Verfassen: Fwd: Re: Aegis Ashore and INF - Thunderbird

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Von: "Dr. Wolfgang Schwarz" <blaettchen.schwarz@gmx.de> *blaettchen.schwarz@gmx.de*

An:

Betreff: Fwd: Re: Aegis Ashore and INF

2 Anhänge 4,6 MB
- Bulletin ...ences.pdf 3,5 MB
- Note2Sch...19)_.pdf 1,1 MB

Normaler Text | Variable Breite

-------- Weitergeleitete Nachricht --------

Betreff: Re: Aegis Ashore and INF
Datum: Mon, 11 Feb 2019 21:49:49 +0000
Von: postol@...
Antwort an: postol@...
An: Dr. Wolfgang Schwarz <blaettchen.schwarz@gmx.de>

Dear Dr. Schwartz:

Thank you for your question – you are not the only individual who has queried me about this matter. I probably should have addressed this in my *Bulletin* article, but I was trying to deal with so many issues as I wrote that it didn't occur to me that some better informed individuals like you would properly want more information on this matter.

The short answer to your question is that *none* of the radars associated with the European Phased Adaptive Approach (EPAA) have enough capability to function as a missile defense even in an environment where there are no countermeasures. This fact should be scandalous and, quite frankly, NATO as well as the US have both been negligent in addressing this issue. So we now have the Aegis ashore system which poses an offensive strike threat to Russia while it is essentially incapable of providing missile defense capabilities that have been claimed for it.

Let me provide you with the information you need to form your own opinion, and if what I am sending you is not adequate from your point of view, please write me again and I will try to provide you with additional information on this extremely important matter.

I am attaching for your information a PDF file that contains the original article from *The Bulletin* and essentially all of the key references from that article.

One of the references is to a *Defense Science Board* report that was published in November 2011. Some of the images in this email are from that report. The DSB reference in the attached PDF file has been

Dear Dr. Schwarz:

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One of the references is to a *Defense Science Board* report that was published in November 2011. Some of the images in this email are from that report. The DSB reference in the attached PDF file has been extensively annotated by me so that a nonexpert can follow the somewhat specialist discussion that might otherwise require more work for the reader.

Figure 1 below shows the basics of how current missile defenses that are based on radars work.

The defense system generally uses a large and powerful "*surveillance and acquisition radar*" to search for incoming targets at long range (depicted on the right side of the diagram) and to provide initial tracking information so that less capable radars (radars that have much less power and antennas of much smaller size) can be cued to the small area of sky from which the incoming target will be arriving. It is essential that the surveillance and acquisition radar provide sufficiently accurate tracking information to the much less capable "engagement" radar if it is to succeed in acquiring and then tracking the target.

It is essential that the engagement radar acquire and track the target in order to provide interceptors with sufficiently precise information so that achievable intercept points can be determined and interceptors can be guided to them. As will become evident shortly, the Aegis radars are incapable of acquiring incoming warheads at sufficient range to be able to provide time for interceptors to achieve viable hit points.

In the case of the EPAA, the surveillance and acquisition radar would be the AN/TPY-2 radar in Turkey and the engagement radar would be the Aegis radars that are in either Poland or Romania.

To give you a sense of the tracking accuracy that's required, one only needs to understand that timelines and distances associated with engagements. An example of engagement situations are shown in Figure 2.

An inspection of Figure 2 requires a little bit of preparation. First of all, note that all the trajectories shown have locations marked on them during every one minute interval of movement.

Focusing on the AN/TPY-2 radar in Turkey first (depicted in the lower right part of the image) one can see that the range of the AN/TPY-2 radar is not sufficient to detect and track a warhead that has a typical radar cross-section of about 0.01 m^2 at X-band (I will provide further evidence later in this discussion about the range estimates shown in this diagram).

Because a rocket in powered flight would have a much larger radar cross-section than that of a separated warhead, the AN/TPY-2 radar would be able to track an Iranian launched ballistic missile in powered flight until the warheads are released. This information would not be adequate to provide precision tracking information on the movement of the warhead, so the radar would have to track the warhead for several minutes to be able to achieve significant precision. As can be seen from the diagram (assuming it is correct) the radar is completely unable to observe the small radar cross-section warhead as it propagates towards its target in Scandinavia.

