

13 Long-Range Suicide Drones and Launch Platforms near Nyala Airport, May 2025

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Yale SCHOOL OF PUBLIC HEALTH
Humanitarian Research Lab

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I. Key Findings

The Yale School of Public Health's Humanitarian Research Lab has identified 13 delta-wing UAVs (drones) and 16 launching platforms near Rapid Support Forces (RSF)-controlled Nyala airport in archival satellite imagery collected between 1 and 6 May 2025. The 13 UAVs identified outside Nyala are consistent with Shahed-136-style loitering munitions, possibly either Sunflower-200s or ZT-180s, which typically have a range of 1500-2000 kilometers. This period coincides with multiple UAV attacks on Port Sudan between 3 May and 7 May 2025 by RSF-deployed drones, approximately 1600 kilometers from Nyala. The 16 launch platforms near Nyala Airport are present in all available satellite imagery through at least 5 September 2025.

13 Delta-Wing UAVs and 16 Pneumatic Launchers Observed in Nyala

The 13 delta-wing UAVs and 16 objects consistent with pneumatic launchers are visible in satellite imagery between 1-6 May 2025 north of RSF-controlled Nyala airport. None of the UAVs or launchers are present in imagery collected on 1 May 2025. Yale HRL analyzed two images collected on 6 May 2025: one collected at 8:45:03 UTC (10:45:03 CAT) and the second collected approximately four hours later at 12:42:31 UTC (14:42:31 CAT).

In the imagery collected at 8:45:03 UTC (10:34:03 CAT) 16 launchers are newly visible with 13 total delta-wing UAVs. Eleven of the 13 delta-wing UAVs are next to launchers and two delta-wing UAVs are located approximately 150 meters west of the launchers. In lower-resolution satellite imagery collected at 12:42:31 UTC (14:42:31 CAT), the 11 delta-wing UAVs previously observed next to the launchers appear to be positioned on the launchers, ready for deployment. The remaining two UAVs and the 5 launchers without UAVs appear to be in the same position as they were in the earlier imagery from the same day.

In satellite imagery collected on 9 May 2025, there are no delta-wing UAVs visible in the area around the launchers. This includes the two delta-wing UAVs which were located 150 meters from the launchers. The 16 launchers appear to remain in the same locations that they first appeared in the satellite imagery collected at 8:45:03 UTC (10:34:03 CAT) on 6 May 2025 and they remain in the same position in all satellite imagery analyzed through 5 September 2025.

The objects consistent with UAVs visible north of RSF-controlled Nyala airport have a delta-wing design with approximate dimensions of 2.5 meter wingspan and approximately 2.8-3 meters nose-to-tail. These measurements should be considered approximate due to resolution of available imagery and size of the objects.

These delta-wing UAVs in Nyala have operational parameters consistent with Shahed-136-style loitering munitions, including the Sunflower-200 (Cobtec) and the ZT-180 (Xi'an Bingo Intelligent Aviation Technology).¹ There are multiple variations on the Shahed-136 style, which are delta-wing loitering munitions with approximately 2.5 meter wingspan and 3.5 meter nose-to-tail dimensions. Shahed-type UAVs are often

referred to as “loitering munitions,” “suicide drones,” or “kamikaze drones” as they are not intended to be reused and are typically destroyed either by colliding with a target or crashing after dropping a 20-50kg munition². Shahed-style UAVs can launch from a runway when wheels are attached, be rocket-assisted and launch directly from a frame, or launch from a slingshot platform (e.g., such as a pneumatic-powered launch platform)³. Shahed-style UAVs typically have a range of⁴ 1500-2000 kilometers. Some Shahed-style loitering munitions may be equipped with photo and video⁵ capabilities.⁶

