

# BALLISTIC, CRUISE MISSILE, AND MISSILE DEFENSE SYSTEMS: TRADE AND SIGNIFICANT DEVELOPMENTS, SEPTEMBER 1993-JANUARY 1994

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## AFGHANISTAN

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### INTERNAL DEVELOPMENTS

**9/30/93**

The rival Islamic factions of the Sunni Muslim Ittehad-i-Islami Party of Rasul Sayyaf and the Iranian-backed Shi'ite Hezb-i-Wahdat fire about 200 rockets and mortar shells at each other in Kabul. Three people are killed and seventeen are injured.

*Washington Times*, 10/1/93, p. A14 (3909).

### AFGHANISTAN WITH TAJIKISTAN

**1/9/94**

At 10:35 a.m., seven missiles are fired on the 13th post of the Moskovskiy Border Guard.

*Galina Gridneva, Itar-Tass (Moscow)*, 1/12/94; in *FBIS-SOV-94-008*, 1/12/94, p. 76 (3634).

**1/11/94**

The 12th post of the Russian Moskovskiy detachment guarding the Tajik border takes missile fire from inside Afghanistan.

*Galina Gridneva, Itar-Tass (Moscow)*, 1/12/94; in *FBIS-SOV-94-008*, 1/12/94, p. 76 (3634).

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## ARGENTINA

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### INTERNAL DEVELOPMENTS

**1992**

Argentina continues development of the SAC-B project, which includes a spacecraft and one payload. Argentina may establish a regional center for scientific satellite and global change data, and has signed cooperative research agreements with Germany and Spain.

*George D. Ojalehto and Henry R. Hertzfeld, Aerospace America*, 9/93, pp. 10-11, 40-41 (3687).

**9/25/93**

It is reported that Argentina's Condor-2 missile installations might be used in a project to construct "Latin America's first satellite."

*Ann Schmittker, Proliferation Watch*, 9/93, p. 3 (3600).

**11/29/93**

The Argentine Foreign Ministry reveals that Argentina has become a member of the MTCR. The decision is partly a result of Argentine President Menem's cancellation of the Condor missile project in early 1993.

*Buenos Aires Herald*, 11/30/93, p. 1; in *JPRS-TND-93-001*, 1/6/94, p. 11 (3783).

### ARGENTINA WITH EGYPT

**11/93**

The Argentine Defense Ministry confirms that factories in Iraq and Egypt were "twin sisters" of the Falda del Carmen plant where the Condor-2 missile was developed. Egyptian technicians gained expertise working in Argentina on the Condor-2 project.

*International Defense Review*, 11/93, p. 842 (3677).

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*The numbers listed in parenthesis following the bibliographic references refer to the identification number of the document in the International Missile Proliferation Project Database, from which the news summaries are abstracted. Because of the rapidly changing nature of the subject matter, The Nonproliferation Review is unable to guarantee that the information reported herein is complete or accurate, and disclaims liability to any party for any loss or damage caused by errors or omissions.*

ARGENTINA WITH GERMANY

11/93

Argentine Defense Minister Oscar Camilion confirms that German technicians worked on the Condor-2 project. *International Defence Review*, 11/93, p. 842 (3677).

ARGENTINA WITH IRAQ

11/93

The Argentine Defense Ministry confirms that U.N. weapons inspectors discovered two Condor-2 missile engines in Iraq and that Argentina delivered Condor "elements" to Iraq via Egypt prior to the 1991 Gulf War. The two engines were built at Argentina's Falda del Carmen plant. The ministry also confirms that factories in Iraq and Egypt were "twin sisters" of the Falda del Carmen plant. Argentine Defense Minister Oscar Camilion denies Argentine involvement, and states that "there has not been any transfer of Argentinean technology to Iraq, as the technology in question was fundamentally German." Camilion also denies that experts from Argentina worked with Iraq as part of a contract between the two countries. There is no confirmation that Iraqi technicians participated in the project as well. *International Defence Review*, 11/93, p. 842 (3677).

ARGENTINA WITH UNITED STATES

9/93

Argentina transfers "missing parts" from its Condor-2 missile program to the US via Spain. The parts include two electronic guidance systems, three computers, launching devices, and a tower. However, Argentina has yet to deliver a sophisticated X-ray machine, solid-fuel grinder and a fuel mixer allegedly of American origin. *William R. Long, Los Angeles Times*, 9/26/93, p. A15 (3600).

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AUSTRALIA

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INTERNAL DEVELOPMENTS

12/93

The Australian Security Intelligence Organization (ASIO) claims in its 1992/93 report to Australia's parliament that there is an increase in Asian countries spying in Australia in an effort to develop weapons of mass destruction; no countries suspected of espionage in Australia are specified. The ASIO report says that "during the last 12 months an increased number of proliferation-related activities came to ASIO's attention," among them the establishment of a network of front companies and the use of universities to acquire scientific and weapons development knowledge. *Reuter*, 12/16/93; in *Executive News Service*, 12/16/93 (3895).

AUSTRALIA WITH RUSSIA

9/15/93

Russian and Australian firms sign an agreement to jointly develop a \$900 million Papua New Guinea (PNG) space base that will launch Russian Proton rockets. Under the agreement, Space Transportation Systems, directed by former Queensland Premier Michael Hern, will have exclusive rights to develop the launching and technical complexes and will manage, market and operate the space port. Russia's General Machine Building Bureau and Australia's Space Transportation Systems Ltd will build the launch site for the Proton rocket on the PNG islands of Manus and Emirau. *Radio Australia (Melbourne)*, 9/16/93; in *FBIS-EAS-93-178*, 9/16/93, p. 57 (3743). *Washington Post*, 9/16/93, p. D12 (3641). *Space News*, 1/3/94, p. 13 (3871). *Space Business News*, 9/28/93, pp. 4-5 (3822).

AUSTRALIA WITH UNITED STATES

9/93

Australia proposes that the U.S. share information on Asian missile launches with those nations in the region that adhere to international arms control agreements. The U.S. satellite that gathers the information is controlled by the U.S. and Australian military from a base at Nurrungar in central Australia. Because the satellite monitors the air space from the eastern Mediterranean to the western Pacific, it could serve as a regional early-warning system. It is believed that the Clinton Administration is likely to support the proposal. *Michael Richardson, International Herald Tribune*, 9/1/93 (3740).

12/93

It is reported that if the U.S. Congress decides to allow the U.S. Navy to adopt the Australian Nulka hovering rocket-borne missile decoy, it is possible that joint U.S.-Australian manufacture of the decoy may follow. The Australian Navy has already approved Nulka production, and plans to install the decoy on the first of its eight ANZAC-class frigates and its FFG-7 fleet. *Jane's Defence Weekly*, 12/11/93, p. 11 (3910).

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AZERBAIJAN

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AZERBAIJAN WITH RUSSIA

10/93

Azeri forces are retreating on all fronts from Armenian forces in Azerbaijan and Nagorno-Karabakh despite Russia's recent supply of BM-21 rocket launchers. *Paul Beaver, Jane's Defence Weekly*, 12/11/93, p. 17 (3663).

## **BELARUS**

### **INTERNAL DEVELOPMENTS**

**10/93**

It is reported that Belarus authorities arrested five Germans on suspicion of espionage after they were caught videotaping a secret missile base in the Grodno area of the country. The Germans work for a German-Lithuanian joint venture, which is building housing for army personnel returning from Germany.

*ADN (Berlin), 10/15/93; in FBIS-SOV-93-198, 10/15/93, p. 43 (3665).*

**11/93**

It is reported that the Belarusian Defense Ministry made an agreement with the Belarusian firm "Minotor" to maintain missile and artillery systems deployed by the Air Defense Forces Command. Maintenance has been difficult since the collapse of the USSR because the maintenance plants were all in Russia. The cost of sending equipment to the maintenance plants in Russia is greater than the cost of doing the work in-country. Under the new agreement, the maintenance and servicing of equipment costs 12 times less, and 0.5 billion rubles have been saved in less than a year. The Air Defense Forces have had no complaints about the quality of the work completed in-country.

*Valeriy Kovalev, Krasnaya Zvezda (Moscow), 11/20/93, p. 4; in FBIS-SOV-93-227, 11/29/93, p. 67 (3667).*

## **BELGIUM**

### **BELGIUM WITH PRC**

**1/94**

Belgium-based Eurosense, which specializes in digital ortho photographic maps, signs an agreement with China to establish a joint venture company called Eurosense Beijing Aerospace Mapping that will use Eurosense technology to make detailed maps of Chinese territory. Eurosense owns 51 percent of the joint venture, while the Chinese government owns the remainder.

*Flight International, 1/26/94, p. 23 (3958).*

### **BELGIUM WITH RUSSIA**

**1/26/94**

Belgian Defense Minister Leo Delcroix, accompanied by his Russian counterpart Pavel Grachev, becomes the first NATO official to visit the formerly secret Russian missile base in Bologoye (located between Moscow and St. Petersburg) and see the most advanced Russian strategic missiles and other military hardware. The two-day visit follows a 12/93 agreement between the two countries to boost military contacts.

*Mikhail Shevtsov, Itar-Tass (Moscow), 1/26/94; in FBIS-SOV-94-018, 1/27/94, P. 10 (3850).*

### **BELGIUM WITH TAIWAN**

**1/14/93**

Belgium ships "various" rocket motors, built by Forges de Zeebruges, to Taiwan.

*Georges Timmerman, De Morgen (Brussels), 12/29/93, p. 2 (3744).*

## **BOSNIA-HERZEGOVINA**

### **INTERNAL DEVELOPMENTS**

**12/93**

The city of Tuzla loses power after an unspecified type of missile hits the city's coal-fired generating plant. U.N. military spokesman Commander van Biesebroeck states that the missile severely damaged pumps, cables and water pipes.

*New York Times, 12/5/93, p. 4 (3654).*

### **BOSNIA-HERZEGOVINA WITH CROATIA**

**10/93**

Independent Croatian military analyst Fran Visnar says that the Bosnian-Serb leader Radovan Karadzic has sent extra artillery and multiple rocket launchers to Krajina. The Krajina Serbs have special artillery and surface-to-surface "missiles" [FROG] with a range of 70 km capable of striking all important Croatian cities. The Krajina Serbs published a list of 20 Croatian cities to be attacked with rockets should the Croats mount a full offensive. Some analysts believe that publication of this list led to the abandonment of a Croatian offensive in 9/93.

*David Huic, Reuter, 10/5/93; in Executive News Service, 10/7/93 (3797).*

### **BOSNIA-HERZEGOVINA WITH RUSSIA**

**10/1/93**

The director of the Russian External Economic Relations Ministry's National Market Research Institute, Mikhail Sarafanov acknowledges the sale of Russian missiles to Bosnian Serbs, but denies that the Russian gov-

ernment was involved in the sale. *Kyodo (Tokyo)*, 10/1/93; in *JPRS-TND-93-031*, 10/8/93, p. 42 (3657).

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## BRAZIL

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### INTERNAL DEVELOPMENTS 2/93

Brazil launches its first data collection satellite, the SCD-1. Brazil is focusing on the development of a Satellite Launch Vehicle, a launch center at Alcantara, and four satellites, two each for remote sensing and data collection.

*George D. Ojalehto and Henry R. Hertzfeld, Aerospace America*, 9/93, pp. 10-11, 40-41 (3687).

### 9/93

The Brazilian Department of Space Engineering and Control at the National Institute of Space Research (INPE) is conducting a \$500,000 project to produce kerosene-liquid oxygen rockets. The project is expected to reach completion in 18 months. According to project director Hinckel, the rocket is to be used to develop a launch vehicle able to place "several metric tons" into orbit.

*Latin America Intelligence Report*, 9/28/93 (3606).

### 10/27/93

The Brazilian Chamber of Deputies approves a draft bill from the executive branch that creates a civilian Brazilian Space Agency (AEB).

*Gazeta Mercantil (Sao Paolo)*, 10/8/93; in *JPRS-TND-93-037*, 12/8/93 pp. 31-33 (3781).

### BRAZIL WITH PRC

#### 11/9/93

Brazilian Science and Technology Minister Israel Vargas signs a number of protocols that complement an existing scientific-technical cooperation agreement between China and Brazil. One \$15 million protocol is signed between

Brazil's National Space Research Project (INPE) and the China Great Wall Company to launch two remote sensing satellites. An additional \$50 million accord is signed with China KZ High Technology to promote technical partnerships between the two countries. *Gazeta Mercantil (Sao Paolo)*, 10/8/93; in *JPRS-TND-93-037*, 12/8/93 pp. 31-33 (3781).

### 1/94

It is reported that, during a visit to Brazil, Chinese President Jiang Zemin signed an agreement with Brazilian President Itamar Franco to establish a joint satellite program and promote greater cooperation in launcher and satellite manufacturing technology, atmospheric sciences, and astrophysics. The deal includes the development of two satellites, the first of which is to be launched by 10/96.

*Wall Street Journal*, 9/16/93, p. A20 (3782). *Space News*, 1/3/94, p. 13 (3782).

### BRAZIL WITH RUSSIA

#### 2/93

The president of Russia's Aviaprom, A. Gereshchenko, and vice president of Russia's Mashinokспорт, I. Latin, secretly visit the Alcantara launch site in Maranhao, Brazil. Ten weeks later, Embraer and Neiva of Brazil sign an agreement with Aviaprom and the Myaslshech Design Bureau of Russia to launch communications satellites from the Alcantara site. On average, launches from the Alcantara site cost 20 percent less than launches from any other site in the world. Reportedly, there is also an accord between Brazil's Monteiro Aranha group and Russia's Krunichev Enterprise for the use of Russian space launch vehicles.

*JPRS-TND-93-003*, 1/31/94, pp. 41-43 (3706).

#### 9/93

Brazilian Army Minister General Zoroastro leads a military delegation on a visit to Russia to study missile technology and military equipment available to Brazil.

*JPRS-TND-93-003*, 1/31/94, pp. 41-43 (3706).

#### 11/24/93

The Sao Paulo magazine *ISTOE* reports that the Brazilian Army is to receive Russian SAMs, which will be assigned to various infantry headquarters; deliveries will begin in early 1994. *JPRS-TND-93-003*, 1/31/94, pp. 41-43 (3706).

#### 12/1/93-12/3/93

Brazilian Prime Minister of Industry, Commerce, and Tourism Jose Eduardo de Andrade Vieira meets in Russia with Russian Foreign Economic Relations Minister Oleg Davydov and discusses possible cooperation between Brazil and Russia in space research. The Brazilians "once again" express interest in joint development of inertial guidance systems for SLVs with Moscow. The Russians inform Vieira that they are still interested in using the Alcantara launch site for the Iridium project, which is to place about 60 communications satellites into orbit within the next two years using Russian Proton launch vehicles. On 12/3/93, Brazil and Russia conclude the visit by signing an agreement which will boost trade between the two countries from \$200 million to \$2 billion annually within a period of five years. The agreement covers cooperation in aerospace research and mutual technology transfer of military materiel. Brazil is committed to buy various Russian products, including rockets.

*JPRS-TND-93-003*, 1/31/94, pp. 41-43 (3706).

#### 12/4/93

Brazilian diplomats are quoted as saying that the Brazilian government is "willing" to join the MTCR soon, a move that would eliminate the main obstacle to Brazil's involvement in the Iridium satellite project with Russia.

*JPRS-TND-93-003*, 1/31/94, pp. 41-43 (3706).

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## CHILE

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### CHILE WITH ISRAEL

10/21/93

A test of the Barak point-defense missile is conducted from a missile patrol boat in which the missile passes within "kill distance" of its target, a Gabriel sea-skimming missile. According to one program source this "proved the missile's capability to intercept sea-skimming missiles under severe conditions." The Barak program was initiated in 1979 for the Israeli and Chilean navies, and is being jointly developed by Rafael and IAI subsidiary Elta, the former working on the missile itself and the latter on the radar system.

*Flight International*, 11/3/93, p. 18 (3560). *IDF Radio (Tel Aviv)*, 11/3/93; in *FBIS-NES-93-211*, 11/3/93, p. 48 (3560). *Jane's Defence Weekly*, 11/6/93, p. 7 (3560).

### CHILE WITH RUSSIA

10/93

In the wake of the cancellation of a deal involving the purchase of S-300 SAMs, Russian Defense Minister Pavel Grachev is to visit Chile during his trip to Latin America. The missile deal was discussed when Chilean President Aylwin visited Moscow in the summer of 1993, but was reportedly canceled under U.S. pressure.

*Sergey Zavorotnyy, Komsomolskaya Pravda (Moscow)*, 9/23/93, p. 7; in *FBIS-SOV-93-184*, 9/24/93, p. 14 (3604).

### CHILE WITH UNITED KINGDOM

9/93

Chile has shown interest in researching SSMs and SAMs, and has a deal with the U.K. to build the medium-range missile, the Rayo (Thunderbolt). Chile's armed forces modernization ef-

fort also includes Lince anti-aircraft missiles.

*UPI*, 9/1/93; in *Executive News Service*, 9/3/93 (3611).

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## CROATIA

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### INTERNAL DEVELOPMENTS

9/10/93

Serb forces launch three Frog rockets into the town of Jastrebarsko.

*Steve Pagani, Reuter*, 9/21/93; in *Executive News Service*, 9/13/93 (3727).

9/11/93

Serbs hit the Zagreb suburb of Lucko with a Frog artillery rocket.

*Steve Pagani, Reuter*, 9/12/93; in *Executive News Service*, 9/13/93 (3727).

9/12/93

Serb forces launch a rocket, reportedly of a type that scatters bomblets on impact, into Kutina, a Croatian town, and also hit the town of Samobor with four rockets fired from a multiple rocket launcher. The town of Jastrebarsko is struck by five rockets.

*Steve Pagani, Reuter*, 9/12/93; in *Executive News Service*, 9/13/93 (3727). *Nada Buric, Associated Press*; in *Washington Times*, 9/13/93, p. A13 (3727).

9/18/93

Ethnic Serbian forces fire a Frog-7 artillery rocket without a warhead at Lucko, a suburb of Zagreb.

*Danica Kirka, Defense News*, 9/20/93, p. 8 (3522).

### CROATIA WITH BOSNIA-HERZEGOVINA

10/93

Independent Croatian military analyst Fran Visnar says that the Bosnian-Serb

leader Radovan Karadzic has sent extra artillery and multiple rocket launchers to Krajina. The Krajina Serbs have special artillery and surface-to-surface missiles [FROG] with a range of 70 km capable of striking all important Croatian cities. The Krajina Serbs published a list of 20 Croatian cities to be attacked with rockets should the Croats mount a full offensive. Some analysts believe that publication of this list led to the abandonment of a Croatian offensive in 9/93.

*David Huic, Reuter*, 10/5/93; in *Executive News Service*, 10/7/93 (3797).

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## CZECH REPUBLIC

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### CZECH REPUBLIC WITH IRAN

11/93

During a visit to Iran, a Czech business delegation led by the General Director of Skoda Pilzen, Lubomir Soudek, reportedly offers to sell Iran weapons, including a new generation of anti-aircraft missiles.

*Jan Oberman, RFE/RL News Briefs*, 1/10/94, pp. 19-20 (3651).

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## EGYPT

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### INTERNAL DEVELOPMENTS

9/93

Major General Mohammed El-Ghamrawy Dawood, Chairman of Egypt's Armament Authority, states that the Egyptian Army has not purchased any 80 km range, 325 mm Sakr-80 multiple rocket systems from the Egypt-based Arab Organization for Industrialization (AOI). He acknowledges that Egypt's SA-2 air defense system has

been upgraded and one complete battalion refurbished.

Robert Lowry, *Jane's Defence Weekly*, 9/4/93, p. 64 (3515).

#### EGYPT WITH ARGENTINA

11/93

The Argentine Defense Ministry confirms that factories in Iraq and Egypt were "twin sisters" of the Falda del Carmen plant where the Condor-2 missile was developed. Egyptian technicians gained expertise working in Argentina on the Condor-2 project.

*International Defense Review*, 11/93, p. 842 (3677).

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## FRANCE

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#### INTERNAL DEVELOPMENTS

10/7/93

French Minister of Defense Francois Leotard says that in 1994 France will continue development of an anti-tactical ballistic missile system, the Mica. The army will receive major deliveries including four Multiple Launch Rocket System (MLRS) launchers.

Giovanni de Briganti, *Defense News*, 9/27/93, p. 16 (3718). Giovanni de Briganti, *Defense News*, 10/11/93, pp. 1, 8 (3718).

#### FRANCE WITH INDIA

11/16/93

The Indian Space Research Organization (ISRO), and the French Space Agency, Centre National d'Etudes Spatiales (CNES), sign an agreement for cooperation in the field of exploration and utilization of outer space for peaceful use. The agreement is signed at the ISRO headquarters in Bangalore, by ISRO chairman U.R. Rao and CNES President Rene Pellat.

*India News*, 12/1/93, p. 1 (3713). *Space News*, 12/13/93, p. 17 (3722).

#### FRANCE WITH RUSSIA

10/93

It is reported that, in an effort to get an early start on the future competition for a European anti-ballistic missile system, France's Matra is working with Russia's Antey company to profit from the technology incorporated in the latter's SA-12 (Russian designation S-300V) anti-ballistic missile system. According to Antey's chief engineer Boris V. Karpushin, the SA-12 has the same capability as the upgraded U.S. Patriot PAC-2, which will not be operational until 1995. At the Russian Aerospace '93 exhibition at the Emba test range in Kazakhstan, the SA-12 reportedly destroyed eight incoming "Scud-type" missiles in nine shots.

*Intelligence Newsletter*, 10/30/93, p. 2 (3741).

#### FRANCE WITH SAUDI ARABIA

11/93

According to French Defense Minister Francois Leotard, the French expect to win \$4 billion in contracts with Saudi Arabia by the end of the year. Two of the contracts involve the purchase of two air-defense frigates worth \$3.38 billion, and one involves the modernization of Crotale air-defense missiles for \$591.5 million.

Giovanni de Briganti, *Defense News*, 11/22/93, p. 18 (3734).

#### FRANCE WITH SPAIN

12/93

DCN International, a French shipbuilding company, signs an accord agreeing to help Empresa Nacional Bazan of Spain build four mine hunters for the Spanish Navy; the deal includes the transfer of glass-reinforced plastic (GRP) construction technology developed by DCN.

*Jane's Defence Weekly*, 12/11/93, p. 5 (3520).

#### FRANCE WITH TAIWAN

10/8/93

French Prime Minister Edouard Balladur decides to allow the sale of up to \$2.6 billion worth of naval equipment, including Exocet anti-ship missiles, and Crotale and Mistral anti-aircraft missiles, to Taiwan.

Reuter, 10/20/93; in *Executive News Service*, 10/21/93 (3846). Reuter, 10/21/93; in *Executive News Service*, 10/21/93 (3901). *Jane's Defence Weekly*, 1/22/94, pp. 24-25 (3732).

10/21/93

China warns that France's arms deal with Taiwan, which includes anti-ship and anti-aircraft missiles, will hurt Chinese-French relations. A Chinese Foreign Ministry Spokeswoman states that "[i]f the French side sticks to the erroneous policy...Sino-French relations will be further damaged."

Reuter, 10/21/93; in *Executive News Service*, 10/21/93 (3707).

1/12/94

In a joint statement with China, France shifts its policy by restoring "traditional relations of friendly cooperation" with China and vows to ban the sale of arms to Taiwan. Although French Foreign Minister Alain Juppe states that the ban on arms sales to Taiwan does not apply to existing deals, it is not clear whether the fall 1993 sale of missiles would be affected.

Nelson Graves, Reuter, 1/12/94; in *Executive News Service*, 1/12/94 (3735).

#### FRANCE WITH THAILAND

10/93

France's Thomson-TRT Defense sells six Rubis navigation pods to the Thai Air Force. The navigation pods will be used to perform low-level navigation and weapon guidance roles at night or in unfavorable weather conditions. The Rubis pod was developed jointly by Thomson-TRT Defense, Dassault Aviation and Intertechnique for use with Mirage F-1CR reconnaissance aircraft.

*Defense News*, 10/4/93, p. 23 (3905).

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## GERMANY

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### INTERNAL DEVELOPMENTS

9/30/93

Germany announces that on 10/19/93 it will bring to trial two owners and an employee of failed engineering firm H+H Metalform Maschinenbau und Vertriebs-GmbH for delivering parts for Scud missiles and machine tools to Iraq from 1988-1990, and for supplying technology to Libya to manufacture rocket "burners."

*Reuter, 9/30; in Executive News Service, 10/1/93 (3525).*

1/13/94

The German cabinet relaxes its tight export laws for dual-use goods by harmonizing them with those of the rest of the European Community. The Christian Democratic Union and German companies have promoted such an easing of export restrictions, while the Social Democrats have opposed the proposal. *Jane's Defence Weekly, 12/4/93, p. 9 (3849). Ariane Genillard, Financial Times, 1/14/94 (3849).*

### GERMANY WITH ARGENTINA

11/93

Argentine Defense Minister Oscar Camilion confirms that German technicians worked on the Condor-2 project. *International Defence Review, 11/93, p. 842 (3677).*

### GERMANY WITH JAPAN

11/93

It is reported that, in 8/94, German and Japanese researchers will conduct several tests at Japan's Kagoshima Space Center using a small Japanese sounding rocket, the M3S-2, manufactured by the Nissan Motor Co., and a German retrievable capsule. One experiment will collect data on how to control a rocket's

trajectory as it reenters the atmosphere. *Space News, 11/15/93, p. 16 (3929).*

### GERMANY WITH MULTI-COUNTRY GROUP

12/28/93

German and Saudi inspectors confiscate over one hundred barrels of ammonium perchlorate from a German-registered ship docked in Jeddah, Saudi Arabia that was bound for Beirut, Lebanon from Hung Fu, China. Ultimately, the ammonium perchlorate, which is used in missile fuel, was to go to Iraq.

*Reuter, 1/24/94; in Executive News Service, 1/24/94 (3648). Michael Evens, Times, 1/27/94 (3698).*

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## HUNGARY

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### HUNGARY WITH RUSSIA

1/94

It is reported that Russia will settle its \$800 million trade debt with Hungary by sending Hungary S-300PMU (SA-10 Grumble) air defense systems. The number of missiles to be provided to Hungary has not been determined.

*Karoly Okolicsanyi, RFE/RL News Brief, 1/10/94, p. 21 (3650). Flight International, 1/26/94, p. 16 (3650).*

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## INDIA

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### INTERNAL DEVELOPMENTS

9/93

It is reported that a new class of frigate called the Project-16 class is being designed to improve Indian shipbuilding

capability. The frigates are equipped with missile and command and control systems designed by the Bangalore-based, Indian government-owned Bharat Electronics Ltd.

*Vivek Raghuvanshi, Defense News, 9/15/93, p. 46 (3911).*

9/20/93

The maiden test launch of the Polar Satellite Launch Vehicle (PSLV) from Sriharikota ends in failure, which is attributed to an alteration in the booster's pitch altitude during second stage separation. As a result of the alteration the third stage was 75 km lower than expected at cut-off and the fourth stage was unable to reach orbital velocity despite its ignition on schedule. Onboard computers and the third-stage motor's flex nozzle failed to correct the deviation, and the vehicle plunged into the Indian Ocean, 1,700 km from Sriharikota. As a result of the failure, the next test launch will be delayed by at least two years.

*Patriot (New Delhi), 9/22/93 (3720). Andrew Lawler and Vivek Raghuvanshi, Space News, 9/27/93, pp. 1, 28 (3889). Tim Furniss, Flight International, 10/13/93, p. 24 (3720). Raj Chengappa, India Today, 10/15/93, pp. 40-44 (3889). Flight International, 1/12/94, p. 19 (3889).*

10/93

It is reported that Indian scientists at the Vikram Sarabhai Space Center (VSSC) developed a fuel-rich propellant made from natural rubber for use with futuristic ramjet rockets.

*Hindu (Madras), 10/6/93, p. 19; in JPRS-TND-93-038, 12/29/93, p. 21 (3925).*

10/4/93

Indian Defense Ministry sources say that Russia is offering advanced air defense systems and air-to-surface cruise missiles for export to India and other Asian countries.

*Vivek Raghuvanshi, Defense News, 10/11/93, p. 11 (3846).*

10/20/93

A CIA report states that India is capable of building an ICBM. This conclusion is based on the fact that India has shown

the ability to build two key components (guidance sets and warheads) that can convert a space launch vehicle (SLV) into a ballistic missile. The Augmented Satellite Launch Vehicle (ASLV) can be converted into an intermediate-range ballistic missile using a warhead based on the Agni design and the ASLV's guidance system. It is also technically possible to use the Polar Satellite Launch Vehicle (PSLV) to create an ICBM. This would require designing a warhead for the PSLV that was capable of handling ICBM reentry conditions. The propulsion and guidance technology used by the PSLV can be used to design a new IRBM or ICBM. A major drawback for the Indian SLV conversion to ballistic missiles is the lack of extensive fixed launch sites. There is currently only one fixed launch site in India--located at the Sri-Harikota launch facility--for both the ASLV and the PSLV.

