles & Space Co. and Khrunichev Enterprise, called Lockheed-Khrunichev International, to commercially launch the Proton 1. The State Department approves these export licenses for U.S. companies to participate in this joint venture. Subsequent reports indicate that the Defense, Transportation, and Commerce Departments are trying to have the licenses revoked. Department officials will try to resolve the disagreement between Sate and the other Departments, but a source "close to the discussions: said the decision is likely to be made by President Bush.
Jeffrey M. Lenorovitz, Aviation Week & Space Technology, 1/4/93, pp. 24-25 ***(3480)***. *Andrew Lawler, 1/4/93, Space News, p. 20* ***(3480)***. *Andrew Lawler, 1/4/93, Space News, pp. 1, 20* ***(3480)***. *Andrew Lawler, Space News, 1/11/93, pp. 1, 20* ***(3220)***. *Daniel J. Marcus and Peter B. de Selding, Space News, 1/18/93, pp. 3, 21* ***(3478)***.

12/30/92

U.S. President Bush goes on a trip to the Black Sea city of Sochi where he and Russian President Boris Yeltsin are to sign the START II Arms Reduction Treaty which will eliminate each nation's heavy land based ICBM's, all other land-based multiple warhead missiles by 2003, and bring down the total number of warheads on each side to between 3,000 and 3,500. In addition to specific concessions recently negotiated in Geneva include: allowing Russia to retain some of its 154 land-based SS-18 missile silos after filling the silos with approximately 5 meters of concrete so that they can not be used for smaller missiles; and allowing Russia to retain its SS-19 six warhead missile after its reduction to a single warhead missile.
Dan Oberdorfer, Washington Post, 12/30/92, pp. A1, A12 ***(3054)***. *Ann Devroy, Washington Post, 12/31/92, pp. A1, A22* ***(3054)***. *Ann Devroy, Washington Post, 1/4/93, pp. A1, A18* ***(3054)***.

1/93

The U.S. threatens to make permanent the sanctions imposed on Russia's Glavkosmos and India's ISRO for the cryogenic engine deal, as both companies are going ahead with the contract.
The Nation (Islamabad), 1/3/93, p. 6; in FBIS-NES-93-022, 2/4/93, pp. 59-60 ***(3412)***.

1/93

The U.S. Strategic Defense Initiative Organization (SDIO) is quietly funding the newly established Defense Technology Institute in New Mexico to foster scientific collaboration between the U.S. and Russia. The institute may promote collaboration in neutral particle beam technology.
Space News, 1/18/93, p. 2 ***(3429)***.

1/93

A Russian delegation, headed by Sergey Chubakhin, and a U.S. delegation headed by Robert Einhorn, conduct talks aimed at the formation of a bilateraL memorandum to resolve disputes related to the export of missile technology, and to establish controls over those exports. First deputy chief of the Russian Federation Ministry of Foreign Economic Relations Export Strategy and Support Department Andrey Kushnirenk state that consultations between the U.S. and Russia produced an agreement of cooperation "not to assist the proliferation" of missile technologies. The U.S. desires that Russia accept a "black list" of countries which

will be subject to restrictions on the sale of missile technology. India, Brazil, and Egypt are on this list. The U.S. threatens to extend sanctions over several firms including Glavkosmos, if Russia does not accept a modification to its cryogenic engine contract with India as well as the "black list."
Andrey Borodin, Interfax (Moscow), 1/15/93; in FBIS-SOV-93-012, 1/21/93, pp. 3-4 ***(3413)***. *Sergey Yakovlev, Rossiyskiye Vesti (Moscow), 3/3/93, p. 2; in FBIS-SOV-93-041, 3/4/93, pp. 10-11* ***(3299)***.

2/93

Russia and the U.S. have a list of technologies to jointly pursue, including propulsion, sensor equipment, solid state lasers, neutral particle beams, simulation and modeling, and exchanging information on lethality and survivability.
SDI Monitor, 2/12/93, pp. 41-42 ***(3483)***.

2/93

The director of the Science and Technology directorate of SDIO Dwight Dustin states that his department hired 200 Russian researchers at Moscow's Kurchatov Institute, Lebedev Institute, General Physics Institute and Institute of Spectroscopy and St. Petersburg's Ioffe Institute. The SDIO hirings will allow the researchers to continue their work which they started for the U.S.SR including work in optics, sensing, silicon carbide, and lasers.
SDI Monitor, 2/26/93, pp. 52-53 ***(3465)***.

2/3/93

Lawrence K. Gershwin, CIA Officer for Strategic Programs, testifies that in the next decade Russia is expected to deploy three missiles: a road mobile, single warhead SS-25, a silo based SS-25 and a follow on to the Typhoon submarine launched missile. Currently, Russia has 10,000 nuclear warheads, and by year 2003 will have reduced this to 2,000 to 2,500 warheads, which is below the START II limit of 3,500 warheads.
Aerospace Daily, 2/4/93, p. 195 ***(3157)***.

3/4/93

Russia announces that it will build a new complex at the Plesetsk Cosmodrome for launching U.S. commercial communications satellites on Russian rockets. The U.S. will launch about 70 satellites into low orbit, some of which will probably be launched by Russian rockets.
Moscow Radio Service, 3/4/93; in FBIS-SOV-93-042, 3/5/93, p. 5 ***(3150)***.

3/4/93

Under Secretary of Defense for Policy-designate Frank G. Wisner tells the Senate Armed Services Committee that the U.S. is trying to get Russia to cancel its planned sale of cryogenic engines to India The sale could jeopardize the joint venture between Lockheed and Khrunichev to market the Proton launch vehicle.
Aerospace Daily, 3/5/93, p. 363 ***(3280)***.

3/93

U.S. and Russian negotiators meet to discuss Russia's compliance with the MTCR, a major consideration in U.S.-Russian commercial launch cooperation, but little progress is made. Russia's willingness to strictly adhere to the MTCR is viewed by the U.S. as critical to any agreement with Russia on the commercial launch market. The U.S. wants a commercial agreement with Russia that is similar to the agreement the U.S. signed with China in 1987, in order to allow Russia into the commercial launch market. U.S. concerns over any future agreement with Russia include: enforcement of an effective means of price controls for each launch, impact on the U.S. launch industry, and, as stated by a U.S. administration official, "the real question is whether the Russians will agree to technological safeguards and ballistic missile proliferation control."
Andrew Lawler, Space News, 4/5/93, pp. 4, 20 ***(3049)***.

4/93

A private U.S. group called Sea Launch Investors is seeking the rights to use deactivated Russian submarine-launched ballistic missiles for commercial floating sea launch services and microgravity missions in conjunction with the Russian developer, Makeyev Design Office of Mechanical Engineering. Sea Launch Investors will work with the Ramcon Association for Conversion of Sea-based Ballistic Missiles which was formed by Russian naval officers.
Jeffery M. Lenorovitz, Aviation Week & Space Technology, 4/19/93, p. 22-23 ***(3298)***.

4/93

Gerald Musarra, senior advisor for space policy at the White House Office of Science and Technology Policy, states that the Clinton administration understands that Russia is going to enter the international commercial launch market, and that the U.S. and Russia could produce a commercial launch agreement later the year which would involve launching U.S. satellites on Russian vehicles. Western companies are worried about being undercut by Russian prices, but Musarra believes that an agreement would address such concerns as quantity restrictions and prices.
Defense Daily, 4/27/93, p. 143 ***(3314)***.

4/3/93-4/4/93

At the Vancouver Summit, Russian President Boris Yeltsin and U.S. President Bill Clinton agree on several space related matters, to include the establishment of a high-level commission to plan U.S.-Russian space and energy cooperation and a U.S. proposal for talks to take place in 5/93 on the subject of of Russian entry into the commercial launch market.
Space News, 4/12/93, pp. 1, 20 ***(3055)***.

4/27/93

Russia's Salyut Design Bureau and Inmarsat sign a contract to launch Inmarsat-3, a mainly U.S. built satellite. The U.S. promised to grant an export license, which includes technological information safeguards for the satellite.
Leyla Boulton, Financial Times, 4/28/93, p. 5 ***(3251)***.

SAUDI ARABIA

SAUDI ARABIA WITH FRANCE

1/93

France's defense industry awaits finalization of a sale of three air defense frigates to Saudi Arabia. France is hoping to maintain a considerable share in the Middle East-

ern arms market that, since the Gulf War, has become increasingly dominated by the U.S.
Jane's Defence Weekly, 2/13/93, pp. 43-44 ***(3138)***.

SAUDI ARABIA WITH SWITZERLAND

1/93

Oerlikon-Buhrle of Switzerland wins a $675.5 million contract to supply Saudi Arabia with over 100 GDF-002/005 twin 35mm cannons, associated Skyguard fire-control radars. Five percent of the funding covers an option to purchase the ADATS surface-to-air missile system.
Aviation Week & Space Technology, 1/18/93, p. 21 ***(3244)***. *Flight International, 1/20/93, pp. 4-5* ***(3244)***.

SAUDI ARABIA WITH UNITED STATES

12/23/92

The U.S. Army Missile Command awards a $1.03 billion contract to Raytheon's Missile System Division for 13 Patriot fire units and 761 PAC-2 missiles which will be delivered to Saudi Arabia in a year and a half delivery cycle beginning in 1995. Initially, Raytheon will receive $515 million of the $1.03 billion funding, but follow on sales of additional Patriot fire units, test systems, firing range, and other support equipment could boost the final total to over $1.2 billion. Additionally, Raytheon anticipates concluding a separate agreement with Saudi Arabia to provide training on the U.S. Patriot missile system. Raytheon is already working on a previous 1990 order of eight U.S. Patriot fire units and 300 missiles to be delivered to Saudi Arabia from the U.S. beginning in 1993.
Aviation Week & Space Technology, 1/4/93, p. 25, ***(3046)***. *Patriot (Delhi); in Asian Recorder, 1/22/93, p. 22874* ***(2884)***. *Defense Electronics, 3/93, pp. 23-24* ***(2886)***.

2/16/93

Raytheon and Saudi Arabia announce that Saudi Arabia is to purchase a $500 million package that will include technical assistance, training, logistics support, spares, and modifications for its Patriot and Hawk air defense systems. The package is also expected to contain upgrades from first and second generation software and signal processing hardware.
Defense News, 3/1/93, p. 17 ***(3439)***. *Mednews, 3/1/93, p. 6* ***(2886)***.

SERBIA

SERBIA WITH CROATIA

12/28/93

The Serbian I Krajina Corps command denies reports that it has used Scud SSMs in the battles for Gradacac, and says that reports repeatedly broadcast by Croatian Radio are another attempt to deceive the world public. They note that the Serb and Muslim forces are so close together on the Gradacac battlefront that there is no need to use long range Scud missiles.
Tanjug (Belgrade), 12/28/92; in JPRS-TND-93-001, 1/7/93, p. 10 ***(3191)***.

SINGAPORE

SINGAPORE WITH ISRAEL

2/93

Singapore reveals the existence of the Republic of Singapore Air Force's 128th Squadron which operates from Tengah Air Base utilizing Israel's IAI Scout UAV system and a more advanced UAV, possibly the IAI Impact.
Jane's Defence Weekly, 2/13/93, p. 23 ***(3257)***.

SOUTH AFRICA

INTERNAL DEVELOPMENTS

11/92

The South African government announces its intention to promulgate a bill restricting the build-up of "weapons of mass destruction" in South Africa. An interdepartmental committee has been appointed to draft the bill, which is expected to be deliberated in parliament in 1993.
Engineering News (Johannesburg), 10/24/92, p. 3; in JPRS-TND-92-044, 11/24/92, p. 3 ***(2965)***.

11/92

South Africa begins to use domestically upgraded Thomson-CSF Crotale missile units in a vehicle mounted version called the Cactus. The original four-round Crotale launcher and E(S) band radar acquisition units have been put in containers deisgned for mobile systems. The original missile unit's radar, equipped with Thomson components has been supplemented by the Reutech Radar Systems planar array, which facilitates sidelobe suppression and high angle coverage. Synertech, the modified launcher's prime contractor, claims that the systems availability is at 98%, which is an improvement over the original Cactus.
International Defense Review, 6/93, p. 476 ***(3194)***.

Late 1992

South Africa test fires the Kentron developed SAHV-3 high velocity, RF/laser command guided missile from an unmodified Cactus launcher, for the first time. The miss distance is characterized as "very good." The missile did not carry a fuse or warhead during its developmental testing, and has a peak lateral acceleration of 40 G and 1200 m/s peak velocity. The SAHV-3 has a weight of 123 kg giving it a residual velocity of 500 m/s at 12 km, supposedly higher than its competitors. The SAAF may not get the missile until 1996 due to funding restraints. A four-round towed variant of Crotale firing the SAHV-IR missile (an

SAHV-3 derivative with dual infrared homing and command guidance) is under development by Synertech and Kentron.
International Defense Review, 6/93, p. 476 ***(3194)***.

3/18/93

South African Foreign Minister Pik Botha claims that South Africa is seeking private U.S. or European investment and technical aid for its Arniston missile, which is capable of carrying nuclear or commercial payloads, and is based in part on the Israeli Jericho 2, a missile that South Africa helped test.
R. Jeffrey Smith, Washington Post, 3/19/93, p. A48 ***(3311)***.

3/24/93

South African Atomic Energy Corporation Chief Executive Waldo Strumpf comments in an interview on how one of South Africa's six nuclear devices could be delivered: "Theoretically, this device could have been fired from an aircraft or a missile, but it was fortunately never the strategy." In the same interview, South African Foreign Minister Pik Botha states, "We would very much like to be a member of the [MTCR] controlling body...be part of the club, then they will have additional assurance that sales, transfers of this technology to governments who are hostile towards them, will not take place."
SABC TV 1 Network (Johannesburg), 3/24/93; in JPRS-TND-93-009, 3/29/93, pp. 5-8 ***(2998)***.

4/23/93

The test of a Somchem rocket motor at the Hangklip test site is delayed due to poor weather conditions. The test, which is part of a plan to launch a 500 kg satellite into orbit, is rescheduled for 4/26/93.
Anita Allen, Saturday Star (Johannesburg), 4/24/93; in JPRS-TND-93-012, 5/4/93, p. 2 ***(2871)***.

5/93

It is reported that officials at South Africa's Armscor studied the feasibility of a missile delivery system for South African nuclear weapons, but it was not pursued further as it was determined that the additional deterrence afforded by such a system would be limited in terms of South Africa's nuclear strategy.
Mark Hibbs, Nuclear Fuel, 5/10/93, pp. 1-6 ***(3182)***.

5/18/93

South African Finance Minister Derek Keys proposes draft legislation before parliament that would ban the manufacture of biological and nuclear weapons, and would ensure compliance with international treaties and conventions governing exports and controls of nuclear and biological weapons, and dual use components and chemicals that could be used for the manufacture or delivery of nuclear and biological weapons.
Reuter, 5/18/93; in Nuclear Non-Proliferation News, 5/19/93 ***(3185)***. *Jane's Defence Weekly, 5/29/93, p. 7* ***(3185)***.

