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DEFENDING AMERICA'S ALLIES FROM SHORT-RANGE SOVIET MISSILES

INTRODUCTION

The growing Soviet short-range ballistic missile (SRBM) threat to United States allies in Western Europe, Asia, and the Middle East has sparked interest in defensive systems capable of destroying these missiles in flight.[1] Such defenses, known as Anti-Tactical Ballistic Missiles (ATBM) could strengthen NATO deterrence against a Soviet attack and provide increased security for such U.S. friends as Japan and Israel.

In the European theater, Moscow deploys, among other things, the Soviet SS-21, SS-12/22, and SS-23 missiles. Armed with chemical, conventional, and nuclear warheads, these could be used to launch swift debilitating preemptive attacks against NATO command and control centers, nuclear weapons storage sites, and other critical NATO facilities. NATO has neither a defense against these weapons nor a matching offensive capability.

Proliferating Short-Range Missiles. In the Middle East and the Pacific, concern about these weapons also mounts. The introduction of Soviet-made SS-21s in Syria and Iraq portends an increasing SRBM role in the Middle East. These modern systems have the

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1. Both SRBM and Tactical Ballistic Missile have been used to describe the SS-21, SS-22, and SS-23 class of weapon. SRBM will be used in this paper since it seems inappropriate to classify the 300-mile SS-23 or 600-mile SS-22 as a "tactical ballistic missile." The SS-21 has a 75-mile range. The U.S. Department of Defense classifies the SS-22 and SS-23 as shorter-range intermediate-range nuclear forces (SRINF), while the SS-21 is in the category of short-range nuclear forces (SNF). See U.S. Department of Defense, Soviet Military Power, 1986 (Washington, D.C.: U.S. Government Printing Office, 1980), p. 69.

accuracy and power to destroy air fields, command and communications centers, logistic facilities, and maneuver units. Sufficient numbers of such weapons could alter significantly the military balance in the region. For Japan, meanwhile, the introduction of Soviet nuclear-capable missiles on the Southern Kurile Islands, in addition to the Soviet SS-20 force targeted against the Far East, poses new threats.

The rising importance of short-range ballistic missiles in military operations, coupled with their proliferation into regions heretofore free of such weapons, must prompt the U.S. and its allies to consider ATBM development. Western Europe, the Middle East, and Japan could benefit from ATBM development; all have the technological expertise to contribute to such a system; and each region has significant political support for ATBM development and deployment. Further, private industry in all three regions would welcome ATBM research as a way to maintain technological competitiveness.

Rectifying Imbalances. Washington should support a multiregional ATBM initiative for a number of reasons. Among them: Ronald Reagan has pledged that the Strategic Defense Initiative (SDI) would include programs for protecting U.S. allies; ATBMs could begin to rectify regional military imbalances created by Soviet SRBM deployments; and ATBMs would protect U.S. forces abroad.

A multiregional approach could expedite ATBM development at less cost and it also would make technical success more likely. It also would encourage allied understanding about the role of missile defenses in Western strategy, as well as help strengthen U.S./NATO-Israeli-Japanese security ties.

The U.S. thus should:

1) **support allied research** efforts already directed at ATBM;

2) **consider encouraging the allies** to take the lead in developing their own ATBM programs;

3) **establish an office** at the Pentagon to coordinate private and governmental efforts in each region; and

4) **intensify its own ATBM** research and development.

ATBM: TECHNOLOGICAL REQUIREMENTS

An ATBM system must take into account several factors that are different than those for an SDI system environment.[2] These factors can both complicate and facilitate an ATBM defense against short-range ballistic missiles.

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2. "ATBM" systems, as discussed in the general literature, can range from upgraded air defense systems (which are designed primarily to intercept aircraft) to missile defense systems capable of also intercepting some strategic ballistic missiles in their terminal flight stage. Today, there seems to be a blurring of the distinction between air defense units, tactical ballistic missile interceptors, and defense systems that can potentially intercept strategic ballistic missiles such as ICBMs and SLBMs. The Soviet SA-X-12B Giant surface-to-air missile, for example, is reported to be capable of intercepting not only aircraft at all altitudes, but also cruise missiles, tactical ballistic missiles, and some strategic ballistic missiles. See: U.S. Department of Defense, Soviet Military Power 1987, p. 61. While conventional usage refers to ATBMs as a weapon system that can counter tactical or theater ballistic missiles, the Army Strategic Defense Command adopts the term Anti-Tactical Missile (ATM), which encompasses defense against all tactical missiles, i.e., cruise, and not just tactical ballistic missiles.