*Observer of Business and Politics (Bombay); in Asian Recorder, 11/12/93, p. 23539 (3912).*

#### 11/9/93

India successfully test-fires a new 217-mile range Prithvi missile (earlier versions of which have been deployed along the border with Pakistan since 5/93) into the Bay of Bengal from a mobile launcher on the coast of the southeastern state of Orissa. It is the second test of the extended-range Prithvi since 6/93, and the first test from a mobile launcher. Two versions of Prithvi tactical ballistic missile, both of which are reportedly nuclear-capable, had been developed previously: one with a 155 mile range and one with a range of 93 miles.

*UPI, 11/30/93 (3725).*

#### 11/12/93

India officially launches the Nashak, the third missile boat in a series of fast missile boats domestically built by Mazagon Dock Limited (MDL). The boats were built using technology from the former Soviet Union.

*The Times of India (Bombay), 12/13/93, p. 5; in JPRS-TND-93-038, 12/29/93, p. 22 (3971).*

#### 11/16/93

A Indian official announces that the Agni missile will be test-fired between 1/4/94 and 1/14/94 from the coastline of the southeastern state of Orissa, despite U.S. pressure to suspend the Agni program.

*UPI, 12/16/93 (3723).*

#### 11/18/93

Bharat Dynamics Limited (BDL), an Indian Central Government enterprise involved in the production of guided missiles, establishes the Institute for Systems Technology and Management at the BDL campus in Kanchanbagh. BDL develops missiles in collaboration with the Services and Research and Development Organizations. Vijai Kapoor, Secretary of Defence Production and Supplies, who inaugurated the Institute, states that the Institute will help upgrade and expand knowledge of guided missile systems, "which is a very crucial area in defence technology and defence preparedness." According to BDL Chairman and Managing Director, Air Commodore R. Gopalaswami, the Institute represents a "turning point in the history of missile development in India, bringing symbiotically together the technical and managerial personnel scattered all over the country and involve them in striving for greater achievements in design, production and usage of missile systems."

*Hindu (Madras), 11/20/93, p. 4; in JPRS-TND-93-038, 12/29/93, p. 23 (3855).*

#### 11/30/93

India conducts another successful launch of the indigenously developed medium-range Prithvi ballistic missile. The missile is fired from the Chandipur launch site at the uninhabited island of Tentuli Chadda in the Bay of Bengal. This is the Prithvi's twelfth test. According to former defense minister Sharad Pawar, the missile will be deployed in 1993-94. Military officials refuse to comment on a news report in the *Hindustan Times* in 5/93 about the deployment of the missile in northern Punjab next to the Pakistani border.

*All India Radio Network (Delhi), 11/27/93; in JPRS-TND-93-038, 12/29/93, p. 25 (3915). All India Radio Network (Delhi), 11/30/93; JPRS-TND-93-001, 1/6/94, p. 13 (3976). United Press International, 11/30/93 (3861). Reuter, 11/30/93; in Executive News Service, 11/30/93 (3891). *Khabrain (Islamabad), 12/4/93, p. 4; in JPRS-TND-93-001, 1/6/94, p. 13 (3976).**

#### 1/94

It is reported that the Indian Akash surface-to-air missile, currently undergoing developmental testing with the Defense Research and Development Organization (DRDO), will be marketed at international air shows. DRDO does not foresee any problems with exporting the Akash to Third World countries as it is considered a purely defensive system, and also does not fall under the MTCR, because it has less than a 300 km (186 mi) range. The Akash is to enter production in 1996-1997. Akash project manager, R.R. Prahlada states that expected customers for the system include Persian Gulf and Southeast Asian nations. The missile is expected to compete with Russian and U.S. missiles in the same category. Akash can be deployed against multiple aircraft and short-range ballistic missiles, and includes its own mobile generating system. According to Prahlada, the missile is probably the most mobile of such current systems, and "can be deployed in a variety of terrain and requires very little time to be ready for battle." The system weighs 660 kg (1,452 lbs), and has a range of 25 km (15.5 mi). The missile battery control center can simultaneously guide up to four batteries, each with three missiles. DRDO will be conducting final testing, user and production trials simultaneously during remainder of the missile's development phase. DRDO officials state that the development period will be cut from 20 to 10 years; three years of testing remain. Private and public industry, scientific institutions and over 50 Indian defense R&D labs were involved in the development of the Akash missile, which, according to Prahlada, has made it possible for the program to procure



components which were difficult to import.

Vivek Raghuvanshi, *Defense News*, 1/31/94, p. 10 (3762).

**1/7/94**

India postpones the third trial test of the Agni medium-range surface-to-surface missile due to a "technical snag" that occurs during the last phase of the countdown at the Interim Test Range at Chandipur in Orissa.

*All India Radio Network (Delhi)*, 1/7/94; in *JPRS-TND-93-003*, 1/31/94, p. 12 (3926).

**1/26/94**

India exhibits its Prithvi medium-range missile for the first time at the annual Republic Day Parade. The missile's jet nozzles are covered in order to conceal how accurate the missile is and how it is guided, according to one defense expert.

John-Thor Dahlburg, *Los Angeles Times*, 1/27/94, p. A8 (3973).

**1/30/94**

The Chief of the Air Staff, Air Chief Marshall S.K. Kaul, states that India will develop anti-missile systems in response to reports that Pakistan is developing such weapons. Kaul states that work has commenced on this type of missile system by the Defence Research and Development Organization (DRDO).

*Indian Express (Delhi)*, 12/17/93, p. 6; in *JPRS-TND-93-003*, 1/31/94, pp. 11-12 (3843).

#### INDIA WITH FRANCE

**11/16/93**

The Indian Space Research Organization (ISRO), and the French Space Agency, Centre National d'Etudes Spatiales (CNES), sign an agreement for cooperation in the field of exploration and utilization of outer space for peaceful use. The agreement is signed at the ISRO headquarters in Bangalore,

by ISRO chairman U.R. Rao and CNES President, Rene Pellat.

*India News*, 12/1/93, p. 1 (3713). *Space News*, 12/13/93, p. 17 (3722).

#### INDIA WITH ISRAEL

**9/93**

A fourteen member Israeli telecommunications and electronics delegation visits India. Nine of the delegates represent key defense corporations such as Israel Aircraft Industries (IAI), Tadiran, Rafael, the Armament Development Authority, Future Technology, Elbit Computers, El-op Electro-Optics Industries and Rada Electronics. The defense hardware and software produced by these corporations includes missiles, guided weapon systems, anti-missile systems, military electronics, fire control systems, and other sophisticated defense materials. India's Aeronautical Development Establishment (ADE), which is developing the Falcon remotely piloted vehicle (RPV), is considering collaboration with IAI. Additionally, IAI is discussing the supply of RPVs to India with the Indian Ministry of Defence.

*Jane's Defence Weekly*, 11/13/93, pp. 37-38 (3853).

#### INDIA WITH PAKISTAN

**11/11/93**

In an interview with *The Hindu*, Pakistani Prime Minister Benazir Bhutto notes that India's Prithvi and Agni missiles take "the Indian range [strike capabilities] right up from the [Persian] Gulf to the Straits of Malacca."

Malini Parthasarathy, *The Hindu*, 11/20/93, p. 4 (3697).

#### INDIA WITH PRC

**11/93**

India's Chief of Air-Staff, Air Chief Marshal Swaroop Krishna Kaul states that China will bear watching because of its deployment of high-tech weaponry, including nuclear and long-range

missiles--as a counterbalance to the cuts in its armed forces.

Rahul Bedi, *Jane's Defence Weekly*, 11/6/93, p. 56 (3862).

#### INDIA WITH RUSSIA

**7/15/93**

Russia agrees to scale down its sale of liquid-fueled rocket engines and technology to India, worth an estimated \$400 million, which India claims is only for use on civil space launchers. Russia may still sell some engines to India, but not the technology.

Andrew Lawler, *Defense News*, 9/6/93, p. 6 (3642).

**7/16/93**

The Indian Ambassador in Moscow is given a document by the Chief of the Directorate of International Scientific and Technical Cooperation of the Russian Ministry of Foreign Affairs, which states that, due to unforeseen circumstances, Glavkosmos will not be able to fulfill its obligations on the transfer of cryogenic engines and technology under the 1/91 agreement.

*Strategic Digest*, 11/93, pp. 1843-1844 (3979).

**9/93**

The agreement between Russia and India for the supply of rocket engine technology is suspended. India has already received 50 percent of the technical drawings from Russia, and will be able to slowly develop the technology itself. *PPNN Newsbrief*, Third Quarter, 1993, p. 6 (3572). H. K. Dua, *Hindustan Times*, (Delhi), 8/25/93, p. 13; in *JPRS-TND-93-030*, 9/27/93, p. 14 (3852). *Reuter*, 12/15/93; in *Executive News Service*, 12/15/93 (3649).

**10/4/93**

Indian Defense Ministry sources say that Russia is offering for export to India and other Asian countries advanced air defense systems and air-to-surface cruise missiles.

Vivek Raghuvanshi, *Defense News*, 10/11/93, p. 11 (3846).

**11/3/93**

An unnamed Indian space expert states that there is a chance that India will accept the cryogenic engines from Russia without the related production technology as most of the technology has already been delivered. Russia continued to give India the cryogenic engine technology until 11/1/93 when its obligation to abide by the MTCR went into effect. More than four-fifths of the production technology may already have been delivered by Glavkosmos to the Indian Space Research Organization. Vivek Raghuvanshi, *Space News*, 11/15/93, p.6 (3963).

**12/15/93**

A Russian Glavkosmos official states that a Glavkosmos delegation was in India for two weeks in an attempt to salvage a deal to sell the Indian Space Agency rocket engine technology. The official says, "We [Russia and India] corrected the agreement of the text to take into account the MTCR. . . . Some changes were made and will be presented to the government soon." Reuter, 12/15/93; in *Executive News Service*, 12/15/93 (3649).

**1/94**

The Director General of Russia's Space Agency, Yuri Koptev, states that Russia is continuing to cooperate with the Indian space program and is ready to conclude seven contracts with India's National Space Agency, which will include the supply of cryogenic boosters for India's Geostationary Satellite Launch Vehicles and a \$28 million contract for the manufacture and supply of equipment for servicing cryogenic booster systems. Even though Russia will not be supplying cryogenic booster technologies, Koptev states that the contract between Moscow and New Delhi remains at basically the amount agreed in the original 1991 contract: \$220 million, Dmitriy Voskoboinikov, Igor Porshnev and Vitaliy Trubetskoy, *Interfax (Moscow)*, 1/18/94; in *FBIS-SOV-94-012*, 1/19/94, p. 13 (3613).

**INDIA WITH UNITED STATES**

**7/93**

The U.S. and its close industrial allies ask the Indian government to refrain from further deployment of the Prithvi missile and to suspend the Agni missile program. UPI, 12/16/93 (3723).

**8/1/93**

It is reported that the U.S. firms Fiber Materials Inc. and Materials International will be tried in Boston on 9/28/93 for exporting, without a license, a production-sized hot isostatic press to India which could be used to produce carbon/carbon to coat missile and rocket tips. India's defence research department laboratory contracted with the U.S. firms in 1988. *Hindustan Times*, 8/1/93; in *Defence and Disarmament Review*, 11/93, p. 1892 (3730).

**8/27/93**

Indian Foreign Secretary J.N. Dixit states at a news conference in Washington, D.C. that the Prithvi and Agni missile programs had been a major topic of discussion during his two days of talks with U.S. officials. R. Chakrapani, *Hindu*, 9/4/93, p. 9 (3974).

**9/93**

During talks between India and the U.S. in Washington, India informs the U.S. that the Prithvi missile would not be deployed "imminently." Launch sites for the Prithvi are being prepared along the border with Pakistan. *Foreign Report*, 9/30/93 (3765).

**10/26/93**

A Pentagon intelligence official states that inexpensive, commercially available, GPS computer components could be installed in Iranian cruise missiles or be used to increase the accuracy of Chinese ballistic missiles. According to Pentagon intelligence officials, Chinese, Iranian and Indian military researchers are working to put U.S. navigation technology (such as GPS) in their

next-generation missiles. Lisa Burgess and Neil Munro, *Defense News*, 11/29/93, pp. 8, 10 (3644).

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**IRAN**

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**INTERNAL DEVELOPMENTS**

**12/93**

According to the commander of U.S. Naval Forces Central Command, Vice Admiral Douglas Katz, Iran's naval buildup may include purchase of Silkworm anti-ship missiles. According to U.S. military sources, Iran is attempting to improve the guidance system of the Silkworm to improve the missile's accuracy and resistance to electronic countermeasures. Philip Finnegan, *Defense News*, 12/6/93, pp. 1, 28 (3539). Philip Finnegan, Robert Holzer and Neil Munro, *Defense News*, 1/17/94, pp. 1, 29 (3539).

**12/93**

The International Institute for Strategic Studies in London reports that Iran has at least three Silkworm missile sites, with three to six missiles at each site. Philip Finnegan, Robert Holzer and Neil Munro, *Defense News*, 1/17/94, pp. 1, 29 (3539).

**IRAN WITH CZECH REPUBLIC**

**11/93**

During a visit to Iran, a Czech business delegation led by the General Director of Skoda Pilzen, Lubomir Soudek, reportedly offers to sell Iran weapons, including a new generation of anti-aircraft missiles. Jan Oberman, *RFE/RL News Briefs*, 1/10/94, pp. 19-20 (3651).

## IRAN WITH IRAQ

9/93

Some Arab and Kurdish opposition forces in London state that Iraq has sold large amounts of arms and ammunition to Iran, including missiles and chemical weapons, in exchange for foreign currency. Iraq also sent some of the weapons through Iran to Sudan.

*Voice of the Iraqi People*, 9/9/93; in *JPRS-TND-93-030*, 9/27/93 (3940).

## IRAN WITH NORTH KOREA

8/93

Israeli Prime Minister Yitzhak Rabin states that Russian aircraft probably delivered North Korean Scud-C missiles to Iran.

*AFP (Paris)*, 12/20/93; in *JPRS-TND-94-002*, 1/18/94, p. 14 (3553).

10/28/93

North Korea denies claims in the Western press that it intends to test a ballistic missile in Iran, stating, "It is inconceivable that the DPRK, making consistent efforts for world peace and security, intends to conduct a missile launching test in a far-off foreign country." The Islamic News Agency in Iran also denies these claims. The reports of the missile testing first appear in *Asharq al-Awsat*, a Saudi newspaper based in London, and indicate that a missile, believed to be Nodong-2, would probably be tested in the Lut desert in southeastern Iran in late 10/93 or 11/93.

*Kevin Rafferty*, *Guardian*, 10/26/93 (3533). *KCNA (Pyongyang)*, 10/28/93; in *JPRS-TND-93-035*, 11/10/93, p. 13 (3533).

11/12/93

South Korea's KBS-1 Radio cites the Russian newspaper *Izvestiya* as having reported that North Korea has provided Iran with the technology to manufacture Nodong-1 missiles in exchange for Western technology and equipment.

*KBS-1 Radio Network (Seoul)*, 11/12/93; in *JPRS-TND-993-037*, 12/8/93, p. 22 (3528).

11/13/93

An Iranian Defense Ministry source denies allegations made in the *Times* of London that Iran and Syria are co-producing sophisticated cruise missiles, and that Iran is financing the production of North Korean Scud missiles. The *Times* report that Iran and Syria intend to produce a nuclear- or chemical-capable missile is based on information originating from an international aerospace exhibition in Dubai.

*Reuter*, 11/13/93 (3544). *IRNA (Tehran)*, 11/13/93; in *JPRS-TND-93-037*, 12/8/93, p. 36 (3544).

12/93

Middle Eastern intelligence sources claim that Iran is expected to take delivery of North Korean Nodong IRBMs "within months." A full test of the missile is expected to take place under North Korean supervision in the southern Iranian desert by early 1994.

*Flight International*, 12/8/93, p. 14 (3517).

12/93

The North Korean Deputy Permanent Representative to the U.N., Ho Jong, says that North Korea never had any intention of selling missiles to Iran, stating, "There is no sale. It is entirely false."

*Christian Science Monitor*, 12/27/93, p. 4 (3529).

12/2/93

An "informed political source" in Tehran categorically denies Western press reports that a contract has been signed for North Korea to deliver long-range Scud missiles to Iran and test the Nodong-1 missile in Iran.

*IRNA (Tehran)*, 12/2/93; in *JPRS-TND-94-001*, 1/6/94, p. 38 (3596).

12/20/93

A statement by Israeli Air Force Intelligence Chief Colonel "A" is published, which says, "Iran will have [North] Korean Nodong missiles in a year which could be deployed in the west of the country and reach Israel." Colonel "A" further states, "There is no doubt that

Iran is trying to obtain the capacity to produce chemical and nuclear warheads," which could be delivered by the Nodong.

*AFP (Paris)*, 12/20/93; in *JPRS-TND-94-002*, 1/18/94, p. 14 (3553).

## IRAN WITH PRC

8/93

The Chinese ship Yin He, suspected of transporting chemicals to Iran, is intercepted "with the consent and cooperation of the Chinese government," according to U.S. Deputy Secretary of State for Nonproliferation Robert Einhorn.

*Neil Munro and Barbara Opall*, *Defense News*, 1/24/94, pp. 6, 37 (3564).

1/94

A senior Pentagon official says that Iran would like to acquire the 120 km range C-801 sea-skimming missile, and is negotiating the purchase of the EM52 rocket-propelled anti-ship mine. Iran is currently taking delivery of ten 29-m missile boats from China.

*Philip Finnegan, Robert Holzer and Neil Munro*, *Defense News*, 1/17/94, pp. 1, 29 (3539).

## IRAN WITH SYRIA

11/13/93

An Iranian Defense Ministry source denies allegations made in the *Times* of London that Iran and Syria are co-producing sophisticated cruise missiles, and that Iran is financing the production of North Korean Scud missiles. The *Times* report that Iran and Syria intend to produce a nuclear- or chemical-capable missile is based on information originating from an international aerospace exhibition in Dubai.

*Reuter*, 11/13/93 (3544). *IRNA (Tehran)*, 11/13/93; in *JPRS-TND-93-037*, 12/8/93, p. 36 (3544).

12/93

Reports from Teheran say that Syria and Iran are working on a new joint cruise missile development program which

utilizes Chinese and North Korean technology. The program is reportedly centered around Iran's Ministry of Heavy Industries factories and is incorporating imported technology from Germany and other European countries.

*Jane's Defence Weekly*, 12/11/93, p. 18 (3505).

## IRAN WITH UKRAINE

1992

Iran purchases eight SS-N-22 Sunburn supersonic anti-ship missiles for \$600,000 each from Ukraine.

*James Kraska*, *Defense News*, 10/4/93, pp. 25-26 (3562).

12/93

It is reported that the U.S. State Department urged Ukraine to show restraint in weapons trade, and warned Ukraine particularly about selling arms to Iran. The U.S. government accuses Ukraine of violating the MTCR, and of selling missiles to Iran. Experts believe that any deals between Ukraine and Iran would have involved a trade of weapons for oil. Ukraine says that no contracts of this kind have been concluded.

*Aleksandr Sychev*, *Izvestiya* (Moscow), 12/14/93, p. 3 (3774).

12/21/93

Ukrainian arms negotiator Borys Tarasyuk denies western media allegations that Ukraine has sold several tactical missiles to Iran, stating that Ukraine would never trade in weapons with countries under U.N. sanctions such as Yugoslavia, Libya, Iraq and South Africa.

*Reuter*, 12/22/93; in *Executive News Service*, 12/23/93 (3825).

## IRAN WITH UNITED STATES

10/26/93

A Pentagon intelligence official states that inexpensive, commercially available, GPS computer components could be installed in Iranian cruise missiles or be used to increase the accuracy of

Chinese ballistic missiles. According to Pentagon intelligence officials, Chinese, Iranian and Indian military researchers are working to put U.S. navigation technology (such as GPS) in their next-generation missiles.

*Lisa Burgess and Neil Munro*, *Defense News*, 11/29/93, pp. 8, 10 (3644).

## IRAQ

### INTERNAL DEVELOPMENTS

11/93

It is reported that Iraq has rebuilt 80 percent of its weapons plants, many of which were converted to produce weapons not banned by the U.N. cease fire agreement, such as ballistic missiles with ranges of less than 93 miles.

*Wall Street Journal Europe*, 11/15/93; in *International Security Digest*, 12/93 (3512).

11/8/93

Iraqi "specialized" army units carry out military exercises that include the firing of surface-to-surface missiles for the first time since the end of the Gulf War in 2/91. According to Iraqi news reports, Iraqi Defense Minister Staff General Ali Hasan al-Majid witnessed the maneuvers, code-named "Fatal Blow," which took place outside the city of Karbala, approximately 110 km southwest of Baghdad. Iraqi television showed approximately 14 missiles, six to seven meters long, fired from mobile launchers during the exercises; the missiles were reportedly named al-Ra'd [Thunder] and al-Tariq [Striker]. Iraqi newspapers added that the missiles struck their targets with "high precision" and accuracy.

*Babil* (Baghdad), 11/10/93, p. 2; in *JPRS-TND-93-038*, 12/29/93, pp. 29-30 (3669).

1/94

U.S. officials believe that Iraq may have as many as 20 Al-Husayn missiles hidden in bunkers. According to allied intelligence and Iraqi officials, Iraq's armed forces have again become the fourth largest in the world, despite nearly three years of U.N. sanctions.

*Jim Anderson*, *Washington Times*, 1/19/94, p. A19 (3511).

## IRAQ WITH ARGENTINA

11/93

The Argentine Defense Ministry confirms that U.N. weapons inspectors discovered two Condor-2 missile engines in Iraq and that Argentina delivered Condor "elements" to Iraq via Egypt prior to the 1991 Gulf War. The two engines were built at Argentina's Falda del Carmen plant. The ministry also confirms that factories in Iraq and Egypt were "twin sisters" of the Falda del Carmen plant. Argentine Defense Minister Oscar Camilion denies Argentine involvement, and states that "there has not been any transfer of Argentinean technology to Iraq, as the technology in question was fundamentally German." Camilion also denies that experts from Argentina worked with Iraq as part of a contract between the two countries. There is no confirmation that Iraqi technicians participated in the project as well.

*International Defence Review*, 11/93, p. 842 (3677).

## IRAQ WITH IRAN

9/93

Some Arab and Kurdish opposition forces in London state that Iraq has sold large amounts of arms and ammunition to Iran, including missiles and chemical weapons, in exchange for foreign currency. Iraq also sent some of the weapons through Iran to Sudan.

*Voice of the Iraqi People*, 9/9/93; in *JPRS-TND-93-030*, 9/27/93 (3940).

**IRAQ WITH MULTI-COUNTRY GROUP**

**12/28/93**

German and Saudi inspectors confiscate over one hundred barrels of ammonium perchlorate from a German-registered ship docked in Jeddah, Saudi Arabia that was bound for Beirut, Lebanon from Hung Fu, China. Ultimately, the ammonium perchlorate, which is used in missile fuel, was to go to Iraq.

*Reuter, 1/24/94; in Executive News Service, 1/24/94 (3648). Michael Evens, Times, 1/27/94 (3698).*

**IRAQ WITH SUDAN**

**9/93**

Arab and Kurdish opposition forces in London state that Iraq has sold large amounts of arms and ammunition to Iran, including missiles and chemical weapons, in exchange for foreign currency. Iraq also sent some of the weapons through Iran to Sudan.

*Voice of the Iraqi People, 9/9/93; in JPRS-TND-93-030, 9/27/93 (3940).*

**12/93**

"Specially informed" Sudanese sources in the eastern region stated that the large number of Iraqis who have moved into the area of the Red Sea mountain range are not oil prospectors but experts in missiles, defense systems, aircraft and radars. Iraqis have been reported in Madabay in Khawr Ashraf, Port Sudan, in the region of Dalawat on the Red Sea near Hala'ib, and the city of Tawker in region of Karnakanat.

*Al-Wafid (Cairo), 12/26/93, p. 9; in JPRS-TND-93-003, 1/31/94, p. 17 (3610).*

**IRAQ WITH UNITED NATIONS**

**8/93**

The U.N. installs cameras at the Al-Rafah and Al-Yawm missile test facilities outside Baghdad.

*Abbas Salman, Reuter, 9/27/93; in Executive News Service, 9/29/93 (3704).*

**9/93**

The Director of Iraq's military industrialization corporation, General Amer Mohammed Rashid, leads a high-ranking team of Iraqi officials in discussions with the U.N. in New York. The discussions, which are expected to continue until 9/9/93, are a first step toward an agreement on removing the three-year-old embargo prohibiting the sale of Iraqi oil.

*Paul Lewis, New York Times, 9/6/93, p. 2 (3549).*

**9/93**

UNSCOM Chairman Rolf Ekeus releases a report stating that there has been progress in arms talks but that Iraq is still withholding information about its weapons programs and still needs to accept the U.N. long-term monitoring plan.

*Reuter, 9/23/93; in Executive News Service, 9/24/93 (3715).*

**9/20/93**

The U.N. Security Council decides to continue its sanctions against Iraq. UNSCOM Chairman Rolf Ekeus states that he will not return to Iraq unless Iraq agrees to activate surveillance cameras installed at two missile sites. He also states that it would be six months after Iraq agrees to long term monitoring of its ballistic missile, nuclear, chemical and biological programs before UNSCOM will be able to determine Iraqi compliance with U.N. resolutions.

*Evelyn Leopold, Reuter, 9/20/93; in Executive News Service, 9/21/93 (3518).*

**9/23/93**

Iraq's Ambassador Nizar Hamdoon states that Iraq agrees to allow U.N. surveillance cameras to be turned on at two missile sites, making it possible to resume critical arms talks. Ambassador Hamdoon says that the decision was "a sign of good will." U.N. surveillance cameras were installed in 8/93, but were not activated because Iraq first wanted the U.N. to review Iraqi progress in destroying its weapons of mass destruction.

*Reuter, 9/23/93; in Executive News Service, 9/24/93 (3715). Washington Times, 9/24/93, p. A7 (3715). Evelyn Leopold, Reuter, 9/24/93; in Executive News Service, 9/24/93 (3715).*

**9/26/93**

U.N. inspectors reactivate six cameras that were installed at the Al-Rafah and the Al-Yawm missile test facilities outside Baghdad. The pictures are being received at a U.N. office in Baghdad.

*Abbas Salman, Reuter, 9/27/93; in Executive News Service, 9/29/93 (3704). Washington Times, 9/27/93, p. A13 (3715).*

**9/27/93**

A U.N. inspection team of more than 50 inspectors, the largest team thus far, leaves for Iraq to conduct inspections of Iraqi weapons facilities. The inspection team is led by Nikita Smidovich. During the inspection, which lasts nearly a month, the team finds "no evidence of missiles and other military equipment banned by the ceasefire resolution." However, the team gives proof to UNSCOM head Rolf Ekeus that Iraq has been concealing information about its weapons production, capabilities, and hidden facilities since the end of the Gulf War. The U.N. maintains that Iraq must reveal information pertaining to possible Scud missiles believed to be hidden. The team also states that insufficient progress has been made with the program for the long-term monitoring of Iraq's future weapons production.

*Leon Barkho, Reuter, 10/25/93 (3508). Andrew Finkel, Times, 10/9/93 (3923). AFP (Paris), 11/9/93; in FBIS-NES-93-216, 11/10/93, p. 24 (3669). Babil (Baghdad), 11/10/93, p. 2; in JPRS-TND-93-038, 12/29/93, pp. 29-30 (3669). Abbas Salman, Reuter, 9/27/93; in Executive News Service, 9/29/93 (3704).*

**9/30/93**

UNSCOM head Rolf Ekeus is scheduled to arrive in Iraq for the latest round of arms-related talks, and is to discuss the overflight plan for monitoring Iraqi compliance with U.N. disarmament resolutions. Ekeus states, "We're starting a very comprehensive and intensive program of overflights across the entire country, with new planes, new helicopters and new sensors being brought in

during the first days of October." Ekeus says that Iraq must reveal the suppliers to its missile and chemical weapons programs, but Iraq has not yet done so. Ekeus states, "The weapons themselves came largely from the Eastern bloc, such as the Soviet Union. But the production equipment is of a higher quality, and it seems likely some of it comes from Western suppliers."

*Annika Savill, Independent, 9/29/93 (3927).*

### 10/8/93

On the last day of an eight-day trip by UNSCOM chairman Rolf Ekeus, the Iraqi government releases to the U.N. information about arms suppliers who contributed to its stockpile of weapons. This action brings Iraq closer to complying with U.N. requests to provide information concerning Iraq's weapons procurement process. Ekeus states, however, that "...it is not a matter of full compliance at this stage." Ekeus says that more must still be done to get a clear picture of Iraq's missile, chemical, and biological programs, and comments that he is not sure that the list is complete.

