

# **El-Fasher: Recent Hospital Bombardment and Current Areas of Control**

29 August 2024

**Yale** SCHOOL OF PUBLIC HEALTH  
*Humanitarian Research Lab*

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## I. Executive Summary

The Yale School of Public Health's Humanitarian Research Lab (HRL) corroborates through imagery analysis the reported bombardment of two healthcare facilities and a humanitarian facility in El-Fasher, North Darfur. Saudi Hospital, Timbasi Health Center, and Relief International's medical storage warehouse were reportedly attacked with artillery strikes between 19 July to 18 August 2024. Yale HRL observes that SAF appears primarily responsible for creating approximately 10 km of defensive walls made from mounds of earth ("berms"), which have largely divided the city of El-Fasher in half. Yale HRL assesses with high confidence that RSF have deployed a truck-mounted rocket system inside El-Fasher as of at least 31 July 2024.

Yale HRL concludes that SAF and aligned forces' area of control has been contracting in recent weeks and is now reduced to its lowest point since intense fighting began in May 2024. El-Fasher's health system, already at breaking point, appears to have been targeted in recent weeks. RSF now appears to have fire superiority over SAF and has the 6<sup>th</sup> Infantry Division Headquarters visibly encircled from the north, east, and southeast, and SAF-aligned forces appear to be in a defensive posture on the west. If the 6<sup>th</sup> Infantry Division falls, it is likely that RSF forces would engage Zamzam IDP camp to the south, where Zaghawa Defense Forces appear to be preparing for attack.

Attacks on hospitals worsens the ongoing humanitarian crisis in El-Fasher. Parts of El-Fasher and Zamzam IDP camp are assessed to be in famine conditions (IPC-5) since at least June.<sup>1</sup> There continues to be visible standing water from significant flooding throughout El-Fasher as of 23 August 2024, increasing the potential for cholera outbreak and other severe public health concerns related to water, sanitation and hygiene (WASH).<sup>2</sup>

Persistent heavy cloud cover during the ongoing rainy season has limited the ability for external monitors to collect commercial satellite imagery and assess ongoing events in El-Fasher and surrounding areas.

## II. Key Findings

### **Bombardment of Hospitals and Humanitarian Infrastructure**

Yale HRL corroborates attacks on hospitals and a humanitarian warehouse in El-Fasher through the analysis of visible damage to these structures present in satellite imagery. The attacks on the Saudi Hospital, Relief International Medicine Warehouse, and Timbasi Health Center appear to be directly hit from munitions with no other observable damage to the area during the period. These strikes appear to be targeted and not the result of sustained barrage or crossfire. These facilities are all located within likely SAF-controlled territory.

Many healthcare facilities across El-Fasher have been subject to bombardment, razing, and other conflict-related damage since conflict in El-Fasher intensified in April 2024.<sup>3</sup>

Of the three hospitals Médecins Sans Frontières (MSF) describes as the “main hospitals in El-Fasher” (South, Saudi, and Babiker Nahar hospitals), all have sustained at least one instance of significant conflict-related damage, and only Saudi Hospital remains partially functioning.<sup>4</sup>

**Saudi Hospital:** Yale HRL confirms and corroborates two separate instances of munitions impacts to the roof of the Saudi Hospital (Al-Saudi Hospital) that are consistent with reported shelling on 29 July and 11 August 2024. Analysis of satellite imagery between 19 July and 01 August 2024 show munitions impacts on the roof of a building in the Saudi Hospital complex. Imagery collected between 01 and 18 August 2024 shows damage to an additional building in the hospital complex. Both incidents are consistent with shelling damage. MSF reported on 29 July that RSF attacked and shelled the Saudi Hospital, killing at least three and injuring 25 people.<sup>5</sup> MSF later reported on 11 August that bombardment damaged the Saudi Hospital’s surgical ward, maternity unit, and hospital offices, killing at least one and injuring six others. Damage to the surgical ward in what MSF reports to be the only remaining public hospital with a surgical capacity will further exacerbate already weakened healthcare infrastructure in El-Fasher.<sup>6</sup>

**Timbasi Health Center:** Yale HRL corroborates conflict-related damage to Timbasi Health Center between 31 July and 12 August 2024. Multiple munition impacts are visible through the roofs of the health center’s buildings in satellite imagery on 12 August 2024. There is no visible cratering on the ground or damage to nearby buildings. Open sources report that RSF shelling damaged the Timbasi Health Center on 3 August following a battle between RSF and SAF.<sup>7</sup> Yale HRL confirms munitions impacts to the roof of the Timbasi Health Center consistent with shelling between 31 July and 12 August. The Timbasi Health Center is located in an area that Yale HRL assesses to be likely SAF-controlled.

**Relief International Medicine Warehouse:** Yale HRL corroborates conflict-related damage to the Relief International warehouse using satellite imagery collected between 31 July and 23 August 2024. Open sources, including from Relief International, reported that an artillery shell struck the facility on 18 August 2024, destroying medical supplies and an ambulance and injuring six people.<sup>8</sup> Satellite imagery analysis determined that debris is visible consistent with a munitions impact on the face of the building corroborating open source reports.

**El-Fasher University:** Satellite imagery analysis shows damage from munitions impacts to a building in El-Fasher University between 26 July and 23 August 2024. Open sources reported that RSF shelling damaged the scientific library and peace studies center of El-Fasher University on 22 August 2024.<sup>9</sup> Open sources have reported that the University grounds have been used by the SAF 6<sup>th</sup> Infantry Division and Joint Forces.<sup>10</sup> Educational facilities have protected status, however, if used by warring parties that protected status may be lost.

Yale HRL has identified reports of several additional hospitals attacked or damaged in El-Fasher since 1 July 2024, including the Nabd Al Haya (Pulse of Life) Hospital, Jebel Marra Health Center, Saudi (Al-Saudi) Hospital, and the police hospital, which

reportedly also had been providing health services to civilians.<sup>11</sup> Yale HRL previously reported damage to the solar panels on the roof of Nabd Al Haya (Pulse of Life) Hospital due to a reported RSF drone attack between 21 and 25 July 2024. Yale HRL cannot confirm the change to the roof was due to a drone attack.<sup>12</sup> This pattern of attacks on healthcare facilities has significantly impacted vulnerable populations' access to healthcare.

