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Emergence of Eastern Asian Nations as Major Competitors in Space Intelligence

Ryan C. Fowle

The rising space programs of East Asia are progressing quickly and gaining momentum at such a rate that they could challenge U.S. space superiority in less than two decades.¹²⁴ The U.S. space program has the capability to contend with its advancing rivals, but only if it receives adequate funding or hands over elements of development and production to the private sector.

In the context of this article, space capability or space potential will refer to the ability of a nation's space program in launching elements of space technology into orbit e.g. satellites or manned spacecraft, and the capabilities and efficiency of the equipment itself. Space intelligence refers to acquiring intelligence from orbiting equipment such as satellites. Space capability and intelligence is accelerating with the most speed in East Asia. Both North and South Korea have successfully launched satellites into orbit in the last year alone.¹²⁵ The expansion of China's capabilities is also evident from its first manned space docking mission and its progress in developing an orbiting laboratory.¹²⁶ Although these nations may face trade complications, foreign pressure, and threats of military action, it is highly likely that the next program to challenge America's space authority could arise out of

¹²⁴ "China launches program to catch up with space powers," *Russia Times*, May 17, 2011. <http://rt.com/news/china-program-space-623> (accessed March 23, 2013).

¹²⁵ "South Korea: Satellite working normally, sending data," *USA Today*, January 31, 2013. <http://www.usatoday.com/story/news/world/2013/01/30/south-korea-satellite-launch/1877963/> (accessed February 22, 2013).

¹²⁶ Arvind K. John, "China Moving Closer To Developing Space Station – Analysis," *Eurasia Review*, July 12, 2012. <http://www.eurasiareview.com/12072012-china-moving-closer-to-developing-space-station-analysis> (accessed February 22, 2013).

the Far East due to the rapid progression these nations have shown thus far.

East Asia's space programs met success in the 1970s when Japan and China were among the first Asian nations to prove that they were capable of orbital launch, only behind Russia, the U.S., and France.¹²⁷ Both China and Japan successfully launched satellites into orbit in 1970 with Japan's *Osami* in February and China's *PRC 1* (also known as *China 1*) in April, but in recent years Japan's space program has suffered internally and appears to be decreasing in competitive position.¹²⁸ The Koreans, however, have only recently acquired the ability to launch their own satellites. The Democratic People's Republic of Korea (DPRK) successfully launched *Kwangmyŏngsŏng-3* on December 12, 2012 under the pressure and close monitoring by surrounding world powers.¹²⁹ Weeks later, the Republic of Korea (ROK) successfully launched the Science and Technology Satellite 2C (STSAT-2C) into orbit in January 2013.¹³⁰ The growing ambition and ability of the region is a testament to the fact there is only a short amount of time before East Asia rises to challenge America's domination in the realm of intelligence and military potential in space.

The capabilities of the ROK's space program, the Korea Aerospace Research Institute (KARI), have progressed substantially since its founding in the

¹²⁷ Andrew Glass, "Japan launches a satellite into orbit, Feb.11, 1970," *Politico*, February 11, 2013. <http://www.politico.com/story/2013/02/this-day-in-politics-feb-11-1970-87427.html> (March 23, 2013).

¹²⁸ "The Politics of Northeast Asia's Space Race," *Stratfor Global Intelligence*, February 16 2012.

<http://www.stratfor.com/analysis/politics-northeast-asias-space-race> (accessed April 16, 2013).

¹²⁹ "In North Korean launch, New but Limited Capabilities," *Stratfor Geopolitical Diary*, December 23, 2012. <http://www.stratfor.com/geopolitical-diary/north-korean-launch-new-limited-capabilities> (accessed March 23, 2013).

¹³⁰ Miriam Kramer, "South Korea Launches Rocket in 1st Space Success," *Space.com*, January 30, 2013. <http://www.space.com/19553-south-korea-launches-naro-rocket-satellite.html> (accessed March 23, 2013).

1980s.¹³¹ The results of KARI's efforts began to materialize thirteen years later in 1993 with the development and successful launch of a one-stage sounding rocket (KSR-1).¹³² In cooperation with the United States, KARI was able to develop the ROK's first satellite (Arirang-1) and launch it from Vandenberg Air Force Base, California in December 1999.¹³³ KARI then began launching its Korea Space Launch Vehicles (KSLV) in August 2009, and after two failed attempts, a third launch was successful and planted a home-launched ROK satellite into orbit.¹³⁴

After it joined the Missile Technology Control Regime (MTCR) in 2001, the ROK was severely limited in terms of the types of equipment it could receive from previously beneficial nations.¹³⁵ This prevented the Asian nation from signing a deal with the United States for missile parts, which caused the ROK to resort to trading with Russia for missile equipment.¹³⁶ Russia and the ROK placed the blame on each other when the first two KSLV launches failed to achieve orbit.¹³⁷ Despite the troubles and controversies regarding the Russian missile equipment, the ROK had to accept an

¹³¹ "History," *About KARI*, Korea Aerospace Research Institute, 2009.

http://www.kari.re.kr/data/eng/contents/About_KARI_04.asp?catcode=131300000&depthno=3 (accessed March 23, 2013).

