

# BALLISTIC, CRUISE MISSILE, AND MISSILE DEFENSE SYSTEMS: TRADE AND SIGNIFICANT DEVELOPMENTS, OCTOBER 1994-FEBRUARY 1995

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## AFGHANISTAN

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### INTERNAL DEVELOPMENTS

10/94

A government "missile base" is seized by rebel forces loyal to Prime Minister Gulbuddin Hekmatyar.

Paul Beaver, *Jane's Defence Weekly*, 10/15/94, p. 19 (4631).

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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.*

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## ARGENTINA

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### INTERNAL DEVELOPMENTS

8/94

Argentina's Defense Minister, Dr. Oscar Camilion, says "I think that Argentina ought to go ahead with peaceful [space] research and development." Camilion points out that responsibility for Argentine space research falls under the Comision Nacional de Asuntos Especiales, which reports to President Menem.

Jose C. d'Odorico, *Armed Forces Journal International*, 8/94, p. 12 (4511).

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## AUSTRALIA

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### AUSTRALIA WITH RUSSIA

2/8/95

Australian Science Minister Chris Schact tells parliament that Australian Space Office (ASO) and Australian Space Council

(ASC) officials are to meet with Russian officials to consider a Russian proposal to launch converted ICBMs from Australia to put satellites into orbit. The Russian rocket-producer STC Complex and engine manufacturer Energomash will hold discussions with the ASO and ASC and, says Minister Schact, a joint six month study will be undertaken to assess the proposal's feasibility. STC Complex reportedly proposes to use the solid fuel sections of the SS-20 and SS-25 ICBMs, mount a more accurate guidance system and modify the nose cone to accommodate a satellite.

Executive News Service, 2/8/95 (4782). *Flight International*, 2/22/95-2/28/95, p. 19 (4825).

### AUSTRALIA WITH UNITED STATES

9/94

McDonnell Douglas and the U.S. Navy are soliciting sales of the Tomahawk cruise missile to the U.K. and Australia. In addition, McDonnell Douglas is preparing a version of the Stand-off Land Attack Missile (SLAM) for possible sale to the U.K., and an upgrade to the SLAM Expanded Response as an alternative to the Tri-Service Stand-off Attack Missile if that program is canceled.

Ramon Lopez, *Flight International*, 9/28/94, p. 16 (4520).

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## BELARUS

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### INTERNAL DEVELOPMENTS

11/94

Belarus suspends elimination of 81 missile launch pads due to the high cost and the environmental damage associated with their destruction. Chief of the Belarusian National Agency for Verification and Inspection Major General Yevgeniy Nikulin suggests that the Foreign Ministry hold talks with the U.S. State Department to exempt destruction of the pads required under the START I Treaty, saying "We have no nuclear weapons of our own, we have unambiguously given them up, and we will be in no way capable of using these installations for the purpose for which they were intended."

*Krasnaya Zvezda* (Moscow), 11/16/94, p. 3; in FBIS-SOV-94-222, 11/16/94 (4830).

### BELARUS WITH RUSSIA

12/6/94

A U.S.-led NATO inspection team is in Belarus to "fix" the withdrawal of a Russian unit from a missile facility in accordance with Conventional Armed Forces in Europe treaty (CFE), according to National Agency for Control and Inspection chief Major General Yawhen Nikulin.

*Belapan* (Minsk), 12/7/94; in FBIS-SOV-94-237, 12/7/94, (4773).

### BELARUS WITH UNITED STATES

11/94

The Belarusian company Beltechexport will sell a Russian S-300 PMU [SA-10] SAM system to the U.S.-Canadian firm ATOS International Acquisition Ltd. for "as much as \$500 million." ATOS is run by Emmanuel Weigensberg, president of Montreal-based Trans World Arms, Inc. Weigensberg nearly completed a similar deal with Moscow, but Russian authorities cancelled the sale. *Izvestiya* reports that Russian counterintel-

ligence and defense officials are unhappy that Belarus is "selling Russian military secrets."

Geoffrey York, *Washington Times*, 11/6/94, p. A9 (4650). *Belapan* (Minsk), 11/15/94; in FBIS-SOV-94-222, 11/15/94 (4803).

12/1/94

Belarusian President A. Lukashenka says he is temporarily suspending sale of the S-300 to ATOS. Lukashenka states, "It is a secret complex, developed by Russia with the participation of Belarus. I cannot sell it. If we want to be sensible in our trade activities, we must decide on such steps jointly."

*Holos Ukrayiny* (Kiev), 12/2/94; in FBIS-SOV-94-234, 12/2/94, p. 5 (4758).

12/19/94

A chartered Volga-Dnepr An-124 transport aircraft — operated by the Russian-British joint venture HeavyLift-VolgaDnepr — lands in Huntsville, Alabama, carrying a Russian S-300 PMU. The \$50 million sale of the SAM system was brokered by ATOS on behalf of BDM International (McLean, Virginia). The S-300, which arrives from an air base near Minsk, will be analyzed by the Missile & Space Intelligence Center.

John Mintz and Benjamin Weiser, *Washington Post*, 12/23/94, pp. A1, A11 (4807). David Hughes, *Aviation Week & Space Technology*, 1/2/95, p. 60 (4776).

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## BOSNIA

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### INTERNAL DEVELOPMENTS

11/94

Bosnian-Serb forces fire a minimum of 16 S-75 Dvinas (SA-2) "Guideline" SAMs — modified for use as SSMs with an estimated range of 55 km and a payload of 195 kg — against the Bosnian Federation Army in Bihac.

Paul Beaver, *Jane's Defence Weekly*, 11/19/94, p. 20 (4723). *International Defense Review*, 1/95, p. 6 (4824).

### BOSNIA WITH CROATIA

11/4/94

Bosnian Croat forces fire rockets from a multiple-rocket launcher (MRL) near Kupres. The Croatian defense minister says that Bosnian and Croat forces have little difficulty in purchasing needed armaments.

Roger Cohen, *New York Times*, 11/5/94, pp. 1, 4 (4730).

### BOSNIA WITH SERBIA

1/2/95

A rocket strikes the Sarajevo Holiday Inn causing minor damage and no casualties. Bosnia's government blames the Serbs, but U.N. officials claim they could not determine who fired the rocket.

Laura Silber and Bruce Clark, *Financial Times*, 1/3/95, p. 1 (4759).

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## BRAZIL

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### INTERNAL DEVELOPMENTS

7/14/94

The Brazilian Space Agency (AEB) officially begins operations. Created in 1994 and connected directly to the President's office, the AEB centralizes planning and implementation of Brazilian space launch and satellite activities. AEB President Luiz Gylvan Meira Filho remarks that the Union General Budget to Congress set aside \$19 million for the organization's establishment.

*Gazeta Mercantil* (Sao Paulo), 7/15/94-7/17/94; in JPRS-TND-94-017, 9/8/94, pp. 14-15 (4612).

9/94

Brazil's Aeronautics and Space Institute (IAE) estimates that the Satellite Launch Vehicle (SLV) will be ready by late 1995 or early 1996. The IAE is developing the SLV under the Complete Brazilian Space Mission (MECB); the MECB was previously administered by the Armed Forces General Staff. The MECB's goal is to launch Na-

tional Space Research Institute (INPE)-produced satellites from the Alcantara launch site. IAE Director Tiago da Silva Ribeiro reports that the SLV's development timetable "will depend on the release of funds." He adds that the SLV's minimum 1994 budget was projected at \$9 million. While the Science and Technology Ministry earmarked \$40 million for the SLV, the IAE has actually received only \$500,000 this year. Since 1991, the SLV project has been operating with a budget of less than \$10 million. Meanwhile, Ajax Barros de Melo, Director General of the Brazilian Space Agency (AEB), says the AEB will be operating at "full capacity" by 10/94. Among the AEB's 1994 goals, according to de Melo, are to increase scientific cooperation with foreign countries, to launch data collection satellites (SCD) and to complete the SLV. International bids for the scheduled 3/95 launch of the INPE-developed SCD-2 will be published by the end of 1994. The AEB plans to enter the international market for small (400 kg or less) satellite launch services.

*Gazeta Mercantil* (Sao Paulo), 7/15/94-7/17/94; in JPRS-TND-94-017, 9/8/94, pp. 14-15 (4612).

**10/94**

Avibras Aeroespacial of Brazil advertises a new coastal defense variant of its Astros II System multiple rocket launcher.

*Asia-Pacific Defence Review*, 10/94 (4626).

**BRAZIL WITH RUSSIA**

**10/13/94**

Russian Foreign Minister Andrey Kozyrev meets with Brazilian Minister of Foreign Affairs Celso Amorim and signs an agreement that will allow Russia access to Brazil's Alcantara space complex for use in bilateral space projects. Both parties also express the need to work together to control the spread of missile technologies.

*Kommersant-Daily* (Moscow), 10/13/94, p. 4; in FBIS-USR-94-117, 10/13/94 (4812).

**BRAZIL WITH UNITED STATES**

**11/17/94**

Brazilian aerospace officials tell U.S. Defense Secretary William Perry that they would like to play a greater role in the sat-

ellite-launching industry. Commenting on alleged past sales of missile systems to the Middle East, a senior U.S. official says: "They have been scrupulous ... to non-proliferation issues recently ... and they very much want to be seen as a leader in non-proliferation circles."

John C. Roper, UPI, 11/17/94; in Executive News Service, 11/17/94, (4752).

**CHILE**

**CHILE WITH ISRAEL**

**11/94**

The Chilean Navy is expected to be the first foreign country to deploy Israel's Barak point defense missile system. Barak will be deployed on the Blanco Encalada, formerly HMS Fife. Chile provided funds for the system's development.

Sharone Parnes, *Defense News*, 10/17/94-10/23/94, p. 44 (4671). Mouafac Harb, *Washington Times*, 11/9/94, p. A22 (4671). James Bruce, *Jane's Defence Weekly*, 11/19/94, p. 23 (4671). *Defence Systems Modernisation*, 1-2/94, pp. 22-24 (4914).

**CROATIA**

**CROATIA WITH BOSNIA**

**11/4/94**

Bosnian Croat forces fire rockets from a multiple-rocket launcher (MRL) near Kupres. The Croatian defense minister says that Bosnian and Croat forces have little difficulty in purchasing needed armaments.

Roger Cohen, *New York Times*, 11/5/94, pp. 1, 4 (4730).

**DENMARK**

**INTERNAL DEVELOPMENTS**

**11/94**

The Royal Danish Navy (RDN) deploys two Harpoon Coastal Defense System batteries. The Harpoons were previously mounted on the RDN's obsolete Peder Skram class frigates.

*International Defense Review*, 11/94, p. 22 (4763).

**EGYPT**

**EGYPT WITH LIBYA**

**12/94**

The presence of Egyptian missile and rocket specialists at Libya's Tarhuna center — where recent products under development include the indigenous Al-Fateh missile, and an "upgraded," 300 km-range Scud — prompts U.S. protests to the Egyptian government.

*Intelligence Newsletter*, 12/1/94, p. 7 (4637).

**EGYPT WITH UNITED STATES**

**10/94**

The U.S. Department of Defense proposes the sale of 32 Harpoon missiles and containers to Egypt at an estimated value of \$57 million. The missiles would be added to Egypt's current stock of Harpoons.

*Asian Defence Journal*, 10/94, p. 98 (4683).

**12/94**

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## EUROPEAN UNION

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### INTERNAL DEVELOPMENTS

3/1/95

New export licensing rules concerning dual-use technology go into effect for the E.U., governing intra- and extra-E.U. dual-use transfers. The rules were designed to mitigate bureaucratic costs and burdens for European manufacturers. Licenses will now be valid throughout the E.U. no matter which country issues them. The regulations consolidate items from lists of the Australia Group, the Nuclear Suppliers Group, MTCR and COCOM. Fissile material, missile technologies and launch systems, and advanced supercomputers are specifically targeted.

Brooks Tigner, *Defense News*, 1/9/95, pp. 1, 29 (4691).

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## FRANCE

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### FRANCE WITH GERMANY

11/94

Germany's Deutsche Aerospace (DASA) and France's Thomson-CSF plan to conduct a share swap whereby Thomson-CSF will acquire 50 percent ownership of DASA's Bayern-Chemie missile-propulsion subsidiary which will then be merged with Thomson Brandt Armements to form a new subsidiary under Bayern-Chemie called Protac. Bayern-Chemie produces rocket motors, air-breathing engines, propellants and gas generators for a variety of missiles.

Andrzej Jeziorski, *Flight International*, 11/30/94-12/6/94, p. 16 (4766).

### FRANCE WITH ITALY

2/95

A Eurosam Aster-15 air-defense missile scores a direct hit on a simulated supersonic sea-skimming missile during a short range intercept test. Eight more tests are scheduled through 1996 prior to deployment on the Charles de Gaulle aircraft carrier in 1999.

*Flight International*, 1/25/95-1/31/95, p. 16 (4718). *Jane's Defence Weekly*, 1/28/95, p. 14 (4711). Paul Proctor, *Aviation Week & Space Technology*, 1/30/95, p. 15 (4711). *Defense News*, 2/13/95-2/19/95, p. 21 (4711).

### FRANCE WITH RUSSIA

7/94

France's Celerg signs an agreement with Russia's Rosvoorouzhnie arms exporter and the Splav Institute of Tula to supply improved rocket motors for new variants of the Splav-designed 122 mm BM-21 Grad MRL. Celerg's new motor will extend the range of the BM-21's rocket to 36 km (when equipped with an HE fragmentation warhead) with no loss of accuracy. In addition to the new motor, the agreement covers warhead upgrades, which the parties claim will increase effectiveness by 500 percent. Celerg and Rosvoorouzhnie will jointly market the upgraded version of the BM-21, and will also offer the retrofit for rockets currently in service.

*Jane's Defence Weekly*, 10/15/94, p. 11 (4861). *Defense News*, 10/17/94, p. 48 (4861).

11/94

Aerospatiale and Khrunichev "agree in principle" that the Russian firm will build a Proton-M launch facility at France's Kourou (French Guiana) launch site; Khrunichev will absorb construction expenses. The two sides also confirm their interest in space launch services cooperation.

Interfax (Moscow), 11/22/94; in FBIS-SOV-94-226, 11/22/94 (4725).

### FRANCE WITH SAUDI ARABIA

12/94

Saudi Arabia and France sign a deal worth \$3.5 billion for two French frigates and a

naval base. The frigates will be outfitted with 40 MM40 Exocet SAMs and Crotale anti-aircraft missiles. Deliveries are expected in late 1999 and 2002.

Executive News Service, 11/22/94 (4784). *Financial Times*, 11/23/94, p. 4 (4784). J.A.C. Lewis, *Jane's Defence Weekly*, 12/3/94, p. 3 (4784).

### FRANCE WITH UNITED STATES

6/94

French military officials express interest in cooperating with the U.S. on early warning information systems for missile defense.

Joseph Lovece, *Defense Week*, 7/5/94, p. 5 (4574).

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## GERMANY

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### INTERNAL DEVELOPMENTS

10/19/94

The German cabinet approves a measure requiring German companies to file reports concerning all large weapons and military equipment imports and exports. Missiles and rockets, including MRLs, are included in this requirement.

Thomas C. Lucey, *Defense News*, 10/24/94, p. 6 (4783).

12/94

The German government decides to relax restrictions on dual-use exports beginning in 1/95. German companies will require government approval for dual-use exports to only nine countries — Afghanistan, the former Yugoslavia, Libya, Iraq, Iran, Burma, North Korea, Somalia and Syria — instead of the current 32. Economics Minister Guenter Rexrodt says the new regulations maintain German export control policy on technologies and services related to weapons of mass destruction and missiles.

*Wall Street Journal*, 12/12/94, p. A11 (4692). Thomas Lucey, *Defense News*, 12/19/94, p. 18 (4692).

1/95

A German decision on the fate of the Tactical Air Defence System (TLVS) is expected soon. The TLVS, designed to replace the HAWK missile system in 2005, should include an anti-cruise missile capability.

Heinz Schulte, *Jane's Defence Weekly*, 1/21/95, p. 32 (4696).

#### GERMANY WITH FRANCE

11/94

Germany's Deutsche Aerospace (DASA) and France's Thomson-CSF plan to conduct a share swap whereby Thomson-CSF will acquire 50 percent ownership of DASA's Bayern-Chemie missile-propulsion subsidiary which will then be merged with Thomson Brandt Armements to form a new subsidiary under Bayern-Chemie called Protac. Bayern-Chemie produces rocket motors, air-breathing engines, propellants and gas generators for a variety of missiles.

Andrzej Jeziorski, *Flight International*, 11/30/94-12/6/94, p. 16 (4766).

#### GERMANY WITH IRAN

12/15/94

The German economics ministry warns that Iran is attempting to buy German technology for indigenous production of "Scud-B" and "Scud-C" missiles. An Iranian "Scud-B" will reportedly be "operational" by 1995.

Dietmar Seher, *Berliner Zeitung* (Berlin), 12/15/94, p. 2; in FBIS-WEU-92-243, 12/19/94, pp. 17-18 (4880).

#### GERMANY WITH JAPAN

11/94

Japan agrees to a 1/95 launch of a Russian manufactured research capsule on Japan's M-3S2 SLV. Instrumentation on board the capsule was developed by the Japanese Space and Aeronautics Institute and the Deutsche Aerospace AG space agency and is the product of a bilateral space cooperation agreement between Japan and Germany.

Interfax (Moscow), 11/24/94; in FBIS-SOV-94-227, 11/24/94, (4720).

#### GERMANY WITH LIBYA

Fall 1994

According to a recent ZDF Television broadcast, a Libyan underground weapons complex at Tarhuna, 65 km southeast of Tripoli, includes "runways for missile launcher systems," command centers, and a replica of the Rabta chemical weapons plant. Currently, there are up to 62 German firms active in Libya with over 1,000 workers. Libya is also accused of biological weapons development at Tarhuna. According to head of the Central Customs Office for Criminal Investigations Karl-Heinz Matthias, "... (with the evidence we have) Libya is trying to develop such biological weapons."

*International Review*, Fall/94, p. 7 (4703).

#### GERMANY WITH PAKISTAN

11/94

German companies are reportedly providing Pakistan with illegal shipments of critical components for producing long-range missiles and weapon-grade nuclear material.

*Asia-Pacific Defence Reporter*, 10/94-11/94, p. 22 (4731).

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## INDIA

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#### INTERNAL DEVELOPMENTS

7/94

It is reported that India has successfully developed a silica throat insert, called Sephen, for the Vikas liquid engine used in the Polar Satellite Launch Vehicle (PSLV) and the Geostationary Satellite Launch Vehicle (GSLV). Sephen, developed by the Vikram Sarabhai Space Center in Thiruvananthapuram, protects the engine throat against high temperature gaseous emissions from the thrust chamber.