### **Defensive Berms in El-Fasher and Areas of Control**

Yale HRL has identified approximately 10 total kilometers of defensive earthen walls ("berms") running north-south through the center of El-Fasher, which are broken into 1.5-2.5 km sections, built by SAF. SAF's area of control extends west from the berms to the Golo Reservoir in the Golo Wadi. Yale HRL has observed likely SAF and aligned forces' defensive positions and vehicle movement near the Golo Reservoir as of 20 August 2024. SAF's area of control is reduced and contracting, and the number of observable heavy weapons under SAF control has decreased since June 2024.<sup>13</sup> Meanwhile, RSF likely controls at least the areas in El-Fasher east of the berms and major egress routes to the east and north of El-Fasher, as well as territory south of Zamzam. RSF has freedom of movement throughout the eastern half of El-Fasher city. RSF is present at vehicle staging areas in the east and southeast of the city as of 12 August 2024.<sup>14</sup> RSF staging areas are present in areas with burned civilian structures.

Berms were present in the north of the city prior to September 2023 and have been extended from the city's center to the north and south throughout June and July 2024. Technical vehicles (4x4 pickup trucks) are located on the SAF-controlled western side of the berms on 11 and 13 June 2024. Yale HRL assesses that the majority of these berms have been built by SAF; however, other recently constructed defensive positions may have been built by RSF. Ongoing fighting, including munitions impacts near the berms and possible shifts in territorial control in the city center, may result in SAF-constructed berms being used by RSF or other forces. The recent munitions impacts and lack of vehicles near these berms may indicate that SAF's control of the area is contracting.

Yale HRL has observed ongoing presence of checkpoints throughout El-Fasher and along the B26 road to Zamzam IDP camp. Visible checkpoints have increased along the B26 road between El-Fasher and Zamzam IDP camp since July 2024. Checkpoints between El-Fasher and Zamzam IDP camp may indicate tactical importance of this road is growing.

### **RSF Deployment of Truck-Mounted Rocket System in El-Fasher**

Yale HRL assesses that RSF has weaponry consistent with a truck-mounted rocket system with attributes consistent with a B-8M1 rocket pod in El-Fasher. This firepower capability has been available to RSF since at least July 2024. The B-8M1 rocket pod can fire 80mm S-8 high-explosive rockets and has an estimated range of up to 4 km. The B-8M1 rocket pods are often found on aircraft but can be affixed to ground vehicles. This

truck-mounted weapon system was visible in satellite imagery in eastern areas of El-Fasher as of 13 July 2024 and observed again on 31 July 2024. RSF propaganda videos analyzed by Yale HRL from 1 June 2024 showing RSF appeared to control B-8M1 rocket pod truck-mounted weapon. RSF claimed this truck-mounted weapon system was captured from SAF in El-Fasher.<sup>15</sup>

### III. Methodology

Yale HRL utilizes data fusion methodologies of open source and public and commercially available remote sensing data. Yale HRL produced this report through the cross-corroboration of open source and remote sensing data, including satellite imagery and thermal sensor data. Yale HRL utilizes multi-temporal change detection methodologies in satellite imagery, comparing changes in an area over time.

Yale HRL does not publish all data including coordinates, highly detailed maps, and all source material due to operational and human security concerns.

Analysis of the berms bisecting El-Fasher were conducted by the comparison of striation marks in the earth and their correspondence with width, length and placement. Certain parts of the berm where the striation marks were identifiable, given their width and length which exceeded the length of an excavator arm are indicative of bulldozer or end loader pushing the earth from west to east. Sections of the berm where striation marks are not observed are indicative of similar equipment piling dirt; without markings, directional indicators are not present.

#### 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 certain activities and conflict-related casualties, particularly in environments with limited data. The lack of continuous telecommunications access and electricity across Sudan further limits available open source 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. The significant cloud cover due to the rainy season has limited available satellite imagery and increased rate of cloud cover. Cloud cover has a significant impact on analysts' ability to monitor and analyze the effects of conflict.

<sup>1</sup> Famine Early Warning Systems Network (FEWS NET), “Famine (IPC Phase 5) confirmed in part of Al Fasher, North Darfur,” August 1, 2024, <https://fewsn.net/east-africa/sudan/alert/august-2024>, archived at <https://perma.cc/EB3A-GRXE>

<sup>2</sup> Yale HRL previously assessed the flooding in Zamzam IDP camp and El-Fasher in Howarth, Caitlin N., Danielle N. Poole, Kaveh Khoshnood, Nathaniel A. Raymond et al. “Flood Zone: Impact of Heavy Rains on Humanitarian and Human Security Situation in El-Fasher and Zamzam IDP Camp” 2 August 2024. Humanitarian Research Lab at Yale School of Public Health: New Haven. [https://medicine.yale.edu/lab/khoshnood/publications/hrl-report-aug-2-2024\\_482998\\_26865\\_v1.pdf](https://medicine.yale.edu/lab/khoshnood/publications/hrl-report-aug-2-2024_482998_26865_v1.pdf), archived at <https://perma.cc/LUG3-5JJK>

<sup>3</sup> Caitlin N. Howarth, Kaveh Khoshnood, Nathaniel A. Raymond et al. “Tactical Changes in El-Fasher: Targeted Bombardment of Healthcare and Humanitarian Facilities” 28 June 2024. Humanitarian Research Lab at Yale School of Public Health: New Haven. [https://medicine.yale.edu/lab/khoshnood/publications/rhl-june-28-2024\\_481093\\_26865\\_v4.pdf](https://medicine.yale.edu/lab/khoshnood/publications/rhl-june-28-2024_481093_26865_v4.pdf), archived at <https://perma.cc/8RTP-LASF>

<sup>4</sup> Médecins Sans Frontières, “One by one, hospitals are damaged and closed in El Fasher as fighting rages,” June 14, 2024, <https://www.msf.org/one-one-hospitals-are-damaged-and-closed-el-fasher-sudan>, archived at <https://perma.cc/67G4-M3YA>

