El-Fasher Situation Report: Ongoing Bombardment Progresses into Central El-Fasher

15 November 2024

Yale SCHOOL OF PUBLIC HEALTH
Humanitarian Research Lab

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The Faculty Director of the Humanitarian Research Lab (HRL) at the Yale School of Public Health is Dr. Kaveh Khoshnood. The analysis and production of this report was overseen by HRL Executive Director Nathaniel Raymond and Caitlin Howarth. Analysis and report production was conducted by the Humanitarian Research Lab's Conflict Analytics team.

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I. Key Findings

The Yale School of Public Health's Humanitarian Research Lab (HRL) assesses that ongoing fighting continues to progress closer to the center of El-Fasher from the southeast and northeast. This fighting has resulted in damage from aerial and artillery bombardment near the center of the city. Simultaneously, vehicles consistent with Rapid Support Forces (RSF) continue to approach El-Fasher from the east. Indicators of increased mortality are present at the multiple cemeteries near Sudan Armed Forces (SAF) and Joint Forces-aligned facilities as well as in likely civilian cemeteries. These data corroborate Yale HRL's previous assessment.[1] Ongoing battles are converging on the center of El-Fasher, toward the SAF 6th Division Command, the Airfield, and the B-26 road out of El-Fasher from multiple directions. Both RSF and SAF and aligned forces have conducted tactical advances and withdrawals in El-Fasher, but RSF continues to gradually gain ground. Yale HRL's previous conclusions that El-Fasher may fall at any time to RSF stands.

Bombardment in Central El-Fasher

The area near the bridge south of the grand market is highly contested in recent days based on bombardment activity and the presence of vehicles. Analysis of satellite imagery collected over this area between 11 and 14 November 2024 shows munition impacts, active smoke plumes, and damage to multiple structures, including the National Police Headquarters and the Al-Muzdoujah Primary School for Boys. These findings corroborate reports by local media that RSF artillery shelling damaged the police headquarters on 13 November 2024, and both RSF and SAF have claimed control of the police station.[2] Recent artillery damage to the El-Fasher Model Girls School northeast of the Grand Market (Souk) between 8-11 November 2024 also indicates a northeastern vector of attack.

Nearby airstrikes in central El-Fasher indicate SAF efforts to counter a possible RSF advance. The airstrikes since 8 November 2024 are significantly closer to the center of the city. Analysis of satellite imagery collected between 11 and 13 November 2024 shows multiple munition impacts and damage to structures from aerial bombing in the Al-Jil neighborhood of central El-Fasher. Active fire and smoke are visible at multiple damaged locations on 13 November, indicating recent impact. Additionally, multiple likely RSF-aligned light technical vehicles near these airstrikes attributed to SAF are present in the 13 November 2024 image. Local media reported SAF airstrikes in eastern El-Fasher on 11 and 13 November 2024.[3] These SAF airstrikes may indicate RSF presence in central El-Fasher at the time of attack.

Grave Activity

Satellite imagery analysis shows significant and rapid increase in graves inside two known SAF-aligned cemeteries. This change indicates that SAF-aligned forces have continued to sustain significant recent fatalities. Imagery collected over a gravesite adjacent to the old UNAMID compound in El-Fasher shows an increase in the area of disturbed earth consistent with graves from 1760 m^2 on 20 September 2024 to 2900 m^2 (an increase of 1140 m^2 or 65%) on 11 November 2024. The cemetery had previously

increased by 1400 m^2 between 17 June and 20 September 2024, a period of approximately three months. Another gravesite previously identified to be near SAF and Joint Force military installations shows an increase of approximately 4 mounds of disturbed earth between 20 September and 31 October 2024 and an additional approximately 21 mounds between 3-11 November 2024.

Imagery collected over the Al-Rahma cemetery (also known as the Al-Bashir cemetery) in the southern part of Abu Shouk IDP Camp in El-Fasher shows people and a white pickup truck present at an ongoing excavation. A white elongated object is observed in the exposed hole of the excavation site.

Vehicle Activity Surrounding El-Fasher

Four gun-mounted light technical vehicles were observed approximately 14 km northwest of El-Fasher on the Kutum-to-El-Fasher Road, moving toward the city. Separately, groups of highly likely RSF light technical vehicles are observed in satellite imagery on the eastern route of the B-26 entering El-Fasher on 11 and 14 November 2024. These vehicles are located approximately 12.5 km from El-Fasher to the city's outskirts and include one gun-mounted vehicle, indicating continued RSF control and likely logistics and force transportation in the area. The Sudan Doctors Network reported that RSF killed 14 people allegedly based on their ethnicity on 14 November 2024 in Jugo Jugo, approximately 2.25 km from where these vehicles were observed.[4] Analysis of satellite imagery collected between 22 September and 28 October 2024 shows damage consistent with that from ground-based attacks to multiple structures and a livestock corral approximately 5 km away from Jugo Jugo.

Without a significant change in current trajectory, RSF should be expected to continue attacking the center of the city and putting pressure on the SAF 6th Infantry Division main base. Any civilians remaining in El-Fasher remain at risk of injury and death due to sustained crossfire between RSF and SAF and Joint Force Infantry elements along with aerial and artillery bombardment. The ability for civilians to receive adequate food, water, and medical assistance has long been interrupted by sustained fighting and its consequences. The overall human security situation in El-Fasher is at its most dire point to date.

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.

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[1] Caitlin N. Howarth, Kaveh Khoshnood, Nathaniel A. Raymond et al. "El-Fasher Situation Report: RSF Advances on 6th Division as Zamzam Prepares for Attack." 11 November 2024. Humanitarian Research Lab at Yale School of Public Health: New Haven.

[2] Darfur24, "مقتل مدير دائرة العمليات بشرطة شمال دارفور في الفاشر," November 13, 2024, https://www.darfur24.com/2024/11/13/%D9%85%D9%82%D8%AA%D9%84-%D9%85%D8%AF%D9%8A%D8%B1-%D8%AF%D8%A7%D8%A6%D8%B1%D8%A9-%D8%A7%D9%84%D8%B9%D9%85%D9%84%D9%8A%D8%A7%D8%AA-%D8%A8%D8%B4%D8%B1%D8%B7%D8%A9-%D8%B4%D9%85%D8%A7%D9%84-%D8%AF%D8%A7/, archived at https://perma.cc/DBU9-MSYM;
Sudan Tribune "استمرار المعارك العنيفة في الفاشر," November 13, 2024, https://sudantribune.net/article293292/, archived at https://perma.cc/8UBZ-TUKY; HRL_MMC_060

[3] Alhurra, "مصادر: الجيش السوداني يقصف مواقع للدعم السريع في الفاشر" November 13,2024, https://www.alhurra.com/sudan/2024/11/13/%D9%85%D8%B5%D8%A7%D8%AF%D8%B1-%D8%A7%D9%84%D8%AC%D9%8A%D8%B4-%D8%A7%D9%84%D8%B3%D9%88%D8%AF%D8%A7%D9%86%D9%8A-%D9%8A%D9%82%D8%B5%D9%81-%D9%85%D9%88%D8%A7%D9%82%D8%B9-%D9%84%D9%84%D8%AF%D8%B9%D9%85-%D8%A7%D9%84%D8%B3%D8%B1%D9%8A%D8%B9-%D9%81%D9%8A-%D8%A7%D9%84%D9%81%D8%A7%D8%B4%D8%B1, archived at https://perma.cc/2GXJ-4BTP;
Sudan Tribune, "9 قتلى في قصف للدعم السريع على أحياء بالفاشر," November 11, 2024, https://sudantribune.net/article293173/, archived at https://perma.cc/5JXA-DZ89

[4] @Sudan Doctors Network on Facebook, "شبكة أطباء السودان", November 15, 2024, https://www.facebook.com/permalink.php?story_fbid=1221841248322214 79&id=61556644390983&rdid=RVMpB95bkaxb86Wv#, archived at https://archive.ph/YVj2r