*Hindu* (Madras), 7/1/94, p. 13; in JPRS-TND-94-016, 8/19/94, p. 23 (4836).

8/94

An Indian Air Force station for "coordination between scientists, technicians and users" will be established at Balasore, site of the interim test range. The Indian Army commences user trials of the Prithvi missile and orders 75 of the 150- to 200-km range missiles for deployment later in 1994. The Air Force will be acquiring 25 of the 250 km-range missiles. A minimum of three Prithvi missiles are being produced every month.

*Asia-Pacific Defence Reporter*, 8/94-9/94, p. 21 (4531).

8/94

Scientists at India's Defence Research and Development Organization (DRDO) are expediting development of the medium-range Akash SAM and the short-range Trishul SAM. Akash, a Patriot-like ATBM, is expected to begin user trials in early 1995. It has a range of 25 km and a 55 kg warhead.

*Asia-Pacific Defence Reporter*, 8/94-9/94, p. 21 (4540).

8/94

It is reported that the DRDO is developing a 300 km-range submarine-launched missile called Sagarika (Oceanic), and is currently testing a prototype. Design work on Sagarika began in 1991, and, according to naval sources, it may be deployed around the year 2000. DRDO scientists have been working on developing the technology for the sub-surface launch of ballistic missiles for two years.

Ranjit Kumar, *Navbharat Times* (Delhi), 8/2/94, p. 1; in JPRS-TND-94-016, 8/19/94, p. 23 (4837). *Jane's Defence Weekly*, 1/14/95, p. 2 (4816).

9/21/94

General Romesh Khosla, commenting on the Prithvi missile, states that, "We are in the final stages of the user trials and the missile system should be ready for induction very soon." Khosla adds that "a complete service and maintenance infrastructure" is being established for the system and thus the Army requires more time before the Prithvi is actually deployed.

*Aerospace Daily*, 9/22/94, p. 464 (4819).

**10/94**

Lt. Gen. A.S. Parmar, Commandant of the School of Artillery, states that remotely piloted vehicles are entering service with the Indian Army for the first time.

*Hindu*, 10/8/94; in PTI, 10/8/94, p. 4 (4735).

**10/15/94**

India successfully launches its indigenously developed Polar Satellite Launch Vehicle (PSLV) for the first time, lifting an IRS-P2 remote sensing satellite into orbit. The Indian Space Research Organization (ISRO) says that the PSLV places India firmly in the commercial space-launch market, with a planned price of \$25 million for launching a 1,000 kg payload to a 900 km circular Sun-synchronous polar orbit.

Craig Covault, *Aviation Week & Space Technology*, 10/24/94, p. 24 (4866). Timm Furniss and Vivek Raghuvansh, *Flight International*, 10/26/94-11/1/94, p. 26 (4866). *Space News*, 11/12/94, p. 14 (4865).

**10/31/94**

Indian Prime Minister Rao tells military commanders from all three services that major defense needs would be fulfilled despite limited resources. The Indian Navy, which receives 12 percent of the defense budget, has asked for a long-range missile. The Defense Research and Development Organization will receive 4.6 percent of budget funds.

Vivek Raghuvanshi, *Defense News*, 10/31/94, p. 21 (4630).

**11/94**

The Indian government has approved the \$81.2 million budget required to build three PSLVs — to be designated C-1, C-2, and C-3 — and to plan for construction of three more.

*Flight International*, 11/23/94-11/29/94, p. 26 (4845).

**11/21/94**

Lt. General Shankar Roy Chowdhury is appointed the eighteenth Army Chief of the Indian Army. He has played a major role in the newly formed Army Training Command (ARTRAC) which focuses on new doctrines for the next century. Roy Chowdhury and ARTRAC have formulated new doctrines to integrate new weapon systems, including

missiles, into the armed forces.

*Hindu*, 12/3/94, p. 5 (4843).

**12/94**

The Pinaka multiple rocket system, developed by the Armament Research Development Establishment (ARDE) completes developmental test-firing with user-trials to begin shortly. The Indian Army plans to deploy this 40 km-range system with a number of different warheads.

*International Defense Review*, 12/94, pp. 15-16 (4737).

**12/94**

According to Indian Space Research Organization (ISRO) chairman, Dr. K. Kasturirangan, the Geo-Stationary Satellite Launch Vehicle (GSLV) project is progressing and its first launch is scheduled for 1997-8. Self sufficiency in launching INSAT satellites, which will follow indigenous development of the cryogenic upper stage, will make ISRO competitive internationally. India has scheduled a launch for the PSLV-D3 for 1995, to be followed by one flight per year.

*Hindu*, 12/3/94, p. 5 (4733).

## INDIA WITH PAKISTAN

**6/5/94**

Pakistani President Farooq Leghari says he has informed the U.S. about Pakistani fears over Indian efforts to deploy short- and medium-range missiles. Pakistani Prime Minister Benazir Bhutto accuses India of posing a threat to South Asia with its missiles. She states that Pakistan does not want to spur a regional missile race, but that "we will do whatever is necessary," referring to Pakistan's indigenous Hatf missile program. Top officials from Pakistan's armed forces, communicating their concern about India's arms build-up programs at a meeting of the Joint Chiefs of Staff Committee, state that South Asia needs to be a nuclear-free zone.

*The News* (Islamabad), 6/5/94, p. 1; in FBIS-NES-94-108, 6/6/94, p. 81 (4533). PTV Television Network (Islamabad), 6/5/94; in FBIS-NES-94-108, 6/6/94, p. 81 (4533). Radio Pakistan Network (Islamabad), 6/5/94; in FBIS-NES-94-108, 6/6/94, p. 81 (4533). *The News* (Islamabad), 6/6/94, p. 1; in FBIS-NES-94-108, 6/6/94, p. 81 (4533). P.S. Suryanarayana, *Hindu*, 6/11/94, p. 1 (4533).

**7/94**

Pakistani retired Maj. Gen. Altaf Hussain says that India's recent missile test-flights indicate that the Indians have secretly been working for years to develop missiles and that they may have siphoned off money from development loans to finance the missile program. He says that this program is forcing Pakistan to turn to friendly countries to match India's threat. He says that Pakistan is fortunate to have a good friend in China which has atomic and missile power and doesn't submit to Russian or U.S. pressure.

Manohar Talkh, *Jansatta (Delhi)*, 6/11/94, p. 6; in JPRS-TND-94-014, 7/13/94, p. 33 (4536).

**8/94**

Pakistan's military establishment is concerned about reports from India that indicate that the Prithvi missile may be tipped with nuclear weapons. General Harwant Sing, a former Indian Vice Chief of the Army Staff and Director General Weapons and Equipment, states "Prithvi's potential as a decisive weapon of war is not when it carries conventional munitions load, but when tipped with a nuclear device. Therefore, Prithvi packs a worthwhile punch only when it carries the 'bomb' and therein lie its value as a weapon of deterrence." He adds that using the Prithvi with conventional munitions may not be cost effective due to Pakistan's defensive measures.

Ali Abbas Rizvi, *Asian Defence Journal*, 8/94, p. 94 (4532).

## INDIA WITH RUSSIA

**7/94**

India may purchase Russian Tarantul-II-class corvettes armed with SS-N-22 "Sunburn" missiles, but Delhi has not yet submitted a formal request for proposal. India will continue to build Delhi-class DDGs armed with SS-N-22s. While Western diplomats successfully prevented Russia from exporting liquid fuel rocket motors to India, Moscow is supplying "dual use" technology that would enable India to produce its own rocket motors.

Carol Read, *Jane's Defence Weekly*, 7/9/94, pp. 28-29 (4615). Malcolm R. Davis, *Asia-Pacific Defence Reporter*, 9/94, pp. 11-12 (4615).

12/23/94

The Indian Space Research Organization and the Russian Space Agency sign an agreement on space science, remote sensing and space-based communications. The agreement is signed by Russian Prime Minister Viktor Chernomyrdin and Indian Prime Minister Narshima Rao. A side agreement calls for the sale of Russian cryogenic motors to India, but not the technology to produce them.

Vivek Raghuvanshi, *Defense News*, 1/9/95-1/15/95, p. 25 (4736). Warren Ferster, *Space News*, 1/9/95-1/15/95, p. 3 (4860).

1/95

Russia strikes a deal to sell India the Kiev-class aircraft carrier Admiral Gorshkov. It is not known if the deal includes the SS-N-12 Sandbox cruise missile, which is the Gorshkov's primary offensive weapon.

Alexander Velovich, *Flight International*, 1/18/95-1/24/95, p. 17 (4756).

#### INDIA WITH UKRAINE

10/94

It is reported that India and Ukraine sign an accord allowing Ukraine the use of the Indian launch site at Sriharikota.

*Flight International*, 10/5/94-10/11/94, p. 19 (4734).

#### INDIA WITH UNITED STATES

1/11/95

U.S. Defense Secretary Perry, during a press conference in Islamabad, pressures India and Pakistan to check regional tensions by not deploying ballistic missiles. According to Perry, "Deployment of Prithvi or M-11s would be a clear escalatory action and in our judgement that would be damaging to the security of both countries."

Alistar Lyon, Reuter, 1/11/95; in Executive News Service, 1/12/95 (4834).

## INDONESIA

#### INDONESIA WITH UNITED STATES

1/95

It is reported that Indonesia is interested in purchasing Raytheon Improved Hawk SAMs to fill its medium- to high-altitude air defense requirement. The Indonesian military plans to spend \$104 million of a proposed \$2 billion military equipment procurement budget over the next five years to purchase four batteries of medium- to high-altitude air defense missiles.

Paul Lewis, *Flight International*, 1/4/94-1/10/95, p. 14 (4870).

## IRAN

#### INTERNAL DEVELOPMENTS

10/94

According to the most recent edition of "Military Balance," issued by the International Institute for Strategic Studies, Iran has "around six" Scud missile launchers, a smaller number than previously believed.

Reuter, 12/15/94, in Executive News Service, 12/15/94, (4687).

11/94

Iran conducts "missile maneuvers near the Strait of Hormuz."

Bakhtyar Nasser, *International Review*, Autumn/94, p. 7 (4862).

11/94

According to German Customs Intelligence (ZKA) documents, Iran is developing its own cruise missile based on the Russian SSN-2 'Styx' ASM. Prior Chinese sales of 'Silkworm' ASMs provide Iran with access to 'Styx' technology. Four 'Silkworm' sites have been built on Abu Musa island. Iran

also produces its own RPVs and is working on new models. In addition to cruise missile developments, say the documents, Iran is also working on a wide variety of ballistic missiles. Scud-Bs are now being assembled and, by the end of 1994, indigenous Scud-Bs will be produced with a large percentage of locally manufactured parts. The ZKA adds that self-sufficiency in Scud-B production "will be attained in the coming years...[but] it is still open whether Iran will make a decision to produce only the Scud-B or, in addition the Scud-C." Tehran already has Chinese M-11s and "Russian and Chinese-supplied Scud-As and -Bs." In addition to liquid systems, Iran is working on a solid fuel missile which "closely follows Western systems." According to the documents, "Both for the liquid and solid fuelled missiles, Tehran is acquiring equipment, components, process technology and manufacturing means and raw materials from other countries," with the PRC and North Korea particularly active in providing technical assistance. Key organizations in missile development are: Defense Industries Organization, Military Industries Organization, Shahid Hemat Industrial Group, and Shahid Bagheri Industrial Group. Key development and production sites are located in Shiraz, Khorramabad, Parchin, and Semnan.

Alan George, *Flight International*, 11/16/94, p. 17 (4937). *Flight International*, 11/23/94, p. 21 (4937).

11/6/94

Iran fires at least one, and as many as three, Scud missiles at an Iranian opposition base in Eastern Iraq. The base — operated by the National Liberation Army (NLA) — is located at Ashraf, 80 km from the Iranian border. Mujaheddin sources say no one was injured in the attack, and reporters taken to the base see two craters and debris from a prayer area and dining hall. The Mujaheddin add that the Scuds were fired by the IRGC's 7th missile brigade and an additional nine missiles are ready to be launched from western Iran.

*Washington Times*, 11/7/94, p. A16 (4625). Alistar Doyle, Reuter, 11/9/94; in Executive News Service, 11/9/94 (4625). *Aviation Week & Space Technology*, 11/21/94, p. 14 (4625). Paul Beaver, *Jane's Defence Weekly*, 11/26/94, p. 14 (4625).

1/95

According to U.S. officials, Iran stations anti-ship missiles on islands it occupies in the Persian Gulf which are claimed by the UAE, as well as SA-5 SAMs on the coast of Iran.

Barbara Starr, *Jane's Defence Weekly*, 1/7/95, p. 3 (4727).

1/22/95

Iranian air and naval forces begin a five-day exercise code-named T.M.73-2 in the northern waters of the Persian Gulf to check movements of vessels, telecommunications, air defense, electronic warfare, air-to-surface and surface-to-air spotting, according to Captain Gholamreza Masoumi. Masoumi is head of tactical headquarters for the exercise.

*Washington Times*, 1/25/95, p. A14 (4917).

2/95

Iran will deploy 'Silkworm' or CS-801 'Sardine' ASMs on several islands near the Strait of Hormuz, including Abu Musa and the Tumb islands, U.S. Navy officials predict. A Navy official says, "Continuing this trend we see truck-mounted anti-ship cruise missiles being deployed later this year." Military sources add that similar missile batteries located across the Gulf on the Iranian mainland pose a threat to international shipping through the Strait. According to Congressional Research Service analyst Kenneth Katzman, the IRGC maintains a base on Abu Musa and is responsible for all ASMs, including the 'Silkworms' and CS-801s.

Phillip Finnegan and Robert Holzer, *Defense News*, 2/6/95, pp. 1, 42 (4913).

## IRAN WITH GERMANY

12/15/94

The German economics ministry warns that Iran is attempting to buy German technology for indigenous production of "Scud-B" and "Scud-C" missiles. An Iranian "Scud-B" will reportedly be "operational" by 1995.

Dietmar Seher, *Berliner Zeitung* (Berlin), 12/15/94, p. 2; in FBIS-WEU-92-243, 12/19/94, pp. 17-18 (4880).

## IRAN WITH NORTH KOREA

12/93

A high-level Iranian delegation — led by Iranian Defense Minister Mohammad Foruzandeh and including war industry officials, the general responsible for arms acquisition, and scientists working on the improvement of ballistic missiles — visits Pyongyang and holds extensive talks on arms acquisition. During the discussion, the Iranians ask the DPRK for aid in constructing underground bunkers for aircraft and missiles at 18 sites spread across Iran.

Hiroshi Kano, *International Review*, Autumn/1994 (4847).

7/94

Iran agrees to buy more North Korean Scuds and to cooperate on development of the No-dong missile.

Nick Rufford and James Adams, *Sunday Times*, 7/17/94, p. 3C (4480).

10/94

A U.S. reconnaissance satellite sights three No-dong-class missiles being assembled at a site 25 miles north of Esfahan.

*Iran Brief*, 12/5/94 (4857).

11/94

According to American analysts, the current ease in tension between the U.S. and North Korea may enable the DPRK to restart its No-dong deal with Iran. The 4/93 contract for joint development of 150 No-dong-2 missiles was halted in spring 1994 due to tense relations between Washington and Pyongyang.

Stephen J. Hedges and Peter Cary with Eleni Dimmler and Kyrill Belianiov, *U.S. News & World Report*, 11/14/94, pp. 87-88 (4726).

11/23/94

Commenting on reports that Syria and Iran have begun assembly of North Korean built Scud-C missiles with a 310 mile range, a senior Israeli official says, "Syria and Iran [are] also receiving the equipment to manufacture the entire [Scud-C] missile themselves."

*Washington Times*, 11/24/94, p. A11 (4644).

12/13-15/94

On two separate occasions, Israeli Prime Minister Rabin comments on the North

Korean supply of missiles to Iran and Syria. Rabin first notes that North Korea is supplying Iran with nuclear and missile technology, stating, "It is true that North Korea has supplied ground-to-ground missiles to Syria and Iran, but it has also helped them to produce such missiles as well." Rabin later adds that North Korea has equipped Iran and Syria with 500 km-range Scuds and, with Iranian financing, is developing the 1,300 km-range No-dong SSM.

Peter Kenny, UPI, 12/14/94; in Executive News Service, 12/14/94 (4632). Reuter, 12/15/94; in Executive News Service, 12/15/94 (4632). Michael Sheridan, *Independent*, 12/16/94 (4632). *Washington Times*, 12/16/94, p. A22 (4858). *Times*, 12/26/94 (4632).

12/16/94

It is reported that North Korea has agreed to an Iranian request to test its No-dong missile in Iran at the end of its next stage of development. The test is designed to evaluate internal systems, but the missile will not be tested to its full 1,300 km-range. Sources in the Israel Defense Forces believe Iran is purchasing North Korean technology in addition to missiles.

Eytan Rabin and Aluf Ben, *Ha'aretz* (Tel Aviv), 12/16/94, p. A1; in FBIS-NES-94-243, 12/19/94, pp. 35-36 (4879).

2/19/95

Iranian official Hassan Taherian states, "There are [sic] no missiles cooperation between Iran and North Korea whatsoever. We deny this...[F]or lack of need and also for self-sufficiency in military productions, our military cooperation is very limited. It is about zero." Taherian is Director General for the Far East in the Iranian Foreign Ministry.

Reuter, 2/19/95; in Executive News Service, 2/20/95 (4915).

## IRAN WITH PRC

9/94

Outgoing U.S. Central Command Chief Vice Admiral Douglas J. Katz announces that Iran has received five Hegu fast attack craft (FACs) from China, the first half of an order placed in 1992; the boats were delivered without anti-ship missiles. Talks with China for delivery of the FACs started in

1981, but due to disagreement over the type of SSM to be transferred, deliveries were deferred. China offered the C-801 missile, but Iran wants the C-802, which is more advanced. Negotiations continue over the Hegu's missile complement. China contracted for 10 FACs in 1992, and the delivery date for the other five vessels has not been announced yet.

*Jane's Defence Weekly*, 10/1/94, p. 6 (4728).

#### 10/12/94

The International Institute of Strategic Studies (IISS) reports that Iran has received 20 CSS-8 SSMs from China. The missile is a solid-fuel system with a 150 km- (95 miles) range and 190 kg (420 lb) warhead. Iran is the first country after China to have the CSS-8.

Reuter, 10/12/94; in Executive News Service, 10/12/94 (4729). *Defense News*, 10/17/94-10/23/94, p. 64 (4775).

### IRAN WITH RUSSIA

#### 7/94

Iran acquires 12 Tu-22 Backfire bombers armed with AS-6 anti-ship missiles from Russia.

Malcolm R. Davis, *Asia-Pacific Defence Reporter*, 9/94, pp. 11-12 (4615).

