

Free-Fire Zone: Widespread Aerial and Artillery Bombardment across El-Fasher

13 September 2024

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) confirms unprecedented large scale combat operations by the Sudanese Armed Forces (SAF) and aligned forces and Rapid Support Forces (RSF) in El-Fasher, North Darfur, within past 10 days with significant escalation in the past 36 hours. At least 118 munition impacts likely related to high tempo aerial bombardment by SAF are observed in satellite imagery in eastern and southern El-Fasher between 03 and 13 September 2024. At least 50 instances of structural damage, the result of both SAF artillery bombardment, RSF bombardment and other combat activity by both sides, are observed in satellite imagery in eastern and southern El-Fasher during the same period. These findings corroborate open source reports that SAF airstrikes targeted RSF positions in the east of the city on 12 September 2024.¹ Video obtained by Yale HRL also depicts at least one SAF helicopter gunship consistent with a Ka-52 (Alligator) engaged in combat operations reportedly in El-Fasher. The bombardment primarily took place in areas where RSF is known to be present.²

Open-source and other ground reports available to Yale HRL describe a major multidirectional RSF attack from the northern, eastern, and southern directions on 12 September 2024.³ RSF reportedly is moving through the southern and northern sides of El-Fasher, but Yale HRL cannot visually confirm these reports in satellite imagery. SAF force activity is consistent with the probable presence of an adversary force from at least the southern and eastern directions within the timespan covered in this report. Similar force activity has been observed in the northern direction over the past several weeks. Specific details are being withheld for human security reasons.

Analysis of satellite imagery collected between 03 and 13 September 2024, shows damage to the roof of a structure at the South Hospital with a turreted armored fighting vehicle present. Additionally, a munitions impact is observed outside the northeast corner of the hospital perimeter wall. Yale HRL assesses based on multimedia content that RSF was stationed at the South Hospital on or around 12 September 2024.⁴ According to Médecins Sans Frontières (MSF), the South Hospital has been completely out of service after being stormed and looted by the RSF on 8 June 2024.⁵ The repeated targeting of healthcare facilities in El-Fasher has greatly impacted the ability of vulnerable populations to access healthcare services.⁶

This high-tempo, intense combat activity represents a new stage of the conflict in El-Fasher. In this new phase of combat operations, El-Fasher has become a free-fire zone for both RSF and SAF forces between RSF artillery, SAF air and artillery strikes, and SAF helicopter gunship activity. El-Fasher is likely to experience increased airstrikes and aerial bombardment. With the end of the rainy season, airstrikes become more frequent, and the roads are open for vehicle traffic. HRL reiterates its previous warning that if RSF fully captures El-Fasher, it is highly likely that RSF forces will engage in an attack on Zamzam given the presence of armed actors there. Regardless of the outcome of the battle for El-Fasher, current levels of high-tempo combat activity are likely to effectively reduce what is left of El-Fasher to rubble.

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.

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 source of information was then verified and informed through open source analysis by Yale HRL's analysts with relevant cultural and linguistic skills. In some cases, communities may have names similar to other communities or may be known by multiple names.

Specific coordinates have been provided to support the further identification and disambiguation of specific place names and community locations. Human security concerns were accounted for as part of the decision to release specific coordinates; potential civilian risk was rated minimal because these communities have already been visibly attacked, and in the case of combat activity and coordinates are released, it is assessed that the combatants are aware of this situation.

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.

¹ Sudan Tribune, "تجدد الاشتباكات بين الجيش والدعم السريع في الفاشر وسط قصف مدفعي وجوي," September 13, 2024, <https://sudantribune.net/article290796/>, archived at <https://perma.cc/BH73-58J5>; Radio Dabanga, "معارك عنيفة في الفاشر.. وغارات جوية في مليط ونبالا والدالي وشرق النيل," September 12, 2024, <https://www.dabangasudan.org/ar/all-news/article/%d9%85%d8%b9%d8%a7%d8%b1%d9%83-%d8%b9%d9%86%d9%8a%d9%81%d8%a9-%d9%81%d9%8a-%d8%a7%d9%84%d9%81%d8%a7%d8%b4%d8%b1-%d9%88%d8%ba%d8%a7%d8%b1%d8%a7%d8%aa-%d8%ac%d9%88%d9%8a%d8%a9-%d9%81%d9%8a-%d9%85>, archived at <https://perma.cc/2R4D-7TAX>

² Howarth, Caitlin N., Kaveh Khoshnood, Nathaniel A. Raymond et al. "El-Fasher: Recent Hospital Bombardment and Current Areas of Control," 29 August 2024. Humanitarian Research Lab at Yale School of Public Health: New Haven. Available at <https://medicine.yale.edu/lab/khoshnood/publications/reports>.