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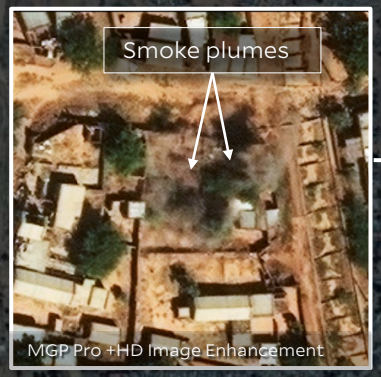
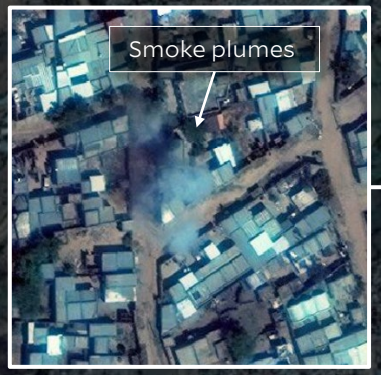
El-Fasher

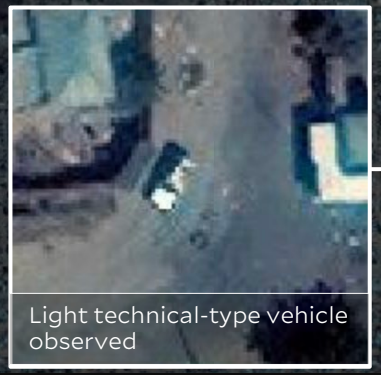
Central El-Fasher, 13 November 2024

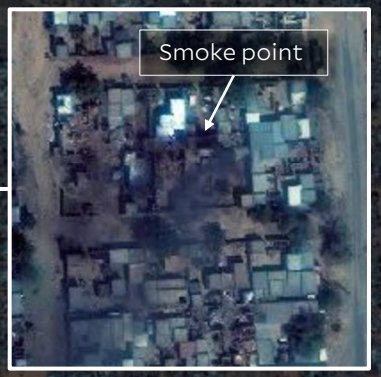
Imagery collected over central El-Fasher on 11 and 13 November 2024 shows the new presence of several vehicles in the central area of El-Fasher consistent with light technical-type vehicles such as the Toyota Hilux or Landcruiser. Coinciding with the presence of these vehicles are several aerial strikes, many of which have smoke and fire emitting from the impact point, indicating the recent occurrence of the strikes.

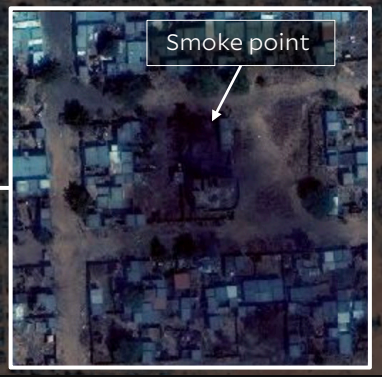
West of this location, near the Al-Muzdoujah Primary School for Boys , smoke plumes and several munition impacts are observed consistent with recent mortar shelling. In this timeframe, the school itself was also observed attacked for the third time since 06 November 2024.











New vehicle presence observed between 11-13 November 2024

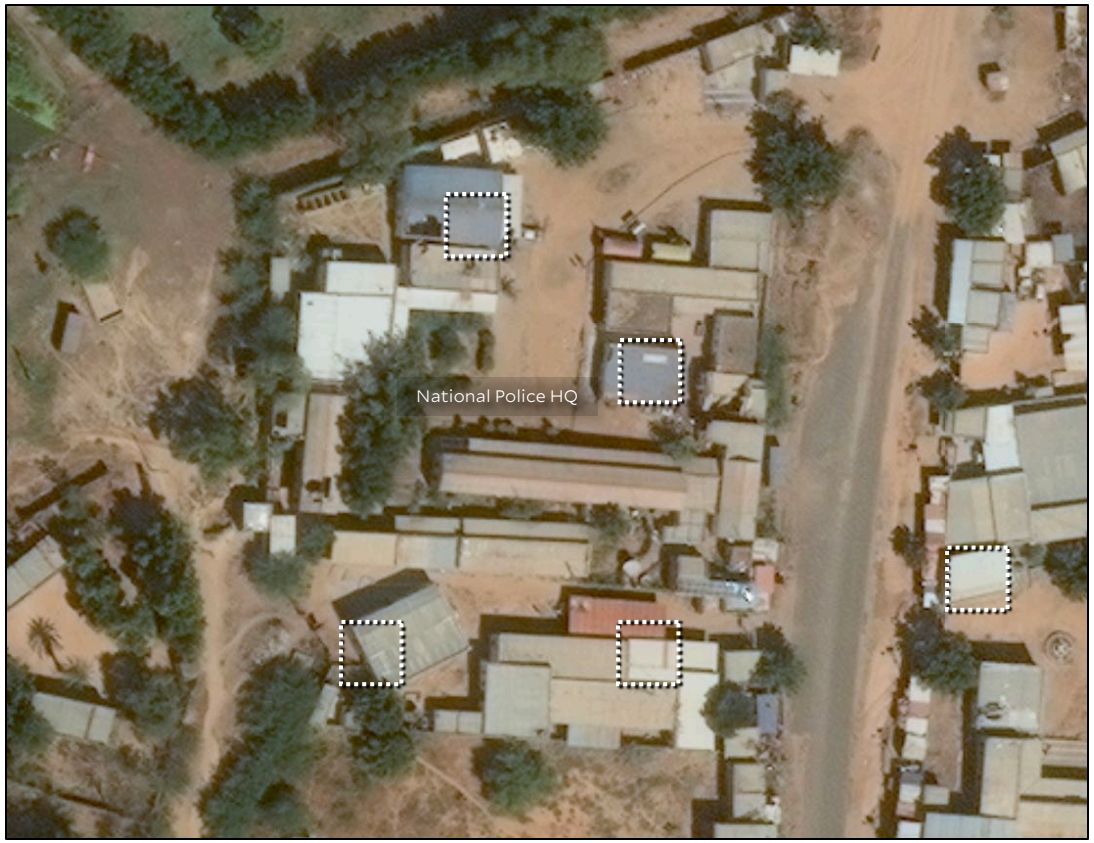
New impacts consistent with aerial bombing observed between 11-13 November 2024

