

**SPECIAL REPORT: Confirmation of Ground
Assault on Zamzam IDP Camp**

11 April 2025

Yale SCHOOL OF PUBLIC HEALTH
Humanitarian Research Lab

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This report was independently produced by the Yale School of Public Health's Humanitarian Research Lab with the support of the Avaaz Foundation. Learn more at <https://medicine.yale.edu/lab/khoshnood/> and <https://avaaz.org>.

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.

Citation | Caitlin N. Howarth, Kaveh Khoshnood, Nathaniel A. Raymond et al. "Special Report: Confirmation of Ground Assault on Zamzam IDP Camp." 11 April 2025. Humanitarian Research Lab at Yale School of Public Health: New Haven.

I. Summary

Yale School of Public Health's Humanitarian Research Lab (HRL) confirms ongoing ground assault by Rapid Support Forces (RSF) as of 10:48 local time at Zamzam IDP camp and observes large numbers of armed light technical-type vehicles consistent with those deployed by RSF. This attack conservatively represents the most significant ground-based attack on Zamzam IDP camp since fighting erupted in the El-Fasher area in spring of 2024. Arson attacks have burned multiple structures and significant areas of the camp in the center, south, and southeast portions of the camp. Yale HRL assesses with high confidence that the attack is likely ongoing as of this morning local time due to the observation of one large active fire plume and at least as many as half a dozen smaller fire plumes burning at the time of image collect. Open source reports claim as many as 25 civilians have been killed and unknown numbers more have been wounded.¹ HRL cannot corroborate reports of civilian casualties. A widely circulated video in which apparent RSF-aligned fighters state that they are inside Zamzam camp shows bodies on the ground and armed light vehicles; the video was allegedly taken on 11 April 2025. Though HRL cannot independently corroborate the video, it finds that reports of civilian casualties are likely credible and details are consistent with observations via satellite imagery within the same alleged time frame.

II. Key Findings

Yale HRL confirms ongoing ground assault as indicated by the presence of more than 20 armed light technical-type vehicles consistent with those deployed by RSF at the eastern access point to the camp between 10 and 11 April 2025. At least seven clusters of damaged buildings consistent with active fire are observed as thermal scarring south, east and in the center of Zamzam.

Thermal scarring: The pattern of thermal scarring observed at a cluster of structures indicates that the damage was likely due to an intentional ground-based attack consistent with previous attacks in February 2025 by RSF in the area.²

III. 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.

Al Jazeera, "مقتل 25 مدنيا سودانيا في هجوم على مخيم للنازحين بدارفور" April 11, 2025, <https://www.aljazeera.net/amp/news/2025/4/11/%D8%A7%D9%84%D8%B3%D9%88%D8%AF%D8%A7%D9%86-94>, archived at [https://archive.ph/LaKgl](https://archive.ph/LaKgl;);

Al Mashhad Al Sudani, "سقوط 25 مدنيا بهجوم على مخيم بشمال دارف", April 11, 2025, <https://almashhadalsudani.com/sudan-news/sudan-today/125958/>, archived at [https://archive.ph/4QvRR](https://archive.ph/4QvRR;);