Two UAV types with dimensions most similar to the drones visible near Nyala Airport (that measure approximately 2.5 meter wingspan and 2.8-3 meter nose-to-tip) are the Cobtec Sunflower-200 and Xi'an Bingo Intelligent Aviation Technology ZT-180. The Chinese-made (Cobtec) Sunflower-200 reportedly has a wingspan of 2.5 meters and length (nose-to-tail) of 3.2 meters and can be launched using a rocket unit or a pneumatic launcher comparable to the type present in Nyala since May 2025.⁷ The Chinese-made ZT-180 reportedly has a wingspan measuring 2.6 meters and is 2.8 meters nose-to-tail,⁸ and can be launched using a catapult launcher comparable to the type present in Nyala since May 2025.⁹

The Sunflower-200's range is reported as 2000-2500 kilometers; the ZT-180's range is reported as 1800 kilometers.¹⁰ The entirety of Sudan is within range of both UAV types from a position near Nyala Airport. Port Sudan is approximately 1600 km from Nyala and Kassala is approximately 1300 km from Nyala.

The warhead mass for the Sunflower-200 is reported as 40 kg¹¹ and the warhead mass (payload) for the ZT-180 reportedly ranges from 35 to 50 kg.¹²

In July 2025, a report claimed that in 2024 the UAE's ADASI (Abu Dhabi Autonomous Systems Investments) subsidiary EDGE Group signed an agreement to license production of the Sunflower-200 from China's Cobtec, which included the ability to modify the UAV.¹³ In February 2023, *Der Spiegel* reported that China's Xi'an Bingo Intelligent Aviation Technology was in negotiations with Russia's military to mass produce ZT-180 UAVs (loitering munitions).¹⁴ Xi'an Bingo Intelligent Aviation Technology has denied any commercial contact with Russia.¹⁵ A complete list of proliferators for either the Sunflower-200 or the ZT-180 is not currently known.

16 Objects Consistent with Pneumatic Launch Platforms

There are 16 objects consistent with pneumatic launch platforms for Shahed-type UAVs. These 16 objects near Nyala Airport are consistent in dimension measuring about 1.2 m wide and 3 meters long. These measurements should be considered approximate due to resolution of available imagery and size of the objects. The assessment that these objects are launch platforms is based on the following:

1. The position of the delta-wing UAVs in both the earlier and later imagery from 6 May 2025 shows their dimensions in the first and the UAV affixed to the object in the second;

2. The shape and size, noting approximate measurements based on resolution and size of these objects, is consistent with known pneumatic launch systems used for Shahed-style UAVs.¹⁶

Alleged RSF “Suicide Drone” Attacks Targeted Port Sudan

Around 12:00 AM UTC on 3 May 2025, SAF allegedly launched a drone attack on Nyala airport, reportedly destroying an IL-76 at the airport and allegedly killing people including a South Sudanese pilot.¹⁷

On 3 May 2025, RSF allegedly launched a multi-day drone attack on Port Sudan and other areas far from existing frontlines. In the early hours of 3 May 2025 multiple UAVs reportedly attacked the airports at Port Sudan and Kassala, including the Osman Digna military airbase and cargo terminal.^{18,19}

On 4 May 2025, multiple UAVs – described as suicide drones – reportedly targeted Port Sudan Airport, Osman Dinga Airbase and two civilian areas.²⁰

On 5 May 2025, multiple UAVs reportedly hit Port Sudan international airport and at least one oil refinery.²¹

On 6 May 2025 multiple UAVs reportedly hit the Coral Marina Hotel, oil depots near the southern port, and the Flamingo naval base.²²

On 7 May 2025, UAVs reportedly targeted a naval base in Port Sudan and were intercepted by SAF anti-aircraft defense.²³

Attacks on Port Sudan and other areas away from the frontlines have continued since 7 May 2025.²⁴

Port Sudan is approximately 1600 km from Nyala, and Kassala approximately 1300 km, from Nyala. Any of the potential candidates for the UAVs identified in Nyala in satellite imagery on 6 May 2025 are in operational flight range to Port Sudan, Kassala, and any other location in Sudan.

