



U.S.-China Economic and Security Review Commission  
Staff Report

December 18, 2014

**China's First Airstrip in the Spratly Islands  
Likely at Fiery Cross Reef**

by

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The author thanks M. Taylor Fravel and Jeffrey Engstrom for their helpful insights in writing this paper. They may or may not agree with this staff report, and any errors should be attributed solely to the author.

## Background

China's land reclamation activities at Fiery Cross Reef in the disputed Spratly Islands have resulted in the expansion of the reef into an artificial island of at least three kilometers in length and between 200 and 300 meters wide, according to satellite imagery from November 20 (Appendix 1). The artificial island is larger and longer than China's three other land reclamation projects constructed over the last 12-18 months on Chinese-controlled outposts in the South China Sea and is the only one capable of supporting an airstrip in its current form.<sup>1</sup>

- China since 2014 has made significant progress on land reclamation projects on Johnson South Reef, Johnson North Reef, Cuateron Reef, and Gaven Reef. In addition to dredging sand to make islands out of these reefs, China appears to be expanding and upgrading military and civilian infrastructure—including radars, satellite communication equipment, anti-aircraft and naval guns, helipads, and docks—on some of the manmade islands.<sup>2</sup>
- Four countries with South China Sea claims already have airstrips on land features in the region—Taiwan on Taiping Island (the largest), Malaysia on Swallow Reef, Vietnam on Spratly Island, and the Philippines on Thitu Island.<sup>3\*</sup>

The United States, Vietnam, and the Philippines have criticized China's land reclamation projects. A U.S. Department of Defense spokesperson said, "We urge China to stop its land reclamation program, and engage in diplomatic initiatives to encourage all sides to restrain themselves in these sorts of activities."<sup>4</sup> China has defended its projects. According to a spokesperson at China's Ministry of Foreign Affairs, "[A]nyone in the outside world has no right to make irresponsible remarks on China-related activities ... The construction-related activities undertaken by China on the islands are primarily to improve the living conditions of personnel stationed there and to better fulfill our international responsibilities and obligations in terms of search and rescue and the provision of public services."<sup>5</sup>

## Preliminary Analysis

The size and length of the manmade island at Fiery Cross Reef and the People's Liberation Army's (PLA) need for a more robust infrastructure to meet its C4ISR<sup>†</sup> and air requirements in the Spratly Islands suggest China will build an airstrip on the island.<sup>‡</sup>

The land reclamation project at Fiery Cross Reef appears designed to create an airstrip as long as 3,000 meters, which should allow most PLA combat and support aircraft to use it.<sup>6</sup> The PLA likely would use the airstrip primarily to enable short-duration, long-distance C4ISR operations and presence patrols over China's claims in the Spratly Islands.<sup>7</sup> Moreover, the airstrip would allow PLA aircraft to provide air defense for PLA Navy surface combatants and amphibious ships operating in the southern reaches of the South China Sea. Finally, PLA aircraft could use the airstrip for emergency landings, which will be

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\* Brunei is the only partial claimant other than China without an airstrip in the Spratly Islands. *Want China Times* (Taiwan), "PLA to Build Airfield on Fiery Cross Reef," October 19, 2014. <http://www.wantchinatimes.com/news-subclass-cnt.aspx?id=20141019000010&cid=1101>.

<sup>†</sup> C4ISR stands for command, control, communications, computers, intelligence, surveillance, and reconnaissance.