#### 9/29/94

Russian President Boris Yeltsin promises President Clinton that he will seek to restrain sales of Russia's classified weapons technology to Iran and other governments.

Stephen Robinson, *Daily Telegraph*, 9/29/94, (4484). James Bruce, *Jane's Defence Weekly*, 10/8/94, p. 2 (4639).

#### 10/11/94

Iranian Foreign Ministry spokesman Mahmoud Mohammadi, commenting on Russia's decision to cease arms sales to Iran, states, "If the Russians intend to deprive themselves of having access to such a market, it is up to them."

Reuter, 10/11/94, in Executive News Service, 10/12/94, (4688).

#### 12/94

A high-ranking official of the Russian Ministry of Foreign Affairs says that Russia "does not intend to cut down military deliveries

to Iran in the near future." The Russian official noted that all transactions were conducted in strict accordance with procedures developed by the permanent members of the U.N. Security Council.

Radio Rossii Network (Moscow), 12/11/94; in FBIS-SOV-94-238, 12/11/94 (4778).

#### 2/15/95

Iran and Russia are discussing Iranian purchases of Backfire bombers, advanced ASMs and SA-10 SAMs, according to Middle East Analyst Anthony Cordesman. Gen. Binford Peay, U.S. CENTCOM Commander, says U.S. concerns about Russian arms shipments to Iran focus primarily on sales of advanced missile and nuclear technologies. U.S. officials claim Russia's refusal to halt arms sales to Iran is derailing negotiations on the successor regime to COCOM.

Barbara Opall, *Defense News*, 2/20-26/95, pp. 1, 28 (4823).

### IRAN WITH SYRIA

#### 7/94

Syria and Iran are reportedly developing low-priced cruise missiles. Iran is believed to be the primary financier of this project.

James Bruce, *Jane's Defence Weekly*, 7/30/94, pp. 23-33 (4569).

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## IRAQ

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### INTERNAL DEVELOPMENTS

#### 10/94

Saddam Hussein has rebuilt his conventional ground forces by disbanding units, salvaging spare parts, and repairing vehicles and equipment damaged during the Gulf War. There is no photographic evidence that all of Iraq's pre-war estimated 22 Scud missile launchers were destroyed. Some experts believe Iraq might have secretly stockpiled up to 100 Scud missiles.

Peter Cary, *U.S. News & World Report*, 10/24/94, p. 44 (4710).

#### 1/5/95

Saddam Hussein praises the Iraqi military for successfully firing 39 Scuds at Israel during the 1991 Gulf War.

Leon Barkho, Reuters, 1/6/95; in Executive News Service, 1/6/95 (4765).

#### 1/10/95

U.S. Ambassador to the U.N. Madeleine Albright presents U.S. satellite photographs and a list of Kuwaiti-owned weapons being deployed by Iraqi troops, stating that the weapons have not yet been returned to Kuwait in accordance with U.N. resolutions. This list includes 15 Frog-7 launchers, 20 FROG-7 resupply vehicles, 120 FROG-7 rounds, and three Skyguard air defense systems.

Julia Preston, *Washington Post*, 1/11/95, p. A12 (4702). Leon Barkho, Reuters, 1/12/95; in Executive News Service, 1/12/95 (4786). *Jane's Defence Weekly*, 1/21/95, p. 5 (4786).

#### 2/21/95

Iraqi General Wafiq Samra'i — who defected in late 1994 — tells U.N. envoy Rolf Ekeus in an open letter that Saddam Hussein still retains "long-range Scud and [Al] Hussein missiles."

*Washington Times*, 2/22/95, p. A15 (4853).

### IRAQ WITH PRC

#### 12/14/94

Import-export agent Storm Kheem (A.K.A. "Kim Kyung-II") is arrested by U.S. authorities for organizing a 1993 illicit shipment of ammonium perchlorate to the Iraqi government from China. Kheem, owner of the New York-based firm Bkesco, sourced the chemical from the Chinese Chemical Import-Export Corporation (Guangdong) through Zeid Khorma, an Iraqi government purchasing agent in Jordan. The chemicals were shipped aboard the German freighter, Asian Senator.

*Export Control News*, 12/30/94, p. 14 (4751).

#### 1/27/95

New York-based trader Storm Kheem pleads guilty to U.S. federal charges of conspiring to ship restricted rocket fuel precursor chemicals to Iraq from China.

*Export Control News*, 1/31/95, pp. 12-13 (4863).

**IRAQ WITH UNITED NATIONS**

**10/94**

According to the Middle East Economic Survey, Iraq sends a letter to UNSCOM executive chairman Rolf Ekeus in which Iraq allegedly pledges full cooperation with the U.N. in all areas, including that of long-range ballistic missiles. The monitoring for possible illicit production of long-range Scud or Scud-derived missiles continues. The U.N. Special Commission believes that there are no Scuds in Iraq. However, the CIA discounts this claim because not all the Scuds Iraq purchased from the former Soviet Union have been accounted for.

Reuter, 10/31/94 (4704).

**10/94**

Rolf Ekeus, U.N. Special Envoy in charge of the operation in Iraq, submits a report which states that the ongoing monitoring process is "provisionally operational." Fifty cameras, monitored by more than 45 inspectors, are installed in missile production facilities to oversee the construction of new Iraqi missiles and ensure compliance with U.N. resolutions.

*New York Times*, 10/7/94, p. A4 (4762). Mark Nicholson, *Financial Times*, 10/14/94, p. 5 (4762).

**1/95**

The U.N. Special Commission claims that Iraq hid a Chinese-built radar system "for tracking ballistic missiles." The radar was used on two separate occasions at a missile testing site in 12/90.

*Jane's Defence Weekly*, 1/14/95, p. 9 (4679).

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**ISRAEL**

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**INTERNAL DEVELOPMENTS**

**10/94**

At the 45th International Astronautical Congress in Jerusalem, Israeli officials discuss new developments and options in their space and space defense programs. One plan is to

develop an upgraded, four-stage version of the Shavit booster, designated "Next," capable of launching 300 kg payloads into polar orbit. The upgrade will have first and second stage solid motors approximately 20 percent longer than the original Shavit and use IAI's new 3,000 Newton (674 lbs) thrust liquid rocket system on the fourth stage. Meanwhile, IAI President Moshe Keret states that his firm wants to sell satellite services on three of its seven Amos Communications satellites to countries in the region and central Europe. The first launch of an Amos communication payload is likely to be postponed from 5/95 to 9/95. IAI also wants to market Shavit launch services in the U.S. for universities and researchers with small payloads limited to 100 to 200 kg. Finally, Technion's Gabriel Iddan, who leads a group promoting the launch of three to four small missile warning satellites into low Earth orbit, says, "We need to cover an area measuring around 1,000 km by 1,000 km for early warning of hostile missiles. For that we can go down to orbits of 6,000 to 8,000 km in altitude, each with 1 km of ground resolution."

Craig Covault, *Aviation Week & Space Technology*, 10/17/94, p. 25 (4670). Lon Rains, *Space News*, 10/17/94-10/23/94, p. 8 (4675). Peter de Selding, *Defense News*, 10/17/94-10/23/94, p. 38 (4815).

**10/18/94**

IAI's "Heron" long-endurance UAV completes its first flight test, which lasts 30 minutes. It is capable of staying aloft for up to 35 hours at altitudes of over 25,000 ft and can carry a 500 kg payload.

*Flight International*, 11/2/94-11/8/94, p. 16 (4673). *Jane's Defence Weekly*, 11/19/94, p. 32 (4673).

**10/21/93**

In coordination with IAI and Rafael Armament Development Authority, the Israeli Navy successfully conducts the first Barak intercept test of a Gabriel ASM. The Gabriel was launched from a missile boat at the vessel carrying the Barak system. Israeli Navy Sa'ar 5 missile boats will be armed with the Barak. Deals have already been signed to supply the system to a number of foreign navies.

*Jerusalem Post*, 10/22/93, (4674).

**11/94**

Based on French and Russian commercial satellite imagery, analyst Harold Hough identifies several sites related to Israel's nuclear and missile programs. Jericho II missiles are built at Be'er Yaakov where the U.S.-Israeli Arrow missile is also being developed. The Jericho IIs are moved from the production site by rail to a base near Kefar Zekharya, 15 km south of Be'er Yaakov. Construction at Zekharya began in 1967 and Jericho I missiles became operational there in the 1970s. The base was expanded in the late 1980s and early 1990s to house Jericho II nuclear-tipped missiles, which are housed in 50 underground bunkers cut into limestone hills. Zekharya also has an above-ground concrete launch pad and silo from which a Jericho II was test-launched during the Gulf War. However, most missile testing is conducted at the Palmikim test range south of Tel Aviv, where on 9/14/89 a Jericho II was launched, impacting 1,300 km away just west of Crete. Tests of the Ofteq booster and cruise missile tests have been conducted at Palmikim. Eliabun, located 9 km west of Lake Kinneret in eastern Galilee, is a depot for a large number of Israel's tactical nuclear and conventional weapons. Nuclear devices are produced at Rafael's Division 20 in Yodefat, where the Popeye missile is also produced.

Harold Hough, *Jane's Intelligence Review*, 11/94, pp. 508-511 (4912).

**12/94**

Israeli Ministry of Defense announces completion of the first fire-control radar for the Arrow antiballistic missile system. A test and calibration program will now begin.

*Jane's Defence Weekly*, 12/10/94, p. 4 (4636). *Aviation Week & Space Technology*, 12/12/94-12/19/94, p. 17 (4714). *Jane's Defence Weekly*, 12/17/94, p. 12 (4636). *International Defense Review*, 2/95, p. 15 (4714).

**2/95**

Uzi Rubin, the head of the Israeli Missile Defense Organization, states that the Arrow ATBM system development is entering its second and most critical phase involving six Arrow-2 missile test-launches. Elta's newly built phased-array radar provide target detection and fire control. Rubin adds, "Al-

most all the basic technologies in the Arrow are Israeli and we can export them. The Arrow missile will be exported as part of a system only if the USA approves such a move."

Arie Egozi, *Flight International*, 2/15/95-2/21/95, p. 30 (4868).

#### ISRAEL WITH CHILE

11/94

The Chilean Navy is expected to be the first foreign country to deploy Israel's Barak point defense missile system. Barak will be deployed on the Blanco Encalada, formerly HMS Fife. Chile provided funds for the system's development.

Sharone Parnes, *Defense News*, 10/17/94-10/23/94, p. 44 (4671). Mouafac Harb, *Washington Times*, 11/9/94, p. A22 (4671). James Bruce, *Jane's Defence Weekly*, 11/19/94, p. 23 (4671). *Defence Systems Modernisation*, 1-2/94, pp. 22-24 (4914).

#### ISRAEL WITH JAPAN

12/12/94

Israeli Prime Minister Yitzhak Rabin and several Israeli defense industry leaders visit Japan, after which Japan is said to be contemplating a cooperative deal with Israel on ATBM technology. Japan seems particularly interested in Israeli-developed technology related to the Arrow ATBM.

*Flight International*, 1/4/95-1/10/95, p. 17 (4869).

#### ISRAEL WITH SINGAPORE

11/94

The Singapore Navy will deploy the Barak point defense missile.

Sharone Parnes, *Defense News*, 10/17/94-10/23/94, p. 44 (4671). Mouafac Harb, *Washington Times*, 11/9/94, p. A22 (4671). James Bruce, *Jane's Defence Weekly*, 11/19/94, p. 23 (4671).

#### ISRAEL WITH SLOVAKIA

11/94

Rafael and Slovakia's Konsrukuta Trencin are negotiating the development of a new version of the Strop self-propelled air defense system which incorporates eight Barak point-defense missiles.

James Bruce, *Jane's Defence Weekly*, 11/19/94, p. 23 (4671).

#### ISRAEL WITH UNITED KINGDOM

10/20/94

British Defense Minister Malcolm Rifkind begins a four-day visit to Israel. Ballistic missile defense issues are a high-priority item for his scheduled meeting with Israeli Prime Minister Yitzhak Rabin, Foreign Minister Shimon Peres, and chief of the General Staff, Ehud Barak.

*Defense News*, 10/24/94, p. 2 (4767).

11/94

Rafael Armament Development Authority forms a partnership with U.S. Martin Marietta's electronics and missile division to promote sales of the AGM-142 medium-range air-launched missile, a variant of Rafael's Popeye used by U.S. forces during the 1991 Gulf War. South Korea is a likely customer for the AGM-142. Rafael also wants to export its Popeye missile technology to meet Britain's requirement for a Conventionally Armed Standoff Missile (CASOM).

Sharone Parnes, *Defense News*, 10/17/94-10/23/94, p. 44 (4671). Mouafac Harb, *Washington Times*, 11/9/94, p. A22 (4671). James Bruce, *Jane's Defence Weekly*, 11/19/94, p. 23 (4671).

#### ISRAEL WITH UNITED STATES

10/94

A joint U.S.-Israeli preliminary feasibility study finds that the use of a UAV boost-phase interceptor would be a credible and cost-effective approach to ballistic missile defense.

*Flight International*, 10/12/94-10/18/94, p. 21 (4640).

10/94

Teaming with U.S. Space Vector and Atlantic Research, Israel promotes its standard three stage Shavit to compete in NASA's ultralight satellite booster competition.

Craig Covault, *Aviation Week & Space Technology*, 10/17/94, p. 25 (4670).

10/94

Iraqi troop movements near the Kuwaiti border lead to U.S. Patriot deployments in the region. Two additional Patriot missile batteries are being deployed to Saudi Arabia

to supplement the equipment already in place. The U.S. is also sending Patriot missile batteries to Kuwait, and will send them to Israel if necessary.

Bill Gertz and Joyce Price, *Washington Times*, 10/9/94, p. A1 (4694). Steven Greenhouse, *New York Times*, 10/10/94, p. A5 (4694).

11/94

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Sharone Parnes, *Defense News*, 10/17/94-10/23/94, p. 44 (4677). Mouafac Harb, *Washington Times*, 11/9/94, p. A22 (4677). James Bruce, *Jane's Defence Weekly*, 11/19/94, p. 23 (4671).

11/17/94

Secretary of Defense William Perry and his deputy John Deutch "assured" Israel's Ministry of Defense Director General David Ivry that the U.S. would continue funding of the U.S.-Israeli Arrow Deployability Program (ADP). U.S. and Israeli sources state that the ADP memorandum of agreement, which would commit Israel to funding a minimum of 30 percent of program costs, is likely to be signed by 4/95 or 5/95.

Barbara Opall, *Defense News*, 10/31/94-11/06/94, pp. 3, 28 (4716). Barbara Opall, *Defense News*, 11/21/94-11/27/94, p. 4, 29 (4716).

12/94

The Israeli-developed Popeye stand-off missile is a possible contender to replace the cancelled Tri-Service Stand-off Attack Missile.

Graham Warwick, *Flight International*, 12/21/94-1/3/95, p. 24 (4770).

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## ITALY

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### ITALY WITH FRANCE

2/95

A Eurosam Aster-15 air-defense missile scores a direct hit on a simulated supersonic sea-skimming missile during a short-range intercept test. Eight more tests are scheduled through 1996 prior to deployment on the Charles de Gaulle aircraft carrier in 1999.

*Flight International*, 1/25/95-1/31/95, p. 16 (4718).  
*Jane's Defence Weekly*, 1/28/95, p. 14 (4711). Paul Proctor, *Aviation Week & Space Technology*, 1/30/95, p. 15 (4711). *Defense News*, 2/13/95-2/19/95, p. 21 (4711).

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## JAPAN

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### INTERNAL DEVELOPMENTS

10/94

Japan's Nissan Motor Co. is developing a new side-thrust rocket for use in the proposed theater missile defense program. This technology provides enhanced maneuverability by jettisoning rocket blast through dozens of pinholes on the side of the rocket. Ground tests have been conducted, and a demonstration test is scheduled for 1996 or 1997. Japan Defense Agency officials and U.S. DOD officials are currently discussing the possible joint development of a theater missile defense system, but have not reached an agreement.

Naoaki Usui, *Defense News*, 10/17/94-10/23/94, p. 12 (4658).

10/94

The Japan Defense Equipment Industries Association announces that it will create a joint research committee for theater missile defense by the close of 1994.

*International Defense Review*, 10/94, p. 10 (4659).

11/94

The Japanese government may adopt stricter export restrictions on up to 200 dual-use technologies that could be used to manufacture weapons of mass destruction. The restrictions are to be implemented by mid-1995. The dual-use items covered include machine tools, metals, agricultural chemicals, computers, and semiconductors. Licenses are required by Japan's Ministry of International Trade and Industry (MITI) to export items, and if there is any concern, the case will then be checked by MITI's Security Trade Control Division.

Naoaki Usui, *Defense News*, 11/14/94, p. 28 (4662).

### JAPAN WITH GERMANY

11/94

Japan agrees to a 1/95 launch of a Russian manufactured research capsule on Japan's M-3S2 SLV. Instrumentation on board the capsule was developed by the Japanese Space and Aeronautics Institute and the Deutsche Aerospace AG space agency and is the product of a bilateral space cooperation agreement between Japan and Germany.

Interfax (Moscow), 11/24/94; in FBIS-SOV-94-227, 11/24/94, (4720).

### JAPAN WITH ISRAEL

12/12/94

Israeli Prime Minister Yitzhak Rabin and several Israeli defense industry leaders visit Japan, after which Japan is said to be contemplating a cooperative deal with Israel on ATBM technology. Japan seems particularly interested in Israeli-developed technology related to the Arrow ATBM.

*Flight International*, 1/4/95-1/10/95, p. 17 (4869).

### JAPAN WITH RUSSIA

11/94

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Interfax (Moscow), 11/24/94; in FBIS-SOV-94-227, 11/24/94, (4720).

### JAPAN WITH UNITED STATES

8/94

An advisory panel to Prime Minister Tomiichi Murayama recommends that Japan jointly develop a theater missile defense system with the U.S.

*Arms Control Today*, 10/94, p. 24 (4660). Barbara Opall, *Defense News*, 12/5/94, p. 33 (4661).

9/12/94-9/16/94

Japanese Defense Minister Tokuchiro Tamazawa meets with U.S. Defense Secretary William Perry to discuss joint development of a theater missile defense (TMD) system. The U.S. Defense Department is seeking Japanese help to pay for the costs of research and development for various TMD systems. During FY 1995, the Japanese Defense Agency requested only \$200,000 for initial research.

*Arms Control Today*, 10/94, p. 24 (4660). Joseph Lovece, *Defense Week*, 10/3/94, p. 8 (4660). *Defense News*, 10/31/94, p.2 (4660).

10/25/94-10/26/94

Japan and the U.S. hold a third round of discussions and agree to create an expert group to assess the ballistic missile threat to Japan and how to counter it.