¹³² "Jul. 9, 1997/Jun. 11, 1998: Launch of Medium-sized Sounding Rocket (KSR-II)," *About KARI*, Korea Aerospace Research Institute, 2009.

<http://www.kari.re.kr/eng> (accessed March 23, 2013).

¹³³ "Dec. 21, 1999: Launch of Korea's First Multipurpose Satellite-1 (Arirang-1)," *About KARI*, Korea Aerospace Research Institute, 2009.

http://www.kari.re.kr/eng/bbs/bbs_index.asp?depthno=4&catcode=131400000&ptype=view&code=About_KARI_05&idx=10395 (accessed March 23, 2013).

¹³⁴ Chris Bergin, "South Korea Launch STSAT-2C via KSLV-1," *NASASpaceFlight*, January 30, 2013.

<http://www.nasaspaceflight.com/2013/01/south-korea-stsat-2c-via-kslv-1> (accessed March 23, 2013).

¹³⁵ James Moltz, "The KSLV Launch and South Korea's Space Strategy," *Council on Foreign Relations Press*. Council on Foreign Relations, 2012.

<http://www.cfr.org/south-korea/kslv-launch-south-koreas-space-strategy/p29292> (accessed March 23, 2013).

¹³⁶ *Ibid.*

¹³⁷ *Ibid.*

agreement with Russia if they wished to send a satellite into orbit.¹³⁸ The third launch attempt, after a few delays, was successful.¹³⁹ However, if the ROK had been able to secure parts from nations such as the United States, the KSLV program may have achieved orbit far earlier. A research fellow for the Asian Studies Center of the Heritage Foundation, Dean Cheng, believes that the United States is in a favorable position to assist its allies in regards to space technology:

[T]he United States has a unique opportunity to help influence terrestrial concerns through space activities...With its array of space capabilities, extensive space experience and of course space surveillance infrastructure, the U.S. can facilitate many of these nascent space efforts...Further revisions in American export controls should lead to greater space cooperation with friendly states and help blaze a democratic path to the stars.¹⁴⁰

Although the Republic of Korea is one of the youngest nations in space exploration, KARI has the ambition to drive the nation to be one of the top space powers within the next ten years; provided the nation's economy can support them. KARI's mission to provide "convenience and safety for all Koreans through low earth orbit satellite and geostationary multi-satellite" appears to be an entirely civilian goal. Most developments in space technology, however, have a dual civilian/military purpose due to the very nature of the service they provide, such as benefits to communication and navigation.¹⁴¹ By 2020,

¹³⁸ *Ibid.*

¹³⁹ Kramer, "South Korea Launches Rocket in 1st Space Success."

¹⁴⁰ Dean Cheng, "U.S. Can Help Its Allies' Efforts," *The New York Times*, February 3, 2013.

<http://www.nytimes.com/roomfordebate/2013/02/03/a-new-space-race-or-chances-to-collaborate/us-can-help-its-allies-space-programs> (accessed March 23, 2013).

¹⁴¹ "Vision 2020," *About KARI*, Korea Aerospace Research Institute, 2009.

http://www.kari.re.kr/data/eng/contents/About_KARI_03.asp?catcode=131200000&depthno=3 (accessed March 23, 2013).

KARI plans to send a magnetic-powered satellite into orbit for lunar exploration, as well as develop next generation jet and helicopter aircraft.¹⁴² The future for KARI looks bright if it can manage to overcome pressure from the DPRK and maintain the support of the government.

The DPRK faces widespread opposition to the development of its space program due to its history of controversial missile tests.¹⁴³ The United Nations (UN) Security Council recently rebuked the DPRK for its satellite launch on December 12, 2012.¹⁴⁴ The Security Council claimed that it “deplores the violations” of resolutions they had agreed upon beforehand, the *New York Times* reported.¹⁴⁵ The resolutions were meant to prevent the DPRK from conducting any nuclear or ballistic missile tests.

