BLACK ROSE TECHNOLOGY

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ERBIL DRONE ATTACK

ANALYSIS OF THE 2021-04-14 DRONE ATTACK ON THE ERBIL AIRPORT BASE COMPLEX

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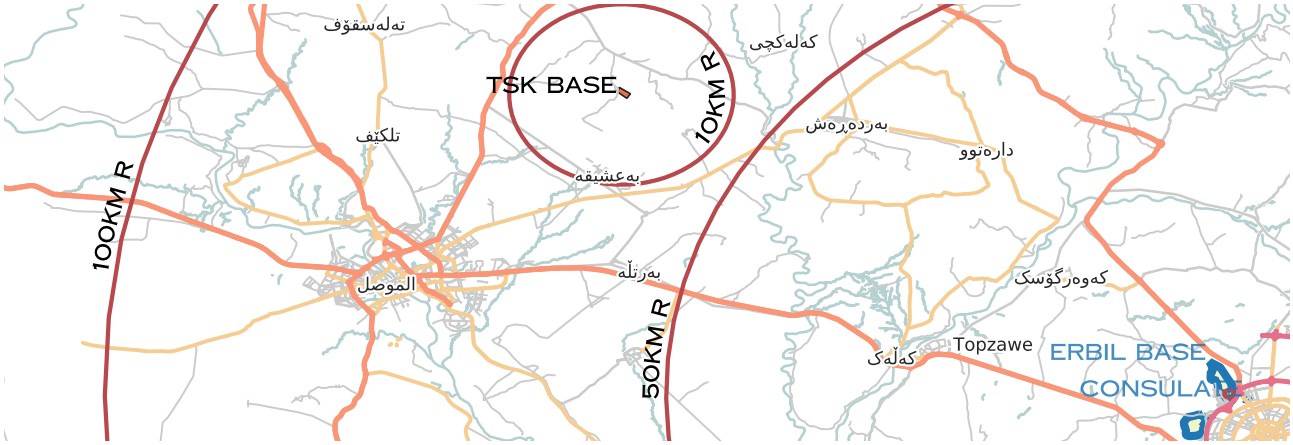
1 SUMMARY OF THE 2021-04-14 ERBIL DRONE ATTACK

Details of the attack remain incomplete. What is known is that a large explosion occurred on the US base at Erbil Airport at about 21:50 on 2021-04-14, no injuries were reported. At about the same time, 4 rockets were launched at the Turkish military base near Bashiqa; one hit the base and killed a Turkish soldier, three hit the nearby village and wounded two civilians.



It is possible the two attacks are related, though the targets, methods, and political motives seem very different.

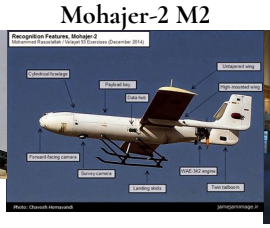
2 ERBIL ATTACK

News reports attribute the attack to a group calling itself Al Sabiqoon (السابقون), or The Forerunners and a video posted to social media edited from on-airport security camera footage of the blast had an added soundtrack referencing Qasem Soleimani, though none of these claims have been independently verified.

2.1 TECHNICAL ANALYSIS OF ERBIL ATTACK

Reports indicate that the attack was carried out by a drone. The scale of the explosion indicates a yield of tens of kg TNT equivalent, ruling out modified commercial drones as the delivery vehicle , though a Versadrones Heavy Lift Octocopter can deliver 12kg up to 5km for about $17,000.

Based on recent attacks, it is reasonable to consider an Iranian drone as the likely delivery vehicle. Two Iranian drone variants, the Arash and Raad-85, are known to be designed for "suicide" attacks where the drone is programmed or directed to fly into the target, a category also known as a loitering munition. Some sources indicate the Mohajer-2 and 2N, from which the Raad-85 is derived, may also be configured as loitering munitions, though these are unconfirmed.

	Arash	Raad-85	Mohajer-2 M2	Mohajer-2 M2N
				
Persian Name	آرش (the archer)	رعد ۵۸ (thunder)	مهاجر ۲ (immigrant)	مهاجر ۲ N
Year Identified	2020	2011	1996	2014
Primary Role	Long-range suicide	Mid-range suicide	ISR Drone	ISR Drone
Payload	30kg	(15 kg from M2N)	15kg	15kg
Range	1400–2000km	100 km–250 km	50 km round trip	150 km round trip
Speed	230 km/hr impact	250 km/hr	200 km/hr	180 km/hr
Wingspan	≈ 2.4 m (stubby)	(3.8m from M2N)	3.8 m	3.8 m
Length	≈3 m	(2.9m from M2N)	2.91 m	2.91 m
Endurance	≈ 8.5 hours	(6 hours from M2N)	1.5 hours	6 hours
Launch System	Portable container	Rails	Rails	Rails

The new Arash drone appears to be specifically designed as a long-range loitering munition designed for easy transport in standard vehicles with launch capability directly from mounting points via a JATO/RATO system. It should be easy to differentiate the Arash from debris; differentiation between the Raad-85 and Mohajer models would be more subtle.