6/30/93

South African Foreign Minister Pik Botha declares that his country and the state owned firm Denel have abandoned the development of a space launch vehicle, apparently for both political and economic reasons. Botha asserts that his declaration should allay international suspicions that South Africa is working on advanced weapons systems and should clear the way for international cooperation and South African membership into the MTCR.
Reuter, 6/30/93; in Executive News Service, 6/30/93 ***(2935)***.

South Africa with Iraq

1992

In a book published in the U.S. titled Profits of War: Inside the Secret U.S.-Israeli Arms Network, the author, Israeli secret service defector Ari Ben-Menashe, claims that during the 1980's South Africa's Armscor supplied Iraq with artillery and missiles capable of carrying nuclear warheads, with the approval of then Vice-president George Bush and the endorsement of the CIA.
Arthur Gavshon, Weekly Mail (Johannesburg), 10/16/92, pp. 1-2; in JPRS-TND-92-039, 10/28/92, pp. 1-2 ***(2916)***.

South Africa with Russia

12/92

The Russian Scientific and Technological Center offers to launch nine South African satellites into orbit using converted SS-20 ICBMs. The launches could be from a site near Murmansk in Russia or in South Africa using a Russian launch ramp. The price for the launchings, which remains negotiable, is approximately 25 mission Rand.
Brian Pottinger and Charles Perkins, Sunday Times (Johannesburg), 12/27/92, p. 1; in JPRS-TND-93-002, 1/15/93, p. 1 ***(3196)***. *Reuter, 12/28/92; in Executive News Service, 12/28/92* ***(3196)***. *Space News, 1/4/93, p. 2* ***(3196)***. *SAPA (Johannesburg), 1/21/93; in JPRS-TND-93-003, 1/27/93, p. 1* ***(3196)***.

South Africa with Taiwan

1/93

During a visit to South Africa, the Taiwanese Navy displays several of its upgraded ships, including the Kai Yang, which is a Wu Chin II class destroyer that utilizes Israeli Elbit Naval Tactical Command and Control system and carries five Hsiung Feng antiship missiles. Also displayed is the Te Yang, a Wu Chin III class destroyer with Signaal DA 08 surveillance radar and octuple ASROC launcher and 10 box launchers for General Dynamics SM1-MR Standard Missile SAMs, which are controlled by a Signaal STIR tracking and illumination radar fire control director.
Jane's Defence Weekly, 1/16/93, p. 24 ***(3174)***.

South Africa with United States

Late 1992

The U.S. threatens South Africa with punitive measures if the South African-Russian satellite launch deal proceeds. The threat is part of an attempt to stem the proliferation of missiles and missile technology.
Brian Pottinger and Charles Perkins, Sunday Times (Johannesburg), 12/27/92, p. 1; in JPRS-TND-93-002, 1/15/93, p. 1 ***(3196)***. *Reuter, 12/28/92; in Executive News Service, 12/28/92* ***(3196)***. *Space News, 1/4/93, p. 2* ***(3196)***. *SAPA (Johannesburg), 1/21/93; in JPRS-TND-93-003, 1/27/93, p. 1*

(3196).
SOUTH KOREA-SPAIN

SOUTH KOREA

SOUTH KOREA WITH RUSSIA

10/92

In a report to the National Defense Committee, the South Korean Defense Ministry says it is considering the small scale purchase of Russian weapons to include SA-6, SA-8, and SA-16 missiles for testing and evaluation and for tactical development and acquisition of key technology through the exchange of expert personnel. Such exchanges would make possible the introduction of advanced weapons technology that the U.S. is reluctant to transfer, but may obstruct military cooperation with the U.S.

UPI, 10/15/92; in Executive News Service, 10/15/92 ***(2980)***. *The Military & Security Notes, Vol. 1, No. 43, 10/30/92,* ***(2980)***.

12/15/92

The Russian Federation Defense Ministry reports that discussions between Russia and South Korea concerning the sale of Grad multiple rocket systems and "S-300-M-TOR" air defense installations as part of a larger arms sale are underway.

Russian Television Network (Moscow), 12/15/92; in FBIS-SOV-92-242, 12/16/92, p. 18 ***(3161)***.

6/93

The Russian arms manufacturer, Almaz, signs a letter of intent with South Korean firm Samsung for the joint production of the S-300 anti-missile system. Russia will probably sell a complete S-300 anti-missile system to South Korea.

Space News, 3/1/93, p. 2 ***(3023)***.

SPAIN

SPAIN WITH ARGENTINA

9/92

Spanish technicians reportedly visit the Condor 2 missile trials and construction installation at Falda del Carmen, Argentina in order to acquire technology for the Spanish space program; the visit includes a tour of workshops and discussions about fuel, ballistic trials, metallurgy, electronics/control, composite materials, and navigation/guidance systems. Spain is interested in using Condor's solid fuel and steerable nozzle system in its Capricornio launcher development program.

International Defense Review, 11/92, p. 1062 ***(3386)***.

12/92

Meetings are held at the Argentine Foreign Ministry between the U.S. and Spanish Ambassadors and the Argentine foreign and defense ministers to negotiate an agreement on the shipment of recyclable parts from the Condor-2 missile to Spain for peaceful purposes such as satellite launches with the Spanish Institute for Aerospace Technology.

J. Olomo y Losada, ABC (Madrid), 1/7/93, p. 24; in JPRS-TND-93-002, 1/15/93, p. 13 ***(2932)***.

2/8/93

Fourteen engines and 30 fuselages from the Condor-2 are scheduled to be shipped to Spain from Puerto Belgrado, Argentina, at Argentine expense aboard the Bahia San Blas transport ship to an undisclosed port, possibly the Rota air and naval base. The missile parts were transported from Cordoba, Argentina, at a slow rate of travel to assure that no frictional movement or violent shocks would cause overheating in the engines' sealant, in a secret operation under the command of Brigadier General Sciola.

J. Olomo y Losada, ABC (Madrid), 1/7/93, p. 24; in JPRS-TND-93-002, 1/15/93, p. 13 ***(2932)***.

3/4/93

Argentinean Defense Minister Erman Gonzales claims that the Condor-2 missile parts sent to Spain were shipped to analyze "whether they can be used for peaceful purposes," but could not confirm that any of the parts had been re-shipped to the U.S. Gonzales says that the entire shipment was "duly controlled by Spanish experts" present at the time of loading.

Telam (Buenos Aires), 3/4/93; in JPRS-TND-93-008, 3/2/93, P. 19 ***(2967)***.

Early 1993

Reports surface that Condor's guidance system was sent to Spain's National Institute of Aerospace Technology in 1991.

United Press International, 4/1/93; in Executive News Service 4/2/93 ***(2881)***.

SPAIN WITH RUSSIA

1/19/93

Talks between Russia and Spain on disarmament matters conclude; the countries discuss START-2, a ban on chemical weapons, nonproliferation of weapons of mass destruction, and future cooperation between the two nations. Grigory Berdennikov, Russian Deputy Foreign Minister, states that Russia and Spain have similar views on disarmament problems and a ban on nuclear testing.

Vladimir Shekhovtsov, Itar-Tass (Moscow), 1/19/93; in JPRS-TND-93-003, 1/27/93, p. 18 ***(3178)***.

SPAIN WITH UNITED STATES

12/92

The U.S. State Department approves 15 export licenses to sell launch vehicle information to Spain, Italy and Australia. Subsequent reports indicate that the unexpected approval of the licenses "provoked a storm of criticism" from Defense Transportation and Commerce departments. The State Department stood by its original decision in a White House Meeting, where senior administration officials failed to agree on whether to uphold or revoke the licenses. President Bush will make the final decision. The licenses are of concern to the Instituto Nacional Technica Aerospatiale (INTA) which is interested in purchasing U.S. equipment for their Capricornio launcher. INTA has initiated for $30 million effort to begin construction of this small three stage rocket powered by solid and liquid fuel rockets and capable of placing 220 lbs into low Earth orbit. Spain will be assisted by an unidentified U.S. company whose license request was opposed by U.S. defense officials concerned about the possible military applicability of the project despite Capricornio

program director Ricardo Dorado's statement in 1992 that the rocket's "sole purpose" is to place a small satellite into orbit.
Andrew Lawler, Space News, 1/11/93, pp. 4, 21 ***(3131)***. *Andrew Lawler, Space News, 1/11/93, pp. 1, 20* ***(3220)***.

SUDAN

SUDAN WITH IRAN

9/1-15/92
Iran is believed to have transported surface-to-surface missiles, among other weaponry to Sudan. These weapons are to be used against rebel troops of the Sudanese People's Liberation Army.
Tariq Hasan, Rose Al-Yusuf (Cairo), 10/19/92, p. 71; in JPRS-TND-92-040, 10/30/92, p. 19 ***(2850)***.

SWEDEN

INTERNAL DEVELOPMENTS

2/93
Swedish Defense Minister Anders Bjoerck addresses the preservation of the Swedish missile industry despite Europe's overcapacity in this area. He says that it is important to maintain Sweden's missile industry because of its high quality and competitiveness, cancellation would have a negative effect on the defense industry, once abandoned the missile industry would be difficult to rebuild, and because of the importance of Sweden's self-sufficiency.
Theresa Hitchins, Defense News, 2/8/93, p. 54 ***(3113)***.

2/27/93
An accident at a Swedish launch site kills a technician and damatges two buildings. A one-stage Orion sounding rocket, undergoing testing at the Swedish Space Center before its scheduled launch the next day, is ignited by the U.S.-made Alinco model 101-5CFG tester, which was designed to test the rocket's ignition by releasing a weak charge to the rocket's igniter. The tester was installed without its power blocking equipment and the rocket igniter received sufficient charge to set the rocket off.
Peter B. de Selding, Space News, 3/8/93, p. 5 ***(3103)***.

SWITZERLAND

SWITZERLAND WITH SAUDI ARABIA

1/93
Oerlikon-Buhrle of Switzerland wins a $675.5 million contract to supply Saudi Arabia with over 100 GDF-002/005 twin 35mm cannons, associated Skyguard fire-control radars. Five percent of the funding covers an option to purchase the ADATS surface-to-air missile system.
Aviation Week & Space Technology, 1/18/93, p. 21 ***(3244)***. *Flight International, 1/20/93, pp. 4-5* ***(3244)***.

SYRIA

INTERNAL DEVELOPMENTS

11/92
In response to an inquiry about the purpose of Scud missiles purchased by Syria from North Korea, President Hafez Assad says, "...We have had missiles for the past 20 years. Since we are in a state of war, why shouldn't we have them?" When asked whether Syria is attempting to develop capabilities similar to those of Israel, President Assad reiterated that Syria is doing nothing that it hasn't been doing for the last 20 years. Assad also calls for the elimination of all weapons of mass destruction in Syria and Israel.
Time, 11/30/92, p. 49 ***(2877)***.

2/93
In a U.S. Defense Department report, officials indicate that between the years 2000 and 2010, Syria, Iran and the PRC will have cruise missiles with some low-observable or stealth capabilities, and chemical and biological warheads.
Aviation Week & Space Technology, 2/1/93, pp. 26-72 ***(3258)***.

SYRIA WITH ARGENTINA

11/92
Syria and Argentina sign a secret five year scientific agreement whereby state run research organizations in both countries will exchange "their respective expertise" in scientific and technical fields; the protocol specifically mentions cooperation in the area of "nuclear energy," and Syria will likely pursue access to Argentina's Condor-2 solid fuel ballistic missile program that Iraq had partially funded during the mid 1980s.
Mednews, 1/11/93, p. 6 ***(2905)***.

SYRIA WITH FRANCE

11/92
Syria's Scientific Research Council, CERS, sends a delegation to France and Germany to purchase dual-use technology including electronic goods and "connectors," which can be used in ballistic missile separation.
Mednews, 12/7/92, p. 5 ***(3444)***.

SYRIA WITH GERMANY

11/92
Syria's Scientific Research Council, CERS, sends a delegation to France and Germany to purchase dual-use technology including electronic goods and "connectors," which can be used in ballistic missile separation.
Mednews, 12/7/92, p. 5 ***(3444)***.

11/92
The German government decides to stop further sales of dual-use technology to the Syrian Scientific Research Center (SSRC aka CERS), which has been identified as the chief organizer of the Syrian chemical and

biological weapons program and as a major procurer for its nuclear and ballistic missile programs. Syrian sources claim that Germany sent letters to all major German research centers cautioning them against such sales, and Syria protests the decision calling it "political hypocrisy."
Mednews, 1/11/93, p. 4 ***(3108)***.

12/14/92

Italian and German officials in Augusta, Sicily detain and search the Estonian ship Waalhaven for Scud missile components allegedly enroute to Syria and North Korea. Although the ship left Hamburg, where the cargo was loaded two days earlier (12/12/92), enroute for Lebanon, the ultimate destinations of the alleged Scud technology are believed to be Syria and North Korea. (Syria's Scud-C manufacturing program has been launched in cooperation with North Korea.) Germany alerted Italian officials, the Estonian owners, and the Dutch firm leasing the ship, that Germany had received reports that the cargo was suspect. The Estoninan owners and the Dutch firm direcrted the ship's captain to anchor in Augusta for inspection. The parts in question, including German machine tools, could extend the range of Scud missiles. According to German spokesman Norbert Schaefer on 12/30/92, "The German government has intelligence information about procurement efforts for the Syrian missile program in Western countries," and that illegal exports could be among the cargo from several Western European countries. The vessel is allowed to proceed to Beirut after 27 containers are off-loaded in Augusta.
Washington Times, 12/25/92, p. A2 ***(3443)***. *Reuter, 12/30/92; in Executive News Service, 12/20/92* ***(3443)***. *ADN (Berlin), 1/16/93; in JPRS-TND-93-003, 1/27/93, pp. 27-28* ***(3357)***. *BNS (Tallinn), 1/22/93; in JPRS-TND-93-004, 2/5/93, P. 42* ***(2895)***.

1/93

The Estonian Foreign Ministry releases a statement citing the Syracuse County (Italy) court, which ruled that the Estonian freighter Waalhaven was carrying only non-military industrial equipment. Earlier reports indicated that the Waalhaven cargo was suspected of including Scud missile components such as German machine tools.
ETA News Release (Tallinn), 1/13/93; in FBIS-SOV-93-010, 1/15/93, pp. 70-71 ***(3387)***.

Syria with Iran

11/22/92

Syrian Industry Minister Dr. Ahmad Nizam-al-Din met with Mohammad Reza Nematzadeh, his Iranian counterpart, in Damascus to discuss, among other things, "specifications and calibration" and the establishment of "projects of joint investment." The joint effort to build the North Korean Scud-C may be one such project.
Mednews, 1/11/93, p. 6 ***(2905)***.

Syria with North Korea

2/93

CIA chief James Woolsey testifies before the U.S. Congress that North Korea is becoming the primary supplier of missile programs in Iran and Syria, adding that "North Korea apparently has no threshold governing its sales...It is willing to sell to any country with the cash to pay."
John J. Fialka, ***Wall Street Journal****, 2/25/93, p. A10,* ***(3020)***.