Easier Detection and Discrimination. To begin with, short flight times for tactical ballistic missiles (sometimes not exceeding six to twelve minutes) place greater demands on the acquisition, detection, tracking, discrimination, and intercept requirements for an ATBM system. The detection process may be further complicated by the mobility of enemy short-range ballistic missiles. On the other hand, because of the short flight times and lower trajectories of most SRBMs, sensors for regional defenses can observe most of a missile's trajectory, unlike ICBMs where the curvature of the Earth hides much of their trajectory. Defensive sensors can observe objects essentially throughout their trajectories, thus making the job of detection and discrimination much easier.

Another complication is that, except for the SS-20 and SS-12 mod II/SS-22, SRBMs do not leave the atmosphere. This may make intercepts using space-based defenses more difficult since some defensive technologies cannot penetrate the atmosphere. However, for ground-based terminal and late midcourse interceptors, SRBMs are actually easier to intercept than are ICBMs. Atmospheric drag, for example, greatly assists in discrimination, while lower flight velocities make terminal interception much easier as well. In any event, since the SS-20s and SS-22s do spend a substantial time outside the atmosphere, they also are vulnerable to space-based defensive systems.

High Probability of Success. Early concepts for ATBM defense include low and high endoatmospheric (in the atmosphere) interceptor missiles and possibly space-based kinetic energy weapons. Sensors for regional defenses could include ground-based radars, airborne sensors, high altitude probes designed to pop-up with sensors, and space-based sensors. Data processing requirements include detection, tracking and processing of data, relaying information to the interceptor, and launching the interceptor within five to twenty seconds after a hostile missile takes off. An ATBM system would most likely work in conjunction with space-based strategic defense systems, when they are developed. Adding a space-based component to a ground-based regional defense would give ATBMs the multitiered capability essential to assure a high probability of success against the SRBM and other tactical missiles.

THE SRBM THREAT

The emergence of accurate and lethal Soviet short-range ballistic missiles poses a major new threat to stability in various regions of the world. The new generation of highly accurate Soviet SS-21, SS-22, and SS-23 SRBMs makes preemptive military strikes feasible against key retaliatory assets of the opponent.[3] This potential for launching a successful surprise attack against the opponent's airfields, missile sites, communications, depots, and conventional ground forces could alter regional power balances significantly.

The SRBM provides a number of benefits to a potential aggressor. Among them:

◆◆ Speed of deployment and assured penetrability create a surprise attack capability. Some short-range missiles take only three to four minutes to reach their target, thereby making attacks on such movable targets as enemy aircraft and missile batteries feasible.

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3. See Kerry Hines, "Soviet SRBM: now a conventional deep strike mission," International Defense Review, Vol. 18, No. 12, 1985; and Manfred Woerner, "A Missile Defense for NATO-Europe," Strategic Review, Winter 1986.

◆◆ SRBM forces are less costly to use than manned fighter-bombers, since the loss of trained pilots could keep planes grounded.

◆◆ SRBMs allow better coordination of simultaneous attacks on important enemy targets than do aircraft and/or ground troops.

◆◆ SRBMs alter the military balance in a region with less effort than by adding ground forces or sophisticated air forces.[4]

The European Theatre

NATO development and deployment of an ATBM defense could counter the Soviet SS-21, SS-22, and the SS-23 missiles, all of which have chemical and nuclear, as well as conventional, capabilities. An ATBM system would improve deterrence and NATO's defensive position by convincing the Kremlin that it would be unlikely to launch a successful preemptive SRBM strike. ATBMs also could protect France's nuclear force, thus ensuring its credibility and survivability against the increased accuracy of Soviet missile systems. A growing concern for France, for example, is the increasing accuracy of Soviet short-range ballistic missiles, which could reach and destroy French nuclear retaliatory forces with conventional or chemical warheads. As for Britain, ATBMs could protect British nuclear-carrying submarines while in port, as well as U.S./NATO ground-launched cruise missiles stationed in Britain.

The Middle East

Tiny Israel's lack of strategic depth makes it particularly vulnerable to an Arab preemptive strike. This means that Israel must be able to defend its command and control infrastructure, important troop concentrations, air defense units, and air bases against a swift Arab air and missile attack. Israel's ability to do so is threatened increasingly by Arab receipt of more than 200 Soviet-supplied SCUD-B, FROG-7, and SS-21 launchers, supported by an inventory of at least 1,000 surface-to-surface missiles.