*Arms Control Today*, 10/94, p. 24 (4660). Joseph Lovece, *Defense Week*, 10/3/94, p. 8 (4660). *Defense News*, 10/31/94, p.2 (4660).

11/94

Lockheed, the prime contractor for the U.S. Army's Theater High Altitude Area Defense (THAAD) system, signs a contract with Japan's Mitsubishi Corp. to cooperate on Theater Missile Defense (TMD) programs. Lockheed will conduct studies related to TMD with the Japanese government and aerospace industry. Loral Vought, the prime contractor for the Extended Range Interceptor (ERINT) missile, signs a marketing agreement with Itochu International Inc. to promote its ERINT missile and related technology in Japan.

Barbara Opall, *Defense News*, 12/5/94, p. 33 (4661).

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## KAZAKHSTAN

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### INTERNAL DEVELOPMENTS

10/94

Members of the Zhezkazgan oblast assembly propose downsizing the Baikonur space launch complex and the removal of the Saryshagan military test site from the location.

*Sovety Kazakhstana* (Almaty), 10/18/94; in FBIS-USR-117, 10/18/94, p. 3 (4780).

### KAZAKHSTAN WITH RUSSIA

10/94

The Russian State Duma Committee on Defense holds hearings on a range of issues involving the ground support infrastructure for a national space program and, in particular, the transfer of a significant portion of the Baikonur Cosmodrome support facility from the Russian Space Forces (RSF) to the civilian Russian Space Agency (RSA). On 8/29/94, a Russian government decree outlined a list of Baikonur facilities to be moved from the RSF to RSA, including: a launch complex for the Soyuz launch vehicle; launch vehicles and a related spacecraft test facility; all facilities that were part of the now defunct Energia/Buran program; an oxygen/nitrogen production plant and hydrogen station; and a Proton launch vehicle launch pad. The facilities for the canceled Energia/Buran program include two Energia launch complexes, an assembly and "check-out" facility, a fueling station, a dynamic and pyrotechnic test stand, the "universal complex stand-start" (site of the 1987 Energia launch), and the orbiter checkout facility. The RSA will keep military personnel at the Baikonur complex to make up for its lack of the necessary personnel and funds required to operate the extensive complex. The staff at Russian Ministry of Defense Cosmodrome will fill the positions at Baikonur. The 16,500 military personnel will operate under RSF command but will be paid with RSA money. A special dedi-

cated line in the state budget is expected to supply the additional funds needed to pay the staff and maintain the Baikonur complex.

*Aerospace Daily*, 10/27/94, p. 142 (4638).

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## KUWAIT

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### KUWAIT WITH RUSSIA

11/94

Russian Prime Minister Viktor Chernomyrdin visits Kuwait, the United Arab Emirates, Saudi Arabia, and Oman during a Gulf tour to promote arms deals, trade, and investments.

Diarmid O'Sullivan, *Reuter*, 11/22/94; in *Executive News Service*, 11/22/94 (4668).

### KUWAIT WITH UNITED STATES

10/12/94

U.S. deploys a battery of eight truck-mounted Patriot air defense missiles near Kuwait's International Airport.

*Reuter*; in *Executive News Service*, 10/12/94 (4645).

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## LIBYA

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### INTERNAL DEVELOPMENTS

9/23/94

CIA director Woolsey mistakenly accuses Iraq of "...accelerating construction of deep underground shelters and tunnels to produce and store weapons of mass destruction." In fact, the CIA now acknowledges that the facilities in question were actually in Libya, not Iraq.

Jim Anderson, *Washington Times*, 11/5/94, p. A6 (4785).

### LIBYA WITH EGYPT

12/94

The presence of Egyptian missile and rocket specialists at Libya's Tarhuna center — where recent products under development include the indigenous Al-Fateh missile, and an "upgraded," 300 km-range Scud — prompts U.S. protests to the Egyptian government.

*Intelligence Newsletter*, 12/1/94, p. 7 (4637).

### LIBYA WITH GERMANY

Fall 1994

According to a recent ZDF Television broadcast, a Libyan underground weapons complex at Tarhuna, 65 km southeast of Tripoli, includes "runways for missile launcher systems," command centers, and a replica of the Rabta chemical weapons plant. Currently, there are up to 62 German firms active in Libya with over 1,000 workers. Libya is also accused of biological weapons development at Tarhuna. According to head of the Central Customs Office for Criminal Investigations Karl-Heinz Matthias, "... (with the evidence we have) Libya is trying to develop such biological weapons."

*International Review*, Fall/94, p. 7 (4703).

### LIBYA WITH RUSSIA

1994

Based on "fragmentary information," Libya reportedly acquires two SS-25 mobile ICBMs and TELs from Russia for \$5 million each. From their Siberian base, the missiles were transported "sometime during the last six months of 1994" through Tajikistan and Afghanistan, and were then delivered "probably by air" to Libya.

Arnold Beichman, *Washington Times*, 2/2/95, p. A16 (4695).

### LIBYA WITH UKRAINE

Summer 1993

A shipment of 80 tons of "ammonium petrochloride" is stopped in Ukraine. Serbian middlemen, acting on behalf of Libya, purchased the chemical.

Guy Roux, *International Review*, Autumn/94, p. 7 (4703).

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## MALAYSIA

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### MALAYSIA WITH UNITED KINGDOM

12/3/94

Lekiu, the first of two Lekiu-class frigates, launches in England. The ship will enter service with the Royal Malaysian Navy in 1996 and will be armed with 16 Seawolf vertical SAM launchers and eight Exocet MM40 ASM launchers.

*International Defense Review Despatches*, 1/95, p. 1 (4746).

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## MISSILE TECHNOLOGY CONTROL REGIME

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7/94

The U.S. and MTCR members will help a number of Asian and Middle Eastern nations organize their own export controls for ballistic missiles and associated technology. The U.S. contends that trade restrictions must be encouraged in countries outside the MTCR that currently pose a threat as potential suppliers or transshippers of missile technology. According to a U.S. official, South Korea, Singapore, Taiwan, Malaysia, and Indonesia are likely to participate.

*Export Control News*, 7/31/94, pp. 18-19 (4750).

10/94

At its plenary meeting in Stockholm the MTCR considers admitting Russia and South Africa as full members, although no vote is taken. The two countries are, however, expected to join the regime before the next plenary meeting in Bonn in 10/95, according to a source who attended the meeting. The discussions in Stockholm reflect the MTCR's strategy to entice key "holders of [missile] technology" to become mem-

bers: in addition to Russia and South Africa, such "holders" include China, India, and Brazil. While U.S. State Department officials say there have been MTCR-related contacts with all of the targeted countries, more serious negotiations with Brazil and India on the issue will not commence for years since neither country has an effective, reliable export control system. Also during the Stockholm meeting, member states passed a resolution which allows open acknowledgment of the so-called "no undercutting rule," which requires member states to deny missile-related exports that have been previously denied by other members. Prospects for revising the MTCR guidelines and annex of controlled items were not considered during the meeting, as the regime's agenda is primarily focussed on expanding to new members.

*Export Control News*, 10/31/94, pp. 15-16 (4738).

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## NORTH ATLANTIC COUNCIL

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### INTERNAL DEVELOPMENTS

6/9/94

The North Atlantic Council issues a statement following a Ministerial Meeting held in Istanbul, Turkey, that addresses developments in the Alliance stance toward the proliferation of weapons of mass destruction (WMD) and the means to deliver them. The Alliance identifies a number of developments and proposes a two-fold response: support existing international nonproliferation regimes and examine ways NATO can strengthen defenses against WMD.

*North Atlantic Council Statement Issued at the Ministerial Meeting Held in Istanbul, Turkey on 6/9/94* (4555).

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## NORTH ATLANTIC TREATY ORGANIZATION

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### INTERNAL DEVELOPMENTS

10/94

NATO working group RSG-18 meets at Bisca Rossa, a French weapons test range, to conduct approximately 60 missile test firings of "friendly" and "unfriendly" missile motors. Data collected will be used to model missile exhaust signatures for threat assessment.

*Flight International*, 10/12/94-10/18/94, p. 21 (4685).

11/8/94

NATO's Conference of National Armaments Directors agrees to consider development of a NATO extended air defense system.

Brooks Tigner, *Defense News*, 11/14/94, pp. 3, 31 (4743).

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## NORTH KOREA

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### INTERNAL DEVELOPMENTS

9/30/94

The South Korean Ministry of Defense releases its Defense White Paper which reports that North Korea can produce 100 to 150 Scud variants per year.

Reuter, 10/1/94; in *Executive News Service*, 10/1/94 (4854). *Washington Times*, 10/2/94, p. A9 (4584). Mark Hibbs, *Nucleonics Week*, 10/13/94 (4854). *Jane's Defence Weekly*, 10/22/94, p. 6 (4854).

10/94

A Unification Board report presented to the South Korean National Assembly claims North Korea is attempting to extend the range of its missiles to 1,250 miles, and that

the No-dong-2 may be completed in 1995.  
*BMD Monitor*, 10/7/94, p. 364 (4873).

**10/4/94**

South Korean Army Chief of Staff Kim Tong-chin states, "While continuing to develop the No-dong-1 and Taep'o-dong-1 and Taep'o-dong-2 missiles, North Korea is preparing to deploy additional batteries of Scud missiles in Pyongyang and Chongju. North Korea is also putting spurs to developing new-type weapons in such a way as to produce improved types of missile warhead." General Kim added that 27 Scud-C missiles threaten the South Korean capital, Seoul.

*Chungang Ilbo* (Seoul), 10/4/94, p. 1; in FBIS-EAS-94-192, 10/4/94 (4855). *Yonhap* (Seoul), 10/4/94; in FBIS-EAS-94-192, 10/4/94 (4855).

**1/10/95**

In testimony before the Senate Select Committee on Intelligence, CIA Director James Woolsey states, "We are moving from an era of Scuds of single stage missiles into an era of Taep'o-dong-1 and -2s with ranges in the few thousands of kilometers - not quite intercontinental yet, but the path is clear...(a)nd the direction with respect to potential longer range ballistic missile proliferation, particularly with regard to North Korea as the source is I think extremely troubling." DIA Director Gen. James Clapper adds, "Ultimately, the [Scud] follow-on, the Taep'o-dong-1 and -2, would give them [North Korea], as best as we can assess right now in the absence of testing, it could pose a threat potentially to Alaska but not the continental United States. We are talking about something they haven't fielded yet."

Tony Capaccio, *Defense Week*, 1/23/95, pp. 8-9 (4878).

**1/17/95**

In response to a question posed at a Senate Armed Services Committee hearing on the possible export of Taep'o-dong-1 and -2 missiles, Gen. Clapper says, "We have no indication these weapons will be up for sale."

Tony Capaccio, *Defense Week*, 1/23/95, pp. 8-9 (4878).

**NORTH KOREA WITH IRAN**

**12/93**

A high-level Iranian delegation — led by Iranian Defense Minister Mohammad Foruzandeh and including war industry officials, the general responsible for arms acquisition, and scientists working on the improvement of ballistic missiles — visits Pyongyang and holds extensive talks on arms acquisition. During the discussion, the Iranians ask the DPRK for aid in constructing underground bunkers for aircraft and missiles at 18 sites spread across Iran.

Hiroshi Kano, *International Review*, Autumn/1994 (4847).

**7/94**

Iran agrees to buy more North Korean Scuds and to cooperate on development of the No-dong missile.

Nick Rufford and James Adams, *Sunday Times*, 7/17/94, p. 3C (4480).

**10/94**

A U.S. reconnaissance satellite sights three No-dong-class missiles being assembled at a site 25 miles north of Esfahan.

*Iran Brief*, 12/5/94 (4857).

**11/94**

According to American analysts, the current ease in tension between the U.S. and North Korea may enable the DPRK to restart its No-dong deal with Iran. The 4/93 contract for joint development of 150 No-dong-2 missiles was halted in spring 1994 due to tense relations between Washington and Pyongyang.

Stephen J. Hedges and Peter Cary with Eleni Dimmler and Kyrill Belianiov, *U.S. News & World Report*, 11/14/94, pp. 87-88 (4726).

**11/23/94**

Commenting on reports that Syria and Iran have begun assembly of North Korean built Scud-C missiles with a 310 mile range, a senior Israeli official says, "Syria and Iran [are] also receiving the equipment to manufacture the entire [Scud-C] missile themselves."

*Washington Times*, 11/24/94, p. A11 (4644).

**12/13-15/94**

On two separate occasions, Israeli Prime Minister Rabin comments on the North Korean supply of missiles to Iran and Syria. Rabin first notes that North Korea is supplying Iran with nuclear and missile technology, stating, "It is true that North Korea has supplied ground-to-ground missiles to Syria and Iran, but it has also helped them to produce such missiles as well." Rabin later adds that North Korea has equipped Iran and Syria with 500 km-range Scuds, and with Iranian financing is developing the 1,300 km-range No-dong SSM.

Peter Kenny, UPI, 12/14/94; in Executive News Service, 12/14/94 (4632). *Reuter*, 12/15/94; in Executive News Service, 12/15/94 (4632). *Times*, 12/26/94 (4632). Michael Sheridan, *Independent*, 12/16/94 (4632). *Washington Times*, 12/16/94, p. A22 (4858).

**12/16/94**

It is reported that North Korea has agreed to an Iranian request to test its No-dong missile in Iran at the end of its next stage of development. The test is designed to evaluate internal systems, but the missile will not be tested to its full 1,300 km range. Sources in the Israel Defense Forces believe Iran is purchasing North Korean technology in addition to missiles.

Eytan Rabin and Aluf Ben, *Ha'arets* (Tel Aviv), 12/16/94, p. A1; in FBIS-NES-94-243, 12/19/94, pp. 35-36 (4879).

**2/19/95**

Iranian official Hassan Taherian states, "There are [sic] no missiles cooperation between Iran and North Korea whatsoever. We deny this...[F]or lack of need and also for self-sufficiency in military productions, our military cooperation is very limited. It is about zero." Taherian is Director General for the Far East in the Iranian Foreign Ministry.

*Reuter*, 2/19/95; in Executive News Service, 2/20/95 (4915).

**NORTH KOREA WITH SYRIA**

**11/23/94**

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## NORTH KOREA WITH UNITED STATES

### 6/94

The U.S. Air Force, Navy, DOD, and BMDO cannot agree on how to bolster airborne, boost-phase, ballistic missile defenses, even though Pentagon officials estimate that, while North Korea’s Scud missiles are inaccurate, at least 50 percent of the missiles launched in an attack on South Korea could evade U.S. missile defenses.

*Business Wire*, 6/20/94, (4617).

### 10/94

It is reported that Texas judge Michael Suarez has ordered Canadian citizen Jonghun Lee — who had conducted high speed flight research for NASA at Johnson Space Center — to be deported as a national security risk. Suarez rules that Lee’s expertise could be used to develop nuclear capable missiles. Suarez stresses that Lee has a brother living in North Korea and has contact to Korean scientists in the U.S. with ties to Chosen Soren, a group linked to the North Korean government.

*BMD Monitor*, 10/7/94, p. 364 (4874).

### 12/94

Ambassador-at-Large on North Korean Affairs Robert Gallucci states that the U.S. will withhold full diplomatic relations with North Korea until it stops exporting ballistic missiles.

*Wall Street Journal*, 12/13/94 (4882).

### 12/17/94

Assistant Secretary of Defense for International Security Affairs Joseph Nye says that the U.S. will begin discussing limitations with North Korea on its No-dong and Taep’o-dong ballistic missile programs as part of a “continuing dialogue.” Although the operational deployment of the two systems remains in question, the U.S. is concerned about export of the missiles.

Barbara Starr, *Jane’s Defence Weekly*, 12/17/94, p. 32 (4881).

### 2/11/95

Amb. Gallucci says that the U.S. will begin putting pressure on North Korea to restrict its No-dong and Taep’o-dong ballistic missile programs.

Barbara Starr, *Jane’s Defence Weekly*, 2/11/95, p. 32 (4883).

## NORTH KOREA WITH ZAIRE

### 12/94

Zaire has reportedly concluded a \$100 million deal for the delivery of 18 Scud-C missiles from North Korea. The missiles are allegedly intended for a third country.

*Le Point* (Paris), 1/28/95, p. 19; in FBIS-EAS-95-025, 1/28/95 (4856).

## NORWAY

## NORWAY WITH RUSSIA

### 1/25/95

Norway launches a scientific rocket from an offshore island which impacts 1,000 km away from the Russian mainland in the sea near Spitzbergen; the rocket’s mission was

to study the Northern lights. The launch causes a defense alert in Russia, and Russian President Boris Yeltsin praises the Russian military for detecting and tracking the “missile.” Yeltsin also hints that the launch may have been intended to test the readiness of Russia’s missile detection and defense capabilities. However, the Norwegians claim they informed Moscow of the rocket’s scientific mission on 12/21/94, well before the actual launch.

*Financial Times*, 1/26/95, p. 1 (4693). *Wall Street Journal*, 1/26/95, p. 1 (4693). Timothy Heritage, Reuter, 1/27/95; in Executive News Service, 1/27/95 (4724).

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## PAKISTAN

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## PAKISTAN WITH GERMANY

### 11/94

Pakistan is reportedly receiving illegal shipments of critical components from German companies for producing long-range missiles and weapons-grade nuclear material.

*Asia-Pacific Defence Reporter*, 10/94-11/94, p. 22 (4731).

## PAKISTAN WITH INDIA

### 6/5/94

Pakistani President Farooq Leghari says he has informed the U.S. about Pakistani fears over Indian efforts to deploy short- and medium-range missiles. Pakistani Prime Minister Benazir Bhutto accuses India of posing a threat to South Asia with its missiles. She states that Pakistan does not want to spur a regional missile race, but that “we will do whatever is necessary,” referring to Pakistan’s indigenous Hatf missile program. Top officials from Pakistan’s armed forces, communicating their concern about India’s arms build-up programs at a meeting of the Joint Chiefs of Staff Committee, state that South Asia needs to be a nuclear-free zone.

*The News* (Islamabad), 6/5/94, p. 1; in FBIS-NES-94-108, 6/6/94, p. 81 (4533). PTV Television Network (Islamabad), 6/5/94; in FBIS-NES-94-108,

6/6/94, p. 81 (4533). Radio Pakistan Network (Islamabad), 6/5/94; in FBIS-NES-94-108, p. 81 (4533). *The News* (Islamabad), 6/6/94, p. 1; in FBIS-NES-94-108, 6/6/94, p. 81 (4533). P.S. Suryanarayana, *Hindu*, 6/11/94, p. 1 (4533).