At the point on the trajectory where the color changes to green, there will be about six minutes between the time an interceptor is launched from the Polish defense site to the time of a postulated intercept. Note that the speed of the interceptor is relatively slow, requiring that the interceptor be launched six minutes prior to a kinematic hit.

Since the kill vehicle has almost no divert capability other than what is needed to make small adjustments during the final phases of homing, it must know the location of the intercept point to well within ± 1 or 2 km by about one minute prior to the flyby.

As further inspection of the diagram will show, the location of the target one minute prior to the postulated hit location is well outside the acquisition range of the Aegis ashore radar. This means that the kill vehicle would have to search for and acquire the target on its own.

Since the field of view of the kill vehicle's infrared sensor is roughly ± 0.5°, it does not have the capability or time to search the required large area of sky for the incoming target. That is to say, radar cuing information would be absolutely essential to the implementation of an intercept.

Since the AN/TPY-2 radar is incapable of providing tracking information to support cuing for the Aegis radar, and the Aegis radar's acquisition range even with cuing information is inadequate, the system is simply incapable of performing its role as a defense-system.

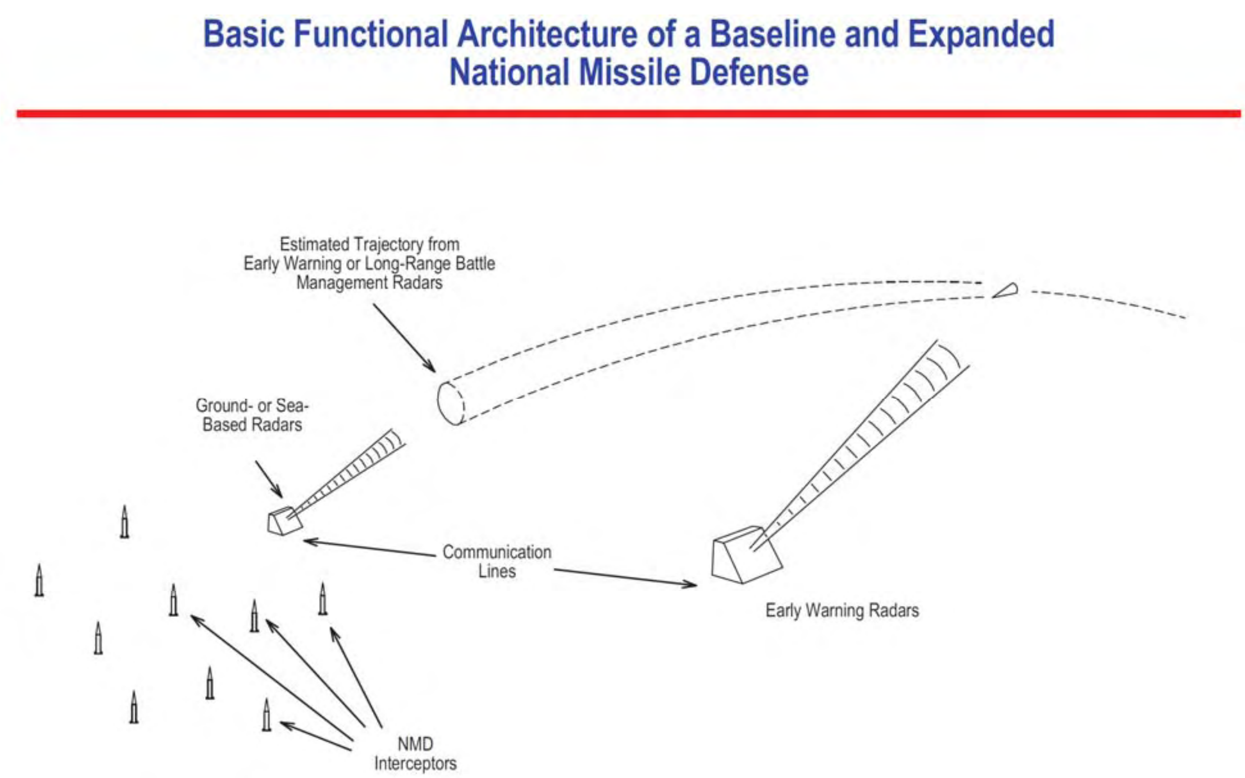


Figure 1

Diagram Showing the Inadequacies of the European Phased Adaptive Approach Radars and SM-3 Block IA/B Interceptors Against Non-Stealthy Cone-Shaped Warheads (0.01 m² RCS)