The reported range of both drones permits a plausible PoO within Iran for the EBL PoI, a the significant regional threat escalation created by the introduction of autonomous drones to the conflict theater. Suicide drones can be manufactured for very low cost as they are not intended to be reusable nor do they require landing capabilities. They represent a new class of munition with a combination of features that create a risk of escalation of low-intensity conflict with a demonstrated low barrier to use due to very low cost, both economic and to personnel: they are cheap to deploy in both blood and money.

Estimated costs for the Arash drone range from $25,000–$50,000, well above familiar short-range rockets like the 107mm Fajr-1 or 122mm Arash family with costs on the order of $1–10k each for similar payload capabilities, but vastly cost lower than SRBMs estimated at $750,000–$1.5m each with similar standoff ranges. The Circular Error Probability (CEP) of armed drones is typically estimated on the order of 5m, an order of magnitude more accurate than even the latest SRBM designs. This combination of features can be expected to result in a significant increase in use of this new class of munitions.

System	Class	Intro	Guidance	Est Unit Cost	Range	Payload	CEP
Fajr-1	107mm rocket	1960s	Ballistic	$10k	8–10km	8kg	300m
Fajr-5	333mm rocket	2000s	Ballistic	$135k	75km	90kg	3,000m
Fajr-5C	333mm rocket	2017	GPS	>$135k	40–150km	<90kg	50–250m
Arash Drone	Suicide Drone	2020	GPS/AI	$25–50k	1400–4000km	30kg	5m
Raad-85	Suicide Drone	2011	Remote Pilot	$25–50K	100–250km	15kg	5m
Zolfaghar	SRBM	2016	GPS	$3.75M	700km	500kg	100m
Fateh-313	SRBM	2015	GPS	$3 M	500km	500kg	10–100m
Qiam-2	SRBM	2018	(yes)	$4 M	800km	750kg	10–100m

POINT OF ORIGIN RADII TO REACH EBL POINT OF IMPACT

The introduction of suicide drones represents a major shift in warfare and introduces a new entry in the class of conflict short of ground invasion that includes suicide bombers, rocket and mortar attacks, aerial bombing, and short-range missiles. Each of the historical classes of such low-intensity conflict carried execution risks or costs that imposed meaningful limits on deployment. In particular, heretofore low-cost attacks were short-range and therefore required local cooperation for execution. Drones provide greater accuracy than locally executed attacks without any complications of engaging local insurgents and do so at exceptionally low costs significantly lowering barriers to use.

Defending against such technologically enabled attack modalities requires a commensurate investment in defensive technology, such as drone detecting radar.

2.2 POLITICAL ANALYSIS

If the attribution to Al Sabiqoon (or another regional proxy force) is correct, it is unlikely that a modern drone was deployed as there are no reports of the Arash being used in Yemen, for example. However there is some indication that the Raad-85 has been used by both the Houthi movement in Yemen against Saudi targets and by al-Hashd al-Shaabi forces in Iraq, also against Saudi targets. Deployment against US targets by proxy forces would be a significant escalation.

It is necessary to consider that the use of the drone may have been a demonstration, similar to the 2020-01-08 attack carried out with Fateh 313 and Qiam-2 missiles fired from Iran, some targeting the same US base in retaliation for the killing of Qasem Soleimani, and which was generally considered an unexpected demonstration of Iranian missile accuracy. The recent Israeli attack on the Natanz uranium refining facility took place while US secretary of defense Lloyd Austin was in Israel linking, at least superficially, the US to the attack on Natanz and for which Iran promised retaliation. It seems reasonable to postulate that this attack may have been a similar field demonstration of Iran's regional strike capabilities, and in particular a successful test of the Arash's range and stealth.

There are significant political and regional repercussions whether locally launched by proxy forces or launched from Iran: if the attack was carried out using older technologies by proxy forces, then it is significant that Iran permitted the expansion of proxy targets to include American facilities and attacks on KRG territory and represents additional proliferation of advanced weapons systems.

If the attack was carried out from Iran, there is a clear message that US forces are within Iranian strike range with stealthy and highly asymmetric weapons. Additional consideration should be given to marginal data: it appears both the giant voice alarm system on the base and the consulate warning system were activated after the explosion: if the delivery vehicle was an Arash UAV, it may have successfully evaded base defenses by a combination of radar reducing coatings, low intrinsic radar cross section (RCS), low altitude approach, and approach dynamics that match what are considered low-threat aircraft in the higher traffic area of the airport rather than those of typical incoming IDF, possibly defeating automatic detection tuned to RAM munition flight characteristics.

3 BASHIQA ATTACK

The Bashiqa attack was carried out on the same night. It is reported that four 122mm rockets were fired, and while details have not been released, they may be from the Arash family of 122mm rockets, which if the drone was also an Arash (Arash is a popular name for Iranian weapons systems; it is also the name of a 20mm anti-materiel rifle), would be a little suspect. The Arash 122mm missile family consists of 4 unguided missiles of various lengths and ranges from 18–40km derived from the Russian Grad design.

The launchers recovered nearby are very crude, clearly of local manufacture. The 122mm rockets are fairly common, though not quite as common as the smaller 107mm Haseb-1 rockets used in the 2021-02-15 Erbil attack.

The disparity of technology used and the difference in targets selected would tend to indicate that they were carried out by different groups: the Bashiqa attack was clearly locally executed. Despite claims by al-Hashd al-Shaabi groups, it remains entirely possible the EBL base attack was launched from Iran.