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7-8-2013

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Recommended Citation

Chapman, Bert and Saikia, Sarag J., "More Effective Human Spaceflight Programs and Their International Security Implications" (2013). *Libraries Faculty and Staff Scholarship and Research*. Paper 46.
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More Effective Human Spaceflight Programs and Their International Security Implications

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Abstract: NASA can more effectively perform its missions by transferring its aeronautic responsibilities to the Federal Aviation Administration and be renamed the National Space Administration (NSA). The U.S. also must recognize that space is an emerging arena of international competition and conflict and militarily protect its space assets from China which seeks to use space to restrict the U.S.' ability to defend its strategic interests in regions such as the Western Pacific.

Enhancing Space Flight Program Efficiency

This brief document seeks to address how NASA can become a more effective organization in administering its human spaceflight programs and dealing with the increasing international security implications of space demonstrated by China's increasingly assertive use of space to fulfill its national interests.

A key recommendation we make for enhancing NASA's effectiveness is transferring its aeronautical programs, with a proposed FY 2014 budget requesting \$565.7 million from Congress, to the Federal Aviation Administration (FAA) [1]. Although aeronautical research has been part of NASA's mission since the 1915 establishment of its predecessor agency, the National Advisory Committee on Aeronautics (NACA), NASA's historical development and evolution have made it difficult for it to concentrate fully on space exploration where it has the highest public recognition. Consequently, to emphasize its exclusive concentration on space exploration, NASA should be renamed the National Space Administration (NSA). NASA is also an example of an agency whose direction has been heavily influenced by congressional earmarking which has resulted in the creation of 18 facilities in Washington, DC and other locales across the U.S. While this may have benefitted a variety of regional economies and the reelections of congressional appropriators, it has not been conducive to efficient operation and management. We favor reducing the number of NASA facilities by 50% (as selected by this committee or a blue-ribbon commission representing relevant stakeholders) to enhance its managerial and operational effectiveness while recognizing this proposal will encounter significant opposition from congressional representatives from districts and states with NASA facilities targeted for closure [2].

Recognizing Space as an Arena of Geopolitical Competition

The primary emphasis of our assessment is on space's increasing importance as an arena of international competition and conflict. Much of public and intergovernmental discussions of space policy take a naively utopian view of space being an arena for peaceful international

cooperation, but the stark reality is that space is another arena of international political and military competition. This was recognized by Secretary of the Air Force Verne Orr in 1984 who informed Congress “...while some might view that space can be kept a weapons-free sanctuary free of military systems, history tells us that each time new technological opportunities present themselves, nations invariably employ them to avoid being placed in an inferior defense position” [3].

Consequently, any U.S. efforts in human spaceflight need to recognize the importance of providing effective military protection for U.S. and allied civilian and military personnel in space against potentially hostile attacks from Chinese or Russian forces and to protect U.S. communications, intelligence, military, and space science assets against such attacks. A historically close relationship has existed between NASA and the U.S. military since NASA’s 1958 statutory creation. This relationship must continue and strengthen in the future to ensure that U.S. and allied human space science collaboration is not threatened by hostile forces[4]

During 2012 China conducted 18 space launches and expanded its space-based intelligence, surveillance, reconnaissance, meteorological, navigation , and communication satellite assets while also developing a multifaceted program to improve its capabilities to limit or prevent the use of space-based assets by opponents during times of crisis or hostilities. Beijing also continues developing the Long March 5 rocket to lift heavy payloads in space and launched 11 remote sensing satellites with civilian and military capabilities. These fit into larger Chinese anti-access and area denial (A2/AD) efforts to restrict U.S. and allied military efforts to deter potential Chinese aggression in the Western Pacific up to 1,000 nautical miles from China’s coast as part of the U.S.’ emerging AirSea Battle Plan strategy as part of its increasing strategic emphasis on the Asia-Pacific [5].

Chinese Military Space Aspirations

People’s Liberation Army (PLA) military specialists regard being able to use space and denying enemies access to space as integral components of modern information warfare in their writings. China destroyed a defunct weather satellite in January 2007 and PLA writings emphasize it is essential to destroy, damage, and interfere with enemy reconnaissance, communication, early warning, and navigation satellites to prevent precision guided munitions from being used against China. The Defense Department also asserts that most Chinese missile programs, including those covering ballistic and cruise missiles, are comparable to international competitors and that China has engaged in active espionage efforts to acquire export controlled technologies with aerospace capabilities used by U.S. and allied militaries [6].

China’s 2011 Space White Paper considers a human mission to the moon as a possible objective, seeks to develop new launch vehicles, a launch site, and deploy various new satellites. Chinese military writings also stress commanding and controlling space to maintain the strategic initiative and limiting enemy use of aerospace systems to adversely impact the full spectrum of their combat operations. PLA writings also stress space offensive operations including attacking space-related targets in orbit and on the ground. They also stress that camouflage and stealth

measures must be incorporated into their space systems to conceal them from opposing observation and probing while also being hardened against countermeasures such as dazzling and interference. These factors make it highly unlikely the U.S. and China will be able to reach a modus vivendi on space security, that space control is essential for the U.S. to meet its Western Pacific security obligations, and that the U.S. must be prepared to operate in a degraded space environment considering its acute space dependence and have liberal rules of engagement to counter such threats to its space access [7].