<sup>5</sup> Médecins Sans Frontières, “Attacks on hospitals and aid blockade in El Fasher jeopardises lives,” August 1, 2024, <https://www.msf.org/sudan-msf-outraged-and-alarmed-over-repeated-attacks-hospitals-el-fasher-and-blockade-urgently>, archived at <https://perma.cc/MAT6-Q3MZ>

<sup>6</sup> Médecins Sans Frontières, “Last hospital in El Fasher risks closure during intensive bombardment on the city,” August 14, 2024, <https://www.msf.org/last-hospital-el-fasher-risks-closure-during-intensive-bombardment-city>, archived at <https://perma.cc/UG9J-3Q9B>

<sup>7</sup> Radio Dabanga, “مقتل وجرح أكثر من 80 شخصًا في الفاشر وهجوم على النيل الأزرق” August 4, 2024, <https://www.dabangasudan.org/ar/all-news/article/83-%d9%82%d8%aa%d9%8a%d9%84-%d9%88%d8%ac%d8%b1%d9%8a%d8%ad-%d9%81%d9%8a-%d9%82%d8%b5%d9%81-%d9%84%d9%84%d8%af%d8%b9%d9%85-%d8%a7%d9%84%d8%b3%d8%b1%d9%8a%d8%b9-%d8%b9%d9%84%d9%89-%d9%85%d8%b1%d9%83>, archived at <https://perma.cc/EUV3-75AR>

<sup>8</sup> Relief International (@ReliefIntl), “El Fasher has been under siege since May,” X (formerly known as Twitter), August 19, 2024, <https://x.com/ReliefIntl/status/1825562147235242493>, archived at <https://perma.cc/KQ7Y-8J22>; Yousra Elbagir (@YousraElbagir), “The supplies warehouse of one of the few iNGOs,” X (formerly known as Twitter), August 19, 2024, <https://x.com/YousraElbagir/status/1825546378418032791>, archived at <https://perma.cc/V2PQ-U6X9>; Yousra Elbagir (@YousraElbagir), “@reliefintl’s warehouse in ElFasher was struck by an artillery shell,” X (formerly known as Twitter), August 19, 2024, <https://x.com/YousraElbagir/status/1825548433777963038>, archived at <https://perma.cc/A6SF-MB66>

<sup>9</sup> Radio Tamazuj, “قوات الدعم السريع تقصف المكتبة العلمية ومركز دراسات السلام بالفاشر,” August 24, 2024, <https://www.radiotamazuj.org/ar/news/article/%D9%82%D9%88%D8%A7%D8%AA-%D8%A7%D9%84%D8%AF%D8%B9%D9%85-%D8%A7%D9%84%D8%B3%D8%B1%D9%8A%D8%B9-%D8%AA%D9%82%D8%B5%D9%81-%D8%A7%D9%84%D9%85%D9%83%D8%AA%D8%A8%D8%A9-%D8%A7%D9%84%D8%B9%D9%84%D9%85%D9%8A>, archived at <https://perma.cc/F9L5-78VF>; Sudan News (@Sudan\_tweet), “تنسيقية لجان مقاومة الفاشر,” X (formerly known as Twitter), August 22, 2024, [https://x.com/Sudan\\_tweet/status/1826571131001667712](https://x.com/Sudan_tweet/status/1826571131001667712), archived at <https://perma.cc/3PUK-KAJN>; HRL MMC\_034

<sup>10</sup> Mohamed Haj Nour, “مقتل اثنين من قوات سلام جوبا على أيدي الجيش بالفاشر,” Sudan War Monitor, May 1, 2024, <https://sudanwarmonitor.com/p/c7c>, archived at <https://perma.cc/KQ4C-K2TB>.

<sup>11</sup> Radio Dabanga, “قوات الدعم السريع تقصف مستشفى جبل مرة بالفاشر,” July 2, 2024, <https://www.dabangasudan.org/ar/all-news/article/%d9%82%d9%88%d8%a7%d8%aa-%d8%a7%d9%84%d8%af%d8%b9%d9%85-%d8%a7%d9%84%d8%b3%d8%b1%d9%8a%d8%b9-%d8%aa%d9%82%d8%b5%d9%81-%d9%85%d8%b3%d8%aa%d8%b4%d9%81%d9%89-%d8%ac%d8%a8%d9%84-%d9%85%d8%b1%d8%a9-%d8%a8>, archived at <https://perma.cc/5FUA-WEQD>; Mohamed Halfawi, “سقوط قذائف على مستشفى,” Ultra Sudan, <https://ultrasudan.ultrasawt.com/%D8%B3%D9%82%D9%88%D8%B7-%D9%82%D8%B0%D8%A7%D8%A6%D9%81-%D8%B9%D9%84%D9%89-%D9%85%D8%B3%D8%AA%D8%B4%D9%81%D9>

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<sup>12</sup> Howarth, Caitlin N., Danielle N. Poole, Kaveh Khoshnood, Nathaniel A. Raymond et al. “Flood Zone: Impact of Heavy Rains on Humanitarian and Human Security Situation in El-Fasher and Zamzam IDP Camp” 2 August 2024. Humanitarian Research Lab at Yale School of Public Health: New Haven. [https://medicine.yale.edu/lab/khoshnood/publications/hrl-report-aug-2-2024\\_482998\\_26865\\_v1.pdf](https://medicine.yale.edu/lab/khoshnood/publications/hrl-report-aug-2-2024_482998_26865_v1.pdf), archived at <https://perma.cc/LUG3-5JJK>; Sudan Tribune, “Dozens killed in RSF attack on El Fasher, chemical weapons use alleged,” July 27, 2024, <https://sudantribune.com/article288774/>, archived at <https://perma.cc/8NFZ-H9LY>; Darfur24, “مقتل وإصابة 75 مدنيًا في تبادل قصف بين الجيش والدعم السريع في الفاشر,” July 27, 2024, <https://www.darfur24.com/2024/07/27/%D9%85%D9%82%D8%AA%D9%84-%D9%88%D8%A5%D8%B5%D8%A7%D8%A8%D8%A9-75-%D9%85%D8%AF%D9%86%D9%8A%D9%8B%D8%A7-%D9%81%D9%8A-%D8%AA%D8%A8%D8%A7%D8%AF%D9%84-%D9%82%D8%B5%D9%81-%D8%A8%D9%8A%D9%86-%D8%A7%D9%84/>, archived at <https://perma.cc/FL93-XAWA>

<sup>13</sup> Yale HRL does not provide additional specific information for human security concerns.

