

AVOIDING A NEW ARMS RACE: WHY MISSILE DEFENSE COOPERATION IS THE BEST ALTERNATIVE TO COMPETITION WITH THE RUSSIAN FEDERATION

Joseph APEL*, James M. KEAGLE **, Lavinia GAVRILĂ***

*Maxwell Program, Syracuse University, Syracuse, New York, U.S.A., **Institute for National Strategic Studies, National Defense University, Ft. Mc. Nair, Washington D.C., U.S.A., *** “Henri Coandă” Air Force Academy, Braşov, Romania

Abstract: This paper addresses the underlying reasons behind the rise in tensions concerning the plans for the European Phased Adaptive Approach currently being implemented by the NATO countries. This paper will analyze the how the Russian systems could complement the EPAA. The authors of this paper recognize that there will likely be significant opposition from interested parties, and thus a brief part of this paper will address these concerns. The element of cyber security will be briefly touched upon within the framework of BMD and how the evolving cyber-attacks/sabotage can pose a risk to the EPAA. The paper discusses the greater goals of U.S. defense strategy and how ballistic missile defense fits as a deterrent shield strategically poised by the year 2020, which is when the missile shield should cover both the United States and its European Allies.

Keywords: Anti-Ballistic Missile Treaty, arms race, strategic stability, defense, ballistic missile shield, agreement, European Phased Adaptive Approach, U.S.-Russian relations, NATO Missile Defense.

1. INTRODUCTION

The dissolution of the Union of Soviet Socialist Republics in December of 1991 was hailed by the West as a new chapter in East-West relations. The dangerous arms race which placed Europe on the front lines for half a century had come to an end and Russia was expected to become the newest member of the U.S.-dominated liberal-democratic world order. Gone were the days of Strategic Defense Initiative (colloquially and, perhaps pejoratively, known as “Star Wars”) championed for a time by President Ronald Reagan. The world had never looked brighter, or so it was thought. When President George W. Bush came to power in January of 2001, one of his foreign policy goals that sharply distinguished the President from his predecessor was the eventual withdrawal of the United States from the Anti-Ballistic Missile Treaty. This Treaty served to preserve the concept of Mutually Assured Destruction

(MAD), the goal of which was to provide a disincentive for one country to attack another with nuclear weapons (first strike capability), for fear of an overwhelming nuclear retaliation from the attacked country (second strike).

The Russians hold that MAD is the cornerstone of strategic stability primarily for one reason: the nuclear arsenal they possess is the only possible defense against a full-scale thermonuclear attack by the United States. While the United States employs advanced missile defense technologies like the Terminal High-Altitude Area Defense (THAAD) and the Standard Missile family, the Russians rely on Soviet technology dating back decades, which were well-suited to defend against aircraft, but not against high-speed and high-flying ballistic missiles and their associated warheads. In fact, the most advanced Surface-to Air Missile system that the Russian Federation possesses only has a capability slightly better than the PAC-3 Patriot system that the United States and NATO employ in

Europe. The possibility that the Russian nuclear deterrent will be further relegated to a more inferior status than it currently occupies is highly worrisome for the Russian military establishment.

The unilateral U.S. withdrawal from the Anti-Ballistic Missile Treaty sent the wrong signal to Russia. In addition, Russia, in observing the ever-encroaching eastward expansion of NATO and many of the former Soviet republics and satellite states gaining acceptance into the military alliance, is highly skeptical of NATO's supposed "good intentions." In return for Russia's acceptance of the European Phased Adaptive Approach to missile defense, the Kremlin requires some sort of legal guarantee that the system is not and will never be oriented towards the impairment of the Russian strategic deterrent. Without this guarantee, the continent of Europe is likely to be plunged into a renewed arms race, the likes of which it has not seen for some twenty years.

On one side are the technologically advanced United States and its allies in Europe with an umbrella-like missile shield covering virtually two-thirds of Europe. On the other, is a resurgent Russia which, utilizing its newfound wealth from the export of its natural resources develops and deploys new weapons to overcome such a shield. This does not appear to be a cause for alarm, as Russia would never attack Europe (which is arguably Russia's largest customer in energy purchases). However, the recent announcement by President Dmitry Medvedev of the Russian Federation that its early-warning radar station in Kaliningrad Oblast' is being put on "combat alert" status is quite troubling. Even more so is the announcement that unless Russia's concerns about the missile shield are addressed, the new SRBM "Iskander-M" missiles would be deployed to the same region (The Kremlin, 2011), straight in the heart of NATO territory. One might recall the incident in 1983 with KAL 007. At a time when tensions were high between the United States and the Soviet Union, the Soviets mistook the passenger aircraft (which had mistakenly penetrated restricted Soviet air space) for a U.S. spy plane and the aircraft was

subsequently shot down by Soviet interceptor aircraft. Ironically enough, this shoot-down occurred after the U.S. announced its plans for SDI. Given the fact that tensions are rising to this level again, it is not too far-fetched to believe that something similar could happen again if the U.S. and Russia don't come to an agreement on missile defense in Europe.

Although the United States does not need Russia's technical help in establishing a missile defense shield in Europe in order to protect the continent from the ever-increasing ballistic missile threat from rogue nations, most notably Iran, we argue that neither the United States, Europe, nor the Russian Federation have an interest in a renewed and perilous arms race. On the contrary, it is in the interest of all concerned parties to cooperate to the highest extent on developing a joint missile defense shield with redundancies that serve as an "added value" in protecting the continent—and deterring potential aspirants to the nuclear club. *First*, this paper addresses the underlying reasons behind the rise in tensions concerning the plans for the European Phased Adaptive Approach currently being implemented by the NATO countries. *Second*, this paper will analyze the how the Russian systems could complement the EPAA. The authors of this paper recognize that there will likely be significant opposition from interested parties, and thus a brief part of this paper will address these concerns. *Third*, the element of cyber security will be briefly touched upon within the framework of BMD and how the evolving cyber-attacks/sabotage can pose a risk to the EPAA. *Lastly*, the paper discusses the greater goals of U.S. defense strategy and how ballistic missile defense fits as a deterrent shield strategically poised by the year 2020, which is when the missile shield should cover both the United States and its European Allies.