Sudan’s Permanent Representative to the United Nations alleged that the UAVs that attacked Port Sudan came from ‘Red Sea bases’; however, former SAF Air Force Brigadier General Adel Abdel Latif explained to *Radio Dabanga* that a Red Sea launch “does not necessarily mean coming from outside the country,” and that “approximation to the sea gives the aircraft a better opportunity for manoeuvre and positioning and facilitates their return to the launch base.”²⁵ Prior to this report, there has not been clear evidence indicating where the UAVs involved in the May 2025 attacks could have originated from.²⁶ There are multiple reports claiming, without presenting evidence, that RSF has utilized Chinese UAVs, including Sunflower-200s.²⁷

Human Security Analysis

This report concludes that RSF has had a suicide drone capability based out of the Nyala airport since at least May 2025. Regardless of whether these specific airframes were the vehicles involved in RSF's May 2025 attacks on Port Sudan, which Yale HRL cannot conclude definitively based on available data, it is now a fact that RSF has possessed and field-deployed this technology from inside Darfur. It must be noted that this technology can reach the entirety of Sudan from this location at Nyala airport, representing a clear and present danger to civilians, critical infrastructure, and humanitarian aid access. Given the attacks by similar vehicles, including on Khartoum and Omdurman on 9 September 2025,²⁸ this capability should be treated as highly mobile and capable of being moved rapidly into position for attack deployment and quickly moved from its last launching point. The acquisition of this capability by RSF is another data point indicating a continuing materiel pipeline from technologically advanced foreign actors supplying RSF with advanced weaponry.

II. Methodology

Yale HRL utilizes data fusion methodologies of open source and remote sensing data analysis. Yale HRL produced this report through the cross-corroboration of open source data, including social media, local news reporting, multimedia, and other reports, and remote sensing data, including satellite imagery and thermal sensor data. Researchers analyzed open source data across social media, news reports, and other publicly available sources to identify, chrono- and geolocate, and verify incidents. Analysts assess the credibility and reliability of open source data based on a source's level of detail, past credibility, and the corroboration of other independent sources. Remote sensing and satellite imagery analysis relies on multi-temporal change detection, which involves the comparison of two or more satellite images of the same area captured at different times to detect differences in coloration, visual properties, and presence, absence, or positional change of objects across the images.

Limitations

There are significant limitations to the data fusion methodology. The information environment in Sudan does not have the breadth of data available in other locations and there is likely a significant reporting bias for those who provide open source reporting. The tools and techniques present significant challenges to assess activities such as extrajudicial detention, conflict-related sexual violence (CRSV), and conflict-related casualties, particularly in environments with limited data. Satellite imagery analysis is limited by available imagery over time and space. Available nadir angles of satellite imagery can produce challenges to assess structural damage, until multiple angles and ground-level photographic and video materials emerge to help inform the analysis. Image resolution level can also limit the analyst's ability to perceive the full extent of damage present.

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⁴ *Shahed-136*: U.S. Army OE Data Integration Network.

⁶ *Ibid.*

⁷ Hambling, David. “Is China’s Kamikaze Drone Clone Headed To Russia?” *Forbes*. 11 September 2023. <https://www.forbes.com/sites/davidhambling/2023/09/11/is-chinas-kamikaze-drone-clone-headed-to-russia/>, archived at <https://web.archive.org/web/20250822183718/https://www.forbes.com/sites/davidhambling/2023/09/11/is-chinas-kamikaze-drone-clone-headed-to-russia/>;

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⁸ Military Coverage.