Syria with PRC

10/92

According to CIA Director Robert Gates, Syria "appears to be seeking assistance from China and Western firms for an improved capability with chemical and biological warheads."
Arms Control Today, 10/92, pp. 44-45 ***(3401)***.

TAIWAN

Taiwan with Germany

1/28/93

The German government approves the sale to Taiwan of Patriot and Ram (rolling airframe missile) systems/components, which are used exclusively for defensive purposes and manufactured under a U.S./German joint venture with the German Group DASA. German companies involved are Diehl, Bodenseewerk Geraetetechnik and Telefunken Systemtechnik. The group operates in the U.S. and supplies propulsion and guidance technology to the U.S. for Patriot missiles.
DDP (Berlin), 2/13/93; in JPRS-TND-93-008, 3/22/93, p. 53 ***(3492)***. *DPA (Hamburg), 2/13/93; in JPRS-TND-93-008, 3/22/93, p. 53* ***(3492)***. *Reuter (Bonn), 2/13/93; in Executive News Service, 2/15/93* ***(3492)***.

Taiwan with South Africa

1/93

During a visit to South Africa, the Taiwanese Navy displays several of its upgraded ships, including the Kai Yang, which is a Wu Chin II class destroyer that utilizes Israeli Elbit Naval Tactical Command and Control systems and carries five Hsiung Feng antiship missiles. Also displayed is the Te Yang, a Wu Chin III class destroyer with Signaal DA 08 surveillance radar and octuple ASROC launcher and 10 box launchers for General Dynamics SM1-MR Standard Missile SAMs, which are controlled by a Signaal STIR tracking and illumination radar fire control director.
Jane's Defence Weekly, 1/16/93, p. 24 ***(3174)***.

Taiwan with United States

12/23/92-1/93

Raytheon is negotiating with Taiwan for approximately $1.2 billion in Patriot fire units and missiles.
Aviation Week & Space Technology, 1/4/93, p. 25 ***(3046)***. *Aviation Week & Space Technology, 1/18/93, p. 21* ***(3244)***. *Flight International, 1/20/93, pp. 4-5* ***(3244)***.

1/93

The U.S. government states that the U.S. manufacturer Raytheon will assist in upgrading Taiwan's air defense systems, but denies that the assistance includes the Patriot SAM system.
Flight International, 1/20/93, p. 6 ***(3175)***.

2/93

The U.S. State Department gives Raytheon permission to provide guidance systems and technology to help Taiwan manufacture weapons similar to the Patriot missile. The missiles are to enter service in 1995 and the project will cost about $1 billion.
Washington Times, 3/3/93, p. A2 ***(2923)***.

2/9-10/93

Raytheon and Taiwanese officials meet in Washington to discuss the $1.3 billion Modified Air Defense System (MADS) joint project which will replace Taiwan's the Nike air defence system with the Patriot. Raytheon is to provide seven fire units comprising missile forebodies, radars, engagement control stations, training, and technical assistance. Taiwan will produce the rear section, warhead, propulsion, and control sections under a separate Raytheon-Taiwanese $120 million technical support package.
Barbara Opall and David Silverberg, Defense News, 2/22/93, pp. 1, 21 ***(3241)***. *David Hughes, Aviation Week & Space Technology, 3/1/93, p. 61* ***(3241)***.

TAJIKISTAN

Internal Developments

2/93

Tajik Prime Minister Abdulmalik Abdullodzhanov states that Tajikistan will not sell weapons abroad and that defense industries will not produce more weapons than are needed for national defense. Currently, the Leninabad region specializes in the production of missiles, rocket fuel, and small arms.
Interfax (Moscow), 2/1/93; in FBIS-SOV-93-020, 2/2/93, p. 51 ***(2873)***.

Tajikistan with Russia

3/93

An anonymous source within the command of the 201st Russian Army division claims that Russia will give Tajikistan six rocket launchers as part of a Russian agreement to help create a Tajikistan national armed force. The same source declares that Tajik servicemen cannot effectively handle the equipment that they have been given.
Interfax (Moscow), 3/28/93; in FBIS-SOV-93-058, 3/29/93, p. 14 ***(3198)***.

TURKEY

Turkey with Germany

12/14/92

Turkey and Blohm & Voss and Thyssen Rheinmetall of Germany sign a $510 million contract for two Barbaros class (TRACK IIA) modified Meko 200 frigates armed with NATO Sea Sparrow and Harpoon missiles.
Jane's Defence Weekly, 1/9/93, p. 11 ***(3452)***.

UKRAINE

Internal Developments

11/92

Ukrainian Deputy Defense Minister Ivan Bezhan denies allegations that Ukraine is creating its own launch codes for nuclear weapons deployed in Ukraine. Bezhan notes that long-range missiles can be transferred outside Ukraine for immediate destruction, but not for storage, and that both boosters and warheads must be destroyed simultaneously.
Interfax (Moscow), 11/25/92; in JPRS-TND-92-046, 12/11/92, p. 24 ***(3276)***.

12/92

Lt. Gen. Volodymyr Oleksiyovych Mykhtyuk, commander of the 43rd Missile Army, states that missile troops on Ukrainian territory consist of combat units outfitted with ICBMs in vertical launch tubes, technical maintenance units, and rear services. He quotes estimates [source not given] that the maintenance of strategic missile troops accounts for about 8% of Ukraine's military budget. He says there are logistical problems in the provision of equipment and spare instruments for launchers and combat control and communication systems, but that measures have been taken recently to deal with these problems.
Valentyn Vitkovskyy, Molod Ukrayini (Kiev), 12/17/92, p. 3; in FBIS-SOV-92-248, 12/24/92, pp. 28-29 ***(3154)***.

12/92

Senior Russian military officers state that Ukraine is attempting to break launch codes for the 1,650 nuclear warheads located in Ukraine, especially the 500 air-launched cruise missiles and nuclear gravity bombs. The Russians calculate that Ukraine will need six months to a year to decipher the codes.
Time, 12/28/92, p. 11 ***(3285)***.

12/11/92

Unidentified sources say that it is unlikely that Ukrainian lawmakers will act on the START Treaty or the NPT in 1992 due to Ukrainian nationalist legislators who WANT to retain the nuclear warheads on Ukrainian soil until the West agrees to provide security assurances and large-scale economic aid. A U.S. package of incentives for Ukraine to give up nuclear weapons includes three main elements: economic aid, funds for dismantling nuclear weapons and destroying missile silos as required by START, and giving Ukraine a share of the funds acquired by the U.S. sale of enriched uranium.
George Leopold, Defense News, 12/14/92, p. 3 ***(2979)***.

12/17/92

Ukraine's deputy chief of the Operative Department of the Defense Ministry Ivan Gnidenko declares, during a meeting of the representatives of the General Staff and military attaches of several foreign embassies to Ukraine, that the strategic nuclear missiles based on Ukrainian territory have been taken off alert.
Interfax (Moscow), 12/17/92; in FBIS-SOV-92-244, 12/18/92, P. 64 ***(2973)***.

UKRAINE

12/22/92

People's deputy Colonel Valeriy Izmalkov writes that Ukrainian bombers are not equipped to carry strategic nuclear missile warheads and that Ukraine has no technology to reprocess the oxidizer in Ukraine's liquid fuel missiles. He also states that Ukraine does not possess the technologies necessary to destroy solid fuel launch vehicles.

Valeriy Izmalkov, Holos Ukrayiny (Kiev), 12/22/92, p. 7; in JPRS-TND-93-002, 1/15/93, p. 25 ***(3284)***.

1/93

Ukrainian government officials estimate an aggregate cost of $1.5 billion for destroying missile silos, scrapping ICBM boosters, disposing of toxic rocket fuel and shipping nuclear warheads back to Russia.

John-Thor Dahlburg and Mary Mycio, Los Angeles Times, 1/8/93, p. A4 ***(3253)***.

1/11/93

Ukrainian Deputy Minister of Foreign Affairs Boris Tarasyuk rejects rumors that Ukraine is preparing its own codes for controlling strategic nuclear missiles. Tarasyuk claims, however, that the president of Ukraine has the power to block the launch of missiles.

Programma Radio Odin Network (Moscow), 1/11/93; in FBIS SOV-93-008, 1/13/93, pp. 6-7 ***(3287)***.

1/20/93

The Kiev Branch of the Ukrainian Officers' Union proposes (1) separation of the missiles stationed in the Ukraine from their Moscow-controlled command and launching systems, and the dismantlement of the launching, aiming and targeting equipment be from Russian-controlled central command, (2) the conclusion of an agreement with Russia on monitoring and destroying the Russian-made missiles, and (3) "the elimination of combat surveillance" and preparation for destruction of the Ukrainian-made missiles. The officers' Union stated that the Ukrainian president's theoretical ability to block the rocket launching mechanisms was limited due to time constraints and cost.

Samostiyna Ukrayina (Kiev), 1/20/93, p. 3; in FBIS-SOV-93-023, 2/5/93, p. 44 ***(3272)***.

1/28/93

Weapons worth $2 billion are reportedly put up for sale at the Universal Ukrainian-Siberian Exchange in Kharkov. It is suspected that Russian secret service agents are posiung as arms merchants in order to identify potential intermediaries in illegal arms exports. As of 2/15/93 no buyers had come forward.

Igor Sutyagin and Alla Glebova, Kommersant (Moscow), 2/15/93, pp. 1-3; in FBIS-SOV-93-031, 2/18/93, pp. 1-3 ***(3283)***.

2/93

Central Intelligence Director R. James Woolsey tells the Senate Government Affairs Committee that Russia and Ukraine are showing a "willingness to sell" MTCR prohibited technology, and that the dual use technologies used in space launch vehicles are a "real problem" as they represent one of a few areas where Russia and Ukraine can successfully compete with the West. Woolsey also states that Russia still has to establish an effective system for regulating exports of military equipment and technologies related to the development of nuclear, chemical, and biological weapons and that while Russian leaders strongly support establishing of export controls, the enticement of profits and personnel and funding problems have slowed government efforts to enact controls to prevent the proliferation of weapons and technologies to other countries.

R. Jeffrey Smith, Washington Post, 2/25/93, p. 18 ***(3481)***. *David Fulghum, Aviation Week & Space Technology, 3/1/93, p. 25* ***(3222)***.

2/16/93

Chief of the Ukrainian Defense Ministry Center for the Administrative Command and Control of Strategic Nuclear Forces Lieutenant General Aleksey [Konstantin] Kryzhko admits that the level of readiness of 16 of Ukraine's SS-24 missile silos is low and that another three are beyond repair, which he blames on Russia's refusal to do silo maintenance.

Interfax (Moscow), 2/17/93; in FBIS-SOV-93-030, p. 1 ***(3340)***. *Viktor Litovkin, Izvestia (Moscow), 2/19/93, p. 2; in FBIS-SOV-93-035, 2/24/93, pp. 1-2* ***(3351)***.

2/18/93

Ukrainian President Leonid Kravchuk admits to problems with the technical maintenance of nuclear missiles located in Ukraine, but denies that these safety lapses could lead to "another Chernobyl" as reported in the Russian press. Kravchuk stated that Ukraine believed that Russia also had an interest in seeing that the 176 ICBMs based in Ukraine are safe. Ukrainian defense ministry officials, including the commander of the missiles in question, Major General Mykola Filatov, acknowledge that defects in 16 SS-24 missiles at the Pervomaisk rocket base in southern Ukraine were discovered by Russian inspectors. A Ukrainian military department spokesman confirmed that the schedule for servicing the missiles had not been followed and that faults were discovered in 19 of the missiles during checks.

Rostislav Khotin, Reuter, 2/18/93; in Executive News Service, 2/19/93 ***(3339)***. *Russian Television Network (Moscow), 2/18/93; in FBIS-SOV-93-032, p. 9* ***(3340)***. *Radio Rossii Network (Moscow), 2/20/93; in FBIS-SOV-93-035, p. 1* ***(3339)***. *Radio Ukraine World Service (Kiev), 2/24/93; in JPRS-TND-93-006, 3/5/93, p. 31* ***(3352)***. *Martina Melmerich and Olaf Ihlau, Der Spiegel (Hamburg), 3/1/93, pp. 151-153; in FBIS-SOV-93-040, pp. 1-3* ***(3349)***. *Chrystia Freeland, Financial Times, 3/5/93, p. 3* ***(3349)***.

3/93

The Cabinet of Ministers of Ukraine passes a resolution to ensure observance of the international obligations of Ukraine concerning the nonproliferation of weapons of mass destruction and their delivery systems by import and export control measures over arms, military hardware, certain raw materials, equipment, and technologies which can be used in weapon construction and other types of military and special equipment. The resolution calls for a new technical export committee at the Cabinet of Ministers of Ukraine which will prepare documents for the export control commission and check the fulfillment of adopted decisions.

Ukrayinske Radio First Program Network (Kiev), 3/12/93; in JPRS-TND-93-008, 3/22/93, p. 51 ***(2974)***.

4/93

Ukrainian Environment Minister Yuriy Konstenko states that specialists maintain that Ukraine is capable of prohibiting the

launch of nuclear missiles from its territory. Konstenko headed a working group of deputies addressing questions associated with Ukraine's ratification of the START II Treaty and its assumption of non-nuclear status.
Nezavisimaya Gazeta (Moscow), 4/27/93, p. 3; in FBIS-SOV-93-080, 4/28/93, pp. 51-53 ***(3252)***.

4/10/93

Ukrainian Defense Minister Konstantin Morozov tells the fourth congress of the Ukrainian Union of Armed Forces Officers that the Defense Ministry has decided to administer the Ukrainian loyalty oath to the personnel of the 43rd Missile Army, which is part of the strategic nuclear forces stationed in Ukraine. He states that the decision is based on the Ukrainian President's decree putting the strategic forces stationed on Ukrainian territory under Ukrainian authority. Morozov says that over 70% of the army's personnel are Ukrainians who have repeatedly asked the Defense Ministry for permission to take the oath. He invites all soldiers unwilling to take the oath to leave the service. The U.S. views the Ukrainian move as a challenge to world opinion.
Russian Television Network (Moscow), 4/11/93 and Interfax (Moscow), 4/10/93; in FBIS-SOV-93-068, 4/12/93, pp. 47-48 ***(3166)***.

UKRAINE WITH KAZAKHSTAN

11/17/92

Ukraine's Zenit medium-lift booster is successfully launched from the Baikonur Cosmodrome, Kazakhstan, placing an early-warning satellite into orbit for the CIS military, after a number of unsuccessful launches from 1990-1992.
Tim Furniss, Spaceflight, 12/2/92, p. 22 ***(2987)***.

3/93

Ukrainian officials are seeking an agreement to use the Baikonur space center in Kazakhstan.
Reuter (Kiev), 3/10/93; in Executive News Service, 3/11/93, p. 36 ***(3247)***.

