



PLA Army Air Defense Units Improve Effectiveness, Resiliency, and Jointness

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Between October and November 2020, the Chinese People's Liberation Army (PLA) published a series of news reports about the 80th Air Defense Brigade of the PLA Army (PLAA), news reports that featured improvements to the unit's technology and modes of operation. Three of those improvements are of particular significance because they likely indicate major improvements to the air defense capability of the PLAA as a whole, improvements making the PLAA's air defense units more effective, resilient, and more capable of joint operations.

First, the brigade has integrated electronic warfare (EW) into its air defense operations. In 2017 an EW regiment was re-subordinated to the brigade and reorganized as a battalion.¹ Initially, the brigade did not know how to employ its new EW battalion: members of the battalion received complaints about how their equipment would interfere with aerial surveillance, and it was suggested that the battalion play the opposing force during force-on-force exercises.² However, after the brigade was defeated in an exercise by an opposing force that jammed the brigade's radars, the brigade was apparently convinced of the utility of its EW battalion¹ and therefore decided to integrate elements of the battalion into each fires element whenever the brigade deployed, thereby combining jamming and surface-to-air fires to improve the efficacy of its air defense operations.

Second, in the past "few" years, the brigade linked the search, tracking, and targeting radars of each of its subordinate battalions into a single network and thereby digitized the brigade's air surveillance picture.³ Before this, the brigade would manually plot the air picture.⁴ It is unclear whether each of the brigade's subordinate battalions and batteries have access to a common air picture or not, but, theoretically, their connection over a network should make this possible and simple to provide. Digitizing the brigade's air picture will have made it possible for the air picture to be updated in real time, thereby improving the efficiency of battle management. However, digitizing the air picture should also make it easier to share air surveillance information with the air defense units of other services, thereby enabling the brigade to be more easily integrated into a

¹ That the brigade had not valued EW until then is perhaps an indicator that opposing forces' jamming had not presented a serious challenge in exercises before 2017, which would, in turn, indicate how unrealistic training was in the pre-reform era, when it seemed that the PLA did everything under "complex electromagnetic conditions," i.e., while being jammed.

joint integrated air defense system (IADS). Indeed, this effort, or similar efforts by other air defense units of the PLAA, likely facilitated an exercise in the summer of 2019 in which air defense units of the PLAA, PLA Air Force (PLAAF), and even the PLA Rocket Force formed a joint IADSⁱⁱ under the command of an air defense base of the PLAAF (a level of command that is roughly equivalent to a numbered air force of the U.S. Air Force).⁵

The third improvement is perhaps the most significant because it involves cultural change: the brigade has granted battalion and battery commanders the authority to engage targets on their own initiative.⁶ In the past, the brigade's air defense batteries were not authorized to engage targets without orders from the brigade's command post.⁷ As one would expect, when the brigade's subordinate units simultaneously faced multiple aerial threats, channels of communication between them and the command post would clog, resulting in failures to engage targets and, in at least one instance, orders to engage a single target mistakenly being issued to multiple batteries.⁸ Permitting battalion and battery commanders to engage targets on their own initiative should make the brigade more responsive to immediate threats, and it should make the brigade more resilient because the brigade's subordinate units are being conditioned to function independently when they must do so, such as when the brigade's command post has been neutralized.

It is very likely that the improvements to the 80th Air Defense Brigade's technology and modes of operation have also been made in the PLAA's other air defense units. Since 2019 PLAA air defense units have more and more frequently participated in PLAAF air defense bases' monthly "system-of-systems" training, a term that encompasses both combined-arms and joint training.⁹ Between July 2020 and January 2021, each battalion of one unspecified air defense brigade of the PLAA had the experience of deploying to and "entering the chain of command of," i.e., being attached to, an air defense base of the Western Theater Air Force.¹⁰ The frequency with which the PLAA's air defense units are participating in exercises with the PLAAF suggests that PLAA air defense units besides the 80th Air Defense Brigade have similarly digitized their air surveillance picture—most likely utilizing the same system to do so because integrating the PLAA's air defense brigades into a joint IADS would be exponentially more difficult if each brigade developed its own system. In fact, since sometime in 2020, the PLAA's and the PLAAF's air defense units have indeed been making efforts to "network their equipment, unify standards," and unify their operating principles.¹¹

The 80th Air Defense Brigade received its EW battalion as a result of the major organizational reforms of the PLA beginning in 2016, and it is not the only PLAA air defense brigade to have received EW units. Therefore, as the PLA's training has become more realistic post reform, particularly after more demanding training guidelines were issued in 2018, the PLAA's other air defense brigades are certain to have learned the value of their new EW units.

