

INSS Insight No. 1477, June 1, 2021

The “Other Side’s” Unmanned Systems: After Operation Guardian of the Walls

Liran Antebi

Along with the heavy rocket barrages launched against Israel during Operation Guardian of the Walls, there were a number of attempts by Hamas to attack Israel with the use of unmanned aerial vehicles (UAVs), mostly loaded with explosives. According to Hamas, their purpose is to attack IDF forces, Israeli towns and villages, and the gas installations at sea. These attempts were foiled by the IDF or suffered technical failures. In addition, Hamas attempted to operate unmanned submarines against marine targets. These efforts were also foiled by the IDF with attacks on launchers and ground operatives, attempting to launch unmanned aircraft. Given the growing use of unmanned weapons by the “other side,” it is important to study these efforts and understand how they were defeated, while also monitoring trends in this realm in order to assist future preparations.

During Operation Guardian of the Walls, a number of (fixed wing) Unmanned Aerial Vehicles (UAVs) loaded with explosives were launched from the Gaza Strip designed to explode on Israeli territory. At least four UAVs were brought down by Israel’s aerial defense system, including the first interception of its kind by the Iron Dome; one UAV was intercepted by a Python air-to-air missile made by Rafael, originally intended to intercept fighter planes, which was fired by an F-16 jet; others were brought down using classified means. In addition, multirotor drones carrying explosives were found on the ground inside Israel and neutralized by bomb disposal teams.

In the course of the fighting, the IDF also preemptively foiled the launch of UAVs toward Israel, with air force attacks on the launch infrastructure. On May 12, 2021 the launch of an explosive UAV was prevented by [an attack on the group](#) preparing it. Apparently, this was an explosive drone of the Shahed type shown [in Hamas videos](#). In a related context, in the course of the operation and as part of the efforts to stop the launches, the operational apartment of the commander of the Hamas UAV division, Samar Abu-Daka, was attacked.

While Hamas’s unmanned aerial activity was damaged, on May 18, the eighth day of the operation, an attempt by Hamas to use an unmanned marine vessel was foiled. The vessel

was suspected of being an underwater weapon that was apparently intended for attack. [Israel Navy fighters successfully attacked the vessel](#) and the group that sent it. The following day, a UAV penetrated Israeli air space in the north and was brought down near Emek Hama’ayanot. Its ruins were collected by the IDF to check whether it originated from Syria or Jordan; Prime Minister Benjamin Netanyahu subsequently said that the drone originated in Iran. To some degree this incident recalled the penetration by an unmanned aerial vehicle in the northern arena in February 2018.

This varied activity reflects a rise in the threat posed by the use of unmanned vehicles by the “other side” – a large numbers of attempts to carry out unmanned attacks have been recorded over the years, in Operation Protective Edge (2014), in times of “routine security,” or during short rounds of fighting (“days of battle”), on both the southern and northern borders. This marks a change in the use of such weapons, which until just a few years ago were largely confined to armies in advanced countries for the purpose of fighting terror.

Unmanned technologies are now accessible to terror organizations, militias, and even the armies of countries that are not known for military or technological strength, because they have become cheaper, easier to acquire, and are simple to operate. This trend is also influenced by the entry of new manufacturers, including Iran, which equips its proxy organizations with these technologies.

Indeed, over the past decade the Middle East has seen disturbing evidence of the increased capabilities of terror organizations in the field of unmanned weapons. Hezbollah is known to have used a range of UAVs as part of the aid it gave the forces of Bashar al-Assad in the Syrian civil war. Hezbollah used simple craft, some simply bought off the shelf for a few hundred dollars, in its actions against smaller terror organizations. However, it has also demonstrated its ability to use more advanced craft with attack capabilities made by Iran in Syria, and also in attempts to penetrate Israel.

More recent documentation from Saudi Arabia of the use of advanced UAVs, again with an Iranian link, should concern the IDF. In recent years there have been a number of attacks on quality targets in Saudi Arabia, which were attributed to the Houthi rebels. The attacks involved various kinds of attack and suicide UAVs. For example, in September 2019, Saudi oil refineries were attacked, causing damage that forced the country to halve its oil production. There have been other UAV attacks on Saudi Arabia since then, including in March, April, and May 2021, showing an improvement in operational capabilities, since the UAVs were launched from a distance of hundreds of kilometers (deep in Yemen). They represent a possible threat to Israel, in the event of a military conflict on the northern front.

Unlike the Novy God attack – by a “swarm” of improvised UAVs – on the Russian base at Khmeimim in northwest Syria and other UAV attacks on the same base in 2018, here we are not dealing with improvised craft, but rather, as determined by UN investigators, with weapons made by the Iranian military industries. However, there is still no evidence that these are real “swarms” that could, for example, be programmed to operate autonomously, of the kind that the security industries of advanced technological countries, such as the United States and China, are trying to develop using artificial intelligence.

Significance

The response by the IDF, and above all the air force, to the unmanned weapons threat in Operation Guardian of the Walls is evidence of preparations for this challenge, as shown by the adjustments that allowed the Iron Dome to intercept drones. However, criticism in the State Comptroller’s report of April 2021 (a follow-up to the report of November 2017) regarding the absence of a response to the threat of multirotor drones over Israel as a whole, and IDF bases in particular, remains.

The availability of unmanned technologies (for use in the air, at sea, and on land), the simplicity of their operation, and their low cost, together with evidence of their use by terror organizations in various parts of the Middle East, demand further preparation. The IDF must not become complacent due to the satisfactory outcomes achieved during Guardian of the Walls. The challenge in any future conflict on the northern border, for example, could be far more difficult. As long as it is a matter of isolated attacks, the situation will be under control. But dealing with a large number of unmanned weapons, particularly against a background of heavy rocket fire, could seriously challenge Israel’s air defenses, and thus readiness for this possibility must be examined. This demands regular monitoring of Iranian technologies and other technologies available to Hezbollah and other terror organizations in the Middle East. Inter alia, Iranian claims that it has drones with stealth capabilities must be addressed.

Even if terror organizations have not yet demonstrated the ability to operate real “swarms,” it is clear that they understand that the simultaneous and coordinated operation of a large number of craft will significantly increase their ability to challenge Israel’s air defenses. If groups of such craft are launched in conjunction with rocket salvos, there is no certainty that the existing systems will be able to identify and intercept them; in some cases, it is already hard to cope with intense barrages of rocket fire. So it is important to examine the adaptation of other systems, not only systems for interception, and the possibility of integrating them in various dimensions. It is also clear that one way of dealing with “swarms” requires the use of systems based on artificial intelligence. Israel is one of the leaders in the field of multirotor drone and UAV interception as well as AI,

but in addition to technological leadership and exports, the IDF must also purchase and assimilate such advanced systems.

In conclusion, the use of unmanned systems is already no longer the sole province of advanced countries. They represent a growing threat, particularly but not only from the air. While addressing the lessons of the State Comptroller’s report on UAVs, preparations should be made and suitable systems and approaches acquired, to enable the IDF to foil attempts to use such devices in future conflicts.