New impacts consistent with mortar shelling observed between 11-13 November 2024

National Police HQ, El-Fasher

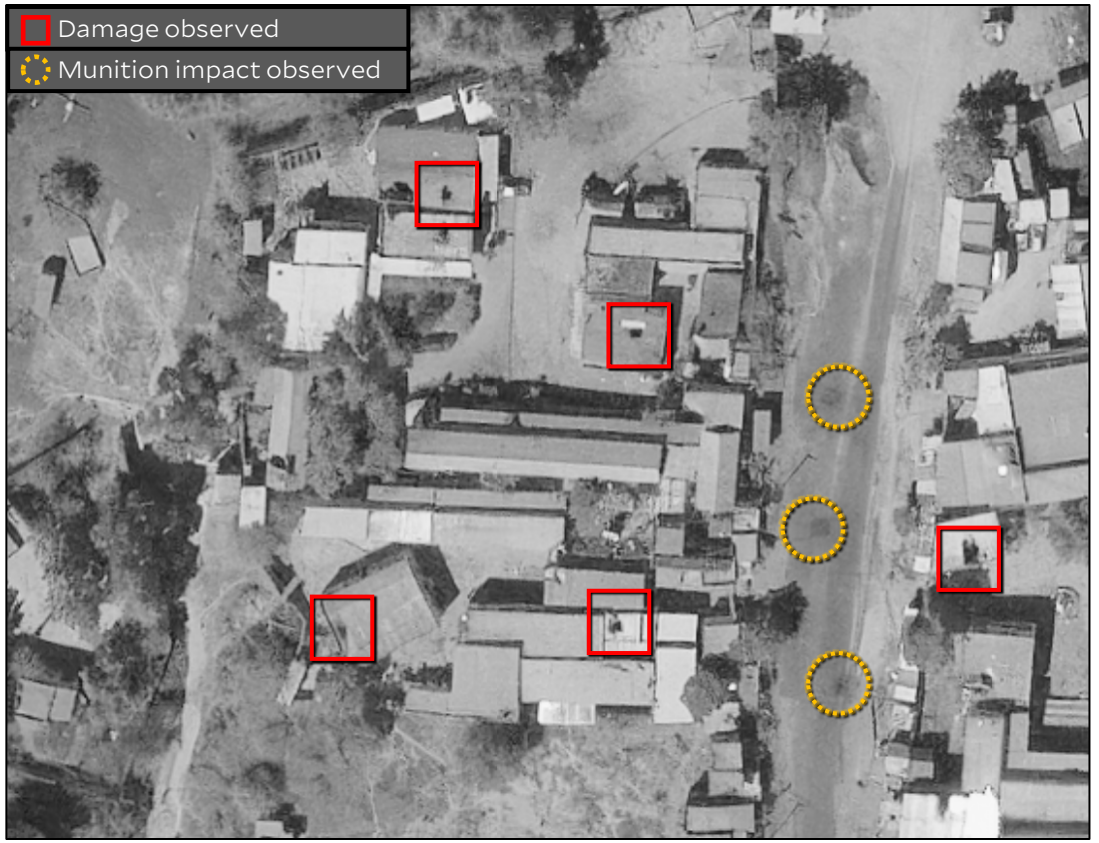
MUNITION IMPACTS AND CONFLICT-RELATED DAMAGE OBSERVED 13-14 NOVEMBER 2024

Analysis of satellite imagery collected between 13 and 14 November 2024 shows at least three munition impacts and damage to several structures at the National Police HQ and nearby locations in central El-Fasher.



13 November 2024 © 2024 Maxar Technologies

Image enhanced by Maxar MGP Pro HD Enhancement



14 November 2024 © 2024 Maxar Technologies

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El-Fasher Model Girls School, El-Fasher

Analysis of satellite imagery collected between 08 and 11 November 2024 shows conflict-related damage to several structures from shelling in central El-Fasher.

CONFLICT-RELATED DAMAGE OBSERVED 08-11 NOVEMBER 2024

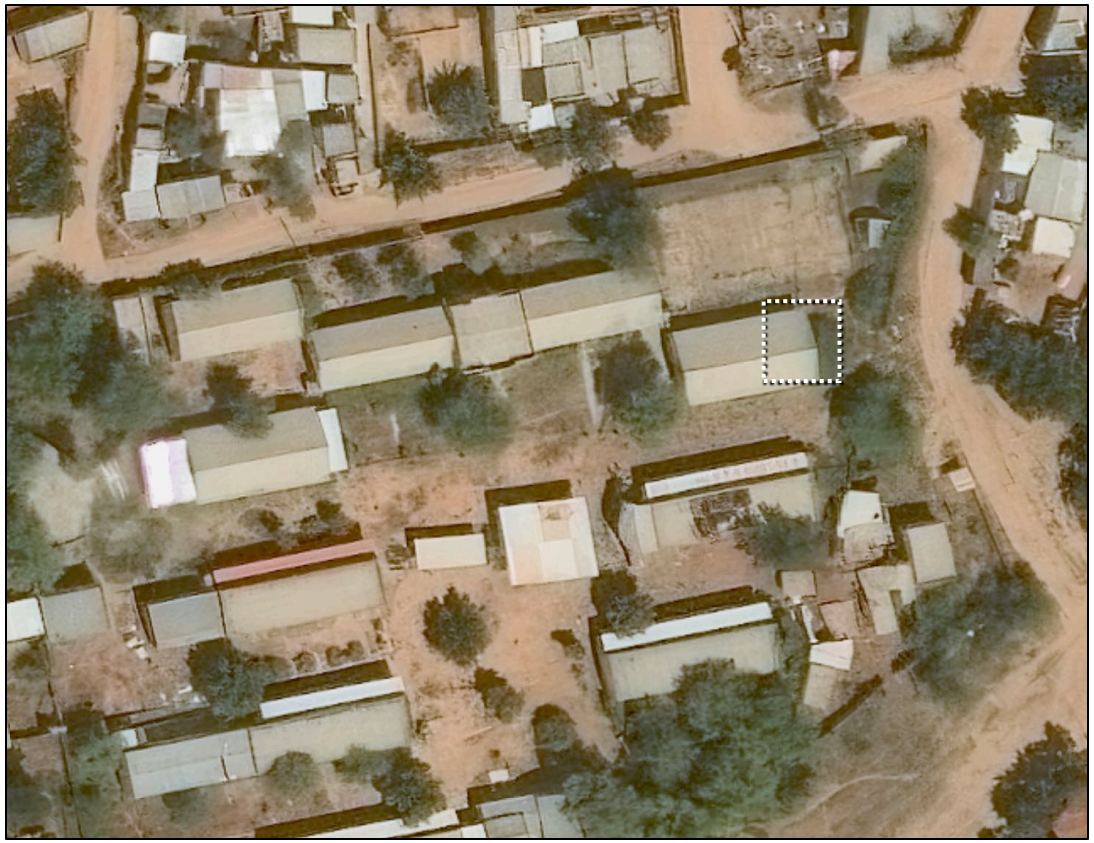

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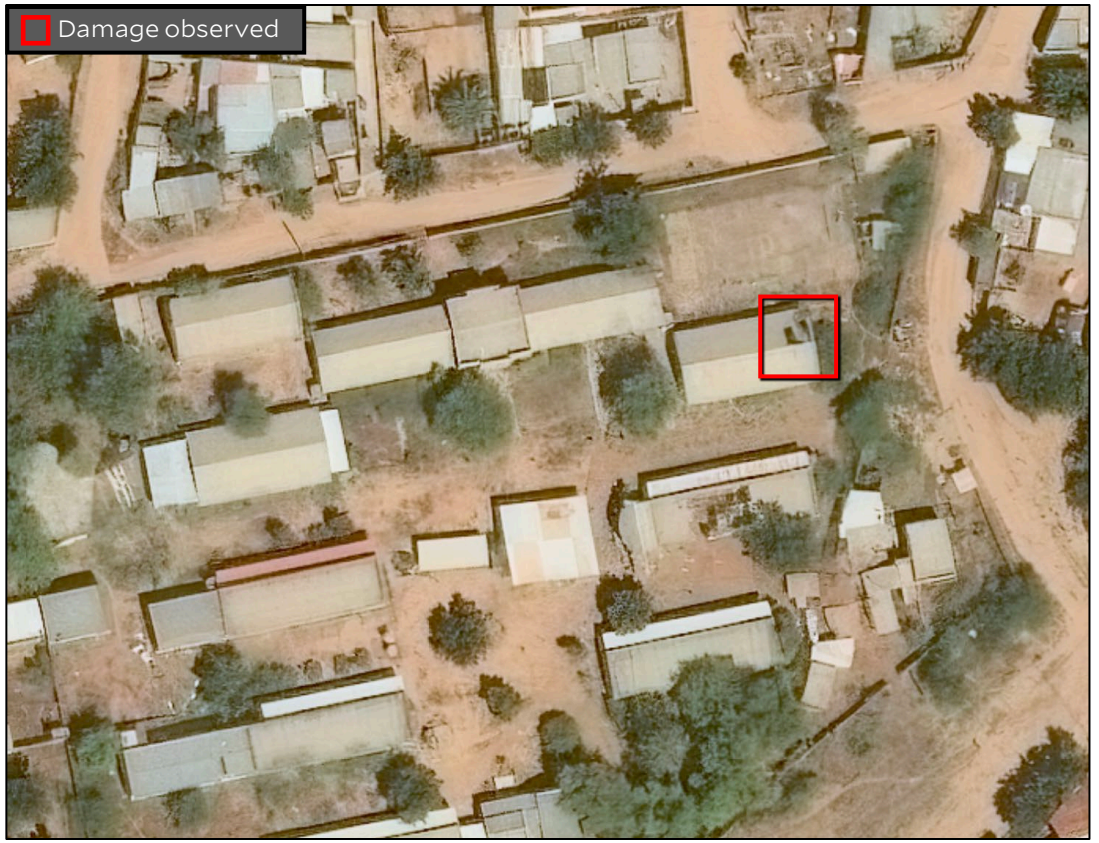
Image enhanced by Maxar MGP Pro HD Enhancement