2. RENEWED TENSIONS: THE CURRENT PLAN

U.S.-Russian relations may have reached a new low since the end of the Cold War as evidenced by Russia's veto of a UN Security Council resolution in February 2012 designed

to condemn the Syrian Government's atrocities against its own people. President Obama took office with the assumption that he would be able to "reset" relations with Russia. Russia welcomed the cancellation of George W. Bush's missile defense plans, which was seen as the major obstacle in strong U.S.-Russian relations. The program adopted by the

Bush administration essentially ignored Russian cultural and political sensitivities in a region long-regarded as the "Near Abroad," or, under the Russian sphere of influence since the times of the Russian Empire. Under the Bush Administration's plans, radars and interceptors would be placed in countries such as Poland, Turkey, and the Czech Republic. This "reset" was short-lived when, in 2009, President Obama announced the European Phased Adaptive Approach to missile defense (EPAA). In this program, the ballistic missile shield that has been planned to shield Europe primarily from a rogue Iranian ballistic missile would be introduced in "phases" with the eventual coverage of Europe by 2015 and the entire territory of the United States by 2020.

In *Phase 1*, which was slated to begin in 2011, sees the deployment of the Standard Missile-3 (hereafter referred to as "SM-3") Block IA, which is ship-based. The U.S. Navy is currently in the process of upgrading its Aegis BMD ships to allow for Ballistic Missile Defense capabilities (US House of Representatives, 2010). Mobile and versatile, the system can be placed in the Mediterranean Sea to defend Israel and Europe against the most concerning of potential threats, a nuclear armed Iran.



Fig. 1 Ballistic missile defense system

Also, as part of *Phase 1*, an early-warning radar site will be set up in Turkey (www.armscontrol.org, 2011) in order to monitor a possible incoming threat from Iran. On September 2, 2011, Turkey agreed to host a U.S. operated early warning AN/TPY x-band radar system would be part of the EPAA. The proposed location of the radar will be based in Kurecik Air Base, which is northeast of U.S. Air base in Incirlik. Situated about 435 miles from Iran, this system will be linked to U.S. and NATO SM-3 IA missile interceptor vessels in the Mediterranean Sea, and be capable of intercepting a Ballistic missile launched from Iran. If the BMD interceptor system in Poland does get a 'green light', this radar system located in Turkey is strategically sensible because it provides the capability of advanced detection of an incoming missile threat, which can then be communicated to the interceptor systems to take immediate deterrent actions.

The recently agreement between Ankara and Washington to host a missile shield has been the closest cooperation since the Israeli Flotilla incident in 2010 that strained relations between Turkey and the U.S. This recent agreement to host this early warning radar system suggests change in the political culture of Turkey. Previously, Turkey was a mediator between the U.S. and Iran, yet it seems Ankara has become more oriented toward siding with the U.S. This may be due to frictions that evolved between Turkey and Iran via President Assad's ongoing violent and bloody suppression of democratic uprisings in Syria, something Turkey strongly opposes and Iran supports. Turkey shares approximately a 500 mile border with their Syrian neighbors, which has led to thousands of refugees fleeing Syria to cross into Turkey. Further tensions arose when the Chief of Iran's Parliament National Security Committee threatened Turkey with 'retaliatory strikes' if Iran was attacked - specifying the BMD radar based in Kurecik Air Base, would be among the first targets.

In *Phase 2*, which will begin somewhere in the 2015 timeframe, more ship-based deployments of the SM-3 will continue to take place, but one important development will occur; Romania will host land-based SM-3

interceptors. As a former satellite state of the Soviet Union, this is likely to push U.S.-Russian relations to the breaking point as Russia will feel even more cornered by NATO. During this phase, the SM-3 block to be deployed will be the upgraded Block IB (US House of Representatives, 2010). About 180 SM-3 IIB's will be delivered to the Department of Defense during fiscal year 2015 and 324 by fiscal year 2017 (US House of Representatives).

In *Phase 3*, the U.S. Armed Forces will introduce the SM-3 Block IIA to Poland in 2018. Both Poland and Romania will each have 24 SM-3 interceptors. If the United States goes through with deploying these interceptors directly on the border with Russia (Kaliningrad), Russia will most likely immediately deploy Iskander-M missiles, which are the successor to the ageing SCUD missiles. These SRBMs have been specifically developed to counter a BMD and would likely make the Poles very nervous. To make matters worse, the Iskander-M missiles have the capability to deploy either convention or nuclear warheads (*Strategic Weapon System*, 2011).

Phase 3 may be the most controversial, and possibly destabilizing. Russian state leaders repeatedly express concerns about the U.S. missile defenses which 'adversely affects [Russian] strategic capabilities and interests.' Russia has responded by moving mobile short-range ballistic missiles to its exclave Kaliningrad-Oblast territory (formerly East Prussia) which borders Poland, and only a short 150 miles (approximate) from Redzikowo. This move was to counter the US-Polish BMD shield. One of President Obama's top foreign policy priorities upon taking office was to reset relations with Russia. The Moscow Summit in 2009 was a significant U.S. rapprochement with Russia. President Obama and Russian President Medvedev held a joint assessment discussing the ballistic missile threat and how to ensure regional security and cooperation. Currently, President Obama is seeking a broad agenda with respect to Russia about the U.S. Phased Adaptive Approach in Europe. The 4 main principals guiding the PAA are:

1. Shared early warning of missile launches.
2. Possible technical cooperation.
3. Possible operational cooperation.
4. Rejection of any negotiation that seeks to restrain US ballistic missile defense.