<sup>‡</sup> At a recent international defense forum in China, a senior People's Liberation Army (PLA) officer said, "There is a need for a base [in the Spratly Islands] to support our radar system and intelligence-gathering activities ... we lacked sufficient air force capabilities in the South China Sea. There is a need for a base of operations in the South China Sea for state security and to protect national interests." Nanae Kurashige, "Chinese Military Officer Explains Need for Construction in Disputed Spratlys," *Asahi Shimbun* (Japan), <http://ajw.asahi.com/article/asia/china/AJ201411230018>.

particularly important when the PLA Navy's carrier air wing becomes operational in the next two to three years.<sup>8</sup>

- Most of the PLA's combat and support aircraft lack the range to conduct air operations in the southern reaches of the South China Sea, which is more than 600 nautical miles from the PLA's closest aviation base and over 400 nautical miles from Woody Island, China's air strip in the Paracel Islands (Appendix 2). Until China builds an airstrip in the Spratly Islands or develops an aircraft carrier aviation capability,<sup>\*</sup> China must use air refueling tankers to enable air operations at these distances from China. However, China's current fleet of air refueling aircraft, which consists of only about 12 1950s-era H-6U tankers, is too small to support sustained, large-scale, long-distance air combat.<sup>9</sup> Furthermore, the H-6U tanker has a limited capacity to hold transferable fuel and most of China's fighters do not have the equipment necessary to refuel in the air.<sup>10</sup>
- The frequency of launches from the airstrip would be contingent on many factors, including: the amount of apron and hangar space on the island; the availability of supplies, logistics, and personnel for maintaining aircraft;<sup>†</sup> and fuel storage. China's only other airstrip in the South China Sea at Woody Island appears to have limited supplies and fuel, suggesting Fiery Cross Reef would at least have minimal stockpiles for replenishing aircraft.<sup>11</sup>

Although an airstrip would alleviate some of the PLA's logistical and power projection deficiencies in the South China Sea, monitoring and enforcing China's vast maritime claims would continue to remain a challenge for the PLA.

According to the satellite imagery in Appendix 1, China also appears to be building a sea port at Fiery Cross Reef. *IHS Jane's* analysts assess the harbor could be large enough to allow large Chinese naval and maritime law enforcement ships to dock in order to replenish supplies.<sup>12</sup> In addition, Chinese fishermen could use Fiery Cross Reef as a safe harbor during harsh weather.<sup>13</sup>

Finally, China may be attempting to use its land reclamation project at Fiery Cross Reef, along with its four other such projects, to bolster the legal standing of its South China Sea claims ahead of an International Tribunal on the Law of the Sea ruling requested by the Philippines.<sup>‡</sup> The Philippines asked the tribunal to assess the legality of China's nine-dash line<sup>§</sup> and declare whether certain land features in

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<sup>\*</sup> China commissioned its first aircraft carrier, the *Liaoning*, in 2012 after approximately six years of renovation work on the Soviet-designed, Ukrainian-built hull and one year of sea trials, and is developing a carrier-based fighter aircraft, the J-15. China's first J-15 unit is expected to become operational by 2016.

<sup>†</sup> Aircraft operating at sea often experience corrosion and pitting to airframes and engines and require fresh water to clean and maintain. M. Taylor Fravel (Massachusetts Institute of Technology, Department of Political Science), e-mail interview with author, December 10, 2014; and a China defense expert, e-mail interview with author, December 10, 2014.

<sup>‡</sup> According to Paul Reichler, the attorney handling the case, the court will probably announce its decision by the end of 2015. Erik Slavin, "Philippines Looks to International Court to Press Island Claims," *Stars and Stripes*, March 24, 2014. <http://www.stripes.com/news/philippines-looks-to-international-court-to-press-island-claims-1.273939>.

<sup>§</sup> China denotes its South China Sea claim on maps with a "u-shaped line" comprised of nine dashes along the coasts of China Sea littoral states. More recently, China's official maps have included a tenth dash around its South China Sea claim, delineating China's claim over Taiwan. The meaning of the dashes and the specificity of China's claim within the dashes remains unclear. Jonathan G. Odom, "A China in the Bull Shop? Comparing the Rhetoric of a Rising China with the Reality of the International Law of the Sea," *Ocean and Coastal Law Journal* 17:2 (2012): 234-236, 247; Zhiguo Gao and Bing Bing Jia, "The Nine-Dash Line in the South China Sea: History, Status, and Implications," *American Journal of International Law* 107:1 (January 2013): 98-124; and Euan Graham, "China's

the disputed South China Sea are islands (which can generate full exclusive economic zones out to 200 nautical miles) or are smaller land features (which can only generate territorial seas out to 12 nautical miles).<sup>\*</sup> China may perceive that if it can demonstrate that the remote South China Sea outposts are true islands, rather than mere rocks or reefs, it will strengthen the legal and practical justification for its vast territorial claims.