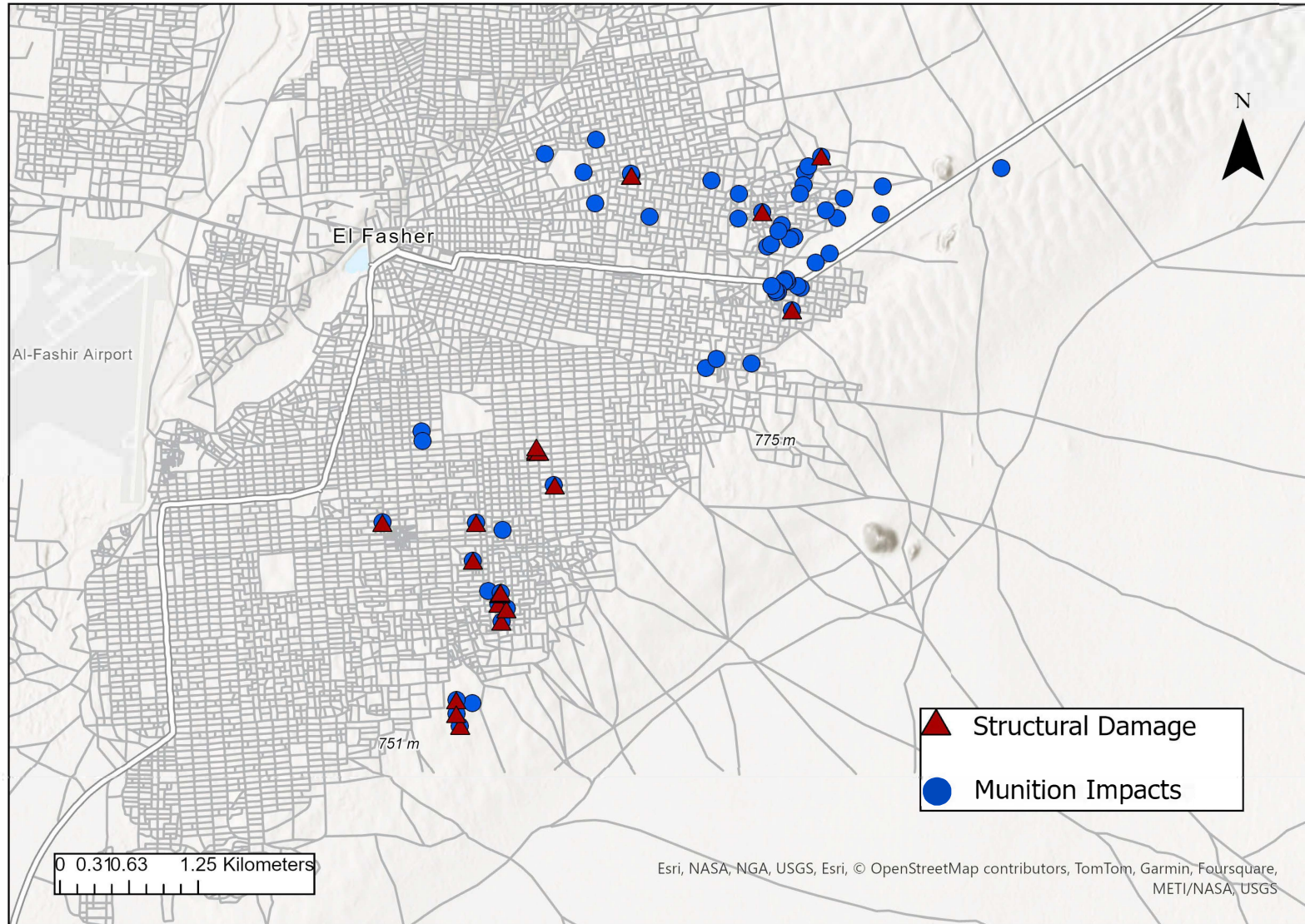
³ Sudan Tribune, ”الجيش وحلفاؤه يعلنون حسم هجوم ضار للدعم السريع على الفاشر وقتل قادة بارزين”, September 12, 2024, <https://sudantribune.net/article290764/>, archived at <https://perma.cc/3JUF-ZCXE>; Sudan Tribune, ”تجدد الاشتباكات بين الجيش والدعم السريع في الفاشر وسط قصف مدفعي وجوي”, September 13, 2024, <https://sudantribune.net/article290796/>, archived at <https://perma.cc/BH73-58J5>.

⁴ HRL_MMC_038

⁵ 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>; 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.

⁶ 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>

Munition Impacts and Structural Damage Observed in El-Fasher 3 September - 13 September 2024



Southeastern El-Fasher

CONFLICT-RELATED DAMAGE OBSERVED
BETWEEN 03-13 SEPTEMBER 2024

Analysis of satellite imagery collected between 03 and 13 September shows structural damage to buildings in a southeastern El-Fasher neighborhood.



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Eastern El-Fasher

STRUCTURAL DAMAGE OBSERVED
BETWEEN 03-13 SEPTEMBER 2024



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Analysis of satellite imagery collected between 03 and 13 September shows structural damage to multiple buildings in an eastern El-Fasher neighborhood.



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South Hospital, El-Fasher

DAMAGE, MUNITIONS IMPACT AND ARMOR PRESENCE ON 13 SEPTEMBER 2024

Analysis of satellite imagery collected between 03 and 13 September 2024, shows damage to the roof of a structure at the South Hospital with a turreted armored fighting vehicle present. Additionally, a munitions impact is observed outside the northeast corner of the hospital perimeter wall.



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