UKRAINE WITH LIBYA AND RUSSIA

4/13/93

Ukrainian Foreign Ministry spokesman Yuri Sergeyev announces that Ukraine seized 80 tons of ammonium perchlorate bound for Libya. The cargo, seized in the port of Ilyichovsk, was to be shipped by the Russian company Paveks to Varna, Bulgaria. From Bulgaria the shipment was to be re-exported to Libya. Western embassy authorities alerted the Ukrainian government of the shipment.
Reuter, 4/13/93 ***(3255)***. *Washington Post, 4/14/93, p. A29* ***(3255)***. *Izvestiya (Moscow), 4/16/93, p. 15; in JPRS-TND-93-011, 4/23/93, pp. 23-24* ***(3255)***.

UKRAINE WITH MULTI-COUNTRY GROUP

10-11/92

According to Pentagon sources, details of a U.S. administration officials' proposed three phase plan for protection against limited missile strikes were presented to Russia, Ukraine, and Belarus.
Phase one calls for the U.S. to provide allies with early warning information from Defense Support Program satellites. Phase two calls for technological cooperation between the U.S. and former Soviet states. The second phase will also include sharing of some expertise and critical components. Phase three includes preparation of a multinational, rapid deployment, anti-missile force and a Pentagon proposed Global Protection Center, for detecting and tracking missile launches. It would be built and operated by participating nations and designed along the lines of the U.S.-Canadian early warning center in Cheyenne Mountain, Colorado. After 2000 the force would include planned U.S. space and ground based interceptors. Officials from NATO, Israel, Egypt, Japan, South Korea, and Australia have been briefed about the proposal. Talks continue through 1/93.
George Leopold and Barbara Opall, Defense News, 1/11/93, pp. 1, 28 ***(3044)***.

1/21/93

During a summit meeting, Belarus, Kazakhstan, Russia and Ukraine again fail to agree on the transfer of all ex-Soviet nuclear weapons to Russia. Russia's demands for control over nuclear warheads, ballistic missiles, nuclear weapons on strategic bombers, early warning systems, anti-missiles and anti-aircraft systems were rebuffed by Belarus, Kazakhstan, and Ukraine. Ukraine insists that only nuclear missiles should be considered strategic nuclear forces and agrees to transfer the 176 strategic nuclear missiles on its soil to Russia, but demands security assurances from both Russia and the U.S., and $1.5 billion to dismantle its missiles. According to U.S. sources, Ukraine rejects security guarantees offered by the U.S. and Russia in exchange for relinquishing its nuclear weapons. Ukraine now demands Russian promises not to cut off energy supplies or resort to other forms of economic coercion. Russian Defense Minister Pavel Grachev asserts that all nuclear forces are subordinate to him. The Ukrainian First Deputy Defense Minister notes that "Ukraine must retain administrative control."
Douglas Clarke, RFE/RL Research Report, 1/18/93, p. 5 ***(2898)***. *Interfax (Moscow), 1/22/93; in FBIS-SOV-93-013, p. 12* ***(3290)***. *Andrey Naryshev and Oleg Falichev, Krasnaya Zvezda (Moscow), 1/23/93, p. 1; in FBIS-SOV-93-015, 1/26/93, pp. 12-13* ***(3291)***. *Umit Enginsoy and George Leopold, Defense News, 1/25/93, pp. 3, 27* ***(3254)***. *Mednews, 1/25/93, pp. 5-6* ***(3289)***.

2/93

Specialists of the Strategic Missile Forces Main Staff reinspect the safety of the nuclear systems in the missile division stationed in the city of Pervomaysk Nikolayev Oblast, Ukraine and find 16 SS-24 missile launchers, on alert status, that had overrun scheduled inspection and maintenance by eight to 10 months. At 20 launchpads in the vicinity of Pervomaysk the defense and protection systems have been defective for two months, and 26 nuclear warheads had their schedule for additional technical servicing violated on the nose sections of missiles systems on alert status. However, Major General Nikitin states that after long negotiations with the Ukrainian Defense Ministry, it has recently been possible to partially restore supervision of the operation of missile systems by the plants and chief designers which produced them.
Izvestiya (Moscow), 2/16/93, p. 4; in FBIS-SOV-

93-029, 2/16/93, pp. 1-2 ***(3256)****. Viktor Litovkin, Izvestiya (Moscow), 2/16/93, p. 4; in FBIS-SOV-93-029, pp. 1-2* ***(3256)****.*

2/5/93

A delegation headed by Valeri Shmarnov, the first deputy director general of the Ukrainian Space Agency, and including officials from NPO Yushoye, Ukraine's largest space organization and the manufacturer of the Zenit launcher, visit Matra Marconi's French and British space centers where they sign a wide ranging agreement to cooperate on satellite communications programs for Ukraine. Matra Marconi will supply the payload and ground station technology and Ukraine will provide the launch vehicle and parts of the aircraft.

Space News, 2/22/93, p. 13 ***(3165)****.*

Ukraine with Russia

2/12/92

Lieutenant General Zhivitsa, the acting Chief of the Ukrainian Main Staff, explains that supplies to support Strategic Rocket Force (SRF) divisions at Russian facilities have been stopped; supplies to the Khmelnitskaya and Pervomayskaya divisions have been stopped in response. There is concern that this will lead to a degradation of maintenance and safety which may result in a major ecological disaster. Ten regiments of the Khmelnitskaya division and 4 regiments of the Pervomayskaya division contain a total of 140 SS-19 missiles (which use the liquid fuel heptyl nonsymmetrical dimethylhydrazine), a highly toxic neuroparalytic, carcinogenic, asphyxiating substance similar to combat toxins. A single missile launch contaminates a 5 km radius when the first stage, containing about 700 kg of unused fuel, falls to earth. The danger of environmental catastrophe prevents the firing of the missiles at the Kamchatka missile range in the Pacific. The disintegration of the Soviet Union broke up the SRF supply system which included procedures for the handling of the fuel. Heptyl has never been destroyed, nor is there a safe means of storing it. Dismantling missiles under START and the Bush-Yeltsin peace initiatives will be affected by the lack of reserve containers for the fuel; less than 100 heptyl transport containers exist in the CIS. Kazakhstan has about 100 SS-18 missiles which hold twice as much heptyl as the SS-19. There are 308 SS-18s deployed on the territory of the former Soviet Union.

Nezavisimaya Gazeta (Moscow), 3/25/92, pp. 1-2; in FBIS-SOV-92-059, 3/26/92, pp. 4-7 ***(3132)****.*

11/4/92

The Council of Defense Ministers of the CIS, at a meeting in Bishkek, examines a draft agreement on strategic forces within the former Soviet Union, but it is neither initialed by the Ukrainian delegation nor signed by the Russian representatives. Ukraine's desire for financial compensation for the nuclear warheads, and the controversy over the ownership status of the weapons in question has lead to the current impasse.

Lieutenant Colonel Anatoliy Dokuchayev, Krasnaya Zvezda (Moscow), 11/18/92, p. 1; in JPRS-TND-92-044, 11/24/92, pp. 20-21 ***(2975)****.*

11/10/92

Ukrainian President Leonid Kravchuk states that Ukraine could not afford to transfer the strategic missiles on its territory to Russia "without recompense," as it had done with the former Soviet tactical weapons on its territory.

RFE/RL, 11/20/92, p. 47 ***(2874)****.*

12/23/92

Ukrainian President Leonid Kravchuk states that the 130 Russian-built SS-19 missiles on Ukrainian soil would require Russian assistance to dismantle, but, "if the situation aggravates," the 46 SS-24 solid-fuel missiles in Ukraine, which were built at Pervomaysk, Ukraine, would be dismantled by Ukrainians.

Interfax, 12/24/92; in FBIS-SOV-92-249, 12/28/92, pp. 29-30 ***(3273)****. Doug Clarke, RFE/RL, 12/28/92, p. 12* ***(3271)****.*

1/13/93

Viktor Glukhigh, Russia's Chairman of the Defense Branches of Industry, and Viktor Antonov, Ukraine's Minister for Machine Building, the Military-Industrial Complex, and Conversion, sign several agreements of cooperation on conversion and defense production, which is to include missile construction.

RFE/RL Research Report, 1/11/93, pp. 5-6 ***(3156)****.*

2/93

A wide variety of weapons including missiles are offered for sale by an alleged Russian company at the Universal Ukrainian-Siberian Commodity Exchange (UU.S.E) in Kharkov, Ukraine. A total of $2 billion of goods was on display including 12 launch pads for OTR-300 tactical missiles for $350,000, C-300B [sic S-300V?] mobile rocket air defense systems (comparable to the Patriot) for $65,000, and Tunguska rocket air defense systems also for $65,000. The director of the UU.S.E, Evgeny Blinov, states that the weapons are being supplied by a Russian company whose name he would not disclose, but Gennady Shikunov, deputy head of arms sales at the Russian Foreign Economic Relations Ministry, disputes that claim stating that he suspects that the weapons come from army stocks inherited by Ukraine after the Soviet Union disintegrated.

Interfax (Moscow), 2/4/93; in FBIS-SOV-93-022, 2/4/93, pp. 38-39 ***(3320)****. V. Povoloshiy, Komsomolskaya Pravda (Moscow), 2/5/93, p. 1; in FBIS-SOV-93-024, 2/8/93, pp. 32-33* ***(3320)****. Mary Mycio, Los Angeles Times, 2/6/93, p. A8* ***(3320)****.*

2/3/93

Russia and Ukraine adjourn a first round of talks addressing START I issues by drafting three undisclosed agreements that address dismantling schedules, verification procedures, and costs.

Dunbar Lockwood, Arms Control Today, 3/93, pp. 20, 24 ***(3461)****.*

3/93

Ukrainian President Leonid Kravchuk states that Ukraine had suggested to Russia that an agreement be signed whereby Russia would have the right to carry out technical and other supervision of 130 of the strategic missiles in Ukraine. Kravchuk adds that the other 46 missiles in Ukraine were staffed by Ukrainian specialists in conjunction with their Russian counterparts.

Boris Grishchenko, Interfax (Moscow), 3/11/93; in FBIS-SOV-93-047, 3/12/93, p. 1 ***(3277)****.*

4/93

Reports state that Russia's Moscow Thermo-Engineering and Ukraine's Dnepropetrovsk "Yuzhnoye" Science and Production Association are developing a new multi-purpose ICBM, which will be ready for flight tests in 1994. The development of this missile is believed to be part of a larger effort to complete programs adopted within the former Soviet Union's unified state military industrial complex.

Kuranty, (Moscow), 4/8/93, p. 2; in FBIS-SOV-93-067, 4/9/93, p. 62 ***(3050)***.

4/5/93

Russia's delegation head to the START talks with Ukraine Yuriy Dubinin states that Russia has conveyed to Ukraine proposals including the transfer of all nuclear weapons located in Ukraine to Russian jurisdiction, and the removal and transport of all Ukraine's warheads to Russia.

Viktor Zamyatin, Komersant-Daily (Moscow), 4/6/93, p. 9; in JPRS-TND-93-010, 4/16/93, pp. 30-31 ***(3250)***.

UKRAINE WITH UNITED STATES

12/92

U.S. President Bush sends a letter to Ukrainian President Leonid Kravchuk offering $175 million to assist in the dismantling of nuclear warheads and storage of nuclear weapon materials currently in Ukraine, if Ukraine ratifies the Non-Proliferation Treaty (NPT) and agrees to be a non-nuclear weapons state under a protocol to the START I Treaty.

Dan Oberdorfer, Washington Post, 12/10/92, p. A12 ***(3286)***.

UNITED ARAB EMIRATES

UNITED ARAB EMIRATES WITH RUSSIA

2/92

A senior Russian Ministry official states that the United Arab Emirates (UAE) is close to purchasing either the S-300 or S-300 V air defense system, which would be integrated into existing communications and radar assets. The UAE will spend more than $700 million on air defense systems between 1992-1995. Russian Defense Minister General Pavel Grachev, says that Russia and the UAE have signed a "protocol of understanding" in which Russia will "positively consider the defense needs of the United Arab Emirates."

Jane's Defense Weekly, 2/13/93, pp. 46-47, ***(3041)***.

2/17/93

Russia successfully demonstrates, for the first time outside Russia, the S-300 PMU-1 (SA-10) against four targets at the International Arms Exhibition at Abu Dhabi, UAE. Russia is displaying for sale 370 weapon systems including the S-300 PMU-1, the S-300V, the Tochka-U, the Konkurs, the Metis, the Tor, the Krasnopol, and the Smerch, and also offers maintenance services and personnel training. Russia's Oboronexport Association acts as the middleman for deals. The S-300 and Tochka-U receive "particular" interest from potential customers because in test-firings, they both demonstrate abilities that far exceed those of U.S. missiles used during attacks on Baghdad. Army General Pavel Grachev states, at the Abu Dhabi international arms exhibition, that weapons sales will only occur with nations that are not potential enemies. He adds that weapons sales will bring in tremendous income, and keep the general designers and the directors of defense industry enterprises inside Russia.

Valentine Rudenko, Krasnaya Zvezda (Moscow), 2/12/93, p. 3; in FBIS-SOV-93-029, 2/16/93, pp. 11-12 ***(3296)***. *Philip Finnegan, Defense News, 2/22/93, p. 6* ***(3143)*** *Asian Defence Journal, 3/93, p. 102* ***(3295)***. *Ostankino Television First Channel Network (Moscow); in FBIS-SOV-93-067, 4/9/93, p. 20* ***(3068)***. *Viktor Glukhin, Delove Lyudi (Moscow), 4/93, pp. 22-23; in FBIS-SOV-93-098, 5/24/93, pp. 39-40* ***(3484)***.

4/93

The UAE is evaluating a Russian alternative to the Patriot.

Philip Finnegan, Defense News, 4/12/93, pp. 10, 12 ***(2902)***.

UNITED ARAB EMIRATES WITH UNITED STATES

4/93

The United Arab Emirates is considering the purchase of the Patriot air defense system from the U.S. in reaction to the proliferation of ballistic missiles in the region. There are indications that the "decision has been put off for about three years."

Philip Finnegan, Defense News, 4/12/93, pp. 10, 12 ***(2902)***.

UNITED KINGDOM

INTERNAL DEVELOPMENTS

12/92

The U.K. is considering strategic defenses, and to this end is comparing ship-based weapons based on the Super Seawolf and the "off-the-shelf" Patriot system.

The Sunday Telegraph, 12/13/92 ***(2899)***.

3/3/93

The Crown Prosecution Service of the United Kingdom announces that former Defence Minister Mr. Alan Clark will not be prosecuted over evidence he gave during the Matrix-Churchill trial in 11/92. The trial collapsed because the police had been "unable to establish which of the inconsistent statements made by Mr. Clark was not true."

Richard Donkin and Ralph Atkins, Financial Times, 3/4/93, p. 7 ***(3111)***.

4/93

The U.K.'s Ministry of Defence decides to cut back the Trident nuclear weapons system, each submarine of which is to carry 16 missiles with a total of 192 warheads rather than 512. Each missile will carry only three warheads rather than eight. Defense ministers may arm the Trident with single warhead weapons, in an effort to adapt the Trident to a "sub-strategic role." One area where the Trident might be deployed in a sub-strategic role would be the Middle

East, where the submarine could serve to deter countries from using Scud missiles.
Colin Brown, Independent, 4/15/93 ***(3399)***.