In the interest of keeping modest relations with Russia, and addressing the threat of a nuclear Iran, the fourth principal may need to be reconsidered. When U.S. Foreign Policy neglects to treat Russia as a full and equal member, it diminishes the possibility of reaching a regional stability solution. Furthermore, it is unlikely that Russia will allow a something-for-nothing agenda without some kind of repercussion resulting in a quid-pro-quo strategic move against U.S. interests; hence Moscow's mobilization of missiles to Kaliningrad-Oblast territory. According to *Upsetting the Reset: The Technical Basis of Russian Concern Over NATO Missile Defense*, despite U.S. and NATO efforts to persuade Russia that the BMD in Poland is not directed at Russia, there are 'fears among Russian political and military leaders that the U.S. PAA in Europe could cause some attrition of Russian warheads' and pose a threat to Russia's national security. The implications of such skepticism risk reversal of the most recent START treaty, and can possibly escalate issues of strategic destabilization such as a renewed arms buildup.

It might be objected that one solution to solving this and improving U.S. – Russia relations on BMD would be to abandon the plans of a ballistic missile interceptor system in Poland and Romania altogether.

The current plans for the two countries are as follows: The proposed location for the Polish-based BMD shield is based in on the northern coast near Redzikowo. This location has a long history of military bases. It hosted the German Luftwaffe in WWII and then a Soviet Air Base in 1950. It's located about 300 miles from the Polish capital, Warsaw, and about 150 miles from the Russian exclave Kaliningrad-Oblast territory. Emplacing this BMD shield is due to take place in 2018, as part of Phase III in the PAA which will field SM-3 Block IB missiles, additional sensors, and projected numbers of armaments number

500 SM-3 interceptors based on 43 ships and 2 land sites.

Regarding Romania, the BMD shield has been proposed to be emplaced near the southern Romanian city of Caracal, on an abandoned 435 acre airport which is projected to host the U.S. Air Base Deveselu. Romania and the U.S. signed an agreement on September 13, 2011, to host an arsenal of 24 SM-3 IB missile interceptors operated by somewhere between 200-500 U.S. military, support personnel, and contractors. This land-based 'Aegis Ashore' system, is scheduled for deployment in 2015 (Phase II of the EPAA). On December 6, 2011, the Romanian Parliament ratified the agreement to move forward with the Romanian – U.S. BMD shield.

Romania supports the development of a NATO missile defense system grounded on the elements of principle determined at the Bucharest Summit and reiterated at Strasbourg-Kehl and Lisbon, i.e. *indivisibility of Allied security, collective solidarity, and full coverage of the Allied territory*. The involvement in the new project will significantly improve the level of national security of Romania

Furthermore, Romania is an important strategic partner of the United States and a reliable NATO Ally. The invitation extended to Romania can only validate the substantial value of this partnership and the important role of the country plays in the Alliance.

At the same time, Romania's decision to take up the responsibility of hosting this defensive system shows deadfast commitment to the principles of NATO's indivisibility of security and Allied solidarity.



Fig. 2. Romania map

This bilateral project with the US significantly contributes to enhancing the national security of Romania, and also to strengthening the bilateral Strategic Partnership and will prove to be a valuable contribution to NATO's future missile defense program. It is equally significant that the proposal was made and the decision to participate in the system was taken at the beginning of 2010, when Romania and the US celebrated 130 years of bilateral diplomatic relations.

The previous project created, for both Romania and its allies, a situation of vulnerability, as only a small part of the national territory would have been covered. The new approach will provide full coverage of the Romanian national territory in case of strikes with ballistic missiles or with middle range missiles. It is well-known, at the international level, that the threat of this kind of weapons is growing. In experts' analysis there are mentions about states or non-state actors who can acquire missile technology and are therefore likely to endanger the security of the Allies, unless proper measures are taken.

Russian concerns over the U.S. led BMD shield in the former Eastern Bloc territories will remain high until the U.S. and NATO policy leaders meet two key Russian terms. First, the BMD operational system should be run jointly between the U.S – NATO and Russia. Second, the U.S. will provide specific, firm, and written guarantees that the BMD system in Romania and Poland are not directed at Russia or geared towards undermining Russia's own nuclear deterrence. The U.S. and NATO have openly been rejected or ignored both terms. Situating the BMD shield in southern Europe (the Romania site), which is closer to the regional threat – Iran, geographically makes some sense. An early warning radar system in Turkey supported by an interceptor system in southern Romania better serves the EPAA and European regional security than would the radar and interceptor systems placed in northern Europe. A BMD shield in Poland or Czech Republic is further away from the regional threat and will only continue to impede progress with the post 2008 U.S. – Russia reset of relations.