11 November 2024 © 2024 Maxar Technologies

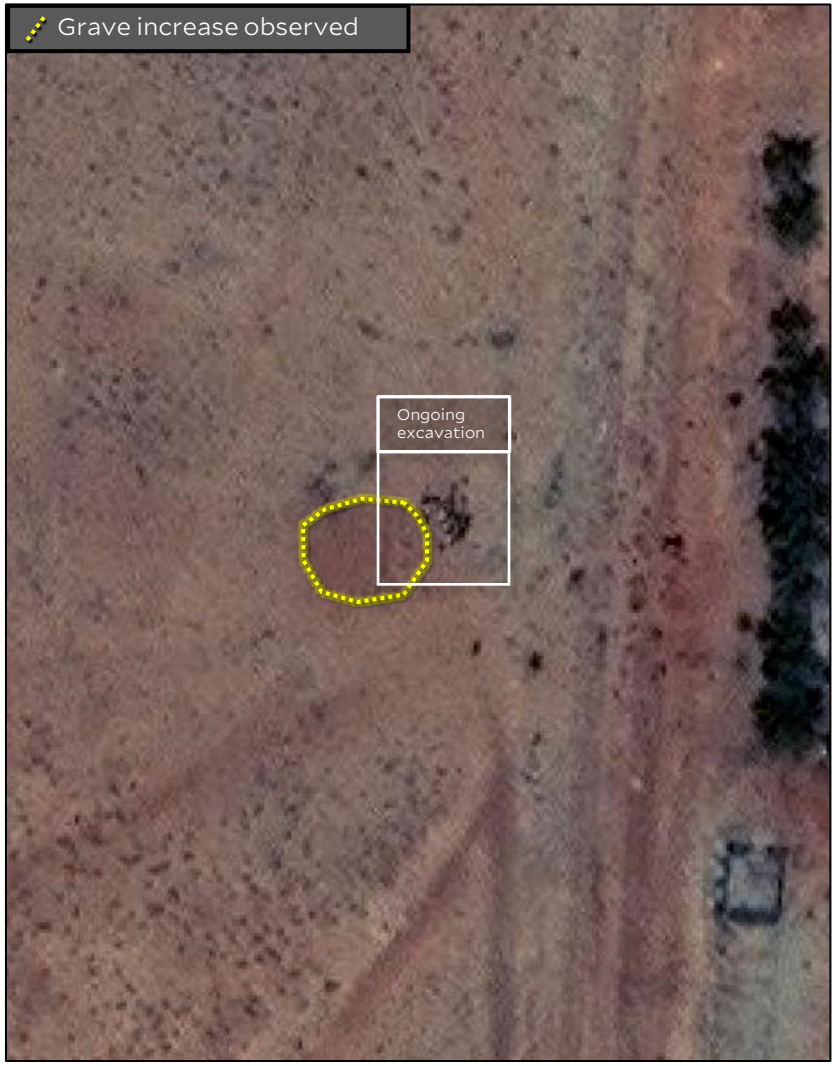
Image enhanced by Maxar MGP Pro HD Enhancement

Old UNAMID Compound, El-Fasher

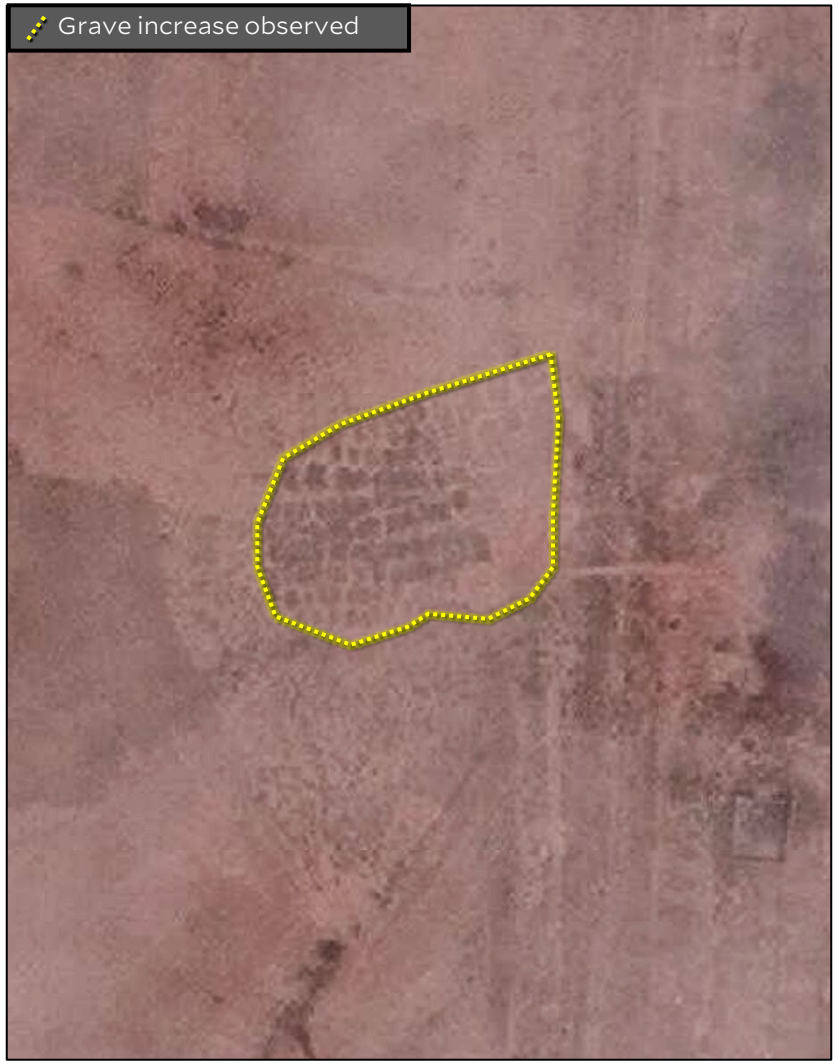
GRAVE ACTIVITY OBSERVED BETWEEN 17 JUNE-11 NOVEMBER 2024

Analysis of satellite imagery collected between 17 June and 11 November 2024 against the outer side of the western berm of the old UNAMID compound in El-Fasher shows a significant increase in mounds of disturbed earth consistent with graves. On 17 June 2024, the area of disturbed earth was approximately 360m^2. By 20 September 2024, this area increased to approximately 1,760 m^2. By 11 November 2024, the area again increased to approximately 2,900 m^2

An ongoing excavation is visible in the 17 June 2024 image.



