

# China's Air Defense Identification System: The Role of PLA Air Surveillance

BY MARK STOKES

In the wake of the 18th Central Committee's Third Plenum in November 2013, the People's Republic of China (PRC) Ministry of National Defense (MND) announced the establishment of its first air defense identification zone (ADIZ). The announcement outlined procedures for aircrafts flying within the ADIZ boundaries off China's eastern coast. Citing PRC national defense and civil aviation laws, an MND spokesman added "this airspace, demarcated outside the territorial airspace, allows a country to identify, monitor, control and dispose of entering aircraft. It sets aside time for early warning and helps defend the country's airspace." He further noted that, "China will establish other air defense identification zones at an appropriate time after completing preparations."<sup>1</sup>

The announcement naturally heightened tensions within the region. Highlighting the confrontational nature of the ADIZ, which extends over disputed territories with Japan, Secretary of State John Kerry stated "this unilateral action constitutes an attempt to change the status quo in the East China Sea." He further noted that the United States "doesn't support efforts by any State to apply its ADIZ procedures to foreign aircraft not intending to enter its national airspace."<sup>2</sup>

Assessments of the ADIZ to date have focused in large part on implications for territorial and maritime disputes in region. However, other potential drivers may offer additional context for the decision. Among these include coercion of Taiwan, unprecedented changes in China's national airspace management system, and technical advances that have enhanced interoperability between the People's Liberation Army Air Force (PLAAF) and Navy (PLAN).

## Taiwan as an Indirect Political Target?

The PLA has a history of using airpower as an instrument of coercive persuasion against Taiwan. The PLAAF began flights over the Taiwan Strait in 1996, and extended operations to the centerline in 1999.<sup>3</sup> Public discussion regarding establishment of an ADIZ system began at least as early as 2007. At that time, Taiwan's *China Times*, citing Republic of China (ROC; or Taiwan) MND sources, reported deliberations underway in China regarding establishment of an ADIZ over the Taiwan Strait. Also addressed was a PRC initiative to open a new commercial air route along the centerline of the Taiwan Strait that could hinder ROC Air Force training and "squeeze" Taiwan's airspace.<sup>4</sup>

*...other potential drivers may offer additional context for the [ADIZ] decision. Among these include coercion of Taiwan, unprecedented changes in China's national airspace management system, and technical advances that have enhanced interoperability between the People's Liberation Army Air Force (PLAAF) and Navy (PLAN).*

During a subsequent discussion broadcast on *Phoenix TV*, Chinese commentators debated the nature and extent of an ADIZ over Taiwan. One retired PLA general questioned the necessity of a dedicated zone over the Strait since an announced ADIZ concerns *international* airspace, and the "Taiwan problem" is an internal issue. However, he argued that an ADIZ should be established over the entire "first island chain" and extend over the South China Sea. In response to a question regarding the potential "squeezing" effect that an ADIZ could have on

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Taiwan, another commentator opined that an ADIZ would be effective in coercing Taiwan only if the boundaries extended to well east of the island.<sup>5</sup> For the PRC, diminishing Taiwan's air space would play into its strategic objectives and claims over disputed territories in the region.

Shortly after the inauguration of President Ma Ying-jeou in May 2008, *Xinhua* published an editorial calling for establishment of air defense identification zones, indicating the continuation of the PRC's deliberations over an eventual establishment of an ADIZ. The editorial argued that "if we establish air defense identification zones, the entire Taiwan Strait will be under our control, and the East and South China Sea problems will be easier to resolve." The editorial also cited shortcomings in air surveillance coordination and highlighted the need for the Navy and Air Force to work more closely together.<sup>6</sup>

### PLA Concessions on National Airspace Management

Taiwan may have been an original target of the PLA's ADIZ-related coercion. But the

November 2013 ADIZ announcement coincided with another significant PLA announcement regarding national airspace management. The PLA has long operated under the principle of "integrated air traffic control and air defense" (空管空防一体化).<sup>7</sup> On November 25, 2013, a senior GSD Operations Department officer announced the PRC's first codification of civil-military lines of authority and partial ceding of PLA military control over low altitude airspace to civilian authorities. Intended to boost the aviation market, including the purchase and use of private jets, the announcement culminated years of frustration over economic costs associated with inefficiencies in air traffic control.<sup>8</sup>

At the national level, airspace management policy is under the purview of a vice premier and the State Air Traffic Control Commission (SATCC).<sup>9</sup> Although nominally under State Council control and with the participation of the Civil Aviation Administration of China (CAAC), the SATCC Office that manages daily airspace management affairs resides within the GSD Operations Department.<sup>10</sup> The same PLA department also is responsible for strategic



