

Moscow Defense Brief

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Georgia's Air Defense in the War with South Ossetia

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The Georgian air-defense system represents a symbiosis of what it inherited from the collapse of the Soviet Union and new acquisitions from former Warsaw Pact and Soviet successor states.

During Soviet times, the 19th Tbilisi Air-Defense Army of the Soviet Air-Defence Troops was deployed in Georgia (reduced to an Air-Defense Corps in 1991). It included three SAM brigades in Tbilisi, Poti, and Echmiadzin, armed with S-75 (SA-2) and S-125 (SA-3) SAM systems, a separate SAM regiment armed with S-75 SAM systems (SA-2, deployed in Gudauta, Abkhazia), and a separate SAM regiment near Tbilisi, equipped with S-200 (SA-5) long-range SAM systems, as well as two radar brigades. However, after the collapse of the Soviet Union, some of the Soviet Armed Forces, including air defense, did not fall under Georgian jurisdiction, but remained under Russian control. During the early 1990s, all of the aforementioned air-defense divisions on Georgian territory were dismantled and their equipment transferred to Russia for scrapping. Nonetheless, Georgian forces seized some air-defense equipment from the Russian military, including at least one S-75 and two S-125 SAM battalions, as well as a few P-18 Spoon Rest radars. These systems were put into service to form the base of the air defenses of the Georgian armed forces. The Georgians used the S-75 SAM battalions in the war with Abkhazia in 1992-1993 and shot down a Russian Su-27 fighter near Gudauta on March 19, 1993.

The S-75 battalion was removed from service in Georgia, but the two S-125 Neva-M low- to high-altitude SAM systems battalions was deployed in Tbilisi and Poti (a total of seven quadruple rail launchers) and those in service with the Georgian Air Force had been modernized by Ukrainian specialists by 2005.

Georgian Army received several short-range air-defense systems in the first half of the 1990s from the arsenals of the former Soviet Army located in

Georgia but transferred to Russian jurisdiction. These included KS-19 100-mm anti-aircraft guns, S-60 57-mm anti-aircraft guns, ZU-23-2 twin 23-mm anti-aircraft guns, ZSU-23-4 Shilka quad 23-mm self-propelled anti-aircraft gun systems, Strela-2M (SA-7), Strela-3 (SA-14), and Igla-1 (SA-16) man-portable SAM systems (MANPADS). However, a significant proportion of these arms was lost by Georgia during its unsuccessful war with Abkhazia. Some of the ZU-23-2 anti-aircraft guns were mounted on MT-LB armored multipurpose tracked vehicles.

With Mikhail Saakashvili's assumption of power in 2003, Georgia began the rapid development of its military capacities with the aim of acquiring the means to regain the separatist Abkhazian and South Ossetian regions. To neutralize Russia's potential to interfere in its operations against Abkhazia and South Ossetia, Georgia began to purchase modern air-defense systems.

First, Georgia acquired a 9K37M1 Buk-M1 (SA-11) battalion of low- to high-altitude self-propelled SAM systems composed of three batteries (each battery includes two self-propelled launcher mounts and one self-propelled loader-launcher) from Ukraine in 2007. These were delivered together with 48 9M38M1 surface-to-air missiles.

Georgia noted this transfer in its official report for 2007 to the UN Register of Conventional Arms. Other than Russia and Ukraine, only Finland, Cyprus, and Egypt possess Buk systems in several different versions. The Russian army is currently acquiring the latest version, the Buk-M2 (SA-17), and a large export contract of Buk-M2E to Syria is in the pipeline. According to subsequent internet reports from Ukraine, the Buk-M1 systems were delivered by sea to Georgia on June 7, 2007. In July 16, 2008, photos of Georgian Buk-M1 systems used during tactical training in Western Georgia dating from August 2007 appeared on the Internet. According to a Ukrainian source, on June 12, 2008, another battery of Buk-M1 systems was delivered to Georgia.

Second, Ukraine delivered eight self-propelled launcher vehicles 9K33M2 Osa-AK (SA-8B) low-altitude SAM systems (two batteries) and six (ten, according to some sources) 9K33M3 Osa-AKM self-propelled launcher vehicles update SAM systems. The Buk-M1 and Osa-AK/AKM systems were deployed by the Georgian Air Force in Gori, Senaki, and Kutaisi.