UNITED KINGDOM WITH IRAN

3/1/93

The U.K. Foreign Minister Douglas Hurd announces new restricted licensing guidelines for exporting dual-use goods and technologies to Iran. The U.K.'s new criteria for licensing exports are applicable to the lists of COCOM munitions and the atomic energy lists of the Export of Goods (Control) Order 1992.
Export Control News, 2/28/93, p. 10 ***(3403)***. *Financial Times, 3/2/93, p. 8* ***(3403)***. *Arms Control Reporter, 3/93, pp. 250.B.5-250.B.6* ***(2984)***.

UNITED KINGDOM WITH IRAQ

11/9/92

Three executives from the British company Matrix Churchill Ltd. are acquitted of selling to Iraq, between 1989 and 1990, $37 million worth of multi-axis precision milling machines used for the Iraqi Scud B missile program, for making gas centrifuges in the Iraqi nuclear program, and in the manufacture of proximity fuses for artillery shells. It is revealed that the government, including the Department of Trade and Industry (DTI), the Ministry of Defense and the Foreign Office, approved the sales despite a U.N. arms embargo.
Jane's Defence Weekly, 11/21/92, p. 6 ***(3345)***.

UNITED KINGDOM WITH JAPAN

3/93

The United Kingdom's Royal Ordnance rocket motors division completes a contract with Kawasaki Heavy Industries, transferring thrust vectoring technology to assist Kawasaki's guided missile research and development.
Armed Forces Journal International, 3/93, p. 19 ***(3230)***.

UNITED KINGDOM WITH UKRAINE

2/5/93

A delegation headed by Valeri Shmarnov, the first deputy director general of the Ukrainian Space Agency, and including officials from NPO Yushoye, Ukraine's largest space organization and the manufacturer of the Zenit launcher, visit Matra Marconi's French and British space centers where they sign a wide ranging agreement to cooperate on satellite communications programs for Ukraine. Matra Marconi will supply the payload and ground station technology and Ukraine will provide the launch vehicle and parts of the aircraft.
Space News, 2/22/93, p. 13 ***(3165)***.

UNITED KINGDOM WITH UNITED STATES

12/92

Director of the SDIO Henry Cooper visits London to reassure Britain and other NATO allies regarding U.S.-Russian cooperation on missile defense. As part of participation in GPALS, Russia may benefit from U.S. early warning sites such as Fylingdales, U.K. According to an unnamed British source, Britain may "pull the plug" on Fylingdales if the U.S. proves too generous with strategic information there. Britain fears that U.S.-Russian GPALS cooperation will make their Trident missile force obsolete.
The Sunday Telegraph, 12/13/92 ***(2899)***.

UNITED STATES

INTERNAL DEVELOPMENTS

9/24/92

The SDIO conducts concept tests for the Lightweight Exoatmospheric Projectile (LEAP) using a Terrier missile with a mock-up of the LEAP shroud, fired from the U.S.S Richmond K. Turner. This is part of an SDIO plan to upgrade the Aegis combat system to be able to destroy ballistic missiles inside and outside the atmosphere.
Barbara Starr, Jane's Defence Weekly, 11/21/92, p. 13 ***(2910)***.

10/6/92

President Bush signs the FY93 foreign aid appropriations bill into law (PL 102-391), which adds a section to the Foreign Assistance Act on "Nuclear Non-Proliferation Policy in South Asia." Among other things, that requires that the President report to Congress within six months on: ballistic missile programs in China, India, and Pakistan, to include whether they possess nuclear explosive devices or the components to make one; the status of their programs, including foreign assistance, foreign sales of missiles and missile components and the U.S. response to those sales; and whether these countries have agreed to and are adhering to peaceful nuclear cooperation agreements. The bill also allocates $417 million in economic aid to former Soviet Republics, eligibility for which will be linked to the establishment of "responsible policies and practices regarding the nonproliferation of nuclear and other weapons."
Arms Sale Monitor, 1/15/93, pp. 1-2 ***(2927)***.

10/23/92

President Bush signs the 1993 Defense Authorization Bill. According to House Report 102-966, section 1331 of the DoD authorization bill requires that the Secretary of Defense, the Secretary of State and the director of the CIA submit a report to Congress which includes an assessment of threats to regional U.S. allies from the proliferation of long-range missiles and weapons of mass destruction.
Mednews, 12/21/92, p. 1 ***(3107)***. *Arms Sales Monitor, 1/15/93, p. 3* ***(3202)***. *House Report 102-966; in Arms Sales Monitor, 1/93* ***(2901)***.

1/93

A competition will be held to determine whether the U.S. will acquire the Patriot multi-mode missile or the Extended range interceptor (ERINT). This decision is based on an Arm,y operational effectiveness analysis that determined that it is too expensive to develop both systems. The winner of the competition will be incorporated into an upgraded Patriot surface-to-air missile system

in the "lower tier of the U.S. active defense theater missile defense architecture." According to program managers, one of the competition's most important technical issues will be the lethality of the Patriot and ERINT missiles against theater missile threats.

Jeffrey M. Lenorovitz, Aviation Week & Space Technology, 1/11/93, pp. 22-23 ***(3209)****. George Leopold and Barbara Opall, Defense News, 2/8/93, pp. 4, 52* ***(3221)****.*

1/7/93

The State Department announces that U.S. export controls have been revised to cover items useful in the production of ballistic missiles designed to deliver chemical and biological warheads. The guideline revision is pursuant to a 6/92 MTCR decision to control missiles capable of carrying payloads more than 300 km rather than payloads of 500 kg and over. In evaluation of applications for Annex items, the U.S. will consider: capabilities and objectives of the missile and space programs of the recipient state; significance of the transfer in terms of the potential development of delivery systems (other than by manned aircraft) for weapons of mass destruction; assessment of the end use of the transfers, including the relevant assurances; and the applicability of relevant multilateral agreements.

Export Control News, 1/28/93, pp. 2-3 ***(3136)****.*

1/8/93

At a White House National Security Council meeting, the U.S. State Department remains committed to its decision allowing U.S. companies to share space launch technology information with foreign firms.

Lack of consensus during a White House National Security Council meeting caused by fears of Defense, Transportation, and Commerce department officials that the spread of missile technology will hurt the U.S. domestic launch business, means that 15 of 18 licenses granted by the U.S. State Department to companies desiring to cooperate with foreign industry in building and launching rockets will likely be referred to President Bush for a final decision. The remaining three licenses, proposed ventures between U.S. companies and Krunichev Enterprises of Moscow may also be referred to Bush if the dispute is not resolved.

Andrew Lawler, Space News, 1/11/93, pp. 1, 20 ***(3220)****.*

2/93

U.S. Army officials are beginning an estimated $2 billion Patriot upgrade and test program aimed at concerns over the missile's performance during the Gulf War. Acting director for theater missile defense programs at the U.S. Army Missile Defense Command in Huntsville, Alabama, Alan Sherer notes that in accordance with an increased emphasis on the ability to document and verify the Patriot improvements and test results, Scud-like targets would carry instruments used to collect telemetry data in order to verify flight paths, and sensors in order to ascertain damage. Sherer states that improvements to the PAC-2 include a radar shroud around the back of the Patriot's fire control radar and missile and fuse upgrades, while PAC-3 improvements entail entire system upgrades.

George Leopold and Barbara Opall, Defense News, 2/8/93, pp. 4, 52 ***(3221)****.*

2/2/93

U.S. Secretary of Defense Les Aspin tells armed forces officials that they must cut $10.8 billion from their 1994 budget including $2.5 billion from the Strategic Defense Initiative Organization (SDIO). The $1.8 billion Patriot PAC-3 missile system may be canceled and, according to SDIO program documents, the CORPSAM air defense missile system is being shelved.

Robert Holzer, Neil Munro, & Vago Muradian, Defense News, 2/8/93, pp. 1, 50 ***(2859)****.*

2/3/93

A report entitled "A New Case for Naval Arms Control," by Naval Postgraduate School professor James Tritten, urges the U.S. Navy to endorse arms control. Despite the lack of U.S. Navy interest in naval arms control, the proliferation of advanced naval arms such as anti-ship cruise missiles "eventually will force the Navy to embrace some form of naval arms control." U.S. officials said that U.S. President Bush's decision in 9/91 to withdraw tactical nuclear bombs, missiles, and torpedoes from U.S. Navy ships has withered the impetus for naval arms control.

Robert Holzer and George Leopold, Defense News, 2/8/93, p. 38 ***(3344)****.*

2/9/93

The Clinton administration cuts funding for the Theater Missile Defense Boost Phase Intercept (BPI) project, which was to destroy Scud-type missiles in their vulnerable 90 second post launch phase. U.S. and Israeli experts believe that to defend against cluster/subdividing chemical, biological or nuclear warheads, the delivery vehicle must be destroyed in the early boost phase. At a budget presentation to the Pentagon, SDIO acting director Maj. Gen. O'Neill claims that SDI programs such as Patriot PAC-3 and THAAD that attack single warhead missiles high in their terminal phase would quickly be saturated by missiles that release unconventional warheads earlier in their trajectory. He claims that robust funding for BPI must begin by 1994, and implores the Pentagon to reconsider the funding decision. He estimates that an Air Force BPI plan, involving an airborne laser, would cost $29 million in 1994 and $379 million through 1999.

Barbara Opall, Defense News, 2/22/93, pp. 3, 20 ***(3129)****.*

2/9/93

A budget report by acting Strategic Defense Initiative Organization (SDIO) director Major General Malcolm O'Neill states that the SDIO budget will be cut by $2.5. billion in 1994, part of $10 billion in cuts from the 1994-1999 budgets. Theater High Altitude Area Defense (THAAD) system and Theater Missile Ground Based Radar deployments will be delayed from 2000 until 2001. Prototypes for the theater missile defense system will proceed, although deployment, once planned for 1996, in now unspecified. The planned budget cuts sea-based theater defense spending from $473 million to $200 million, delaying deployment of "Scud-busting" capabilities aboard Aegis ships. Additionally, the budget eliminates plans to deploy ground based interceptor prototypes at a national missile defense site at Grand Forks, North Dakota. An air launched anti-Scud missile for destroying Scuds in boost phase, and other

boost phase projects, such as the Hypervelocity Missile, will not be funded in 1994. Among the other programs feeling the budget cuts are: PAC-3 Patriot missiles, Army Corps Surface-to-Air missile, Brilliant Pebbles interceptor program, Brilliant Eyes space based sensor program, neutral particle beam, miniature seeker technology integration, and the hypervelocity gun program.
Barbara Opall, Defense News, 2/15/93, p. 6 ***(3043)***.

3/11/93

Colonel Frederick Kilgore, U.S. Army manager of the Theater High Altitude Area Defense (THAAD) program, says that changes are needed in the design of the THAAD system so that Scud-like missiles could be intercepted just within or above the earth's atmosphere. Paul Lynch, deputy program manager for THAAD, says that problems with integrating and packaging system components and difficulties with the excessive weight of the flight termination system prompted the redesign in which the Army chose a larger missile rather than develop a new termination system. The flight termination system allows the missile to self-destruct on command.

Barbara Opall, Defense News, 3/22/93, pp. 3, 28 ***(2909)***.

3/15/93

The U.S. government plans to spend $75 million in 1993 and requested $150 million for the War Breaker program, which, according to executive director of War Breaker Chuck Herber, is an effort to use satellites and sensors to locate mobile targets in wartime.
Vincent Kiernan, Defense News, 3/15/93, p. 28 ***(2860)***.

3/23/93

Pentagon scientists test anti-missile sensors in space above Florida. Assistant director of sensor technology at the Ballistic Missile Defense Organization (BMDO), William Frederick says that the $12.3 million test was a "major step" toward improvement of the aim of land-based missiles, like the Patriot, and that it "marks...the change of the ballistic missile defense program from the previous Strategic Defense Initiative."
Washington Times, 3/24/93, p. A2 ***(2864)***.

3/25/93

Lieutenant Colonel Jean Freitas, a spokesman for the Strategic Defense Initiative Organization (SDIO), confirms that the Little David anti-missile device, developed by Sandia Laboratories in Albuquerque, New Mexico, is part of an SDIO study to be completed in the summer of 1993 to strike Scud-like missiles in their initial boost phase. Little David, which could weigh less than 100 pounds and reach altitudes of 10,000 ft, is designed to blend into mountainous, tropical or desert terrain and could be airdropped or prepositioned by special operations forces.
Barbara Opall, Defense News, 3/29/93, pp. 3, 37 ***(2908)***.

3/30/93

U.S. Defense Secretary Les Aspin tells the House Armed Services Committee that the defense budget recognizes the increasing threat posed by North Korea, Iraq and Iran's capacity to deliver nuclear and other weapons of mass destruction, but does not provide for defenses against Scud-type missile, or for U.S. defense against such attacks.
Washington Post, 4/5/93, p. A21 ***(2863)***.

4/93

U.S. President Bill Clinton releases his 1994 plan for missile defense in which ground-based defensive weapons are given much higher priority for missile defense. Although the Strategic Defense Initiative Organization (SDIO) will receive the same funding as in 1993, Space-based interceptors will become part of SDIO's technology.
Andrew Lawler, Defense News, 4/5/93, p. 16 ***(2882)***.
James R Asker, Aviation Week & Space Technology, 4/12/93, p. 63 ***(3358)***.

4/93

The Pentagon's new 1994 armed forces budget requests for research and development related to SDIO programs include: (Navy) Standard Missile Improvements $63 million; (Air Force) Distant Early Warning Radar, $23.6 million; Ballistic Missile Early Warning System, $600,000; Improved Space Based Theater Warning/Attack Assessment, which is part of the Follow-on Early Warning System (FEWS), $214.8 million; and Cheyenne Mountain Complex Theater Warning/ Attack Assessment (FEWS), $141.8 million. Procurement requests are: (Army) Patriot missile, $40.6 million, Patriot modifications, $18.5 million, (Navy) Standard missile, $215 million, Standard missile modifications, $14.5, and Hawk missile modifications, $2.1 million.
Joseph Lovece, Defence Week, 4/19/93, pp. 5 ***(2861)***.

4/93

The U.S. Navy plans to field a modified Standard missile as a laser fire missile interceptor by 1996 or 1997, and is also beginning to develop a long range interceptor, which will likely be a THAAD variant or Standard missile with a lightweight exoatmospheric projectile to be fielded by 2000. According to the U.S. Navy's intelligence director Rear Admiral Edward Sheafer, a finite number of Aegis cruisers, positioned along the U.S. coast and armed with ballistic missile interceptors will be able to protect the entire U.S. from a "modest raid of incoming ICBMs." The Navy's Theater Missile Defense (TMD) is meant to compliment, not replace, the Army's Theater High Altitude Area Defense (THAAD).
Stephen C. Le Suer, Inside the Pentagon, 4/8/93, pp. 25-26 ***(2900)***. *Inside the Pentagon, 4/22/93, pp. 14-15* ***(2883)***.