Before the launch, the ambitious state attempted to abolish any fears concerning its satellite mission by inviting experts and journalists from around the world to investigate its mission control site in April 2012.¹⁴⁶ The guests were taken to the mission control room which Damian Grammaticas, one of the invited reporters, stated was “a small, unremarkable, two-story building, tiny compared to NASA’s Houston home in America or Russia’s space command.”¹⁴⁷

Despite everything the journalists were shown, the global community at large, including China, condemned the DPRK for its bold move, and tightened sanctions

through the UN Security Council.¹⁴⁸ The DPRK seems eager to develop an effective space program in the coming years but it will have to do so with heavy sanctions and little support from its few allies. Although the DPRK was able to surpass its southern rival into orbit, it is unlikely the communist state will continue its momentum under the increasing pressure of the UN.

Japan has had more difficulties with their space program since its inception, but is quickly gaining lost ground and remains a major competitor in the field.¹⁴⁹ The Japan Aerospace Exploration Agency (JAXA) has had some steady development, but launch failures in 1998 and 1999 have marked some speed bumps for JAXA’s programs.¹⁵⁰ The virus infection the agency experienced in November of 2012 may have resulted in a leak of information to competing space programs.¹⁵¹ Japan’s plans for greater association with the International Space Station and more successful missions on the horizon may be enough to keep JAXA rising to the level of its peers.¹⁵²

The China National Space Administration (CNSA) is the fastest growing space program in East Asia and has sparked concern in the United States

¹⁴² Ibid.

¹⁴³ “U.N. sanctions may hit North space program,” *The Japan Times*, January 23, 2013. <http://www.japantimes.co.jp/news/2013/01/23/asia-pacific/u-n-sanctions-may-hit-north-space-program/#.UZfN8L-hDzI> (accessed March 23, 2013).

¹⁴⁴ Neil MacFarquhar, “Security Council Condemns North Korea Rocket Launching,” *The New York Times*, January 22, 2013. <http://www.nytimes.com/2013/01/23/world/asia/security-council-condemns-north-korea-rocket-launching.html> (February 27, 2013).

¹⁴⁵ Ibid.

¹⁴⁶ Damian Grammaticas, “Inside North Korea’s space centre,” *BBC News China*, British Broadcasting Company, 2012. <http://www.bbc.co.uk/news/world-asia-china-17684617> (accessed March 23, 2013).

¹⁴⁷ Ibid.

¹⁴⁸ “North Korea: U.N. Security Council Condemns Rocket Launch, Tightens Sanctions,” *Stratfor Situation Report*, January 22, 2013.

<http://www.stratfor.com/sample/situation-report/north-korea-un-security-council-condemns-rocket-launch-tightens-sanctions> (accessed February 27, 2013).

¹⁴⁹ “The Politics of Northeast Asia’s Space Race,” *Stratfor Global Intelligence*, February 16, 2012. <http://www.stratfor.com/analysis/politics-northeast-asias-space-race> (accessed April 16, 2013).

¹⁵⁰ “H-II Launch Vehicle,” *Japan Aerospace Exploration Agency Missions*. http://www.jaxa.jp/projects/rockets/h2/index_e.html (accessed April 25, 2013).

¹⁵¹ “Investigation Result of JAXA Computer Virus Infection Incident,” *Japan Aerospace Exploration Agency Press Releases*, February 19, 2013. http://www.jaxa.jp/press/2013/02/20130219_security_e.html (accessed April 25, 2013.)

¹⁵² “HTV Overview,” Japan Aerospace Exploration Agency International Space Station. <http://iss.jaxa.jp/en/htv/overview/> (accessed April 25, 2013).

and other nations.¹⁵³ Cheng states that since the fall of the Soviet Union, the CNSA has experienced a greater atmosphere for advancement:

The [Soviet Union's] collapse served to provide China access to Soviet space technology, often at bargain prices. At the same time, by removing the strictures of the Cold War from the international space market, it provided an opportunity for new players, including China, to enter the global space market. This coincided with Chinese efforts to foster commercialization of its space industries...¹⁵⁴

With the support and technology that it acquired after the Cold War, the CNSA has significantly progressed in a small period of time. Within the last decade, China has sent eight nationals into space, and if it continues at a steady rate, the CNSA could accomplish its goal of having a national space lab by 2016 and its own manned space station by 2020.¹⁵⁵

The speed at which the CNSA is progressing has many nations concerned whether its long-term goals are strictly civilian or may also be military-related. To emphasize their desire for cooperation and their focus on peaceful civilian benefits, the Chinese welcomed the media into Beijing's

Space City research center in 2011.¹⁵⁶ The Vice Director of the Manned Space Engineering Bureau in China, Yang Liwei, was reported to have said,

*We are looking forward to co-operating with other countries in the field of space exploration.... We are also looking forward to having more countries join this club, so we can promote the common goals of mankind.*¹⁵⁷

*Despite the claims of Chinese officials, many nations are worried that the CNSA's advancement could start a space arms race, especially after China's anti-satellite missile test in January 2007 that destroyed an outdated Chinese satellite.*¹⁵⁸

Russia Times reported that Shi Yinhong, a professor at the People's University of Beijing stated,

*All the technology is being developed to come with dual use, civilian and military. This is the most advanced of technology and is mostly used during peace time, but if needed, some technology could also be used during war time, and there is nothing strange about this.*¹⁵⁹

While the CNSA's main goal may be to enhance civilian life, most of its space equipment could be used to largely benefit the military as well.

