



When Perfect Is the Enemy of Good Enough

By Mark Stout

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Getting to space is not cheap, fast, or easy. Accordingly, some of the United States military's most costly hardware is its space systems. Now, with Space News and others reporting the unexpected and early demise of the missile warning Defense Support Program (DSP)-23 satellite¹, and with DSP's follow-on, the Space Based Infrared System (SBIRS) far from complete, years late, and hugely over budget², our nation's space based missile warning capability has an uncomfortable shortfall.

The missile warning shortfall will be addressed for a variety of reasons, including China's significant space³ (and anti-space⁴) achievements and recent Russian rocket-rattling⁵, but mainly because of Iran's nakedly ambitious missile and nuclear programs⁶. If you think a dozen crazed terrorists with small arms and grenades wreaked havoc and destruction in Mumbai, then consider what a crazed nation-state with ICBMs and nuclear weapons could do. As such, the true logic behind fixing this shortfall is the fact that missile defense starts with missile warning. Accordingly, the Defense Department's answer to DSP-23's failure appears to be a "gap-filler" infrared missile warning satellite, notionally scheduled to launch in 2014.

While the problem has to be addressed, the Defense Department, contrary to public opinion, lacks the ability to create money. This means DoD will probably follow a well-established defense programming tradition which holds that the space "portfolio" will need to provide the monetary fix for the space "problem." As such, the donor for the infrared gap-filler bill appears to be the Operationally Responsive Space (ORS) program, which has been targeted for a reduction of almost \$300 million, about 85% of its budget, across a five year period. To paraphrase an almost famous Far Side cartoon, "Bummer of a birthmark, ORS⁷."

It's a common budgetary and programming practice to have a healthy program serve as a bill payer for an emerging need or even a poorly performing program, and while the infrared gap-

¹ http://www.space.com/spacenews/spacenews_briefs.html

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http://www.aviationweek.com/aw/generic/story_generic.jsp?channel=awst&id=news/03215p02.xml&headline=SBIRS%20High%20in%20the%20Red%20Again

³ http://www.strategycenter.net/research/pubID.191/pub_detail.asp

⁴ <http://www.globalsecurity.org/space/world/china/asat.htm>

⁵ http://www.spacewar.com/reports/Russia_to_deploy_new_missile_from_2009_military_999.html

⁶ http://www.spacewar.com/reports/US_denounces_Iran_missile_test_999.html

⁷ <http://possumblog.mu.nu/images/bummer%20of%20a%20birthmark.jpg>

filler is a limited example within the Air Force and Defense Department, there are plenty of more pervasive problems in other government space programs. Besides SBIRS--which if it had met schedule, would obviate the need for the infrared gap-filler--there's more. NASA's James Webb Space Telescope, has increased in cost from initial estimates of near \$1 billion to almost \$5 billion today, and the two weather satellites NASA's having built for NOAA, the National Oceanic and Atmospheric Administration, will now cost about \$7 billion⁸. Don't forget the National Reconnaissance Office's Future Imagery Architecture (FIA) program, which saw its costs increase from approximately \$6 billion to \$15 billion with at least one element of its program estimated to be five years behind schedule⁹. Although FIA was finally cancelled, those actions are about as common as ivory-billed woodpecker sightings¹⁰.

While he wasn't the first to see it or say it, in October 2005, Senator Wayne Allard was arguably the most prominent space-smart person to point out the danger of losing our way in space¹¹. He offered the United States space community (the military, intelligence community, industry, Congress, and others) has, in many respects, become its own worst enemy. This holds true not only for space systems, but in just about all acquisition programs, due to significant technical problems, schedule delays, and cost growth. Referencing the Defense Science Board, Allard went on to point out that cost has replaced mission success as the primary area of emphasis; that there is a strong bias to produce unrealistically low cost estimates in order to get the program started; and, that an undisciplined requirements process allows new desires to be introduced late in the development cycle. The results are predictable: systems that are late, over budget, and under-deliver; diminished credibility with the media, Congress, and the public; and, concerns about the fundamental competence of the space community. These factors all helped to pave the way for the creation of the ORS program.

At its heart, the ORS program¹² was intended to address the deep dissatisfaction with the space "business as usual" model described above, that is, the incredibly expensive and "exquisite" space launch, satellite, and command and control systems that take 8 to 10 years to bring on-line. Instead, ORS was intended to provide access to space-based products that would be "good enough" and "fast enough" to deal with urgent and evolving military needs¹³. Ideally, this would all be plenty cheaper, too. Assuming the ORS "take" occurs to pay for the infrared gap-filler, the ORS program will be completely incapable of addressing these needed changes to the current space business model. While the budgeteer's axiom may be "fund it or kill it," in government work, seldom does either occur. If ORS is the infrared gap-filler bill-payer, the program will probably have just enough money to go to meetings and promote the goodness of their ideas, but not enough to make a significant difference or provide any new capabilities.

⁸ <http://www.nytimes.com/2008/11/24/opinion/24stern.html>

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http://www.aviationweek.com/aw/generic/story_generic.jsp?channel=awst&id=news/09055p06.xml&headline=FI A%20on%20the%20Chopping%20Block%20As%20Negroponte%20Reviews%20NRO%20Programs

¹⁰ http://en.wikipedia.org/wiki/Ivory-billed_woodpecker

¹¹ http://www.space.com/spacenews/archive05/Allard_100305.html

¹² <http://fas.org/irp/offdocs/nspd/nspd-40.pdf>

¹³ <http://www.af.mil/news/story.asp?id=123054214>

Speaking recently, General Robert Kehler, head of Air Force Space Command, pointed out the futility of building a perfect space system when one that's good enough can do. This happens when the space community attempts to fulfill a myriad of sometimes mutually exclusive space system requirements in one space system.¹⁴ Kehler instead proposed creating individual space programs which are tailored to meet the needs of each user.¹⁵ While not exactly ORS, his ideas lead in that direction and support the idea of "good enough." At the same conference, Secretary of the Air Force Michael Donley said "Space-based capabilities constitute joint, interagency and national interests. They are national assets. Our challenge is to find ways to streamline and strengthen interagency governance of the space enterprise."¹⁶ While those are good words (especially "streamline"), and they're clearly not anti-ORS, unless very carefully applied, they could well keep the space community in the current paradigm, that is, the quest for the perfect one-size-fits-all space system.

How will we sustain our nation's needs for a competitive space national security advantage¹⁷ in, to, through, and from space? It requires new thinking--for example, accepting "good enough"--and not just new hardware. ORS appears to be new thinking and deserves a stay of execution, while many "exquisite" space programs should prepare for their demise.

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¹⁴ <http://www.airforce-magazine.com/DRArchive/Pages/2008/November%202008/November%2025%202008/PosterChild.aspx>

¹⁵ <http://www.airforce-magazine.com/DRArchive/Pages/2008/November%202008/November%2025%202008/CustomFit.aspx>

¹⁶ <http://www.af.mil/news/story.asp?id=123125341>

¹⁷ www.aiaa.org/documents/industry/presentations/Anderson_AIAA%20Brief.ppt