4/22/93

The U.S. House of Representatives introduces a bill requiring the President to confirm that China met conditions which include, terminating shipments of missiles to Syria, Iran, or Pakistan, before extending China's most favored nation (MFN) trading status in 7/93.
Washington Times, 4/23/93, p. A4 ***(3064)***.

UNITED STATES WITH ARGENTINA

1/93

Argentina completes delivery of most of the components of the Condor 2 missile project to U.S. officials in Spain where the metal rocket parts are crushed to preclude future

use. Two years earlier President Carlos Menem promised to dismantle the Condor project. The 14 completed rocket engines and solid propellant are likely to be sent to the U.S. to be destroyed. Both Argentina and the U.S. acknowledge that the computer guidance systems are missing. An Argentine official states, "We cannot account for several of these. We've handed over 98 percent of the Condor, and this is the last part, but we just don't know what happened to them. I don't think we are talking of the possibility that they left the country."

Nathaniel C. Nash, New York Times, 3/7/93, p. 10 ***(3195)****. Jon B. Wolfsthal, Arms Control Today, 4/93, p. 24* ***(3195)****.*

2/13/93

The U.S. signs a memorandum of understanding that will allow Argentina to purchase U.S. advanced computer equipment, nuclear technology, and aeronautical guidance systems. Argentina in turn agrees to a series of export controls over technology that it has bought from the U.S. or developed indigenously. The event marks the first time that the U.S. has influenced a Latin American country to agree to limit its exports of nuclear, missile, chemical and biological warfare technology.

Nathaniel C. Nash, New York Times, 2/13/93, p. 4 ***(2879)****. Embassy of Argentine Republic Press Communique, 4/21/93* ***(2935)****.*

2/28/93

The Argentine daily newspaper Clarin reports that the U.S. has informed Argentina that parts of the Condor-2 missile have yet to be received. Argentinean officials deny that any parts are missing, claiming that the remaining pieces were not dismantled because they are intended to be used in a civilian project.

Reuter, 2/28/93; in Executive News Service, 3/1/93 ***(2992)****.*

3/1/93

During a closed door meeting with Argentinean Air Force Chief Jose Julia, U.S. Ambassador to Argentina Terrence Todman inquires about the "missing parts" to the Condor-2 missiles. Todman notes that everything requested to date was in the U.S. with the exception of the "intelligent warhead" which was never sent to Spain. The ambassador also outlines the possibilities for the destruction of the Falda de Carmen facility, where there is sufficient infrastructure still present to renew the Condor-2 project. Jose Julia claims that the project is now the sole responsibility of the National Space Activities Commission and that the Condor-2 never had a computerized guidance system. However, there are reports that the Condor's guidance system was sent to Spain's National Institute of Aerospace technology in 1991.

La Prensa (Buenos Aires), 3/6/93, p. 4; in JPRS-TND-93-008, 3/22/93, pp. 19-20 ***(2880)****. United Press International, 4/1/93; in Executive News Service 4/2/93* ***(2881)****.*

United States with Australia

12/23/92

The U.S. State Department approves 18 licenses to U.S. companies to cooperate with Australian, Italian, Russian and Spanish industry in building and launching rockets.

Andrew Lawler, Space News, 1/11/93, pp. 1, 20 ***(3220)****.*

United States with Egypt

2/93

Egyptian Assistant Minister of Defense Major General Hosni Suleiman states in an interview that Egypt has contracted with the United States for Harpoon missiles in an effort to strengthen the Egyptian Navy.

Defense News, 2/15/93, p. 46 ***(2907)****.*

United States with Greece

2/93

U.S. officials are still negotiating the sale of nine Multiple Launch Rocket Systems (MLRS) to Greece. Saudi Arabia originally ordered the U.S. MLRS, but declined to buy them noting that it could not afford the purchase.

Jane's Defense Weekly, 2/13/93, pp. 35-36 ***(3038)****.*

United States with India

12/90

India abandons a 1990 deal with Cray Corporation of the U.S. for a supercomputer (No. 1205), which was built for the Indian Institute of Science in Bangalore. The deal was abandoned after waiting for the U.S. Bush administration to resolve a two year dispute over how to guarantee that the computer would not be used to make missiles or nuclear weapons.

Stuart Auerbach, Washington Post, 3/19/93, p. C1 ***(3423)****.*

1/93

The U.S. threatens to make permanent the sanctions imposed on Russia's Glavkosmos and India's ISRO for the cryogenic engine deal, as both companies are going ahead with the contract.

The Nation (Islamabad), 1/3/93, p. 6; in FBIS-NES-93-022, 2/4/93, pp. 59-60 ***(3412)****.*

United States with Indonesia

4/93

Lockheed corporation is invited by Indonesia to discuss Lockheed's and Khrunichev Enterprises's offer to launch two Indonesian satellites.

Jeffrey M. Lenorovitz, Aviation Week & Space Technology, 4/12/93, pp. 61-62 ***(3421)****.*

United States with Iran

10/23/92

U.S. President George Bush signs a bill mandating an embargo on items that previously required a validated license for export to Iran.

Export Control News, 11/27/92, p. 3 ***(2957)****.*

1/5/93

Reza Zandian and Charles Reeger are arrested in San Diego by the Office of Export Enforcement for attempting to ship two IBM RISC supercomputers to Iran via France after authorities seized ES-9000 computers valued at $2 million the previous day. Zandian set up companies (Lucash Corporation and Iran Business Machines) in

Irvine, California for the procurement of computers through a third company that he controlled, Computer World (or CEPAT), located in Argenteuil, France. The two men are indicted on 1/22/93.
Mednews, 4/19/93, p. 4 ***(3487)***.

UNITED STATES WITH IRAQ

1/93

The U.S. and its coalition partners warn Iraqi President Saddam Hussein that the SA-2 and SA-3 anti-aircraft missile batteries positioned below the 32nd parallel are to be removed by late 1/8/93. The Iraqi anti-aircraft missile batteries are there to protect Iraqi aircraft flying in the area in defiance of the U.N. no-fly zone.
Aviation Week & Space Technology, 1/11/93, p. 26 ***(2930)***.

1/17/93

U.S. forces attack an Iraqi military-industrial complex known as Djilah park in the town of Za'faraniyah with 40 cruise missiles.
R. Jeffrey Smith, Washington Post, 1/18/93; in Executive News Service, 1/19/93 ***(3361)***.

1/21/93

U.S. forces attack an Iraqi ground radar site in the northern no-fly zone and a senior U.N. official states that five plane loads of inspectors will still go to Iraq despite this attack and one conducted on 1/17/93.
Reuter, 1/21/93 ***(3361)***.

2/93

Reports surface that the CIA knew that the British company Matrix Churchill Corporation was supplying military-related equipment, including machine tools of value to Iraq's nuclear weapons program to Iraq as early as 1987.
R. Jeffrey Smith, Washington Post, 2/15/93, pp. A22-A23 ***(3490)***.

UNITED STATES WITH ISRAEL

11/23/92

At a three day meeting, U.S. and Israeli officials decide to establish working groups to assist Israel in incorporating U.S. technologies such as enhanced computer processing, missile guidance, and advanced materials and manufacturing parts and processes into Israeli production. The meeting also addresses U.S. concern over Israeli technology transfer policies. U.S. sources say that export licensing to Israel will be dependent upon Israel's adherence to multinational arms control agreements such as the MTCR and CWC; the U.S. must be convinced that Israel will no longer export sensitive technologies to the PRC, South Africa, and several Central and South American nations.
Barbara Opall, Defense News, 11/30/92, pp. 3, 21 ***(3127)***.

12/92

An Israeli Ministry of Defense team holds meetings for several weeks in the U.S. lobbying for support for a U.S.-Israeli surface-to-air missile defense development project to be conducted within the SDI program. The team proposes a study to assess the use of RPVs to attack surface-to-surface missiles during boost phase when they are still moving slowly. The RPV project in Israel has a budget of $6 million, and is considered as important to national security as the Arrow ATBM project. Advocates of the concept say that it would allow less wartime damage to Israel, and fits well with Israel's doctrine of engaging the enemy on his own territory. Potential enemies may fear having intercepted missile warheads explode over their own territory and this may deter the use of unconventional warheads. Israeli Aircraft Industries has experience in RPVs, and Raphael, a state-run military complex, has experience in infrared guided missiles.
Aluf Ben, Ha'aretz (Tel Aviv), 12/24/92, p. B3; in JPRS-NEA-93-016, 2/3/93, p. 13 ***(3118)***.

12/3/92

The SDI administration announces its intention to establish contacts with the Israeli Ministry of Defense to conduct technical studies on approaches for the boost phase interception of ballistic missiles. The administration believes that Israel possesses unique experience with wartime missile defense and the operation of RPVs.
Aluf Ben, Ha'aretz (Tel Aviv), 12/24/93, p. B3; in JPRS-NEA-93-016, 2/3/93, p. 13 ***(3118)***.

1/93

A U.S. Army spokesman says that the Army Advanced Systems Office proposes evaluating the Israeli Arrow theater defense missile and the Theater High Altitude Area Defense (THAAD) system as candidates for the Theater Surface-to-Air Missile (TSAM) system, an "upper tier" weapons system meant to intercept ballistic missiles shortly after they reenter the atmosphere. According to the U.S. Army's recent Science and Technology Master Plan, TSAM will be a medium and high altitude defense system for defending corps size or larger bodies of troops and will also be able to launch short duration, low cost satellites on demand, which will allow the theater commander to augment communications and surveillance capabilities. TSAM is intended to replace the Patriot missile after 2000.
Joseph Lovece, Defense Week, 2/1/93, p. 13 ***(3045)***.

1/5/93

CIA Director Robert Gates confirms that the Chinese obtained Patriot anti-missile technology, but would not confirm media reports that Israel gave that technology to China. After sending investigators to Israel to check out an earlier report, a 4/92 State Department report stated that there was no corroborating evidence that Israel had transferred Patriot missile technology to China. Gates now says that there are "disagrements on the question" of whether or not that report underestimated contradictory intelligence. When the State Department report was released, Bush administration officials said that they had closed the matter to avoid harming the Middle East peace process.
Drora Perl, DAVAR (Tel Aviv), 1/6/93, p. 2; in FBIS-NES-93-003, 1/6/93, p. 31, ***(3077)***. *Israel Foreign Affairs, 2/26/93, p. 6* ***(3026)***.

1/14/93

The U.S. Army program manager of the U.S.-Israeli Arrow anti-ballistic missile project Michael Holtcamp claims that electrical adjustments incorporated into the missile were the key to the success of the Arrow's fourth and final test flight.

Holtcamp said that the Arrow could now move on to the Arrow Continuation Experiments (ACES).
Defense Daily, 1/22/93, p. 105 ***(3375)***.

2/9/93

At a budget presentation to the Pentagon, Maj. Gen. O'Neill, acting director of SDIO, says that the joint U.S.-Israeli Boost Phase Intercept (BPI) project will need an estimated $140 million in funding through 1994. The U.S. and Israeli governments are to meet some time in 1993 to sign a $5.7 million contract to explore BPI approaches; funding for the study will come from both countries.
Barbara Opall, Defense News, 2/22/93, pp. 3, 20 ***(3129)***.

2/16/93

A senior Israeli military official says that the BPI program would continue even without U.S. funding.
Barbara Opall, Defense News, 2/22/93, pp. 3, 20 ***(3129)***.

2/18/93

An SDIO spokesman says that the U.S. Air Force and joint U.S.-Israeli BPI programs were unrelated to the Raptor Talon program managed by Lawrence Livermore National Laboratory. The Israeli BPI effort is also unrelated to the $479 million joint U.S.-Israeli Arrow project, which is designed to attack Scud-type missiles during reentry phase.
Barbara Opall, Defense News, 2/22/93, pp. 3, 20 ***(3129)***.

2/28/93

The fifth test firing of the U.S.-Israeli Arrow missile is conducted from a ship in the Mediterranean Sea to evaluate the solid fuel rocket motor and guidance system. The missile, traveling nine times the speed of sound, comes within 40 m of its target, another Arrow reentering the atmosphere. The test allowed for the evaluation of a series of engineering changes intended to correct guidance, tracking, and overheating complications which caused test failures in the past. This successful evaluation opens the door for additional testing to begin on the Arrow Continuation Experiments (ACES) missile with twice the capability in height and range, and designed to intercept Scud-type missiles, cruise missiles and aircraft using a dual infrared seeker for high altitudes and a radio frequency seeker for low-flying, air breathing systems accompanied by heavy countermeasures.
Alan Ben-'Ami, Qol Yisra'el (Jerusalem), 2/28/93; in FBIS-NES-93-038, 3/1/93, p. 40 ***(3374)***. ***Aerospace Daily****, 3/2/93, p. 336* ***(3374)***. *Barbara Opall and Sharone Parnes, Defense News, 3/8/93, p. 6* ***(3370)***. *SDI Monitor, 3/12/93, pp. 62-63* ***(3389)***. *Neal Sandler, The Jerusalem Report, 3/25/93, pp. 36-37* ***(3388)***.

3/93

At a meeting in Washington with Israeli Prime Minister Yitzhak Rabin, President Clinton declines to commit U.S. funds to the Israeli project for the development of a UAV that fires anti-ballistic missiles; the Israelis will continue the project on their own. The Israeli project calls for a large, long endurance UAV equipped with infrared sensors that would loiter in enemy territory and attack launching Scuds with heat seeking missiles. At the same meeting, Rabin requests a direct link between Israel and the U.S. Space Command at Cheyenne Mountain AB in Colorado, and successfully broaches the subject of allowing Israel greater access to raw information obtained from U.S. satellites operating over such countries as Iran and Iraq.
Flight International, 4/7/93, p. 6 ***(3122)***.

3/15/93

At a meeting in Washington with Israeli Prime Minister Yitzhak Rabin, President Clinton states that the U.S. and Israel are to improve strategic cooperation, which many U.S. and Israeli sources claim will come into conflict with U.S. missile technology export controls such as those outlined in the MTCR. The increased cooperation will not mean more aid, but rather technology sharing and cooperative projects such as the Arrow ATBM. U.S. congressional investigators have pointed out contradictions between the Arrow project and the U.S. policy of safeguarding missile technology; a classified General Accounting Office investigating these contradictions is scheduled for release in the summer of 1993.
George Leopold and Barbara Opall, Defense News, 4/12/93, pp. 1, 28 ***(3128)***.

3/30/93

A Pentagon official states that the Pentagon and the State Department are considering special exemptions for Israel or changing Israel's MTCR status, both of which would aid U.S. technology sharing with Israel. The official also says that Israel would have to abandon its past practices of unauthorized sales and transfers of U.S. technology in order to qualify for U.S. exemptions.
George Leopold and Barbara Opall, Defense News, 4/12/93, pp. 1, 28 ***(3128)***.

3/31/93

Maj. Gen. Giora Rom, Israeli defense attache to Washington, claims that Israel would like to become a full MTCR member, but refuses to give details.
George Leopold and Barbara Opall, Defense News, 4/12/93, pp. 1, 28 ***(3128)***.