17 June 2024 © 2024 Maxar, USG Plus



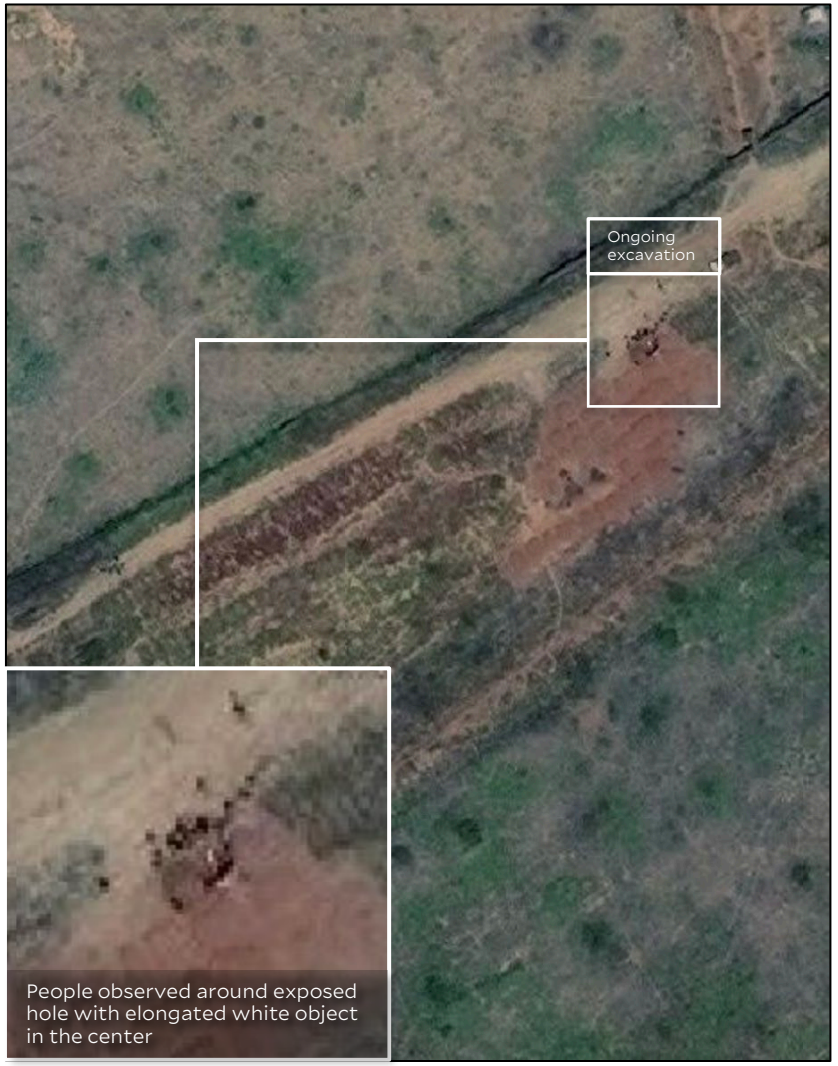
20 September 2024 © 2024 Maxar, USG Plus

11 November 2024 © 2024 Maxar, USG Plus

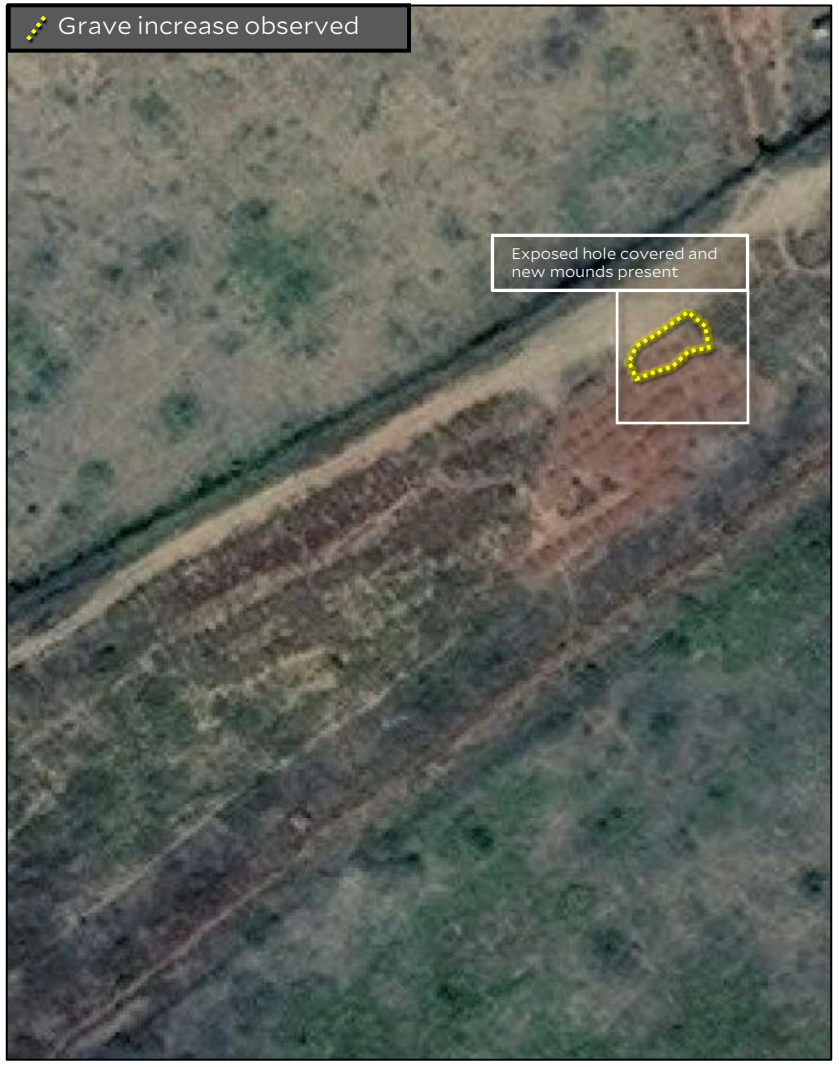
SAF 6th Division Airbase, El-Fasher

GRAVE ACTIVITY OBSERVED BETWEEN 31 OCTOBER-11 NOVEMBER 2024

Analysis of satellite imagery collected between 31 October 2024 and 11 November 2024 shows an increase in mounds of disturbed earth consistent with graves. On 31 October 2024, an ongoing excavation with an elongated white object in the center is visible. Between 31 October and 3 November, the grave site increased by approximately four mounds. Between 3-11 November 2024, the gravesite increased by approximately 21 mounds.



31 October 2024 © 2024 Maxar, USG Plus



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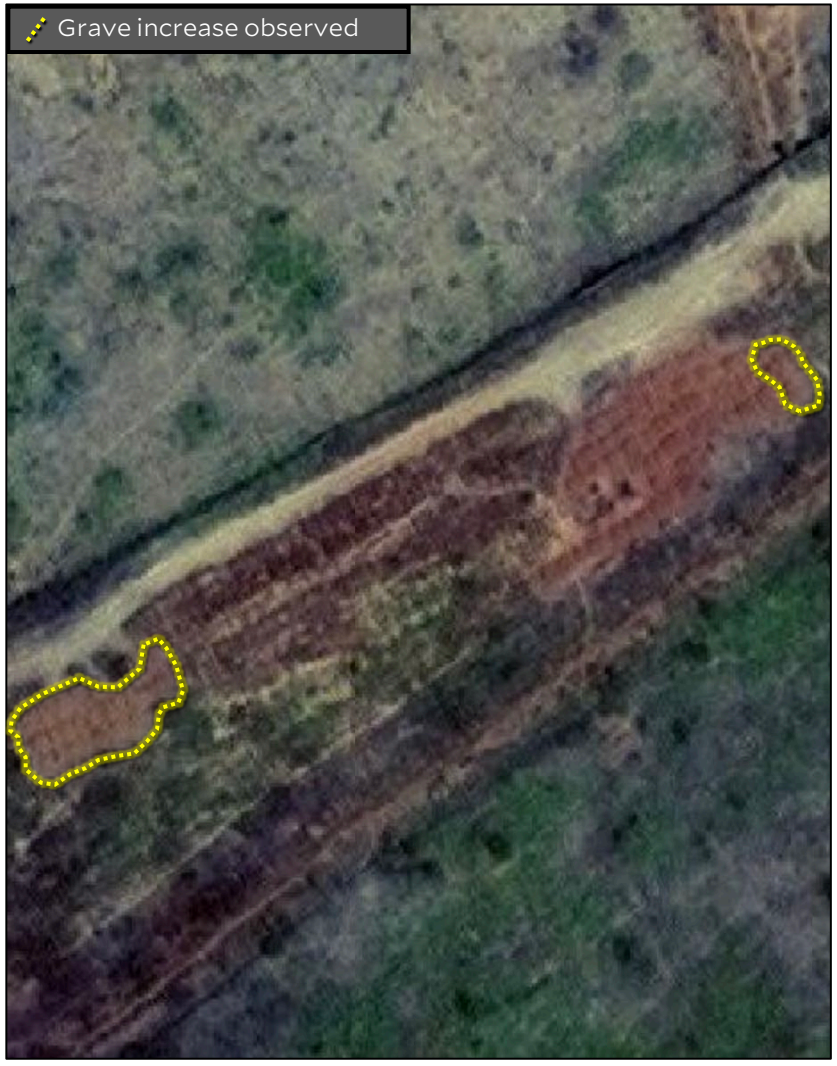