<sup>14</sup> Howarth, Caitlin N., Kaveh Khoshnood, Nathaniel A. Raymond et al. “Visual Confirmation of Additional Burned Communities and RSF Forces in El-Fasher” 29 April 2024. Humanitarian Research Lab at Yale School of Public Health: New Haven; and Caitlin N. Howarth, Kaveh Khoshnood, Nathaniel A. Raymond et al. “SPECIAL REPORT El-Fasher: State of Crisis.” 5 June 2024. Humanitarian Research Lab at Yale School of Public Health: New Haven, [https://medicine.yale.edu/lab/khoshnood/publications/special-report-el-fasher-jun-5\\_480113\\_26865\\_v3.pdf](https://medicine.yale.edu/lab/khoshnood/publications/special-report-el-fasher-jun-5_480113_26865_v3.pdf), archived at <https://perma.cc/5V7Q-EWMY>

<sup>15</sup> @RSFSudan on X (formerly known as Twitter), “The RSF successfully repels an attack from the SAF and their mercenary groups in El Fasher, capturing a significant cache of military equipment,” June 1, 2024, <https://x.com/RSFSudan/status/1796913184776835285>, archived at <https://perma.cc/7YZ6-LJDF>



# Saudi Hospital, El-Fasher

## CONFLICT-RELATED DAMAGE OBSERVED BETWEEN 19 JULY AND 18 AUGUST 2024

Analysis of satellite imagery collected between 19 July and 01 August 2024 shows damage to the roof of a building in the Saudi (Al-Saudi) Hospital complex. Analysis of imagery collected between 01 and 18 August 2024 shows damage to an additional building in the hospital complex; both incidents indicate shelling damage. The 23 August 2024 image is shown due to its higher resolution.



19 July 2024 © 2024 Maxar, USG-Plus



01 August 2024 © 2024 Maxar, USG-Plus



23 August 2024 © 2024 Maxar, USG-Plus

# Timbasi Health Center, El-Fasher

## CONFLICT-RELATED DAMAGE OBSERVED 31 JULY-12 AUGUST 2024

Analysis of satellite imagery shows damage from munitions impacts to roofs of the Timbasi Health Center in El-Fasher between the dates of 31 July to 12 August 2024. Open sources reported damage to the health center on 3 August 2024.



31 July 2024 © 2024 Maxar, USG-Plus



12 August 2024 © 2024 Maxar, USG-Plus



# Relief International Warehouse, El-Fasher

CONFLICT-RELATED DAMAGE  
OBSERVED 31 JULY-23 AUGUST 2024

Analysis of satellite imagery shows debris from damage due to munitions impact to the eastern face of the Relief International Medicine Warehouse in El-Fasher between the dates of 31 July and 23 August 2024. Open sources reported damage on 18 August 2024.



31 July 2024 © 2024 Maxar, USG-Plus



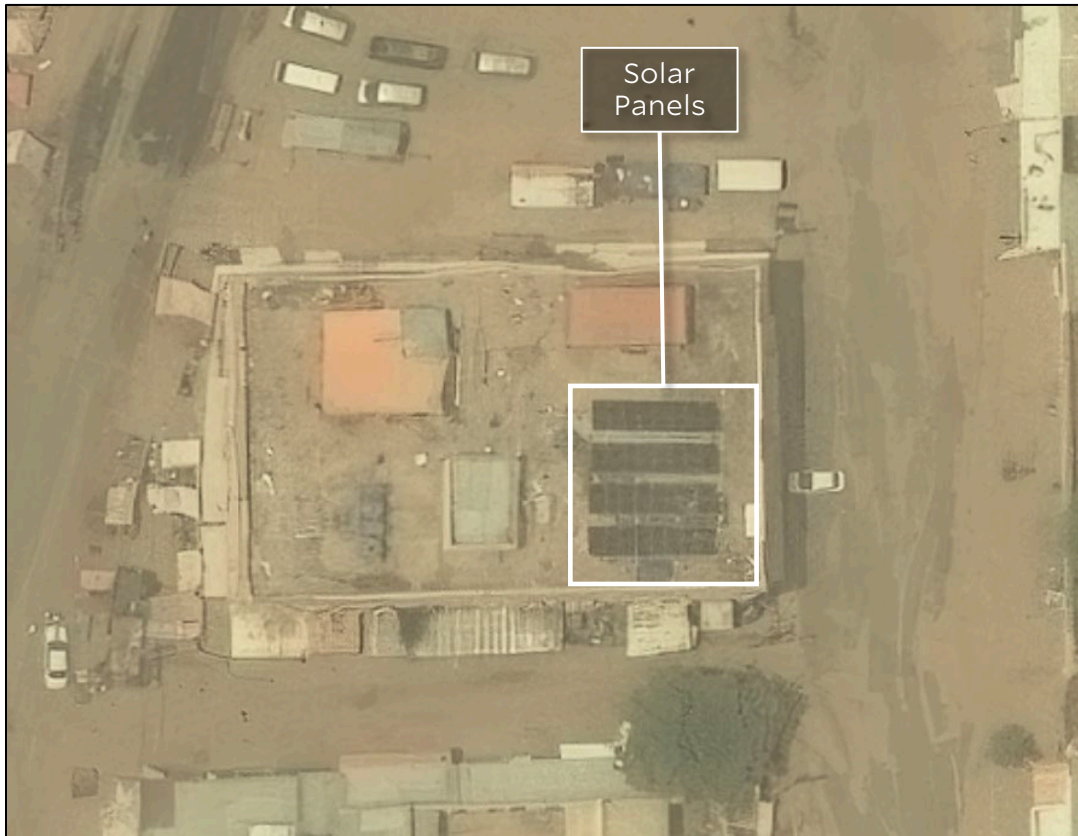
23 August 2024 © 2024 Maxar, USG-Plus

Source | [https://x.com/sudan\\_war/status/1825511989516349884](https://x.com/sudan_war/status/1825511989516349884), archived at <https://perma.cc/D96Y-NB9T>;  
<https://x.com/ReliefIntl/status/1825562147235242493>, archived at <https://perma.cc/KQ7Y-8J22>

# Nabd Al Haya (Pulse of Life) Hospital, El-Fasher

## CONFLICT-RELATED DAMAGE OBSERVED BETWEEN 21-31 JULY 2024

Analysis of satellite imagery between 21 and 31 July 2024 shows fewer panels of the solar power system on the roof of Nabd Al Haya (Pulse of Life) Hospital in El-Fasher. Open sources reported that a drone strike damaged the hospital's solar panels on 24 July 2024. Yale HRL finds a reduction in solar panels on the roof but cannot confirm that this change is due to a drone strike.