Phased Adaptive Approach

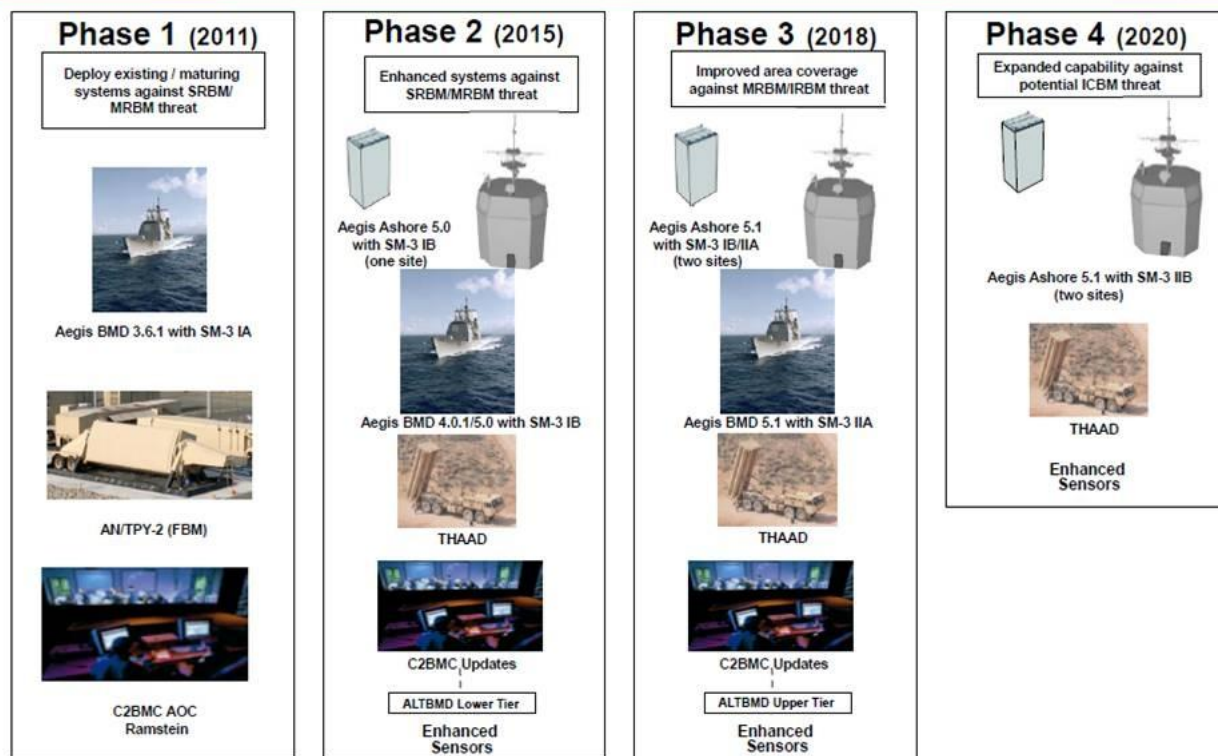


Fig. 3 Phased adoptive approach (Image Source: <http://missiledefenseadvocacy.org/web/page/1089/sectionid/557/pagelevel/2/interior.aspx>)

Recently, radar system emplacements have been agreed on in Turkey. Russian representative to NATO, Dmitri O. Rogozin, announced that Russia has no ‘objections to Turkey’s participation’ and the ‘deployment of a radar in Turkey is not a direct threat to Russia’s strategic nuclear forces.’ U.S. and Russia diplomats should use this agreement as a basis to work off and move forward with establishing an agreement of mutual cooperation between the Russian radar system in Gabala, Azerbaijan and the new radar systems that will go up in Turkey. This policy would align with both of President Obama’s agenda (as well as Russian) aimed at ‘bringing the strategic military postures of the [U.S. and Russia] into alignment with their post –Cold War relationship.’ It would also align to the security burden sharing between NATO allies. As for the interceptor systems, perhaps a shared BMD system based in Sevastopol,

Ukraine could be agreed upon. A BMD shield in the Crimean city is strategically located in the Black Sea, and could serve as a linebacker to the US radar systems in Turkey as well as the Russia radar system in Gabala, Azerbaijan. The base could serve as a confidence building measure between the U.S., NATO, Russia, and the Ukraine.

In *Phase 4*, set to occur in the 2020 timeframe, the Block IIB will be added to the capabilities of the BMD. This interceptor will be able to intercept both IRBMs and MRBMs “from Iran or elsewhere in the Middle East.” (US House of Representatives, 2010). Please see Figure 1 below for a graph outlining each phase of the EPAA. Although President Obama cancelled the third site for basing interceptors (Czech Republic), that has done little to assuage Russian concerns, as the number of interceptors have therefore increased five times the original planned

amount in Poland and Romania (US House of Representatives, 2010).

3. “NO CONSTRAINTS OR LIMITATIONS”

Unfortunately, the Congress and the Administration appear to have taken the opinion that by seeking a joint partnership with Russia regarding ballistic missile defense is akin to being “limited and constrained.” The reality is that the Russians have been more than willing to listen to the concerns of NATO and have even offered some propositions of their own. In a recent address to the Russian people, President Dmitry Medvedev reiterated that after the Lisbon Summit a year ago, the Russian Federation offered an alternative to NATO’s plan, called a “sector-based approach.” In this approach, different countries would be responsible for a particular sector (The Kremlin, 2011). Another plan offered by the Russians involves the creation of a Global Missile and Missile Technology Non-proliferation Control System (GCS), which would operate under the UN and provide incentives for nations not to develop their own ballistic missile technologies (Woolf, 2001:CRS-13). This is consistent with Russia’s view that the primary means of missile defense is via an “umbrella of diplomacy.” (Woolf, 2001:CRS-12).