Figure 1: Radars of Greater Shanghai Area Air Traffic

planning to support joint air defense operations, and presumably would have staffed the ADIZ decision for the Chinese Communist Party Central Committee Politburo Standing Committee.<sup>11</sup>

A similar structure exists for regional airspace management. Within the East China region, the PLA Nanjing Military Region's airspace management coordination commission consists of members from the Nanjing Military Region Operations Department, Nanjing Military Region Air Force, Air Force Shanghai Base (a corps deputy leader-grade air defense command), PLAAF 26<sup>th</sup> Air Division (conducts airborne early warning missions), East Sea Fleet Naval Air Force, CAAC's East China Air Traffic Management Bureau, and various city authorities.<sup>12</sup> The PLAAF – presumably the Air Force Shanghai Base (空军上海基地) – has approval authority for all aircraft flying into or out of PRC territorial airspace.<sup>13</sup>

Controlling more than 80% of China's airspace, the PLAAF has been the target of civilian criticism for its inefficiency in approving

flight plans submitted by civil aviation authorities.<sup>14</sup> Improvements are necessary in order for China's aviation sector to meet the ambitious goals set by the 12<sup>th</sup> Five Year Plan, specifically a 13 percent annual growth in air traffic, with a particular focus on low altitude flights. One *PLA Daily* article published in November 2013 explicitly linked air defense with low altitude air traffic control policies. Establishment of an ADIZ could be viewed as an offset for the PLA concession to China's civil aviation community on national airspace management.<sup>15</sup>

### Technical Advances in PLA Air Surveillance

Beyond sovereignty and territorial interests and policy changes in civil-military national airspace management, the ADIZ announcement culminated years of PLA investment into improved joint air surveillance. The relevance of radar and other sensors can be illustrated through use of the term air defense *identification* zone. Cooperative aircraft, such as



Figure 2: PLAAF Third Radar Brigade Sijiaoshan Site

commercial flights, identify themselves to civilian and military air traffic managers through filing of flight plans and use of transponders. PLA air surveillance operators who track non-cooperative aircraft within their assigned zone rely on radar and signals intelligence (SIGINT). An aircraft flying in an ADIZ may be identified as a possible threat, potentially leading to interception by PLAAF or PLAN fighters.

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The PLA has made significant advances in its joint air surveillance system. In the past, the PLAAF and PLAN appeared to divide air defense responsibilities, with the Navy responsible for defense of major naval bases (eg., East and South Sea Fleet homeports).<sup>16</sup> Since at least 2006, authoritative media outlets have indicated that the PLAAF has been granted responsibility for developing and fielding a new automated joint air surveillance system. The system relies on a network of sensors that