19 July 2024 © 2024 Maxar, USG-Plus



23 August 2024 © 2024 Maxar, USG-Plus

Source | <https://sudantribune.com/article288774/>, archived at <https://perma.cc/8NFZ-H9LY>, and <https://www.darfur24.com/2024/07/27/%D9%85%D9%82%D8%AA%D9%84-%D9%88%D8%A5%D8%B5%D8%A7%D8%A8%D8%A9-75-%D9%85%D8%AF%D9%86%D9%8A%D9%8B%D8%A7-%D9%81%D9%8A-%D8%AA%D8%A8%D8%A7%D8%AF%D9%84-%D9%82%D8%B5%D9%81-%D8%A8%D9%8A%D9%86-%D8%A7%D9%84/>, archived at <https://perma.cc/FL93-XAWA>.

# El-Fasher University, El-Fasher

## CONFLICT-RELATED DAMAGE OBSERVED 26 JULY-23 AUGUST 2024

Analysis of satellite imagery shows damage, from munitions impacts, to a building at the University in El-Fasher between the dates of 26 July and 23 August 2024. Open sources reported that RSF shelling damaged the scientific library and peace studies center of El-Fasher University on 22 August 2024.



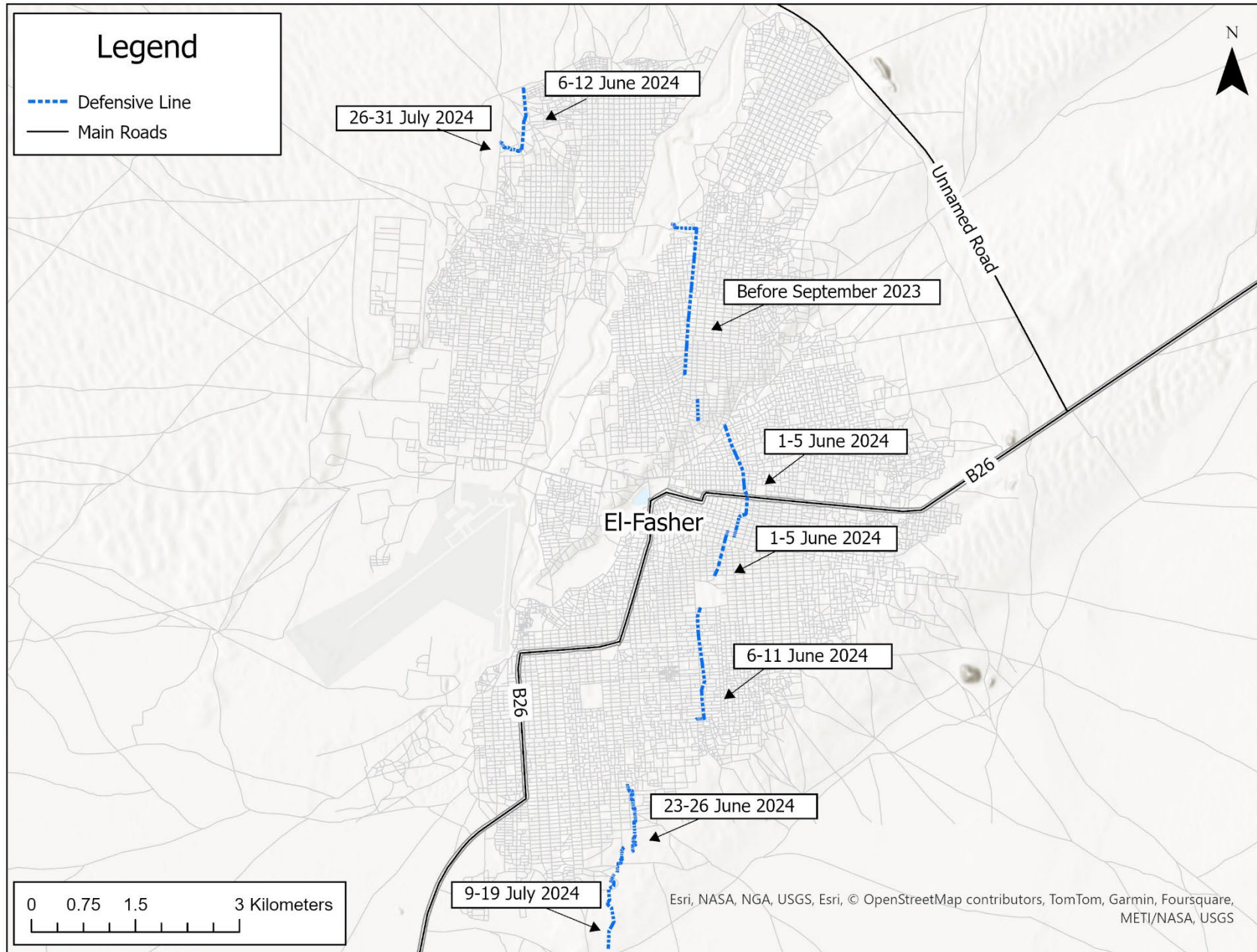
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23 August 2024 © 2024 Maxar, USG-Plus

Source | <https://www.radiotamazuj.org/ar/news/article/%D9%82%D9%88%D8%A7%D8%AA-%D8%A7%D9%84%D8%AF%D8%B9%D9%85-%D8%A7%D9%84%D8%B3%D8%B1%D9%8A%D8%B9-%D8%AA%D9%82%D8%B5%D9%81-%D8%A7%D9%84%D9%85%D9%83%D8%AA%D8%A8%D8%A9-%D8%A7%D9%84%D8%B9%D9%84%D9%85%D9%8A>, archived at <https://perma.cc/F9L5-78VF>