*Leon Barkho, Reuter, 10/8/93; in Executive News Service, 10/8/93 (3548). Washington Times, 10/9/93, p. A7 (3548). International Herald Tribune, 10/9/93 (3661).*

### 10/15/93

A U.N. document raises the possibility that Iraq could resume the sale of oil sooner than expected because it is moving closer to compliance with Security Council resolutions. UNSCOM head Rolf Ekeus states that "substantial progress" has been made in getting Iraq to supply the commission with information about its long-range missile, chemical and biological weapons programs.

*James Tanner, Wall Street Journal, 10/18/93, p. C12 (3658).*

### 10/25/93

A senior U.N. official states that Iraq is close to complying with Security Council Resolutions that call for the destruction of its ballistic weapons.

*Leon Barkho, Reuter, 10/25/93 (3508).*

### 11/10/93

UNSCOM releases a report stating that Iraq must agree to the long-term monitoring program before any further progress can be made and that U.N. officials are expecting Iraq to agree to the monitoring plan when Iraq's deputy prime minister, Tariq Aziz, arrives in New York on 11/22/93 for arms-related talks. The new weapons discussions are focussing on filling the gaps that still remain regarding Iraq's chemical, biological, and missile and nuclear weapons programs; however, U.N. officials are relatively more satisfied with the information concerning ballistic missile and nuclear weapons programs.

*Evelyn Leopold, Reuter, 11/10/93 (3546).*

### 11/18/93

The U.N. Security Council decides to maintain its three-year-old sanctions against Iraq, having determined that Iraq has not yet met the conditions necessary to justify lifting or altering the ban. None of the 15 Security Council members objects to the decision, which was reached after a regular 60-day UN review of the sanctions, but French Ambassador Jean-Bernard Merimee states that Iraq should be allowed to sell oil once it has complied with the U.N. cease-fire resolution that links weapons demands and oil sanctions. U.S. Ambassador Madeleine Albright accuses Iraq of "non-cooperation, subterfuge, and dubious promises," with regard to Iraq's compliance with U.N. resolutions. Regarding Iraq's recent disclosures of weapons data, Albright says "simply put Iraq continues to cheat, only the tactics have changed."

*Evelyn Leopold, Reuter, 11/18/93 (3717).*

### 11/26/93

Iraq agrees to accept U.N. long-term monitoring, a process which is intended to prevent the production of weapons of mass destruction. UNSCOM Chairman Rolf Ekeus says it will take up to six months to test any long-term monitoring system before it can become fully operational. Ekeus says that Iraq's ac-

ceptance of long-term monitoring as defined in U.N. Resolution 715 could constitute a "major breakthrough."

*Paul Lewis, New York Times, 11/27/93, pp. 1, 5 (3780). Trevor Rowe, Washington Post, 11/27/93, p. A20 (3780). Anthony Goodman, Washington Times, 11/27/93, pp. A1, A12 (3780). New York Times, 1/31/94, p. A4 (3716). Disarmament Bulletin, Winter 93/94, pp. 12-13 (3694).*

### 12/1/93

The United Nations issues a report stating that Iraq's recent acceptance of long-term monitoring removed the primary barrier toward meeting U.N. weapon demands. The UNSCOM stated that it would not be satisfied until it verified data on Iraq's chemical weapons and implemented a monitoring program.

*Washington Times, 12/2/93, p. A11 (3693). Lucia Mouat, Christian Science Monitor, 12/3/93, p. 6 (3676).*

### 1/30/94

U.N. weapons inspector Nikita Smidovich states that the monitoring of Iraq's missile production will be "unprecedented," and that it will use television cameras, factory inspections, and monitoring sensors. Smidovich is the head of a U.N. monitoring team of 16 weapons specialists just returning from a week in Baghdad.

*New York Times, 1/31/94, p. A4 (3716).*

## IRAQ WITH YUGOSLAVIA

### 12/93

The former Chief of the Yugoslavian General Staff, General Zivota Panic, states that within the next five years, Yugoslavia will develop 600 km and 1000 km missiles at the Military Technical College in Belgrade. The estimated cost of the project is \$100 million, and it will include parts from Iraq and North Korea.

*Milan Vego, Jane's Intelligence Review, 12/93, pp. 541-546 (3968).*

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## ISRAEL

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### INTERNAL DEVELOPMENTS

**7/93**

Israel aborts a test of the Arrow ATBM when the target, another Arrow missile, veers off course and has to be destroyed. In 10/93, Israel will conduct a proof of concept test of the Arrow's ability to lock on to an incoming ballistic missile with a simulated chemical warhead.

*Flight International*, 9/22/93, p. 6 (3787).

**9/8/93**

NBC News reports that there are camouflaged missile bunkers in Galilee containing Jericho-1 and -2 missiles. The Jericho-1 and -2 missiles have ranges of 288 miles and 900 miles respectively. The report also states that Israel is developing and testing missile systems with even longer ranges.

*Reuter*, 9/8/93 (3597). David A. Fulghum and Jeffrey M. Lenorovitz, *Aviation Week & Space Technology*, 11/8/93, p. 29 (3597).

**10/93**

According to the *Jerusalem Post*, Israel has embarked on a five-year secret project, which began in fiscal year 1993, to develop and deploy an ATBM system that would combine the U.S.-Israeli Arrow missile with a purely Israeli fire-control and early warning radar and test bed. This move was prompted by Israeli concern over Iranian acquisition of the North Korean Nodong missile and Syria's deployment of North Korean Scud-C missiles.

Steve Rodan, *Jerusalem Post*, 10/6/93, pp. 1-2; in JPRS-TND-93-034, 10/27/93, pp. 29-30 (3786).

**10/14/93**

In the sixth test of the system, an Arrow ATBM locks on to and passes within 2 to 10 m (reports vary) its target, but the warhead fails to detonate

due to a suspected proximity fuse malfunction. The target, a second Arrow missile, carries a simulated chemical warhead. Both missiles are fired from an Israeli naval vessel anchored 10 km from the Palmachim testing range. This test follows a failed test in 6/93 when the target missile failed to come within range, and another test was scrubbed in 8/93 when the target missile veered off course. Another chemical warhead interception test is expected in 2/94.

Bradley Burston, *Reuter*, 10/17/93; in *Executive News Service*, 10/19/93 (3561). *Flight International*, 10/27/93, p. 17 (3561). *Jane's Defence Weekly*, 10/30/93, p. 10 (3561).

**11/93**

U.S. government officials confirm the existence of underground launch facilities for the nuclear-capable Jericho-1 and Jericho-2 missiles 14 miles west of Jerusalem. The facilities consist of a bunker storage area, a road network, and caves used as prelaunch preparation sites. French and Russian satellite photographs indicate that the facility was expanded between 1989 and 1993 to accommodate the newer Jericho-2 missile. Israel's nuclear force, which could include about 50 Jericho-1 missiles (288 mi range), is being supplemented with approximately 50 Jericho-2 (900 mi range) missiles. The Jericho missiles are believed to be built at the Be'er Yaakov missile factory north of the missile site.

David A. Fulghum and Jeffrey M. Lenorovitz, *Aviation Week & Space Technology*, 11/8/93, p. 29 (3597).

**11/93**

According to the Egyptian newspaper *Al-Sha'b*, Israel, after four months of preparation, conducts its second nuclear test of 1993, at a cost of \$30 million. The test focussed on experiments with new short-range nuclear missiles and other "technological weapons." The test also checked the efficiency of three secret bases that control the launch of nuclear missiles.

Mahmud Bakri, *Al-Sha'b* (Cairo); in JPRS-TND-93-038, 12/29/93, p. 33 (3789).

### ISRAEL WITH CHILE

**10/21/93**

A test of the Barak point-defense missile is conducted from a missile patrol boat in which the missile passes within "kill distance" of its target, a Gabriel sea-skimming missile. According to one program source this "proved the missile's capability to intercept sea-skimming missiles under severe conditions." The Barak program was initiated in 1979 for the Israeli and Chilean navies, and is being jointly developed by Rafael and IAI subsidiary Elta, the former working on the missile itself and the latter on the radar system.

*Flight International*, 11/3/93, p. 18 (3560). *IDF Radio* (Tel Aviv), 11/3/93; in FBIS-NES-93-211, 11/3/93, p. 48 (3560). *Jane's Defence Weekly*, 11/6/93, p. 7 (3560).

### ISRAEL WITH INDIA

**9/93**

A fourteen member Israeli telecommunications and electronics delegation visits India. Nine of the delegates represent key defense corporations such as Israel Aircraft Industries (IAI), Tadiran, Rafael, the Armament Development Authority, Future Technology, Elbit Computers, El-op Electro-Optics Industries and Rada Electronics. The defense hardware and software produced by these corporations includes missiles, guided weapon systems, anti-missile systems, military electronics, fire control systems, and other sophisticated defense materials. India's Aeronautical Development Establishment (ADE), which is developing the Falcon remotely piloted vehicle (RPV), is considering collaboration with IAI. Additionally, IAI is discussing the supply of RPVs to India with the Indian Ministry of Defence.

*Jane's Defence Weekly*, 11/13/93, pp. 37-38 (3853).

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**ISRAEL WITH NORTH KOREA**

**6/25/93**

In Beijing, Israeli Foreign Ministry deputy director Eitan Bentsur meets with North Korean officials in an attempt to dissuade them from providing Iran with 150 Nodong-1 missiles in exchange for oil and cash. The meeting reportedly ends with the North Koreans demanding cash payments from Israel to stop the sale.

*Reuter, 8/17/93; in US-Korea Review, 9/93, p. 3 (3583). Jon B. Wolfsthal, Arms Control Today, 9/93, p. 24 (3583).*

**8/16/93**

At the behest of the U.S., Israeli Prime Minister Yitzhak Rabin announces that Israel will break off discussions with North Korea which are designed to halt the sale of Pyongyang's missiles to the Middle East.

*Reuter, 8/17/93; in US-Korea Review, 9/93, p. 3 (3583). Jon B. Wolfsthal, Arms Control Today, 9/93, p. 24 (3583).*

**ISRAEL WITH PRC**

**5/93**

Israeli Foreign Minister Shimon Peres is assured by China that China will not sell missiles in the Middle East. Israel may have been using the U.S. deals with South Africa and Argentina, in which nuclear and missile projects were bought or bartered away, as a nonproliferation model.

*Reuter, 8/17/93; in US-Korea Review, 9/93, p. 3 (3583).*

**10/93**

The CIA asserts that Israel has sold China advanced military equipment worth perhaps "several billion dollars" over the past ten years. U.S. intelligence experts are increasingly concerned that China is attempting to use Israel as a conduit for acquiring Western military technology that it has been unable to procure directly. The CIA reports that Israel continues to sell military technology to China despite west-

ern concerns that China may re-export it to countries such as Pakistan and Iran.

*Michael R. Gordon, New York Times, 10/12/93, pp. A1, A6 (3784). Washington Times, 10/12/93, p. A10 (3784). Michael R. Gordon, New York Times, 10/13/93, p. A7 (3784). Patrick Cockburn, Independent, 10/13/93 (3784).*

**10/13/93**

Israeli Prime Minister Yitzhak Rabin, in his first visit to China, rejects as "total nonsense" a CIA report that Israel had sold to China several billion dollars in arms and military technology, some of U.S. origin and some that may have assisted China in the improvement of offensive and defensive missiles. Israel's assistance in Chinese military modernization is an attempt to encourage China not to sell ballistic missiles in the Middle East to countries like Syria and Iran. According to a Rand Corporation report, Israel assisted China in the development of SAMs, AAMs, and an intermediate-range missile.

*Patrick E. Tyler, New York Times Service, 10/14/93; in International Herald Tribune, 10/14/93 (3785). Tony Walker, Financial Times, 10/14/93 (3785). Patrick E. Tyler, New York Times, 10/14/93, p. A3 (3785).*

**ISRAEL WITH UNITED STATES**

**11/12/93**

In a meeting with U.S. President Bill Clinton, Israeli Prime Minister Yitzhak Rabin raises the issue of transferring supercomputers to Israel. The computers could assist in the development of nuclear and ballistic missiles, or be used to process information from satellite and missile operations.

*Barbara Opall, Defense News, 11/15/93, pp. 1, 29 (3788).*

**12/93**

It is reported that Israel wants to purchase nine Multiple Launch Rocket Systems, six M577 command post carriers and 216 tactical rocket pods from the U.S. The items are worth a total of \$97 million.

*Jane's Defense Weekly, 12/93, p. 9 (3908).*

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**ITALY**

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**ITALY WITH PAKISTAN**

**10/93**

An Italian team visits Islamabad and attempts to sell a missile system [designation not provided] to Pakistan.

*Edward A. Gargan, New York Times International, 10/21/93 (3721).*

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**JAPAN**

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**INTERNAL DEVELOPMENTS**

**9/29/93**

Japan's administrative vice defense minister, Shigeru Hatakeyama, says that the proposed joint development of the Theater Missile Defense system with the U.S. would not violate Japanese law.

*Barbara Opall and Naoaki Usui, Defense News, 10/4/93, p. 3 (3746).*

**10/4/93**

Japan's Prime Minister Hosokawa calls for a Cabinet debate to consider the U.S. proposal to jointly develop the TMD system which would use satellite radar and other electronic systems to detect missile launches and destroy them before they reached their targets.

*UPI, 10/4/93; in NNN News, 10/4/93 (3803).*

**10/6/93**

Japanese Defense Agency Director General Keisuke Nakanishi tells the budget committee of the Lower House of parliament that Japan has "no capability" to counter North Korean missiles.

*Masaru Sato, Reuter, 10/6/93 (3803).*



10/21/93

Japan's Social Democratic Party formally opposes the inclusion of Patriot surface-to-air missiles, costing \$329 million, in the 1994 defense budget, noting that Japan is unable to afford them and that the Cold War has ended. However, it remains unclear whether the party will vote against Prime Minister Hosokawa's budget.

*Defense News*, 10/25/93, p. 2 (3746).

1/94

It is reported that before 3/94, Japan is expected to order the first batch of XASM-2 air-launched anti-ship missiles to equip its interceptors and close-air-support fighters. Having reached the first stage of its missile modernization program, the Technical Research and Development Institute (TRDI) of the Japanese Defense Agency and Mitsubishi Heavy Industries has finished development of the XASM-2, which is designated the Type 93 air-launched anti-ship missile and will replace the Type 80 (ASM-1) currently in service. The Type 93, which has been under development since 1988, uses an infrared image homing system built by Fujitsu, and has a 100 km range using a turbojet powerplant. TRDI development programs include the following: for the navy, the Type 90 SSM-1B, an ship-to-ship version of the turbojet powered Type 88 (SSM-1) land-based anti-ship cruise missile; for the Japanese P-3C force, the Type 91 air-launched anti-ship version built by Lockheed and Kawasaki, which was adapted from the Type 80; the next development is the XSSM-2, an improved Type 88; and an advanced radar-homing air-to-air missile and medium-range surface-to-surface missile is to replace the Hawk and Sparrow missile currently in service. Once these development programs are complete, all of Japan's missiles will be indigenously produced except for its Patriot surface-to-air missiles.

*Aviation Week & Space Technology*, 1/10/94, p. 60 (3749).

1/94

Japanese military analyst Haruo Fujii says that Japan's space rockets, such as the H-2, could be converted for military use. In Japan's annual "Defense of Japan" white paper, the defense ministry states that the Self-Defense Forces cannot possess ICBMs. On 2/1/94, the H-2 will undergo its first test flight.

*Eugene Moosa, Reuter*, 1/31/94 (3931).

#### JAPAN WITH GERMANY

11/93

It is reported that, in 8/94, German and Japanese researchers will conduct several tests at Japan's Kagoshima Space Center using a small Japanese sounding rocket, the M3S-2, manufactured by the Nissan Motor Co., and a German retrievable capsule. One experiment will collect data on how to control a rocket's trajectory when reentering the atmosphere.

*Space News*, 11/15/93, p. 16 (3929).

#### JAPAN WITH NORTH KOREA

10/93

Japanese military officials question whether North Korea's Nodong-1 missile poses a potential threat. The officials point out that North Korea's defense production plants operate at only 40 to 50 percent of capacity, which might not provide the technical and industrial capability necessary to develop such a missile.

*Aviation Week & Space Technology*, 10/18/93, p. 101 (3865).

12/15/93

The director of the Modern Korea Institute, Katsumi Sato, states that Chongryun, the 150,000 member (pro-North Korean) General Association of Korean Residents in Japan, has exported "key high-tech components North Korea needs for its war machine," and adds that Institute analysis shows that North Korea is "now trying to downsize a mis-

sile warhead, so that the Nodong-1 missile could deliver a nuclear bomb to Japan." Tsutomu Nishioka, editor of the Institutes monthly news magazine, notes that 60 billion Yen worth of remittances are sent to North Korea annually, a figure that dwarfs the North Korean budget of 35 billion Won. Nishioka adds that "although a ban on cash gifts to North Korean relatives may raise humanitarian problems, to prevent North Korea from developing a nuclear missile should take precedence, as a nuclear attack would snuff out so many people."

*Kyodo (Tokyo)*, 12/15/93; in *JPRS-TND-94-002*, 1/18/94, p. 5 (3559).

1/14/94

Japanese police raid NEC affiliate Anritsu Corp., and two other companies, on suspicion of having sold spectrum analyzers, which could be used to improve missile guidance systems, to North Korea in 1989. One of the other two companies raided, Yokohama Machinery Trading Co., is suspected of having exported three spectrum analyzers in 1989 to North Korea via China. North Korea denies the allegations saying that the spectrum analyzers are used in television communication.

*David E. Sanger, New York Times*, 1/14/94, p. 5 (3747). *Terry McCarthy, Independent*, 1/15/94 (3532). *Reuter*, 1/15/94 (3747). *Michiyo Nakamoto, Financial Times*, 1/15/94, p. 3 (3747). *Jathon Sapsford and David P. Hamilton, Wall Street Journal*, 1/17/94, p. A6 (3747). *Radio Moscow*, 1/19/94; in *FBIS-SOV-94-014*, 1/21/94, p. 19 (3532). *International Herald Tribune*, 1/20/94 (3532). *Naoaki Usui, Defense News*, 1/24/94, p. 26 (3747).

1/18/94

Japanese Foreign Ministry press secretary, Teruhiko Terado, states that the likelihood that Japanese signal analyzers were "used for the [North Korean] Nodong missile is very low."

*Naoaki Usui, Defense News*, 1/24/94, p. 26 (3747).

**JAPAN WITH PRC**

**12/20/93**

The Director of China's Department of Asian Affairs of the Foreign Ministry, Wang Yingfang, and the Director General of Japan's Asian Affairs Bureau, Tadashi Ikeda, hold talks on mutual security concerns in which Yingfang reveals that China "refused sales" of M-11 missile technology to Pakistan.

*Kyodo (Tokyo), 12/20/93; in JPRS-TND-94-002, 1/18/94, p. 42 (3955).*

**JAPAN WITH SOUTH KOREA**

**9/17/93**

Japanese Defense Agency Director General Keisuke Nakanishi and South Korean Air Force Chief of Staff General Cho Kun-hae agree on the need to promote cooperation between their countries and with the U.S. against suspected North Korean long-range missile and nuclear developments.

*Kyodo (Tokyo), 9/17/93; in FBIS-EAS-93-179, 9/17/93, p. 6 (3584).*

**JAPAN WITH UNITED STATES**

**8/1/93-8/3/93**

U.S. Undersecretary of Defense for Policy Frank Wisner and Japanese Defense Minister Keisuke Nakanishi discuss theater missile defenses as a means of protecting Japan from North Korea's Nodong-1 and other IRBMs.

*Vago Muradian, Defense News, 9/20/93, pp. 1, 29 (3967).*

**9/93**

Japanese officials visit the Lockheed corporation in order to be briefed on the Theater High Altitude Area Defense (THAAD).

*BMD Monitor, 10/8/93, pp. 265-266 (3803).*

**9/93**

U.S. Pentagon acquisition chief, John Deutch, and U.S. Army Major General and acting Ballistic Missile Defense Organization director, Malcolm O'Neill, discuss the TMD proposal with Japanese officials.

*BMD Monitor, 10/8/93, pp. 265-266 (3803).*

**9/8/93**

Japanese Defense Minister Keisuke Nakanishi says that Japan is studying the feasibility of jointly developing a Theater Missile Defense (TMD) system with the U.S., which could counter potential North Korean attacks.

*Reuter, 9/8/93 (3801). Washington Times, 9/9/93, p. A2 (3801). Reuter, 9/20/93 (3801). Flight International, 9/15/93, p. 19 (3801).*

**9/16/93**

The U.S. ambassador to Japan, Walter F. Mondale, proposes to the Japanese Deputy Foreign Minister, Kunihiro Saito, that Japan and the U.S. set up a Theater Missile Defense system capable of destroying North Korean missiles. The system would deploy surveillance satellites to detect a ballistic missile attack and would be coupled with ground batteries capable of intercepting and destroying missiles at high altitudes.

*International Herald Tribune, 9/17/93 (3916).*

**9/27/93**

Japanese Defense Minister Keisuke Nakanishi and U.S. Defense Secretary Les Aspin agree to set up a working-level committee to study how both countries can jointly develop a defense against tactical ballistic missiles. In prior months, both countries discussed Japanese participation in the U.S. Theater High Altitude Area Defense program and Japan's incorporation of PAC-3 improvements into its purchased Patriot system. At the meeting, however, both countries failed to agree on a U.S. proposal to develop a \$12 billion defense system against North Korea's missiles, because the Japanese coalition

government opposed the Theater Missile Defense (TMD). The working-level committee will be limited to "basic studies" due to Japan's laws on collective defense arrangements. U.S. Undersecretary of Defense John Deutch says that the TMD proposal would be a "technology-for-technology arrangement" in which the U.S. would pass on military technology in exchange for Japanese dual-use technology. Some Japanese socialists reportedly say that the TMD goes against a parliamentary resolution which bans the military use of space other laws that prohibit action for collective defense.

*David E. Sanger, New York Times, 9/18/93, pp. 1-2 (3746). Kyodo (Tokyo), 9/28/93; in JPRS-TND-93-034, 1/27/93, pp. 3-4 (3746). Barbara Opall and Naoaki Usui, Defense News, 10/4/93, p. 3 (3746). Susuma Awanohara, Far Eastern Economic Review, 10/14/93, p. 22 (3746). Inside the Pentagon, 10/14/93, p. 3 (3746). Defense News, 10/25/93, p. 2 (3746).*

**late 9/93**

Responding to questions regarding Japanese-U.S. joint development of a Theater Missile Defense (TMD) program, Tomiichi Murayama, chairman of the Japanese Social Democratic Party (SDP), says that the SDP "will not support a proposal to maintain peace by strengthening Japan's military capabilities."

*United Press International, 9/28/93; in NNN News, 9/28/93 (3904).*

**12/93**

A Japanese military delegation, including the Japanese Defense Agency's director of defense policy and Director of National Security Affairs at the Foreign Ministry, Yishinori Katori, visits the U.S. The delegation points out its concern about the possibility that the performance of the Patriot PAC-2 missile will be inadequate vis-a-vis the North Korean Nodong-1 missile.

*Paul Beaver, Jane's Defence Weekly, 1/15/93, p. 4 (3551).*

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## KAZAKHSTAN

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### INTERNAL DEVELOPMENTS

10/93

Kazakhstan's army is reportedly now being restructured; new units include the 304th Field Artillery and 376th Multiple Rocket Artillery brigades located in Samsy, as well as the 987th Rocket, 645th Field Artillery, and 962nd Multiple Rocket Artillery regiments located in Semipalatinsk.

Robert Karniol, *Jane's Defence Weekly*, 10/9/93, p. 15 (3668).

### KAZAKHSTAN WITH KUWAIT

11/30/93

Kuwaiti official Shaykh al-Sabah flies to the Emba test range in Kazakhstan and witnesses tests of C-300B (S-300V) anti-aircraft missile systems; Kuwait is interested in purchasing the S-300 from Russia.

Viktor Zamyatin and Ilya Bulavinov, *Kommersant-Daily*, (Moscow), 12/1/93, p. 3 (3629).

### KAZAKHSTAN WITH MULTI-COUNTRY GROUP

11/17/92

A relatively successful second in-flight test of a super-ramjet engine is conducted at a military base in Kazakhstan with Russian, French and Kazakh scientists present. Although stabilization of combustion in supersonic mode above Mach 5 for a significant period of time occurs, there are problems with the operation including a lack of hydrogen flow, inability to check hydrogen flow control system efficiency, and tank pressurization.

*L'Armement*, 7/93, pp. 84-88; in *JPRS-TND-94-001*, 1/6/94, pp. 36-38 (3839).

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## KUWAIT

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### KUWAIT WITH KAZAKHSTAN

11/30/93

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Viktor Zamyatin and Ilya Bulavinov, *Kommersant-Daily*, (Moscow), 12/1/93, p. 3 (3629).

### KUWAIT WITH RUSSIA

12/2/93

A Russian-Kuwaiti defense cooperation agreement is signed, and a Russian radio report subsequently states that Kuwait intends to buy five unspecified missile systems.

Christopher Foss, *Jane's Defence Weekly*, 1/15/94, pp. 20-21 (3626).

### KUWAIT WITH UNITED KINGDOM

1/94

Kuwait is discussing the purchase of approximately two battalions, each containing 24-27 vehicles, of multiple-launch rocket systems (MLRS) from the U.K. company Hunting Engineering Ltd. (HEL). Initial deliveries of the MLRS systems would probably begin in 1994-1995. The package would include Phase 1 MLRS rockets, Leyland DROPS (8X6) vehicles, Jasmin training equipment and artillery fire control systems from Marconi Radar and Control Systems.

Christopher Foss, *Jane's Defence Weekly*, 1/15/94, pp. 20-21 (3626).

### KUWAIT WITH UNITED STATES

1/23/94

An offset memorandum with the U.S. company Raytheon is signed with Kuwait at a value of \$98.2 million. The agreement calls for Raytheon to reinvest 30 percent of the contract value of the existing deal to sell 210 Patriot missiles and five firing units to Kuwait. Under the terms of the agreement, Raytheon will assist in the design and construction of an energy-related facility to be carried out over a period of 3 1/2 years.

Reuter, 1/22/94; in *Executive News Service*, 1/24/94 (3537). Reuter, 1/23/94; in *Executive News Service*, 1/24/94 (3537).

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## LEBANON

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### LEBANON WITH MULTI-COUNTRY GROUP

12/28/93

German and Saudi inspectors confiscate over one hundred barrels of ammonium perchlorate from a German-registered ship docked in Jeddah, Saudi Arabia that was bound for Beirut, Lebanon from Hung Fu, China. Ultimately, the ammonium perchlorate, which is used in missile fuel, was to go to Iraq.

Reuter, 1/24/94; in *Executive News Service*, 1/24/94 (3648). Michael Evens, *Times*, 1/27/94 (3698).

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## LIBYA

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### LIBYA WITH RUSSIA

10/1/93

The director of the Russian External Relations Ministry's National Market Research Institute, Mikhail Sarafanov, denies that Russia has tried to sell missile fuel to Libya.

*Kyodo (Tokyo), 10/1/93; in JPRS-TND-93-031, 10/8/93, p. 42 (3657).*

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## MALAYSIA

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### MALAYSIA WITH SWEDEN

11/93

Malaysia and Sweden are reportedly finalizing a defense-related Memorandum of Understanding that provides a framework for cooperation and may include the transfer of Swedish technology to Malaysia. Malaysia has purchased four Spica M class fast attack craft/missiles from Sweden, and Saab Missiles plans to open a regional office in Kuala Lumpur in 1994.

*Robert Karniol, Jane's Defence Weekly, 11/20/93, p. 5 (3969).*

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## NORTH KOREA

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### INTERNAL DEVELOPMENTS

5/93

North Korea tests the Nodong missile as well as an unidentified type of Scud missile.

*Bill Gertz, Washington Times, 9/15/93, p. A6 (3552).*

8/93

North Korea confirms the development of the Nodong-1 missile.

*Reuter, 11/12/93 (3556).*

8/93

A former North Korean Army Engineer Corps officer, who had defected to South Korea, reports that North Korea has built four underground missile launching pads with the missiles aimed at U.S. bases in South Korea and Japan.

*Asiaweek, 9/29/93, p. 33 (3554).*

9/14/93

The former Commander of U.S. Forces Korea, retired U.S. Army General Robert W. RisCassi, commenting on the test launch of the Nodong missile in late 5/93, states, "There was no telemetry with the shots, which was strange, and there was no close-down of the sea and air space in that direction, which is odd when you are making a missile that you have not tested before and are firing at any extended ranges." RisCassi believes the test was a demonstration for prospective Middle Eastern buyers.

*Bill Gertz, Washington Times, 9/15/93, p. A6 (3552).*

11/4/93

U.S. officials confirm reports that North Korea has moved multiple-launch rocket systems and heavy artillery south in 1993.

*R. Jeffrey Smith, Washington Post, 11/6/93 (3567). Michael Evans, Times, 11/8/93, p. 13 (3567).*

11/12/93

A spokesman for the Japanese Defense Ministry's intelligence department states, "We cannot accurately say when and where the missiles [Nodong-1] would be deployed, but it is true that they [North Korea] are very close to completing development of this missile." The spokesman also states that North Korea has not developed an advanced solid-fuel missile. He is unable to confirm whether North Korea has begun development of the longer range Nodong-2 missile.