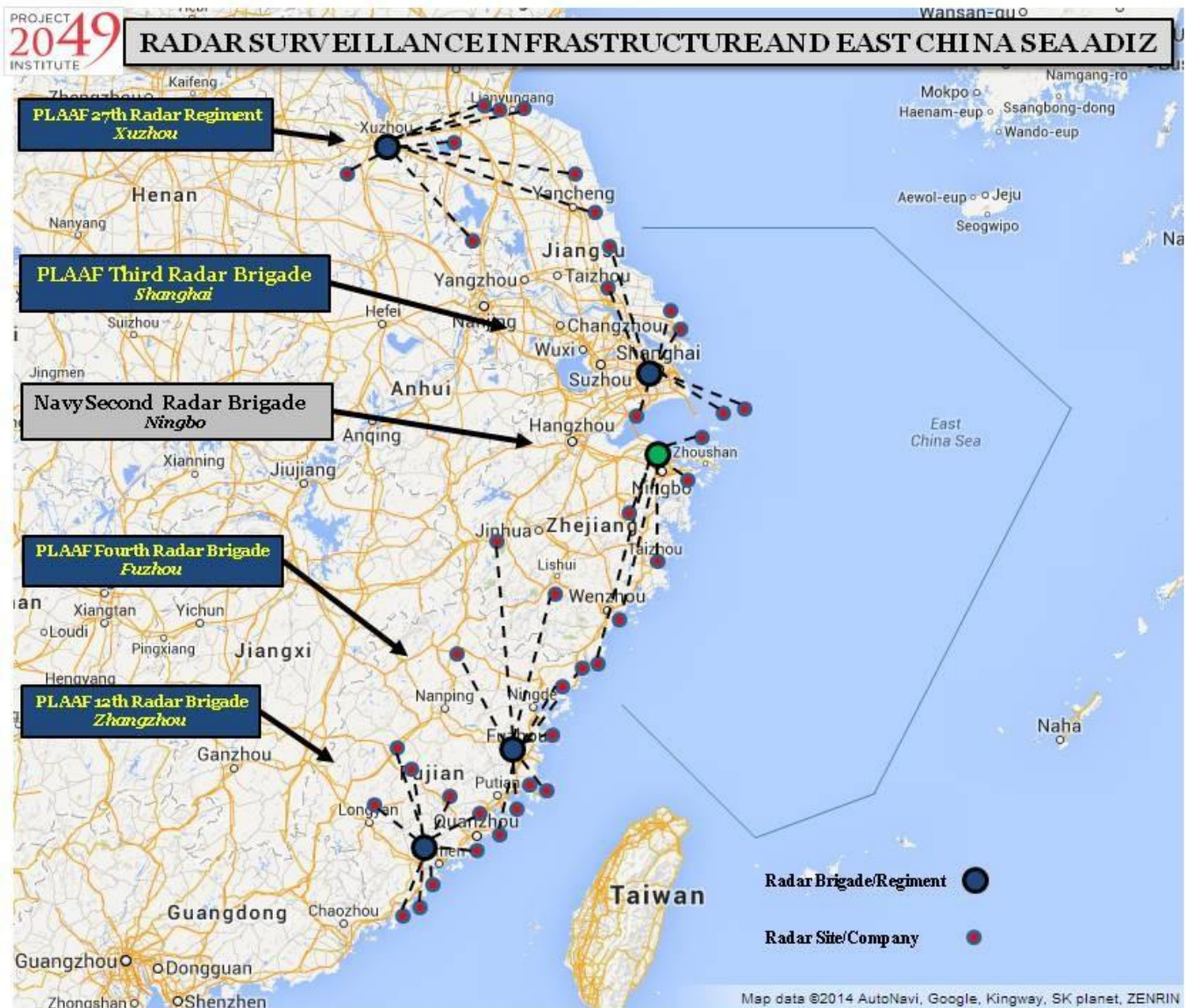


Figure 3: PRC Radar Surveillance Infrastructure and the East China Sea ADIZ



The PLAN Second Radar Brigade, headquartered in Ningbo City, appears responsible for ground-based air surveillance of the southern sector. Subordinate facilities may include a surface wave over the horizon (OTH) radar located along the coast southeast of Wenzhou City that ostensibly can detect low flying, low radar cross section flight vehicles at ranges greater than 300 kilometers. Indications exist that technological advances have enabled the Navy to share its air picture with regional PLAAF centers.<sup>21</sup>

The Air Force Shanghai Base also may fuse sensor data from a PLAAF skywave OTH radar brigade, and possibly from at least two

large phased array radar systems that are deployed on mountains in Zhejiang and Fujian provinces.<sup>22</sup> PLAAF, PLAN, and Nanjing Military Region signals intelligence units likely play a critical role in identifying specific roles and missions of aircraft flying within ADIZ boundaries.<sup>23</sup>

**Conclusion**

The PLA has made significant advances in its joint air surveillance capabilities. PRC's announcement in November 2013 noted the potential for subsequent air defense identification zones in the future. While



Figure 5: Taiwan, East China Sea, and Notional South China Sea ADIZ

speculative, future zones could be established over the South China Sea, Yellow Sea (inclusive of the Bohai Gulf), and Taiwan, future identification zones over the South China Sea and Yellow Sea would likely present relatively greater organizational challenges than the East China Sea ADIZ.

A Yellow Sea ADIZ could be bureaucratically complicated if a single authority under one military region was assigned the responsibility of coordinating air surveillance units from across two or more military regions. In the case of a potential South China Sea ADIZ, a unified air defense command would exercise authority within a single military region (e.g., Guangzhou Military Region). One notional scenario is for the Air Force Nanning Base, or perhaps the Guangzhou Military Region Air Force Headquarters Department, to function as the command authority over three Air Force air surveillance sectors and one Navy sector. Assuming the existence of a Navy radar site in the Spratly Islands, a joint air surveillance zone

notionally could extend coverage deeper over the South China Sea.<sup>24</sup>

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Establishment of an ADIZ over the South China Sea could present significant political challenges for Taiwan. Depending on its boundaries, a South China Sea ADIZ, in combination with the existing zone over the East China Sea, could have a coercive squeeze effect on Taiwan's sovereign airspace, as well as the airspace of other U.S. partners in the region.

