

Six UAVs at RSF-held Nyala Airport

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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 (HRL) identifies six advanced unmanned aerial vehicles (UAVs) at the Rapid Support Forces (RSF)-controlled Nyala International Airport in satellite imagery from 24 April 2025. This is the highest number of UAVs identified on the airstrip since RSF's capture of Nyala airport in satellite imagery to date. Since 9 December 2024, between one and four UAVs consistent with Chinese-manufactured CH-95s or FH-95s are regularly visible in satellite imagery at the airport in Nyala. The increase in UAVs at Nyala Airport indicates that RSF continues to receive shipments of advanced weapons systems. These advanced UAVs may be capable of long-range surveillance and strikes, electronic surveillance, and warfare.¹

These six UAVs all have a consistent wingspan of approximately 12 meters and length from nose to tail of approximately 8 meters. These dimensions are consistent with the length and width of the UAVs first visible at Nyala airport in satellite imagery on 9 December 2024.² Yale HRL first assessed these UAVs as consistent with the FH-95s, *Reuters* has assessed these UAVs as consistent with CH-95s; based on the available data these UAVs could be consistent with either airframe.³ Due to the lower resolution of imagery from 24 April 2025, other specifications cannot dispositively be identified, although all four UAVs visible in Very High Resolution (VHR) satellite imagery on 21 April 2025 in the same or similar positions match all the dimensions visible in satellite imagery: approximately 12 meter wingspan, approximately 8 meter length, tail wings with approximately 3 meter width, tail wing configuration of twin boom tail with winglets, or flared ends.

The first reports of flights to Nyala airport since RSF's capture of the city in October 2024 were reported on 21 September 2024; those flights have been reportedly intermittently occurring since that time.⁴ Sudan Armed Forces (SAF) was regularly conducting airstrikes on the Nyala airport after reports of flights landing there.⁵ On 24 February 2025 RSF reportedly shot down a SAF IL-76 outside Nyala and on 3 April 2025 RSF reportedly shot down a SAF AN-12 outside El-Fasher, North Darfur.⁶

The increase in UAVs at Nyala indicates that RSF likely continues to receive support while committing mass atrocities, including systematic arson attacks, extrajudicial killings and detainments of women and girls and young men, conflict-related sexual violence (CRSV), extrajudicial detentions, and mass displacement of hundreds of thousands of people in Zamzam Internally Displaced Persons (IDP) Camp, approximately 165 kilometers north of Nyala Airport.⁷

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.

Place names were identified using UN P-codes obtained via the United Nations Humanitarian Data Exchange (HDX) and International Organization for Migration (IOM)'s Displacement Tracking Matrix (DTM) Sudan. This baseline was then verified and informed through open source analysis by Yale HRL's analysts with relevant cultural and linguistic skills.

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.

¹ U.S. Army OE Data Integration Network (ODIN), "FH-95 (Flying Swan) Chinese Unmanned Aerial Vehicle (UAV)," 2019, [https://odin.tradoc.army.mil/WEG/Asset/FH95 \(Flying Swan\) Chinese Unmanned Aerial Vehicle \(UAV\)](https://odin.tradoc.army.mil/WEG/Asset/FH95%20(Flying%20Swan)%20Chinese%20Unmanned%20Aerial%20Vehicle%20(UAV)), archived at <https://perma.cc/C4XD-V5N3>; Reade Levinson, Khalid Abdelaziz and Nafisa Eltahir, "Sudan's RSF operating drones from Darfur base, pictures show" *Reuters*, February 26, 2025, <https://www.reuters.com/world/africa/sudans-rsf-operating-drones-darfur-base-pictures-show-2025-02-26/>, archived at <https://archive.ph/YJwak>

² Caitlin N. Howarth, Kaveh Khoshnood, Nathaniel A. Raymond et al." SPECIAL REPORT: Advanced UAVs Identified at RSF-Controlled Nyala Airport." Humanitarian Research Lab at Yale School of Public Health: New Haven. <https://files-profile.medicine.yale.edu/documents/73142835-15d7-4b8e-9c18-53bcecf5a184>

³ Yale HRL first identified the UAVs as FH-95s, *Reuters* identified these UAVs as CH-95s. Caitlin N. Howarth, Kaveh Khoshnood, Nathaniel A. Raymond et al." SPECIAL REPORT: Advanced UAVs Identified at RSF-Controlled Nyala Airport." Humanitarian Research Lab at Yale School of Public Health: New Haven. <https://files-profile.medicine.yale.edu/documents/73142835-15d7-4b8e-9c18-53bcecf5a184>; <https://www.reuters.com/world/africa/sudans-rsf-operating-drones-darfur-base-pictures-show-2025-02-26/>

⁴ Sudan War Monitor, "Intense fighting in central El Fasher," September 21, 2024, <https://sudanwarmonitor.com/p/intense-fighting-in-central-el-fasher>, archived at <https://perma.cc/P5XN-M35A>; Darfur24, "هبوط طائرة مجهولة في مطار "نيالا" للمرة الثانية خلال اسبوع", September 26, 2024, <https://www.darfur24.com/2024/09/26/%D9%87%D8%A8%D9%88%D8%B7-%D8%B7%D8%A7%D8%A6%D8%B1%D8%A9-%D9%85%D8%AC%D9%87%D9%88%D9%84%D8>