*Reuter, 11/12/93 (3556).*

12/2/93

A high-ranking South Korean intelligence official confirms that North Korea conducted its first successful test launch of the Nodong-1 missile at the end of 5/93. The missile was fired from a mobile launcher from a site in Taepodong, Hwadae-gun, North Hamgyong Province, striking a target 500 km distant. The mobile-launch capability demonstrates an improvement over the missile's previous fixed-launch capability.

*Choson Ilbo, 12/3/93; in FBIS-EAS-12/3/93 (3555).*

12/24/93

A senior Japanese Defense Agency spokesman is quoted as saying that "when North Korea succeeded in test firing the Nodong-1 in late March [May 29-30] it was launched from a fixed platform, so we thought that changing the location was very difficult, but later the United States and Japan learned that a mobile launch was possible by analyzing intelligence." The spokesman adds that the mobility of the Nodong-1, and the fact that North Korea has relocated most of its military facilities underground, makes detection and destruction of the missiles extremely difficult. The official also states that the Nodong-1 is too large to be launched from a ship. According to international military sources, "North Korea will put the Nodong-1 missile into operational deployment next year [1994]."

*Yonhap (Seoul), 12/24/93; in JPRS-TND-94-002, 1/18/94, p. 5 (3550).*

## NORTH KOREA WITH IRAN

**8/93**

Israeli Prime Minister Yitzhak Rabin states that Russian aircraft probably delivered North Korean Scud-C missiles to Iran.

*AFP (Paris), 12/20/93; in JPRS-TND-94-002, 1/18/94, p. 14 (3553).*

**10/28/93**

North Korea denies claims in the Western press that it intends to test a ballistic missile in Iran, stating, "It is inconceivable that the DPRK, making consistent efforts for world peace and security, intends to conduct a missile launching test in a far-off foreign country." The Islamic News Agency in Iran also denies these claims. The reports of the missile testing first appear in *Asharq al-Awsat*, a Saudi newspaper based in London, and indicate that a missile, believed to be Nodong-2, would probably be tested in the Lut desert in southeastern Iran in late 10/93 or 11/93.

*Kevin Rafferty, Guardian, 10/26/93 (3533). KCNA (Pyongyang), 10/28/93; in JPRS-TND-93-035, 11/10/93, p. 13 (3533).*

**11/12/93**

South Korea's KBS-1 Radio cites the Russian newspaper *Izvestiya* as having reported that North Korea has provided Iran with the technology to manufacture Nodong-1 missiles in exchange for Western technology and equipment.

*KBS-1 Radio Network (Seoul), 11/12/93; in JPRS-TND-993-037, 12/8/93, p. 22 (3528).*

**11/13/93**

An Iranian Defense Ministry source denies allegations made in the *Times* of London that Iran and Syria are co-producing sophisticated cruise missiles, and that Iran is financing the production of North Korean Scud missiles. The *Times* report that Iran and Syria intend to produce a nuclear- or chemical-capable missile is based on information originating from an international aerospace

exhibition in Dubai.

*Reuter, 11/13/93 (3544). IRNA (Tehran), 11/13/93; in JPRS-TND-93-037, 12/8/93, p. 36 (3544).*

**12/93**

Middle Eastern intelligence sources claim that Iran is expected to take delivery of North Korean Nodong IRBMs "within months." A full test of the missile is expected to take place under North Korean supervision in the southern Iranian desert by early 1994.

*Flight International, 12/8/93, p. 14 (3517).*

**12/93**

The North Korean Deputy Permanent Representative to the U.N., Ho Jong, says that North Korea never had any intention of selling missiles to Iran, stating, "There is no sale. It is entirely false."

*Christian Science Monitor, 12/27/93, p. 4 (3529).*

**12/2/93**

An "informed political source" in Tehran categorically denies Western press reports that a contract has been signed for North Korea to deliver long-range Scud missiles to Iran and test the Nodong-1 missile in Iran.

*IRNA (Tehran), 12/2/93; in JPRS-TND-94-001, 1/6/94, p. 38 (3596).*

**12/20/93**

A statement by Israeli Air Force Intelligence Chief Colonel "A" is published, which says, "Iran will have [North] Korean Nodong missiles in a year which could be deployed in the west of the country and reach Israel." Colonel "A" further states, "There is no doubt that Iran is trying to obtain the capacity to produce chemical and nuclear warheads," which could be delivered by the Nodong.

*AFP (Paris), 12/20/93; in JPRS-TND-94-002, 1/18/94, p. 14 (3553).*

## NORTH KOREA WITH ISRAEL

**6/25/93**

In Beijing, Israeli Foreign Ministry deputy director Eitan Bentsur meets with North Korean officials in an at-

tempt to dissuade them from concluding a reported deal to provide Iran with 150 Nodong-1 missiles in exchange for oil and cash. The meeting reportedly ends with the North Koreans demanding cash payments from Israel to stop the sale.

*Reuter, 8/17/93; in US-Korea Review, 9/93, p. 3 (3583). Jon B. Wolfsthal, Arms Control Today, 9/93, p. 24 (3583).*

**8/16/93**

At the behest of the U.S., Israeli Prime Minister Yitzhak Rabin announces that Israel will break off discussions with North Korea which are designed to halt the sale of Pyongyang's missiles to the Middle East.

*Reuter, 8/17/93; in US-Korea Review, 9/93, p. 3 (3583). Jon B. Wolfsthal, Arms Control Today, 9/93, p. 24 (3583).*

## NORTH KOREA WITH JAPAN

**10/93**

Japanese military officials question whether North Korea's Nodong-1 missile poses a potential threat. The officials point out that North Korea's defense production plants operate at only 40 to 50 percent of capacity, which might not provide the technical and industrial capability necessary to develop such a missile.

*Aviation Week & Space Technology, 10/18/93, p. 101 (3865).*

**12/15/93**

The director of the Modern Korea Institute, Katsumi Sato, states that Chongryun, the 150,000 member (pro-North Korean) General Association of Korean Residents in Japan, has exported "key high-tech components North Korea needs for its war machine," and adds that Institute analysis shows that North Korea is "now trying to downsize a missile warhead, so that the Nodong-1 missile could deliver a nuclear bomb to Japan." Tsutomu Nishioka, editor of the Institutes monthly news magazine, notes that 60 billion Yen worth of remittances are sent to North Korea an-

nually, a figure that dwarfs the North Korean budget of 35 billion Won. Nishioka adds that "although a ban on cash gifts to North Korean relatives may raise humanitarian problems, to prevent North Korea from developing a nuclear missile should take precedence, as a nuclear attack would snuff out so many people."

*Kyodo (Tokyo), 12/15/93; in JPRS-TND-94-002, 1/18/94, p. 5 (3559).*

### 1/14/94

Japanese police raid NEC affiliate Anritsu Corp., and two other companies, on suspicion of having sold spectrum analyzers, which could be used to improve missile guidance systems, to North Korea in 1989. One of the other two companies raided, Yokohama Machinery Trading Co., is suspected of having exported three spectrum analyzers in 1989 to North Korea via China. North Korea denies the allegations saying that the spectrum analyzers are used in television communication.

*David E. Sanger, New York Times, 1/14/94, p. 5 (3747). Terry McCarthy, Independent, 1/15/94 (3532). Reuter, 1/15/94 (3747). Michiyo Nakamoto, Financial Times, 1/15/94, p. 3 (3747). Jathon Sapsford and David P. Hamilton, Wall Street Journal, 1/17/94, p. A6 (3747). Radio Moscow, 1/19/94; in FBIS-SOV-94-014, 1/21/94, p. 19 (3532). International Herald Tribune, 1/20/94 (3532). Naoaki Usui, Defense News, 1/24/94, p. 26 (3747).*

### 1/18/94

Japanese Foreign Ministry press secretary, Teruhiko Terado, states that the likelihood that Japanese signal analyzers were "used for the [North Korean] Nodong missile is very low."

*Naoaki Usui, Defense News, 1/24/94, p. 26 (3747).*

## NORTH KOREA WITH RUSSIA

### 11/15/93

Russian First Deputy Minister Sergey Stepashin states that Russia has expelled a North Korean diplomat, Maj. Gen. Nam Gae-wok, who was organizing a

large-scale DPRK special services operation to send Russian missile and space industry experts to the DPRK. North Korea denies the recruitment accusation and says that Nam is not a General.

*Radio Rossii Network (Moscow), 11/15/93; in FBIS-SOV-93-219, 11/16/93, P. 5 (3586). Radio Moscow, 11/16/93; in Kyodo News Service, 11/16/93 (3534). Jane's Defence Weekly, 11/27/93, p. 19 (3534).*

### 11/16/93

Russian Security Ministry official Alexei Kandaurov states that the expelled North Korean diplomat was Major General Nam Gae-wok and that this is the first time that Russia has expelled a foreign diplomat for attempting to recruit Russian scientists.

*Washington Times, 11/17/93, p. A15 (3586).*

### 1/18/94

Western defense analysts in Moscow say that Russia is selling ten ballistic missile-capable Golf II class submarines to North Korea. The analysts maintain that North Korea could install modified Nodong-1 missiles on the subs. Although the Russian Navy insists that the submarines will be dismantled under Russian military observation, the Western analysts believe that the North Koreans may cannibalize the subs for parts and that knowledge of these subs will help them to improve their own submarine technology.

*Yonhap (Seoul), 1/18/94; in JPRS-TND-94-003, pp. 45-46 (3558).*

### 1/28/94

The Russian Defense Ministry denies allegations made in the Japanese weekly *Shukan Bunshun* concerning an alleged secret study from the Center for Military Strategic Analysis of the Russian General Staff claiming that 160 Russian "scholars" had assisted North Korea in its nuclear program and the manufacture of warheads, and Nodong-1 medium-range missiles. Russian Armed Forces chief of general staff Colonel General Mikhail Kolesnikov states that

the report, titled "The Russian Federation Military Policy in the Asia-Pacific Region under the New Military Political Conditions," is "utter nonsense from beginning to end." Kolesnikov says that North Korea has no nuclear warheads, Nodong-1 or Nodong-2 missiles, and that it is not likely to develop them any time soon.

*Valentina Korikayev, Radio Moscow, 1/29/94; in FBIS-SOV-94-020, 1/31/94, p. 15 (3670). Viktor Litovkin, Izvestiya (Moscow), 1/29/94, p. 3; in FBIS-SOV-94-020, 1/31/94, pp. 16-17 (3670). Pavel Felgengauer, Segodnya (Moscow), 1/29/94, p. 1; in FBIS-SOV-94-020, 1/31/94, pp. 15-16 (3670). Stephen Foye, RFE/RL News Briefs, 1/31/94, p. 2 (3670).*

## NORTH KOREA WITH YUGOSLAVIA

### 12/93

The former Chief of the Yugoslavian General Staff, General Zivota Panic, states that Yugoslavia will develop 600 km and 1000 km missiles at the Military Technical College in Belgrade within the next five years, at an estimated cost of \$100 million, with parts from Iraq and North Korea.

*Milan Vego, Jane's Intelligence Review, 12/93, pp. 541-546 (3968).*

## NORTH KOREA WITH SYRIA

### 8/93

Israeli Prime Minister Yitzhak Rabin states that Russian aircraft have delivered North Korean Scud-C missiles to Syria and possibly to Iran.

*AFP (Paris), 12/20/93; in JPRS-TND-94-002, 1/18/94, P. 14 (3553).*

### 8/5/93

Two Russian civilian Condor transport aircraft, leased by Syria, which left North Korea's Sunan airfield the day before, land in Damascus with a load of seven MAZ 543 chassis. According to U.S. intelligence sources, the MAZ 543s are probably taken from Damascus to a missile plant in Nasariya for conversion into mobile missile launchers.

*Qol Yisra'el (Jerusalem)*, 9/20/93; in *JPRS-TND-93-032*, 10/12/93, p. 34 (3531). Michael R. Gordon, *New York Times*, 12/12/93, pp. 1, 20 (3531). David E. Sanger, *New York Times*, 1/20/93, p. A5 (3531).

8/8/93

Russian transport planes deliver components for the Scud-C ballistic missile from North Korea to Damascus, Syria. Part of the shipment may have also been delivered from North Korea to Iran.

John Hannah, *Wall Street Journal*, 9/15/93 (3919).

9/93

The U.S. is "discussing actively" the delivery of spare parts for intermediate-range Scud missiles from North Korea to Syria on Russian transport aircraft. The shipment violates a memorandum of mutual understanding on the export of rocket technology signed by Viktor Chernomyrdin.

Vladimir Nadein, *Izvestiya (Moscow)*, 9/18/93, p. 3; in *FBIS-SOV-93-183*, p. 12 (3565).

#### NORTH KOREA WITH UNITED STATES

7/93

CIA Director James Woolsey testifies before Congress that the Nodong-1, which could be fitted with nuclear, chemical or biological warheads, has been tested. He indicates that of greatest concern is North Korea's continued efforts to sell the missile abroad, particularly to dangerous and potentially hostile countries such as Iran. Woolsey notes that "with this missile, North Korea could reach Japan; Iran could reach Israel; and Libya could reach U.S. bases and allied capitals in the Mediterranean region."

*Christian Science Monitor*, 12/27/93, p. 4 (3529).

## PAKISTAN

### INTERNAL DEVELOPMENTS

1/94

According to a recent book, *Critical Mass*, by William Burrows and Robert Windrem, Pakistan has developed a plan to use Hercules C-130 cargo aircraft as nuclear bombers. The bomb would be dropped like any other cargo out of the back of the plane. The bomb's descent would be slowed by a parachute, allowing the C-130 to get far enough away to avoid the shock wave.

*Foreign Report*, 1/13/94 (3763).

### PAKISTAN WITH INDIA

11/11/93

In an interview with *The Hindu*, Pakistani Prime Minister Benazir Bhutto notes that India's Prithvi and Agni missiles take "the Indian range [strike capabilities] right up from the [Persian] Gulf to the Straits of Malacca."

Malini Parthasarathy, *The Hindu*, 11/20/93, p. 4 (3697).

### PAKISTAN WITH ITALY

10/93

An Italian team visits Islamabad and attempts to sell a missile system [designation not provided] to Pakistan.

Edward A. Gargan, *New York Times International*, 10/21/93 (3721).

### PAKISTAN WITH PRC

9/93

A Pakistani government official denies that Pakistan has procured M-11 missiles from China. Pakistan does admit to having procured "ordinary" missiles

in the 1980s when it faced Soviet Scud attacks from Afghanistan.

*Jang (Lahore)*, 8/27/93, p. 5; in *JPRS-TND-93-030*, 9/27/93, p. 15 (3847).

12/29/93

While visiting Beijing, Pakistani Prime Minister Benazir Bhutto, states that Pakistan purchased M-11 missiles from China because of the threat from Afghani Scuds and the Indian missile buildup; India is extending missile ranges to 2,500 km.

Jeffrey Parker, *Reuter*, 12/29/93 (3680).

### PAKISTAN WITH UNITED STATES

8/26/93

A Pakistan High Commission press release states that the US has urged Pakistan to enter a dialogue with India on the issue of missile proliferation in South Asia. The release notes that, "Pakistan has conveyed to the US that it is prepared to respond positively to this proposal to prevent a missile race in our region."

*The Hindu*, 9/4/93, p. 9 (3523).

12/93

U.S. State Department Spokesman Mike McCurry says that the sanctions the U.S. imposed on China in 8/93 for violating the MTCR and U.S. laws on nonproliferation by selling Pakistan missile parts and technology will remain in force until China reaches an agreement with the U.S. that promotes nonproliferation goals.

*Wireless File*, 11/12/93 (3637).

12/29/93

While on a visit to China, Pakistani Prime Minister Benazir Bhutto says that the U.S. sanctions placed on Pakistan and China are based on "erroneous information" and should be lifted. Bhutto says that neither country has violated MTCR regulations.

Jeffrey Parker, *Reuter*, 12/29/93; in *NNN News*, 12/29/93 (3680). *Washington Times*, 1/1/94, p. A7 (3724).

## PEOPLE'S REPUBLIC OF CHINA

### INTERNAL DEVELOPMENTS

9/24/93

Chinese Foreign Minister Qian Qichen states that China might formally join the MTCR, saying, "We are thinking about this."

*UPI, 9/23/93 (3640). International Herald Tribune, 9/24/93 (3640).*

10/93

The executive director of the Chinese Poly Group Corp., Xie Datong, denies the company's involvement in the sale of CSS-2 intermediate range ballistic missiles to Saudi Arabia in 1987 or the sale of M-11 missiles to Pakistan. Xie states that his company, the Chinese military's chief arms trading company, cannot export strategic weapons without the approval of the PLA General Staff Department and that the company does not have missiles to sell.

*Tai Ming Cheung, Far East Economic Review, 10/14/93, p. 68 (3957).*

10/93

It is reported that the Vice President of China's Academy of Rocket Building, Li Jianzhong, states that China is "ready for joint projects" with Russia in the space sector. China is looking for ways to utilize its launcher technology for commercial purposes.

*Boris Kononov, Izvestiya (Moscow), 9/11/93, p. 15; in FBIS-SOV-93-176, 9/14/93, p. 16 (3686).*

10/5/93

China conducts an underground nuclear test designed to improve its nuclear missile warheads. One of the possible objectives of the test is the downsizing of warheads.

*Ling Yu, Kuang Chiao Ching (Hong Kong), 11/16/93, pp. 16-19; in JPRS-TND-93-037, 12/8/93, pp. 8-10 (3922).*

10/8/93

China successfully launches its fifteenth recoverable scientific research satellite, weighing 2,100 kg (4,600 lb), on a Long March-2C rocket from a space center in southern Sichuan province into a fixed 200 km (120 mi) orbit. The recovery rate for the first fourteen launches was 100 percent. China wants to offer its Long March rocket as a cheaper alternative to U.S. and European rockets, but its launch program has been experiencing political obstacles and technological setbacks.

*Reuter, 10/8/93; in Executive News Service, 10/8/93 (3639).*

10/13/93

The International Institute for Strategic Studies (IISS) publishes figures indicating that China has more than 100 land-based nuclear ballistic missiles, 50% more than previously estimated. China's nuclear missile force includes 14 ICBMs, at least 90 intermediate-range missiles, and one nuclear-armed submarine. Previous estimates placed China's arsenal of ICBMs and intermediate-range missiles at 68.

*David White, Financial Times, 10/13/93, p. 7 (3772). Paul Dibb, International Herald Tribune, 11/26/93, p. 3 (3684).*

11/93

It is reported that China's military buildup is focusing on the development of ICBMs able to hit Russian and U.S. cities and military targets, and that up to 50 to 60 percent of China's arsenal is currently aimed at U.S. targets.

*Martin Sieff, Washington Times, 11/12/93, p. A16 (3772).*

1/94

It is reported that China is replacing nuclear warheads with conventional ones on some of its medium-range ballistic missiles, including Dong-Feng 21s (DF-21), which are primarily based in the Qinghai and Yunnan provinces "so that they can be more effectively employed in local wars." China may have developed the DF-15 and DF-25 medium-range ballistic missiles. The de-

velopment status of the DF-25 is unknown, although its range is believed to be 1,700 km and it is thought to be capable of carrying a 2,000 kg warhead. *Jane's Defence Weekly, 1/29/94 (3870). International Herald Tribune, 1/28/94 (3870).*

1/5/94

At the military port of Wusong Kou near Shanghai, China launches its eleventh nuclear-powered ballistic missile submarine, an updated version of the Xia (Summer) class. The Xia class submarine, first launched in 1981, carries 12-16 ballistic missiles, and can travel at a speed of approximately 25 knots.

*Washington Times, 2/4/94, p. A16 (3656).*

2/94

The Chinese Great Wall Industry Corp., is to orbit a dummy payload on a Long March-3A rocket from the Xichang launch center. If the test is successful, the rocket will be used to launch a satellite in 4/94. The Chinese Great Wall Industry Corp., is offering a series of Long March rockets for commercial launch use, including the LM-3A, the LM-3B, the LM-3C, the LM-4B, and the LM-1D.

*Andrew Lawler, Space News, 1/24/94, p. 28 (3831).*

### PRC WITH BELGIUM

1/94

Belgium-based Eurosense, which specializes in digital orthophotographic maps, signs an agreement with China to establish a joint venture company called Eurosense Beijing Aerospace Mapping that will use Eurosense technology to make detailed maps of Chinese territory. Eurosense owns 51 percent of the joint venture, while the Chinese government owns the remainder. *Flight International, 1/26/94, p. 23 (3958).*



**PRC WITH BRAZIL**

**11/9/93**

Brazilian Science and Technology Minister Israel Vargas signs a number of protocols that complement an existing scientific-technical cooperation agreement between China and Brazil. One \$15 million protocol is signed between Brazil's National Space Research Project (INPE) and the China Great Wall Company to launch two remote sensing satellites. An additional \$50 million accord is signed with China KZ High Technology to promote technical partnerships between the two countries. *Gazeta Mercantil* (Sao Paolo), 10/8/93; in *JPRS-TND-93-037*, 12/8/93 pp. 31-33 (3781).

**1/94**

It is reported that, during a visit to Brazil, Chinese President Jiang Zemin signed an agreement with Brazilian President Itamar Franco to establish a joint satellite program and promote greater cooperation in launcher and satellite manufacturing technology, atmospheric sciences, and astrophysics. The deal includes the development of two satellites, the first of which is to be launched by 10/96. *Wall Street Journal*, 9/16/93, p. A20 (3782). *Space News*, 1/3/94, p. 13 (3782).

**PRC WITH INDIA**

**11/93**

India's Chief of Air-Staff, Air Chief Marshal Swaroop Krishna Kaul states that China will bear watching because of its deployment of high-tech weaponry, including nuclear and long-range missiles, as a counterbalance to the cuts in its armed forces. *Rahul Bedi*, *Jane's Defence Weekly*, 11/6/93, p. 56 (3862).

**PRC WITH IRAN**

**8/93**

The Chinese ship Yin He, suspected of transporting chemicals to Iran, is intercepted "with the consent and cooperation of the Chinese government," according to U.S. Deputy Secretary of State for Nonproliferation Robert Einhorn.

*Neil Munro and Barbara Opall*, *Defense News*, 1/24/94, pp. 6, 37 (3564).

**1/94**

A senior Pentagon official says that Iran would like to acquire the 120 km range C-801 sea-skimming missile, and is negotiating the purchase of the EM52 rocket-propelled anti-ship mine. Iran is currently taking delivery of ten 29 m missile boats from China.

*Philip Finnegan, Robert Holzer and Neil Munro*, *Defense News*, 1/17/94, pp. 1, 29 (3539).

**PRC WITH ISRAEL**

**5/93**

Israeli Foreign Minister Shimon Peres is assured by China that China will not sell missiles in the Middle East. Israel may have been using the U.S. deals with South Africa and Argentina, in which nuclear and missile projects were bought or bartered away, as a nonproliferation model.

*Reuter*, 8/17/93; in *US-Korea Review*, 9/93, p. 3 (3583).

**10/93**

The CIA asserts that Israel has sold China advanced military equipment worth perhaps "several billion dollars" over the past ten years. U.S. intelligence experts are increasingly concerned that China is attempting to use Israel as a conduit for acquiring Western military technology that it has been unable to procure directly. The CIA reports that Israel continues to sell military technology to China despite western concerns that China may re-export it to countries such as Pakistan and Iran. *Michael R. Gordon*, *New York Times*, 10/12/93, pp. A1, A6 (3784). *Washington Times*, 10/12/

93, p. A10 (3784). *Michael R. Gordon*, *New York Times*, 10/13/93, p. A7 (3784). *Patrick Cockburn*, *Independent*, 10/13/93 (3784).

**10/13/93**

Israeli Prime Minister Yitzhak Rabin, in his first visit to China, rejects as "total nonsense" a CIA report that Israel had sold to China several billion dollars in arms and military technology, some of U.S. origin and some that may have assisted China in the improvement of offensive and defensive missiles. Israel's assistance in Chinese military modernization is an attempt to encourage China not to sell ballistic missiles in the Middle East to countries like Syria and Iran. According to a Rand Corporation report, Israel assisted China in the development of SAMs, AAMs, and an intermediate-range missile.

*Patrick E. Tyler*, *New York Times Service*, 10/14/93; in *International Herald Tribune*, 10/14/93 (3785). *Tony Walker*, *Financial Times*, 10/14/93 (3785). *Patrick E. Tyler*, *New York Times*, 10/14/93, p. A3 (3785).

**PRC WITH JAPAN**

**12/20/93**

The Director of China's Department of Asian Affairs of the Foreign Ministry, Wang Yingfang, and the Director General of Japan's Asian Affairs Bureau, Tadashi Ikeda, hold talks on mutual security concerns in which Yingfang reveals that China "refused sales" of M-11 missile technology to Pakistan.

*Kyodo* (Tokyo), 12/20/93; in *JPRS-TND-94-002*, 1/18/94, p. 42 (3955).

**PRC WITH MULTI-COUNTRY GROUP**

**12/28/93**

German and Saudi inspectors confiscate over one hundred barrels of ammonium perchlorate from a German-registered ship docked in Jeddah, Saudi Arabia that was bound for Beirut, Lebanon from Hung Fu, China. Ultimately, the ammonium perchlorate, which is used

in missile fuel, was to go to Iraq. *Reuter*, 1/24/94; in *Executive News Service*, 1/24/94 (3648). Michael Evens, *Times*, 1/27/94 (3698).

## PRC WITH PAKISTAN

9/93

A Pakistani government official denies that Pakistan has procured M-11 missiles from China. Pakistan does admit to having procured "ordinary" missiles in the 1980s when it faced Soviet Scud attacks from Afghanistan.

*Jang (Lahore)*, 8/27/93, p. 5; in *JPRS-TND-93-030*, 9/27/93, p. 15 (3847).

12/29/93

While visiting Beijing, Pakistani Prime Minister Benazir Bhutto, states that Pakistan purchased M-11 missiles from China because of the threat from Afghani Scuds and the Indian missile buildup; India is extending missile ranges to 2,500 km.

*Jeffrey Parker, Reuter*, 12/29/93 (3680).

## PRC WITH RUSSIA

9/93

Large numbers of Chinese arms shoppers attend the Russian arms exhibition at Nizhny Novgorod, which is indicative of recent Chinese efforts to increase purchases of Russian weaponry, including air-defense missile systems and guidance technology for use in the manufacture of Chinese missiles. The Chinese intend to purchase weapons technologies in Russia that they are barred from purchasing in the West due to export/import restrictions.

*AFP (Paris)*, 9/9/93; in *FBIS-SOV-93-174*, 9/10/93, p. 15 (3683).

10/93

Russian military critic Pinkov states that Russia has sent five sets of S300PMU-1 SAMs to the PRC, and that several dozen Russian technical experts are in China training Chinese soldiers in their use. While Russia did not provide

China with the technology to manufacture the S300PMU-1, Pinov says that China could use the phased-array radar technology to improve its large scale early warning system.

*Tseng Hui-yen, Lien Ho Pao (Hong Kong)*, 10/20/93, p. 10; in *JPRS-TND-93-035*, 11/10/93, pp. 67-68 (3729).

10/93

An analyst at the American Enterprise Institute, James R. Lilley, states that the Chinese media has reported that up to 3,000 Russian experts are working in China for salaries as high as \$2,000 per month plus housing, a car and living expenses. China has "semi-openly" recruited these experts, Lilley says. The experts have visited Russian defense plants and have also done weapons designs and mathematical modeling work, which they receive via electronic mail. China is obtaining Russian missile technology, including Russian SS-24 Scalpel and SS-25 Sickie technology, both of which are produced by the Nadiradize Design Bureau. The SS-25 has a range of 10,000 km and pinpoint accuracy compared to China's 11,000 km range CSS-4.

*John J. Fialka, Wall Street Journal*, 10/14/93, p. A12 (3868). Alan George, *Flight International*, 12/22/93, p. 5 (3868).

10/93

Responding to rumors in the U.S. of "about one thousand" Russian missile specialists working in China, Valeriy Levshunov, a high-ranking expert from the Russian Department for the Defense Complex and Conversion, states, "We do not have and have never had such information." The deputy head of the main department of the aircraft building industry, Yuri Nikitin, is "of the same opinion" as Levshunov. Nikitin states, "All matters related to missile building are handled by the Committee for Military-Technical Cooperation, and control is reliable here."

*Pavel Spirin, Itar-Tass (Moscow)*, 10/15/93; in *JPRS-TND-93-034*, 10/27/93, p. 35 (3962).

11/93

An independent analyst of Russian programs, Charles Vick, states that in 1991 Russia and Ukraine sold three RD-70 engines to China. Vick says that one engine was torn apart, one used for testing, and the third kept intact. Vick believes that China is attempting to develop a manned space capability like Russia and the U.S. The Soviets reportedly assumed that China would attempt to develop a similar engine using these as models, but "did not know or care" what the purchase was for.