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New Map: Just Another Dash? *Strategist* (Australian Strategic Policy Institute blog), September 17, 2013.  
<http://www.aspistrategist.org.au/chinas-new-map-just-another-dash/>.

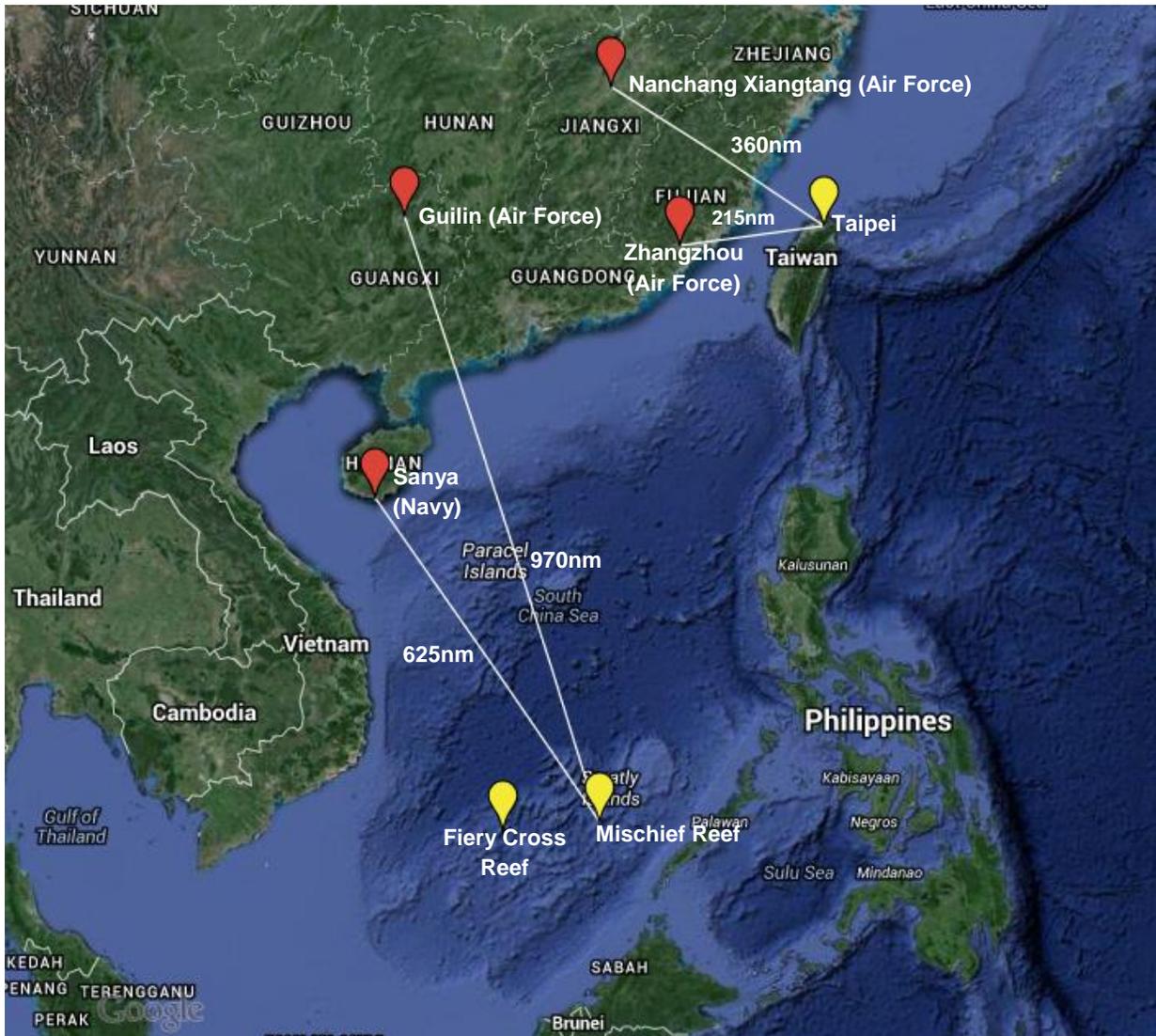
<sup>\*</sup> According to the United Nations Convention on the Law of the Sea, “an island is a naturally formed area of land, surrounded by water, which is above water at high tide.” In contrast, “rocks which cannot sustain human habitation or economic life of their own shall have no exclusive economic zone or continental shelf.” United Nations Convention on the Law of the Sea, “Article 121: Regime of Islands.”  
[http://www.un.org/depts/los/convention\\_agreements/texts/unclos/part8.htm](http://www.un.org/depts/los/convention_agreements/texts/unclos/part8.htm).