## Notes

- <sup>1</sup> See [http://news.xinhuanet.com/english/china/2013-11/23/c\\_132911634.htm](http://news.xinhuanet.com/english/china/2013-11/23/c_132911634.htm). The cited statutes were the People's Republic of China on National Defense (March 14, 1997), the Law of the People's Republic of China on Civil Aviation (October 30, 1995) and the Basic Rules on Flight of the People's Republic of China (July 27, 2001).
- <sup>2</sup> See <http://www.state.gov/secretary/remarks/2013/11/218013.htm>. For a good ADIZ overview, see David A. Welch, "What's an ADIZ? Why the United States, Japan, and China Get It Wrong," *Foreign Affairs*, December 9, 2013, at <http://www.foreignaffairs.com/articles/140367/david-a-welch/whats-an-adiz>.
- <sup>3</sup> Among various references, see John Pomfret and Steven Mufson, "Flights Over Taiwan Strait Escalate Tensions," *Washington Post*, August 3, 1999, <http://www.washingtonpost.com/wp-srv/inatl/longterm/china/stories/taiwan080399.htm>; and Kenneth W. Allen, "PLA Air Force Operations and Modernization," in Susan Puska (ed), *People's Liberation Army After Next* (Carlisle, PA: Army War College, 2000), pp. 225-228, at <http://www.strategicstudiesinstitute.army.mil/pdf/files/pub67.pdf>. The surge in PLAAF air operations from July to September 1999, up to and across the centerline, was a political response to then President Lee Teng-hui's defining of the status quo across the Taiwan Strait as "special state to state relations."
- <sup>4</sup> Lin Chen-po (林晨柏) and Lu Chao-lung (吕昭隆), "Beijing Plans Taiwan Strait Air Defense Identification Zone" (北京拟划台海防空识别区), *China Times*, December 7, 2007. For a discussion on the utility of an ADIZ system in sovereignty and territorial disputes, see Xue Guifang (薛桂芳), "Legal Discussion of Establishing Air Defense Identification Zones" (设立空防识别区的法理探讨), in *Studies on Developments and Trends of International Maritime Law* (国际海洋法发展趋势研究) (Beijing: Maritime Press, 2007).
- <sup>5</sup> "Background on Mainland China's Taiwan Strait Air Defense Identification Zone" (大陆在台海划防空识别区背后), *Phoenix TV*, December 14, 2007, at [http://phtv.ifeng.com/program/jqgcs/detail\\_2007\\_12/14/1063439\\_0.shtml](http://phtv.ifeng.com/program/jqgcs/detail_2007_12/14/1063439_0.shtml).
- <sup>6</sup> "China Must Have Air Defense Identification Zones" (中国也必须有防空识别区), *Xinhua*, June 24, 2008, at [http://news.xinhuanet.com/mil/2008-06/24/content\\_8429437.htm](http://news.xinhuanet.com/mil/2008-06/24/content_8429437.htm).
- <sup>7</sup> For an explanation of the concept, see Zhu Heping, "Integrated Air Defense and Air Traffic Control Surveillance and Identification System" (空防空管一体化监视识别系统), *PLA Daily*, December 21, 2005, at [http://www.chinamil.com.cn/site1/zbxl/2005-12/21/content\\_367044.htm](http://www.chinamil.com.cn/site1/zbxl/2005-12/21/content_367044.htm).
- <sup>8</sup> Among various sources, see "China Approves First Clarification and Delineation of Dual Use Aviation" (中国通用航空首次明确“军民航管”审批职责分工), *China News Network*, November 25, 2013, at <http://business.sohu.com/20131125/n390764061.shtml>; "The Need to Resolve China's Airspace Resource Management" (我国空域资源管理亟待解决), *China Civil Aviation Network*, July 9, 2010, at <http://editor.caacnews.com.cn/show/9show10.asp?id=146226>; and Jasmine Wang, "China Air Traffic Congestion Worsened by Military Control," *South China Morning Post*, May 17, 2013, at <http://www.bloomberg.com/news/2013-05-16/china-air-traffic-congestion-worsened-by-military-control.html>. The officer was Cui Wenge (崔文戈), deputy director of the GSD Operations Department Air Force Operations Bureau.
- <sup>9</sup> Since its establishment in 1986, a vice premier has directed the SATCC. Zhang Dejiang (张德江) had the position at least until 2013. Ma Kai (马凯) may have taken his place. See <http://www.atmb.net.cn/open.asp?id=29523>.
- <sup>10</sup> Until 2013, the director of the GSD Operations Department, Major General Bai Jianjun (白建军; b. 1958), directed the SATCC Office. After promotion to serve as Beijing Military Region chief of staff, Bai probably was replaced as GSD Operations Department director by Major General Rao Kaixun (饶开勋; b. 1964). Major General Meng Guoping (孟国平) is dual hatted as deputy director of the GSD Operations Department and deputy director of the SATCC Office. Meng previously directed the Operations Department Air Traffic Control Bureau. Sun Hongwei (孙宏伟; b. 1962) is dual hatted as director of the GSD Operations Department ATC Bureau (总参作战部空管局), and deputy director of the SATCC Office.
- <sup>11</sup> The PLA has long operated under the principle of "integrated air traffic control and air defense" (空管空防一体化). See, for example, "Chinese Air Traffic Control Technology Enters Advanced International Level of Automation" (中国空中管制技术实现自动化 跨国际先进行列), *Xinhua News Agency*, June 19, 2010, at <http://www.chinanews.com/gn/news/2010/06-19/2351074.shtml>.
- <sup>12</sup> For reporting on the AEW training and reference to Shi Dengding, who has been noted in Shanghai City reporting as political commissar of the 26<sup>th</sup> Air Division, see (空军预警机部队成长写真: 很苦, 但也很自豪), *Xinhua*, April 22, 2011, at [http://news.xinhuanet.com/mil/2011-04/22/c\\_121333897\\_6.htm](http://news.xinhuanet.com/mil/2011-04/22/c_121333897_6.htm).