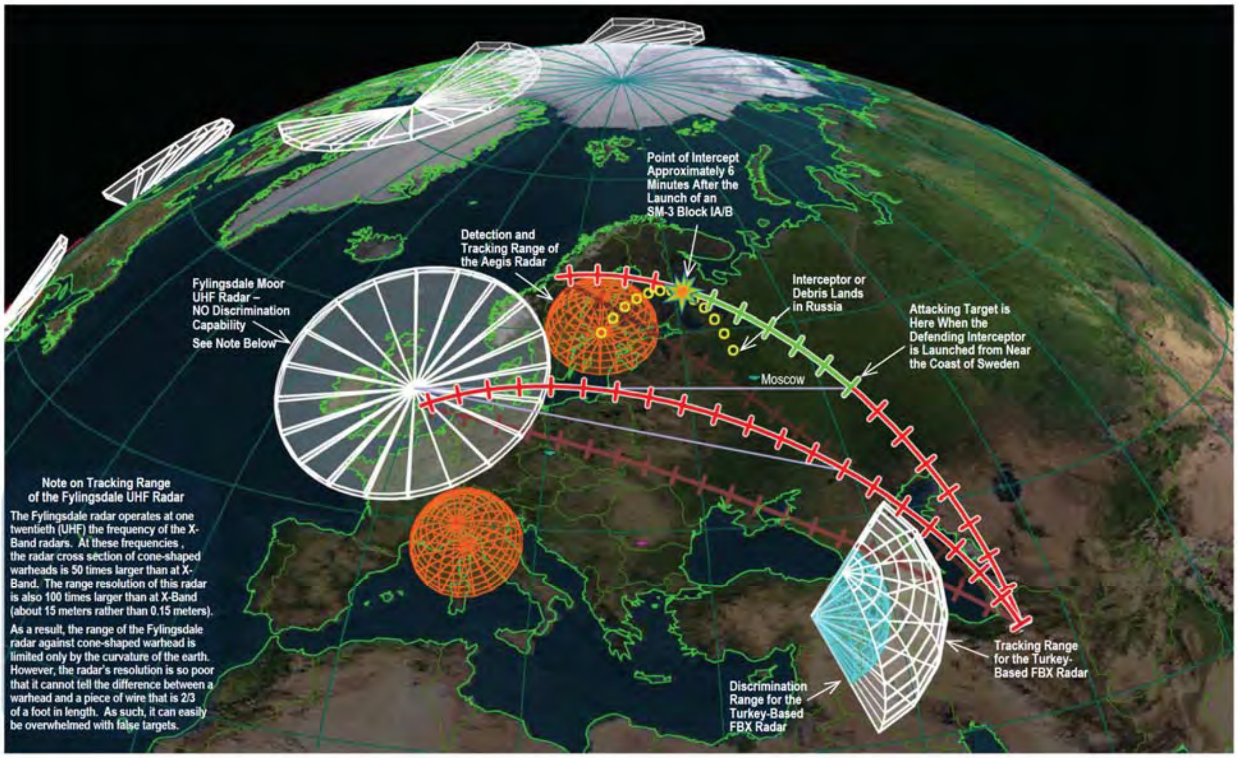


Figure 2

A perfectly reasonable concern for a nonexpert policy audience is that the radar range estimates shown in Figure 2 are not official and could be in error. My colleague, George Lewis, and I have written extensively on this matter and many other experts have reviewed our calculations, so we are completely confident that they are absolutely correct. However, from the point of view of a nonexpert, there is a more assuring source that shows our calculations are correct.

The article published in *The Bulletin* references a *Defense Science Board* report that is also included in the PDF file I have attached to this email. The URL to that reference also included.