Rep. J. Randy Forbes (R-VA), a member of the House Armed Services Committee, recently observed:

“The reality is this: Over the past decade, China has been developing military capabilities designed to deny the United States access to the waters and airspace of the western Pacific. Through the acquisition of anti-ship ballistic missiles designed to target American aircraft carriers, advanced aircraft capable of hitting U.S. and allied bases around the region, and large numbers of modern submarines, Beijing has clearly signaled its intention to subvert the balance of power that has anchored peace in Asia for six decades, and to do so in ways inimical to American interests.

This is not simply the case of a rising power seeking a military befitting its economic might; rather, China has specifically geared its military development to perceived American weaknesses with the objective of restricting U.S. action in East Asia.” [8]

Conclusion

Therefore, it is incumbent on any determination of the future of the United States’ human spaceflight program to recognize the critical importance of space control against hostile actions directed at civilian scientific and intelligence and military assets for future:

1. U.S. and allied economic advancement
2. U.S. and allied scientific and technological advancement
3. U.S. and allied geopolitical and national security advancement.

The U.S. cannot naively assume that other countries share its idealistic aspirations for space and must adjust its policies accordingly and seek to control space at least out to lunar orbit to ensure the strategic preeminence of democratic countries in this arena of international competition. Taking a vigilant national and international security stance on space exploration and assertively protecting space science assets increases the possibility that the U.S. and other countries will benefit economically and scientifically from space research advances in subsequent decades without making them unnecessarily vulnerable to threats posed by China or other countries[9].

References

- [1] NASA. *FY 2014 Budget Estimates: Public Benefits of the FY 2014 NASA Budget*. (Washington, DC: NASA Budget Office, 2014): 11; http://www.nasa.gov/pdf/740427main_NASAFY2014SummaryBriefFinal.pdf; Accessed June 28, 2013.
- [2] See Roger E. Bilstein, *Orders of Magnitude: A History of the NACA and NASA, 1915-1990*, (Washington, DC: NASA History Office, 1990); and *NASA's First 50 Years: Historical Perspectives*, Steven J. Dick, ed., (Washington, DC: NASA, 2009); <http://permanent.access.gpo.gov/gpo93/SP-4704.pdf>; Accessed June 28, 2013; and Robert Dallek, "Johnson, Project Apollo, and the Politics of Space Program Planning," in *Spaceflight and the Myth of Presidential Leadership*, Roger D. Launius and Howard E. McCurdy, ed., (Urbana: University of Illinois Press, 1997): 73.
- [3] U.S. Congress, House Committee on Appropriations, Subcommittee on the Department of Defense, *Department of Defense Appropriations for 1985: Part 2*, (Washington, DC: GPO, 1984).
- [4] Mark Anderson, *Into the Unknown Together: The DOD, NASA, and Early Spaceflight*, (Maxwell Air Force Base, AL: Air University Press, 2005); <http://permanent.access.gpo.gov/gpo35894/GetTRDoc.pdf>; Accessed June 28, 2013.
- [5] See Also U.S. Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2013*, (Washington, DC: Office of the Secretary of Defense, 2013); 9-10, 32, http://www.defense.gov/pubs/2013_China_Report_FINAL.pdf; Accessed July 1, 2013; and Ibid., *Service Collaboration to Address Anti-Access and Area Denial Challenges*, (Washington, DC: DOD, 2013); <http://www.defense.gov/pubs/ASB-ConceptImplementation-Summary-May-2013.pdf>; July 1, 2013.
- [6] *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2013*, 32, 48, 51-53.
- [7] See Dean Cheng, "China's Military Role in Space," *Strategic Studies Quarterly*, 6 (1)(Spring 2012): 64-77; <http://www.au.af.mil/au/ssq/2012/spring/spring12.pdf>; Accessed July 1, 2013; and People's Republic of China, Information Office of the State Council, *China's Space Activities in 2011*, (Beijing: Information Office of the State Council, 2011); http://www.gov.cn/english/official/2011-12/29/content_2033200.htm; Accessed July 1, 2013.
- [8] J. Randy Forbes, "Time to Admit China is a Military Competitor," *National Review Online*, (May 17, 2013): www.nationalreview.com/node/348667/print; Accessed June 28, 2013.
- [9] See Everett C. Dolman, *Astropolitik: Classical Geopolitics in the Space Age*, (Portland, OR: Frank Cass, 2001); and Ibid. "New Frontiers, Old Realities," *Strategic Studies Quarterly*, 6 (1)(Spring 2012): 78-96.

Biographies

Bert Chapman is Government Information, Political Science, & Economics Librarian and Professor of Library Science at Purdue University. He is the author of four books including *Space Warfare and Defense: A Historical Encyclopedia and Research Guide* (Santa Barbara: ABC-CLIO, 2008) and *Geopolitics: A Guide to the Issues* (Santa Barbara: Praeger, 2011.)

Sarag Saikia is a Ph.D. Candidate in the Advanced Astrodynamics Concepts research group, in the School of Aeronautics and Astronautics, Purdue University. He is developing theory and investigating applications of advanced aerocapture, entry, descent, and landing concepts of spacecraft that may advance future exploration of the Solar System. He holds a M.S. degree in Astrodynamics and Space Applications from the School of Aeronautics and Astronautics, Purdue University. He is also the co-lead of the Purdue University Student Space Advisory Group.