*Space News*, 11/8/93, p. 13 (3635).

11/93

A secret document from the General Department of the CPC Central Committee Military Council, published by the Hong Kong magazine *Cheng Ming*, indicates that more than 1,000 Russian defense workers are currently working in China. The document does not reveal how many traveled to China independently, or if any were sent by Moscow.

*Vladimir Skosyrev, Izvestiya (Moscow)*, 11/9/93, pp. 1, 3; in *FBIS-SOV-93-216*, 11/10/93, p. 2 (3951).

11/93

During Russian Defense Minister Pavel Grachev's visit to Beijing, Chinese Defense Minister Chi Hoatian tells him that China would like to purchase more air-defense systems; China may want to purchase 12 S-300 batteries in 1994. In 1993, China purchased four batteries of S-300 (SA-10 Grumble) air-defense missile systems.

*Jane's Defence Weekly*, 1/22/94, p. 3 (3959).

11/11/93

China and Russia sign a five-year military cooperation agreement providing for exchanges in experts and other personnel. U.S. intelligence sources believe that China is hiring Russian missile scientists, and that Russia is providing China with triggering devices for nuclear weapons, solid rocket fuel, and technology to solve problems related to launching missiles from submerged sub-

marines. A Pentagon officer in charge of non-proliferation in the Bush Administration, Henry Sokolski, states that China has been buying missile information from former Soviet republics, particularly Russia, and that China is now trying to develop mobile SS-25 ICBMs.

*Martin Sieff, Washington Times, 11/12/93, p. A16 (3772).*

## PRC WITH UKRAINE

9/93

Chinese Minister of Foreign Affairs, Qian Qichen, offers Ukraine security guarantees in the event of a nuclear attack if Ukraine gives up its nuclear missiles.

*Ustina Markus, RFE/RL Research Report, 11/12/93, pp. 19-23 (3938).*

11/93

Yuri A. Smetanin, deputy general designer of KB Yushnoye of Dnepropetrovsk, Ukraine, which designed the Cyclone and Zenit launch vehicles, states that "the Chinese have made many approaches to our company, but not for purchasing rockets. They wanted answers to questions about how we test for strength, aerodynamics, vibration and so on. But we prefer to sell them hardware."

*Peter B. de Selding, Space News, 11/29/93, pp. 1, 20 (3580).*

11/93

It is reported that despite closer political, economic, and technological ties between Ukraine and China, there apparently has been no transfer of sophisticated military technology or hardware from Ukraine to China.

*Ustina Markus, RFE/RL Research Report, 11/12/93, pp. 19-23 (3938).*

## PRC WITH UNITED STATES

8/24/93

The U.S. initiates Category 2 trade sanctions against China for the alleged sale of M-11 missile components to Pakistan. Both China and Pakistan have denied that the transaction occurred, although Pakistan did admit to purchasing "a few" short-range ballistic missiles from China in the late 1980s. Three U.S. satellites scheduled to be launched aboard Chinese launch vehicles will be affected: a Hughes-manufactured Optus B3 and APStar 1 to be launched in 1994, and the Martin Marietta Astrospace Asiasat 2 to be launched in 1995.

*Flight International, 9/1/93, p. 6 (3685).*

8/27/93

Following the U.S. decision to impose a two-year ban on exports to China, Chinese Vice Foreign Minister Liu Huaqiu calls the decision a "naked hegemonic act."

*Jeffrey Smith and Daniel Williams, Washington Post, 11/11/93, pp. A39, A44 (3830).*

9/24/93

The U.S. Space Systems/Loral announces an agreement with the China Great Wall Industry Corp. to launch commercial satellites on Long March rockets in 1996 and 1997 from the Xichang Satellite Launch Center. This deal will not be affected by U.S. sanctions because the deal was signed before sanctions went into force.

*Space News, 10/10/93, p. 13 (3614).*

10/93

It is reported that the Clinton administration is trying to improve relations with China because of Washington's concerns about bilateral trade, weapons proliferation, and the possibility that it will need China's help to impose sanctions on North Korea through the U.N. Security Council. The General Motors Corp.'s Hughes Aircraft Co. is requesting that the Clinton administration re-

interpret the sanctions imposed in 8/93 against Chinese missile companies. Hughes has contracts with the China Great Wall Industrial Corp. to launch two satellites worth \$180 million using the commercial version of China's ICBM. The U.S. CIA and Defense Department believe that relaxation of the sanctions would encourage China to proliferate because the Chinese companies that would benefit most from increased business build both commercial rockets and military missiles.

*John J. Fialka, Wall Street Journal, 10/22/93, p. A16 (3829).*

10/12/93

A senior U.S. official states that China is showing no interest in negotiating an end to the sanctions imposed on it by the U.S. after China sold M-11 missiles to Pakistan. The official states, "Sanctions are not an end in themselves. They are designed to encourage non-proliferation but (obtaining a waiver) requires serious negotiations by the Chinese and so far they've given no indication that they are willing to do this."

*Reuter, 10/12/93 (3607).*

10/20/93

The U.S. announces that it would be unable to extend Most Favored Nation trading status to China in 6/94 unless it improves its record on a number of issues, including arms proliferation.

*Susan Cornwell, Reuter, 10/20/93; in Executive News Service, 10/21/93 (3682).*

10/26/93

A Pentagon intelligence official states that inexpensive, commercially available, GPS computer components could be installed in Iranian cruise missiles or be used to increase the accuracy of Chinese ballistic missiles. According to Pentagon intelligence officials, Chinese, Iranian and Indian military researchers are working to put U.S. navigation technology (such as GPS) in their next-generation missiles.

*Lisa Burgess and Neil Munro, Defense News, 11/29/93, p. 8, 10 (3644).*

**11/93**

U.S. Assistant Secretary of Defense Charles W. Freeman Jr. holds talks with Chinese Vice Chairman of the Central Military Commission Gen. Liu Huaqing concerning proliferation issues and China's sale of missiles to Pakistan. *Lena Sun, Washington Post, 11/3/93, p. A12 (3873).*

**11/10/93**

Clinton administration officials announce that the trade sanctions imposed on China for exporting M-11 missile components to Pakistan could be lifted if China promises not to export such items in the future. The Clinton Administration makes the announcement after Chinese Vice Foreign Minister Liu Huaqiu told U.S. Undersecretary of State Peter Tarnoff on 11/4/93 that China is seriously considering the deal. However, officials say that the U.S. may not push the deal through immediately, partly because of suspicions that China provided Pakistan with completed M-11s and not just components. Undersecretary of State Lynn E. Davis states before Congress that "Our decision to impose sanctions against China and Pakistan for the transfer of M-11-related technology demonstrates that we're prepared to pursue our nonproliferation goals vigorously even when such efforts may risk frictions in critical bilateral relations."

*Jeffrey Smith and Daniel Williams, Washington Post, 11/11/93, pp. A39, A44, (3830).*

**11/12/93**

A U.S. official states that two satellites will be exported for launch once the ban against China is lifted, although five other satellites using sensitive technology will be withheld until China agrees to abide by the MTCR. *Washington Times, 11/14/93, p. A2 (3830).*

**11/18/93**

U.S. officials announce the sale of a \$10 million Cray Research Inc. supercomputer to China in an effort to improve relations with China, despite evidence that China violated the MTCR

by selling M-11 missile components to Pakistan. A spokesman for Cray Research, Frank Parisi, states that a sophisticated set of safeguards has been established so that there is no way that China can use the supercomputer for "pernicious applications." U.S. officials state that the approval to sell the supercomputer to China did not conflict with the U.S. sanctions imposed on China in 8/93, which affect only missile-related goods. In return for lifting the sanctions, the Clinton Administration wants China to "make more public and binding assurances" which would include an agreement that the M-11 missile is covered by the MTCR. Although China says that the MTCR does not cover the M-11 because it has only a 280 km range and carries an 800 kg payload, the U.S. says the payload can be reduced giving the missile a greater, MTCR-restricted range.

*Gene Gibbons, Reuter, 11/19/93 (3671). Jim Mann, Los Angeles Times, 11/29/93, pp. A1, A9 (3841). Export Control News, 11/30/93 (3671). Jon B. Wolfsthal, Arms Control Today, 12/93, p. 18 (3773).*

**11/20/93**

Chinese President Jiang Zemin holds talks with U.S. President Bill Clinton in Seattle as part of the Asia-Pacific Economic Cooperation (APEC) Forum. Jiang indicates that China is prepared to conduct talks with the U.S. concerning China's compliance with the MTCR, but that this is contingent on the removal of the U.S.'s limited trade sanctions against China.

*Kyodo (Tokyo), 11/21/93; in JPRS-TND-93-038, 12/29/93, pp. 1-2 (3954).*

**1/94**

It is reported that because of an agreement with the U.S., China can only launch nine commercial communications satellites through the end of 1994. *Peter B. de Selding, Space News, 1/24/93, pp. 1, 28 (3645).*

**1/94**

It is reported that the Clinton administration is set to lift the ban on the sale to China of the Echostar satellite, worth

\$150 million, and an Asiasat II satellite, worth \$55 million, both built by Martin Marietta. In exchange, China will agree to begin talks on issues regarding the proliferation of weapons. The U.S. government has been under pressure from U.S. businesses to lift the sanctions that were imposed on China during the summer of 1993 because of China's sale of M-11 missile technology to Pakistan.

*Bob Davis and Robert S. Greenberger, Wall Street Journal, 1/6/94, p. A2 (3834).*

**1/6/94**

The Clinton Administration allows the U.S. Commerce Department to approve the launching of three satellites by China after China agreed to talks regarding the proliferation of missile technology. The satellites will be launched on Long March rockets in 1995. The deal also includes "integration analysis" technology which will allow China to upgrade both its satellite launch and MIRV warhead capabilities.

*Jim Wolf, Reuter, 1/7/94 (3917). Andrew Lawler, Space News, 1/10/94, p. 3 (3770). Martin Sieff, Washington Times, 1/19/94, p. A18 (3821). Export Control News, 1/31/94 (3770).*

**1/26/94-1/27/94**

U.S. arms control negotiator Lynn Davis meets with the Chinese Vice Foreign Minister Liu Huaqiu about missile proliferation. The U.S. proposes a binding accord under which China would stop selling missiles limited by the MTCR in return for a lifting of the U.S. sanctions placed on China in 8/93. State Department Spokesman Mike McCurry states that no progress has been made.

*Jim Wolf, Reuter, 1/27/94 (3917). Carol Giacomo, Reuter, 1/27/94; Executive News Service, 1/31/94 (3672).*

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## PHILIPPINES

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### PHILIPPINES WITH RUSSIA

10/93

Philippine defense officials who asked to remain anonymous state that their nation is studying the prospect of bartering tobacco and alcohol for Russian missile gunboats. The Philippines would pay 15 to 20 percent of the purchase price in cash with the remainder being paid in barter goods. If the proposed trade arrangement is approved, the Philippines would purchase up to \$30 million in Russian military equipment.

*Reuter, 10/18/93; in Executive News Service, 10/19/93 (3736).*

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## RUSSIA

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### INTERNAL DEVELOPMENTS

3/93

The CIA reports that by the end of the decade, Russia is expected to produce three new types of ballistic missiles which will be mobile, fixed, and submarine based.

*Bill Gertz, Washington Times, 9/14/93, pp. A1, A24 (3945).*

8/93

Russian Prime Minister Viktor Chernomyrdin states that Russia will start selling its space technology abroad, but will make sure that the technology could not be used to launch nuclear missiles.

*Reuter, 12/15/93; in Executive News Service, 12/15/93 (3649).*

8/31/93

The Moscow Aerospace Show, which is expected to attract over 300 CIS firms and almost 200 foreign companies, begins. The latest Russian anti-aircraft systems are on display, including a system able to engage the most modern aircraft and cruise missiles. During the show, the Mashinostoenia design bureau, developer of the SS-N-3 Shaddock and the SS-N-9 Siren missiles, displays the Yakhont (Jewel) and Alpha cruise missiles. The Yakhont is a tube-launched anti-ship missile fired from surface vessels or submarines using a solid booster, and subsequently a ramjet engine for its cruise phase. It has a reported range of 300 km, is capable of mid-course guidance corrections (possibly from a helicopter) and uses an active radar in its terminal phase. The in-service status of the Yakhont is unclear. There is also a coastal defense variant of Yakhont called the Bastion. The Alpha cruise missile, which can be launched from several platforms including aircraft, is currently in its preliminary design stage. It has low clipped delta wings forward of the ramjet intake and four fins at the rear of the missile. Other Russian missile technology, such as the Cosmos missile, also generates considerable interest.

*Radio Rossii Network (Moscow), 8/31/93; in FBIS-SOV-93-168, 9/1/93, pp. 26-27 (3500). A. Filippov, Russian Television Network (Moscow), 8/31/93; in FBIS-SOV-93-168, 9/1/93, p. 26 (3500). Douglas Barrie, Flight International, 9/15/93, pp. 22-23 (3587). Russia Express Executive Briefing, 9/27/93 (3594).*

9/93

Kamchatka's missile forces and sailors conduct a live fire air defense training exercise that simulates real combat conditions, during which all the missiles launched hit their targets. This type of exercise is "a very recent development in the Far East", and took four and a half months to prepare.

*Vasily Plotskiy and Yuriy Shaltyshev, Ostankino Television First Channel Network (Moscow), 9/14/93; in JPRS-TND-93-030, 9/27/93, p. 19 (3513).*

9/8/93-9/13/93

At the "Arms, Military Hardware, Conversion" fair held in Nizhniy Novgorod, 250 Russian enterprises display armaments, including the S-300 PMU-1 "Tor" air defense system which can defend against ballistic and cruise missiles. The Tochka-U tactical missile system, the TOR-M1 air defense system, the "Uragan" and "Smerch" multiple rocket launchers, and the Buk and Tunguska anti-aircraft and missile complexes are also on display.

*Olga Veldina, Pravda (Moscow), 9/1/93, p. 2; in FBIS-SOV-93-171, p. 58 (3575). Valeriy Orlov, Pravda (Moscow), 9/9/93, p. 4; in FBIS-SOV-93-175, 9/13/93, pp. 43-44 (3769). Radio Rossii Network (Moscow), 9/9/93; in FBIS-SOV-93-175, 9/13/93, p. 44 (3769). Daniel Sneider, Defense News, 9/13/93, p. 6 (3582). Vladimir Ionov, Moscow News, 9/24/93, p. 13 (3769).*

9/9/93

Russian news reports state that SS-20 mobile, intermediate-range, solid-fuel RSD-10 nuclear missiles were displayed at Grozny, the capital of Chechnya. According to the Russian Defense Ministry, all SS-20 missiles were dismantled under strict international control.

*Major-General Vladimir Dudnik, Moscow News, 9/17/93, p. 5 (3621).*

9/30/93

Russia's aerospace forces successfully launch a heavy Proton rocket-booster carrying a Raduga communications satellite from the Baykonur space-launching facilities. This was the first launch of a Proton rocket since the 5/27/93 Proton accident.

*Semyon Ivanov, Itar-Tass (Moscow), 10/9/93; FBIS-SOV-93-196, 10/13/93, p. 77 (3875).*

10/93

U.S. Senator Ted Stevens provides evidence to the Senate from both U.S. and Russian sources that the Russian military is building new road-mobile and fixed-site ICBMs armed with multiple reentry vehicles (MIRVs).

*Frank Gaffney Jr., Washington Times, 10/26/93, p. A14 (3585).*

**10/93**

Russia's SA-12A/B (S-300V) Gladiator/Giant air-defense missile system, which is being offered for export by the Antey organization, is tested against the SS-1 Scud tactical SSM and other ballistic missiles. The SA-12B Giant missile has a larger first stage than the SA-12A Gladiator, and has a range of 100 km against aircraft and a maximum engagement range of 40 km against ballistic missiles. The SA-12A Gladiator missile is used at shorter ranges, against maneuvering targets. The SA-12A and B have similar second stages but differing fin configurations. An air-defense system with the SA-12 could include the Fakel SA-10 Grumble (S-300PMU) and the SA-11 Gadjfly.

*Flight International*, 10/20/93, p. 24 (3618).

**10/93**

A senior fellow at the Brookings Institution, Bruce G. Blair, reports that Russia has a computerized system, the "dead hand," capable of launching Russia's nuclear arsenal with little or no human supervision if communications are lost with Russia's military commanders. The Russian doomsday machine would launch special communications missiles that send attack orders to missiles, bombers, and submarines. On 11/13/84, U.S. intelligence tracked two Soviet long-range missiles fired forty minutes apart that Blair says was a Soviet test of their doomsday system. During the 1984 exercise, the USSR fired an SS-20 communications missile from the Kapustin Yar test site that ordered an SS-18 missile to launch from Kazakhstan and impact at a test site on the Kamchatka peninsula.

*William J. Broad*, *New York Times*, 10/8/93, p. A6 (3768). *Bruce G. Blair*, *New York Times*, 10/8/93, p. A23 (3768).

**11/93**

The Euroconsult of Paris publishes a four-volume report, principally authored by Stephane Chenard, concerning the state of the Russian space industry. Figures for Russian space employment peaked in 1990 at 790,000,

fell in 1992 to 560,000, and is projected to decrease to approximately 200,000 by 2000. The Russian Space Agency (RSA) has discontinued two space hardware programs: the Buran shuttle and the Energia launch vehicle. The 1993 RSA budget was approximately 80 billion rubles (\$68 million). Russia currently has no development program for a reusable launcher. Some sources report that the Baikonur Cosmodrome, which launches the Soyuz and Proton vehicles, is decaying due to a lack of funding and this may jeopardize Russia's launch capability.

*Peter B. de Selding*, *Space News*, 11/15/93, p. 6 (3527).

**11/93**

The Russian Ministry of Defense and the Russian Space Agency forward a draft resolution from the Council of Ministers to the government which includes a 120 billion ruble allocation request for the Russian space program. Some experts say that failure to provide the necessary 120 billion rubles could ruin the program "once and for all," and force the government to allocate \$200-300 billion in the future in order to restore it.

*Alexander Zhilin*, *Moscow News*, 11/19/93, p. 5 (3588).

**11/93**

The V.P. Makeyev Designing Office located in Miass, Russia, which develops all modern Russian SLBMs, proposes the modification of SS-N-23 and SS-N-20 to "deliver to the outer space or the upper layers of the atmosphere peaceful research or technological satellites." The "Priboi" project will launch rockets from the sea surface. The "Aerocosmos" project proposes using An-124 "Ruslan" and An-225 "Mriya" aircraft as launch platforms; in this case the booster is ignited after release from the aircraft at an altitude of 12 km. Aircraft range envelopes allow for launches up to 4,000 km from airfields. The SS-N-23 Shtil-3A rocket can place a 730-950 kg payload into a 200-700 km equa-

torial orbit. In some cases, COCOM restrictions can be circumvented because the missiles can be attached to ships or planes right at the customer's base. The laboratory head at the Makeyev Design Office, Rem Kanin, states that the commercial operation of the "Aerocosmos" program will begin in 1996-1997.

*Andrei Lomanov*, *Moscow News*, 11/5/93, p. 9 (3619).

**11/93**

Russian Prime Minister Viktor Chernomyrdin signs the decree, "On Making Changes and Additions to the Status on the Procedure for Controlling Exports from the Russian Federation of Equipment, Materials, and Technologies Used in the Creation of Missile Weapons." The decree provides export controls covering finished missile systems, a category that includes ballistic missiles, spacecraft, carrier rockets, research rockets, unmanned aircraft such as cruise missiles, radio-controlled target aircraft, radio-controlled reconnaissance aircraft, and the technologies, equipment, and materials used in their construction, preparation, and launch.

*Rossiyskiye Vesti* (Moscow), 11/26/93, p. 2; in *FBIS-SOV-93-228*, 11/30/93, pp. 19-20 (3710).

**11/5/93**

Russia launches the satellite Cosmos-2267 from the Plesetsk launch site on a Soyuz rocket booster into a 70.4 degree inclination orbit with an initial period of rotation of 89.0 minutes, an apogee of 279 km and a perigee of 198 km.

*Itar-Tass* (Moscow), 11/5/93; in *FBIS-SOV-93-214*, 11/8/93, P. 46 (3633).

**11/19/93**

Russia's First Vice-Premier Oleg Soskovets states that strategic missiles are a guarantee of Russian authority in the international community and that Russia's strategic nuclear forces are at a turning point. Soskovets reveals that the structure and mission of Russia's nuclear forces are under scrutiny, and emphasizes that Russia's new military doctrine considers nuclear weapons pri-

marily as a deterrent against aggression. *Interfax (Moscow)*, 11/19/93; in *FBIS-SOV-93-223*, 11/22/93, p. 45 (3947).

### 11/22/93-11/24/93

The Russian Academy of Sciences, the international "Integration" fund, and the "Vypmel" interstate joint stock corporation sponsor the first International Conference on Problems of a Global System of Defense Against Ballistic Missiles in Moscow, where about 150 scientists, designers, and military specialists from eight countries, including the U.S., Belgium, China, and France participate. The conference discusses aspects of global defense, missile attack early-warning data systems, ABM systems, and the technology of defense systems.

Viktor Litovkin, *Izvestiya (Moscow)*, 11/26/93, p. 2; in *FBIS-SOV-93-228*, 11/30/93, p. 2 (3638).

### 12/93

Russia tests a variant of the SS-N-22 Sunburn supersonic anti-ship missile from a wing-in-ground-effect (WIGE) prototype hydrofoil. While the SS-N-22 is already in service, an air launched version of the missile called the Kh-41 has been seen attached to the centerline pylon of the Sukhoi Su-27K naval Flanker.

*Flight International*, 12/15/93, p. 14 (3590).

### 12/93

It is reported that Russia has deployed an improved version of the SS-21 Tochka, called the OTR-21 Tochka-U, that uses an inertial navigation system containing launch and target coordinates, which can be programmed to carry out evasive maneuvers on final approach to the target. The Tochka-U will offer a cassette-type dispenser with 50 fragmentation submunitions and a single high explosive blast fragmentation warhead.

Paul Beaver, *Jane's Defence Weekly*, 12/11/93, p. 12 (3674).

### 12/7/93

It is reported that the new Russian Missile and Space Troops have been made

a constituent part of the Russian Federation Air Defense Troops under the command of General Viktor Prudnikov. This force includes the Missile, Space, and Air Attack Early Warning Troops, a system of direct missile and space defense, and a space control system that monitors space and warns troops about incoming missile attacks.

*Radio Moscow*, 12/7/93; in *FBIS-SOV-93-234*, 12/8/93, p. 42 (3794).

### 12/7/93-12/12/93

At the Langkawi International Maritime Aerospace Exhibition in Malaysia, Russian officials state that work on the production of the S-300 PMU1 air defense system has been accelerated so that the system will be deployed in late 1994. The Moscow-based Almaz Scientific Industrial Corporation produces 25 S-300 PMU1 systems per year for domestic use and foreign sale; Almaz general scientific manager Boris Bounkin states that the company has orders from countries he would not identify, although no final deals have been signed yet. Some sources say that Russia has no data to support their claims about the S-300 PMU1's performance capabilities, which are said to be two to three years more advanced than the U.S. Patriot.

Barbara Opall, *Defense News*, 12/20/93, p. 8 (3622).

### 12/28/93

The Russian Strategic Missile Force's press group denies reports that the majority of its personnel voted for the ultra-nationalist Vladimir Zhirinovskiy in the 12/12/93 parliamentary elections.

Mikhail Shevtsov, *Itar-Tass (Moscow)*, 12/28/93; in *FBIS-SOV-93-248*, p. 18 (3573).

### RUSSIA WITH AUSTRALIA

#### 9/15/93

Russian and Australian firms sign an agreement to jointly develop a \$900 million Papua New Guinea (PNG) space base that will launch Russian Proton rockets. Under the agreement, Space Transportation Systems, directed by former Queensland Premier Michael

Hern, will have exclusive rights to develop the launching and technical complexes and will manage, market and operate the space port. Russia's General Machine Building Bureau and Australia's Space Transportation Systems Ltd will build the launch site for the Proton rocket on the PNG islands of Manus and Emirau.

*Radio Australia (Melbourne)*, 9/16/93; in *FBIS-EAS-93-178*, 9/16/93, p. 57 (3743). *Washington Post*, 9/16/93, p. D12 (3641). *Space News*, 1/3/94, p. 13 (3871). *Space Business News*, 9/28/93, pp. 4-5 (3822).

### RUSSIA WITH AZERBAIJAN

#### 10/93

Azeri forces are retreating on all fronts from Armenian forces in Azerbaijan and Nagorno-Karabakh despite Russia's recent supply of BM-21 rocket launchers.

Paul Beaver, *Jane's Defence Weekly*, 12/11/93, p. 17 (3663).

### RUSSIA WITH BELGIUM

#### 1/26/94

Belgian Defense Minister Leo Delcroix, accompanied by his Russian counterpart Pavel Grachev, becomes the first NATO official to visit the formerly secret Russian missile base in Bologoye (located between Moscow and St. Petersburg) and see the most advanced Russian strategic missiles and other military hardware. The two-day visit follows a 12/93 agreement between the two countries to boost military contacts.

Mikhail Shevtsov, *Itar-Tass (Moscow)*, 1/26/94; in *FBIS-SOV-94-018*, 1/27/94, p. 10 (3850).

### RUSSIA WITH BOSNIA-HERZEGOVINA

#### 10/1/93

The director of the Russian External Economic Relations Ministry's National Market Research Institute, Mikhail Sarafanov acknowledges the

sale of Russian missiles to Bosnian Serbs, but denies that the Russian government was involved in the sale.

*Kyodo (Tokyo)*, 10/1/93; in *JPRS-TND-93-031*, 10/8/93, p. 42 (3657).

## RUSSIA WITH BRAZIL

2/93

The president of Russia's Aviaprom, A. Gereshchenko, and vice president of Russia's Mashinostroy, I. Latin, secretly visit the Alcantara launch site in Maranhao, Brazil. Ten weeks later, Embraer and Neiva of Brazil sign an agreement with Aviaprom and the Myasishchev Design Bureau of Russia to launch communications satellites from the Alcantara site. On average, launches from the Alcantara site cost 20 percent less than launches from any other site in the world. Reportedly, there is also an accord between Brazil's Monteiro Aranha group and Russia's Krunichev Enterprise for the use of Russian space launch vehicles.

*JPRS-TND-93-003*, 1/31/94, pp. 41-43 (3706).

9/93

Brazilian Army Minister General Zoroastro leads a military delegation on a visit to Russia to study missile technology and military equipment available to Brazil.

*JPRS-TND-93-003*, 1/31/94, pp. 41-43 (3706).

11/24/93

The Sao Paulo magazine *ISTOE* reports that the Brazilian Army is to receive Russian SAMs, which will be assigned to various infantry headquarters; deliveries will begin in early 1994.

*JPRS-TND-93-003*, 1/31/94, pp. 41-43 (3706).

12/1/93-12/3/93

Brazilian Prime Minister of Industry, Commerce, and Tourism Jose Eduardo de Andrade Vieira meets in Russia with Russian Foreign Economic Relations Minister Oleg Davydov and discusses possible cooperation between Brazil and Russia in space research. The Brazil-

ians "once again" express interest in joint development of inertial guidance systems for SLVs with Moscow. The Russians inform Vieira that they are still interested in using the Alcantara launch site for the Iridium project, which is to place about 60 communications satellites into orbit within the next two years using Russian Proton launch vehicles. On 12/3/93, Brazil and Russia conclude the visit by signing an agreement which will boost trade between the two countries from \$200 million to \$2 billion annually within a period of five years. The agreement covers cooperation in aerospace research and mutual technology transfer of military materiel. Brazil is committed to buy various Russian products, including rockets.

*JPRS-TND-93-003*, 1/31/94, pp. 41-43 (3706).

12/4/93

Brazilian diplomats are quoted as saying that the Brazilian government is "willing" to join the MTCR soon, a move that would eliminate the main obstacle to Brazil's involvement in the Iridium satellite project with Russia.

*JPRS-TND-93-003*, 1/31/94, pp. 41-43 (3706).

## RUSSIA WITH CHILE

10/93

In the wake of the cancellation of a deal involving the purchase of S-300 SAMs, Russian Defense Minister Pavel Grachev is to visit Chile during his trip to Latin America. The missile deal was discussed when Chilean President Aylwin visited Moscow in the summer of 1993, but was reportedly canceled under U.S. pressure.

*Sergey Zavorotnyy*, *Komsomolskaya Pravda* (Moscow), 9/23/93, p. 7; in *FBIS-SOV-93-184*, 9/24/93, p. 14 (3604).

## RUSSIA WITH FRANCE

10/93

It is reported that, in an effort to get an early start on the future competition for a European anti-ballistic missile system,

France's Matra is working with Russia's Antey company to profit from the technology incorporated in the latter's SA-12 (Russian designation S-300V) anti-ballistic missile system. According to Antey's chief engineer Boris V. Karpushin, the SA-12 has the same capability as the upgraded U.S. Patriot PAC-2, which will not be operational until 1995. At the Russian Aerospace '93 exhibition at the Emba test range in Kazakhstan, the SA-12 reportedly destroyed eight incoming "Scud-type" missiles in nine shots.