Figure 3 shows the title page of the annotated version of the DSB report. The annotated version is extensively marked up to provide nonexperts with the appropriate contextual information they would need to understand what the report is saying.

Figure 4 shows page 16 from the DSB report. The DSB report not only points out that the Aegis radars used in the EPAA are not adequate to do their jobs, but the AN/TPY-2 is also inadequate for providing cuing information. The report contained in the PDF file is extensively annotated and if you have any further questions on the annotations I invite you to contact me again for further information on this matter.

Annotated by T. A. Postol
November 14, 2011

UNCLASSIFIED

Annotated And Highlighted Report

Summary of Findings from the Highlighted and Annotated Statements in this Report

This report has been annotated highlighted by Theodore A. Postol to help clarify its contents for interested members of the public, press, and Congress. The Report shows that the current European Phased Adaptive Approach will not be able to provide a robust and reliable missile defense for Europe. It also shows that a massive radar replacement of the Aegis radars on naval ships will be required to give the EPAA radars long enough range for basic operations. This upgrade would not assure that the EPAA will ever work, since the Report also confirms that the Department of Defense has not demonstrated that it has the science and technology for reliably identifying warheads relative to decoys. This DSB Report emphatically states that without this "discrimination" technology the current GMD and PAA exoatmospheric missile defenses will never provide a robust and reliable defense-capability. Theodore A. Postol is Professor of Science, Technology, and National Security Policy at the Massachusetts Institute of Technology. November 14, 2011

Defense Science Board Task Force Report on

Science and Technology Issues of Early Intercept Ballistic Missile Defense Feasibility

Defense Science Board
DSB
Department of Defense

September 2011

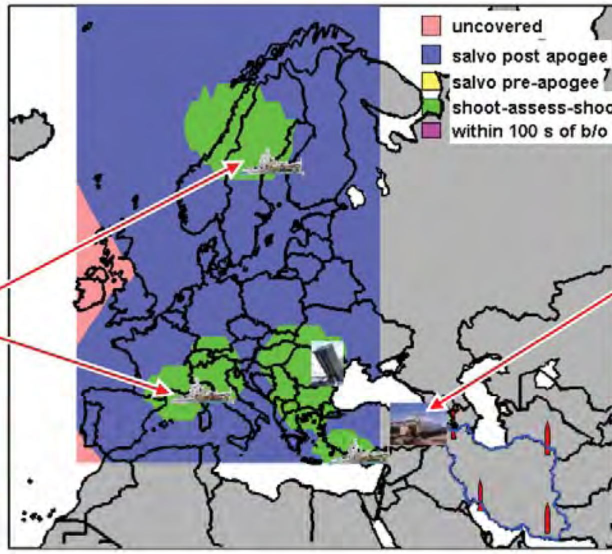
Figure 3

The assumed shipboard radars are basically variants of the AMDR (Advanced Air and Missile Defense Radar).

They can only contribute to the defense if they are provided tracking data from other sensors that cue them to targets.

Figure RMS-8, on page 18 shows that the AMDR type ship-based radars are unable to acquire, track, or engage ballistic missile targets without the external information from the other sensors.

This means that totally new and yet more powerful sea-based radars will be needed to implement a potentially workable EPAA (assuming the discrimination problem could actually be solved). These will almost certainly require a new class of ship, and will likely not be adaptable to currently deployed Aegis ships.



Substantially upgraded radar based on AN/TPY-2 Transmit/Receive module Technology.

The study assumes that this radar would have 40% more transmit/receive modules, but it would need many more modules to deal with lower radar cross section targets (probably 0.01 m^2 rather than the 0.10 m^2 Radar Cross Section probably assumed by this study.

The upgraded radar assumed by the study would cost about $300 million, excluding the costs of designing it and its engineering development.

A radar that requires as many as three times or more the number of transmit/receive modules in the AN/TPY-2 can also not be ruled out.

This could cost $600 million or more, assuming the manufacturing rate of transmit/receive modules would support a buy.

Figure RMS-6: Coverage Achievable with Slow Missile and Netted Local Surveillance and Tracking

With **advanced** local sensors at all four firing batteries, as well as a **larger sensor** forward based **in Eastern Turkey**, the kinematic coverage depicted in RMS-3 can be fully supported – i.e., the coverage shown in figure RMS-6, in which interceptor launch is dependent upon sensor detection and track, is essentially the same as that in RMS-3.