ⁱⁱ It is possible that the PLA's joint IADS are completely networked, each service's air defense units not merely being linked to a joint command post like spokes that are connected to the hub of a wheel. In January 2020 the PLA reported that during one exercise a missile battery of the PLAA's 71st Air Defense Brigade directed the fires of a missile battery of an air defense battalion of the PLAAF. The army battery may have conveyed air surveillance information to the air force battery through a direct network link. However, it is also possible that these two batteries merely communicated by radio. "联战联训 探索信息火力高效融合" [Fight jointly, train jointly: exploring the high-efficiency integration of information and fires], 仇凯 [Chou Kai], 张旭 [Zhang Xu], 张煜 [Zhang Yu], 杨琪清 [Yang Qiqing], 孙豪文 [Sun Haowen], 军事报道 [Military Report], aired January 17, 2020, on CCTV7, accessed January 18, 2020, <http://tv.cctv.com/2020/01/18/VIDE6JHalOa54oKFoQRn4qE0200118.shtml>.

Indeed, it was recently reported that an “electronic air defense battalion” of the PLAA’s 74th Air Defense Brigade has been fully integrated into the brigade’s operations.¹²

No other reports mentioning PLAA air defense units’ delegation of launch authority have been observed, but as training has become more realistic and demanding, the army’s other air defense units are almost certain to have encountered the same problems that the 80th Air Defense Brigade did: the clogging of communications, failures to engage targets, etc. In the past few years, other PLAA air defense units have made efforts to enhance battalion commanders’ capacity for independent action, so the delegation of launch authority is perhaps a natural development in a broader effort to address the weaknesses of the force as a whole. Therefore, it is likely that all of the PLAA’s air defense brigades have made the same improvements to their technology and modes of operation, meaning that the PLAA’s air defense units have become more effective, resilient, and more capable of joint operations in the past three years.

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Endnotes

¹ 王宁 [Wang Ning], 刘晓帅 [Liu Xiaoshuai], and 韩成 [Han Cheng], “体系融合：必须迈过的一道坎” [System-of-systems integration: a critical juncture through which one must stride through], 解放军报 [Liberation Army News], November 24, 2020, accessed December 1, 2020, http://www.81.cn/jfjmap/content/2020-11/24/content_276602.htm.

² Ibid.

³ 王宁 [Wang Ning], 刘晓帅 [Liu Xiaoshuai], and 韩成 [Han Cheng], ““金牌标图员”被“请”出中军帐” [‘Gold-medalist plotter’ ‘asked’ to exit command post], 解放军报 [Liberation Army News], October 28, 2020, accessed December 1, 2020, http://www.81.cn/jfjmap/content/2020-10/28/content_274438.htm.

⁴ Ibid.

⁵ 胡瑞智 [Hu Ruizhi], 刘天军 [Liu Tianjun], and 任顺垒 [Ren Shunlei], “这次演习，陆军防空群归空军指挥” [Army air defense group under air force command in this exercise], 解放军报 [Liberation Army News], June 24, 2019, accessed January 29, 2020, http://www.81.cn/jfjmap/content/2019-06/24/content_236680.htm.

⁶ 王宁 [Wang Ning], 刘晓帅 [Liu Xiaoshuai], and 韩成 [Han Cheng], “自主抗击，这一仗打得酣畅淋漓” [Independent resistance enabled us to fight this battle fluidly], 解放军报 [Liberation Army News], October 30, 2020, accessed December 1, 2020, http://www.81.cn/jfjmap/content/2020-10/30/content_274552.htm.

⁷ Ibid.

⁸ Ibid.

⁹ 侯婷婷 [Hou Tingting], 崔茂生 [Cui Maosheng], 巨旭东 [Ju Xudong], 丁少轩 [Ding Shaoxuan], 陈羿冰 [Chen Yibing], 贾泽岩 [Jia Zeyan], 游熙 [You Xi], 王世莹 [Wang Shiyang], 倪宏阳 [Ni Hongyang], 叶迪 [Ye Di], 丁亚楠 [Ding Yanan], and 白一涵 [Bai Yihan], “体系集成 联合作战 新体制托举战鹰高飞远航” [Integration of systems, joint operations: the new structure supports warbirds’ flying high and far], 中国军视网 [China Military Video Online], November 29, 2020, accessed December 3, 2020, <https://www.ixigua.com/6900753571550396941>; 刘明学 [Liu Mingxue], 魏兵 [Wei Bing], and 李建文 [Li Jianwen], “体系磨砺铸空中精锐” [System of systems sharpens and casts aerial elite], 解放军报 [Liberation Army News], November 30, 2020, accessed November 30, 2020, http://www.81.cn/jfjmap/content/2020-11/30/content_276998.htm.

¹⁰ 杨颀源 [Yang Jinyuan], “陆军防空营变成空军“预警眼”” [Army air defense battalion becomes air force’s ‘early warning eyes’], 解放军报 [Liberation Army News], January 26, 2021, accessed January 26, 2021, http://www.81.cn/jfjmap/content/2021-01/26/content_281455.htm.

¹¹ Ibid.

¹² 陈典宏 [Chen Dianhong] and 郑焯 [Zheng Ye], “新型作战力量嵌入防空作战体系” [New types of combat power imbed into system of air defense operational systems], 解放军报 [Liberation Army News], January 22, 2021, accessed January 22, 2021, http://www.81.cn/jfjbmap/content/2021-01/22/content_281132.htm.