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⁵ Caitlin N. Howarth, Kaveh Khoshnood, Nathaniel A. Raymond et al. “Airstrikes Damage Nyala International Airport.” 30 September 2024. Humanitarian Research Lab at Yale School of Public Health: New Haven, <https://files-profile.medicine.yale.edu/documents/efea605c-98bd-4e69-92d6-a95f1213c5e3>, archived at <https://perma.cc/ML95-MSJB>; Radio Dabanga, “الطيران الحربي يقصف مدرج مطار نيالا” “بجنوب دارفور” September 24, 2024, <https://www.dabangasudan.org/ar/all-news/article/%d8%a7%d9%84%d8%b7%d9%8a%d8%b1%d8%a7%d9%86-%d8%a7%d9%84%d8%ad%d8%b1%d8%a8%d9%8a-%d9%8a%d9%82%d8%b5%d9%81-%d9%85%d8%af%d8%b1%d8%ac-%d9%85%d8%b7%d8%a7%d8%b1-%d9%86%d9%8a%d8%a7%d9%84%d8%a7-%d8%a8%d8%ac>, archived at <https://perma.cc/D388-5GH8>; Sudan War Monitor, “Nyala airport destroyed in airstrike,” September 26, 2024, <https://sudanwarmonitor.com/p/nyala-airport-destroyed-in-airstrike>, archived at <https://perma.cc/DG8Y-93RY>;


⁶ Radio Dabanga, “الدعم السريع تعلن إسقاط طائرة في نيالا، ومقتل ضابط برتبة لواء” February 24, 2025, <https://www.dabangasudan.org/ar/all-news/article/%D8%A7%D9%84%D8%AF%D8%B9%D9%85-%D8%A7%D9%84%D8%B3%D8%B1%D9%8A%D8%B9-%D8%AA%D8%B9%D9%84%D9%86-%D8%A7%D8%B3%D9%82%D8%A7%D8%B7-%D8%B7%D8%A7%D8%A6%D8%B1%D8%A9-%D9%81%D9%8A-%D9%86%D9%8A%D8%A7%D9%84%D8%A7>, archived at <https://perma.cc/2ZZW-E26T>; Sudan Tribune, “الدعم السريع” تعلن إسقاط طائرة حربية بشمال دارفور” April 3, 2025, <https://sudantribune.net/article299326/>, archived at <https://perma.cc/NB5H-6J9E>; Al-Sudani News, “سقوط طائرة شحن عسكرية قرب الفاشر واستشهاد طاقمها” April 3, 2024, <https://alsudaninews.com/?p=192139>, archived at <https://perma.cc/HK8G-ZWAJ>

⁷ Caitlin N. Howarth, Kaveh Khoshnood, Nathaniel A. Raymond et al. “Human Security Emergency: Ongoing RSF Arson Attacks and Force Swell in Zamzam IDP Camp” 16 April

2025. Humanitarian Research Lab at Yale School of Public Health: New Haven; <https://sapa-usa.org/sudan-north-darfur-situation-update/>, archived at <https://perma.cc/5MBK-EW2Z>; United Nations Security Council, “Security Council Press Statement on Sudan,” SC/16046, UN News, April 17, 2025, <https://press.un.org/en/2025/16046.doc.htm>, archived at <https://perma.cc/8R48-DRG4>; ^{viii} United Nations Security Council, “Security Council Press Statement on Sudan,” SC/16046, UN News, April 17, 2025, <https://press.un.org/en/2025/16046.doc.htm>, archived at <https://perma.cc/8R48-DRG4>; Sudan Tribune, “Deaths reported among displaced fleeing Sudan’s Zamzam camp after RSF takeover,” April 16, 2025, <https://sudantribune.com/article299855/>, archived at <https://archive.ph/PMFOj>; Kaamil Ahmed, “‘They were chanting as they killed people in their homes’: survivors describe attack on Sudan’s Zamzam camp” April 18, 2025, *The Guardian*, <https://www.theguardian.com/global-development/2025/apr/18/survivors-attack-sudan-zamzam-camp-rapid-support-forces-paramilitaries>, archived at <https://perma.cc/ZC6L-2TJY>; Nafisa Eltahir, Mohamed Jamal, Khalid Abdelaziz, Inaki Malvido, Aaron McNicholas, Milan Pavicic, Eleanor Whalley, and Andrew Heavens, “Survivors describe executions, arson in attack on Sudan’s Zamzam camp,” *Reuters*, April 19, 2025, <https://www.reuters.com/world/africa/survivors-describe-executions-arson-attack-sudans-zamzam-camp-2025-04-19/>, archived at <https://archive.ph/CV45s>; Emtithal Mahmoud, “The Darfur Genocide Never Ended,” *The New York Times*, April 20, 2025, <https://www.nytimes.com/2025/04/20/opinion/sudan-darfur-genocide.html>, archived at <https://archive.ph/BTsSq>



Six UAVs at Nyala Airport 24 April 2025

 UAV Presence Observed

Analysis of satellite imagery collected on 24 April 2025 shows the presence of at least six UAVs consistent with the CH-95 or FH-95 drone on the airstrip of the Nyala Airport. These UAV have a wingspan of approximately 12 meters and a length (nose – tail) of approximately 8 meters.

No more than four UAVs have been identified at the airstrip in imagery collected on 21 April 2025.

Nyala Airport | 21 April 2025

Analysis of satellite imagery collected on 21 April 2024 shows the presence of four CH-95 or FH-95 consistent UAVs in higher resolution satellite imagery. These UAVs have a wingspan of approximately 12 meters and a length (nose – tail) of approximately 8 meters, tail wings with approximately 3 meter width, tail wing configuration of twin boom tail with winglets (flared ends) that is not significantly pronounced. Between one and four UAVs have been regularly identified at Nyala airport between 9 December 2024 and 21 April 2025.



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