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²⁷ McGregor, Andrew “Drone Attacks on Port Sudan Jeopardize Plan for Russian Red Sea Naval Base” *The Jamestown Foundation Eurasia Daily Monitor* 28 May 2025 <https://jamestown.org/program/drone-attacks-on-port-sudan-jeopardize-plan-for-russian-red-sea-naval-base/>, archived at <https://archive.ph/TQFJO>;

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Defense Express 6 May 2025 <https://en.defence-ua.com/weapon-and-tech/chinese-drones-used-in-attack-on-sudan-were-seen-at-a-2023-military-expo-in-russia-14414.html>, archived at <https://web.archive.org/web/20250531182307/https://en.defence-ua.com/weapon-and-tech/chinese-drones-used-in-attack-on-sudan-were-seen-at-a-2023-military-expo-in-russia-14414.html>;

Clash Report (@clashreport) “Chinese Kamikaze Drone in Sudan” X, formerly known as Twitter, 5 May 2025 <https://x.com/clashreport/status/1919318841244389507>, archived at <https://archive.ph/qQZLN>

²⁸ The New Arab Staff & Agencies, “Drone strikes on Sudan capital claimed by RSF administration,” *The New Arab*. 9 September 2025. Available at <https://www.newarab.com/news/drone-strikes-sudan-capital-claimed-rsf-administration>, archived at <https://archive.ph/zchRI#selection-2225.0-2225.60>.

“RSF drone attacks hit Khartoum, cause power outage,” *Sudan Tribune*, 9 September 2025. Available at <https://sudantribune.com/article304770/>; archived at <https://perma.cc/8VR2-Q684>.

“Drones Target Strategic Sites in Sudan’s Capital Khartoum,” *SadaNews*, 9 September 2025. Available at <https://www.sadanews.ps/en/news/228808.html>, archived at <https://archive.ph/sz3MD>.

Nyala | 06 May 2025

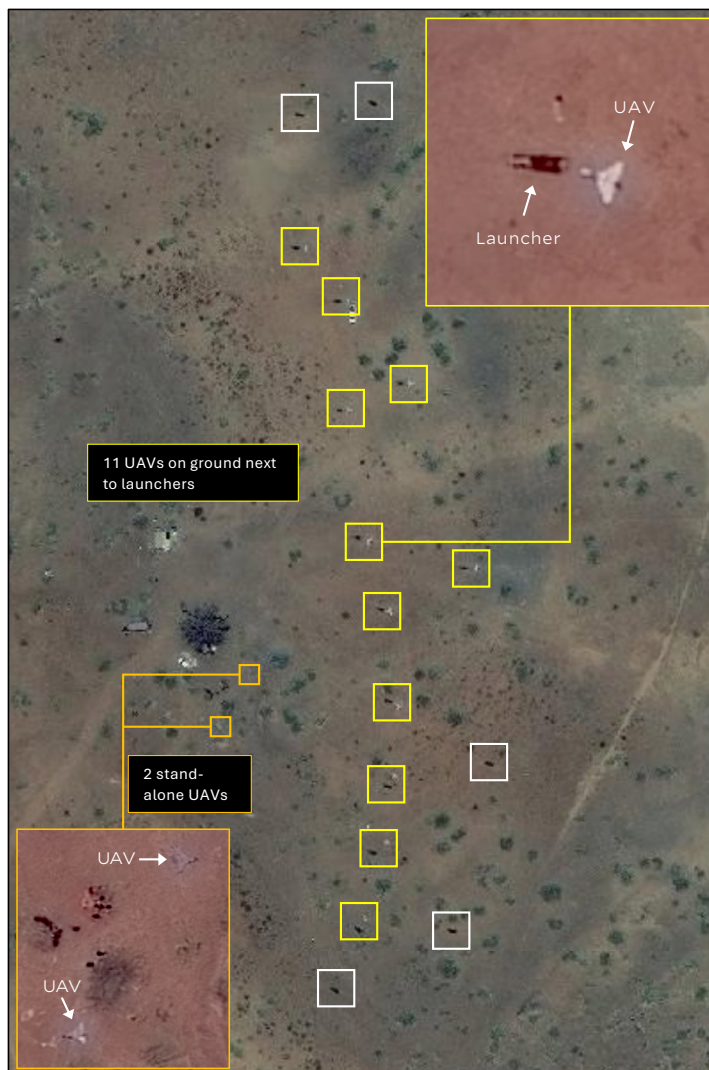
Delta-Wing UAVs with Launchers Present

Imagery collected on 06 May 2025 at 08:45 UTC over Nyala shows the new presence of 16 launchers UAVs, and approximately 13 delta-wing UAVs measuring approximately 3 meters in length with a 2.5 m wingspan.