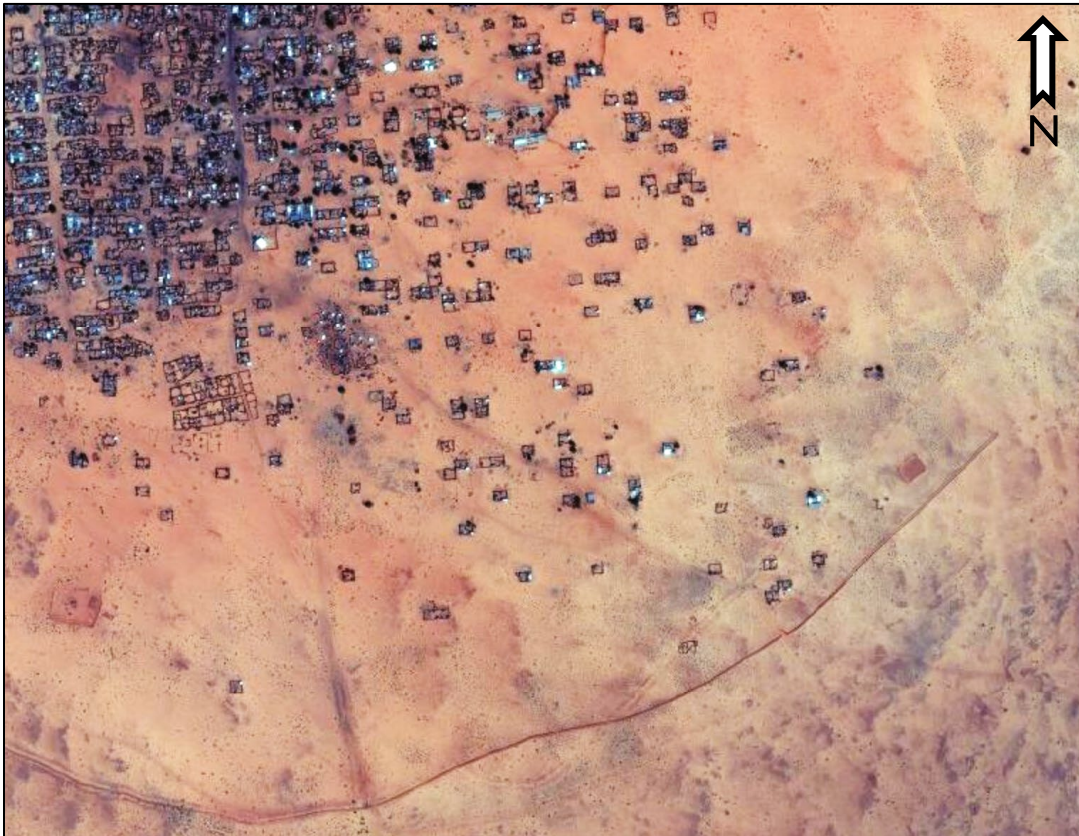
# Construction of Defensive Positions in El-Fasher by Time



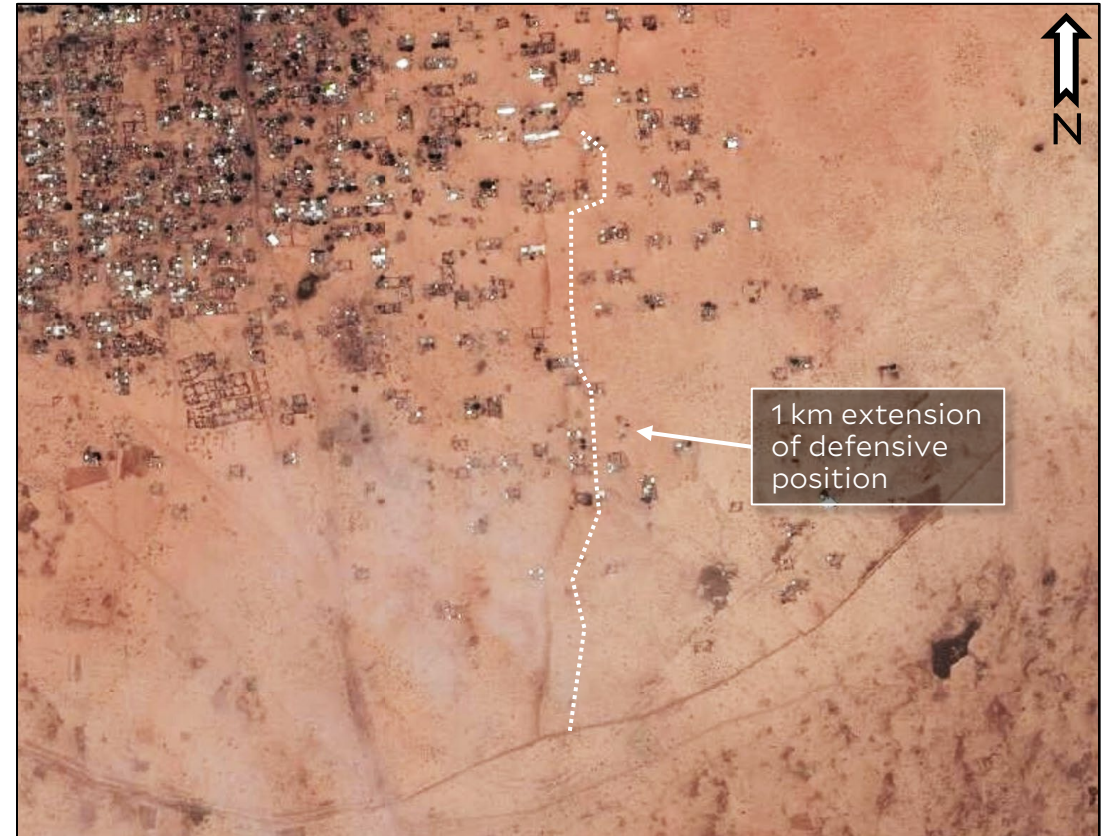
# El-Fasher

## DEFENSIVE POSITION EXTENDED BETWEEN 09-21 JULY 2024

Analysis of satellite imagery shows the previously reported defensive position dividing the town of El-Fasher has been extended southward by approximately 1 km between the dates of 09 and 21 July 2024.