Third, Ukraine sold Georgia two modern 36D6-M radars that were deployed in Tbilisi and Savshevebi near Gori. The 36D6-M is a mobile, 3-D air surveillance radar, developed by the Iskra company in Zaporizhzhya, Ukraine. The 36D6-M radar is a deep modernization of the ST-68U (19Zh6) Tin Shield radar, taken into service in 1980 and used with the S-300P (SA-10) SAM system. The 36D6-M radar has a range of up to 360 km.

Fourth, Ukraine delivered at least one Kolchuga-M passive electronic monitoring radar system, capable of passively detecting modern aircraft, including those using stealth technology. According to information published recently in Ukraine, it is possible that another four Kolchuga-M and one

Mandat electronic warfare systems, all produced in Donetsk at the SKB RTU and the Topaz Company, were delivered to Georgia in May of 2008. Earlier, Ukraine was severely criticized by the United States for having sold Kolchuga systems to China, Iraq, and Iran.

Fifth, the Ukrainian company Aerotekhnika upgraded the obsolete Georgian P-18 Spoon Rest radars to the P-180U version, which amounts to a qualitatively new and modern 2-D air surveillance radar system. At the time when it attacked South Ossetia, the Georgian Air Force had four P-180U radars deployed in Alekseyevka (near Tbilisi), Marneuli, Poti, and Batumi.

In 2006, company Aerotekhnika united Georgian military and four civilian air-traffic-control radars and the Kolchuga-M system into a single Air Sovereignty Operations Center (ASOC) early warning and command control tactical system. The central command center of the ASOC was located in Tbilisi, and as of 2008 was connected to a NATO Air Situation Data Exchange (ASDE) through Turkey, which allowed Georgia to receive data directly from the unified NATO air-defense system.

According to the Russian Defense Ministry, Ukraine either delivered or planned to deliver 50 9K310 Igla-1 (SA-16) man-portable SAM systems and 400 9M313 surface-to-air missiles, with missile seekers, upgraded by the Ukrainian Arsenal plant.

Several East European states also participated in the renewal of the Georgian air defense system. According to the Russian Defense Ministry, Bulgaria delivered 12 ZU-23-2M twin 23-mm anti-aircraft guns and 500 9M313 surface-to-air missiles for Igla-1 man-portable SAM systems. According to the UN Register of Conventional Arms, Poland delivered 30 Grom man-portable SAM systems (a improved Igla-1) and 100 surface-to-air missiles, and it is possible that such deliveries took place in 2008 as well. Reports have circulated that Georgia acquired Soviet era man-portable SAM systems from other countries as well.

Finally, there are reports that Georgia acquired one battery of the new Israeli Spyder-SR short-range self-propelled SAM system in 2008. The Spyder-SR SAM system, developed by Rafael company, uses Python 5 and Derby air-to-air missiles in a surface-to-air role. There has been no official confirmation of any such deliveries to Georgia, but Jane's Missiles & Rockets magazin cited a Rafael representative to report that the "Spyder-SR has been ordered by two export customers, one of whom now has the system operational."

The Russian Ministry of Defense also reported that the Georgian Army acquired the Skywatcher army air-defense early-warning and command control tactical system produced by the Turkish Aselsan Company in 2008.

Thus, by the time Georgia invaded South Ossetia, its air defenses had acquired significant capability to detect, locate, and destroy air targets. The Georgian forces that advanced into South Ossetia were the equivalent of about a large division (nine light infantry and five tank battalions, up to eight artillery battalions, plus special forces and Ministry of the Internal Affairs troops), were protected by an air

defense echelon that included one Buk-M1 SAM system battalion, up to three Osa-AK/AKM SAM system batteries, a large number of man-portable SAM systems, as well as a few C-60 57-mm anti-aircraft guns, ZU-23-2 twin 23-mm anti-aircraft guns, and ZSU-23-4 Shilka quad 23-mm self-propelled anti-aircraft gun systems. Thus, the air-defense system of Georgian attack groups was about the equivalent of a best frontline Soviet divisions during the late 1980s - early 1990s.