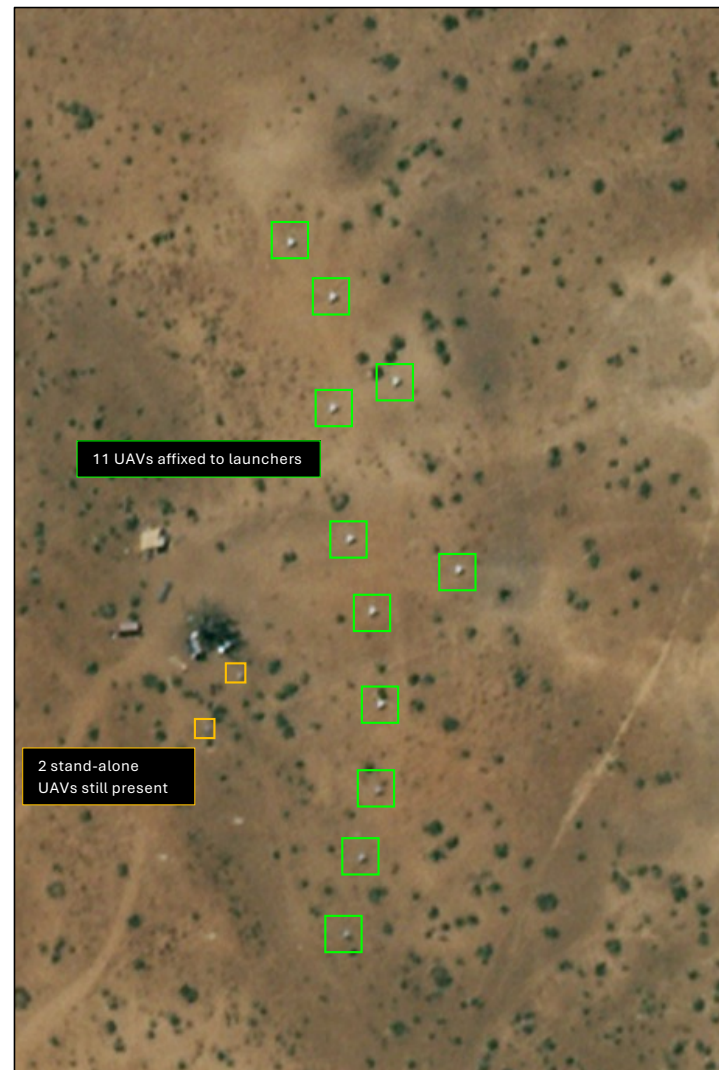
Of the 13 UAVs identified, 11 of these (yellow boxes) are positioned on the ground near the launchers. Two additional UAVs without launchers have been identified 150 m east (orange boxes). At least 5 launchers are identified without UAVs near their position (white boxes).

In satellite imagery collected at 2025-05-06 12:42:31 UTC there are approximately 11 UAVs appear to be affixed to the trailer launchers (green Boxes).

Close-up images enhanced with MGP Pro and HD image enhancement.