The recent delivery of some 18 Soviet SS-21 missiles to Syria typifies the mounting problem for Israel. Unlike the FROG and the SCUD, the SS-21 has the range accuracy and lethality to destroy hardened targets deep inside Israel, including suppressing or neutralizing for 12 to 24 hours almost all Israeli Air Force airfields in northern Israel as well as Israel's nuclear reactors near Dimona.

While the standard armament for Arab-deployed SS-21s is a conventional warhead, the SS-21 also is believed capable of carrying nuclear and chemical charges. The SS-21 armed with a chemical warhead might force Israeli airbases to suspend operations long enough for Arab air forces to gain control of the skies. Against both Israeli military forces and cities, Arab short-range ballistic missiles represent a significant new threat. As Israeli air defenses make it more difficult for Arab air forces to complete their missions, the Arab

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4. There are certain complications associated with SRBM employment. In order for SRBMs to prove decisive for an attacker, his missile strikes must be coordinated with other forces necessary for follow-on attacks. For example, the suppression of Israeli Air defense units would be less militarily significant if Arab air forces and air mobile forces were not at hand to complete the destruction of Israeli air bases and other key assets. Effective SRBM use may thus require the type of command and control structure not yet available to Arab armies. On the other hand, Israel has so few targets (i.e., airbases and command centers) that target acquisition should not prove to be a problem for Arab SRBM forces.

countries will increasingly need to turn to short-range ballistic missiles to carry out their attack plans.

The Pacific Basin

In Asia, the Soviets have deployed some 132 SS-20, 100 SCUD (soon to be replaced by SS-23s) and 40 Scaleboard (to be upgraded with SS-22s) launchers. Most recently, the Soviets have begun deployment of FROG launchers on the southern Kurile Islands.[5] North Korea deploys 54 FROG launchers that could be upgraded with the SS-21 sometime in the next decade. Japan could counter these with an ATBM system that would be consistent with Japan's current defensive strategy. An important subcomponent of Japanese air defense is the employment of surface-to-air missiles, which are especially suited for the defense of strategic areas.

Soviet SS-20s and other SRBM missiles could threaten Japan's ability to operate the aircraft needed to defend the country and its sea lines of communication. Soviet ballistic missiles also may be capable of closing important Japanese ports. While these missions now could be performed by Soviet naval aviation, the use of Soviet missiles would free Soviet planes for other important tasks. The deployment by Japan of ATBMs, or upgrading the Patriot air defense missiles that Tokyo recently bought from the U.S. could help protect U.S. troops on bases in Guam, Okinawa, the Philippines, and South Korea.

ALLIED SUPPORT FOR ATBM DEVELOPMENT

France, West Germany, and Britain have endorsed, in varying degrees, the concept of ATBMs. In response to the Soviet SRBM threat, NATO defense ministers in summer 1986 approved the drafting of guidelines for Europe-based ATBM development. NATO Defense Ministers see the use of ATBMs as one of a series of actions to strengthen the alliance's conventional forces. ATBM systems first would be extensions of the existing air defense system, but later could involve arms employing such new technologies as directed-energy weapons and rail guns. French and British firms already are studying an ATBM system that could become part of an advanced European defense network against short-range Soviet ballistic missiles. The U.S. Strategic Defense Initiative Organization, moreover, recently gave contracts to seven multinational consortiums for Phase I studies of the architecture of a Europe-based defense against tactical missiles.[6]

Advanced Israeli Ideas. Israel has expressed great interest in the U.S. Strategic Defense Initiative (SDI) and ATBM and last year asked to participate in SDI. Israel primarily is interested in adapting SDI technology to its conventional defense needs, such as shooting down shorter-range ballistic missiles based in Syria.

Lt. General James Abrahamson, head of the U.S. SDI program, notes that Israeli scientists already have come up with "some very good and advanced ideas," particularly in the field of rail guns, lasers, and electronic countermeasures. Last November, Israel signed a $5.1 million agreement with the U.S., under which Israel is to research tactical ballistic missile defense systems. It has been reported that Israel is preparing a theater defense design study for NATO's central front region.

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5. "Weinberger Urges Japan to Take Star Wars Role," The New York Times, April 6, 1986, p. 9.

6. The U.S. SDIO has its own theater ballistic missile defense architecture program, and in January 1987 Deputy Secretary of Defense William H. Taft IV instructed the services to begin developing a comprehensive plan for an anti-tactical missile (ATM) program to protect NATO and other allied forces against Soviet tactical and cruise missiles.