4/8/93

Dore Gold, a policy analyst for the Tel Aviv-based Jaffee Center for Strategic Studies, states that MTCR standards would allow the transfer of sensitive technologies to Israel if the U.S. made Israel a full ally.
George Leopold and Barbara Opall, Defense News, 4/12/93, pp. 1, 28 ***(3128)***.

4/8/93

Michael Holtcamp, Arrow program manager for the U.S. Global Protection Against Limited Strikes (GPALS) office states that during the next several months U.S. and Israeli officials will step up their campaign to lessen technological risks associated with Arrow's components, including the dual-mode seeker. He also said that the Arrow warhead presents less of a challenge than the radome, because a warhead prototype has already been flight tested. An Israeli official claims that the warhead could be tested on the second Arrow-2 test in the summer of 1993.
Barbara Opall, Defense News, 4/12/93, pp. 1, 28 ***(3377)***.

5/9/93

Semiannual high level talks over two days are to consider how to address MTCR restrictions while improving U.S.-Israeli strategic cooperation and technology sharing.
George Leopold and Barbara Opall, Defense News, 4/12/93, pp. 1, 28 ***(3128)***.

UNITED STATES WITH ITALY

12/92

The U.S. State Department approves 15 export licenses to sell launch vehicle information to Italy, Spain and Australia. Subsequent reports indicate that the unexpected approval of the licenses "provoked a storm of criticism" from Defense Transportation and Commerce departments. The State Department stood by its original decision in a White House Meeting, where senior administration officials failed to agree on whether to uphold or revoke the licenses.The licenses are of concern to Italy, which is developing the Scout 2 launcher with the assistance of Loral Vought Systems (formerly LTV Aerospace and Defense), Dallas, the developer of the Scout rocket. BPD Difesa e Spazio, Colleferro, Italy, was to build solid boosters to be attached to the Scout rocket. Since the license was requested , however, the Italian Space Agency has reconsidered. In an effort to avoid heavy dependence on Loral Vought, Italy has decided to develop most of the rocket's technology indigenously
Andrew Lawler, Space News, 1/11/93, pp. 4, 21 ***(3131)***.

12/15/93

Italian magistrate Michele Aiello orders the Italian Space Agency (ASI) to pay $57 million to the University of Rome for its joint Scout program with the American company Loral Vought Systems. The Italian government approved $60 million in funding to the University of Rome, which planned to spend much of the money on U.S. technology. However, ASI favored an all-Italian launcher, and wanted to stop the funding.
Robina Riccitiello, Space News, 1/18/93, pp. 3, 21 ***(3404)***.

12/23/92

The U.S. State Department approved 18 licenses to U.S. companies to cooperate with Australian, Italian, Russian and Spanish industry in building and launching rockets.
Andrew Lawler, Space News, 1/11/93, pp. 1, 20 ***(3220)***.

UNITED STATES WITH JAPAN

4/22/93

Pentagon officials say that Japan, which is discussing its options with U.S. military officials to counter the North Korean nuclear threat, could rely on U.S. Navy ships for ballistic missile protection or may arm its Aegis destroyers with ballistic missile interceptors. Japan is currently buying Aegis combat systems and upgrading the Aegis radars to track and target theater ballistic missiles. The Aegis contract prohibits the Japanese from upgrading, refitting, or reverse-engineering the Aegis technology themselves.
Inside the Pentagon, 4/22/93, p. 14 (3343).

UNITED STATES WITH KUWAIT

1/12/93

Raytheon announces its $327 million contract to supply five Patriot fire units and 210 missiles to Kuwait by mid-1995. Raytheon may also supply an integrated Patriot/Hawk air defense system of six Raytheon Hawk anti-aircraft batteries, plus missiles pending the review of batteries returned by Iraq after the Gulf War.
Aviation Week & Space Technology, 1/18/93, p. 21 ***(3244)***. *Flight International, 1/20/93, pp. 4-5* ***(3244)***.

1/93

The U.S. moves Patriot SAMs back into Kuwait in response to concerns over the possibility of an Iraqi missile attack in retaliation for coalition air raids on Iraqi installations. There remains some doubt as to whether all of Iraq's ballistic missiles have been destroyed despite the efforts of U.N. inspectors.
Duncan Lennox, Jane's Defence Weekly, 2/19/93, p. 78 ***(2926)***.

1/19/93

Kuwaiti Foreign Minister Sheikh Sabah Al-Ahmed Al-Jabar Al-Sabah says, in response to the shipping of U.S. Patriot missiles to Kuwait, that "We asked for that [Patriots] because we have to save our people in Kuwait." Sheikh Sabah did not specify the number of missiles sent.
Asian Recorder, 2/19/93, p. 22935 ***(2911)***.

4/93

Kuwait is to receive Patriot missiles from the U.S. in the latter half of 1993 as part of a defense build up reported to be worth $15 billion by the year 2000. Kuwait will reportedly spend $2.5 billion on Patriot missile batteries and an unreported number of Hawk air defense missiles.
Statesman (New Delhi); in Asian Recorder, 4/23/93, p. 23086 ***(2928)***.

UNITED STATES WITH MULTI-COUNTRY GROUP

11/20/92

During a meeting of the G-7 on international trade controls held in Bonn, Germany, member nations reject U.S. proposals to deny exports of all internationally controlled dual-use items to Iran. The U.S. proposal calls for the implementation of a multilateral presumption of denial policy for all items contained in the lists of COCOM, MTCR Equipment and Technology Annex, Australia Group lists of CBW precursors and processing equipment and NSG dual-use materials.
Export Control News, 11/27/92, p. 3 ***(2957)***.

12/92

The U.S. State Department approves 15 export licenses to sell launch vehicle information to Spain, Italy and Australia. Subsequent reports indicate that the unexpected approval of the licenses "provoked a storm of criticism" from Defense Transportation and Commerce departments. The State Department stood by its original decision in a White House Meeting, where senior administration officials failed to agree on whether to uphold or revoke the licenses. President Bush will make the final decision. The licenses are of concern to the Instituto Nacional Technica Aerospatiale (INTA) which is interested in purchasing U.S. equipment for their Capricornio launcher. INTA has initiated for $30 million effort to begin construction of this small three stage rocket powered by solid and liquid fuel rockets and capable of placing 220 lbs into low Earth orbit. Spain will be assisted by an unidentified U.S. company whose license request

was opposed by U.S. defense officials concerned about the possible military applicability of the project despite Capricornio program director Ricardo Dorado's statement in 1992 that the rocket's "sole purpose" is to place a small satellite into orbit.
Andrew Lawler, Space News, 1/11/93, pp. 4, 21 ***(3131)****. Andrew Lawler, Space News, 1/11/93, pp. 1, 20* ***(3220)****.*

UNITED STATES WITH PRC

11/92

The PRC signs a contract with Garrett Engines, a U.S. company, to purchase a turnkey factory for the production of advanced turbo-fans, which could be used in cruise missiles. Sources in Washington believe that the PRC is purchasing equipment in the U.S. and Europe for a new project to build a strategic cruise missile.
Mednews, 11/23/92, p. 5 ***(2997)****.*

12/4/92

U.S. national security officials meet to discuss the proposed sale of a Cray supercomputer to the PRC. Export officials and commerce officials favor the sale, while Pentagon officials oppose the sale on grounds that the supercomputer could be used for research on the PRC's nuclear weapons and missiles.
Bill Gertz, Washington Times, 12/5/92, p. A3 ***(3233)****. Jim Mann, Los Angeles Times, 12/5/92, p. A16* ***(3233)****.*

1/93

The U.S. has added booster units as well as an engine system to the top stage of Chinese rockets which are launching U.S. satellites into orbit. The PRC has already launched three of nine satellites to be launched under an agreement between the two countries.
Manki Ponomarev, Krasnaya Zvezda (Moscow), 1/19/93, p. 3; in FBIS-SOV-93-012, p. 24 ***(3476)****.*

1/5/93

CIA Director Robert Gates confirms that the Chinese obtained Patriot anti-missile technology, but would not confirm media reports that Israel gave that technology to China. After sending investigators to Israel to check out an earlier report, a 4/92 State Department report states that it could not find corroborating evidence that Israel had transferred Patriot Missile technology to China. Gates now says that there are "disagreements on the question" of whether or not that report underestimated contradictory intelligence. When the State Department report was released, Bush administration officials said that they closed the matter to avoid harming the Middle East peace process.
Drora Perl, DAVAR (Tel Aviv), 1/6/93, p. 2; in FBIS-NES-93-003, 1/6/93, p. 31, ***(3077)****. Israel Foreign Affairs, 2/26/93, p. 6* ***(3026)****.*

1/28/93

The U.S. Commerce Department reports that it is reversing its judgement on the proposed sale of U.S. manufactured Allied-Signal aircraft engines to China, stating that the transfer of manufacturing technology and engines containing special digital control technologies identified on the U.S. Commerce Control List did in fact require an export license. There is opposition to the sale in the Defense Department and the Arms Control and Disarmament Agency; one Defense Department official said, "The engines have definite missile applications, and China's record on imprudent foreign missile sales is legendary."
Export Control News, 1/28/93, pp. 15-16 ***(3171)****.*

2/93

The U.S. Office of Export Enforcement, Bureau of Export Administration, U.S. Department of Commerce issues charging letters against Peter Burger, Helling KG of Hamburg and International Business Connections of Luxembourg in a conspiracy to acquire 60 U.S. origin Tektronix work stations in Malaysia for reexport and to acquire a Proquip rigid disk certifier and Tektronix color graphic work station from the U.S. to Hong Kong and the certifier to Malaysia; the items were to eventually be directed to an end-user in the PRC.
Federal Register, 4/9/93, pp. 18368-18374 ***(3424)****.*

2/1/93

A U.S. analyst comments on a classified Pentagon report indicating that China, Iran and Syria all have aggressive programs to develop cruise missiles that possess stealth capabilities, can carry chemical and biological weapons, and can be operational by the year 2000. Although these countries have indigenous programs, they are also pursuing avenues of joint cooperation. The report states that China is of particular concern as it intends to build a nuclear warhead for its cruise missiles. China's development of a weapon that "no existing anti-missile system will be able to stop" sparks intense debate among military planners.
UPI (Washington); in Executive News Service, 2/1/93 **(3319)**.

4/93

U.S. State Department official Frank Wisner encourages the Clinton administration to sell the Cray M92 supercomputer, and cruise missile engines to China despite opposition from U.S. intelligence, Pentagon, and the Arms Control and Disarmament Agency (ACDA). Opposition to the sales is based on the argument that the Cray M92, a supercomputer ostensibly used for "weather prediction," could be used for the development of China's nuclear program, and that China might later transfer the computer or its services to Iran.

UNITED STATES WITH RUSSIA

9/21/92

At a meeting of the U.N. General Assembly in New York, U.S. President George Bush and Russian President Boris Yeltsin re affirm their intention to create a global protection system. The system which was announced on 6/92, includes sharing early warning data, curbing ballistic missile proliferation, and finding avenues for technological cooperation. The U.S. and Russian teams, coordinated by Bush assistant Dennis Ross and Russian deputy foreign minister Georgi Mamedov, separate into three teams that are meeting regularly. The teams will focus on a global protection system, technological cooperation, and nonproliferation. The nonproliferation team from

the U.S. will be led by the Arms Control and Disarmament Agency.
George Leopold, Barbara Opall, Defense News, 11/23/92, pp. 3, 20 ***(3059)***.

10/92

A technology cooperation panel, led by the SDIO director for technology, U.S. Air Force Colonel Peter Warden, meets with Russian officials in New York. At the mid-October meeting of this technology working group, Russian officials submit "a fairly comprehensive list of topics" for future collaboration including early warning systems, effectiveness of interceptors, and the survivability of satellites when under attack. U.S. experts want information about Russian radar and satellite data, particularly the rate of false alarms generated by the systems. They are also interested in the integration of the Russian warning system, and to what extent the systems suffers from the many ground-based radar sites that were lost with the break up of the Soviet Union.
George Leopold, Barbara Opall, Defense News, 11/23/92, pp. 3, 20 ***(3059)***.

11/18-21/92

A U.S. interagency team, which included the Director of Strategic Defense, Space and Verification Policy Doug Graham as the Pentagon representative, meets with their Russian counterparts as part of the group tasked with defining a "global protection system" and working out "remaining ambiguities." The meetings take place at U.N. offices in New York.
George Leopold, Barbara Opall, Defense News, 11/23/92, pp. 3, 20 ***(3059)***.

12/92

Director of the SDIO Henry Cooper reveals that since 6/92, cooperation between the U.S. and Russia on missile defense entails sharing SDIO technology such as GPALS. High level U.S.-Russian working parties have been touring U.S. and Russian weapons plants. Russia may benefit from U.S. early warning sites such as Fylingdales, U.K.
The Sunday Telegraph, 12/13/92 ***(2899)***.

12/7/92

Director of the U.S. Strategic Defense Initiative Organization (SDIO) Henry Cooper says that the Russians are showing great interest in the proposed American global ballistic missile defense system, which could be useful in protecting Moscow from neighbors such as Ukraine, and that he envisions the Russians and Americans sharing command and control.
Michael Evens, Washington Times, 12/8/92, p. 8 ***(2922)***.

12/16/92

Russian Space Agency chief Yuri Koptev tells U.S. negotiators that if Russia is prevented from entering the commercial launch market, Russia will sell its rocket technology to nations like Iraq.
Andrew Lawler, 1/4/93, Space News, pp. 1, 20 ***(3480)***.

12/17/92

Russian Prime Minister Viktor Chernomyrdin gives permission (decree number 2349) to the Khrunichev factory to sign a deal with Motorola Corporation to launch three commercial communications satellites.
Reuter, 12/17/92; in Executive News Service, 12/17/92 ***(3469)***. *Daniel J. Marcus and Peter B. de Selding, Space News, 1/18/93, pp. 3, 21* ***(3478)***.

12/23/92

The U.S. State Department and Russian Prime Minister Viktor Chernomyrdin approve a joint venture between Lockheed Missiles & Space Co. and Khrunichev Enterprise, called Lockheed-Khrunichev International, to commercially launch the Proton 1. The State Department approves these export licenses for U.S. companies to participate in this joint venture. Subsequent reports indicate that the Defense, Transportation, and Commerce Departments are trying to have the licenses revoked. Department officials will try to resolve the disagreement between Sate and the other Departments, but a source "close to the discussions: said the decision is likely to be made by President Bush.
Jeffrey M. Lenorovitz, Aviation Week & Space Technology, 1/4/93, pp. 24-25 ***(3480)***. *Andrew Lawler, 1/4/93, Space News, p. 20* ***(3480)***. *Andrew Lawler, 1/4/93, Space News, pp. 1, 20* ***(3480)***. *Andrew Lawler, Space News, 1/11/93, pp. 1, 20* ***(3220)***. *Daniel J. Marcus and Peter B. de Selding, Space News, 1/18/93, pp. 3, 21* ***(3478)***.