09 July 2024 © 2024 Maxar, USG-Plus



21 July 2024 © 2024 Maxar, USG-Plus

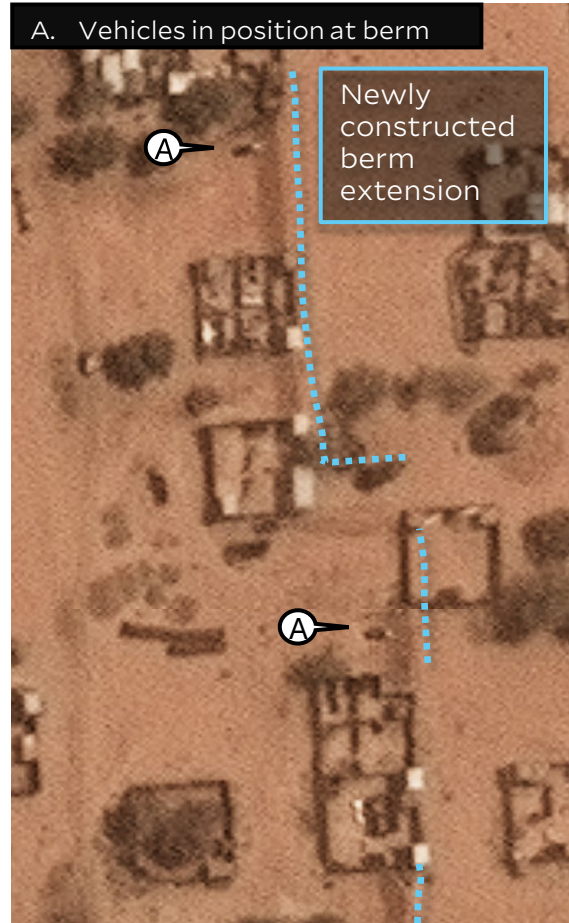
# El-Fasher

## POSSIBLE SAF PRESENCE AND DEPARTURE AT CONSTRUCTED BERM 06-17 JUNE 2024

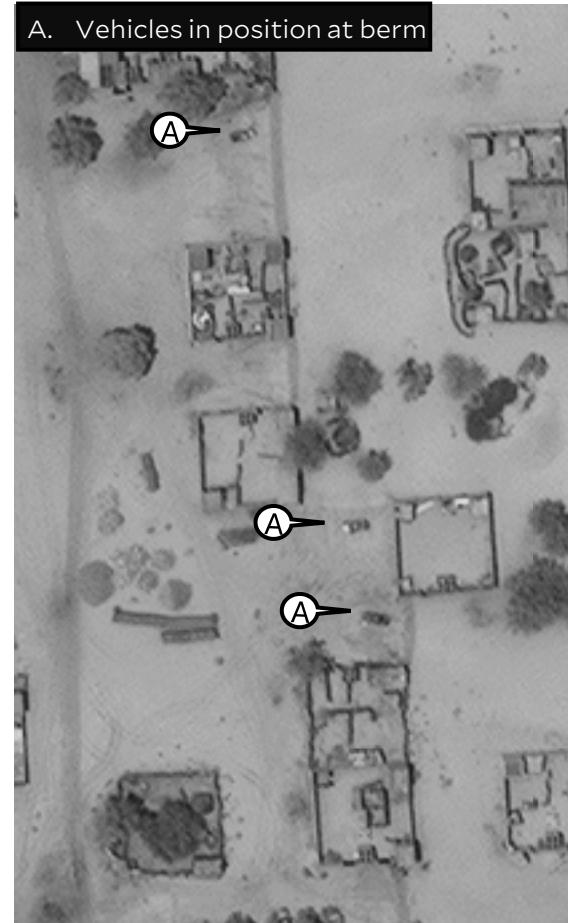
Analysis of satellite imagery shows the presence of three technical vehicles positioned at a recently constructed berm between 06-11 June 2024. On 11 June, two vehicles are observed positioned on the berm's western side, with a third vehicle appearing on the western side by 13 June 2024. By 17 June 2024, all three vehicles are absent and two new munitions impacts are observed in the vicinity.



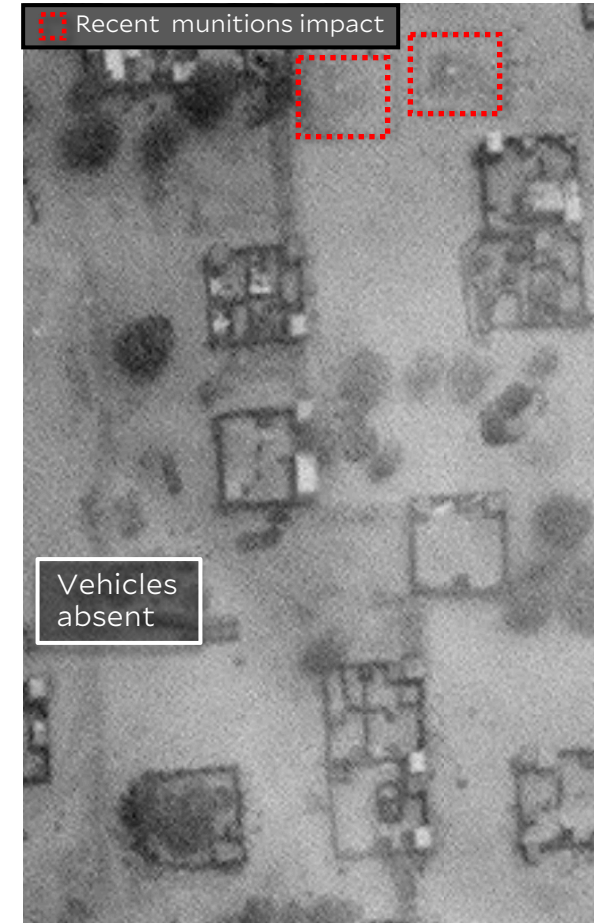
06 June 2024 © 2024 Maxar, USG-Plus



11 June 2024 © 2024 Maxar, USG-Plus



13 June 2024 © 2024 Maxar, USG-Plus



17 June 2024 © 2024 Maxar, USG-Plus



# El-Fasher

## NEW MUNITIONS IMPACT OBSERVED NEAR BERM BETWEEN 12-23 AUGUST 2024

Analysis of satellite imagery shows the presence of a recent munitions impact between 12-23 August 2024. The area was is near the previously analyzed technical vehicles positioned at the berm in south-central El-Fasher (see previous slide). The munitions impact and lack of vehicles may indicate that SAF's control of the area is contracting.