### 7/94

Pakistani retired Maj. Gen. Altaf Hussain says that India's recent missile test-flights indicate that the Indians have secretly been working for years to develop missiles and that they may have siphoned off money from development loans to finance the missile program. He says that this program is forcing Pakistan to turn to friendly countries to match India's threat. He says that Pakistan is fortunate to have a good friend in China which has atomic and missile power and doesn't submit to Russian or U.S. pressure.

Manohar Talkh, *Jansatta (Delhi)*, 6/11/94, p. 6; in JPRS-TND-94-014, 7/13/94, p. 33 (4536).

### 8/94

Pakistan's military establishment is concerned about reports from India that indicate that the Prithvi missile may be tipped with nuclear weapons. General Harwant Sing, a former Indian Vice Chief of the Army Staff and Director General Weapons and Equipment, states "Prithvi's potential as a decisive weapon of war is not when it carries conventional munitions load, but when tipped with a nuclear device. Therefore, Prithvi packs a worthwhile punch only when it carries the 'bomb' and therein lie its value as a weapon of deterrence." He adds that using the Prithvi with conventional munitions may not be cost effective due to Pakistan's defensive measures.

Ali Abbas Rizvi, *Asian Defence Journal*, 8/94, p. 94 (4532).

## PAKISTAN WITH PRC

### 8/22/94

U.S. officials claim that Pakistan agreed to pay China \$15 million as partial payment on its 1988 contract for an indeterminate number of M-11 missiles, launchers and support equipment. China and Pakistan have denied that M-11s or components have been or will be exported to Pakistan.

*Washington Times*, 9/7/94, p. A1, A18 (4549).

### 9/94

U.S. officials claim that Chinese missile technicians are due to arrive in Sargodha, Pakistan to train the Pakistani military in using the M-11. Another Chinese team will unpack and assemble the missiles after completion of the Sargodha missile facility.

*Washington Times*, 9/7/94, p. A1, A18 (4549).

### Mid-9/94

According to U.S. officials, Chinese technicians check M-11 missile components for serviceability, and train Pakistani soldiers in the missile's use at a facility under construction near Sargodha. State Department spokesman Michael McCurry states, "It's our understanding that some Chinese engineers and technicians did go to Pakistan. Their purpose is not entirely known to us." U.S. intelligence agencies have "strong evidence" that M-11 missiles are being sequestered at a number of military bases in Pakistan. The CIA states in a secret report that Pakistan paid \$15 million to the China Precision Machinery Import/Export Corp., the producer of the M-11. According to Admiral Richard Macke, the commander of the U.S. Pacific Command, the M-11s have not yet been "operationalized." Macke further states that U.S.-PRC military contacts will be conditioned on China not assisting Pakistan to "make their M-11s operational."

Bill Gertz, *Washington Times*, 10/4/94, p. A8 (4938). Barbara Starr, *Jane's Defence Weekly*, 10/15/94, p. 6 (4938).

### 12/5/94

Pakistan's President Farooq Leghari asserts, "As far as the M-11 is concerned both Pakistan and China have very clearly told the entire world time and time again that we have not acquired M-11 missiles from China and neither have they sold us M-11 missiles." He adds that Pakistan did procure missiles from China, but that they fell within MTCR guidelines.

Jane Macartney, Reuter, 12/5/94; in Executive News Service, 12/5/94 (4818).

### 1/4/95

A U.S. defense official, commenting on whether China has transferred M-11 missiles to Pakistan, states, "There are different levels of knowing things. Definitive proof

is not there."

Charles Aldinger, Reuter, 1/4/95; in Executive News Service, 1/6/95 (4835).

## PAKISTAN WITH RUSSIA

### 12/94

It is reported that a defense delegation from Russia proposes to transfer military equipment, including OSA-class missile boats, to Pakistan.

*Asian Age*, 12/14/94; in *International Security Digest*, 12/94, p. 10 (4838).

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## PEOPLE'S REPUBLIC OF CHINA

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## INTERNAL DEVELOPMENTS

### 10/94

Chinese space officials say the launch of two spacecraft, named "Twin Star," into geosynchronous orbit in 1998 will provide a position-location satellite system enabling users to pinpoint their locations within 20 m (66 ft). Chinese space engineers have also started work on a 10-spacecraft remote-sensing lightsat constellation that will be able to image most area of the Earth twice a day at a 100-meter resolution.

*Aviation Week & Space Technology*, 10/17/94, p. 25 (4744).

### 10/7/94

China conducts an underground nuclear explosion with a yield of 40 to 150 kilotons as part of continued testing in a warhead miniaturization program. The warheads were designed in the 1980s for 12,000 km-range SSMs or 8,000 km-range SLBMs; the warheads in question may include MRVs.

Patrick E. Tyler, *New York Times*, 10/8/94, p. A3 (4876). Nicholas Doughty, Reuter, 10/12/94; in Executive News Service, 10/11/94 (4876).

### 1/23/95

China's People's Liberation Army (PLA) daily publishes a photograph of a 22 meter

85 mm "supergun" described as China's "longest experimental cannon" with a "high initial velocity and low maneuverability." Western experts believe South Korea and Taiwan may be within range of the weapon, which they say is similar to the 52.5 meter 350 mm Iraqi "supergun" designed by Canadian ballistics expert Gerald Bull, who assisted with development of long-range artillery systems in China during the 1980s. Chinese defense expert Gerald Segal estimates the new weapon would not improve the accuracy or range of Chinese SSMs. Segal further states that the "supergun" was conceived for export as a medium-range delivery system.

Tony Walker and Bruce Clark, *Financial Times*, 1/24/95, p. 6, (4872)

### 2/95

It is reported that portions of the cost of China's nuclear arsenal and delivery systems, missing from the People's Liberation Army military budgets, are concealed in China's nuclear power and space programs.

Richard A. Bitzinger, *International Defense Review*, 2/95, pp. 35-37 (4934).

### 2/95

China is attempting to buy technology to produce an indigenous version of the Garrett Co. gas turbine engine that was purchased in 1994, say U.S. officials.

Bill Gertz, *Washington Times*, 2/13/95, p. A4 (4826).

## PRC WITH IRAN

### 9/94

Outgoing U.S. Central Command chief Vice Admiral Douglas J. Katz announces that Iran has received five Hegu fast attack craft (FACs) from China, the first half of an order placed in 1992; the boats were delivered without anti-ship missiles. Talks with China for delivery of the FACs started in 1981, but due to disagreement over the type of SSM to be transferred, deliveries were deferred. China offered the C-801 missile, but Iran wants the C-802, which is more advanced. Negotiations continue over the Hegu's missile complement. China contracted for 10 FACs in 1992, and the deliv-

ery date for the other five vessels has not been announced yet.

*Jane's Defence Weekly*, 10/1/94, p. 6 (4728).

### 10/12/94

The International Institute of Strategic Studies (IISS) reports that Iran has received 20 CSS-8 SSMs from China. The missile is a solid-fuel system with a 150 km-(95 miles) range and 190 kg (420 lb) warhead. Iran is the first country after China to have the CSS-8.

Reuter, 10/12/94; in Executive News Service, 10/12/94, (4729). *Defense News*, 10/17/94-10/23/94, p. 64 (4775).

## PRC WITH IRAQ

### 12/14/94

Import-export agent Storm Kheem (A.K.A. "Kim Kyung-II") is arrested by U.S. authorities for organizing a 1993 illicit shipment of ammonium perchlorate to the Iraqi government from China. Kheem, owner of the New York-based firm Bkesco, sourced the chemical from the Chinese Chemical Import-Export Corporation (Guangdong) through Zeid Khorma, an Iraqi government purchasing agent in Jordan. The chemicals were shipped aboard the German freighter, Asian Senator.

*Export Control News*, 12/30/94, p. 14 (4751).

### 1/27/95

New York-based trader Storm Kheem pleads guilty to U.S. federal charges of conspiring to ship restricted rocket fuel precursor chemicals to Iraq from China.

*Export Control News*, 1/31/95, pp. 12-13 (4863).

## PRC WITH PAKISTAN

### 8/22/94

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Jane Macartney, Reuter, 12/5/94; in Executive News Service, 12/5/94 (4818).

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is not there.”

Charles Aldinger, *Reuter*, 1/4/95; in *Executive News Service*, 1/6/95 (4835).

## PRC WITH RUSSIA

7/12/94

Russian Foreign Minister Andrey Kozyrev says that Russia and China may sign an agreement on the mutual non-targeting of missiles during the planned 9/94 visit of Chinese President Jiang Zemin to Russia.

Dmitriy Gorokhov, *Itar-Tass* (Moscow), 7/12/94; in *FBIS-SOV-94-134*, 7/13/94, p. 4 (4512).

10/94

It is reported that China employs nearly 1,000 Russian specialists who work on China's nuclear and rocket programs. In 1994, China was the top ranked client for the Russian military-industrial complex. A recent visit to Moscow by Chairman Jiang Zemin resulted in a preliminary deal to supply China with "plasma-fuel missile booster systems."

Mikhail Urusov, *Moscow News*, 10/7/94-10/13/94, p. 8 (4646).

2/95

The Clinton administration is attempting to stop Russia's sale of cruise missile engines to China; U.S. officials did not disclose the exact type of engine involved. The cruise missile deal is part of a larger package of Russian arms deliveries to China. In 1994, the State Department informed Moscow that the transfer would violate MTCR regulations. But "recently" the Russian government said they would not stop the transfer because of a 1994 deal between Phoenix-based Garrett Co. and China's Nanchang Aircraft Co. involving similar engines.

Bill Gertz, *Washington Times*, 2/13/95, p. A4 (4826).

## PRC WITH RUSSIA AND UKRAINE

9/94

Russian, Ukrainian, and Chinese scientists agree to form an aeronautics association to "give effective assistance to the national space programs." The experts also discuss problems involved with space flight cooperation.

Moscow Radio World Service (Moscow), 9/21/94; in *FBIS-SOV-94-183*, 9/21/94, pp. 16-17 (4587).

## PRC WITH UNITED STATES

9/94

Chinese Deputy Foreign Minister Liu Huaqiu and U.S. Ambassador J. Stapleton Roy meet to resolve the dispute regarding China's missile technology sales to Pakistan. These preliminary negotiations will set the stage for meetings between Chinese Foreign Minister Qian Qichen and U.S. President Clinton and Secretary of State Christopher in 11/94.

Patrick E. Tyler, *New York Times*, 9/27/94, p. A7 (4552).

9/94

A U.S. State Department official explains that the administration is trying to separate the issue of China's weapon proliferation from its overall policy on China. The official says that the Defense Intelligence Agency's belief that China is "still actively supporting proliferation of weapons of mass destruction" is "pretty aggressive and verges on hysterical."

*Washington Times*, 9/7/94, p. A1, A18 (4549).

10/4/94

The U.S. and China issue joint statements on "Missile Proliferation" and on "Stopping Production of Fissile Material for Nuclear Weapons." Regarding missile-related issues, several agreements are made. First, the U.S. agrees to lift the 8/93 proliferation sanctions placed on China for missile exports to Pakistan. Once sanctions are lifted, China agrees not to export SSMs "featuring the primary parameters of the MTCR." Second, China agrees to the U.S. formulation on "inherent capability," that is, any missile is included in the sales ban if it can "generate sufficient energy to deliver a 500 kg payload at least 300 km, regardless of its demonstrated or advertised combination of range and payload." Third, the two sides agreed to hold "in-depth discussions" on the MTCR and, in particular, the U.S. signalled its intention to promote eventual Chinese membership in the MTCR. The statement makes clear that the U.S. position on missile exports has not changed and, should future

Chinese missile exports violate U.S. law, sanctions would again be triggered against the entities involved. The joint agreement does not affect U.S. sanctions against Pakistan, although the U.S. government notes its continuing offer to engage in similar missile proliferation negotiations with Islamabad.

U.S. Department of State, Office of the Spokesman, *Joint United States-People's Republic of China Statement on Missile Proliferation*, 10/4/94 (4925).

Late 10/94

Among the issues discussed during Defense Secretary William Perry's visit to China are the PRC's alleged transfer of M-11 missile technology and components to Pakistan, and prospects for Chinese membership in the MTCR.

John Boatman, *Jane's Defence Weekly*, 11/12/94, p. 18 (4933).

12/7/94

The U.S. firm Digital Creations Corporation (DCC) pleads guilty to the charge of illegally exporting a Digital Equipment Corporation VAX model computer to China. The 1993 shipment was in violation of U.S. export regulations.

*Export Control News*, 12/30/94, p. 15 (4654).

Mid-1/95

In China, White House Science Advisor John Gibbons and NASA Administrator Daniel Goldin reject a PRC proposal for cooperation and exchanges between NASA and Chinese space officials. The rejection is reportedly based on the concern that China might gain an advantage in the SLV and small satellite markets. NASA Special Assistant for International Relations Robert Clarke says a clear knowledge of China's "interests and capabilities" is necessary before formal space relations between the U.S. and China can be considered.

Jennifer McKellar, *Space News*, 1/30/95-2/5/95, p. 2 (4749).

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## POLAND

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### INTERNAL DEVELOPMENTS

10/94

Poland's defense industry is now ready to aggressively compete in the global arms market. Projects are underway to develop short-range missile guidance equipment and mobile rocket launchers.

Brooks Short, *Defense News*, 10/17/94-10/23/94, pp. 3, 90 (4656).

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## QATAR

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### QATAR WITH UNITED STATES

12/94

Qatar, in an effort to enhance its air defenses, is looking to U.S. Patriot missiles to play a role in theater ballistic missile defense. Raytheon Co. has acquired the necessary licenses to export the Patriot to Qatar.

Philip Finnegan, *Defense News*, 12/19/94-12/25/94, p. 9 (4708).

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## RUSSIA

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### INTERNAL DEVELOPMENTS

10/94

Deputy chief of testing at the Proton assembly complex Col. Andrei I. Domahin says that procurement of parts for Russia's key space launch vehicle, the Proton, is becoming increasingly difficult due to currency

problems, customs and border issues, and the fact that some subcontractors have changed organizations. Russian Space Forces, which assemble the stages and launch the Proton SLV from the Baikonur Cosmodrome, receive the first three stages from the Moscow Khrunichev State Production Research Center which, in turn, gets parts and assistance from other Russian and Ukrainian firms. The fourth stage comes from NPO Energia of Kaliningrad. In 1994, the Proton SLV has been launched eight times, with four or five additional launches planned before the end of the year.

Peter B. de Selding, *Space News*, 10/10/94-10/16/94, p. 9 (4653).

11/94

Russian SS-24 "Scalpel" mobile, rail-launched ICBMs are deployed from three railway garrisons: Kostroma, with 12 launchers 400 km east of Moscow; Bershet with nine launchers 850 km further east; and Krasnoyarsk located another 2100 km further east with 12 launchers.

*Jane's Defence Weekly*, 11/26/94, p. 8 (4648).

11/94

Russian officials shut off power to the country's space center at Plesetsk due to a critical energy shortage.

*Wall Street Journal*, 11/15/94, p. A1 (4651).

11/94

Tochka-U and Scud test launches are conducted at the Kapustin Yar Missile Test Range. All missiles land successfully on target 30 to 40 km away.

*Rossikaya Gazeta* (Moscow), 11/15/94; in FBIS-SOV-94-220, 11/15/94, p. 3 (4777).

11/94

The military council of Russian Strategic Missile Forces concludes that the forces have reached such a state of neglect that their combat preparedness is in jeopardy. The shelf-life of nearly half the missiles on combat status has expired with no new deliveries in sight. Insufficient funding has adversely affected the command and control units to an even greater degree.

*Krasnaya Zvezda*, 11/2/94; in Doug Clarke, RFE/RL Daily Report, 11/4/94 (4779).

11/14/94

Russian Defense Minister Pavel Grachev says during a conference attended by Russian President Boris Yeltsin, Prime Minister Chernomyrdin, and heads of ministries, that the strategic nuclear forces remain the primary deterrent and security guarantee in Russia.

Itar-Tass (Moscow), 11/14/94; in FBIS-SOV-94-219, 11/14/94 (4829).

12/20/94

Russia successfully test-launches its new SS-25 "Topol-M" from the (Plesetsk) launch facility in the Archangelsk region, hitting a target on the Kamchatka peninsula. Colonel General of the Russian Strategic Rocket Forces Igor Sergeyev is present for the launch. The new SS-25 is the first Russian ICBM built exclusively by Russian companies since the break-up of the former Soviet Union. The missile was assembled at the rocket plant in Votkinsk, the warhead casing was developed by the Moscow Institute of Thermal Engineering, and the warheads were produced by the design bureau in Arzamas-16. According to Strategic Rocket Forces (SRF) spokesman Vladimir Krivomazov, the 6,200 mile-range Topol-M is scheduled for deployment in 1996 at a total development cost of \$35.5 million. An [unidentified] SRF officer says the Topol-M can "sneak through any anti-missile defense, maintaining the projected trajectory and reaching the target in any circumstances." Western officials have designated this missile system the 'SSX-29.'

Alexander Dolinin, *Krasnaya Zvezda* (Moscow), 12/21/94, p. 1 (4810). *Flight International*, 1/4/95-1/10/95, p. 17 (4918). *Jane's Defence Weekly*, 1/14/95, p. 13 (4647). Anton Zhigulsky, *Defense News*, 1/30/95-2/5/95, p. 14 (4928).

2/95

Chechen forces claim to have destroyed a former Soviet missile launching site near Alkhan-Kala, with 250 Russian casualties.

*Financial Times*, 2/13/94, p. 1 (4690).

### RUSSIA WITH AUSTRALIA

2/8/95

Australian Science Minister Chris Schacht tells parliament that Australian Space Office (ASO) and Australian Space Council

(ASC) officials are to meet with Russian officials to consider a Russian proposal to launch converted ICBMs from Australia to put satellites into orbit. The Russian rocket-producer STC Complex and engine manufacturer Energomash will hold discussions with the ASO and ASC and, says Minister Schact, a joint six-month study will be undertaken to assess the proposal's feasibility. STC Complex reportedly proposes to use the solid fuel sections of the SS-20 and SS-25 ICBMs, mount a more accurate guidance system and modify the nose cone to accommodate a satellite.

Executive News Service, 2/8/95 (4782). *Flight International*, 2/22/95-2/28/95, p. 19 (4825).

#### RUSSIA WITH BELARUS

12/6/94

A U.S.-led NATO inspection team is in Belarus to "fix" the withdrawal of a Russian unit from a missile facility in accordance with Conventional Armed Forces in Europe treaty (CFE), according to National Agency for Control and Inspection chief Major General Yawhen Nikulin.

*Belapan* (Minsk), 12/7/94; in FBIS-SOV-94-237, 12/7/94, (4773).