Perhaps the most direct proposal for a partnership with the United States on ballistic missile defense arose in June 2000, where Russian President Vladimir Putin proposed a “regionally-based missile defense system” that would not require changes to the ABM Treaty.” (Woolf, 2001:CRS-14). According to the proposal, the areas of cooperation would include jointly assessing missile proliferation and threats, the creation of a pan-European missile launch warning center, and the joint development of missile defense systems, among other things (Woolf, 2001:CRS-14). Russia even offered its S-300 and S-400 interceptor systems to contribute to this joint effort (Woolf, 2001:CRS-15). The Clinton administration declined the offer, saying that it “could not serve as a substitute for a U.S. National Missile Defense.” It went further to

state that while the Russian proposal could supplement the U.S. plans, it was unacceptable as a replacement because it would leave the U.S. and Europe vulnerable to attacks by long-range rockets being developed by countries such as Iran and North Korea (Woolf, 2001:CRS-16).

In the rejection of a system based on joint partnership with Russia, the Bush Administration proceeded to reply to Russia’s concerns with a statement along the lines of “this system is not directed at Russia thus Russia should not have any concerns regarding the deployment of the missile shield.” This approach is hardly reassuring to the Russians, who view the West as trying to undermine Russian influence in Europe and the former Soviet republics and satellite states. As a result, tensions continued to rise exponentially.

The Obama administration, although more conciliatory, has taken elements of the Bush Administration’s plans (such as the deployment of interceptors and EWRs in Romania and Poland) and has continued down the path of complete rejection of a joint partnership with Russia. The mantra of “rejecting limitations and constraints” is incredibly irresponsible and is seen by the Russians as proof of what they perceive to be the West’s plans of the relegation of Russia and the neutralization of its strategic nuclear deterrent. As President Dmitry Medvedev recently stated, Russia wants legal guarantees on paper that the system will not be used against Russia and will not be satisfied with simple reassurances (The Kremlin, 2011).

4. COOPERATION IS AN ADDED VALUE

As mentioned in the introduction, the United States does not need Russian help in deploying a BMD in Europe. Russian technical standards are at least two decades behind those of the United States when it comes to anti-ballistic missile capabilities. However, a joint partnership with Russia would mainly serve three purposes. The first is redundancy. If, for some reason, U.S. interceptors or radars were to fail, some Russian systems could serve as a back-up to

intercept an incoming airborne target. Second, the joint partnership would be to reassure Russia that the West looks to it as a partner and not an adversary. Third, Russia is a vast country that still retains many key bases close to Iran (such as in Azerbaijan and Tajikistan).

5. REDUNDANCY: ENGAGING SRBMS

As mentioned above the technical gap between Russian and U.S. SAM systems is vast, however, the one exception being that the SRBM interceptor systems are very close in capabilities. Being that the U.S. generally has stronger capabilities; the first line of defense against an SRBM would be the PAC-3 Patriot missile system. The PAC-3 would be most effective by being deployed in Turkey, as close to Iran as possible, since its range is limited and is most effective against low-flying targets. Its range is only 160 kilometers (double the range of the first Patriot); however it can continually perform 6g maneuvers in order to pursue its target (*MIM-104 Patriot*, 2011). It is able to receive visual support from AWACS aircraft for increased accuracy (*MIM-104 Patriot*, 2011). It is also a fast missile, flying at speeds of up to Mach 5 and is also effective against cruise missiles (*MIM-104 Patriot*, 2011) (which is a concern due to the proliferation of cruise missile technology and their ability to carry tactical nuclear warheads).

To provide for an element of redundancy, this paper suggests that in a joint partnership Russia deploy its S-300 system in Azerbaijan. The S-300 system has a target hit rate between 70-80%, depending on whether the warhead has separated from the rest of the ballistic missile (Brown *et al.*, 2009). This is a very high success rate, given that a 100% hit rate is accepted as virtually impossible to achieve. The 48N6 missiles that can be launched for the S-300 system are quick enough to hit low-flying ballistic missiles, with a maximum speed of 5 kilometers/second (Brown *et al.*, 2009). The S-300 PMU 1/2 version has range that is greater than the maximum PAC-3 range by about 40 kilometers. Like the Patriot, the S-300 system can track up to 100 targets simultaneously (*S-300/Favorit*, 2011).

However, the S-300 can only control up to 6 interceptors (*S-300/Favorit*, 2011) while the Patriot can control up to 9 (*MIM-104 Patriot*, 2011). In situations where those 40 kilometers might make the difference between a successful intercept and failure, the S-300 redundancy is especially important. To further the chance of a successful intercept, both the S-300 and the PAC-3 Patriot systems could engage the target in case one fails.

6. REDUNDANCY: ENGAGING IRBMS AND MRBMS

As the range of the target missiles increases, the greater the disparity is between U.S. and Russian capabilities. The SM-3, which is the “bread and butter” of the U.S. ABM stockpile is also the arguably the most versatile in existence. It is able to be integrated with the Aegis Weapons Control System on board U.S. Navy destroyers and cruisers. The Aegis system employs hit-to-kill technology to intercept MRBMs and, in addition, track ICBMs (Scott, 2011) which would likely be taken out with THAAD during the missile’s descent phase. In addition, the Aegis WCS has the ability to distinguish between the countermeasures and the actually incoming missile (*Aegis Weapon System*, 2011). In order to counter the target, SM-3 interceptors are launched. These missiles are highly accurate, relying on inertia, GPS, and a two-color infrared system for guidance (*RIM-66/-67/-156*, 2011). In order to engage higher-flying targets, the SM-3 Block IB is able to hit targets up to a range of 225 kilometers in altitude and has a maximum range of 1,650 km (*RIM-66/-67/-156*, 2011). The SM-3s most likely to be deployed in Poland and Romania will be launched from the land-based MK-41 vertical launch systems (Brown *et al.*, 2009). Being extremely adaptable to virtually any situation, the SM-2 Block IIA is able to protect against cruise missiles and the SM-3 IA can be used to defend against SRBMs (Scott, 2011).