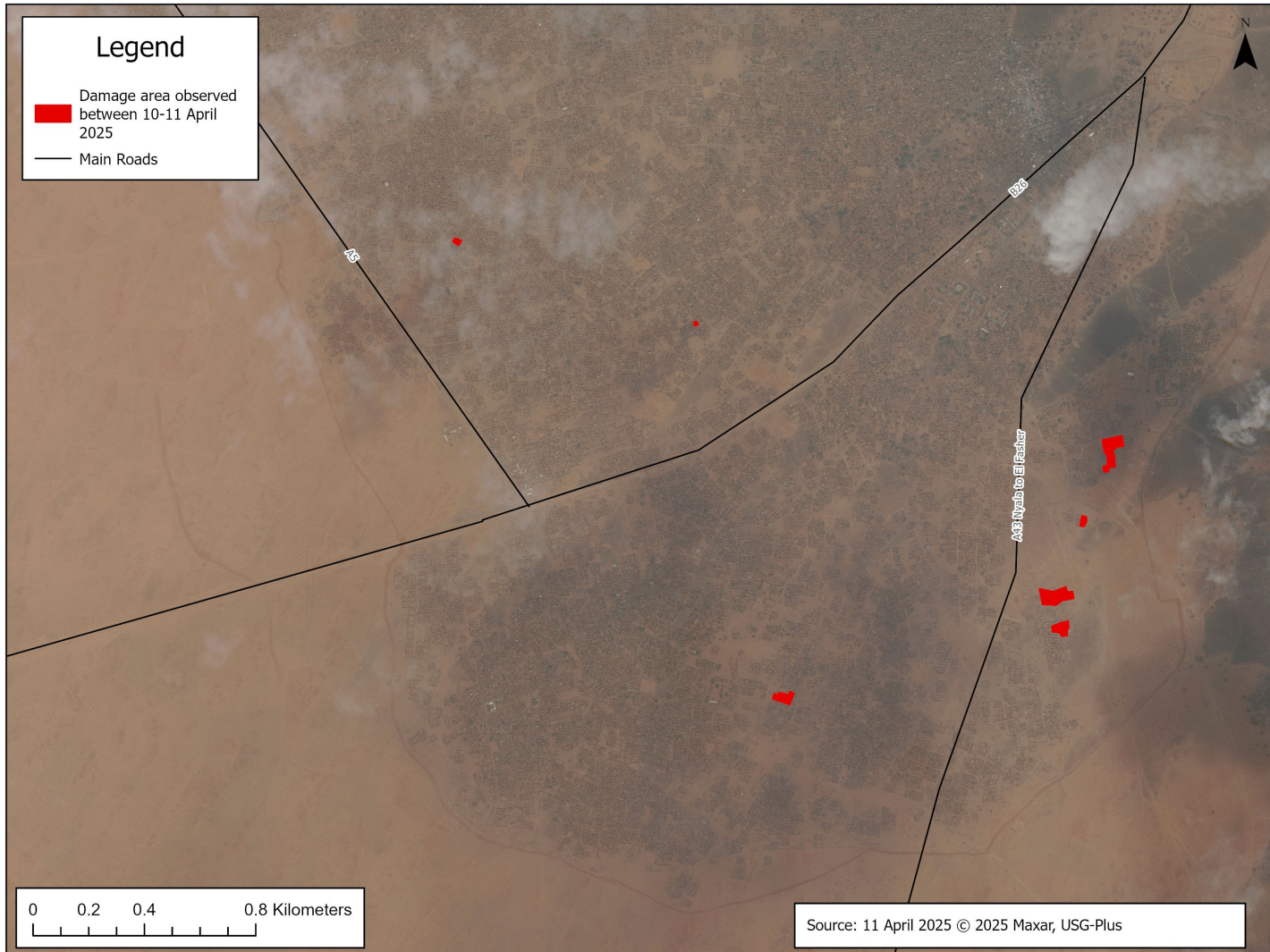
Sudan Akhbar, "سقوط 25 مدنيا بهجوم على مخيم بشمال دارفور", April 11, 2025, <https://www.sudanakhbar.com/1637697>, archived at <https://archive.ph/VH4HO>.

² Caitlin N. Howarth, Kaveh Khoshnood, Nathaniel A. Raymond et al. "Kill Box: RSF Attacks IDP Camps and Razes Dozens of Communities around El-Fasher," 5 February 2025. Humanitarian Research Lab at Yale School of Public Health: New Haven;

Caitlin N. Howarth, Kaveh Khoshnood, Nathaniel A. Raymond et al. "SPECIAL REPORT: RSF Ground Assault on Zamzam IDP Camp." 13 February 2025. Humanitarian Research Lab at Yale School of Public Health: New Haven;

Caitlin N. Howarth, Kaveh Khoshnood, Nathaniel A. Raymond et al. "Arson Attack & Airstrikes at Community Near Zamzam IDP Camp." 14 February 2025. Humanitarian Research Lab at Yale School of Public Health: New Haven.