#### RUSSIA WITH BRAZIL

10/13/94

Russian Foreign Minister Andrey Kozyrev meets with Brazilian Minister of Foreign Affairs Celso Amorim and signs an agreement that will allow Russia access to Brazil's Alcantara space complex for use in bilateral space projects. Both parties also express the need to work together to control the spread of missile technologies.

*Kommersant-Daily* (Moscow), 10/13/94, p. 4; in FBIS-USR-94-117, 10/13/94 (4812).

#### RUSSIA WITH FRANCE

7/94

France's Celerg signs an agreement with Russia's Rosvoorouzhnie arms exporter and the Splyv Institute of Tula to supply improved rocket motors for new variants of the Splyv-designed 122 mm BM-21 Grad MRL. Celerg's new motor will extend the range of the BM-21's rocket to 36 km (when

equipped with an HE fragmentation warhead) with no loss of accuracy. In addition to the new motor, the agreement covers warhead upgrades, which the parties claim will increase effectiveness by 500 percent. Celerg and Rosvoorouzhnie will jointly market the upgraded version of the BM-21, and will also offer the retrofit for rockets currently in service.

*Defense News*, 10/17/94, p. 48 (4861). *Jane's Defence Weekly*, 10/15/94, p. 11 (4861).

11/94

Aerospatiale and Khrunichiev "agree in principle" that the Russian firm will build a Proton-M launch facility at France's Kourou (French Guiana) launch site; Khrunichiev will absorb construction expenses. The two sides also confirm their interest in space launch services cooperation.

Interfax (Moscow), 11/22/94; in FBIS-SOV-94-226, 11/22/94 (4725).

#### RUSSIA WITH INDIA

7/94

India may purchase Russian Tarantul-II-class corvettes armed with SS-N-22 "Sunburn" missiles, but Delhi has not yet submitted a formal request for proposal. India will continue to build Delhi-class DDGs armed with SS-N-22s. While Western diplomats successfully prevented Russia from exporting liquid fuel rocket motors to India, Moscow is supplying "dual use" technology that would enable India to produce its own rocket motors.

Carol Read, *Jane's Defence Weekly*, 7/9/94, pp. 28-29 (4615). Malcolm R. Davis, *Asia-Pacific Defence Reporter*, 9/94, pp. 11-12 (4615).

12/23/94

The Indian Space Research Organization and the Russian Space Agency sign an agreement on space science, remote sensing and space-based communications. The agreement is signed by Russian Prime Minister Viktor Chernomyrdin and Indian Prime Minister Narshima Rao. A side agreement calls for the sale of Russian cryogenic motors to India, but not the technology to produce them.

Vivek Raghuvanshi, *Defense News*, 1/9/95-1/15/95, p. 25 (4736). Warren Ferster, *Space News*, 1/9/95-1/15/95, p. 3 (4860).

1/95

Russia strikes a deal to sell India the Kiev-class aircraft carrier Admiral Gorshkov. It is not known if the deal includes the SS-N-12 Sandbox cruise missile, which is the Gorshkov's primary offensive weapon.

Alexander Velovich, *Flight International*, 1/18/95-1/24/95, p. 17 (4756).

#### RUSSIA WITH IRAN

7/94

Iran acquires 12 Tu-22 Backfire bombers armed with AS-6 anti-ship missiles from Russia.

Malcolm R. Davis, *Asia-Pacific Defence Reporter*, 9/94, pp. 11-12 (4615).

9/29/94

Russian President Boris Yeltsin promises President Clinton that he will seek to restrain sales of Russia's classified weapons technology to Iran and other governments.

Stephen Robinson, *Daily Telegraph*, 9/29/94, (4484).

10/11/94

Iranian Foreign Ministry spokesman Mahmoud Mohammadi, commenting on Russia's decision to cease arms sales to Iran, states, "If the Russians intend to deprive themselves of having access to such a market, it is up to them."

Reuter, 10/11/94; in Executive News Service, 10/12/94, (4688).

12/94

A high-ranking official of the Russian Ministry of Foreign Affairs says that Russia "does not intend to cut down military deliveries to Iran in the near future." The Russian official noted that all transactions were conducted in strict accordance with procedures developed by the permanent members of the U.N. Security Council.

Radio Rossii Network (Moscow), 12/11/94; in FBIS-SOV-94-238, 12/11/94 (4778).

2/15/95

Iran and Russia are discussing Iranian purchases of Backfire bombers, advanced ASMs, and SA-10 SAMs, according to Middle East Analyst Anthony Cordesman. Gen. Binford Peay, U.S. CENTCOM Commander, says U.S. concerns about Russian

arms shipments to Iran focus primarily on sales of advanced missile and nuclear technologies. U.S. officials claim Russia's refusal to halt arms sales to Iran is derailing negotiations on the successor regime to COCOM.

Barbara Opall, *Defense News*, 2/20-26/95, pp. 1, 28 (4823).

#### RUSSIA WITH JAPAN

11/94

Japan agrees to launch a Russian-manufactured research capsule, carrying instrumentation from the Japanese Space and Aeronautics Institute and the Deutsche Aerospace AG space agency, in 1/95, on its M-S2 space launch vehicle. The project is the product of a bilateral space cooperation agreement between Japan and Germany.

Interfax (Moscow), 11/24/94; in FBIS-SOV-94-227, 11/24/94, (4720).

#### RUSSIA WITH KAZAKHSTAN

10/94

The Russian State Duma Committee on Defense holds hearings on a range of issues involving the ground support infrastructure for a national space program and, in particular, the transfer of a significant portion of the Baikonur Cosmodrome support facility from the Russian Space Forces (RSF) to the civilian Russian Space Agency (RSA). On 8/29/94, a Russian government decree outlined a list of Baikonur facilities to be moved from the RSF to RSA, including: a launch complex for the Soyuz launch vehicle; launch vehicles and a related spacecraft test facility; all facilities that were part of the now defunct Energia/Buran program; an oxygen/nitrogen production plant and hydrogen station; and a Proton launch vehicle launch pad. The facilities for the canceled Energia/Buran program include two Energia launch complexes, an assembly and "check-out" facility, a fueling station, a dynamic and pyrotechnic test stand, the "universal complex stand-start" (site of the 1987 Energia launch), and the orbiter checkout facility. The RSA will keep military personnel at the Baikonur complex to make up for its lack of the necessary personnel and funds required to operate the extensive com-

plex. The staff at Russian Ministry of Defense Cosmodrome will fill the positions at Baikonur. The 16,500 military personnel will operate under RSF command but will be paid with RSA money. A special dedicated line in the state budget is expected to supply the additional funds needed to pay the staff and maintain the Baikonur complex.

*Aerospace Daily*, 10/27/94, p. 142 (4638).

#### RUSSIA WITH KUWAIT

11/94

Russian Prime Minister Viktor Chernomyrdin visits Kuwait, the United Arab Emirates, Saudi Arabia, and Oman during a Gulf tour to promote arms deals, trade, and investments.

Diarmid O'Sullivan, *Reuter*, 11/22/94; in *Executive News Service*, 11/22/94 (4668).

#### RUSSIA WITH LIBYA

1994

Based on "fragmentary information," Libya reportedly acquires two SS-25 mobile ICBMs and TELs from Russia for \$5 million each. From their Siberian base, the missiles were transported "sometime during the last six months of 1994" through Tajikistan and Afghanistan, and were then delivered "probably by air" to Libya.

Arnold Beichman, *Washington Times*, 2/2/95, p. A16 (4695).

#### RUSSIA WITH NORWAY

1/25/95

Norway launches a scientific rocket from an offshore island which impacts 1,000 km away from the Russian mainland in the sea near Spitzbergen; the rocket's mission was to study the Northern lights. The launch causes a defense alert in Russia, and Russian President Boris Yeltsin praises the Russian military for detecting and tracking the "missile." Yeltsin also hints that the launch may have been intended to test the readiness of Russia's missile detection and defense capabilities. However, the Norwegians claim they informed Moscow of the rocket's scientific mission on 12/21/94, well before the actual launch.

*Financial Times*, 1/26/95, p. 1 (4693). *Wall Street Journal*, 1/26/95, p. 1 (4693). Timothy Heritage, *Reuter*, 1/27/95; in *Executive News Service*, 1/27/95 (4724).

#### RUSSIA WITH PAKISTAN

12/94

It is reported that a defense delegation from Russia proposes to transfer military equipment, including OSA-class missile boats, to Pakistan.

*Asian Age*, 12/14/94; in *International Security Digest*, 12/94, p. 10 (4838).

#### RUSSIA WITH PRC

7/12/94

Russian Foreign Minister Andrey Kozyrev says that Russia and China may sign an agreement on the mutual non-targeting of missiles during the planned 9/94 visit of Chinese President Jiang Zemin to Russia.

Dmitriy Gorokhov, *Itar-Tass* (Moscow), 7/12/94; in FBIS-SOV-94-134, 7/13/94, p. 4 (4512).

10/94

It is reported that China employs nearly 1,000 Russian specialists who work on China's nuclear and rocket programs. In 1994, China was the top ranked client for the Russian military-industrial complex. A recent visit to Moscow by Chairman Jiang Zemin resulted in a preliminary deal to supply China with "plasma-fuel missile booster systems."

Mikhail Urusov, *Moscow News*, 10/7/94-10/13/94, p. 8 (4646).

2/95

The Clinton administration is attempting to stop Russia's sale of cruise missile engines to China; U.S. officials did not disclose the exact type of engine involved. The cruise missile deal is part of a larger package of Russian arms deliveries to China. In 1994, the State Department informed Moscow that the transfer would violate MTCR regulations. But "recently" the Russian government said they would not stop the transfer because of a 1994 deal between Phoenix-based Garrett Co. and China's Nanchang Aircraft Co. involving similar engines.

Bill Gertz, *Washington Times*, 2/13/95, p. A4 (4826).

**RUSSIA WITH PRC AND UKRAINE**

**9/94**

Russian, Ukrainian, and Chinese scientists agree to form an aeronautics association to "give effective assistance to the national space programs." The experts also discuss problems involved with space flight cooperation.

Moscow Radio World Service (Moscow), 9/21/94; in FBIS-SOV-94-183, 9/21/94, pp. 16-17 (4587).

**RUSSIA WITH SYRIA**

**7/94**

Russia apparently writes off Syria's estimated \$10 billion debt for Russian military equipment so that new defense deals can be struck. It is expected that this will be \$500 million in additional sales of "defensive" weapons, which could include SA-10 "Grumbles."

Carol Read, *Jane's Defence Weekly*, 7/9/94, pp. 28-29 (4615). James Bruce, *Jane's Defence Weekly*, 7/30/94, pp. 23-33 (4569).

**RUSSIA WITH TAJIKISTAN**

**9/30/94**

Tajik opposition fighters fire a total of 30 "missiles" in a 12-hour period on the 12th frontier guard post of the Moscow frontier guard detachment. The Russian frontier guards retaliate and destroy the Tajik firing positions.

Itar-Tass (Moscow), 9/30/94; in FBIS-SOV-94-191, 10/3/94, p. 47 (4732).

**RUSSIA WITH THAILAND**

**10/17/94**

Managing director of the state-owned Rosvoorouzhnie Company Lieutenant-General Viktor Samoylov holds talks in Bangkok with Thai Minister of Defense Wichit Sukmak regarding the sale of advanced weaponry, including air defense systems and Scud missiles.

Itar-Tass (Moscow), 10/17/94; in JPRS-TND-94-020, 11/17/94, p. 9 (4774)

**RUSSIA WITH UKRAINE**

**2/95**

Russia and Ukraine form International Air Engines, an industrial group designed to build aircraft and to supply aerospace parts. Viktor Gluhyk, the head of Russia's State Committee on Defense Industry, says Russia wants to continue its purchases from the Yuzhmash missile factory in Dnepropetrovsk, calling the facility "a principal source of rockets" for Russia.

Matthew Kaminski, *Financial Times*, 2/20/95, p. 2 (4859).

**RUSSIA WITH UNITED ARAB EMIRATES**

**11/94**

Russian Premier Viktor Chernomyrdin meets with the UAE's president and defense minister to negotiate terms for a program of military and technical assistance and for the possible shipment of arms, including the anti-aircraft systems Tor and Tunguska.

Interfax (Moscow), 11/22/94; in FBIS-SOV-94-226, 11/22/94, (4721).

**RUSSIA WITH UNITED STATES**

**8/94**

It is reported that NASA intends to conclude an agreement with Russia's Central Institute of Aviation Motors to obtain information on Russia's Mach 7 scramjet flight test experiments. The effort is intended to increase understanding of Russian scramjets, engine performance and operation, sensor technology, and flight test operations.

*Jane's Defence Contracts*, 8/94, p. 3 (4563).

**10/94**

The U.S. Naval Air Systems Command considers the purchase of up to 11 Russian X-31 air-launched cruise missiles for interim use as a Supersonic Sea Skimming Target to test the effectiveness of ship defenses against supersonic missile threats. The X-31 will mimic the performance of the Russian SS-N-22 "Sunburn" cruise missile. U.S. firms can expect to encounter obstacles in obtaining Russian missile systems because some "production lines are barely running" and there is difficulty in getting spare parts. Additionally, the Russians are not in a hurry

to help the U.S. learn how to effectively combat systems like the Sunburn or X-31.

Joseph Lovece, *Defense Week*, 10/31/94, pp. 1, 13 (4722). Ramon Lopez, *Flight International*, 11/2/94-11/8/94, p. 17 (4722).

**1/95**

Martin Marietta Astronautics is using a mock-up of a Russian RD-180 rocket engine, developed by the Russian company NPO Energomash, to assess its utility on a U.S. Atlas SLV.

*Flight International*, 1/18/95-1/24/95, p. 6 (4757).

**1/31/95**

It is reported that the Clinton administration is prepared to offer \$30 million in missile-defense technology to Russia, as well as to hold joint Patriot-SA-12 missile defense exercises to encourage Russian cooperation in a TMD agreement.

Bill Gertz, *Washington Times*, 1/31/95, pp. A1, A10 (4827).

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**ROMANIA**

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**INTERNAL DEVELOPMENTS**

**9/94**

Seven people are arrested in Turnu Severin for attempting to steal 11 triggering mechanisms for SAMs. Authorities claim the devices are manufactured in Romania but no specific producer is identified. It is suspected that the Romanian-built devices were intended for Bosnian Serbs.

*Arms Trade News*, 11/94, p. 3 (4655). Stephane Lefebvre, *Jane's Intelligence Review*, 1/95, pp. 8-11. (4831).

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## SAUDI ARABIA

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### INTERNAL DEVELOPMENTS

11/94

It is reported that Saudi Arabia's "strategic weapon sites" [very likely CSS-2 sites] are located at Al Jawf and As Sulayyil.

Andrew Rathmell, *Jane's Intelligence Review*, 11/94, pp. 500-505 (4911).

### SAUDI ARABIA WITH FRANCE

12/94

Saudi Arabia and France sign a deal worth \$3.5 billion for two French frigates and a naval base. The frigates will be outfitted with 40 MM40 Exocet SAMs and Crotale anti-aircraft missiles. Deliveries are expected in late 1999 and 2002.

Executive News Service, 11/22/94 (4784). *Financial Times*, 11/23/94, p. 4 (4784). J.A.C. Lewis, *Jane's Defence Weekly*, 12/3/94, p. 3 (4784).

### SAUDI ARABIA WITH UNITED STATES

10/94

Iraqi troop movements near the Kuwaiti border lead to U.S. Patriot deployments in the region. Two additional Patriot missile batteries are being deployed to Saudi Arabia to supplement the equipment already in place. The U.S. is also sending Patriot missile batteries to Kuwait, and will send them to Israel if necessary.

Bill Gertz and Joyce Price, *Washington Times*, 10/9/94, p. A1 (4694). Steven Greenhouse, *New York Times*, 10/10/94, p. A5 (4694).

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## SERBIA

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### SERBIA WITH BOSNIA

1/2/95

A rocket strikes the Sarajevo Holiday Inn causing minor damage and no casualties. Bosnia's government blames the Serbs, but U.N. officials claim they could not determine who fired the rocket.

Laura Silber and Bruce Clark, *Financial Times*, 1/3/95, p. 1 (4759).

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## SINGAPORE

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### SINGAPORE WITH ISRAEL

11/94

The Singapore Navy will deploy the Barak point defense missile.

Sharone Parnes, *Defense News*, 10/17/94-10/23/94, p. 44 (4671). Mouafac Harb, *Washington Times*, 11/9/94, p. A22 (4671). James Bruce, *Jane's Defence Weekly*, 11/19/94, p. 23 (4671).

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## SLOVAKIA

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### SLOVAKIA WITH ISRAEL

11/94

Rafael and Slovakia's Konsrukuta Trencin are negotiating the development of a new version of the Strop self-propelled air defense system which incorporates eight Barak point-defense missiles.

James Bruce, *Jane's Defence Weekly*, 11/19/94, p. 23 (4671).

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## SOUTH AFRICA

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### INTERNAL DEVELOPMENTS

11/94

Armaments Corporation of South Africa (ARMSCOR) helps the South African Defence Industry Working Group write a draft paper titled "National Policy for the Defence Industry." The paper suggests that South Africa should continue to develop guided missiles for internal use and export, and should discontinue all trade in weapons of mass destruction and related technology in full cooperation with multilateral nonproliferation regimes. This reflects South Africa's desire to join the MTCR.

Martin Navias, *Jane's Intelligence Review*, 11/94, pp. 522-524 (4753).

1/95

South Africa develops the RO 122, a 122 mm pre-fragmented rocket warhead, for the Russian 122 mm BM-21 40-round MRL and similar systems. The explosive effect is increased by at least a factor of seven with the new warhead and fuse system. Maximum range is 21 km.

*Jane's Defence Weekly*, 1/7/95, p. 27 (4680).

### SOUTH AFRICA WITH SWITZERLAND

12/5/94

It is reported that South Africa's Kentron will develop a missile launcher and carry out the first firing of its medium-range SAVH-IR SAM in early 1995 with the cooperation of the Swiss Oerlikon-Contraves AG.

*Defense News*, 12/5/94, p. 21 (4643).

### SOUTH AFRICA WITH UNITED KINGDOM

12/94

The U.K. and South Africa negotiate a "security" agreement that would permit the release of classified procurement information for the British RAF's Conventional Stand-off Missile (CASOM) requirement to the South African company Kentron.

*Flight International*, 11/30/94-12/6/94, p. 15 (4627).

#### **SOUTH AFRICA WITH UNITED STATES**

**8/94**

It is reported that South Africa carried on a "triangular trade" of arms with the U.S. for more than 10 years. The U.S. company International Signal and Control (ISC) supplied high technology parts and designs to Kentron, the missile subsidiary of South Africa's Armscor company, via middlemen such as William "Randy" Metelerkamp, who worked for an Armscor front company. ISC shipped U.S. high technology missile parts to South Africa via the U.K., and on some occasions U.S. missile parts and designs were sold directly to South Africa. Metelerkamp and six confederates are scheduled to be tried for their alleged crimes in 2/95, but U.S. authorities are reportedly ready to drop prison sentences in exchange for "substantial" fines from Armscor and full disclosure of its smuggling activity.