## Appendix 1: China's Land Reclamation Project at Fiery Cross Reef



Source: James Hardy and Sean O'Connor, "China Building Airstrip-capable Island on Fiery Cross Reef," *IHS Jane's*, November 20, 2014. <http://www.janes.com/article/46083/china-building-airstrip-capable-island-on-fiery-cross-reef>.

**Appendix 2: Comparison of Current Operational Distances of PLA Bases with Airstrips from Taiwan versus the Spratly Islands (distances in nautical miles)**



Source: Google Maps; adapted from David Shlapak, “Chinese Air Superiority in the Near Seas,” in Peter Dutton, Andrew S. Erickson, and Ryan Martinson (eds.), *China’s Near Seas Combat Capabilities* (China Maritime Studies, U.S. Naval War College, February 2014), p. 64.

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- <sup>1</sup> James Hardy and Sean O'Connor, "China Building Airstrip-capable Island on Fiery Cross Reef," *IHS Jane's*, November 20, 2014. <http://www.janes.com/article/46083/china-building-airstrip-capable-island-on-fiery-cross-reef>; James Hardy et al., "China Goes All Out with Major Island Building Project in Spratlys," *HIS Jane's* 360, June 20, 2014. <http://www.janes.com/article/39716/china-goes-all-out-with-major-island-building-project-in-spratlys>.
- <sup>2</sup> Republic of the Philippines Department of Foreign Affairs, "China's Reclamation on Mabini Reef," May 15, 2014. <http://www.dfa.gov.ph/index.php/2013-06-27-21-50-36/dfa-releases/2871-china-s-reclamation-on-mabini-reef>; James Hardy et al., "China Goes All Out with Major Island Building Project in Spratlys," *HIS Jane's* 360, June 20, 2014. <http://www.janes.com/article/39716/china-goes-all-out-with-major-island-building-project-in-spratlys>; and Andrew S. Erickson and Austin Strange, "Pandora's Sandbox: China's Island-Building Strategy in the South China Sea," *Foreign Affairs*, July 13, 2014. <http://www.foreignaffairs.com/articles/141632/andrew-s-erickson-and-austin-strange/pandoras-sandbox>.
- <sup>3</sup> *Want China Times* (Taiwan), "PLA to Build Airfield on Fiery Cross Reef," October 19, 2014. <http://www.wantchinatimes.com/news-subclass-cnt.aspx?id=20141019000010&cid=1101>.
- <sup>4</sup> Agence France-Presse and Minnie Chan, "US Asks China to Stop Building Spratlys Island Which Could Host Airfield," *South China Morning Post* (Hong Kong), November 22, 2014. <http://www.scmp.com/news/china/article/1646025/us-asks-china-stop-building-spratlys-island-which-could-host-airfield>.
- <sup>5</sup> Reuters, "China Defies U.S. Call to Stop Project in South China Sea," November 24, 2014. <http://www.reuters.com/article/2014/11/24/us-china-usa-southchinasea-idUSKCN0J80LH20141124>.
- <sup>6</sup> Jeffrey Engstrom (RAND), e-mail interview with author, December 11, 2014; James Hardy, "China Expands Runway, Harbour at Woody Island," *IHS Janes's*, August 29, 2014. <http://www.janes.com/article/42538/china-expands-runway-harbour-at-woody-island>.