Damage Area Observed in Zamzam between 10 and 11 April 2025



Zamzam IDP Camp, El-Fasher

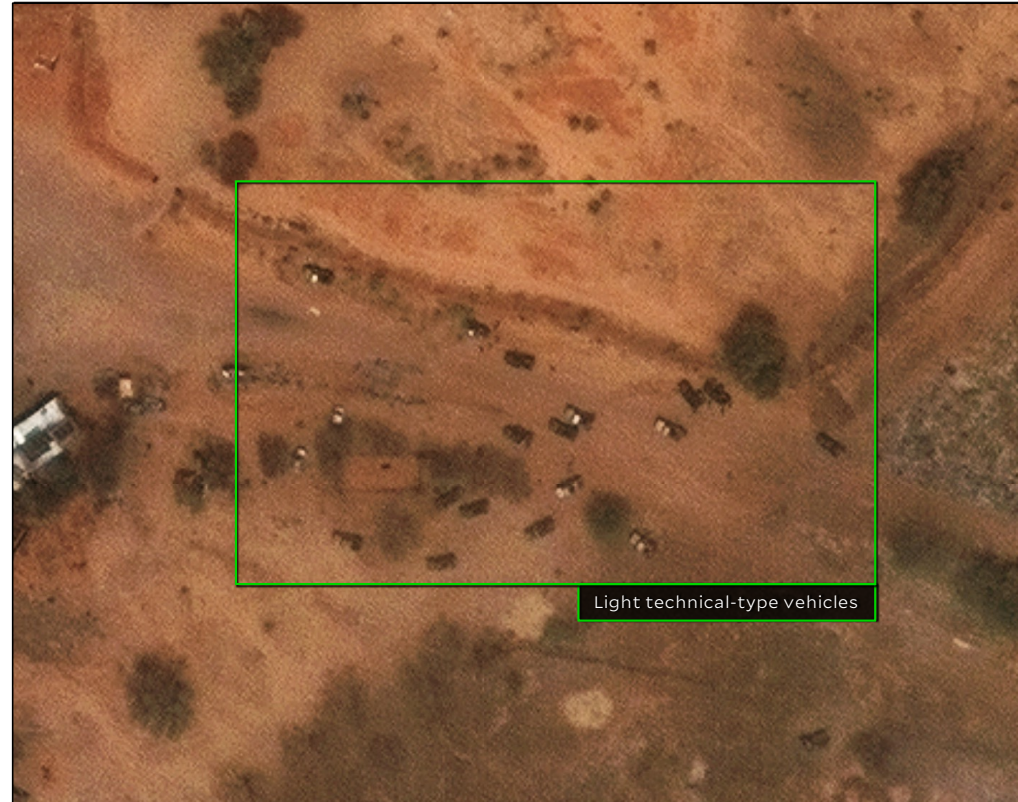
LIGHT TECHNICAL VEHICLE PRESENCE OBSERVED BETWEEN 06-11 APRIL 2025

Analysis of satellite imagery collected between 06 and 11 April 2025 over Zamzam shows more than twenty light technical vehicles, several observed likely mounted with weapons, at the eastern access point of the camp.

Imagery collected by Planet on 10 April 2025 shows no vehicles present at this location, narrowing the timeframe of the presence to be between 10 and 11 April 2025.



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Possible Zamzam IDP Camp

LIGHT VEHICLE PRESENCE

In a video widely circulated on 11 April 2025, armed men state, "We are in Zamzam." The video shows dark green light vehicles with 50 caliber mounted weapons. Analysts could not identify any instances of this video appearing online and could not corroborate additional details at this time.



Zamzam IDP Camp, El-Fasher

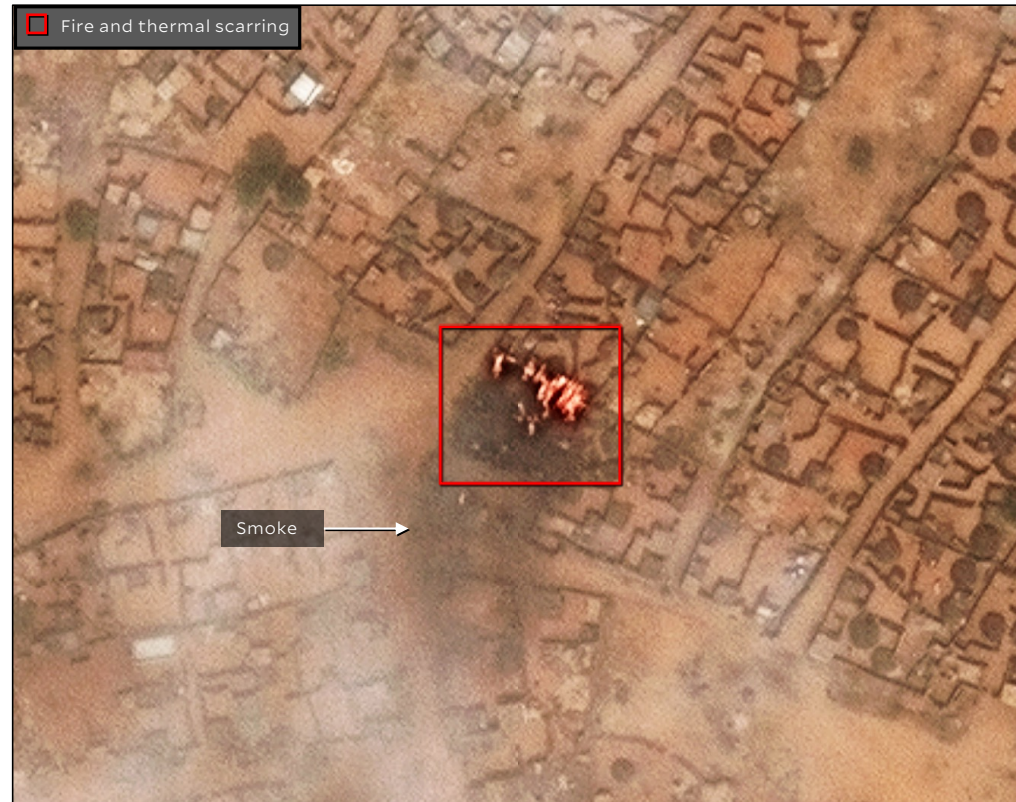
ACTIVE FIRE OBSERVED BETWEEN 10-11
APRIL 2025