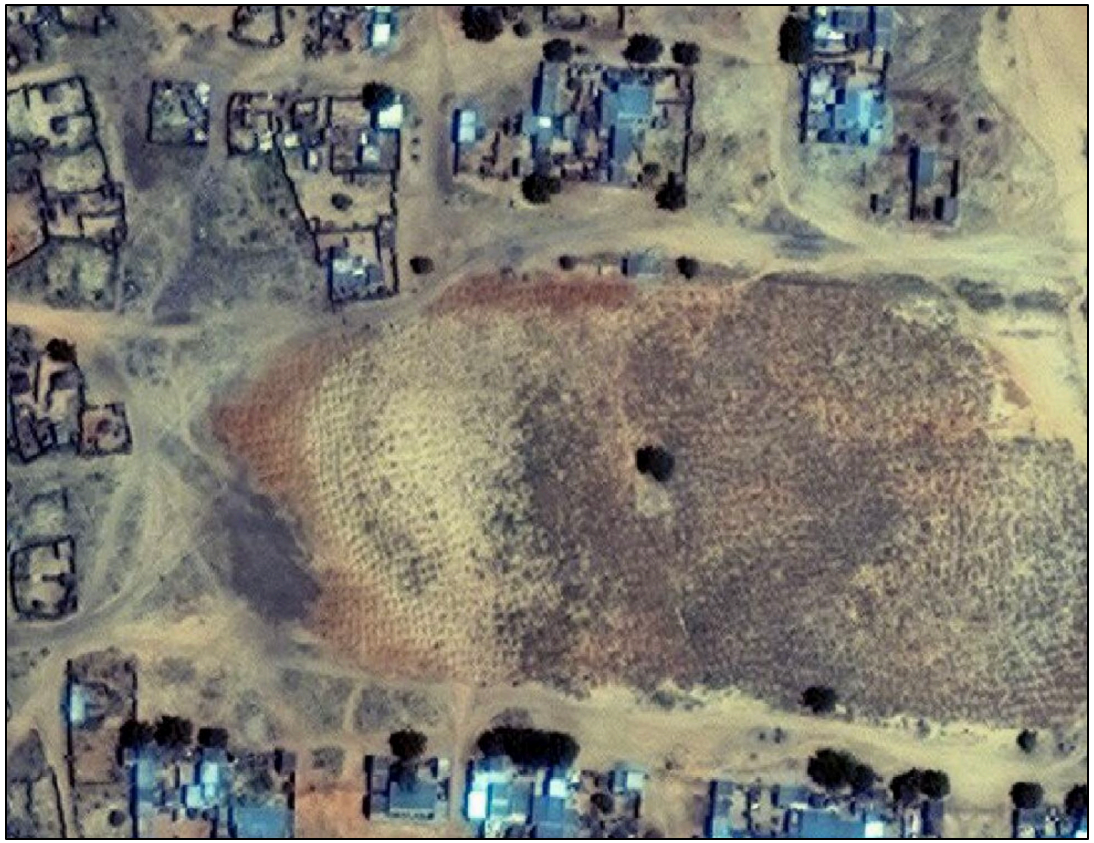
11 November 2024 © 2024 Maxar, USG Plus

Al-Rahma Cemetery, Abu Shouk, El-Fasher

BURIAL ACTIVITY OBSERVED 11-13 NOVEMBER 2024

Imagery collected over the Al-Rahma cemetery (also known as the Al-Bashir cemetery) in the southern part of Abu Shouk in El-Fasher shows people and a white pickup truck present at an ongoing excavation.

A white elongated object is observed in the exposed hole of the excavation site.



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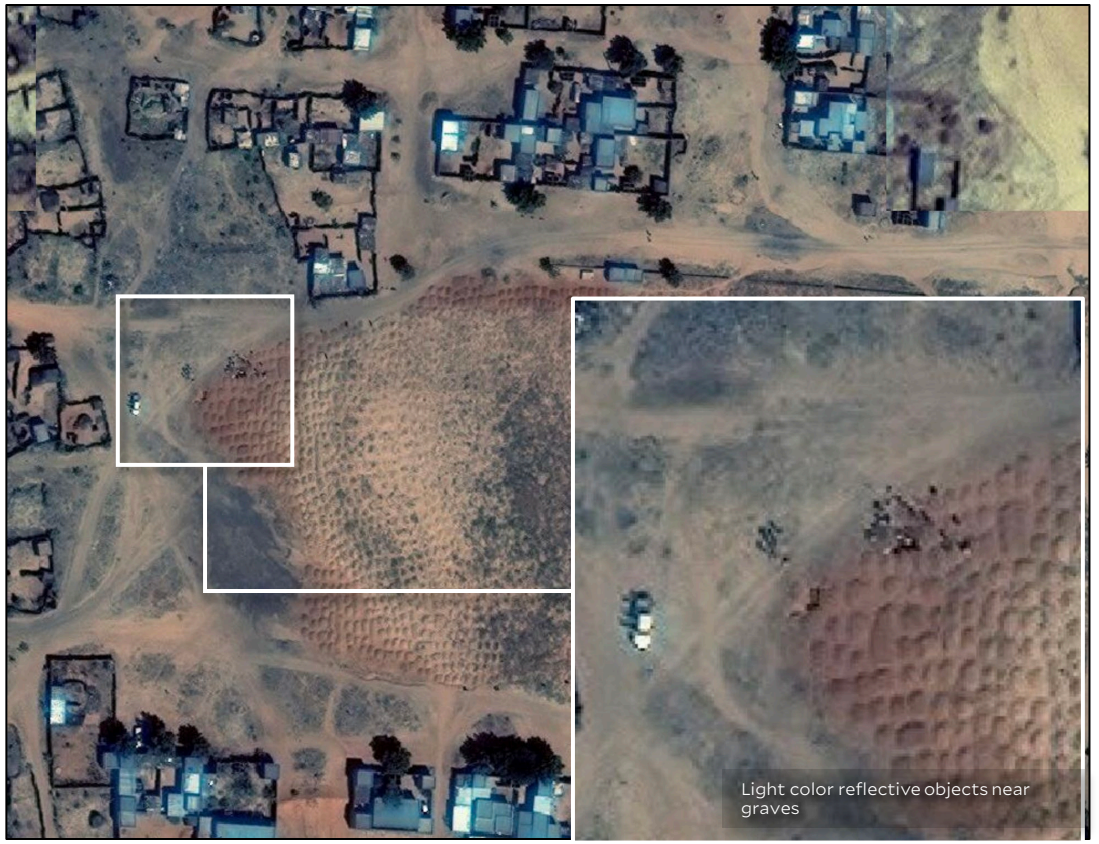