David Pallister and David Beresford, *Guardian*, 9/23/94 (4559).

**10/94**

U.S. and South Africa sign an accord committing South Africa to end its production of missiles and follow nonproliferation norms established by the MTCR. The agreement permits South Africa to import SLV's for satellites on a temporary basis and to end its indigenous SLV program.

Kirimi Kaberia, *Washington Times*, 10/5/94, p. A14 (4629).

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### **SOUTH KOREA**

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#### **SOUTH KOREA WITH UNITED STATES**

**11/94**

The South Korean daily Joongang Ilbo reports that the U.S. "recently" told South Korea that the ban against the development of missiles with ranges exceeding 180 km

would apply to the civilian sector as well as the military. In 1990, Seoul agreed not to develop military missiles in return for U.S. assistance in developing the Hyonmu SSM that the ROK was developing at the time. Since then, South Korea has reiterated several times that this promise applied only to the Hyonmu. A [unidentified] government official relates that, "In an official letter, the United States recently said South Korea must seek U.S. approval for not only Hyonmu and other military missiles but also civilian-purpose rockets such as those used in launching satellites and carrying out scientific tests."

*BMD Monitor*, 12/2/94, p. 425 (4871).

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### **SWITZERLAND**

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#### **SWITZERLAND WITH SOUTH AFRICA**

**12/5/94**

It is reported that South Africa's Kentron will develop a missile launcher and carry out the first firing of its medium-range SAVH-IR SAM in early 1995 with the cooperation of the Swiss Oerlikon-Contraves AG.

*Defense News*, 12/5/94, p. 21 (4643).

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### **SYRIA**

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#### **SYRIA WITH IRAN**

**7/94**

Syria and Iran are reportedly developing low-priced cruise missiles. Iran is believed to be the primary financier of this project.

James Bruce, *Jane's Defence Weekly*, 7/30/94, pp. 23-33 (4569).

#### **SYRIA WITH NORTH KOREA**

**11/23/94**

Commenting on reports that Syria and Iran have begun assembly of North Korean built Scud-C missiles with a 310 mile range, a senior Israeli official says, "Syria and Iran [are] also receiving the equipment to manufacture the entire [Scud-C] missile themselves."

*Washington Times*, 11/24/94, p. A11 (4644).

**12/13-15/94**

On two separate occasions, Israeli Prime Minister Rabin comments on the North Korean supply of missiles to Iran and Syria. Rabin first notes that North Korea is supplying Iran with nuclear and missile technology, stating, "It is true that North Korea has supplied ground-to-ground missiles to Syria and Iran, but it has also helped them to produce such missiles as well." Rabin later adds that North Korea has equipped Iran and Syria with 500 km-range Scuds, and with Iranian financing is developing the 1,300 km-range No-dong SSM.

Peter Kenny, UPI, 12/14/94; in Executive News Service, 12/14/94 (4632). Reuter, 12/15/94; in Executive News Service, 12/15/94 (4632). Michael Sheridan, *Independent*, 12/16/94 (4632). *Washington Times*, 12/16/94, p. A22 (4858). *Times*, 12/26/94 (4632).

#### **SYRIA WITH RUSSIA**

**7/94**

Russia apparently writes off Syria's estimated \$10 billion debt for Russian military equipment so that new defense deals can be struck. It is expected that this will be \$500 million in additional sales of "defensive" weapons, which could include SA-10 "Grumbles."

Carol Read, *Jane's Defence Weekly*, 7/9/94, pp. 28-29 (4615). James Bruce, *Jane's Defence Weekly*, 7/30/94, pp. 23-33 (4569).

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## TAIWAN

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### INTERNAL DEVELOPMENTS

11/94

Taiwan's indigenous Sky Sword-2 medium-range AAM will be deployed in 12/94 to equip Taiwan's first operational squadron of Ching-Kuo Indigenous Defence Fighters (IDF). The 50 km-range Sky Sword-2 is reportedly Taiwan's first missile to employ active-radar guidance.

*Flight International*, 11/30/94-12/6/94, p. 13 (4666).

11/4/94

It is reported that Taiwan will deploy an unspecified number of Hsiung Feng-2 missiles on the Tungying Islands, 50 km off the coast of China. The 170 km-range Hsiung Feng-2 is known to be an anti-ship missile, but according to *China Times*, it can also be used to attack land targets. Taiwan's Defense Minister Sun Chen refuses to confirm or deny the deployment.

Reuter, 11/4/94; in Executive News Service, 11/4/94 (4664).

11/8/94

It is reported that Taiwan will increase its military budget by \$596 million to purchase missiles and to establish an "anti-ship missile research system."

Reuter, 11/8/94; in Executive News Service, 11/8/94 (4665). Reuter, 11/29/94; in Executive News Service, 11/29/94 (4665).

12/94

It is reported that Taiwan will use its indigenously-developed Sky Bow-2 SAM in an ATBM role. Improvements to its fire-control, phased-array multiple-target tracking system, and maneuverability will give the Sky Bow more than a 100 km range and an improved anti-jamming capability.

*Flight International*, 12/7/94-12/13/94, p. 18 (4667).

2/95

According to the ruling Nationalist Party newspaper, the *Central Daily News*, Taiwan's Navy plans to develop long-range missiles to establish a defensive capability against a Chinese attack. Until these are developed, Taiwan's coastal defense will be limited to U.S.-designed missile-equipped frigates.

Reuter, 2/7/95, in Executive News Services, 2/7/95, (4739).

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## TAJIKISTAN

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### TAJIKISTAN WITH RUSSIA

9/30/94

Tajik opposition fighters fire a total of 30 "missiles" in a 12-hour period on the 12th frontier guard post of the Moscow frontier guard detachment. The Russian frontier guards retaliate and destroy the Tajik firing positions.

Itar-Tass (Moscow), 9/30/94; in FBIS-SOV-94-191, 10/3/94, p. 47 (4732).

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## THAILAND

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### THAILAND WITH RUSSIA

10/17/94

Managing director of the state-owned Rosvoorouzhnie Company Lieutenant-General Viktor Samoylov holds talks in Bangkok with Thai Minister of Defense Wichit Sukmak regarding the sale of advanced weaponry, including air defense systems and Scud missiles.

Itar-Tass (Moscow), 10/17/94; in JPRS-TND-94-020, 11/17/94, p. 9 (4774)

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## UKRAINE

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### INTERNAL DEVELOPMENTS

11/94

The Ukrainian shipbuilding research and development center Nikolayev will produce a study on the feasibility of converting the heavy aircraft carrying cruiser Varyag into a carrier-rocket marine launching pad for the Ukrainian Ministry of Defense. A carrier-based marine launching pad would allow Ukraine to further develop its space program and begin testing and launching rockets for the armed forces and national economy.

Unian (Kiev), 11/5/94; in FBIS-SOV-94-215, 11/5/94 (4923).

12/94

An unscheduled inspection at a weapons dump near Rivne revealed that two guided missiles and an "Igla" (Needle) SAM were missing.

*Molod Ukrayiny* (Kiev), 12/6/94; in FBIS-SOV-94-235, 12/6/94, p. 1 (4760).

12/13/94

It is reported that Ukrainian security officials had arrested two Ukrainian servicemen for attempting to smuggle two containers carrying samples of rocket fuel outside the country.

Doug Clarke, *RFE/RL Daily Report*, No. 236, 12/15/94 (4781).

### UKRAINE WITH INDIA

10/94

It is reported that India and Ukraine sign an accord allowing Ukraine the use of the Indian launch site at Sriharikota.

*Flight International*, 10/5/94-10/11/94, p. 19 (4734).

**UKRAINE WITH LIBYA**

**Summer 1993**

A shipment of 80 tons of "ammonium petrochloride" is stopped in Ukraine. Serbian middlemen, acting on behalf of Libya, purchased the chemical.

Guy Roux, *International Review*, Autumn/94, p. 7 (4703).

**UKRAINE WITH PRC AND RUSSIA**

**9/94**

Russian, Ukrainian, and Chinese scientists agree to form an aeronautics association to "give effective assistance to the national space programs." The experts also discuss problems involved with space flight cooperation.

Moscow Radio World Service (Moscow), 9/21/94; in FBIS-SOV-94-183, 9/21/94, pp. 16-17 (4587).

**UKRAINE WITH RUSSIA**

**2/95**

Russia and Ukraine form International Air Engines, an industrial group designed to build aircraft and to supply aerospace parts. Viktor Gluhyk, the head of Russia's State Committee on Defense Industry, says Russia wants to continue its purchases from the Yuzhmash missile factory in Dnipropetrovsk, calling the facility "a principal source of rockets" for Russia.

Matthew Kaminski, *Financial Times*, 2/20/95, p. 2 (4859).

**UKRAINE WITH UNITED STATES**

**11/14/94**

Ukrainian Defense Minister Valeriy Shmarov holds discussions with U.S. Secretary of Defense William Perry on cooperation in the aerospace field. U.S. ambassador to Ukraine William Miller observes the official ceremony to begin construction of an SS-19 ballistic missile dismantlement facility at Pivdenmas (southern machine building plant). Director General of Pivdenmash Yuri Alekseyev says that the U.S. is interested in using Ukraine's Zenit space launch vehicle.

Unian (Kiev), 11/14/94; in FBIS-SOV-94-220, 11/14/94 (4833).

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**UNITED ARAB EMIRATES**

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**INTERNAL DEVELOPMENTS**

**10/94**

The International Institute for Strategic Studies reports that the UAE "has acquired six Scud-B launchers." The supplier country is not named.

*Military Balance 1994-1995*, 10/94, p. 122 (4924).

**UNITED ARAB EMIRATES WITH  
MULTI-COUNTRY GROUP**

**10/94**

The UAE Navy requests quotes from shipbuilders for arming up to four new multi-purpose light frigates with either the Hughes Standard Missile SM-2 Block III or the Eurosam Aster Naval Extended Defense system. The UAE Navy is also expected to arm the new frigates with both short- and long-range SSM systems. Options include NFT's Penguin short-range missile with either the Aerospatial MM40 Block 2 Exocet or McDonnell Douglas' Harpoon Block 1G. By 12/94, French, Dutch, German, British, and U.S. shipbuilders will submit final design bids.

*Flight International*, 11/23/94-11/29/94, p. 22 (4768).

**UNITED ARAB EMIRATES WITH PRC**

**10/11/94**

It is reported that the UAE purchases six Scud-B missile launchers from China.

*Defense News*, 10/17/94-10/23/94, p. 64 (4775).

**UNITED ARAB EMIRATES WITH RUSSIA**

**11/94**

Russian Premier Viktor Chernomyrdin meets with the UAE's president and defense minister to negotiate terms for a program of military and technical assistance and for the possible shipment of arms, including the anti-aircraft systems Tor and Tunguska.

Interfax (Moscow), 11/22/94; in FBIS-SOV-94-226, 11/22/94, (4721).

**UNITED ARAB EMIRATES WITH  
UNITED KINGDOM**

**2/95**

Under pressure from the U.K. government, GEC-Marconi has modified the performance of the Hakim-4 long-range stand-off missile, which is to be sold to the UAE, to conform to the MTCR. The UAE has provided a large share of the development funding for the Hakim family of missile systems. France, the U.S., and Russia are also offering systems to the UAE to fulfill its defense requirements. Eventually, GEC could team up with Matra of France to propose the Apache for the U.K. stand-off missile requirement.

*Flight International*, 2/15/95-2/21/95, p. 6 (4871).

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**UNITED KINGDOM**

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**UNITED KINGDOM WITH ISRAEL**

**10/20/94**

British Defense Minister Malcolm Rifkind begins a four-day visit to Israel. Ballistic missile defense issues are a high-priority item for his scheduled meeting with Israeli Prime Minister Yitzhak Rabin, Foreign Minister Shimon Peres, and chief of the General Staff, Ehud Barak.

*Defense News*, 10/24/94, p. 2 (4767).

**11/94**

Rafael Armament Development Authority forms a partnership with U.S. Martin Marietta's electronics and missile division to promote sales of the AGM-142 medium-range air-launched missile, a variant of Rafael's Popeye used by U.S. forces during the 1991 Gulf War. South Korea is a likely customer for the AGM-142. Rafael also wants to export its Popeye missile technology to meet Britain's requirement for a Conventionally Armed Standoff Missile

(CASOM).

Sharone Parnes, *Defense News*, 10/17/94-10/23/94, p. 44 (4671). Mouafac Harb, *Washington Times*, 11/9/94, p. A22 (4671). James Bruce, *Jane's Defence Weekly*, 11/19/94, p. 23 (4671).

**UNITED KINGDOM WITH MALAYSIA**

**12/3/94**

Lekiu, the first of two Lekiu-class frigates, launches in England. The ship will enter service with the Royal Malaysian Navy in 1996 and will be armed with 16 Seawolf vertical SAM launchers and eight Exocet MM40 ASM launchers.

*International Defense Review Despatches*, 1/95, p. 1 (4746).

**UNITED KINGDOM WITH SOUTH AFRICA**

**12/94**

The U.K. and South Africa negotiate a "security" agreement that would permit the release of classified procurement information for the British RAF's Conventional Stand-off Missile (CASOM) requirement to the South African company Kentron.

*Flight International*, 11/30/94-12/6/94, p. 15 (4627).

**UNITED KINGDOM WITH UNITED ARAB EMIRATES**

**2/95**

Under pressure from the U.K. government, GEC-Marconi has modified the performance of the Hakim-4 long-range stand-off missile, which is to be sold to the UAE, to conform to the MTCR. The UAE has provided a large share of the development funding for the Hakim family of missile systems. France, the U.S., and Russia are also offering systems to the UAE to fulfill its defense requirements. Eventually, GEC could team up with Matra of France to propose the Apache for the U.K. stand-off missile requirement.

*Flight International*, 2/15/95-2/21/95, p. 6 (4871).

**UNITED KINGDOM WITH UNITED STATES**

**9/94**

McDonnell Douglas and the U.S. Navy are soliciting sales of the Tomahawk cruise mis-

sile to the U.K. and Australia. In addition, McDonnell Douglas is preparing a version of the Stand-off Land Attack Missile (SLAM) for possible sale to the U.K., and an upgrade to the SLAM Expanded Response as an alternative to the Tri-Service Stand-off Attack Missile if that program is canceled.

Ramon Lopez, *Flight International*, 9/28/94, p. 16 (4520).

**10/94**

The U.S. and U.K. form an alliance to conduct advanced testing of the Target Oriented Tracking System (TOTS), which will merge and collate data from several early-warning satellites and other sensors. The Pentagon's Ballistic Missile Defense Organization and U.K.'s Ministry of Defense plan to sign an agreement by 11/4/94.

*Defense News*, 10/31/94, p. 2 (4698).

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**UNITED STATES**

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**INTERNAL DEVELOPMENTS**

**11/94**

McDonnell Douglas' Harpoon anti-ship Block-1G missile is approved by the U.S. government for export.

*International Defense Review*, 11/94, p. 16 (4642).

**UNITED STATES WITH AUSTRALIA AND UNITED KINGDOM**

**9/94**

McDonnell Douglas and the U.S. Navy are soliciting sales of the Tomahawk cruise missile to the U.K. and Australia. In addition, McDonnell Douglas is preparing a version of the Stand-off Land Attack Missile (SLAM) for possible sale to the U.K., and an upgrade to the SLAM Expanded Response as an alternative to the Tri-Service Stand-off Attack Missile if that program is canceled.

Ramon Lopez, *Flight International*, 9/28/94, p. 16 (4520).

**UNITED STATES WITH BELARUS**

**11/94**

The Belarusian company Beltechexport will sell a Russian S-300 PMU [SA-10] SAM system to the U.S.-Canadian firm ATOS International Acquisition Ltd. for "as much as \$500 million." ATOS is run by Emmanuel Weigensberg, president of Montreal-based Trans World Arms, Inc. Weigensberg nearly completed a similar deal with Moscow, but Russian authorities cancelled the sale. *Izvestiya* reports that Russian counterintelligence and defense officials are unhappy that Belarus is "selling Russian military secrets."

Geoffrey York, *Washington Times*, 11/6/94, p. A9 (4650). *Belapan* (Minsk), 11/15/94; in FBIS-SOV-94-222, 11/15/94, (4803).

**12/1/94**

Belarusian President A. Lukashenka says he is temporarily suspending sale of the S-300 to ATOS. Lukashenka states, "It is a secret complex, developed by Russia with the participation of Belarus. I cannot sell it. If we want to be sensible in our trade activities, we must decide on such steps jointly."

*Holos Ukrainy* (Kiev), 12/2/94; in FBIS-SOV-94-234, 12/2/94, p. 5 (4758).

**12/19/94**

A chartered Volga-Dnepr An-124 transport aircraft — operated by the Russian-British joint venture HeavyLift-VolgaDnepr — lands in Huntsville, Alabama, carrying a Russian S-300 PMU. The \$50 million sale of the SAM system was brokered by ATOS on behalf of BDM International (McLean, Virginia). The S-300, which arrives from an air base near Minsk, will be analyzed by the Missile & Space Intelligence Center.

John Mintz and Benjamin Weiser, *Washington Post*, 12/23/94, pp. A1, A11 (4807). David Hughes, *Aviation Week & Space Technology*, 1/2/95, p. 60 (4776).

**UNITED STATES WITH BRAZIL**

**11/17/94**

Brazilian aerospace officials tell U.S. Defense Secretary William Perry that they would like to play a greater role in the satellite-launching industry. Commenting on alleged past sales of missile systems to the

Middle East a senior U.S. official says: "They have been scrupulous ... to non-proliferation issues recently ... and they very much want to be seen as a leader in non-proliferation circles."

John C. Roper, UPI, 11/17/94; in Executive News Service, 11/17/94, (4752).

## UNITED STATES WITH EGYPT

10/94

The U.S. Department of Defense proposes the sale of 32 Harpoon missiles and containers to Egypt at an estimated value of \$57 million. The missiles would be added to Egypt's current stock of Harpoons.

*Asian Defence Journal*, 10/94, p. 98 (4683).

12/94

The presence of Egyptian missile and rocket specialists at Libya's Tarhuna center — where recent products under development include the indigenous Al-Fateh missile, and an "upgraded," 300 km-range Scud — prompts U.S. protests to the Egyptian government.

*Intelligence Newsletter*, 12/1/94, p. 7 (4637).

## UNITED STATES WITH FRANCE

6/94

French military officials express interest in cooperating with the U.S. on early warning information systems for missile defense.