ATBM deployment seems consistent with Japan's three nonnuclear principles: "not possessing nuclear weapons, not producing them and not permitting their introduction into Japan."[7]

THE COMMON FRAMEWORK FOR ATBM DEVELOPMENT

There are four considerations common to the three regions that would benefit from ATBM deployment. This suggests that a multiregional ATBM system concept may be feasible and desirable. The common considerations include:

◆◆ Each region faces potential security threats from continued proliferation of enemy ballistic missiles. In accord with the defensive strategy of NATO, Japan, and Israel and the importance of absorbing an initial enemy strike and retaliating effectively, ATBMs can reduce an enemy's confidence in a surprise attack that relies on SRBMs. Regional stability is also enhanced by removing the incentive to strike preemptively (i.e., a country with vulnerable forces may want to strike first for fear of losing these forces to an enemy first strike). Additionally, ATBM-related technologies may strengthen conventional defensive capabilities, which would have application in all three regions.

◆◆ Each region's civilian economy would benefit from ATBM cooperation. Technological competitiveness would be enhanced by the investment required by ATBM and by the ensuing business and technological exchanges. In addition all three regions have the technological expertise to contribute to the U.S. ATBM effort.

◆◆ Each region's security rests on continued good relations with the U.S. ATBM cooperation would reinforce security and diplomatic linkages. Cooperation in ATBM research, development, and deployment also may move Japan, Israel, and NATO toward closer overall security cooperation.

◆◆ There appears to be support for ATBM systems by many of the Western European governments and those of Israel and Japan as well.

MULTIREGIONAL ATBM COOPERATION AND SYSTEM DESIGN

Israel and the European allies are already developing major elements of an ATBM system. A 1986 Pentagon study finds that European research and development on ATBMs and strategic defense technologies are well advanced and, in some instances, ahead of U.S. efforts.[8] U.S. SDI officials explain that the technology is now available to build the components of a regional ATBM system. This technology includes:

1) **The Navy/RCA AEGIS Radar** paired with a two-stage hypervelocity anti-ballistic missile.

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7. Japan formally agreed to participate in the SDI on September 9, 1986. See The New York Times, September 10, 1986, p. A6. Despite Nakasone's support for SDI, the Japanese Cabinet did have some hesitations, which led them to stress Japan's technological role in SDI and downplay its military aspects. See "Officials Anticipate Japan Joining SDI," Defense News, September 8, 1986, p. 1.

8. See Clarence Robinson, "Regional Applications of SDI Technologies" in SDI in the Near Term: Strategy, Technology and the ABM Treaty, proceedings of a conference sponsored by the Fund for an American Renaissance, July 15, 1986, Washington, D.C., p. 32.

2) A modified Army Patriot air defense missile or the SDI small radar homing intercept technology missile (SRHIT), capable of destroying warheads by crashing into them.

3) The new ERIS (exoatmospheric reentry vehicle interception system), which could destroy warheads before they reenter the atmosphere.

4) The Army FLAGE (flexible lightweight agile guided experiment) interceptor combined with a millimeter wave radar technology that could be used to intercept warheads inside the atmosphere.

5) An upgraded ASTER missile to be used for intercepting warheads as they reenter the atmosphere.

Though the technology may be available or close at hand, it lacks systems integration and a theater design before it can be forged into an operational system. The U.S., Israel, and West Europeans are working on theater design studies. Since the threat is similar for NATO-Europe, Israel, and Japan, research and development coordination could speed the process and bring down the costs of production by lowering unit costs. The emerging system would take into account strategic requirements and political restraints. Such a system would be:

◆◆ nonnuclear;

◆◆ based in part on such passive components as concealment, mobility, and hardening;

◆◆ part of a combined defense against aircraft, cruise missiles, and longer-range ballistic missiles;

◆◆ able to cope with conventional, chemical, and nuclear armed warhead threats;

◆◆ not tied too closely with the U.S. Strategic Defense Initiative because the regional intermediate-range missile and SRBM threat is independent of the intercontinental ballistic missile threats targeted by SDI;

◆◆ based on either an upgraded air defense weapon, such as the Patriot or Hawk, or on a dedicated ATBM system in response to the threat;

◆◆ effective but not necessarily leakproof--even a partial defense contributes to attacker uncertainty;

◆◆ reasonable in terms of development and deployment costs in the overall context of defense spending needs;

◆◆ generally comprehensive and including low and high endoatmospheric interceptors, with space-based kinetic energy weapons as soon as they are developed, and with sensors that could be based on the ground, in space, or on aircraft;

◆◆ considered as a possible terminal and late-midcourse layer of an overall SDI multilayer defense, if and when an SDI deployment decision is made.

