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Editor
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Dear Sir:

The article by our colleagues Sidney Graybeal and Patricia McFate, "Space Vehicles Pose Ballistic Threat," (Defense News, 18-24 May 1992, p.31) correctly notes the threat of ICBM proliferation posed by the spread of space launch technology throughout the world. We wish to point out that the same set of technologies also may place U.S. satellites in Low Earth Orbit (LEO) at risk sooner than is generally anticipated, and from a broader set of potential adversaries.

Threats to U.S. satellites from powers other than the Soviet Union did not materialize during the Cold War for a variety of reasons. In the first instance, lack of requisite technology -- primarily rockets and guidance mechanisms -- has prevented most countries from acquiring ASAT capability. In addition, there may have also been a belief that satellites were "strategic" assets of the great powers, and had little relevance to the affairs, including military actions, of lesser powers.

The year 1991, which saw both the Gulf War and the dissolution of the Soviet Union, may also have marked the end of the era in which satellites, particularly those in low Earth orbit, could be presumed to be safe from attack in less than apocalyptic circumstances.

Wide publicity was given to the use of satellite-produced intelligence for planning and evaluating tactical operations in Operation Desert Storm. Satellite systems were also an integral part of the allies' communications, navigation, and SCUD warning systems in and around the Kuwaiti theater of operations. In the future, any regional power intending to undertake military action involving the US will be aware of the importance of space-based assets. Arguably, the use by the US of space systems as a tactical resource could be seen as compromising the special character of satellites. If so, then it is a relatively small additional step to view satellites as ordinary military systems no less legitimately subject to attack than, for example, reconnaissance drones.

The coalition nature of the Gulf War and the political sensitivities of the US' Arab allies calls into question the ability of the US to deter attacks against its satellites with the threat of 'massive retaliation.' Put into the context of the Gulf War, it is not clear what



more the US, given the political constraints that actually existed, could have done to the Iraqis than we were already doing. To the extent we can foresee the nature of future wars, it seems more likely that they will be fought in similarly limited contexts than in the open-ended environment of a general engagement between great powers that has been the baseline for U.S. planning over the past several decades.

Postwar revelations concerning the Iraqi nuclear program remind us that determined people often find ingenious technical solutions which do not require the very latest in Western military technology to be effective. In the area of space surveillance, which is often mentioned as being one of the more serious impediments to a third-world ASAT, it is instructive to note that amateur observers, using no more equipment than binoculars, stopwatches and home computers have been able to place LEO satellites launched by classified U.S. shuttle missions in track and to maintain accurate orbital elements on them for periods of several years. Presumably a country such as Iraq could task its military attaches around the world to duplicate this work, or acquire more capable optical equipment by mail order from astronomy and video suppliers. Low technology, relatively low cost radars such the NAVSPASUR system, which has been operated by the U.S. Navy since the early 1960s, are also well within the reach of many medium-sized countries.

Other components of an ASAT system capable of attacking satellites in low Earth orbit -- computers, guidance and homing systems -- are now available for purchase on the world market. The remaining important component, the booster rocket, is essentially the same as the medium-to-long range ballistic missiles and space launch vehicles which are now proliferating throughout the world. Integration of these components into an actual ASAT system, though by no means cheap or trivial, is well within the capabilities which a country such as Iraq possesses, or can obtain from foreign sources.

Paradoxically, the new security environment created by the collapse of the Soviet Union and proliferating, increasingly uncontrollable technology, may force the U.S. to make fundamental changes in the way it designs and uses national security space systems.

A handwritten signature in cursive script, appearing to read "Cathy Swan".

Cathy Swan
Vice President
Space Policy and National Security Programs

A handwritten signature in cursive script, appearing to read "Allen Thomson".

Allen Thomson
Program Manager