Joseph Lovece, *Defense Week*, 7/5/94, p. 5 (4574).

## UNITED STATES WITH INDIA

1/11/95

U.S. Defense Secretary Perry, during a press conference in Islamabad, pressures India and Pakistan to check regional tensions by not deploying ballistic missiles. According to Perry, "Deployment of Prithvi or M-11s would be a clear escalatory action and in our judgement that would be damaging to the security of both countries."

Alistar Lyon, Reuter, 1/11/95; in Executive News Service, 1/12/95 (4834).

## UNITED STATES WITH INDONESIA

1/95

It is reported that Indonesia is interested in purchasing Raytheon Improved Hawk SAMs

to fill its medium- to high-altitude air defense requirement. The Indonesian military plans to spend \$104 million of a proposed \$2 billion military equipment procurement budget over the next five years to purchase four batteries of medium- to high-altitude air defense missiles.

Paul Lewis, *Flight International*, 1/4/94-1/10/95, p. 14 (4870).

## UNITED STATES WITH ISRAEL

10/94

A joint U.S./Israeli preliminary feasibility study finds that the use of a UAV boost-phase interceptor would be a credible and cost-effective approach to ballistic missile defense.

*Flight International*, 10/12/94-10/18/94, p. 21 (4640).

10/94

Teaming with U.S. Space Vector and Atlantic Research, Israel promotes its standard three stage Shavit to compete in NASA's ultralight satellite booster competition.

Craig Covault, *Aviation Week & Space Technology*, 10/17/94, p. 25 (4670).

10/94

Iraqi troop movements near the Kuwaiti border lead to U.S. Patriot deployments in the region. Two additional Patriot missile batteries are being deployed to Saudi Arabia to supplement the equipment already in place. The U.S. is also sending Patriot missile batteries to Kuwait, and will send them to Israel if necessary.

Bill Gertz and Joyce Price, *Washington Times*, 10/9/94, p. A1 (4694). Steven Greenhouse, *New York Times*, 10/10/94, p. A5 (4694).

11/94

Rafael Armament Development Authority forms a partnership with U.S. Martin Marietta's electronics and missile division to promote sales of the AGM-142 medium-range air-launched missile, a variant of Rafael's Popeye used by U.S. forces during the 1991 Gulf War. South Korea is a likely customer for the AGM-142. IAI and Rafael are promoting the Barak system to the U.S. Navy as an alternative to the Evolved Sea Sparrow Missile.

Sharon Parnes, *Defense News*, 10/17/94-10/23/94,

p. 44 (4677). Mouafac Harb, *Washington Times*, 11/9/94, p. A22 (4677). James Bruce, *Jane's Defence Weekly*, 11/19/94, p. 23 (4671).

11/17/94

Secretary of Defense William Perry and his deputy John Deutch "assured" Israel's Ministry of Defense Director General David Ivry that the U.S. would continue funding of the U.S.-Israeli Arrow Deployability Program (ADP). U.S. and Israeli sources state that the ADP memorandum of agreement, which would commit Israel to funding a minimum of 30 percent of program costs, is likely to be signed by 4/95 or 5/95.

Barbara Opall, *Defense News*, 10/31/94-11/06/94, pp. 3, 28 (4716). Barbara Opall, *Defense News*, 11/21/94-11/27/94, pp. 4, 29 (4716).

12/94

The Israeli-developed Popeye stand-off missile is a possible contender to replace the cancelled Tri-Service Stand-off Attack Missile.

Graham Warwick, *Flight International*, 12/21/94-1/3/95, p. 24 (4770).

## UNITED STATES WITH JAPAN

8/94

An advisory panel to Prime Minister Tomiichi Murayama recommends that Japan jointly develop a theater missile defense system with the U.S.

*Arms Control Today*, 10/94, p. 24 (4660). Barbara Opall, *Defense News*, 12/5/94, p. 33 (4661).

9/12/94-9/16/94

Japanese Defense Minister Tokuchiro Tamazawa meets with U.S. Defense Secretary William Perry to discuss joint development of a theater missile defense (TMD) system. The U.S. Defense Department is seeking Japanese help to pay for the costs of research and development for various TMD systems. During FY 1995, the Japanese Defense Agency requested only \$200,000 for initial research.

*Arms Control Today*, 10/94, p. 24 (4660). Joseph Lovece, *Defense Week*, 10/3/94, p. 8 (4660). *Defense News*, 10/31/94, p.2 (4660).

**10/25/94-10/26/94**

Japan and the U.S. hold a third round of discussions and agree to create an expert group to assess the ballistic missile threat to Japan and how to counter it.

*Arms Control Today*, 10/94, p. 24 (4660). Joseph Lovece, *Defense Week*, 10/3/94, p. 8 (4660). *Defense News*, 10/31/94, p.2 (4660).

**11/94**

Lockheed, the prime contractor for the U.S. Army's Theater High Altitude Area Defense (THAAD) system, signs a contract with Japan's Mitsubishi Corp. to cooperate on Theater Missile Defense (TMD) programs. Lockheed will conduct studies related to TMD with the Japanese government and aerospace industry. Loral Vought, the prime contractor for the Extended Range Interceptor (ERINT) missile, signs a marketing agreement with Itochu International Inc. to promote its ERINT missile and related technology in Japan.

Barbara Opall, *Defense News*, 12/5/94, p. 33 (4661).

#### UNITED STATES WITH KUWAIT

**10/12/94**

U.S. deploys a battery of eight truck-mounted Patriot air defense missiles near Kuwait's International Airport.

Reuter; in Executive News Service, 10/12/94 (4645).

#### UNITED STATES WITH MULTI-COUNTRY GROUP

**7/94**

The U.S. and MTCR members will help a number of Asian and Middle Eastern nations organize their own export controls for ballistic missiles and associated technology. The U.S. contends that trade restrictions must be encouraged in countries outside the MTCR that currently pose a threat as potential suppliers or transshippers of missile technology. According to a U.S. official, South Korea, Singapore, Taiwan, Malaysia, and Indonesia are likely to participate.

*Export Control News*, 7/31/94, pp. 18-19 (4750).

**9/16/94**

The U.S. Naval Sea Systems Command releases the draft Request for Proposals (RFP)

for the multi-national Evolved Sea Sparrow Missile (ESSM) following negotiations over an amendment covering technology transfer. An official RFP is expected in 10/94, with contributions limited to Australia, Canada, Denmark, Germany, Greece, the Netherlands, Norway, Portugal, Spain, Turkey, and the U.S. The Tri-lateral Frigate Cooperation countries (Germany, the Netherlands and Spain) plan to integrate the ESSM as the backbone of their commonized anti-air weaponry systems alongside the Standard Missile SM-2 which has a longer range.

*Jane's Defence Weekly*, 10/15/94, p. 17 (4706).

**10/94**

Iraqi troop movements near the Kuwaiti border lead to U.S. Patriot deployments in the region. Two additional Patriot missile batteries are being deployed to Saudi Arabia to supplement the equipment already in place. The U.S. is also sending Patriot missile batteries to Kuwait, and will send them to Israel if necessary.

Bill Gertz and Joyce Price, *Washington Times*, 10/9/94, p. A1 (4694). Steven Greenhouse, *New York Times*, 10/10/94, p. A5 (4694).

#### UNITED STATES WITH NORTH KOREA

**6/94**

The U.S. Air Force, Navy, DOD, and BMDO cannot agree on how to bolster airborne, boost-phase, ballistic missile defenses, even though Pentagon officials estimate that, while North Korea's Scud missiles are inaccurate, at least 50 percent of the missiles launched in an attack on South Korea could evade U.S. missile defenses.

*Business Wire*, 6/20/94, (4617).

**10/94**

It is reported that Texas judge Michael Suarez has ordered Canadian citizen Jonghun Lee — who had conducted high speed flight research for NASA at Johnson Space Center — to be deported as a national security risk. Suarez rules that Lee's expertise could be used to develop nuclear capable missiles. Suarez stresses that Lee has a brother living in North Korea and has contact to Korean scientists in the U.S. with ties to Chosen Soren, a group linked to the

North Korean government.

*BMD Monitor*, 10/7/94, p. 364 (4874).

**12/94**

Ambassador-at-Large on North Korean Affairs Robert Gallucci states that the U.S. will withhold full diplomatic relations with North Korea until it stops exporting ballistic missiles.

*Wall Street Journal*, 12/13/94 (4882).

**12/17/94**

Assistant Secretary of Defense for International Security Affairs Joseph Nye says that the U.S. will begin discussing limitations with North Korea on its No-dong and Taep'o-dong ballistic missile programs as part of a "continuing dialogue." Although the operational deployment of the two systems remains in question, the U.S. is concerned about export of the missiles.

Barbara Starr, *Jane's Defence Weekly*, 12/17/94, p. 32 (4881).

**2/11/95**

Ambassador Gallucci says that the U.S. will begin putting pressure on North Korea to restrict its No-dong and Taep'o-dong ballistic missile programs.

Barbara Starr, *Jane's Defence Weekly*, 2/11/95, p. 32 (4883).

#### UNITED STATES WITH PRC

**9/94**

Chinese Deputy Foreign Minister Liu Huaqiu and U.S. Ambassador J. Stapleton Roy meet to resolve the dispute regarding China's missile technology sales to Pakistan. These preliminary negotiations will set the stage for meetings between Chinese Foreign Minister Qian Qichen and U.S. President Clinton and Secretary of State Christopher in 11/94.

Patrick E. Tyler, *New York Times*, 9/27/94, p. A7 (4552).

**9/94**

A U.S. State Department official explains that the administration is trying to separate the issue of China's weapon proliferation from its overall policy on China. The official says that the Defense Intelligence Agency's belief that China is "still actively

supporting proliferation of weapons of mass destruction" is "pretty aggressive and verges on hysterical."

*Washington Times*, 9/7/94, p. A1, A18 (4549).

#### 10/4/94

The U.S. and China issue joint statements on "Missile Proliferation" and on "Stopping Production of Fissile Material for Nuclear Weapons." Regarding missile-related issues, several agreements are made. First, the U.S. agrees to lift the 8/93 proliferation sanctions placed on China for missile exports to Pakistan. Once sanctions are lifted, China agrees not to export SSMs "featuring the primary parameters of the MTCR." Second, China agrees to the U.S. formulation on "inherent capability," that is, any missile is included in the sales ban if it can "generate sufficient energy to deliver a 500 kg payload at least 300 km, regardless of its demonstrated or advertised combination of range and payload." Third, the two sides agreed to hold "in-depth discussions" on the MTCR and, in particular, the U.S. signalled its intention to promote eventual Chinese membership in the MTCR. The statement makes clear that the U.S. position on missile exports has not changed and, should future Chinese missile exports violate U.S. law, sanctions would again be triggered against the entities involved. The joint agreement does not affect U.S. sanctions against Pakistan, although the U.S. government notes its continuing offer to engage in similar missile proliferation negotiations with Islamabad.

U.S. Department of State, Office of the Spokesman, *Joint United States-People's Republic of China Statement on Missile Proliferation*, 10/4/94 (4925).

#### Late 10/94

Among the issues discussed during Defense Secretary William Perry's visit to China are the PRC's alleged transfer of M-11 missile technology and components to Pakistan, and prospects for Chinese membership in the MTCR.

John Boatman, *Jane's Defence Weekly*, 11/12/94, p. 18 (4933).

#### 12/7/94

The U.S. firm Digital Creations Corporation (DCC) pleads guilty to the charge of illegally exporting a Digital Equipment

Corporation VAX model computer to China. The 1993 shipment was in violation of U.S. export regulations.

*Export Control News*, 12/30/94, p. 15 (4654).

#### Mid-1/95

In China, White House Science Advisor John Gibbons and NASA Administrator Daniel Goldin reject a PRC proposal for cooperation and exchanges between NASA and Chinese space officials. The rejection is reportedly based on the concern that China might gain an advantage in the SLV and small satellite markets. NASA Special Assistant for International Relations Robert Clarke says a clear knowledge of China's "interests and capabilities" is necessary before formal space relations between the U.S. and China can be considered.

Jennifer McKellar, *Space News*, 1/30/95-2/5/95, p. 2 (4749).

#### UNITED STATES WITH QATAR

##### 12/94

Qatar, in an effort to enhance its air defenses, is looking to U.S. Patriot missiles to play a role in theater ballistic missile defense. Raytheon Co. has acquired the necessary licenses to export the Patriot to Qatar.

Philip Finnegan, *Defense News*, 12/19/94-12/25/94, p. 9 (4708).

#### UNITED STATES WITH RUSSIA

##### 8/94

It is reported that NASA intends to conclude an agreement with Russia's Central Institute of Aviation Motors to obtain information on Russia's Mach 7 scramjet flight test experiments. The effort is intended to increase understanding of Russian scramjets, engine performance and operation, sensor technology, and flight test operations.

*Jane's Defence Contracts*, 8/94, p. 3 (4563).

##### 10/94

The U.S. Naval Air Systems Command considers the purchase of up to 11 Russian X-31 air-launched cruise missiles for interim use as a Supersonic Sea Skimming Target to test the effectiveness of ship defenses against supersonic missile threats. The X-31 will mimic the performance of the Rus-

sian SS-N-22 "Sunburn" cruise missile. U.S. firms can expect to encounter obstacles in obtaining Russian missile systems because some "production lines are barely running" and there is difficulty in getting spare parts. Additionally, the Russians are not in a hurry to help the U.S. learn how to effectively combat systems like the Sunburn or X-31.

Joseph Lovece, *Defense Week*, 10/31/94, pp. 1, 13 (4722). Ramon Lopez, *Flight International*, 11/2/94-11/8/94, p. 17 (4722).

##### 1/95

Martin Marietta Astronautics is using a mock-up of a Russian RD-180 rocket engine, developed by the Russian company NPO Energomash, to assess its utility on a U.S. Atlas SLV.

*Flight International*, 1/18/95-1/24/95, p. 6 (4757).

##### 1/31/95

It is reported that the Clinton administration is prepared to offer \$30 million in missile-defense technology to Russia, as well as to hold joint Patriot-SA-12 missile defense exercises to encourage Russian cooperation in a TMD agreement.

Bill Gertz, *Washington Times*, 1/31/95, pp. A1, A10 (4827).

#### UNITED STATES WITH SAUDI ARABIA

##### 10/94

Iraqi troop movements near the Kuwaiti border lead to U.S. Patriot deployments in the region. Two additional Patriot missile batteries are being deployed to Saudi Arabia to supplement the equipment already in place. The U.S. is also sending Patriot missile batteries to Kuwait, and will send them to Israel if necessary.

Bill Gertz and Joyce Price, *Washington Times*, 10/9/94, p. A1 (4694). Steven Greenhouse, *New York Times*, 10/10/94, p. A5 (4694).

#### UNITED STATES WITH SOUTH AFRICA

##### 8/94

It is reported that South Africa carried on a "triangular trade" of arms with the U.S. for more than 10 years. The U.S. company International Signal and Control (ISC) supplied high technology parts and designs to Kentron, the missile subsidiary of South

Africa's Armscor company, via middlemen such as William "Randy" Metelerkamp, who worked for an Armscor front company. ISC shipped U.S. high technology missile parts to South Africa via the U.K., and on some occasions U.S. missile parts and designs were sold directly to South Africa. Metelerkamp and six confederates are scheduled to be tried for their alleged crimes in 2/95, but U.S. authorities are reportedly ready to drop prison sentences in exchange for "substantial" fines from Armscor and full disclosure of its smuggling activity.

David Pallister and David Beresford, *Guardian*, 9/23/94 (4559).

#### 10/94

U.S. and South Africa sign an accord committing South Africa to end its production of missiles and follow nonproliferation norms established by the MTCR. The agreement permits South Africa to import SLV's for satellites on a temporary basis and to end its indigenous SLV program.

Kirimi Kaberia, *Washington Times*, 10/5/94, p. A14 (4629).

#### UNITED STATES WITH SOUTH KOREA

#### 11/94

The South Korean daily Joongang Ilbo reports that the U.S. "recently" told South Korea that the ban against the development of missiles with ranges exceeding 180 km would apply to the civilian sector as well as the military. In 1990, Seoul agreed not to develop military missiles in return for U.S. assistance in developing the Hyonmu SSM that the ROK was developing at the time. Since then, South Korea has reiterated several times that this promise applied only to the Hyonmu. A [unidentified] government official relates that, "In an official letter, the United States recently said South Korea must seek U.S. approval for not only Hyonmu and other military missiles but also civilian-purpose rockets such as those used in launching satellites and carrying out scientific tests."

*BMD Monitor*, 12/2/94, p. 425 (4871).

#### UNITED STATES WITH TAIWAN

#### 10/30/94

It is reported that Taiwan will cut production of its indigenous short-range Sky Arrow AAM from 700 to 300 missiles due to the purchase of about 3,000 missiles from the U.S. and France.

Reuter, 10/30/94; in Executive News Service, 10/31/94 (4663).

#### UNITED STATES WITH UKRAINE

#### 11/14/94

Ukrainian Defense Minister Valeriy Shmarov holds discussions with U.S. Secretary of Defense William Perry on cooperation in the aerospace field. U.S. ambassador to Ukraine William Miller observes the official ceremony to begin construction of an SS-19 ballistic missile dismantlement facility at Pivdenmas (southern machine building plant). Director General of Pivdenmash Yuri Alekseyev says that the U.S. is interested in using Ukraine's Zenit space launch vehicle.

*Unian* (Kiev), 11/14/94; in FBIS-SOV-94-220, 11/14/94 (4833).

#### UNITED STATES WITH UNITED KINGDOM

#### 9/94

McDonnell Douglas and the U.S. Navy are soliciting sales of the Tomahawk cruise missile to the U.K. and Australia. In addition, McDonnell Douglas is preparing a version of the Stand-off Land Attack Missile (SLAM) for possible sale to the U.K., and an upgrade to the SLAM Expanded Response as an alternative to the Tri-Service Stand-off Attack Missile if that program is canceled.

Ramon Lopez, *Flight International*, 9/28/94, p. 16 (4520).

#### 10/94

The U.S. and U.K. form an alliance to conduct advanced testing of the Target Oriented Tracking System (TOTS), which will merge and collate data from several early-warning satellites and other sensors. The Pentagon's Ballistic Missile Defense Organization and U.K.'s Ministry of Defense plan to sign an

agreement by 11/4/94.

*Defense News*, 10/31/94, p. 2 (4698).

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## ZAIRE

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#### ZAIRE WITH NORTH KOREA

#### 12/94

Zaire has reportedly concluded a \$100 million deal for the delivery of 18 Scud-C missiles from North Korea. The missiles are allegedly intended for a third country.

*Le Point* (Paris), 1/28/95, p. 19; in FBIS-EAS-95-025, 1/28/95 (4856).