12/30/92

U.S. President Bush goes on a trip to the Black Sea city of Sochi where he and Russian President Boris Yeltsin are to sign the START II Arms Reduction Treaty which will eliminate each nation's heavy land based ICBM's, all other land-based multiple warhead missiles by 2003, and bring down the total number of warheads on each side to between 3,000 and 3,500. In addition to specific concessions recently negotiated in Geneva include: allowing Russia to retain some of its 154 land-based SS-18 missile silos after filling the silos with approximately 5 meters of concrete so that they can not be used for smaller missiles; and allowing Russia to retain its SS-19 six warhead missile after its reduction to a single warhead missile.
Dan Oberdorfer, Washington Post, 12/30/92, pp. A1, A12 ***(3054)***. *Ann Devroy, Washington Post, 12/31/92, pp. A1, A22* ***(3054)***. *Ann Devroy, Washington Post, 1/4/93, pp. A1, A18* ***(3054)***.

Early 1993

U.S. and Russian negotiators meet to discuss Russia's compliance with the MTCR agreement, a major consideration in U.S.-Russian commercial launch cooperation, but little progress is made. Russia's willingness to strictly adhere to the MTCR is viewed by the U.S. as critical to any agreement with Russia on the commercial launch market. The U.S. wants a commercial agreement with Russia that is similar to the agreement the U.S. signed with China in 1987, in order to allow Russia into the commercial launch market. U.S. concerns over any future agreement with Russia include: enforcement of an affective means of price controls for each launch, impact on the U.S. launch industry, and, as stated by a U.S. administration official, "the real question is whether the Russians will agree to technological safeguards and [ballistic missile proliferation control]."
Andrew Lawler, Space News, 4/5/93, pp. 4, 20 ***(3049)***.

1/93

A Russian delegation, headed by Sergey Chubakhin, and a U.S. delegation headed by Robert Einhorn, conduct talks aimed at the formation of a bilateral memorandum to resolve disputes related to the export of

missile technology, and to establish controls over those exports. First deputy chief of the Russian Federation Ministry of Foreign Economic Relations Export Strategy and Support Department Andrey Kushnirenk stated that consultations between the U.S. and Russia produced an agreement of cooperation "not to assist the proliferation" of missile technologies. The U.S. desires that Russia accept a "black list" of countries which will be subject to restrictions on the sale of missile technology. India, Brazil, and Egypt are on this list. The U.S. threatens to extend sanctions over several firms including Glavkosmos, if Russia does not accept a modification to its cryogenic engine contract with India as well as the "black list."

Andrey Borodin, Interfax (Moscow), 1/15/93; in FBIS-SOV-93-012, 1/21/93, pp. 3-4 ***(3413)***. *Sergey Yakovlev, Rossiyskiye Vesti (Moscow), 3/3/93, p. 2; in FBIS-SOV-93-041, 3/4/93, pp. 10-11* ***(3299)***.

1/93

The U.S. Strategic Defense Initiative Organization (SDIO) is quietly funding the newly established Defense Technology Institute in New Mexico to foster scientific collaboration between the U.S. and Russia. The institute may promote collaboration in neutral particle beam technology.

Space News, 1/18/93, p. 2 ***(3429)***.

2/93

Russia and the U.S. have a list of technologies to jointly pursue, including propulsion, sensor equipment, solid state lasers, neutral particle beams, simulation and modeling, and exchanging information on lethality and survivability.

SDI Monitor, 2/12/93, pp. 41-42 ***(3483)***.

2/93

The director of the Science and Technology directorate of SDIO Dwight Dustin states that his department hired 200 Russian researchers at Moscow's Kurchatov Institute, Lebedev Institute, General Physics Institute and Institute of Spectroscopy and St. Petersburg's Ioffe Institute. The SDIO hirings will allow the researchers to continue their work which they started for the USSR including work in optics, sensing, silicon carbide, and lasers.

SDI Monitor, 2/26/93, pp. 52-53 ***(3465)***.

2/3/93

Lawrence K. Gershwin, CIA Officer for Strategic Programs, testifies that in the next decade Russia is expected to deploy three missiles: a road mobile, single warhead SS-25, a silo based SS-25 and a follow on to the Typhoon submarine launched missile. Currently, Russia has 10,000 nuclear warheads, and by the year 2003 will have reduced this to 2,000 to 2,500 warheads, which is below the START II limit of 3,500 warheads.

Aerospace Daily, 2/4/93, p. 195 ***(3157)***.

3/4/93

Russia announces that it will build a new complex at the Plesetsk Cosmodrome for launching U.S. commercial communications satellites on Russian rockets. The U.S. will launch about 70 satellites into low orbit, some of which will probably be launched by Russian rockets.

Moscow Radio Service, 3/4/93; in FBIS-SOV-93-042, 3/5/93, p. 5 ***(3150)***.

3/4/93

Under Secretary of Defense for Policy-designate Frank G. Wisner tells the Senate Armed Services Committee that the U.S. is trying to get Russia to cancel its planned sale of cryogenic engines to India. The sale could jeopardize the joint venture between Lockheed and Khrunichev to market the Proton launch vehicle.

Aerospace Daily, 3/5/93, p. 363 ***(3280)***.

4/93

A private U.S. group called Sea Launch Investors is seeking the rights to use deactivated Russian submarine-launched ballistic missiles for commercial floating sea launch services and microgravity missions in conjunction with the Russian developer, Makeyev Design Office of Mechanical Engineering. Sea Launch Investors will work with the Ramcon Association for Conversion of Sea-based Ballistic Missiles which was formed by Russian naval officers.

Jeffrey M. Lenorovitz, Aviation Week & Space Technology, 4/19/93, p. 22-23 ***(3298).***

4/93

Gerald Musarra, senior advisor for space policy at the White House Office of Science and Technology Policy, states that the Clinton administration understands that Russia is going to enter the international commercial launch market, and that the U.S. and Russia could produce a commercial launch agreement later this year which would involve launching U.S. satellites on Russian vehicles. Western companies are worried about being undercut by Russian prices, but Musarra believes that an agreement would address such concerns as quantity restrictions and prices.

Defense Daily, 4/27/93, p. 143 ***(3314)***.

4/3/93-4/4/93

At the Vancouver Summit, Russian President Boris Yeltsin and U.S. President Bill Clinton agree on several space related matters, to include establishment of a high-level commission to plan U.S.-Russian space and energy cooperation and a U.S. proposal for talks to take place in 5/93 on the subject of Russian entry into the commercial launch market.

Space News, 4/12/93, pp. 1, 20 ***(3055)***.

4/27/93

Russia's Salyut Design Bureau and Inmarsat sign a contract to launch Inmarsat-3, a mainly U.S. built satellite. The U.S. promised to grant an export license, which includes technological information safeguards for the satellite.

Leyla Boulton, Financial Times, 4/28/93, p. 5 **(3251)**.

UNITED STATES WITH RUSSIA AND UKRAINE

10-11/92

According to Pentagon sources, details of a U.S. administration officials' proposed three phase plan for protection against limited missile strikes were presented to Russia, Ukraine, and Belarus.

Phase one calls for the U.S. to provide allies with early warning information from Defense Support Program satellites. Phase two calls for technological cooperation between the U.S. and former Soviet states. The second phase will also include sharing of some expertise and critical components. Phase three includes preparation of a mul-

tinational, rapid deployment, anti-missile force and a Pentagon proposed Global Protection Center, for detecting and tracking missile launches. It would be built and operated by participating nations and designed along the lines of the U.S.-Canadian early warning center in Cheyenne Mountain, Colorado. Pentagon sources say that the multinational force could consist of improvements to Russia's S-300 missile defense system, upgraded U.S. Patriot missiles, the Theater High Altitude Area Defense system and other planned U.S. and allied anti-missile systems. After 2000 the force would include planned U.S. space and ground based interceptors. Officials from NATO, Israel, Egypt, Japan, South Korea, and Australia have been briefed about the proposal. Talks continue through 1/93.

George Leopold and Barbara Opall, Defense News, 1/11/93, pp. 1, 28 ***(3044)***.

UNITED STATES WITH SAUDI ARABIA

12/23/92

The U.S. Army Missile Command awards a $1.03 billion contract to Raytheon's Missile System Division for 13 Patriot fire units and 761 PAC-2 missiles which will be delivered to the Saudi Arabia in a year and a half delivery cycle beginning in 1995. Initially, Raytheon will receive $515 million of the $1.03 billion funding, but follow on sales of additional Patriot fire units, test systems, firing range, and other support equipment could boost the final total to over $1.2 billion. Additionally, Raytheon anticipates concluding a separate agreement with Saudi Arabia to provide training on the U.S. Patriot missile system. Raytheon is already working on a previous 1990 order of eight U.S. Patriot fire units and 300 missiles to be delivered to Saudi Arabia from the U.S. beginning in 1993.

Aviation Week & Space Technology, 1/4/93, p. 25, ***(3046)***. *Patriot (Delhi); in Asian Recorder, 1/22/93, p. 22874* ***(2884)***. *Defense Electronics, 3/93, pp. 23-24* ***(2886)***.

2/16/93

Raytheon and Saudi Arabia announce that Saudi Arabia is to purchase a $500 million package that will include technical assistance, training, logistics support, spares, and modifications for its Patriot and Hawk air defense systems. The package is also expected to contain upgrades from first and second generation software and signal processing hardware.

Defense News, 3/1/93, p. 17 ***(3439)***. *Mednews, 3/1/93, p. 6* ***(2886)***.

UNITED STATES WITH SOUTH AFRICA

Late 1992

The U.S. threatens South Africa with punitive measures if the South African-Russian satellite launch deal proceeds. The threat is part of an attempt to stem the proliferation of missiles and missile technology.

SAPA (Johannesburg), 1/21/93; in JPRS-TND-93-003, 1/27/93, p. 1 ***(3196)***. *Brian Pottinger and Charles Perkins, Sunday Times (Johannesburg), 12/27/92, p. 1; in JPRS-TND-93-002, 1/15/93, p. 1* ***(3196)***. *Reuter, 12/28/92; in Executive News Service, 12/28/92* ***(3196)***. *Space News, 1/4/93, p. 2* ***(3196)***.

UNITED STATES WITH SPAIN

12/92

The U.S. State Department approves 15 export licenses to sell launch vehicle information to Spain, Italy and Australia. Subsequent reports indicate that the unexpected approval of the licenses "provoked a storm of criticism" from Defense Transportation and Commerce departments. The State Department stood by its original decision in a White House Meeting, where senior administration officials failed to agree on whether to uphold or revoke the licenses. President Bush will make the final decision. The licenses are of concern to the Instituto Nacional Technica Aerospatiale (INTA) which is interested in purchasing U.S. equipment for their Capricornio launcher. INTA has initiated for $30 million effort to begin construction of this small three stage rocket powered by solid and liquid fuel rockets and capable of placing 220 lbs into low Earth orbit. Spain will be assisted by an unidentified U.S. company whose license request was opposed by U.S. defense officials concerned about the possible military applicability of the project despite Capricornio program director Ricardo Dorado's statement in 1992 that the rocket's "sole purpose" is to place a small satellite into orbit.

Andrew Lawler, Space News, 1/11/93, pp. 4, 21 ***(3131)***. *Andrew Lawler, Space News, 1/11/93, pp. 1, 20* ***(3220)***.

UNITED STATES WITH TAIWAN

12/23/92-1/93

Raytheon is negotiating directly with Taiwan for approximately $1.2 billion in Patriot fire units and missiles.

Aviation Week & Space Technology, 1/4/93, p. 25 ***(3046)***. *Aviation Week & Space Technology, 1/18/93, p. 21* ***(3244)***. *Flight International, 1/20/93, pp. 4-5* ***(3244)***.

1/93

The U.S. government states that the U.S. manufacturer Raytheon will assist in upgrading Taiwan's air defense systems, but denies that the assistance includes the Patriot SAM system.

Flight International, 1/20/93, p. 6 ***(3175)***.

2/93

The U.S. State Department gives Raytheon permission to provide guidance systems and technology to help Taiwan manufacture weapons similar to the Patriot missile. The missiles are to enter service in 1995 and the project will cost about $1 billion.

Washington Times, 3/3/93, p. A2 ***(2923)***.

2/9-10/93

Raytheon and Taiwanese officials meet in Washington to discuss the $1.3 billion Modified Air Defense System (MADS) joint project which will replace Taiwan's Nike air defense system with the Patriot. Raytheon is to provide seven fire units comprised of missile forebodies, radars, engagement control stations, training and technical assistance. Taiwan will produce the rear section, warhead, propulsion, and control sections under a separate Raytheon-Taiwanese $120 million technical support package.

Barbara Opall and David Silverberg, Defense News, 2/22/93, pp. 1, 21 ***(3241)***. *David Hughes, Aviation Week & Space Technology, 3/1/93, p. 61* ***(3241)***.

UNITED STATES WITH UKRAINE

12/92

U.S. President Bush sends a letter to Ukrainian President Leonid Kravchuk offering $175 million to assist in the dismantling of nuclear warheads and storage of nuclear weapon materials currently in Ukraine if Ukraine ratifies the Non-Proliferation Treaty (NPT) and agrees to be a non-nuclear weapons state under a protocol to the START I Treaty.

Dan Oberdorfer, Washington Post, 12/10/92, p. A12 (3286).

UNITED STATES WITH UNITED ARAB EMIRATES

4/93

The United Arab Emirates is considering the purchase of the Patriot air defense system from the U.S. in reaction to the proliferation of ballistic missiles in the region. There are indications that the "decision has been put off for about three years."

Philip Finnegan, Defense News, 4/12/93, pp. 10, 12 ***(2902)***.

UNITED STATES WITH UNITED KINGDOM

12/92

Director of the SDIO Henry Cooper visits London to reassure Britain and other NATO allies regarding U.S.-Russian cooperation on missile defense. As part of participation in GPALS, Russia may benefit from U.S. early warning sites such as Fylingdales, U.K. According to an unnamed British source, Britain may "pull the plug" on Fylingdales if the U.S. proves too generous with strategic information there. Britain fears that U.S.-Russian GPALS cooperation will make their Trident missile force obsolete.

The Sunday Telegraph, 12/13/92 ***(2899)***.

WESTERN EUROPEAN UNION

INTERNAL DEVELOPMENTS

11/92

A report by WEU members indicates that Europe must examine missile defenses, although members do not want to weaken nuclear deterrence or abandon the ABM Treaty, which most agree will require modification for limited global defense.

SDI Monitor, 4/23/93, pp. 93-94 ***(3303)***.

4/20/93-4/21/93

The WEU holds a symposium at which European industry proposes to develop its own ATBM instead of joining the U.S.-Russian Global Protection Against Limited Strikes (GPALS) system. The European ATBM would be derived from the Aster medium range air defense missile, which was developed by France and Italy, and would have long range ground-based radars able to track incoming missiles and one or two satellites capable of detecting missile launches.

Military Space, 4/19/93, p. 1 ***(3112)***. *Reuter (Rome), 4/20/93; in Executive News Service, 4/22/93* ***(3112)***. *Defense News, 4/24/93, pp. 3, 29* ***(3112)***.