The SM-3s that Romania will receive are the of Block IB. These missiles were designed to replace the Block IA and were given improved discrimination between warheads and decoys and offer greater maneuverability.

It is, however, limited against ICBM threats (*Standard Missile 1/2/3/5/6*, 2011). The SM-3s that Poland will receive are of the Block IIA, which is currently under development. At the time of this writing, the details regarding the exact capabilities of the Block IIA and IIB are unknown to the general public. When completed, the Block IIA is expected to have an improved range and a more advanced seeker which will be able to distinguish between missiles and decoys. This missile is designed to be more effective against ICBMs (*Standard Missile 1/2/3/5/6*, 2011). This approach stays true to the EPAA in that the amount of BMD against rogue ballistic missiles is increased gradually. To sum up an incredibly complex system: the SM-3 is incredibly versatile and, given its wide range and altitude capabilities, it is able to engage SRBMs, MRBMs, and IRBMs.

The Russian capabilities with regards to IRBMs and MRBMs do not even approach those of the SM-3. The closest SAM that the Russians currently have deployed is the S-400 system, which is based on the S-300 that was mentioned earlier. It has a maximum engagement range of 400 kilometers using the 40N6 missile (*S-400 Triumph*, 2011) and can intercept ballistic missiles traveling up to 5,000 meters/second (*S-400*, 2011). It is currently deployed in the south of Russia to counter rogue North Korean missiles (*S-400*, 2011). The missile is also able to maneuver at an impressive 60g at low-altitude and is able to intercept SRBMs and IRBMs at a range of 5-60 km. In addition, the land-based version can engage ≥ 36 targets and guide ≥ 72 missiles simultaneously. There is a naval-based system installed on the cruiser Peter the Great that can engage 6-8 targets and guide 12-16 missiles simultaneously (*S-400*, 2011).

One can clearly see, based on the differences in technical capabilities, that the only real purpose for which the S-400 system could be used is redundancy. The best deployment would be in the south of Russia and the Ukraine, since both are within intercept range of the likely trajectory of an Iranian IRBM/MRBM. A cruiser like Peter the Great with the sea-based system could supplement U.S. Navy destroyers and cruisers

in the Black Sea, which would be deploying a variation of the SM-3 depending on the type of threat that eventually may emerge from Iran.

The S-500, however, helps to bridge the gap between U.S. and Russian capabilities, but is still by no means a substitute for the SM-3. Currently under development, this missile system is planned to have a range of up to 600 kilometers and be able to engage 10 targets with 10 independently guided submunitions (*S-500*, 2011). The system is expected to be fully deployed within the timeframe of 2015-2016, assuming that production is not delayed, as often is the case when Russia develops a new SAM system.

6. LACK OF REDUNDANCY: ENGAGING LRBMS AND ICBMS

Perhaps the most worrisome for Russia is the deployment of the THAAD system in the EPAA to counter potential rogue ICBMs. This is the only system that would be able to threaten any Russian ICBM, but targeting multiple warheads would prove to be quite cumbersome. The THAAD is designed to intercept and destroy a ballistic missile at a safe altitude in the missile's descent phase. This intercept would occur at an altitude of around 195 kilometers so that the payload, whether it is chemical, biological, or nuclear, can be detonated without causing collateral damage on the ground (*THAAD*, 2011). The THAAD missiles are fast-flying (at speeds of 2.8 kilometers/second) and are guided by both space-based sensors and ground-based radar and can intercept targets greater than 200 kilometers away from the launcher (*THAAD*, 2011). Although in the 1990's the program saw some major reliability issues, THAAD combined with PAC-3 are able to address 76% of existing threat inventory (*THAAD*, 2011). The introduction of the SM-3 is likely to raise that statistic.

No other country in the world, including Russia, has the capability that THAAD possesses. This understandably makes the Russians nervous, which would mean that Russia would require that the United States enter into a legal agreement that would prevent the U.S. from using THAAD against

Russian ICBMs. Under the current policy, the United States would reject such a concept and would again consider it to be a “limitation” on its BMD.

7. ADDRESSING A JOINT PARTNERSHIP

This paper suggests the construction of a joint Ballistic Missile Defense Command (BMDC) via international treaty which would be located in a neutral country such as Switzerland and would serve as the nerve center of the operations. Both Russian and NATO personnel would staff the station, which would facilitate communication between the two sides of the system, both in the field and locally. Important to establish is a formula to assess the threat and to deploy whichever countermeasure (as intimately detailed above) either side can offer depending on the incoming threat type.

Russia is the largest country in the world and as such, possesses perhaps the greatest asset the Russians can offer NATO: access to its Early Warning Radar (EWR) stations. These include a Volga radar station in Belarus, an Okno electro-optical space surveillance facility in Nurek, Tajikistan, the new Voronezh-DM radar stations (which have an impressive range of 6,000 kilometers and can track 500 targets simultaneously) in Kaliningrad and Armavir (*Strategic Weapon System*, 2011). All of these facilities are in the perfect geographic position to keep an eye out for incoming Iranian ballistic missile threats. NATO would thus be saved on having to deploy more resources to set up and maintain their own radar stations.

It is well-known in the field of international security that a way to bolster relations between two countries is what is called “confidence-building measures.” By maintaining the BMDC together, both NATO and Russia would be more trustful of each other. Russia would have legal assurances that the West is not its adversary and the West would have assurances that Russia is a committed partner in the realm of missile defense.