The assumed shipboard radars are basically variants of the AMDR (Advanced Air and Missile Defense Radar). This radar is much too small for detecting and tracking ballistic warheads at long enough range to support the launch of interceptors from the ship.

The shipboard radars were assumed to be of the type and size for which the Navy is currently conducting competitive concept formulation and risk reduction studies to support advanced Aegis surveillance and fire control. The radar supporting the land-based firing battery is identical to the existing Army fire control radar for THAAD. The larger forward-based early warning, detection, and tracking radar is similar to the land-based fire control radar, but is larger in the product of gain, aperture, and power by a factor of 3 (5 dB). This measure of radar capability is appropriate, since it is assumed that because satellite cueing is available to aid in detection, track rather than search is the dominant requirement. This 3X factor could be achieved with an array size about 40% greater in area than the current configuration. Whether this is feasible or not was not investigated by the Task Force, although it certainly seemed that an array that was about 20% greater in both dimensions was within the realm of feasibility. It is important to note the assumption that all of these radars were fully netted, including their connectivity to satellite surveillance for cueing purposes. This presumption that high-quality track data were available wherever and whenever it was useful enabled the employment of both launch-on-remote and engage-on-remote fire control. We will see in a subsequent discussion the significant sensitivity of these results to that oversimplifying assumption.

The Task Force further investigated whether these same sensor capabilities had the ability to support the kinematic coverage achieved with the faster missile depicted in Figure RMS 4. Figure RMS-7 below depicts the coverage obtained with the same local sensors as discussed above in relation to RMS-6, but with the addition of a second land-based firing battery in Poland. This additional firing battery was

Figure 4

I have been invited to give a talk at the German Physical Society meeting in Rostock on March 14 and I will be meeting to discuss this particular matter with people from the German Foreign Ministry and parliament on the 18th and 19th in Berlin. I am scheduled for a public talk on this issue on the 19th, and could meet with you perhaps after that talk for further discussions.

I am currently in my second home in Palo Alto (I also have a home in Boston) and I am in the process of trying to meet with Mike McFaul who was President Obama's advisor on the Russian reset and also one of his ambassadors to Russia. McFaul was a key player in the decisions surrounding the Russian reset and I am hoping to find out from him if President Obama had been properly informed about these issues with the EPAA before he made his momentous decision to go with this system.

I am hoping to meet with McFaul before my trip to Germany in March so hopefully I will have some information on this matter for German colleagues. Given his intimate involvement in that decision, I am absolutely sure he will know what happened.

Unlike many academics, I have very extensive experience in government and my nose tells me that Obama was not properly informed about the ins and outs of the EPAA system. Having been an advisor to the Chief of Naval Operations during one of my positions in the US government, I can say with absolute certainty that there were people in the Pentagon who knew that the Aegis ashore component of the EPAA would be capable of launching cruise missiles and would thereby present an offensive threat to Russia. What I cannot say for sure is whether that information was given to Obama and his White House advisors. My suspicion is that Obama and his White House advisors were not told about this problem.

The two people most responsible for the apparent failure to provide proper technical information to Obama would be Ash Carter, who was then the Under Secretary of Defense for Acquisition, Technology and Logistics and Robert Gates, who was then the Secretary of Defense and Carter's immediate boss. When Carter was later Secretary of Defense, an as yet unexplained US attack occurred on Syrian troops which led to the Russians throwing up their hands and withdrawing from an attempted cease-fire agreement with the US. As such, I do not rule out the possibility of intentional misinformation from the Department of Defense

Other individuals who would certainly have known were Ellen Tauscher, the Obama administration's leading advocate for the EPAA and her subordinate, Frank Rose, who worked for her at the US State Department. I have known Rose for years and I am absolutely sure he would've known about this problem. My guess is that when the story of this blunder comes out, we will find that there were others involved in the decision-making advisory process who failed to provide President Obama with the information he needed to avoid this blunder.

Please feel free to contact me for further information. I may be delayed in getting back to you as I am currently on my way to Washington for business.

With best regards, Ted