*Intelligence Newsletter*, 10/30/93, p. 2 (3741).

## RUSSIA WITH HUNGARY

1/94

It is reported that Russia will settle its \$800 million trade debt with Hungary by sending Hungary S-300PMU (SA-10 Grumble) air defense systems. The number of missiles to be provided to Hungary has not been determined.

*Karoly Okolicsanyi*, *RFE/RL News Briefs*, 1/10/94, p. 21 (3650). *Flight International*, 1/26/94, p. 16 (3650).

## RUSSIA WITH INDIA

7/15/93

Russia agrees to scale down its sale of liquid-fueled rocket engines and technology to India, worth an estimated \$400 million, which India claims is only for use on civil space launchers. Russia may still sell some engines to India, but not the technology.

*Andrew Lawler*, *Defense News*, 9/6/93, p. 6 (3642).

7/16/93

The Indian Ambassador in Moscow is given a document by the Chief of the Directorate of International Scientific and Technical Cooperation of the Russian Ministry of Foreign Affairs, which states that, due to unforeseen circumstances, Glavkosmos will not be able to fulfill its obligations on the transfer of cryogenic engines and technology under the 1/91 agreement.

*Strategic Digest*, 11/93, pp. 1843-1844 (3979).



9/93

The agreement between Russia and India for the supply of rocket engine technology is suspended. India has already received 50 percent of the technical drawings from Russia, and can slowly develop the technology itself.

*PPNN Newsbrief, Third Quarter, 1993, p. 6 (3572). H. K. Dua, Hindustan Times, (Delhi), 8/25/93, p. 13; in JPRS-TND-93-030, 9/27/93, p. 14 (3852). Reuter, 12/15/93; in Executive News Service, 12/15/93 (3649).*

11/3/93

An Indian space expert states that there is a chance that India will accept the cryogenic engines from Russia without the related production technology as most of the technology has already been delivered. Russia continued to give India the cryogenic engine technology until 11/1/93 when its obligation to abide by the MTCR went into effect. More than four-fifths of the production technology may already have been delivered by Glavkosmos to the Indian Space Research Organization.

*Vivek Raghuvanshi, Space News, 11/15/93, p.6 (3963).*

12/15/93

A Russian Glavkosmos official states that a Glavkosmos delegation was in India for two weeks in an attempt to salvage a deal to sell the Indian Space Agency rocket engine technology. The official says, "We [Russia and India] corrected the agreement of the text to take into account the MTCR. . . . Some changes were made and will be presented to the government soon."

*Reuter, 12/15/93; in Executive News Service, 12/15/93 (3649).*

1/94

The Director General of Russia's Space Agency, Yuri Koptev, states that Russia is continuing to cooperate with the Indian space program and is ready to conclude seven contracts with India's National Space Agency, which will include the supply of cryogenic boosters for India's Geostationary Satellite Launch Vehicles and a \$28 million contract for the manufacture and supply of equip-

ment for servicing cryogenic booster systems. Koptev states that the original contract between the USSR and India remains at basically the agreed amount of \$220 million, even though Russia will not be supplying cryogenic booster technologies.

*Dmitriy Voskoboinikov, Igor Porshnev and Vitaliy Trubetskiy, Interfax (Moscow), 1/18/94; in FBIS-SOV-94-012, 1/19/94, p. 13 (3613).*

RUSSIA WITH KUWAIT

12/2/93

A Russian-Kuwaiti defense cooperation agreement is signed, and a Russian radio report subsequently states that Kuwait intends to buy five unspecified missile systems.

*Christopher Foss, Jane's Defence Weekly, 1/15/94, pp. 20-21 (3626).*

RUSSIA WITH LIBYA

10/1/93

The director of the Russian External Relations Ministry's National Market Research Institute, Mikhail Sarafanov, denies that Russia has tried to sell missile fuel to Libya.

*Kyodo (Tokyo), 10/1/93; in JPRS-TND-93-031, 10/8/93, p. 42 (3657).*

RUSSIA WITH  
MULTI-COUNTRY GROUP

1/17/94

Greenpeace reports that on 9/7/91, in an operation code named Loose Cannon, a Russian lieutenant in charge of the guards patrolling the perimeter of a missile base in East Germany south of Berlin, made a deal to sell a Scud missile armed with a nuclear warhead to Greenpeace for \$285,000 and political asylum in the West. In late 7/91, the deal fell through due to the sudden disappearance of the lieutenant and a change of security.

*Reuter, Washington Times, 1/18/94, p. A13 (3692).*

RUSSIA WITH NORTH KOREA

11/15/93

Russian First Deputy Minister Sergey Stepashin states that Russia has expelled a North Korean diplomat, Maj. Gen. Nam Gae Wok, who was organizing a large-scale DPRK special services operation to send Russian missile and space industry experts to the DPRK. North Korea denies the recruitment accusation and says that Nam is not a General.

*Radio Rossii Network (Moscow), 11/15/93; in FBIS-SOV-93-219, 11/16/93, P. 5 (3586). Radio Moscow, 11/16/93; in Kyodo News Service, 11/16/93 (3534). Jane's Defence Weekly, 11/27/93, p. 19 (3534).*

11/16/93

Russian Security Ministry official Alexei Kandaurov states that the expelled North Korean diplomat was Major General Nam Gae-wok and that this is the first time that Russia has expelled a foreign diplomat for attempting to recruit Russian scientists.

*Washington Times, 11/17/93, p. A15 (3586).*

1/18/94

Western defense analysts in Moscow say that Russia is selling ten ballistic missile-capable Golf II class submarines to North Korea. The analysts maintain that North Korea could install modified Nodong-1 missiles on the subs. Although the Russian Navy insists that the submarines will be dismantled under Russian military observation, the Western analysts believe that the North Koreans may cannibalize the subs for parts and that knowledge of these subs will help them to improve their own submarine technology.

*Yonhap (Seoul), 1/18/94; in JPRS-TND-94-003, pp. 45-46 (3558).*

1/28/94

The Russian Defense Ministry denies allegations made in the Japanese weekly Shukan Bunshun concerning an alleged secret study from the Center for Mili-

tary Strategic Analysis of the Russian General Staff claiming that 160 Russian "scholars" had assisted North Korea in its nuclear program and the manufacture of warheads, and Nodong-1 medium-range missiles. Russian Armed Forces chief of general staff Colonel General Mikhail Kolesnikov states that the report, titled "The Russian Federation Military Policy in the Asia-Pacific Region under the New Military Political Conditions," is "utter nonsense from beginning to end." Kolesnikov says that North Korea has no nuclear warheads, Nodong-1 or Nodong-2 missiles, and that it is not likely to develop them any time soon.

Walentina Korikayev, *Radio Moscow*, 1/29/94; in *FBIS-SOV-94-020*, 1/31/94, p. 15 (3670). Viktor Litovkin, *Izvestiya* (Moscow), 1/29/94, p. 3; in *FBIS-SOV-94-020*, 1/31/94, pp. 16-17 (3670). Pavel Felgengauer, *Segodnya* (Moscow), 1/29/94, p. 1; in *FBIS-SOV-94-020*, 1/31/94, pp. 15-16 (3670). Stephen Foye, *RFE/RL News Briefs*, 1/31/94, p. 2 (3670).

#### RUSSIA WITH PHILIPPINES

10/93

Philippine defense officials who asked to remain anonymous state that their nation is studying the prospect of bartering tobacco and alcohol for Russian missile gunboats. The Philippines would pay 15 to 20 percent of the purchase price in cash with the remainder being paid in barter goods. If the proposed trade arrangement is approved, the Philippines would purchase up to \$30 million in Russian military equipment.

Reuter, 10/18/93; in *Executive News Service*, 10/19/93 (3736).

#### RUSSIA WITH PRC

9/93

Large numbers of Chinese arms shoppers attend the Russian arms exhibition at Nizhny Novgorod, which is indicative of recent Chinese efforts to increase purchases of Russian weaponry, including air-defense missile systems and

guidance technology for use in the manufacture of Chinese missiles. The Chinese intend to purchase weapons technologies in Russia that they are barred from purchasing in the West due to export/import restrictions.

AFP (Paris), 9/9/93; in *FBIS-SOV-93-174*, 9/10/93, p. 15 (3683).

10/93

Russian military critic Pinkov states that Russia has sent five sets of S300PMU-1 SAMs to the PRC, and that several dozen Russian technical experts are in China training Chinese soldiers in their use. While Russia did not provide China with the technology to manufacture the S300PMU-1, Pinov says that China could use the phased-array radar technology to improve its large scale early warning system.

Tseng Hui-yen, *Lien Ho Pao* (Hong Kong), 10/20/93, p. 10; in *JPRS-TND-93-035*, 11/10/93, pp. 67-68 (3729).

10/93

An analyst at the American Enterprise Institute, James R. Lilley, states that the Chinese media has reported that up to 3,000 Russian experts are working in China for salaries as high as \$2,000 plus housing, a car and living expenses. China has "semi-openly" recruited these experts, Lilley says. The experts have visited Russian defense plants and have also done weapons designs and mathematical modeling, which they receive via electronic mail. China is obtaining Russian missile technology, including Russian SS-24 Scalpel and SS-25 Sickle technology, both of which are produced by the Nadiradize Design Bureau. The SS-25 has a range of 10,000 km and pinpoint accuracy compared to China's 11,000 km range CSS-4.

John J. Fialka, *Wall Street Journal*, 10/14/93, p. A12 (3868). Alan George, *Flight International*, 12/22/93, p. 5 (3868).

10/93

Responding to rumors in the U.S. of "about one thousand" Russian missile specialists working in China, Valeriy Levshunov, a high-ranking expert from the Russian Department for the Defense

Complex and Conversion, states, "We do not have and have never had such information." The deputy head of the main department of the aircraft building industry, Yuri Nikitin, is "of the same opinion" as Levshunov. Nikitin states, "All matters related to missile building are handled by the Committee for Military-Technical Cooperation, and control is reliable here."

Pavel Spirin, *Itar-Tass* (Moscow), 10/15/93; in *JPRS-TND-93-034*, 10/27/93, p. 35 (3962).

11/93

An independent analyst of Russian programs, Charles Vick, states that in 1991 Russia and Ukraine sold three RD-70 engines to China. Vick says that one engine was torn apart, one used for testing, and the third kept intact. Vick believes that China is attempting to develop a manned space capability like Russia and the U.S. The Soviets reportedly assumed that China would attempt to develop a similar engine using these as models, but "did not know or care" what the purchase was for.

*Space News*, 11/8/93, p. 13 (3635).

11/93

A secret document from the General Department of the CPC Central Committee Military Council, published by the Hong Kong magazine *Cheng Ming*, indicates that more than 1,000 Russian defense workers are currently working in China. The document does not reveal how many traveled to China independently, or if any were sent by Moscow.

Vladimir Skosyrev, *Izvestiya* (Moscow), 11/9/93, pp. 1, 3; in *FBIS-SOV-93-216*, 11/10/93, p. 2 (3951).

11/93

During Russian Defense Minister Pavel Grachev's visit to Beijing, Chinese Defense Minister Chi Hoatian tells him that China would like to purchase more air-defense systems; China may want to purchase 12 S-300 batteries in 1994.

In 1993, China purchased four batteries of S-300 (SA-10 Grumble) air-defense missile systems.

*Jane's Defence Weekly*, 1/22/94, p. 3 (3959).

### 11/11/93

China and Russia sign a five-year military cooperation agreement providing for exchanges in experts and other personnel. U.S. intelligence sources believe that China is hiring Russian missile scientists, and that Russia is providing China with triggering devices for nuclear weapons, solid rocket fuel, and technology to solve problems related to launching missiles from submerged submarines. A Pentagon officer in charge of non-proliferation in the Bush Administration, Henry Sokolski, states that China has been buying missile information from former Soviet republics, particularly Russia, and that China is now trying to develop mobile SS-25 ICBMs.

*Martin Sieff, Washington Times*, 11/12/93, p. A16 (3772).

### RUSSIA WITH SOUTH KOREA

#### 8/93

Russian Vice-Premier RF Alexander Shokin offers to pay-off the Russian debt to South Korea with missiles and fighter planes. Russia already agreed to repay part of the debt with supplies of aluminum. Russia still needs to repay South Korea about \$500 million of its \$1.56 billion debt for the import of South Korean goods.

*Segodniya*, 8/27/93 (3616).

### RUSSIA WITH UKRAINE

#### 9/14/93

The head of the Russian Defense Ministry's nuclear ammunition department, Major General Yevgeny Maslin, states that Ukrainian officials are increasing their control over the forces that guard and service Ukraine's nuclear weapons, although Ukraine is still two to three years from establishing the

guidance control systems necessary for launching its 176 missiles independently of Russia. Russia still has launch control over Ukraine's nuclear missiles, but the Center for Administrative Control of Strategic Nuclear forces, established by the Ukrainian Defense Ministry, has ten branches that enforce Ukraine's control over the personnel manning the Ukrainian nuclear arsenal.

*Gregory Gransden, UPI*, 9/14/93 (3709).

#### 10/5/93

A railroad car containing two nuclear warheads en route to a repair facility in Russia is stopped at the Russia-Ukraine border. Ukraine has said that it will delay the shipment until it receives guarantees of compensation for the nuclear materials in the warheads.

*Ustina Markus, RFE/RL*, 10/18/93, p. 7 (3514).

#### 10/20/93

The railroad car containing two nuclear warheads bound for a Russian repair facility remains on the Russia-Ukraine border. Russia is reportedly worried about possible radiation leaks from the warheads.

*Ustina Markus, RFE/RL*, 10/18/93, p. 7 (3514).

### RUSSIA WITH UNITED ARAB EMIRATES

#### 10/93

The UAE is planning to spend up to \$700 million on an air defense missile system within the next two to three years, and are showing interest in the Russian S-300V air defense system. There is some concern that Russia may not be reliable in supplying spare parts or providing after-sales service on its products.

*Mikhail Pogorelyy, Krasnaya Zvezda (Moscow)*, 10/23/93, p. 4; in *FBIS-SOV-93-206*, 10/27/93, p. 20 (3623).

### RUSSIA WITH UNITED KINGDOM

#### 10/93

The U.K. is reportedly interested in buying the SSN-22 Sunburn supersonic anti-ship missile from Russia at a cost of \$600,000 each (some reports indicate \$400,000), half the price of the NATO Harpoon missile. The U.K. might purchase the missile for offensive purposes.

*For Your Eyes Only*, 10/11/93 (3630).

### RUSSIA WITH UNITED STATES

#### 9/93

At Moscow's airshow, the U.S. company Pratt and Whitney continue talks toward an agreement on the licensed production of the Russian liquid-fueled RD-170 engine and mutual use of the engine's components and technologies.

*Russia Express Executive Briefing*, 9/27/93 (3594).

#### 9/93

The U.S. Space Systems/Loral signs a deal to launch at least one U.S. satellite on a Russian Proton rocket.

*Space News*, 10/10/93, p. 13 (3614).

#### 9/93

It is reported that the U.S. Air Force is interested in paying Russia or Ukraine for 10 years for the production of the Solnechny Ozhog anti-ship missile which has a speed of 1,900 miles an hour. However, the U.S. wants to purchase samples of the missile first.

*Vladimir Ionov, Moscow News*, 9/24/93, p. 13 (3769).

#### 9/2/93

Russian Prime Minister Viktor Chernomyrdin and U.S. Vice-President Al Gore sign two intergovernmental documents, the first dealing with Russia's intention to adhere to the provisions and conditions of the MTCR, and the second providing for Russia's entry into the international market for

commercial space launches.

Frank Murray, *Washington Times*, 9/1/93, p. A8 (3885). Kenneth R. Bazinet, *United Press International*, 9/2/93; in *Executive News Service*, 9/3/93 (3965). Pavel Vanichkin, *Itar-Tass (Moscow)*, 9/2/93; in *FBIS-SOV-93-169*, 9/2/93, pp. 4-5 (3885). Jim Wolf, *Reuter*, 9/2/93; in *Executive News Service*, 9/3/93 (3885). Andrew Lawler, *Defense News*, 9/6/93, p. 6 (3642).

### 10/93

The U.S. is reportedly interested in buying the SSN-22 Sunburn supersonic anti-ship missile from Russia at a cost of \$600,000 each (some reports indicate \$400,000), half the price of the NATO Harpoon missile. The U.S. could buy up to 1,000 Sunburn missiles to use as targets.

*For Your Eyes Only*, 10/11/93 (3630).

### 11/93

It is reported that an official from the U.S. company Lockheed Sanders, using a credit card, buys a Russian missile that his company wants for an upcoming test.

*Aviation Week & Space Technology*, 11/15/93, p. 19 (3581).

### 11/93

The U.S. Thiokol Corporation signs an agreement with the Russian Askond joint stock company to dismantle Russian ballistic missiles and convert the fuel into commercial products. Askond and Thiokol have asked the U.S. Defense Department for \$45 million to dismantle eight SS-19 liquid-fuel missiles and three SS-13 third stage rocket motors. The work will begin within six to nine months at Niikhimmash, the Russian space and rocket propulsion center, and could be followed by a larger effort if U.S. defense officials accept the program as part of the U.S. effort to assist the former Soviet Union in dismantling its nuclear weapons.

*Space News*, 11/15/93, p. 17 (3631).

### 11/93

It is reported that the U.S.-Russian joint venture Sea Launch Services plans to convert Russian SS-N-23 and SS-N-20 SLBMs into disposable launch vehicles

called Surf. The Surf rockets will be capable of launching--with only modest adjustments necessary to replace the nuclear warheads with satellites--5,000 lb satellites into a low Earth orbit at a cost of less than \$11 million by 1995.

Ben Iannotta, *Space News*, 11/29/93, p. 8 (3675).

### 12/6/93

President Clinton confirms that for several months the U.S. and Russia have been conducting talks on targeting their ICBMs away from each other, although no final agreement has yet been reached. Options on where to target the nuclear missiles have also not been agreed on, but the two choices are aiming the missiles at the ocean or not aiming them at all. The missiles can reportedly be re-targeted in fifteen minutes or less.

*Washington Times*, 12/7/93, p. A8 (3603). *Washington Times*, 12/10/93, p. A25 (3603).

### 1/14/94

U.S. President Clinton and Russian President Yeltsin sign an agreement stating that the two countries would re-target their nuclear missiles away from each other and other countries. President Clinton states, "If we had to target a missile, God forbid, at North Korea or any place else, we could do it very quickly."

Paul Bedard, *Washington Times*, 1/15/94, pp. A1, A9 (3646).

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## SAUDI ARABIA

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### SAUDI ARABIA WITH FRANCE

#### 11/93

According to French Defense Minister Francois Leotard, the French expect to win \$4 billion in contracts with Saudi Arabia by the end of the year. Two of the contracts involve the purchase of two air-defense frigates worth \$3.38 billion, and one involves the modernization of

Crotale air-defense missiles for \$591.5 million.

Giovanni de Briganti, *Defense News*, 11/22/93, p. 18 (3734).

### SAUDI ARABIA WITH MULTI-COUNTRY GROUP

#### 12/28/93

German and Saudi inspectors confiscate over one hundred barrels of ammonium perchlorate from a German-registered ship docked in Jeddah, Saudi Arabia that was bound for Beirut, Lebanon from Hung Fu, China. Ultimately, the ammonium perchlorate, which is used in missile fuel, was to go to Iraq.

*Reuter*, 1/24/94; in *Executive News Service*, 1/24/94 (3648). Michael Evens, *Times*, 1/27/94 (3698).

### SAUDI ARABIA WITH UNITED STATES

#### 11/93

Saudi Arabia expresses interest in determining whether or not Peace Shield, a joint project with the U.S., can be modified to detect tactical ballistic missiles. The Peace Shield program is designed to provide a command and control air defense system for Saudi Arabia. According to U.S. Lt. General Thomas Rhame, Saudi Arabia is placing a high priority on completing the Peace Shield system, and has begun purchasing 20 Patriot missile batteries. Saudi Arabia and the U.S. have recently started talks to restructure payments for the Patriot missiles and a Hughes air-defense system.

Barbara Starr, *Jane's Defence Weekly*, 11/13/93, p. 16 (3545). Barbara Starr, *Jane's Defence Weekly*, 12/11/93, p. 32 (3545). Graham Warwick, *Flight International*, 1/19/94, p. 16 (3545).

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## SOUTH AFRICA

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### INTERNAL DEVELOPMENTS

11/93

The South African 120 kg, Kentron-produced Lark, an anti-radar drone, which has a typical mission range of 400 km with 2.5 hours of loiter time at 170 kph, is being offered for export. The Lark has a maximum altitude of 4,500 meters with cruise speed of 210 kph. Launched from a truck- or ship-mounted canister, the Lark is powered by a 38 horse power rotary piston engine, and has a delta wing, from which normal flight control via "elevons and rudders" and terminal guidance via side force control surfaces is provided. The Lark has an Avitronics 2-10 GHz seeker head, which can be extended to the .7-18 GHz range, and delivers a 20 kg barrel-shaped fragmentation warhead with a programmable proximity fuze. *Aviation Week & Space Technology*, 11/22/93, p. 96 (3599).

11/93

The South African company, Kentron, is offering the SAHV-3 and SAHV-IR high velocity missiles as air defense upgrades in the same class as France's Crotale missile. Kentron, a division of Denel, is willing to consider cooperative production arrangements. The missiles are funded by the South African military and have been test fired successfully against targets. According to Kentron managers at the 1993 Dubai air show, the SAHV program began in the mid 1980s as an effort to improve Crotale missiles employed by the South African military. The SAHV uses a command receiver/transponder designed to Crotale standards, and it is compatible electronically and mechanically with the Crotale fire unit. The 123 kg, 3.08 m long single-stage SAHV

uses a high-energy, low-smoke rocket motor, which yields a maximum speed of Mach 3.5, and can maneuver at 40 g. Linear electromechanical servos driving four independent tail fins and a digital autopilot provide the missile's flight control. The SAHV-3 line-of-site missile is designed to defend against aircraft from lower altitudes up to 20,000 ft out to a range of 12 km. The SAHV-3 can also engage armed helicopters and missiles flying at low altitudes. The SAHV-3 uses a 20 kg prefragmented warhead with a proximity fuze, and the missile can be radar or electro-optically tracked. The SAHV-IR variant uses the infrared seeker from the U-Darter AAM, which is currently under development. The seeker can lock onto the target after launch, and employs a two-color discrimination system to prevent spoofing by decoy flares. To allow for initial course correction and to improve the seeker's chances of detecting the target if it has maneuvered after launch, the SAHV-IR can also be guided during the boost phase via an RF data link with a missile tracker on the launcher. The SAHV-IR missile is 3.25 m long, and weighs 132 kg.

Jeffrey M. Lenorovitz, *Aviation Week & Space Technology*, 11/29/93, p. 54 (3612).

12/8/93

At the Langkawi International Maritime Aerospace Exhibition in Malaysia, Kentron marketing executive Arthur Oates says that he has met with almost twelve nations since 10/93 to discuss the South African company's Skua high-speed target drone and Buzzard low-speed target drone. The Hennopsmeer-based Kentron Co. is a division of Denel Systems Group, and is marketing its target drones to Asia-Pacific and Persian Gulf countries.

Keith Hodson, *Defense News*, 12/20/93, p. 18 (3601).

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## SOUTH KOREA

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### INTERNAL DEVELOPMENTS

6/4/93

The KSR, which is South Korea's first indigenously developed rocket, is launched for the first time, and attains an altitude of 39 km (21 nm). *Flight International*, 9/1/93, p. 20 (3538).

9/1/93

South Korea launches the second KSR (Korea Sounding Rocket) from a military base on the southwest coast from a mobile launcher at 10:34 am, reaching an altitude of 180,000 ft during the 3.5 minute flight. The KSR, weighing 1.25 tons, is 22 ft long and 16.5 inches in diameter. The KSR was developed by the Korea Aerospace Research Institute (KARI) in cooperation with two state-sponsored research institutes, three universities and five companies. KARI will begin development of a two-stage scientific rocket in 10/93, based on data gleaned from the first two launches. This more powerful system will be test-launched in 1996 as a precursor to a satellite launch vehicle.

*Flight International*, 9/1/93, p. 20 (3538). *Space News*, 9/13/93, p. 13 (3538).

10/12/93

South Korean Democratic Party parliament member Yim Pok-chin states that, in accordance with a bilateral accord with the U.S., South Korea agrees to limit the range of missiles being developed by the Hyonmu Project to 180 km. Yim complains that "this agreement is unfairly disadvantageous to the ROK compared to the 300 km limitation applicable to other countries."

An Song-kyu, *Chungang Ilbo* (Seoul), 10/12/93, p. 2; in *FBIS-EAS-93-195*, 10/12/93, PP. 36-37 (3542).

12/93

It is reported that, according to South Korean lawmakers, the South Korean Defense Ministry canceled production of a mobile missile launcher under development since 1985. The cancellation of the program is part of an anti-corruption campaign launched by President Kim aimed at the 20-year military procurement program known as Yulgok. Steve Glain, *Wall Street Journal*, 12/29/93, p. 10 (3543).

#### SOUTH KOREA WITH JAPAN

9/17/93

Japanese Defense Agency Director General Keisuke Nakanishi and South Korean Air Force Chief of Staff General Cho Kun-hae agree on the need to promote cooperation between their countries and with the U.S. against suspected North Korean long-range missile and nuclear developments. *Kyodo (Tokyo)*, 9/17/93; in *FBIS-EAS-93-179*, 9/17/93, p. 6 (3584).

#### SOUTH KOREA WITH RUSSIA

8/93

Russian Vice-Premier RF Alexander Shokin offers to pay-off the Russian debt to South Korea with missiles and fighter planes. Russia already agreed to repay part of the debt with supplies of aluminum. Russia still needs to repay South Korea about \$500 million of its \$1.56 billion debt for the import of South Korean goods. *Segodniya*, 8/27/93 (3616).

#### SOUTH KOREA WITH UNITED STATES

10/26/93

The South Korean defense ministry announces that South Korean Defense Minister Kwon Young-hae and U.S. Secretary of Defense Les Aspin will meet from 11/3/93 to 11/4/93 in Seoul to discuss ways to halt North Korea's

suspected nuclear weapons program and the possibility of South Korean participation in the U.S.-Japanese Theater Missile Defense system.

*Shim Sung-won, Reuter*, 10/26/93; in *NNN News*, 10/26/93 (3598).

11/23/93

The Pentagon announces that the U.S. intends to sell 190 AMRAAM and 127 Maverick missiles to South Korea for \$169 million. The missiles are produced by Raytheon and Hughes Aircraft, respectively. The Pentagon further states, "This sale would contribute to the foreign policy and national security of the United States by helping to improve the security of a friendly country which has been and continues to be an important force for political stability and economic progress in the Pacific region."

*Reuter*, 11/23/93; in *Executive News Service*, 11/24/93 (3541).

#### SPAIN

#### SPAIN WITH FRANCE

12/93

DCN International, a French shipbuilding company, signs an accord agreeing to help Empresa Nacional Bazan of Spain build four mine hunters for the Spanish Navy; the deal includes the transfer of glass-reinforced plastic (GRP) construction technology developed by DCN.

*Jane's Defence Weekly*, 12/11/93, p. 5 (3520).

#### SUDAN

#### SUDAN WITH IRAQ

9/93

Arab and Kurdish opposition forces in London state that Iraq has sold large amounts of arms and ammunition to Iran, including missiles and chemical weapons, in exchange for foreign currency. Iraq also sent some of the weapons through Iran to Sudan.

*Voice of the Iraqi People*, 9/9/93; in *JPRS-TND-93-030*, 9/27/93 (3940).

12/93

"Specially informed" Sudanese sources in the eastern region stated that the large number of Iraqis who have moved into the area of the Red Sea mountain range are not oil prospectors but experts in missiles, defense systems, aircraft and radars. Iraqis have been reported in Madabay in Khawr Ashraf, Port Sudan, in the region of Dalawat on the Red Sea near Hala'ib, and the city of Tawker in region of Karnakanat.

*Al-Wafd (Cairo)*, 12/26/93, p. 9; in *JPRS-TND-93-003*, 1/31/94, p. 17 (3610).

#### SWEDEN

#### SWEDEN WITH MALAYSIA

11/93

Malaysia and Sweden are reportedly finalizing a defense-related Memorandum of Understanding that provides a framework for cooperation and may include the transfer of Swedish technology to Malaysia. Malaysia has purchased four

Spica M class fast attack craft/missiles from Sweden, and Saab Missiles plans to open a regional office in Kuala Lumpur in 1994.

Robert Karniol, *Jane's Defence Weekly*, 11/20/93, p. 5 (3969).

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## SYRIA

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### SYRIA WITH IRAN

11/13/93

An Iranian Defense Ministry source denies allegations made in the *Times* of London that Iran and Syria are co-producing sophisticated cruise missiles, and that Iran is financing the production of North Korean Scud missiles. The *Times* report that Iran and Syria intend to produce a nuclear- or chemical- capable missile is based on information originating from an international aerospace exhibition in Dubai.