12 August 2024 © 2024 Maxar, USG-Plus



23 August 2024 © 2024 Maxar, USG-Plus

## RSF Force Presence in El-Fasher

Analysis of satellite imagery collected on 13 July 2024 of the eastern neighborhood of El-Fasher shows two light technical-type vehicles, one with an object affixed to the back raised at an approximate 45° angle. This object is consistent in dimensions and shape to the B-8M1 rocket system used for firing 80mm S-8 rockets.



Light technical-type vehicle

Vehicle with mounted rocket system

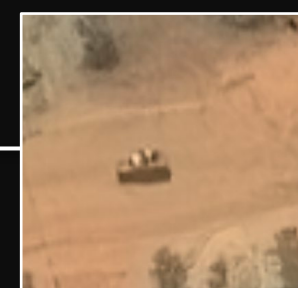
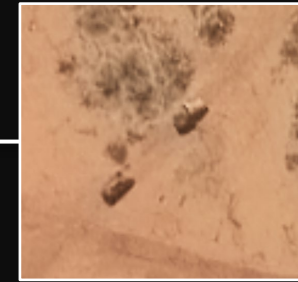
Raised back

## RSF Force Presence in El-Fasher

According to analysis of satellite imagery, on 31 July 2024 in RSF territory of El-Fasher's eastern sector, vehicles consistent with one rocket system-mounted vehicle, three technical transport vehicles, and one armored anti-aircraft vehicle are observed newly present and active at this location since 21 July 2024.



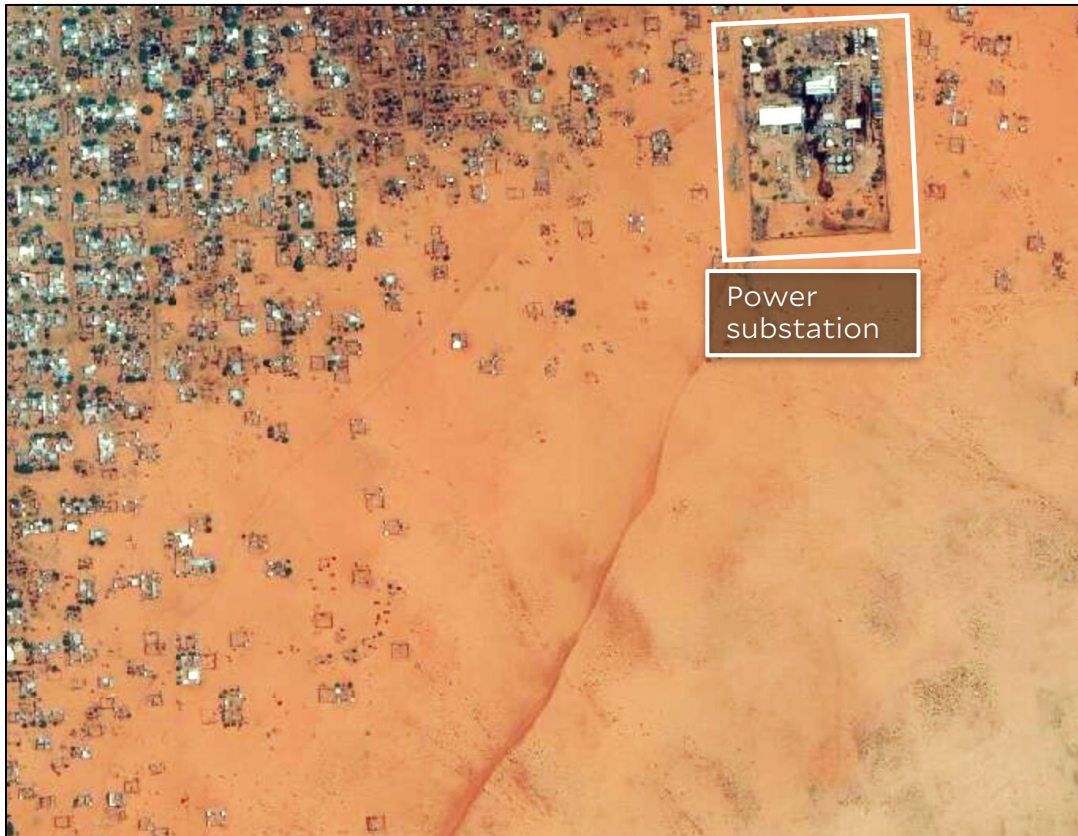
- A. Armored anti-aircraft vehicle
- B. Technical transport vehicle
- C. Rocket system-mounted truck



# El-Fasher

## RSF VEHICLE ACTIVITY 12 AUGUST 2024

Analysis of satellite imagery shows at least four gun-mounted light technical vehicles in RSF territory of eastern El-Fasher heading southward from the power substation on 12 August 2024. On this date at this location there is a significant increase in vehicle tracking. This demonstrates RSF continues to be present and active with mounted technicals (4x4 pickup trucks with guns affixed to the back).



19 July 2024 © 2024 Maxar, USG-Plus



12 August 2024 © 2024 Maxar, USG-Plus

# Checkpoints, B26 El-Fasher to Zamzam

B26 ROAD SOUTHBOUND FROM EL-FASHER TO ZAMZAM IDP CAMP, 12 AND 21 AUGUST 2024

Yale HRL has assessed multiple checkpoints and vehicles present on the B26 between El-Fasher and Zamzam IDP Camp (examples included below). Most of these checkpoints or road blockages have been established since 31 July 2024.



12 August 2024 © 2024 Maxar, USG-Plus



12 August 2024 © 2024 Maxar, USG-Plus



20 August 2024 © 2024 Maxar, USG-Plus