<sup>13</sup> See [http://english.gov.cn/laws/2005-08/24/content\\_25841.htm](http://english.gov.cn/laws/2005-08/24/content_25841.htm).

<sup>14</sup> See <http://www.canso.org/cms/showpage.aspx?id=4194>. Also see Bradley Perrett, “Airlines Blamed for Chinese Flight Delays,” *Aviation Week & Space Technology*, August 5, 2013, at [http://www.aviationweek.com/Article.aspx?id=/article-xml/AW\\_08\\_05\\_2013\\_p36-602520.xml](http://www.aviationweek.com/Article.aspx?id=/article-xml/AW_08_05_2013_p36-602520.xml).

<sup>15</sup> See “Low Altitude Opening, How to Prepare for an Aviation “National Gate” (低空开放, 空中“国门”怎样有备无患), *PLA Daily*, December 18, 2013, at [http://news.xinhuanet.com/mil/2013-12/18/c\\_125875774\\_5.htm](http://news.xinhuanet.com/mil/2013-12/18/c_125875774_5.htm).

<sup>16</sup> Bernard D. Cole, *The Great Wall at Sea: China's Navy Enters the Twenty-first Century* (Annapolis: Naval Institute Press, 2001), pp. 85-86.

<sup>17</sup> For reference to a new joint air surveillance support system, see Tan Jie (谭洁), “PLAAF Establishes Joint Early Warning System, Significant Leap in Early Warning Capabilities” (空军建立联合预警体系 预警能力大幅跃升), *PLA Daily*, July 10, 2006, at [http://news.xinhuanet.com/mil/2006-07/10/content\\_4811405.htm](http://news.xinhuanet.com/mil/2006-07/10/content_4811405.htm); and Zhang Li (张力) and Li Guangjun (李广君), “PLAAF Radar Department Establishes New Air Warning Support System” (空军雷达某部打造新型空情保障系统), *PLA Daily*, November 16, 2010, at [http://chn.chinamil.com.cn/xwpdxw/2010-11/16/content\\_4335377.htm](http://chn.chinamil.com.cn/xwpdxw/2010-11/16/content_4335377.htm). For an interview with Yan Shiqiang (闫世强), a senior engineer from the newly established PLAAF Early Warning Academy (空军预警学院), see “PLA Forms Radar Network as Technical Support for Joint Air Surveillance” (解放军已形成雷达组网技术支撑联合空情预警网), *China Youth Daily*, August 2, 2013, at <http://www.chinanews.com/mil/2013/08-02/5116635.shtml>. For reference to establishing a national-level air surveillance network, see Sun Jie (孙杰), Wu Dechao (吴德超), and Shang Shaohua (尚晓华), “PLAAF Establishes National-Level Integrated Air-Land Air Defense Early Warning Network” (我空军建成全国性空地一体防空预警网), *Zhongguang Network*, August 3, 2012, at [http://mil.cnr.cn/ztl/bzx1/ldb/jdt/201208/t20120809\\_510529416.html](http://mil.cnr.cn/ztl/bzx1/ldb/jdt/201208/t20120809_510529416.html).