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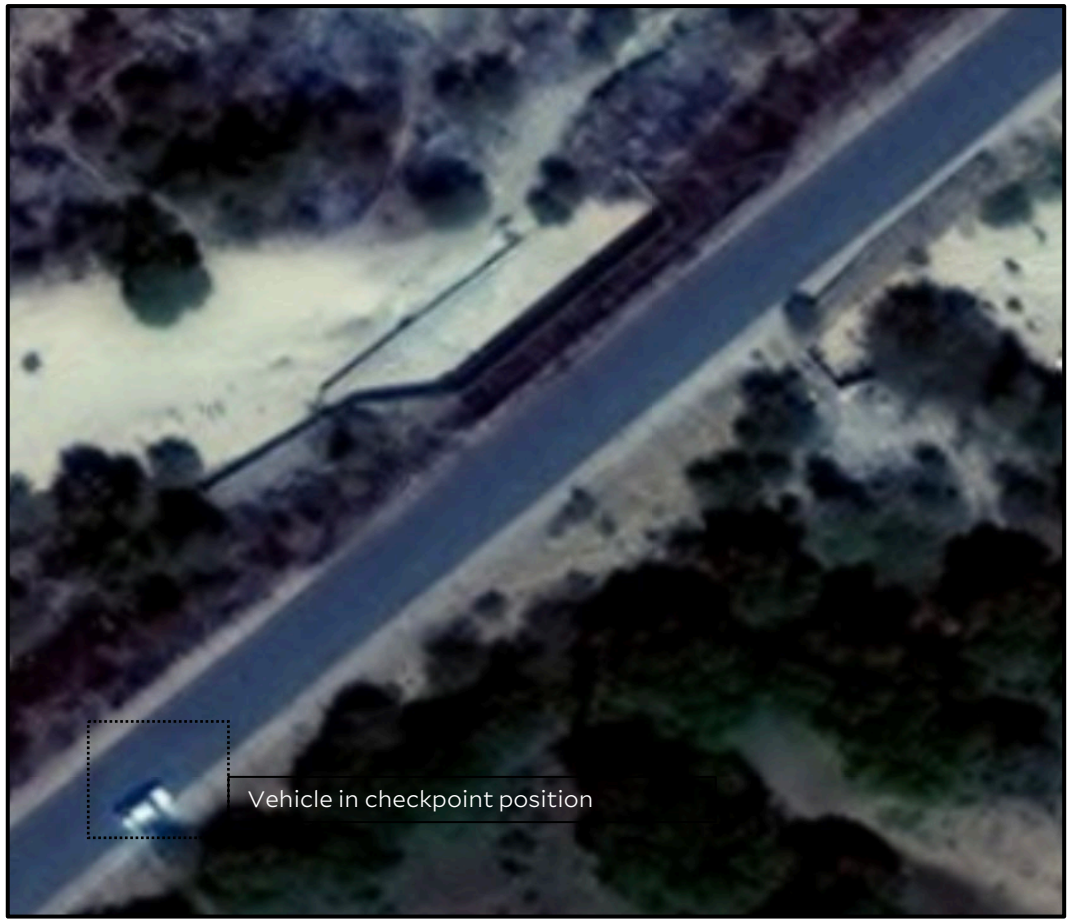
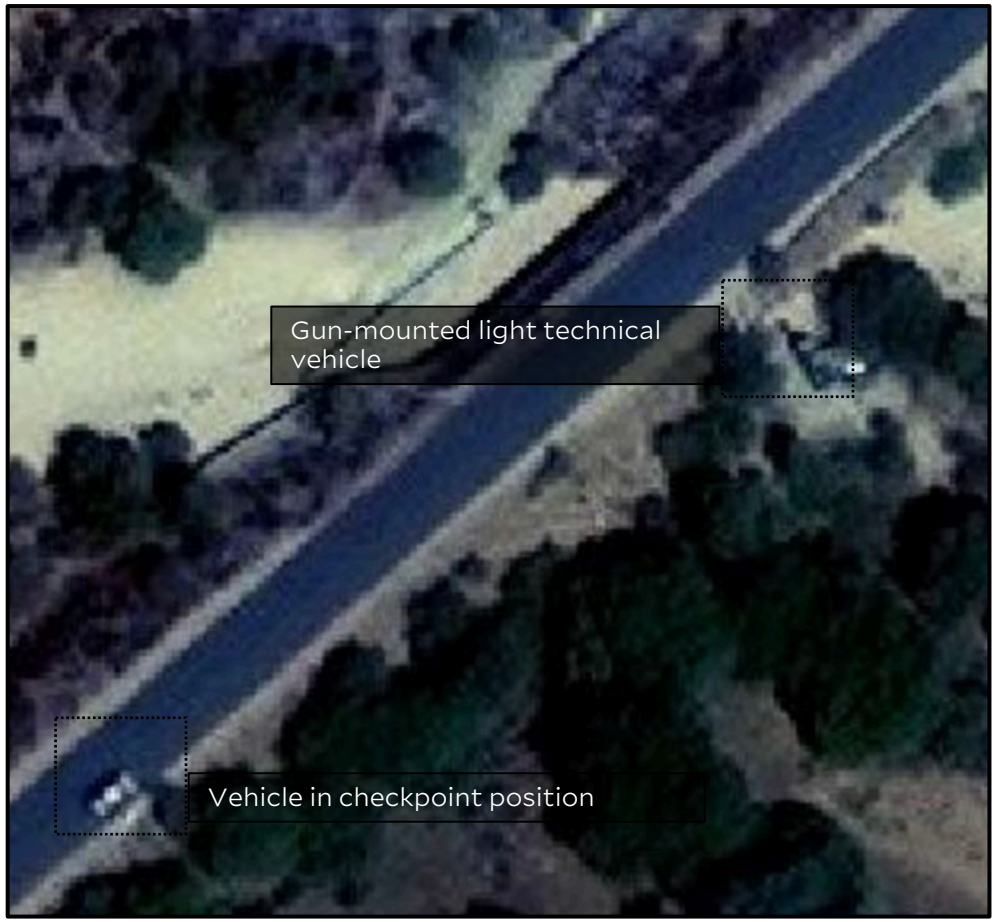
Northeast of El-Fasher

CHECKPOINT OBSERVED 28 OCTOBER – 11 NOVEMBER 2024

A checkpoint consisting of a white, north-facing Landcruiser type vehicle, is observed northeast of El-Fasher on 28 October 2024. Imagery collected on 11 November 2024 shows a vehicle in the same position. Also present is a dark green, gun-mounted light technical vehicle positioned between trees at the roadside.