8. PREPARING FOR DOMESTIC AND INTERNATIONAL OPPOSITION

In the case of the United States, opposition to the joint NATO-Russian missile defense shield would come from Republicans and a few conservative Democrats. They would argue that the U.S. was “apologizing” for itself and caving to the demands of Russia. The Republicans in particular, would seek to demonize President Obama as being naïve. The House would likely not approve additional funding for the program unless a Democratic majority is voted in during the 2012 election. However, the Obama Administration could take advantage of funds already allocated to the program to get the system started; the radar stations and interceptors planned for Poland and Romania. After the initial start-up of the operation, President Obama would likely have to actively campaign to explain to both the American people and Congress why this joint system is in the U.S. national interest.

Opposition in the United States would also come from the Military-Industrial Complex. The U.S. would not require as many interceptors and would seek to modify or cancel contracts with private defense contractors. The development and subsequent deployment of the advanced SM-3 interceptor is highly profitable for Raytheon and Lockheed Martin, who are both involved in its development and manufacture. Coincidentally, these companies also have sufficient funds and lobbying power to influence the decisions of both Congress and the President.

Opposition from NATO countries would primarily come from former Warsaw Pact countries that are now in the Alliance. These countries have agreed to host U.S. installations primarily due to the fear of a resurgent imperialistic Russia seeking to dominate them in terms of military, politics, and economy. These countries would seek assurance from the U.S. that Russian interference in their internal affairs not be allowed. In seeking to reassure these countries of their security, in the treaty setting up the BMDC, it should be made clear in writing what the limitations of the BMDC are (such as respect for the host country’s sovereignty). In addition, Russia and NATO

would be required to enter into formal binding treaties which would define which behavior is acceptable for both sides.

Opposition from within the Russian Federation would likely come from the hardliner elite who would argue that, once again, Russia is surrendering its Great Power status to the West. In Russian culture, the concept of *Derzhavnost'* is highly important. This refers to the concept that Russia is and always has been destined to be a powerful state (Russian exceptionalism). The Russian leadership would be required to frame the joint NATO-Russia ballistic missile shield as not surrendering to the West, but doing what is in Russia's best interests and, in doing so, preserving the Great Power status of Russia. This should be relatively easy for Russia, giving the extent of state control of the Media and other sources of information.

9. CYBER SECURITY AND BALLISTIC MISSILE DEFENSE

One doesn't have to look far to understand that cyber security poses a unique challenge to BMD. According to an article in Wired.com (2011), counterfeit electronic chips have "wound up" at the Missile Defense Agency seven times in the past five years. These electronic chips go into such advanced systems as THAAD (see above) and Navy and Air Force planes. Lieutenant General Patrick O'Reilly explained the concern to the Senate Armed Services Committee: "We do not want a \$12 million THAAD interceptor to be destroyed by a \$2 part." An even more frightening scenario is a "Trojan horse" circuit being embedded in parts for the BMD, which would allow (presumably) China to control the interceptor or WCS. This problem needs to be addressed and Congress must increase oversight over the parts which are imported specifically from China, as these counterfeit chips could undermine the whole BMD system.

10. CONCLUSION

Past and present Iranian behavior and political rhetoric indicates the regime's

intentions of using Ballistic Missiles. The Iranian Salvo Launch in 2006 displayed their intention to defeat missile defense systems, thus enabling them to hit their target. Syria, a co-belligerent and ally to Iran, also presents a regional threat to Europe, deployed U.S. forces, and allies. It's all mobile inventory of SCUD-class and SS-21 SRMBs is much smaller than Iran's, but has severe implications; especially with regard to the suspected chemical warheads within its SCUD-class.

Policy priorities two and six in the February 2010 Ballistic Missile Defense Review Report (BMDR) outline regional defense strategy will be reinforcing NATO's central role in missile defense to support and ensure greater security in Europe from short-range and medium-range ballistic missiles. According to the BMDR, the U.S. supports NATO's development of a command and control system for territorial defense, along with NATO allies providing missile defense assets and territory. By forging new alliances and agreements, international efforts of deterrence can move forward in preventing states like Iran from acquiring, developing, or effectively using Ballistic Missiles. This objective is outlined in policy priority six, which states the goal of 'principally eliminating [Iranian] confidence in the effectiveness of [ballistic missile attacks] and thereby devaluing their ballistic missile arsenals.'

Indeed, with the recent sanctions on the Iranian central bank, along with the EU banning oil imports, Iran's aggressive nature has continued to grow.. The regime has threatened to close the Strait of Hormuz, and recently has been conducting naval exercises in the Persian Gulf. The U.S. intelligence community reports that Iran is currently 20% complete on developing enriched uranium which can be used for a nuclear missile. Nuclear development is suspected of taking place in an underground facility near the city of Qom. Should their provocative threat materialize, President Obama, affirmed as recently as Super bowl Sunday in an interview with Matt Lauer that the U.S. would not tolerate a nuclear Iran and is 'leaving all

options on the table' to protect and secure our allies and ensure the Strait of Hormuz remains open. Yet, for president Obama., diplomacy remains the preferred course of action

Iran has the capability to strike deployed US forces and allies in the Middle East and Europe. In the past, they have received missile development support from China, North Korea, and Russia. For example, the Shahab-3 Mid-range ballistic missile (MRBM) is based on the North Korean No-Dong missile. Despite international sanctions, trade embargos, and U.S. diplomatic efforts via the Swiss Embassy, Tehran continues to defy international norms on the development on a nuclear missile. Most of the Iranian ballistic missile inventory consists of mobile Shahab-3 mobile Mid-range ballistic missile, with a capable striking range of 1,300-2,000km. At that range, Greece, Turkey, parts of Romania, Bulgaria, Moldova, and Ukraine are within striking distance. The fact that Iran claims to have the capacity to mass produce these missiles greatly magnifies the threat. Furthermore the BMDR reports that Iran has been actively working towards increasing the accuracy and propellant of its short-range ballistic missile (SRBM) inventory.