- <sup>7</sup> Jeffrey Engstrom (RAND), e-mail interview with author, December 11, 2014; M. Taylor Fravel (Massachusetts Institute of Technology, Department of Political Science), e-mail interview with author, December 10, 2014; and a China defense expert, e-mail interview with author, December 10, 2014; Wendell Minnick, "Beijing Continues S. China Sea Expansion," *Defense News*, June 14, 2014. <http://www.defensenews.com/article/20140614/DEFREG03/306140014/Beijing-Continues-S-China-Sea-Expansion>.
- <sup>8</sup> Jeffrey Engstrom (RAND), e-mail interview with author, December 11, 2014; M. Taylor Fravel (Massachusetts Institute of Technology, Department of Political Science), e-mail interview with author, December 10, 2014.
- <sup>9</sup> Carlo Kopp, *The PLA-AF's Aerial Refueling Programs* (Air Power Australia, April 2012). <http://www.airspacepower.net/APA-PLA-Tanker-Programs.html>; U.S. Defense Science Board, *Defense Science Board Task Force Report on Aerial Refueling Requirements*, May 2004. <https://www.fas.org/irp/agency/dod/dsb/aerial.pdf>; and Andrew Erickson, "Naval and Air Forces," in Ashley J. Tellis and Travis Tanner, eds., *Strategic Asia 2012-13: China's Military Challenge* (Seattle, WA: The National Bureau of Asian Research, 2012), p. 112.
- <sup>10</sup> Gabriel Collins, Michael McGavran, and Timothy White, "Trends in Chinese Aerial Refueling Capacity for Maritime Purposes," in Andrew S. Erickson and Lyle J. Goldstein, eds., *Chinese Aerospace Power: Evolving Maritime Roles* (Annapolis, MD: Naval Institute Press, 2011), pp. 194-195, 199; Michael D. Swaine, *China's Military and the U.S.-Japan Alliance in 2030: A Strategic Net Assessment* (Washington, DC: Carnegie Endowment for International Peace, 2013), p. 53.
- <sup>11</sup> M. Taylor Fravel (Massachusetts Institute of Technology, Department of Political Science), e-mail interview with author, December 10, 2014; and a China defense expert, e-mail interview with author, December 10, 2014.
- <sup>12</sup> James Hardy and Sean O'Connor, "China Building Airstrip-capable Island on Fiery Cross Reef," *IHS Jane's*, November 20, 2014. <http://www.janes.com/article/46083/china-building-airstrip-capable-island-on-fiery-cross-reef>.
- <sup>13</sup> Craig Murray and Kimberly Hsu, *China's New Fishing Regulations Seek to Justify and Consolidate Control in the South China Sea*, (U.S.-China Economic and Security Review Commission, January 27, 2014). [http://origin.www.uscc.gov/sites/default/files/Research/USCC%20Staff%20Report\\_China%27s%20New%20Fishing%20Regulations%20Seek%20to%20Justify%20and%20Consolidate%20Control%20in%20the%20South%20China%20Sea\\_01%2027%202014.pdf](http://origin.www.uscc.gov/sites/default/files/Research/USCC%20Staff%20Report_China%27s%20New%20Fishing%20Regulations%20Seek%20to%20Justify%20and%20Consolidate%20Control%20in%20the%20South%20China%20Sea_01%2027%202014.pdf).