The confrontation with Georgia's air-defense system proved to be a serious trial for Russia's military aviation, especially since it seems that its capabilities were initially underestimated. Meanwhile, Georgia's air defenses reportedly relied on data received from the Kolchuga-M passive electronic monitoring radar systems, minimizing the use of active radar, while the Georgian Buk-M1 and Osa-AK/AKM self-propelled SAM systems used ambush tactics. This made it more difficult to defeat the Georgian air-defense systems. According to unofficial reports, the Georgian Buk-M1 SAM systems shot down four Russian aircraft on the first day of battle on August 8: three Su-25 Frogfoot attack planes and one Tu-22M3 Backfire long-range bomber.

Moreover, according to unofficial sources, Russia lost another three airplanes (one Su-24MR Fencer E reconnaissance plane on August 8, one Su-24M Fencer frontal bomber on August 10 or 11, and one Su-25 attack plane on August 9) as well as perhaps one Mi-24 attack helicopter.

Both Su-24 were probably shot down by Georgian Osa-AK/AKM SAM systems or man-portable SAM systems, and the Su-25, according to several reports, fell victim to friendly fire from a MANPAD wielded by Russian servicemen. According to the Sukhoi Company, three Russian Su-25s also was hit by Georgian SAM and MANPAD missiles but was able to return safely to base. For their part, Russian Army air-defense forces claimed shot down three Georgian Su-25 attack planes.

From the crews of the downed planes, two Russian pilots (of the Su-24MR and the Tu-22M3) were taken hostage, and exchanged for Georgian prisoners on August 19. According to unofficial reports, another five Russian pilots (of the Su-25 shot by friendly fire, the navigator of the Su-24MR, and three crew from the Tu-22M3) died.

At the time of writing, the Russian Defense Ministry officially recognized the loss of only three Su-25 attack planes and one Tu-22M3 long-range bomber, and considered them defeated by Buk-M1 SAM systems. The training of Georgian personnel in the use of the Buk-M1 SAM systems took place in Ukraine, and Ukrainian military instructors may have supervised their use in combat.

Although the Russian press and even high-level Russian military officials have made statements about the possible transfer of S-200 long range SAM systems and modern Tor (SA-15) low-to-medium altitude self-propelled SAM systems, such reports have not been confirmed.

One can conclude that following the unpleasant surprise arising from Georgia's effective use of Soviet-made SAM systems on August 8, the

Russian armed forces threw all of the resources at their disposal against Georgia's SAM and radar systems. Both S-125M SAM battalions, the majority of Georgia's military and civilian radars, as well as the most part Buk-M1 and Osa-AK/AKM SAM systems were destroyed. It would appear that the only remaining threat to Russian planes and helicopters in the last days of combat came from Georgian MANPADs.

Russian forces were able to seize five Osa-AKM self-propelled launch vehicles, a few ZU-23-2 anti-aircraft guns and a few ZSU-23-4 Shilka self-propelled anti-aircraft gun systems as trophies from the retreating Georgian forces. Near Gali and Senaki, Abkhaz and Russian forces captured minimum one Buk-M1 battery, as witnessed by published photos. According to one unofficial source, Russian forces were able to capture or destroy almost all of the self-propelled launcher mounts for the Georgian Buk-M1 SAM systems.

The war in South Ossetia marked the first time when air power faced off against new-generation SAM systems, like the Buk-M1, which were brought into service in the 1980s. In all previous military campaigns, such as the War in Vietnam, the Arab-Israeli Wars of 1967, 1973, and 1982, combat actions in Chad and Libya in the 1980s, the NATO campaigns in the former Yugoslavia of 1994 and 1999, and the Wars in the Persian Gulf of 1991 and 2003, the air-defense systems in question were all designed in the 1950s and 1960s (this excludes, of course, the use of modern MANPADs). Moreover, in Georgia, the Russian Air Force for the first time in its history fought against modern air-defense systems, and relatively modern and numerous SAM systems at that.

This unprecedented experience of Russian aviation over a territory protected by a range of air-defense systems will be studied in detail, and should serve as a stimulus for the cardinal modernization of the Russian armed forces. It is obvious that the Russian Air Force must devote greater attention to the suppression of enemy air defenses (SEAD), including the renewal of tactics, electronic weapons and increased military training in this area.

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