NATO and Russia are at a crossroads with regard to BMD and Iran. If NATO chooses one path, it puts itself in a likely arms race and on a collision course with Russia with associated rises in tensions, brinkmanship, and costs, the likes of which have not been seen in twenty years. In this scenario, each side would develop arms to try to counter the other's systems. Russia would seek to develop more advanced ballistic missiles to be able to penetrate the NATO BMD. NATO would seek to adapt its BMD to address the increasing threat that Russian ballistic missiles may pose to it. The result is a never-ending cycle which puts both sides on permanent combat alert and could lead to even larger budgetary problems than are already being experienced. This would distract both sides from the real issue: Iran's continued procurement of ballistic missile and nuclear technology.

If NATO takes the road towards partnership with Russia, costs can be shared and there will be little reason for an arms race

between the two sides. Both NATO and Russia have an interest in preserving the safety of Europe. For Russia, the reasons are mostly economic and for NATO, the reasons are mostly related to the concept of self-preservation. Russia has already taken a step in the right direction by cancelling the sale of its S-300 system to Iran in light of new UN sanctions and would still be open to a joint BMD. As demonstrated above, it is evident that Russian and NATO systems are not mutually exclusive. There may be some technical disparities, but the geographic location of Russia and its radar stations are too perfect to resist. For the sake of both NATO and Russia, hopefully the right decisions are taken.

BIBLIOGRAPHY

1. Brown, Nick, Daniel Wasserbly, Andrew White, and Martin Streetly. (2009). Long-Rangers: Expanding Reach of Theatre-Wide Air Defence. *Jane's International Defence Review*. December 17. <http://www.janes.com> [accessed December 19, 2011].
2. IHS Jane's: Defense & Security Intelligence & Analysis. Aegis Weapon System; DANCS; Combat SS-21. Command, Surveillance, and Weapon Control Systems, United States. <http://www.janes.com> [accessed December 19, 2011].
3. IHS Jane's: Defense & Security Intelligence & Analysis. MIM-104 Patriot. Static and Towed Surface-to-Air Missile Systems, United States. <http://www.janes.com> [accessed December 19, 2011].
4. IHS Jane's: Defense & Security Intelligence & Analysis. "RIM-66/-67/-156 Standard SM-1/-2, RIM-161 Standard SM-3 and RIM-174 Standard SM-6." Defense Weapons, United States. <http://www.janes.com> [accessed December 19, 2011].
5. IHS Jane's: Defense & Security Intelligence & Analysis. S-300/ Favorit (SA-10 "Grumble"/SA-20 "Gargoyle"). Defensive Weapons, Russian Federation.

- <http://www.janes.com> [accessed December 19, 2011].
6. IHS Jane's: Defense & Security Intelligence & Analysis. S-400. Self-Propelled Surface-to-Air Missiles, Russian Federation. <http://www.janes.com> [accessed December 19, 2011].
 7. IHS Jane's: Defense & Security Intelligence & Analysis. S-400 Triumf (SA-21 "Growler"). Defense Weapons, Russian Federation. <http://www.janes.com> [accessed December 19, 2011].
 8. IHS Jane's: Defense & Security Intelligence & Analysis. S-500. Self-Propelled Surface-to-Air Missiles, Russian Federation. <http://www.janes.com> [accessed December 19, 2011].
 9. IHS Jane's: Defense & Security Intelligence & Analysis. Standard Missile 1/2/3/5/6 (RIM-66/67/156/161/165/174). Surface-to-Air Missiles, United States. <http://www.janes.com> [accessed December 19, 2011].
 10. IHS Jane's: Defense & Security Intelligence & Analysis. Strategic Weapon Systems. Strategic Weapon System, Russian Federation. <http://www.janes.com> [accessed December 19, 2011].
 11. IHS Jane's: Defense & Security Intelligence & Analysis. THAAD. Static and Towed Surface-to-Air Missile Systems, United States. <http://www.janes.com> [accessed December 19, 2011].
 12. Scott, Richard. Aiming High: Aegis Ballistic Missile Defense. *Jane's Defence Weekly*, December 18, 2011. <http://www.janes.com> [accessed December 19, 2011].
 13. *** (2011) *Status of implementing the phased, adaptive approach to missile defense in Europe hearing before the Subcommittee on Strategic Forces of the Committee on Armed Services, House of Representatives, One Hundred Eleventh Congress, second session, hearing held*. Washington: U.S. G.P.O.
 14. *** The Kremlin. Statement in Connection with the Situation Concerning the NATO Countries' Missile Defence System in Europe. President of Russia. eng.kremlin.ru/news/3115 [accessed December 4, 2011].
 15. Woolf, Amy F.. *National Missile Defense: Russia's Reaction*. Washington, D.C.: Congressional Research Service, Library of Congress, 2001.
 16. ***U.S. House of Representatives Committee on Armed Services, Subcommittee on Strategic Forces, Status of Implementing the Phased Adaptive Approach to Missile Defense in Europe, 2010 (Washington, D.C.: GPO, 2011) 5.
 17. ***http://www.armscontrol.org/act/2011_10/Turkey_to_Host_NATO_Missile_Defense_Radar [accessed December 4, 2011].
 18. ***<http://www.wired.com/dangerroom/2011/11/counterfeit-missile-defense/>, [accessed December 4, 2011].