28 October 2024 © 2024 Maxar, USG-Plus



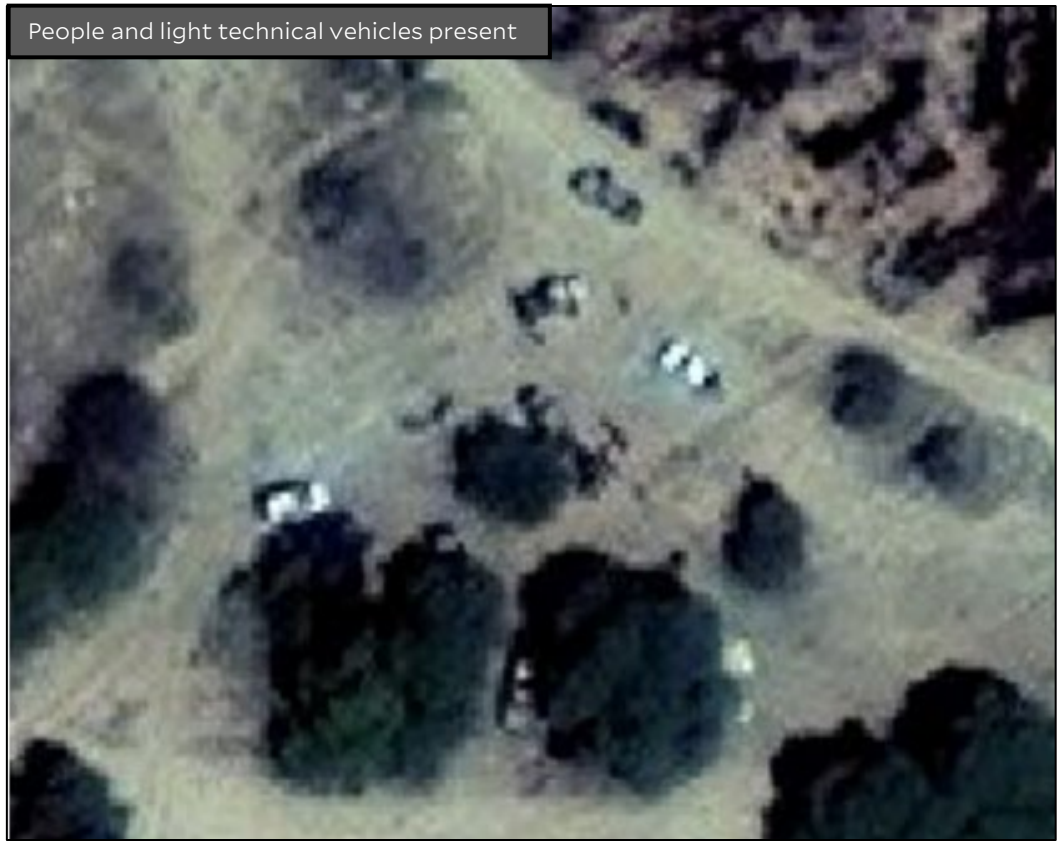
11 November 2024 © 2024 Maxar, USG-Plus

Northeast of El-Fasher

North of the checkpoint a group of white, beige and green light technical vehicles and people on foot are observed in imagery collected on 11 November 2024.

PRESENCE OF PEOPLE AND VEHICLES 28 OCTOBER – 11 NOVEMBER 2024

28 October 2024 © 2024 Maxar, USG-Plus

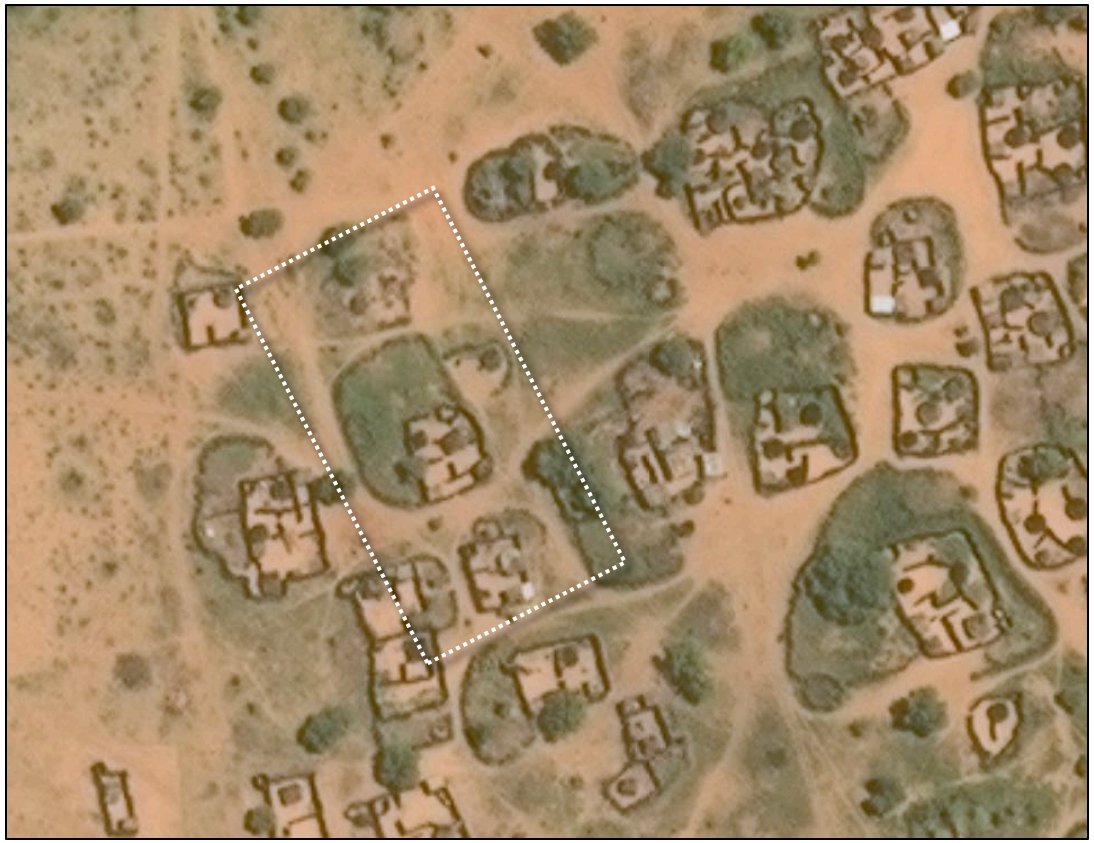


11 November 2024 © 2024 Maxar, USG-Plus

Community Northeast of El-Fasher

CONFLICT-RELATED DAMAGE OBSERVED 22 SEPTEMBER-28 OCTOBER 2024

Analysis of satellite imagery collected between 22 September and 28 October 2024 shows damage consistent with that from ground-based attacks to several structures and a livestock corral in a community 12km northeast of El-Fasher.



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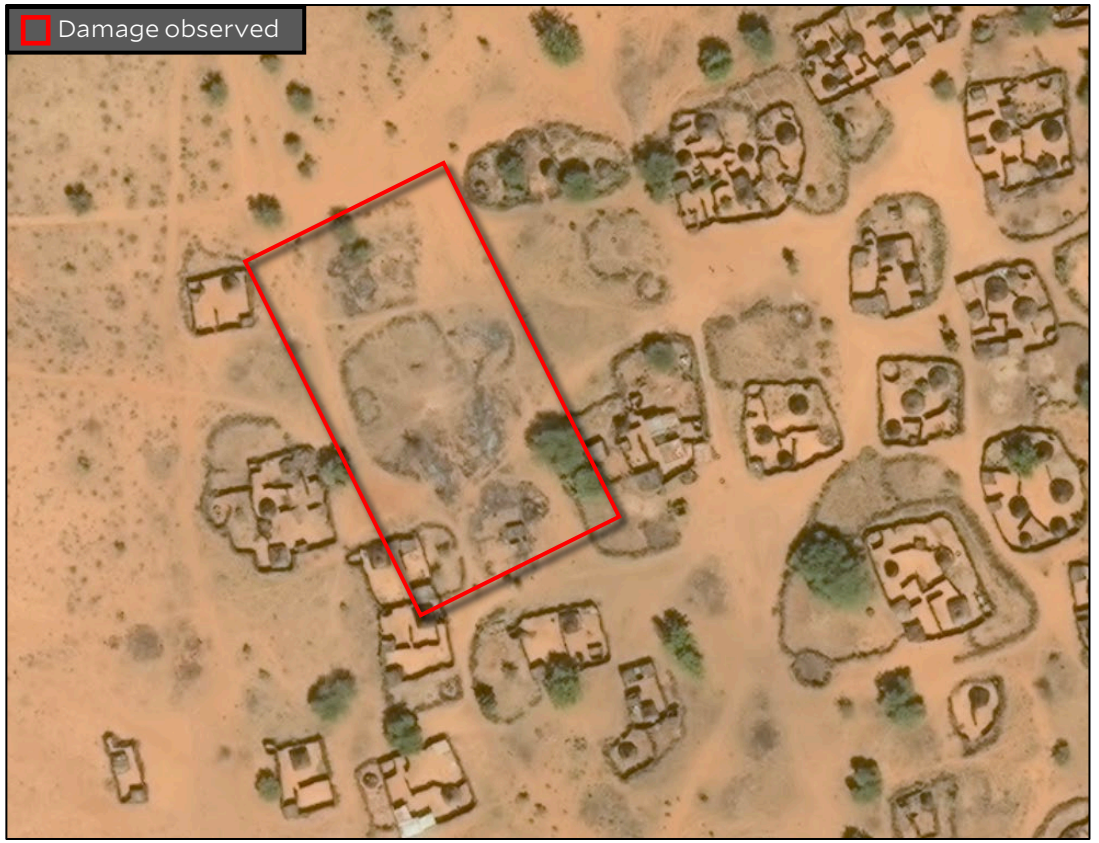

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