ATBM AND THE 1972 ANTI-BALLISTIC MISSILE TREATY

Critics of SDI and supporters of a narrow interpretation of the 1972 Anti-Ballistic Missile (ABM) Treaty contend that unconstrained ATBM development and deployment would violate the purpose and letter of the ABM Treaty. The fact is, however, that the ABM Treaty does not ban ATBMs. ATBMs, after all, will be constructed and deployed to defend against tactical ballistic missiles of relatively short range--not the strategic missiles addressed by the ABM Treaty. ATBMs are not an ABM system.

U.S. SUPPORT FOR A MULTIREGIONAL ATBM SYSTEM

The U.S. should support the development and deployment of an ATBM system that meets the strategic and political needs of Western Europe, Japan, and Israel. The reasons:

1) **The U.S. and its allies** must rectify regional military imbalances brought about by the deployment of Soviet short-range ballistic missiles;

2) **Support for ATBMs** would demonstrate to Western Europe that the U.S. remains vitally committed to West European defenses;

3) **Proliferation of short-range** ballistic missiles is certain to continue, particularly if a U.S. strategic defense system eventually is able to check the intercontinental ballistic missile threat;

4) **A multiregional approach** to ATBM would expedite deployment at less cost by drawing on foreign expertise;

5) **It could be a first step** toward the eventual deployment of U.S. missile defenses; and

6) **An ATBM system** capable of operating in different regions of the world would offer protection to U.S. forces operating in those regions; an Israeli missile defense system, for example, could provide some measure of protection for U.S. forces operating in the Eastern Mediterranean.

A multinational approach to ATBM research and development is already in place. The Strategic Defense Initiative, meanwhile, has begun to coordinate West European, Israeli, and U.S. efforts. Of the $3.2 billion approved for SDI in fiscal 1987, $50 million has been earmarked for "joint development, on a matching fund basis," of an ATBM for deployment with NATO allies and other partners. Said Senator Dan Quayle, the Indiana Republican who sponsored the ATBM amendment: "For the first time, the SDI office has been given a specific near-term task that will end in a deployed system in the early 1990s." In addition, Britain and Israel received $10 million and $6 million, respectively, for SDI research and related applications in theater ballistic missile defense.

Quayle's ATBM joint development measure is only a first step. Additional steps could include:

◆◆ Establishing an ATBM system as an allied, rather than strictly U.S., initiative;

◆◆ Building on existing force structures and capabilities, such as NATO's integrated air defense system, and the Patriot air defense weapon, which is in use in Western Europe and Japan;

◆◆ Pushing ATBM as a conventional defense improvement (CDI) effort, since the Soviet SRBM is emerging as a conventional warfare problem;

◆◆ Making ATBM funding available to private companies--rather than to governments--to "invite, show, and test." Companies should compete to see who can make a particular component with cost an important criterion. If private companies have something to contribute, additional funds should then be made available to their respective governments;

◆◆ Encouraging participation in computer-simulated, test-bed activities;

◆◆ Focusing on subcomponent activities rather than complete systems, thus encouraging cooperation between companies. Other research and development efforts should be examined to see what they can contribute to ATBM development.

CONCLUSION

As the deployment of highly accurate and lethal Soviet short-range ballistic missiles armed with conventional, chemical, and nuclear warheads continues in Europe, the Middle East, and Asia, the vulnerability increases for U.S. allies and forces in those regions. The ability of Soviet SRBMs to circumvent existing NATO, Israeli, and Japanese air defenses and the ability of accurate SRBMs to attack crucial targets--thus altering significantly in the early stages of conflict the regional military balance--create incentives for the Soviet Union and other states to consider preemptive military options.

Anti-tactical ballistic missile defenses could thwart a Soviet or Arab attack utilizing intermediate- and short-range ballistic missiles. By denying the Soviets--and in the case of Israel, the Arabs--the prospects if a quick win by a preemptive missile assault, deterrence of aggression is strengthened, and stability in the region is reinforced.

Western Europe, Israel, and Japan all face a similar threat in terms of the emerging Soviet SRBM threat. All three regions have the technological and scientific expertise necessary to contribute to an ATBM effort, and there seems to be a great deal of support for ATBMs by the current governments in Israel and Western Europe.

Besides the political considerations, there are technological and economic factors that may figure in a nation's decision to participate in a multiregional ATBM development scheme. It makes sense, therefore, for the three regions to cooperate with the U.S. in coordinating their research and development efforts with the eventual goal of deploying an ATBM system compatible with the threat each region faces.

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