Analysis of satellite imagery collected between 06 and 11 April 2025 over Zamzam shows flames and smoke emanating from burning structures within the camp.

Imagery collected by Planet on 10 April 2025 shows the structures are undamaged, narrowing the timeframe of the event to occurring between 10 and 11 April 2025.



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Zamzam IDP Camp, El-Fasher

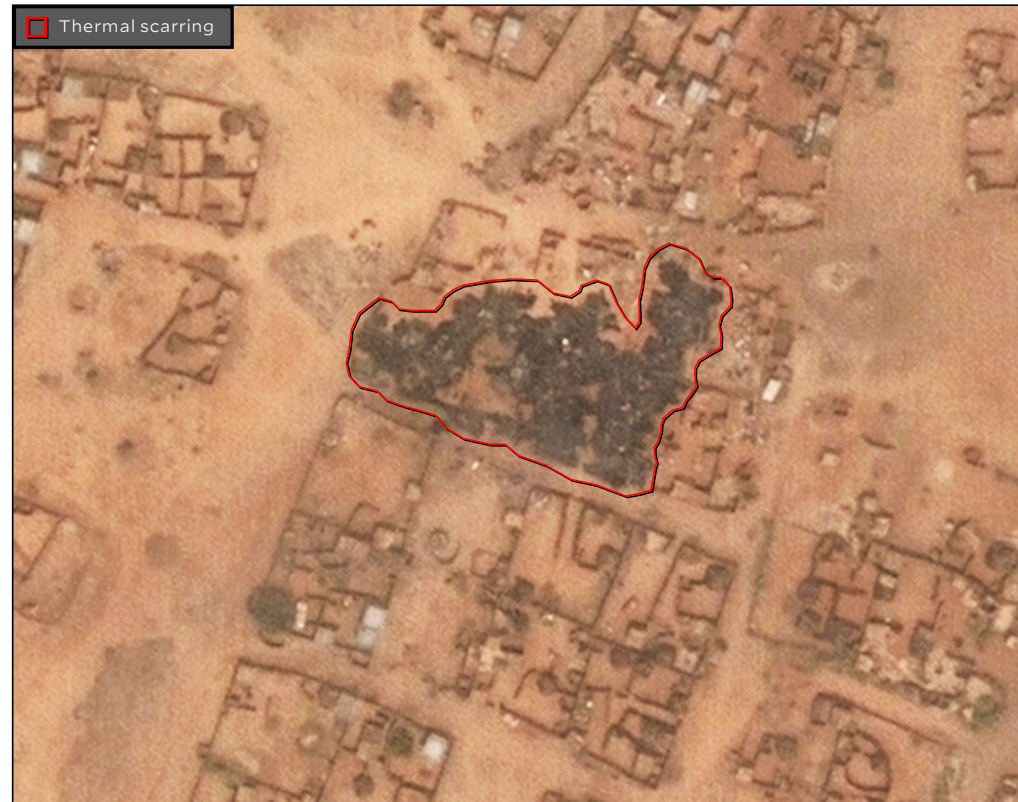
**THERMAL SCARRING OBSERVED
BETWEEN 06-11 APRIL 2025**

Analysis of satellite imagery collected between 06 and 11 April 2025 over Zamzam shows damage of structures through thermal scarring.