Reuter, 11/13/93 (3544). IRNA (Tehran), 11/13/93; in JPRS-TND-93-037, 12/8/93, p. 36 (3544).

12/93

Reports from Teheran say that Syria and Iran are working on a new joint cruise missile development program which utilizes Chinese and North Korean technology. The program is reportedly centered around Iran's Ministry of Heavy Industries factories and is incorporating imported technology from Germany and other European countries.

*Jane's Defence Weekly*, 12/11/93, p. 18 (3505).

### SYRIA WITH NORTH KOREA

8/93

Israeli Prime Minister Yitzhak Rabin states that Russian aircraft have delivered North Korean Scud-C missiles to Syria and possibly to Iran.

AFP (Paris), 12/20/93; in JPRS-TND-94-002, 1/18/94, p. 14 (3553).

8/5/93

Two Russian civilian Condor transport aircraft, leased by Syria, which left North Korea's Sunan airfield the day before, land in Damascus with a load of seven MAZ 543 chassis. According to U.S. intelligence sources, the MAZ 543s are probably taken from Damascus to a missile plant in Nasariya for conversion into mobile missile launchers.

*Qol Yisra'el (Jerusalem)*, 9/20/93; in JPRS-TND-93-032, 10/12/93, p. 34 (3531). Michael R. Gordon, *New York Times*, 12/12/93, pp. 1, 20 (3531). David E. Sanger, *New York Times*, 1/20/93, p. A5 (3531).

8/8/93

Russian transport planes deliver components for the Scud-C ballistic missile from North Korea to Damascus, Syria. Part of the shipment may have also been delivered from North Korea to Iran.

John Hannah, *Wall Street Journal*, 9/15/93 (3919).

9/93

The U.S. is "discussing actively" the delivery of spare parts for intermediate-range Scud missiles from North Korea to Syria on Russian transport aircraft. The shipment violates a memorandum of mutual understanding on the export of rocket technology signed by Viktor Chernomyrdin.

Vladimir Nadein, *Izvestiya (Moscow)*, 9/18/93, p. 3; in FBIS-SOV-93-183, p. 12 (3565).

### SYRIA WITH UKRAINE

11/93

The Syrian newspaper *Al-Ba'th* reports that five Ukrainian officers are training Syrians in the use of a "Ukrainian nuclear munition."

Colonel Oleg Falichev, *Krasnaya Zvezda (Moscow)*, 11/26/93, pp. 1-2; in JPRS-TND-93-038, 12/29/93, pp. 48-50 (3826).

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## TAIWAN

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### INTERNAL DEVELOPMENTS

8/93

The Taipei Aerospace and Technology Exhibition (TATE) demonstrates Taiwan's aerospace advances to potential vendors; there are definite signs of foreign industrial interest. According to Western industry sources, Taiwan has an impressive manufacturing capability, particularly the manufacture, treatment and working of advanced metals and materials. However, the Taiwanese missile industry, based in the Chung Shan Institute of Science and Technology, a division of the Aero Industry Development Center (AIDC), still relies on foreign input for the more sophisticated sections of weapons such as the dual seeker Hsiung Feng II anti-ship missile and the Sky Sword I and II medium-range AAM. The Chung Shan Institute itself is based in Taoyuan, west of Taipei.

Barbara Opall, *Defense News*, 8/23/93, p. 6 (3738). *Jane's Defence Weekly*, 10/25/93, p. 24 (3738).

9/30/93

Taiwan deploys its first indigenous surface-to-air missile, the Tien Kung I Sky Bow, which replaces the U.S. Hercules missile. The first battery of Sky Bow missiles has been installed at the Sky Dragon military base in Taipei County, and five more batteries will be deployed at other locations, including Taiwan's offshore islands.

*Executive News Service*, 9/13/93 (3806). Reuter, 10/19/93; in *Executive News Service*, 10/19/93 (3806).

11/10/93

Taiwan has deployed the air-launched Hsiung Feng II anti-ship missile, which is derived from the Israeli Gabriel II.

*Flight International*, 11/10/93, p. 17 (3806).

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**TAIWAN WITH BELGIUM**

**1/14/93**

Belgium ships "various" rocket motors, built by Forges de Zeebruges, to Taiwan.

*Georges Timmerman, De Morgen (Brussels), 12/29/93, p. 2 (3744).*

**TAIWAN WITH FRANCE**

**10/8/93**

French Prime Minister Edouard Balladur decides to allow the sale of up to \$2.6 billion worth of naval equipment, including Exocet anti-ship missiles, and Crotale and Mistral anti-aircraft missiles, to Taiwan.

*Reuter, 10/20/93; in Executive News Service, 10/21/93 (3846). Reuter, 10/21/93; in Executive News Service, 10/21/93 (3901). Jane's Defence Weekly, 1/22/94, pp. 24-25 (3732).*

**10/21/93**

China warns that France's arms deal with Taiwan, which includes anti-ship and anti-aircraft missiles, will hurt Chinese-French relations. A Chinese Foreign Ministry Spokeswoman states that "[i]f the French side sticks to the erroneous policy...Sino-French relations will be further damaged."

*Reuter, 10/21/93; in Executive News Service, 10/21/93 (3707).*

**1/12/94**

In a joint statement with China, France shifts its policy by restoring "traditional relations of friendly cooperation" with China and vows to ban the sale of arms to Taiwan. Although French Foreign Minister Alain Juppe states that the ban on arms sales to Taiwan does not apply to existing deals, it is not clear whether the fall 1993 sale of missiles would be affected.

*Nelson Graves, Reuter, 1/12/94; in Executive News Service, 1/12/94 (3735).*

**TAIWAN WITH UNITED STATES**

**9/93**

The U.S. sells between 38 and 41 Harpoon anti-ship missiles worth an estimated \$68 million to Taiwan; the missiles will be installed on three U.S. Knox-class frigates leased to Taiwan for five years.

*Flight International, 9/15/93, p. 23 (3805). Reuter, 9/28/93; in Executive News Service, 9/28/93 (3805).*

**12/93**

It is reported that Taiwan wants to purchase a single Mk41 Vertical Launch System worth \$103 million from the U.S.

*Jane's Defence Weekly, 12/93, p. 9 (3908).*

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**THAILAND**

**INTERNAL DEVELOPMENTS**

**12/7/93**

Thai national police raid a secret jungle camp in Wangseam village in eastern Chantaburi province and finds over 1,500 tons of weapons believed to belong to the Khmer Rouge. The huge cache includes 15 130 mm artillery pieces, anti-aircraft artillery guns and rocket launchers.

*Washington Times, 12/10/93, p. A23 (3928).*

**THAILAND WITH FRANCE**

**10/93**

France's Thomson-TRT Defense sells six Rubis navigation pods to the Thai Air Force. The navigation pods will be used to perform low-level navigation and weapon guidance roles at night or in unfavorable weather conditions. The Rubis pod was developed jointly by Thomson-TRT Defense, Dassault Avia-

tion and Intertechnique for use with Mirage F-1CR reconnaissance aircraft. *Defense News, 10/4/93, p. 23 (3905).*

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**TAJIKISTAN**

**TAJIKISTAN WITH AFGHANISTAN**

**1/9/94**

At 10:35 a.m., seven missiles are fired on the 13th post of the Moskovskiy Border Guard.

*Galina Gridneva, Itar-Tass (Moscow), 1/12/94; in FBIS-SOV-94-008, 1/12/94, p. 76 (3634).*

**1/11/94**

The 12th post of the Russian Moskovskiy detachment guarding the Tajik border takes missile fire from inside Afghanistan.

*Galina Gridneva, Itar-Tass (Moscow), 1/12/94; in FBIS-SOV-94-008, 1/12/94, p. 76 (3634).*

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**TURKEY**

**INTERNAL DEVELOPMENTS**

**10/93**

It is reported that although Turkey has decided "in principle" to join the MTCR, it has yet to present legislation in parliament regarding both this decision and the establishment of a disarmament agency. Turkish officials expressed a need for a legal mechanism to raid facilities under suspicion of dual-use material violations; a disarmament agency of this sort would come under Turkey's Foreign Ministry. Although Turkey has no reported missile programs applicable to the MTCR, it is



concerned with the proliferation of such technology in its region, particularly to Syria, Iraq and Israel, all of whom have ballistic missiles.

*Jane's Defence Weekly*, 10/23/93, p. 7 (3609).

## TURKEY WITH UNITED STATES

11/93

The U.S. Defense Department reportedly plans to sell \$170 million worth of military equipment to Turkey through the Foreign Military Sales program. The sale includes 32 Harpoon missiles, 64 Mk-46 torpedoes and 40 anti-submarine rockets to equip four Turkish Knox-class frigates leased from the U.S. Navy. In a second deal, Turkey has requested the purchase of U.S. combat and electronic systems worth \$150 million, including two Harpoon Ship Command Launch Control Sets to equip two Meko-class frigates.

Barbara Starr and Robert Karinol, *Jane's Defence Weekly*, 11/27/93, pp. 19-20 (3813).

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## UKRAINE

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### INTERNAL DEVELOPMENTS

9/93

The head of Ukraine's Main Directorate for Nuclear Munitions, Colonel General Evgenii Maslin, states that Ukraine has "full control" over nuclear weapons on its territory, but cannot launch them yet. Maslin says that strategic bomber crews and warhead maintenance crews have taken the Ukrainian oath of allegiance and that "within the next year or two" Ukraine could develop systems to allow a launch capability.

*Boston Globe*, 9/15/93; in *RFE/RL News Briefs*, 9/13/93, pp. 7-8 (3877).

9/14/93

Ukrainian Defense Ministry spokesman

Valery Korol says that although the temperature has risen at Pervomaisk, in southern Ukraine where SS-19 missiles are being dismantled, radiation levels have not increased. Itar-Tass had reported that a "serious accident" had occurred at Pervomaisk resulting in a dangerous rise in background radiation due to a high concentration of weapons at the site. Ukrainian ministerial sources acknowledge the high concentration of weapons and state that this has occurred because two of the four dismantling units were "taken out of commission" by Russian troops who had been stationed earlier at the site.

*Reuter*, 9/14/93 (3620).

9/15/93

Ukrainian Defense Minister Kostyantyn Morozov is to be given the results of a feasibility study for the establishment of Ukrainian missile and space forces.

*Unian (Kiev)*, 9/3/93; in *FBIS-SOV-93-171*, 9/7/93, p. 82 (3778).

9/23/93

Ukrainian President Leonid Kravchuk says that early parliamentary elections could help surmount obstacles to removing the remaining nuclear weapons from Ukraine. Kravchuk states that 60 warheads on ten of Ukraine's SS-19 missiles have been removed and that ten more missiles will be dismantled later in 9/93.

David White, *Financial Times*, 9/24/93 (3757).

10/19/93

Ukrainian President Leonid M. Kravchuk states that after the ratification of the START Treaty, Ukraine will immediately proceed with the destruction of the 130 SS-19 ICBMs on its territory, but may keep the 46 SS-24 ICBMs. Kravchuk accuses the West of failing to provide sufficient financial assistance to dismantle the 176 strategic missiles in Ukraine. Kravchuk adds that the threat posed to the U.S. by these systems could be neutralized "creatively" by deactivating their coding systems.

*New York Times*, 10/20/93, p. A4 (3700). Rob-

ert Seely, *Washington Post*, 10/20/93, pp. A31, A38 (3791).

11/18/93

Although the Ukrainian parliament ratifies Start-1 by 254 votes to nine, it states that the treaty only applies to 42 percent of its nuclear missiles and that disarmament would only begin once Ukraine is given security guarantees and "substantial" compensation. In all, thirteen conditions are given which must be fulfilled before Ukraine will fulfill the treaty. The parliament also withheld approval of the portion of the Lisbon Protocol that obliges Ukraine to give up all of its nuclear weapons and accede to the NPT as a non-nuclear weapon state.

John Lepingwell, *RFE/RL News Briefs*, 11/15/93, p. 8 (3890). Rostislav Khotin, *Reuter*, 11/19/93 (3755). Larisa Sayenko, *Reuter*, 11/23/93 (3666). Robert Seely, *Washington Post*, 12/21/93, p. A18 (3751).

11/20/93

The deputy chief of the Ukrainian Department of Arms Control, Volodymyr Byelashov, publishes an article describing the steps Ukraine would need to take in order to become a nuclear state and how Ukraine's strategic forces could be restructured to meet the strategic objectives of the Ukrainian defense policy. Byelashov proposes that the Missile Deterrence Forces could be equipped with conventional weapons allowed by international agreements, including cruise missiles, ballistic missiles, and nonnuclear ICBMs. These missiles could carry "volume-explosive," kinetic, or "vacuum action mode" warheads. However, Ukraine would be less likely to use the ICBMs because it would generally not be "expedient" and because Ukraine has no facilities to test them.

Volodymyr Byelashov, *Vechirniy Kyiv (Kiev)*, 11/20/93, pp. 1-2; in *JPRS-TND-93-001*, 1/6/94, pp. 26-28 (3933).

11/30/93

Ukrainian President Leonid Kravchuk reiterates his country's tough stance over the fate of the nuclear missiles on its

territory, and refers to the weapons as "material wealth," saying that Ukraine would "demand material compensation" before giving them up.

*Washington Post*, 12/1/93, p. A21

### 12/93

The Ukrainian Minister of Defense, Army General Vitaliy Radetsky, visits units and facilities of the strategic missile troops in Ukraine in order to analyze the reliability of the system of control over the missile facilities. A decision of the Minister of Defense increases protection at the sites.

*Ukraine World Service (Kiev)*, 12/14/93; in *FBIS-SOV-93-239*, 12/15/93, P. 82 (3898).

### 12/9/93

The Ukrainian Defense Ministry officially denies an Intelnews report that "a group of scientists is working on breaking the codes of Ukraine's missiles," which will enable Ukraine to "retarget the missiles."

*Uniar (Kiev)*, 12/9/93; in *JPRS-TND-94-002*, 1/18/94, pp. 21-22 (3934). *Ukrayinske Radio First Program Network (Kiev)*, 12/17/93; in *JPRS-TND-94-002*, 1/18/94, p. 22 (3934).

### 12/14/93

Ukrainian Parliamentary Defense Committee member Igor Dirkatck states that, in light of the Russian Parliamentary election results supporting Vladimir Zhirinovskiy, Ukraine "must seek to obtain the codes enabling it to control the nuclear missiles stationed on its territory to meet the threat to its security represented by Zhirinovskiy."

*Paola Messana, AFP (Paris)*, 12/14/93; in *JPRS-TND-94-002*, 1/18/94, pp. 22-23 (3823).

### 12/21/93

In a gesture of good faith, Ukrainian officials announce the removal of warheads from seventeen of the forty-six SS-24 ICBMs on their territory. Deputy Prime Minister Valery Shmarov states that twenty SS-24s will be deactivated by the end of 1993. However, he also states that Ukraine will not dismantle all of the SS-24s until a satisfactory

agreement is reached giving Ukraine economic compensation and security assurances. Ukraine is already dismantling twenty of its SS-19 ICBMs by removing the warheads from the missiles. *Michael R. Gordon, New York Times*, 12/21/93, pp. A1, A4 (3751).

### 1/6/94

Ukrainian military specialists state during a tour of the Pervomaysk missile base that safety precautions are being observed during the dismantlement of the country's nuclear missiles, but that to finish the job, Ukraine will need help from abroad. According to the Ukrainian specialists, reports stating that the 176 SS-19 and SS-24 missiles were not being safely handled are untrue. The deputy commander of the Pervomaysk missile base, Colonel Viktor Shvets, states, "All missiles are kept in perfectly safe conditions; nuclear and ecological is observed to the highest degree." Shvets also states that the dismantlement of Ukraine's 1,700 strategic and cruise-missile warheads is being done by Ukraine but that Ukraine cannot complete the disarmament on its own.

*Washington Post*, 1/7/94, p. A14 (3708).

### 1/21/94

Lieutenant General Vladimir Mikhtyuk, the commander of the Strategic Missile Forces 43rd Missile Army stationed in Vinnitsa, Ukraine, and Major General Nikolay Filatov, commander of the 46th Missile Division located in Pervomaysk in the Nikolayev Oblast, unexpectedly take the Ukrainian military oath. The commander of the 19th Missile Division located in Khmelntsiy, Ukraine, Major General Rustam Karimov, refuses to take the Ukrainian military oath. In Karimov's division, 413 out of the 1,017 officers have not taken the oath; 354 of them want to return to Russia for the rest of their military service. If the soldiers of the 43rd Missile Army also take the Ukrainian oath, this will place all Ukrainian nuclear forces under the full control of Ukraine. The Russian Strategic Missile Forces High Command believes that, because of the

oath, it will lose the ability to operationally administer the 43rd Army.

*Viktor Litovkin, Izvestiya (Moscow)*, 1/25/94, pp. 1-2; in *FBIS-SOV-94-017*, 1/26/94, pp. 31-32 (3711). *Krasnaya Zvezda*, 1/29/94, p. 1 (3874). *Aleksandr Dolinin, Krasnaya Zvezda (Moscow)*, 1/29/93, p. 1; in *FBIS-SOV-94-020*, 1/31/94, pp. 20-21 (3937).

## UKRAINE WITH IRAN

### 1992

Iran purchases eight SS-N-22 Sunburn supersonic anti-ship missiles for \$600,000 each from Ukraine.

*James Kraska, Defense News*, 10/4/93, pp. 25-26 (3562).

### 12/93

It is reported that the U.S. State Department urged Ukraine to show restraint in weapons trade, and warned Ukraine particularly about selling arms to Iran. The U.S. government accuses Ukraine of violating the MTCR, and of selling missiles to Iran. Experts believe that any deals between Ukraine and Iran would have involved a trade of weapons for oil. Ukraine says that no contracts of this kind have been concluded.

*Aleksandr Sychev, Izvestiya (Moscow)*, 12/14/93, p. 3 (3774).

### 12/21/93

Ukrainian arms negotiator Borys Tarasyuk denies western media allegations that Ukraine has sold several tactical missiles to Iran, stating that Ukraine would never trade in weapons with countries under U.N. sanctions such as Yugoslavia, Libya, Iraq and South Africa.

*Reuter*, 12/22/93; in *Executive News Service*, 12/23/93 (3825).

## UKRAINE WITH PRC

### 9/93

Chinese Minister of Foreign Affairs, Qian Qichen, offers Ukraine security guarantees in the event of a nuclear attack if Ukraine gives up its nuclear missiles.

Ustina Markus, *RFE/RL Research Report*, 11/12/93, pp. 19-23 (3938).

11/93

Yuri A. Smetanin, deputy general designer of KB Yushnoye of Dnepropetrovsk, Ukraine, which designed the Cyclone and Zenit launch vehicles, states that "the Chinese have made many approaches to our company, but not for purchasing rockets. They wanted answers to questions about how we test for strength, aerodynamics, vibration and so on. But we prefer to sell them hardware."

Peter B. de Selding, *Space News*, 11/29/93, pp. 1, 20 (3580).

11/93

It is reported that despite closer political, economic, and technological ties between Ukraine and China, there apparently has been no transfer of sophisticated military technology or hardware from Ukraine to China.

Ustina Markus, *RFE/RL Research Report*, 11/12/93, pp. 19-23 (3938).

#### UKRAINE WITH RUSSIA

9/14/93

The head of the Russian Defense Ministry's nuclear ammunition department, Major General Yevgeny Maslin, states that Ukrainian officials are increasing their control over the forces that guard and service Ukraine's nuclear weapons, although Ukraine is still two to three years from establishing the guidance control systems necessary for launching its 176 missiles independently of Russia. Russia still has launch control over Ukraine's nuclear missiles, but the Center for Administrative Control of Strategic Nuclear forces, established by the Ukrainian Defense Ministry, has ten branches that enforce Ukraine's control over the personnel manning the Ukrainian nuclear arsenal.

Gregory Gransden, *UPI*, 9/14/93 (3709).

10/5/93

A railroad car containing two nuclear warheads enroute to a repair facility in Russia is stopped at the Russia-Ukraine

border. Ukraine has said that it will delay the shipment until it receives guarantees of compensation for the nuclear materials in the warheads.

Ustina Markus, *RFE/RL*, 10/18/93, p. 7 (3514).

10/20/93

The railroad car containing two nuclear warheads bound for a Russian repair facility remains on the Russia Ukraine border. Russia is reportedly worried about possible radiation leaks from the warheads.

Ustina Markus, *RFE/RL*, 10/18/93, p. 7 (3514).

#### UKRAINE WITH SYRIA

11/93

The Syrian newspaper *Al-Ba'th* reports that five Ukrainian officers are training Syrians in the use of a "Ukrainian nuclear munition."

Colonel Oleg Falichev, *Krasnaya Zvezda* (Moscow), 11/26/93, pp. 1-2; in *JPRS-TND-93-038*, 12/29/93, pp. 48-50 (3826).

#### UNITED ARAB EMIRATES

#### UNITED ARAB EMIRATES WITH RUSSIA

10/93

The UAE is planning to spend up to \$700 million on an air defense missile system within the next two to three years, and are showing interest in the Russian S-300V air defense system. There is some concern that Russia may not be reliable in supplying spare parts or providing after-sales service on its products.

Mikhail Pogorelly, *Krasnaya Zvezda* (Moscow), 10/23/93, p. 4; in *FBIS-SOV-93-206*, 10/27/93, p. 20 (3623).

#### UNITED KINGDOM

#### INTERNAL DEVELOPMENTS

7/1/93

The British implementation of MTCR amendments includes the addition of newly restricted systems to the 1992 Export Goods Control Order (EGCO), which covers all restrictions applicable to weapon exports.

*Arms Control Reporter*, 9/93 (3900).

#### UNITED KINGDOM WITH CHILE

9/93

Chile has shown interest in researching SSMs and SAMs, and has a deal with the U.K. to build the medium-range missile, the Rayo (Thunderbolt). Chile's armed forces modernization effort also includes Lince anti-aircraft missiles.

*UPI*, 9/1/93; in *Executive News Service*, 9/3/93 (3611)

#### UNITED KINGDOM WITH KUWAIT

1/94

Kuwait is discussing the purchase of approximately two battalions, each containing 24-27 vehicles, of multiple-launch rocket systems (MLRS) from the U.K. company Hunting Engineering Ltd. (HEL). Initial deliveries of the MLRS systems would probably begin in 1994-1995. The package would include Phase 1 MLRS rockets, Leyland DROPS (8X6) vehicles, Jasmin training equipment and artillery fire control systems from Marconi Radar and Control Systems.

Christopher Foss, *Jane's Defence Weekly*, 1/15/94, pp. 20-21 (3626).

**UNITED KINGDOM WITH RUSSIA**

**10/93**

The U.K. is reportedly interested in buying the SSN-22 Sunburn supersonic anti-ship missile from Russia at a cost of \$600,000 each (some reports indicate \$400,000) half the price of the NATO Harpoon missile. The U.K. might purchase the missile for offensive purposes.

*For Your Eyes Only*, 10/11/93 (3630).

**UNITED KINGDOM WITH UNITED STATES**

**11/10/93**

The U.S. Pentagon's number two official in the Ballistic Missile Defense Organization, James Carlson, meets with U.K. minister of defense Malcolm Rifkind to discuss the Theater High Altitude Air Defense (THAAD) system's projected capabilities.

*Defense News*, 11/22/93, p. 2 (3815).

**11/17/93**

Carlson presents THAAD's details to British procurement officials in meetings in London.

*Defense News*, 11/22/93, p. 2 (3815).

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**UNITED STATES**

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**INTERNAL DEVELOPMENTS**

**9/93**

The U.S. presents a proposal to relax export controls on highly sensitive technology, including computers, fiber-optic technology, and other dual-use items, all of which could be used for ballistic missile and nuclear weapons development. The U.S. policy would allow developing countries the ability to purchase space-launch technology if they

forgo the option to develop and produce weapons of mass destruction. Restrictions on computers would be liberalized by raising the decontrol level from 12.5 Mtops to 500 Mtops. According to U.S. Commerce Secretary Ron Brown, the U.S. will immediately raise the decontrol level of computers to 194 Mtops for export, except to countries such as Iran, Syria, Sudan, Cuba, the DPRK, Vietnam, Iraq, Libya, and Yugoslavia (Serbia and Montenegro).

*Andy Pasztor and John J. Fialka*, *Wall Street Journal*, 9/20/93, p. A2 (3939). *Export Control News*, 9/30/93, pp. 2-6 (3939).

**9/10/93**

The U.S. Senate passes a non-binding resolution urging the prevention of U.S. exports of missile and space launcher technology.

*Andrew Lawler*, *Space News*, 10/20/93, pp. 4, 21 (3942).

**9/21/93**

Following a meeting between Vice-President Al Gore and Senators Jeff Bingaman and John McCain, the Clinton administration adds additional safeguards to an export policy preventing space launch technology from being used for military purposes.

*Andrew Lawler*, *Defense News*, 10/4/93, pp. 3, 34 (3835).

**9/27/93**

President Clinton signs Presidential Decision Directive 13 (PDD-13), which describes the Clinton Administration's nonproliferation policy. He relates some of the contents of the directive in a speech made before the U.N. later that day. President Clinton also issues a new U.S. export policy in presidential review directive 8, which, if enacted, would liberalize the export of space launch vehicles, missiles, and other technologies, as long as the importing country is an MTCR member, agrees to utilize U.S. missiles and technology for peaceful purposes and adheres to international nuclear and chemical proliferation guidelines. This new U.S.

policy will reflect MTCR guidelines. *Andrew Lawler*, *Space News*, 10/20/93, pp. 4, 21 (3942). *Jon B. Wolfsthal*, *Arms Control Today*, 11/93, p. 22 (3752).

**9/29/93**

President Clinton announces that the U.S. will relax restrictions on about 70 percent of its computer exports and will now consider transfers of dual-use items to member states of the MTCR on a case-by-case basis. Previously, the U.S. maintained a general "presumption to deny" the export of sensitive items controlled by the MTCR, even to other MTCR countries. Critics believe that trade in missile-related technology could increase because of the new policy.

*Jon B. Wolfsthal*, *Arms Control Today*, 11/93, p. 22 (3752).

**10/28/93**

U.S. Congressman Toby Ruth introduces a bill, which states that the use of export restrictions as a "diplomatic lever" should be discontinued and calls for a new, smaller list of restricted technologies that are directly attributable to the development and production of dangerous weapons.

*Intelligence Newsletter*, 11/11/93, pp. 1, 6 (3840).

**11/93**

The head of Army force development, Maj. Gen. Jay Garner, states that short-range ballistic missiles represent 85 percent of the threat facing U.S. ground forces and that cruise missile production will increase at least 225 percent in the next ten years, validating the requirement for the Corps Surface-to-Air Missile.

*Defense Daily*, 11/8/93, p. 202 (3625).

**11/93**

The U.S. Bureau of Export Administration (BXA) issues a clarification of the so-called "know" controls for importers of technology that could be used for missile-related activities. Subsequently, BXA approves (by returning the licenses without action) 300 export li-

cense applications, including exports of non-missile related items to the Indian Space Research Organization (ISRO). BXA's clarification states that exports will be denied when items can be "directly used in the missile activities of entities sanctioned by the State Department." The clarification resolves a dispute between BXA and the State Department. Sanctions imposed by the State Department formerly required BXA to deny export of all "controlled" items to sanctioned entities, but now some trade of non-missile-related items will be allowed.

*Export Control News*, 11/30/93, pp. 13-15 (3941).

### 11/9/93

The chairman of Hughes Aircraft, Michael Armstrong, criticizes the U.S. State Department for its sanctions restricting the sale of U.S. satellites to China. Armstrong says that the U.S. sanctions have given the satellite market to Europe, and have adversely affected American workers.

*Andrew Lawler, Space News*, 11/15/93, pp. 3, 29 (3953).

### 12/7/93

U.S. Secretary of Defense Les Aspin unveiled the U.S. initiative called the "Defense Counterproliferation Initiative" (DCI). Aspin's list of major threats to the U.S. includes cruise missiles, stealth aircraft, mobile ballistic missiles, and small clustered munitions carrying nuclear waste or biological payloads. DCI includes the development of new non-nuclear penetration munitions, a re-orientation of the Strategic Defense Initiative into a regional/theater Ballistic Missile Defense Organization, clarification of the ABM treaty, and improvement in mobile missile search and destroy techniques, intelligence systems, and military doctrines for fighting adversaries armed with nuclear, biological, and chemical weapons and ballistic missiles. DCI will utilize the military in the effort, which is a departure from nonproliferation's traditional reliance on diplomacy.

*Les Aspin, Speech*, 12/7/93, pp. 1-6 (3943).  
*Aviation Week & Space Technology*, 12/13/93, p. 23 (3827).

### 12/12/93

Reports state that the U.S. had tried to cover up Russian involvement in the transfer of missile launcher parts from North Korea to Syria.

*Martin Walker, Guardian*, 12/13/93 (3883).