<sup>18</sup> The Air Force Shanghai Base (94826 Unit) was originally designated as the Air Force Fourth Air Army. As part of a broader PLA reorganization, it was re-designated as the Shanghai Air Command Post in 1985. It assumed its current designation around 1993, although the “Command Post” and “Base” are often both used. Senior Colonel Wu Junbao (吴俊宝; b. 1962) was assigned as Air Force Shanghai Base commander in late 2013. He is in a corps deputy leader position. Before his current assignment, Senior Colonel Wu served as chief of staff of the 3<sup>rd</sup> Fighter Division in Wuhu and subsequently commanded the 14<sup>th</sup> Fighter Division in Jiangxi’s Zhangshu City.

<sup>19</sup> For discussion of joint air defense command and control, see Zhang Yuliang, et al., *Science of Campaigns* (战役学) (Beijing: National Defense University Press, May 2007), pp. 319-321. For reference to air command post/base responsibilities and the new automated air defense system, see Huo Chao (霍超), Zhang Li (张力), and Yan Guoyou (闫国有), (“中军帐”之变南空某指挥所加快核心军事能力建设的实践与探索), *PLA Daily*, January 13, 2013, at [http://news.mod.gov.cn/pla/2013-01/23/content\\_4429502.htm](http://news.mod.gov.cn/pla/2013-01/23/content_4429502.htm).

<sup>20</sup> The Third Radar Brigade (94969 Unit) was formed in the 2001 timeframe through the integration of the PLAAF Fifth and 31<sup>st</sup> Radar Regiments. The brigade appears to consist of at least two rear area battalion-level stations in Hangzhou/Jiaxing and Suzhou/Kunshan areas; and at least four forward deployed battalion-level stations in Rudong County, Qidong County, Shanghai City, and Shensi County. The PLAAF Third Radar Brigade is bordered to the north by the PLAAF 27<sup>th</sup> Radar Regiment, which ostensibly is under the Jinan Military Region Air Force. Although speculative, elements of the PLAAF Third Radar Brigade and/or the 27<sup>th</sup> Radar Regiment, operating on the coastal plains between Shanghai and Lianyungang, may be equipped with bistatic radar systems that rely on passive means of detection.

<sup>21</sup> For reference to PLA Navy radar support, see Wang Chaowu (王朝武) and Huang Caihong (黄彩虹), (某雷达旅实现从捕获到击落战机情报传送“不落地”), *PLA Daily*, May 22, 2010, at [http://news.mod.gov.cn/headlines/2011-05/22/content\\_4243127.htm](http://news.mod.gov.cn/headlines/2011-05/22/content_4243127.htm); and Wang Yifeng (王一峰) and Zhao Haitao (赵海涛), “East Sea Fleet Naval Aviation Radar Brigade Command Automation, Transmission is Fast and Accurate” (东航某雷达旅依托自动化系统 海空情报传递又快又准), *China Navy*, October 8, 2013, at <http://military.china.com/news/568/20131008/18077500.html>.

<sup>22</sup> The PLAAF skywave OTH radar brigade (95980 Unit) is headquartered in Hubei’s Xiangfan City. The Zhejiang large phased array radar site appears to be affiliated with the GSD Third Department 12<sup>th</sup> Bureau.

<sup>23</sup> The PLAAF Second Technical Reconnaissance Bureau (95851 Unit), headquartered in Nanjing City, oversees a number of signals intelligence and cyber reconnaissance units in southeast China that likely monitor communications frequencies used by aircraft flying within the region. PLA Navy First Technical Reconnaissance Bureau (91746 Unit) command authorities are based in the northern Beijing suburb of Shahe and oversees

subordinate stations along the coast down to Wenzhou. The Navy Second Technical Reconnaissance Bureau (92762 Unit), headquartered in Xiamen, is comprised of at least 12 sites that extend from south of Wenzhou and along the South China Sea coast. In addition to the large technical reconnaissance infrastructure managed by the GSD Third Department, the Nanjing Military Region oversees two technical reconnaissance bureaus.

<sup>24</sup> The South Sea Fleet Naval Aviation Third Radar Brigade (92261 Unit) is headquartered in Haikou.