Imagery collected by Planet on 10 April 2025 shows the structures are undamaged, narrowing the timeframe of the event to occurring between 10 and 11 April 2025.



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Zamzam IDP Camp, El-Fasher

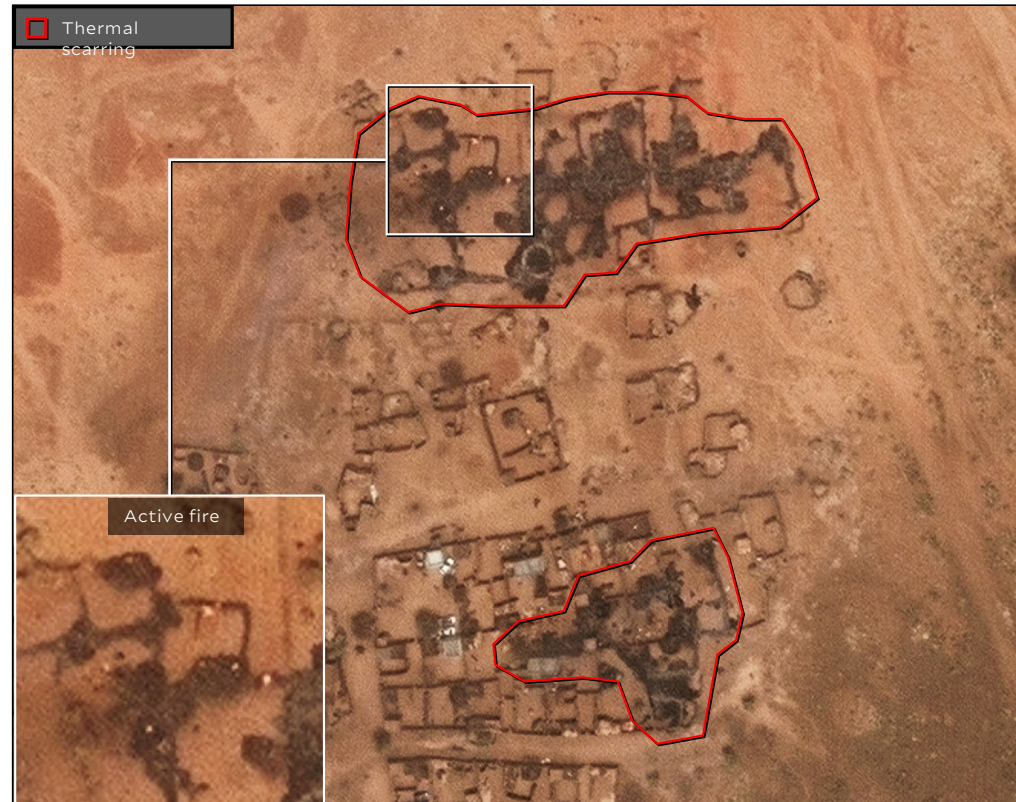
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Zamzam IDP Camp, El-Fasher

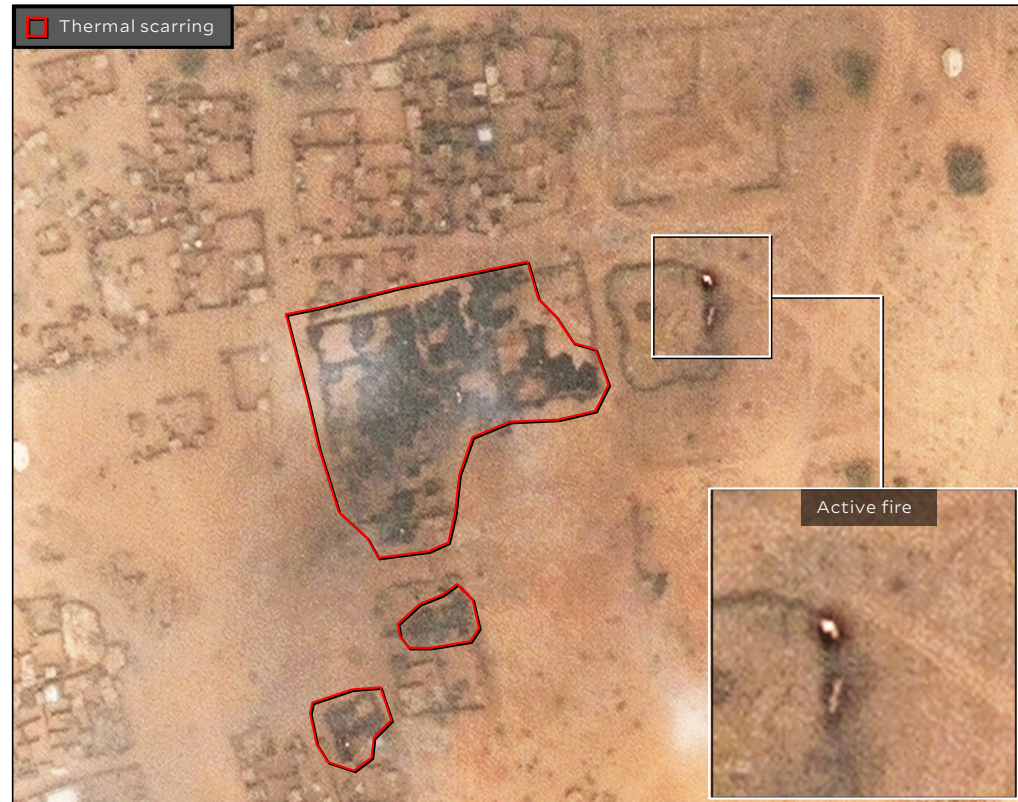
**THERMAL SCARRING OBSERVED
BETWEEN 29 MARCH-11 APRIL 2025**