### early 1/94

Senior Pentagon officials attempt to explain U.S. nonproliferation and counterproliferation definitions to major European allies prior to a two-day NATO summit meeting in Brussels that will begin on 1/10/94. U.S. policy is laid out in the eight "Ds." The four Ds of nonproliferation are dissuasion, denial, disarmament, and diplomatic pressure; and the four Ds of counterproliferation are defusing, deterrence, destruction, and defense.

*Intelligence Newsletter*, 1/13/94, p. 7 (3793).

### 1/13/94

Science Applications International Corp. senior scientist Stanley Weeks points out that, while improved Silk-worms would pose a threat to ships in the Persian Gulf, this threat should not be exaggerated. Weeks states, "The Achilles' heel of that system is its size and slowness, so you can see it and have more time to react."

*Philip Finnegan, Robert Holzer and Neil Munro, Defense News*, 1/17/94, pp. 1, 29 (3539).

## UNITED STATES WITH ARGENTINA

### 9/93

Argentina transfers "missing parts" from its Condor-2 missile program to the US via Spain. The parts include two electronic guidance systems, three computers, launching devices, and a tower. However, Argentina has yet to deliver a sophisticated X-ray machine, solid-fuel grinder and a fuel mixer allegedly of American origin.

*William R. Long, Los Angeles Times*, 9/26/93, p. A15 (3600).

## UNITED STATES WITH AUSTRALIA

### 9/93

Australia proposes that the U.S. share information on Asian missile launches with nations in the region that adhere to international arms control agreements. The U.S. satellite that gathers the information is controlled by the U.S. and Australian military from a base at Nurrungar in central Australia. Because the satellite monitors the air space from the eastern Mediterranean to the western Pacific, it could serve as a regional early-warning system. It is believed that the Clinton Administration is likely to support the proposal.

*Michael Richardson, International Herald Tribune*, 9/1/93 (3740).

### 12/93

It is reported that if the U.S. Congress decides to allow the U.S. Navy to adopt the Australian Nulka hovering rocket-borne missile decoy, it is possible that joint U.S.-Australian manufacture of the decoy may follow. The Australian Navy has already approved Nulka production, and plans to install the decoy on the first of its eight ANZAC-class frigates and its FFG-7 fleet.

*Jane's Defence Weekly*, 12/11/93, p. 11 (3910).

## UNITED STATES WITH INDIA

### 7/93

The U.S. and its close industrial allies ask the Indian government to refrain from further deployment of the Prithvi missile and to suspend the Agni missile program.

*UPI*, 12/16/93 (3723).

### 8/1/93

It is reported that the U.S. firms Fiber Materials Inc. and Materials International will be tried in Boston on 9/28/93 for exporting, without a license, a production-sized hot isos-

tatic press to India which could be used to produce carbon/carbon to coat missile and rocket tips. India's defence research department laboratory contracted with the U.S. firms in 1988.

*Hindustan Times*, 8/1/93; in *Defence and Disarmament Review*, 11/93, p. 1892 (3730).

### 8/27/93

Indian Foreign Secretary J.N. Dixit states at a news conference in Washington, D.C. that the Prithvi and Agni missile programs had been a major topic of discussion during his two days of talks with U.S. officials.

R. Chakrapani, *Hindu*, 9/4/93, p. 9 (3974).

### 9/93

During the nuclear talks between India and the U.S. in Washington, India informs the U.S. that the Prithvi missile would not be deployed "imminently." Launch sites for the Prithvi are being prepared along the border with Pakistan.

*Foreign Report*, 9/30/93 (3765).

## UNITED STATES WITH ISRAEL

### 11/12/93

In a meeting with U.S. President Bill Clinton, Israeli Prime Minister Yitzhak Rabin raises the issue of transferring supercomputers to Israel. The computers could assist in the development of nuclear and ballistic missiles, or be used to process information from satellite and missile operations.

Barbara Opall, *Defense News*, 11/15/93, pp. 1, 29 (3788).

### 12/93

It is reported that Israel wants to purchase nine Multiple Launch Rocket Systems, six M577 command post carriers and 216 tactical rocket pods from the U.S. The items are worth a total of \$97 million.

*Jane's Defense Weekly*, 12/93, p. 9 (3908).

## UNITED STATES WITH JAPAN

### 8/1/93-8/3/93

U.S. Undersecretary of Defense for Policy Frank Wisner and Japanese Defense Minister Keisuke Nakanishi discuss theater missile defenses as a means of protecting Japan from North Korea's Nodong-1 and other IRBMs.

Vago Muradian, *Defense News*, 9/20/93, pp. 1, 29 (3967).

### 9/93

Japanese officials visit the Lockheed corporation in order to be briefed on the Theater High Altitude Area Defense (THAAD).

*BMD Monitor*, 10/8/93, pp. 265-266 (3803).

### 9/93

U.S. Pentagon acquisition chief, John Deutch, and U.S. Army Major General and acting Ballistic Missile Defense Organization director, Malcolm O'Neill, discuss the TMD proposal with Japanese officials.

*BMD Monitor*, 10/8/93, pp. 265-266 (3803).

### 9/8/93

Japanese Defense Minister Keisuke Nakanishi says that Japan is studying the feasibility of jointly developing a Theater Missile Defense (TMD) system with the U.S., which could counter potential North Korean attacks.

*Reuter*, 9/8/93 (3801). *Washington Times*, 9/9/93, p. A2 (3801). *Reuter*, 9/20/93 (3801). *Flight International*, 9/15/93, p. 19 (3801).

### 9/16/93

The U.S. ambassador to Japan, Walter F. Mondale, proposes to the Japanese Deputy Foreign Minister, Kunihiro Saito, that Japan and the U.S. set up a Theater Missile Defense system capable of destroying North Korean missiles. The system would deploy surveillance satellites to detect a ballistic missile attack and would be coupled with ground batteries capable of intercepting and destroying missiles at high altitudes.

*International Herald Tribune*, 9/17/93 (3916).

### 9/27/93

Japanese Defense Minister Keisuke Nakanishi and U.S. Defense Secretary Les Aspin agree to set up a working-level committee to study how both countries can jointly develop a defense against tactical ballistic missiles. In prior months, both countries discussed Japanese participation in the U.S. Theater High Altitude Area Defense program and Japan's incorporation of PAC-3 improvements into its purchased Patriot system. At the meeting, however, both countries failed to agree on a U.S. proposal to develop a \$12 billion defense system against North Korea's missiles, because the Japanese coalition government opposed the Theater Missile Defense (TMD). The working-level committee will be limited to "basic studies" due to Japan's laws on collective defense arrangements. U.S. Undersecretary of Defense John Deutch says that the TMD proposal would be a "technology-for-technology arrangement" in which the U.S. would pass on military technology in exchange for Japanese dual-use technology. Some Japanese socialists reportedly say that the TMD goes against a parliamentary resolution which bans the military use of space other laws that prohibit action for collective defense.

David E. Sanger, *New York Times*, 9/18/93, pp. 1-2 (3746). *Kyodo (Tokyo)*, 9/28/93; in *JPRS-TND-93-034*, 1/27/93, pp. 3-4 (3746). Barbara Opall and Naoaki Usui, *Defense News*, 10/4/93, p. 3 (3746). Susuma Awanohara, *Far Eastern Economic Review*, 10/14/93, p. 22 (3746). *Inside the Pentagon*, 10/14/93, p. 3 (3746). *Defense News*, 10/25/93, p. 2 (3746).

### late 9/93

Responding to questions regarding Japanese-U.S. joint development of a Theater Missile Defense (TMD) program, Tomiichi Murayama, chairman of the Japanese Social Democratic Party (SDP), says that the SDP "will not support a proposal to maintain peace by strengthening Japan's military capabilities."

*United Press International*, 9/28/93; in *NNN News*, 9/28/93 (3904).

12/93

A Japanese military delegation, including the Japanese Defense Agency's director of defense policy and Director of National Security Affairs at the Foreign Ministry, Yishinori Katori, visits the U.S. The delegation points out its concern about the possibility that the performance of the Patriot PAC-2 missile will be inadequate vis-a-vis the North Korean Nodong-1 missile.

*Paul Beaver, Jane's Defence Weekly, 1/15/93, p. 4 (3551).*

#### UNITED STATES WITH KUWAIT

1/23/94

An offset memorandum with the U.S. company Raytheon is signed with Kuwait at a value of \$98.2 million. The agreement calls for Raytheon to reinvest 30 percent of the contract value of the existing deal to sell 210 Patriot missiles and five firing units to Kuwait. Under the terms of the agreement, Raytheon will assist in the design and construction of an energy-related facility to be carried out over a period of 3 1/2 years.

*Reuter, 1/22/94; in Executive News Service, 1/24/94 (3537). Reuter, 1/23/94; in Executive News Service, 1/24/94 (3537).*

#### UNITED STATES WITH MULTI-COUNTRY GROUP

10/26/93

A Pentagon intelligence official states that inexpensive, commercially available, GPS computer components could be installed in Iranian cruise missiles or be used to increase the accuracy of Chinese ballistic missiles. According to Pentagon intelligence officials, Chinese, Iranian and Indian military researchers are working to put U.S. navigation technology (such as GPS) in their next-generation missiles.

*Lisa Burgess and Neil Munro, Defense News, 11/29/93, pp. 8, 10 (3644).*

#### UNITED STATES WITH NORTH KOREA

7/93

CIA Director James Woolsey testifies before Congress that the Nodong-1, which could be fitted with nuclear, chemical or biological warheads, has been tested. He indicates that of greatest concern is North Korea's continued efforts to sell the missile abroad, particularly to dangerous and potentially hostile countries such as Iran. Woolsey notes that "with this missile, North Korea could reach Japan; Iran could reach Israel; and Libya could reach U.S. bases and allied capitals in the Mediterranean region."

*Christian Science Monitor, 12/27/93, p. 4 (3529).*

#### UNITED STATES WITH PAKISTAN

8/26/93

A Pakistan High Commission press release states that the US has urged Pakistan to enter a dialogue with India on the issue of missile proliferation in South Asia. The release notes that, "Pakistan has conveyed to the US that it is prepared to respond positively to this proposal to prevent a missile race in our region."

*The Hindu, 9/4/93, p. 9 (3523).*

12/93

U.S. State Department Spokesman Mike McCurry says that the sanctions the U.S. imposed on China in 8/93 for violating the MTCR and U.S. laws on nonproliferation by selling Pakistan missile parts and technology will remain in force until China reaches an agreement with the U.S. that promotes nonproliferation goals.

*Wireless File, 11/12/93 (3637).*

12/29/93

While on a visit to China, Pakistani Prime Minister Benazir Bhutto says that the U.S. sanctions placed on Pakistan and China are based on "erroneous information" and should be lifted. Bhutto

says that neither country has violated MTCR regulations.

*Jeffrey Parker, Reuter, 12/29/93; in NNN News, 12/29/93 (3680). Washington Times, 1/1/94, p. A7 (3724).*

#### UNITED STATES WITH PRC

8/24/93

The U.S. initiates Category 2 trade sanctions against China for the alleged sale of M-11 missile components to Pakistan. Both China and Pakistan have denied that the transaction occurred, although Pakistan did admit to purchasing "a few" short-range ballistic missiles from China in the late 1980s. Three U.S. satellites scheduled to be launched aboard Chinese launch vehicles will be affected: a Hughes-manufactured Optus B3 and APStar 1 to be launched in 1994, and the Martin Marietta Astrospace Asiasat 2 to be launched in 1995.

*Flight International, 9/1/93, p. 6 (3685).*

8/27/93

Following the U.S. decision to impose a two-year ban on exports to China, Chinese Vice Foreign Minister Liu Huaqiu calls the decision a "naked hegemonic act."

*Jeffrey Smith and Daniel Williams, Washington Post, 11/11/93, pp. A39, A44 (3830).*

9/24/93

The U.S. Space Systems/Loral announces an agreement with the China Great Wall Industry Corp. to launch commercial satellites on Long March rockets in 1996 and 1997 from the Xichang Satellite Launch Center. This deal will not be affected by U.S. sanctions because the deal was signed before sanctions went into force.

*Space News, 10/10/93, p. 13 (3614).*

10/93

It is reported that the Clinton administration is trying to improve relations with China because of Washington's concerns about bilateral trade, weapons proliferation, and the possibility that it

will need China's help to impose sanctions on North Korea through the U.N. Security Council. The General Motors Corp.'s Hughes Aircraft Co. is requesting that the Clinton administration re-interpret the sanctions imposed in 8/93 against Chinese missile companies. Hughes has contracts with the China Great Wall Industrial Corp. to launch two satellites worth \$180 million using the commercial version of China's ICBM. The U.S. CIA and Defense Department believe that relaxation of the sanctions would encourage China to proliferate because the Chinese companies that would benefit most from increased business build both commercial rockets and military missiles.

John J. Fialka, *Wall Street Journal*, 10/22/93, p. A16 (3829).

#### 10/12/93

A senior U.S. official states that China is showing no interest in negotiating an end to the sanctions imposed on it by the U.S. after China sold M-11 missiles to Pakistan. The official states, "Sanctions are not an end in themselves. They are designed to encourage non-proliferation but (obtaining a waiver) requires serious negotiations by the Chinese and so far they've given no indication that they are willing to do this."

Reuter, 10/12/93 (3607).

#### 10/20/93

The U.S. announces that it would be unable to extend Most Favored Nation trading status to China in 6/94 unless it improves its record on a number of issues, including arms proliferation.

Susan Cornwell, *Reuter*, 10/20/93; in *Executive News Service*, 10/21/93 (3682).

#### 10/26/93

A Pentagon intelligence official states that inexpensive, commercially available, GPS computer components could be installed in Iranian cruise missiles or be used to increase the accuracy of Chinese ballistic missiles. According to Pentagon intelligence officials, Chinese, Iranian and Indian military re-

searchers are working to put U.S. navigation technology (such as GPS) in their next-generation missiles.

Lisa Burgess and Neil Munro, *Defense News*, 11/29/93, pp. 8, 10 (3644).

#### 11/93

U.S. Assistant Secretary of Defense Charles W. Freeman Jr. holds talks with Chinese Vice Chairman of the Central Military Commission Gen. Liu Huaqing concerning proliferation issues and China's sale of missiles to Pakistan.

Lena Sun, *Washington Post*, 11/3/93, p. A12 (3873).

#### 11/10/93

Clinton administration officials announce that the trade sanctions imposed on China for exporting M-11 missile components to Pakistan could be lifted if China promises not to export such items in the future. The Clinton Administration makes the announcement after Chinese Vice Foreign Minister Liu Hauqiu told U.S. Undersecretary of State Peter Tarnoff on 11/4/93 that China is seriously considering the deal. However, officials say that the U.S. may not push the deal through immediately, partly because of suspicions that China provided Pakistan with completed M-11s and not just components. Undersecretary of State Lynn E. Davis states before Congress that "Our decision to impose sanctions against China and Pakistan for the transfer of M-11-related technology demonstrates that we're prepared to pursue our nonproliferation goals vigorously even when such efforts may risk frictions in critical bilateral relations."

Jeffrey Smith and Daniel Williams, *Washington Post*, 11/11/93, pp. A39, A44, (3830).

#### 11/12/93

A U.S. official states that two satellites will be exported for launch once the ban against China is lifted, although five other satellites using sensitive technology will be withheld until China agrees to abide by the MTCR.

*Washington Times*, 11/14/93, p. A2 (3830).

#### 11/18/93

U.S. officials announce the sale of a \$10 million Cray Research Inc. supercomputer to China in an effort to improve relations with China, despite evidence that China violated the MTCR by selling M-11 missile components to Pakistan. A spokesman for Cray Research, Frank Parisi, states that a sophisticated set of safeguards has been established so that there is no way that China can use the supercomputer for "pernicious applications." U.S. officials state that the approval to sell the supercomputer to China did not conflict with the U.S. sanctions imposed on China in 8/93, which affect only missile-related goods. In return for lifting the sanctions, the Clinton Administration wants China to "make more public and binding assurances" which would include an agreement that the M-11 missile is covered by the MTCR. Although China says that the MTCR does not cover the M-11 because it has only a 280 km range and carries an 800 kg payload, the U.S. says the payload can be reduced giving the missile a greater, MTCR-restricted range.

Gene Gibbons, *Reuter*, 11/19/93 (3671). Jim Mann, *Los Angeles Times*, 11/29/93, pp. A1, A9 (3841). *Export Control News*, 11/30/93 (3671). Jon B. Wolfsthal, *Arms Control Today*, 12/93, p. 18 (3773).

#### 11/20/93

Chinese President Jiang Zemin holds talks with U.S. President Bill Clinton in Seattle as part of the Asia-Pacific Economic Cooperation (APEC) Forum. Jiang indicates that China is prepared to conduct talks with the U.S. concerning China's compliance with the MTCR, but that this is contingent on the removal of the U.S.'s limited trade sanctions against China.

*Kyodo (Tokyo)*, 11/21/93; in *JPRS-TND-93-038*, 12/29/93, pp. 1-2 (3954).

#### 1/94

It is reported that because of an agreement with the U.S., China can only launch nine commercial communications satellites through the end of 1994.

Peter B. de Selding, *Space News*, 1/24/93, pp. 1, 28 (3645).



1/94

It is reported that the Clinton administration is set to lift the ban on the sale to China of the Echostar satellite, worth \$150 million, and an Asiasat II satellite, worth \$55 million, both built by Martin Marietta. In exchange, China will agree to begin talks on issues regarding the proliferation of weapons. The U.S. government has been under pressure from U.S. businesses to lift the sanctions that were imposed on China during the summer of 1993 because of China's sale of M-11 missile technology to Pakistan.

*Bob Davis and Robert S. Greenberger, Wall Street Journal, 1/6/94, p. A2 (3834).*

1/6/94

The Clinton Administration allows the U.S. Commerce Department to approve the launching of three satellites by China after China agreed to talks regarding the proliferation of missile technology. The satellites will be launched on Long March rockets in 1995. The deal also includes "integration analysis" technology which will allow China to upgrade both its satellite launch and MIRV warhead capabilities.

*Jim Wolf, Reuter, 1/7/94 (3917). Andrew Lawler, Space News, 1/10/94, p. 3 (3770). Martin Sieff, Washington Times, 1/19/94, p. A18 (3821). Export Control News, 1/31/94 (3770).*

1/26/94-1/27/94

U.S. arms control negotiator Lynn Davis meets with the Chinese Vice Foreign Minister Liu Huaqiu about missile proliferation. The U.S. proposes a binding accord under which China would stop selling missiles limited by the MTCR in return for a lifting of the U.S. sanctions placed on China in 8/93. State Department Spokesman Mike McCurry states that no progress has been made.

*Jim Wolf, Reuter, 1/27/94 (3917). Carol Giacomo, Reuter, 1/27/94; Executive News Service, 1/31/94 (3672).*

## UNITED STATES WITH RUSSIA

9/93

At Moscow's airshow, the U.S. company Pratt and Whitney continue talks toward an agreement on the licensed production of the Russian liquid-fueled RD-170 engine and mutual use of the engine's components and technologies. *Russia Express Executive Briefing, 9/27/93 (3594).*

9/93

The U.S. Space Systems/Loral signs a deal to launch at least one U.S. satellite on a Russian Proton rocket. *Space News, 10/10/93, p. 13 (3614).*

9/93

It is reported that the U.S. Air Force is interested in paying Russia or Ukraine for 10 years for the production of the Solnechny Ozhog anti-ship missile which has a speed of 1,900 miles an hour. However, the U.S. wants to purchase samples of the missile first. *Vladimir Ionov, Moscow News, 9/24/93, p. 13 (3769).*

9/2/93

Russian Prime Minister Viktor Chernomyrdin and U.S. Vice-President Al Gore sign two intergovernmental documents, the first dealing with Russia's intention to adhere to the provisions and conditions of the MTCR, and the second providing for Russia's entry into the international market for commercial space launches.

*Frank Murray, Washington Times, 9/1/93, p. A8 (3885). Kenneth R. Bazinet, United Press International, 9/2/93; in Executive News Service, 9/3/93 (3965). Pavel Vanichkin, Itar-Tass (Moscow), 9/2/93; in FBIS-SOV-93-169, 9/2/93, pp. 4-5 (3885). Jim Wolf, Reuter, 9/2/93; in Executive News Service, 9/3/93 (3885). Andrew Lawler, Defense News, 9/6/93, p. 6 (3642).*

10/93

The U.S. is reportedly interested in buying the SSN-22 Sunburn supersonic anti-ship missile from Russia at a cost of \$600,000 each (some reports indicate \$400,000) half the price of the NATO Harpoon missile. The U.S.

could buy up to 1,000 Sunburn missiles to use as targets.

*For Your Eyes Only, 10/11/93 (3630).*

11/93

It is reported that an official from the U.S. company Lockheed Sanders, using a credit card, buys a Russian missile that his company wants for an upcoming test.

*Aviation Week & Space Technology, 11/15/93, p. 19 (3581).*

11/93

The U.S. Thiokol Corporation signs an agreement with the Russian Askond joint stock company to dismantle Russian ballistic missiles and convert the fuel into commercial products. Askond and Thiokol have asked the U.S. Defense Department for \$45 million to dismantle eight SS-19 liquid-fuel missiles and three SS-13 third stage rocket motors. The work will begin within six to nine months at Niikhimmash, the Russian space and rocket propulsion center, and could be followed by a larger effort if U.S. defense officials accept the program as part of the U.S. effort to assist the former Soviet Union in dismantling its nuclear weapons.

*Space News, 11/15/93, p. 17 (3631).*

11/93

It is reported that the U.S.-Russian joint venture Sea Launch Services plans to convert Russian SS-N-23 and SS-N-20 SLBMs into disposable launch vehicles called Surf. The Surf rockets will be capable of launching--with only modest adjustments necessary to replace the nuclear warheads with satellites--5,000 lb satellites into a low Earth orbit at a cost of less than \$11 million by 1995. *Ben Iannotta, Space News, 11/29/93, p. 8 (3675).*

12/6/93

President Clinton confirms that for several months the U.S. and Russia have been conducting talks on targeting their ICBMs away from each other, although no final agreement has yet been reached. Options on where to target the nuclear missiles have also not been agreed on,

but the two choices are aiming the missiles at the ocean or not aiming them at all. The missiles can reportedly be re-targeted in fifteen minutes or less.

*Washington Times*, 12/7/93, p. A8 (3603). *Washington Times*, 12/10/93, p. A25 (3603).

### 1/14/94

U.S. President Clinton and Russian President Yeltsin sign an agreement stating that the two countries would re-target their nuclear missiles away from each other and other countries. President Clinton states, "If we had to target a missile, God forbid, at North Korea or any place else, we could do it very quickly."

Paul Bedard, *Washington Times*, 1/15/94, pp. A1, A9 (3646).

## UNITED STATES WITH SAUDI ARABIA

### 11/93

Saudi Arabia expresses interest in determining whether or not Peace Shield, a joint project with the U.S., can be modified to detect tactical ballistic missiles. The Peace Shield program is designed to provide a command and control air defense system for Saudi Arabia. According to U.S. Lt. General Thomas Rhame, Saudi Arabia is placing a high priority on completing the Peace Shield system, and has begun purchasing 20 Patriot missile batteries. Saudi Arabia and the U.S. have recently started talks to restructure payments for the Patriot missiles and a Hughes air-defense system.

Barbara Starr, *Jane's Defence Weekly*, 11/13/93, p. 16 (3545). Barbara Starr, *Jane's Defence Weekly*, 12/11/93, p. 32 (3545). Graham Warwick, *Flight International*, 1/19/94, p. 16 (3545).

## UNITED STATES WITH SOUTH KOREA

### 10/26/93

The South Korean defense ministry announces that South Korean Defense Minister Kwon Young-hae and U.S. Secretary of Defense Les Aspin will

meet from 11/3/93 to 11/4/93 in Seoul to discuss ways to halt North Korea's suspected nuclear weapons program and the possibility of South Korean participation in the U.S.-Japanese Theater Missile Defense system.

Shim Sung-won, *Reuter*, 10/26/93; in *NNN News*, 10/26/93 (3598).

### 11/23/93

The Pentagon announces that the U.S. intends to sell 190 AMRAAM and 127 Maverick missiles to South Korea for \$169 million. The missiles are produced by Raytheon and Hughes Aircraft, respectively. The Pentagon further states, "This sale would contribute to the foreign policy and national security of the United States by helping to improve the security of a friendly country which has been and continues to be an important force for political stability and economic progress in the Pacific region."

*Reuter*, 11/23/93; in *Executive News Service*, 11/24/93 (3541).

## UNITED STATES WITH TAIWAN

### 9/93

The U.S. sells between 38 and 41 Harpoon anti-ship missiles worth an estimated \$68 million to Taiwan; the missiles will be installed on three U.S. Knox-class frigates leased to Taiwan for five years.

*Flight International*, 9/15/93, p. 23 (3805). *Reuter*, 9/28/93; in *Executive News Service*, 9/28/93 (3805).

### 12/93

It is reported that Taiwan wants to purchase a single Mk41 Vertical Launch System worth \$103 million from the U.S.

*Jane's Defence Weekly*, 12/93, p. 9 (3908).

## UNITED STATES WITH TURKEY

### 11/93

The U.S. Defense Department reportedly plans to sell \$170 million worth

of military equipment to Turkey through the Foreign Military Sales program. The sale includes 32 Harpoon missiles, 64 Mk-46 torpedoes and 40 anti-submarine rockets to equip four Turkish Knox-class frigates leased from the U.S. Navy. In a second deal, Turkey has requested the purchase of U.S. combat and electronic systems worth \$150 million, including two Harpoon Ship Command Launch Control Sets to equip two Meko-class frigates.

Barbara Starr and Robert Karinol, *Jane's Defence Weekly*, 11/27/93, pp. 19-20 (3813).

## UNITED STATES WITH UNITED KINGDOM

### 11/10/93

The U.S. Pentagon's number two official in the Ballistic Missile Defense Organization, James Carlson, meets with U.K. minister of defense Malcolm Rifkind to discuss the Theater High Altitude Air Defense (THAAD) system's projected capabilities.

*Defense News*, 11/22/93, p. 2 (3815).

### 11/17/93

Carlson presents THAAD's details to British procurement officials in meetings in London.

*Defense News*, 11/22/93, p. 2 (3815).

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## YEMEN

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## INTERNAL DEVELOPMENTS

### 11/93

Yemeni artillery and missile launching units in Aden, from bases in Saladeddine and Aund, are mobilized as tensions heighten between northern and southern Yemeni forces.

*Intelligence Newsletter*, 11/25/93, p. 7 (3593).

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## YUGOSLAVIA

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### INTERNAL DEVELOPMENTS

9/93

According to a recent issue of *Messenger*, a magazine published by the Yugoslav General Staff, the Yugoslav government wants to rebuild its defense industry. This effort will include the production of an improved version of the Scud missile, and an increase in weapons sales abroad.

John Pomfret, *Washington Post*, 9/18/93; in *Executive News Service*, 9/20/93 (3652).

10/93

It is reported that Serbian forces have M-71 (128 mm), M-63 'Plamen' (128 mm), M-85/M-88 improved Plamen, M-77 Oganj (128 mm), and M-87 (262 mm) 'Orkan' MRLs. The 9,000-employee Krusik plant in Valjevo produces artillery ammunition, SAM launchers, drones, anti-tank guided weapons, 60 and 400 km-range ballistic missiles and possibly chemical agents. The forces that reinforce Serbian troops in eastern Slavonia that were deployed in 4/93 along the Batina-Apatin-Erdut-Vukovar-Backa Palanka-Ilok line include a Frog-7 (R-65 Luna-M) regiment and three artillery/missile regiments.

Milan Vego, *Jane's Intelligence Review*, 10/93, pp. 438-445 (3696). Milan Vego, *Jane's Intelligence Review*, 11/93, pp. 502-505 (3753).

12/93

It is reported that large amounts of ammunition and weapons are entering Bosnia through Serbia. Weapons and parts that are used for manufacturing 1,000 km range missiles are being transferred. Serbia is utilizing imported technology at nuclear institutes, and is attempting to test the process of "cold fusion" which "would enable [Serbia] to equip the missiles with nuclear warheads."

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Vladimir Jovanovic, *Monitor* (Podgorica), 12/3/93, pp. 12-13; in *JPRS-TND-94-002*, 1/18/94, p.10 (3921).

12/93

The Yugoslav Army reportedly has Frog-7, SS-N-3 'Shaddock,' 'Scud,' and 'Scaleboard' missiles in its inventory.

Milan Vego, *Jane's Intelligence Review*, 12/93, pp. 541-546 (3968).

### YUGOSLAVIA WITH MULTI-COUNTRY GROUP

12/93

The former Chief of the Yugoslavia General Staff, General Zivota Panic, states that Yugoslavia will develop 600 km and 1,000 km missiles at the Military Technical College in Belgrade within the next five years, at an estimated cost of \$100 million, with parts from Iraq and North Korea.

Milan Vego, *Jane's Intelligence Review*, 12/93, pp. 541-546 (3968).