6 May 2025 08:45:03 UTC © 2025 Maxar Technologies



6 May 2025 12:42:31 UTC © 2025 Planet Labs

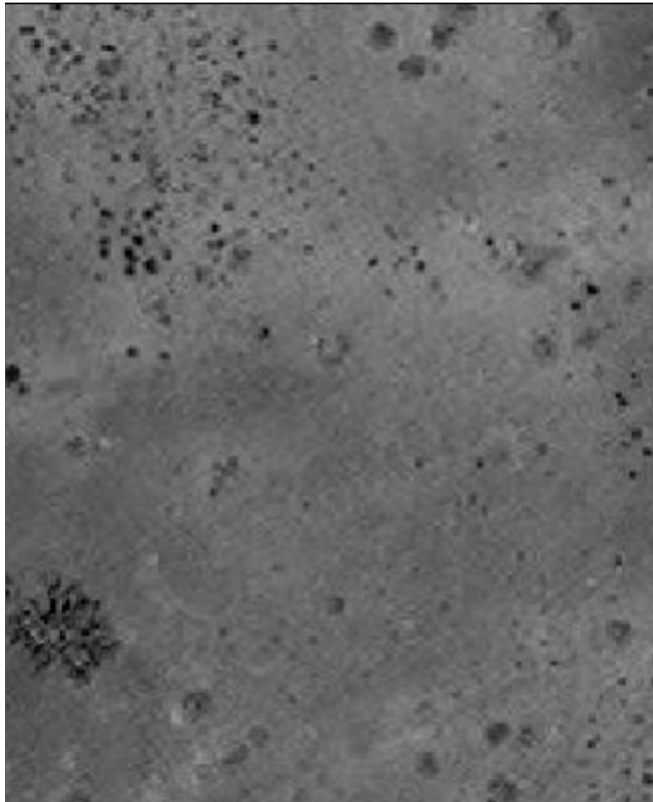
Nyala

UAV ACTIVITY OBSERVED BETWEEN 01-06 & 09 MAY 2025

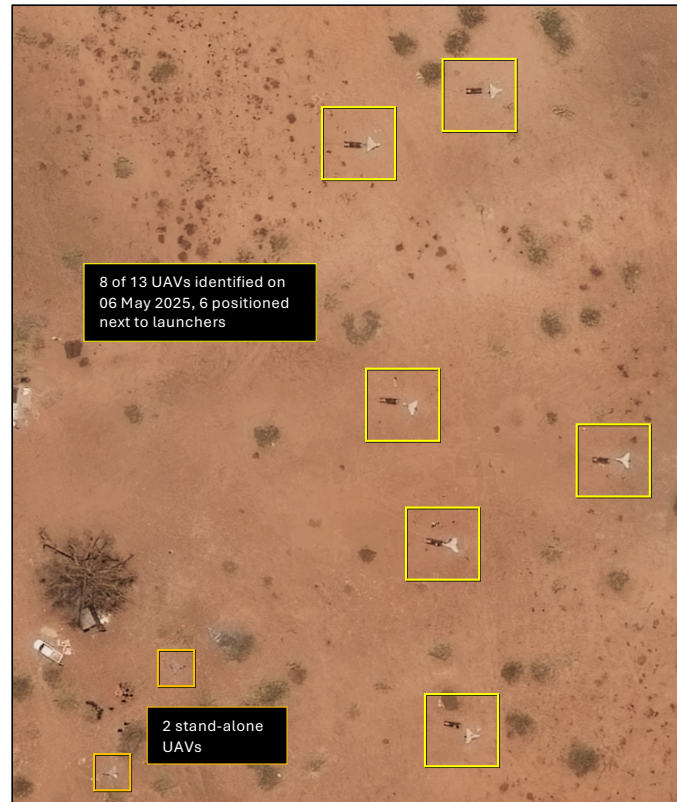
Analysis of satellite imagery collected between 01 and 06 May 2025 shows the new presence of at least 13 delta-wing UAVs, measuring approximately 2.8-3 m in length with a 2.5 m wingspan, and 16 objects consistent with pneumatic launchers. Higher resolution satellite imagery from 29 April 2025 is being shared here.

This slide shows a close-up of 6 delta-wing UAVs positioned next to their launchers present on 06 May 2025 (yellow boxes). Two additional delta-wing UAVs are identified without launchers 150 m west (orange boxes).

Further analysis of imagery collected 09 May 2025 of this location shows that all UAVs are no longer present. However, their launchers remain visible in their previously identified positions (green boxes).



29 April 2025 © 2025 Maxar Technologies



06 May 2025 © 2025 Maxar Technologies
Image enhanced with MGP Pro + HD image enhancement



09 May 2025 © 2025 Maxar Technologies

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