29 March 2025 © 2025 Maxar Technologies

Analysis of satellite imagery collected between 29 March and 11 April 2025 over Zamzam shows flames and smoke emanating from burning structures within the camp.

Imagery collected by Planet on 10 April 2025 shows the structures are undamaged, narrowing the timeframe of the event to occurring between 10 and 11 April 2025.



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Zamzam IDP Camp, El-Fasher

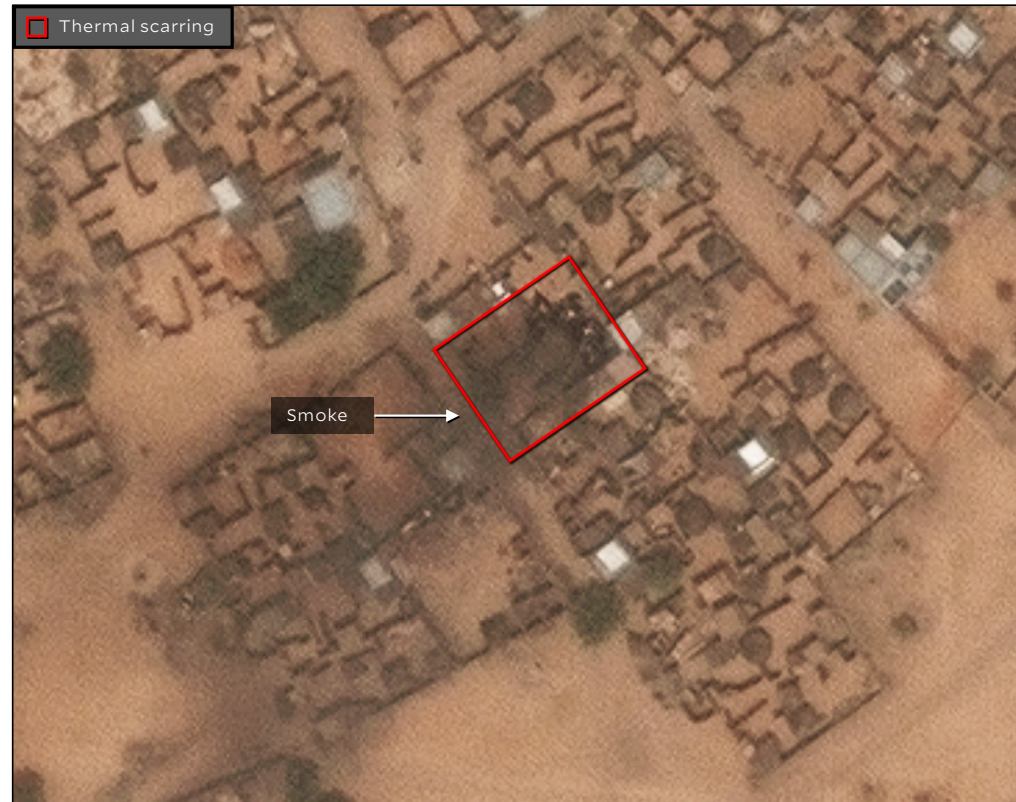
**THERMAL SCARRING OBSERVED
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