The United States, the leader in developing space technology, is losing its support of the federal government, and as a result, is losing momentum.¹⁶⁰ Within the

¹⁵³ Jaime FlorCruz, "Chinese space program advancing quickly," *Light Years* (blog), March 16, 2012.

<http://lightyears.blogs.cnn.com/2012/03/16/chinese-space-program-advancing-quickly/> (accessed February 25, 2013).

¹⁵⁴ Dean Cheng, "Spacepower in China," *Toward a Theory of Spacepower*. Charles D. Lutes and Peter L. Hays, editors. Washington, DC: National Defense University Press, 2011. Web.

<http://www.ndu.edu/press/space-Ch24.html> (accessed March 23, 2013).

¹⁵⁵ Edward Wong and Kenneth Chang. "Space Plan From China Broadens Challenge to U.S." *The New York Times*, December 29, 2011.

<http://www.nytimes.com/2011/12/30/world/asia/china-unveils-ambitious-plan-to-explore-space.html?pagewanted=all> (accessed March 23, 2013).

¹⁵⁶ "Chinese space plans cause military jitters," *Russia Times*, May 17, 2011.

<http://rt.com/news/china-space-exploration/> (accessed March 23, 2013).

¹⁵⁷ Ibid.

¹⁵⁸ "China: U.S. Confirms Anti-Satellite Weapon Test," *Stratfor Situation Report*, January 19, 2007.

<http://www.stratfor.com/situation-report/china-us-confirms-anti-satellite-weapon-test> (accessed March 23, 2013).

¹⁵⁹ "Chinese space plans cause military jitters."

¹⁶⁰ Gary Oleson. "Commentary: Cutting NASA's budget would be a bad move," *The Washington Post*, February 5, 2012.

http://articles.washingtonpost.com/2012-02-05/business/35442104_1_space-program-international-space-station-new-space (accessed March 23, 2013).

next twenty years, the rising space programs of East Asia could easily surpass the United States in the realm of space. Peter Singer, writer for *Popsci*, reports,

In 2007, Senior Colonel Yao Yunzhu of the Chinese Academy of Military Science (the highest research institute in the PLA) announced that the U.S. wouldn't be the world's only 'space superpower' for long.¹⁶¹

If the United States government offered more support for its National Aeronautics and Space Administration (NASA), there would be few limits to the goals it could accomplish in the following decades. Concerning landing astronauts on Mars, Former Commander of the International Space Station, Scott Kelly, believes,

Certainly we could put people on Mars within a reasonable amount of time, if we dedicated our energy and resources to that. I'd like to see it in my lifetime and I hope I do.¹⁶²

The United States is capable of maintaining its superiority in developing space technology if NASA receives adequate funding, or allows the private sector to take over a majority of the nations space efforts. Edward Hudgins, a director of regulatory studies at the Cato Institute writes, "As long as NASA dominates civilian space efforts, little progress will be made toward inexpensive manned space travel...space enthusiasts ignore economics at their peril."¹⁶³ Even if NASA had an abundant supply of funds, it may never be able to develop technology for itself at the rate that organizations in the private sector could.

This applies to all aspects of NASA's mission from manned space travel to deep space satellites. But regardless of the method chosen, the United States, in some form, must encourage NASA to reach its potential, or become accustomed to occupying a back seat in the modern space race.

¹⁶¹ Peter Singer, "Inside China's Secret Arsenal," *Popsci*, December 20, 2012. <http://www.popsci.com/technology/article/2012-12/inside-chinas-secret-arsenal> (accessed March 23, 2013).

¹⁶² "I hope to see man on Mars in my lifetime' - commander of ISS expedition," *Russia Times*, April 14, 2011. <http://rt.com/news/mars-expedition-mission-space> (accessed March 23, 2013).

¹⁶³ Edward L. Hudgins, "Time to Privatise NASA," CATO Institute. <http://www.cato.org/publications/commentary/time-privatize-nasa> (accessed April 16, 2013).