18 September 2023

Power Supply Assessment Following the Adassil/Al Haouz Earthquake (8 September 2023, M6.8) using High-resolution Night-time Light Images

Morocco

Status: Power outage observed.

Further action(s): continue monitoring

MOROCCO

Marrakech-Safi
Souss-Massa

VIIRS Night-time Light Assessment in Marrakech, Marrakech Province, Marrakech-Safi Region

By 17 September, no significant power outage observed in Marrakech (70 km NE mainshock epicentre).

Image center:
31°37’57"N
08°01’45“W

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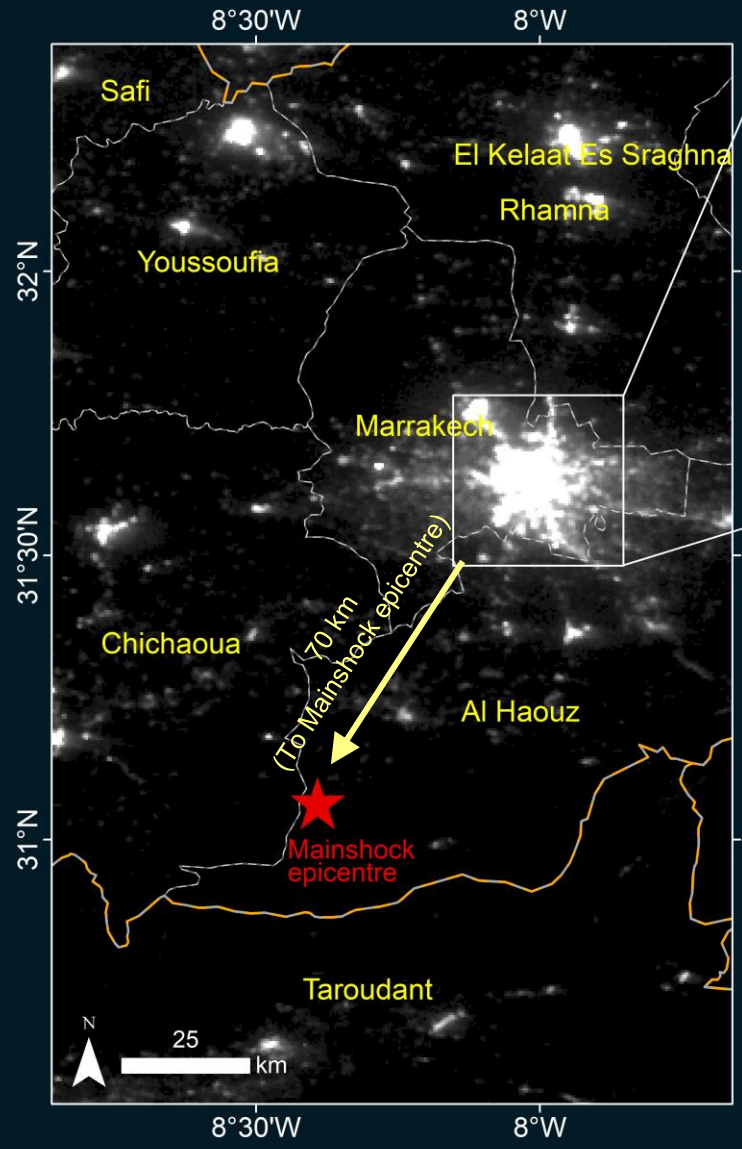
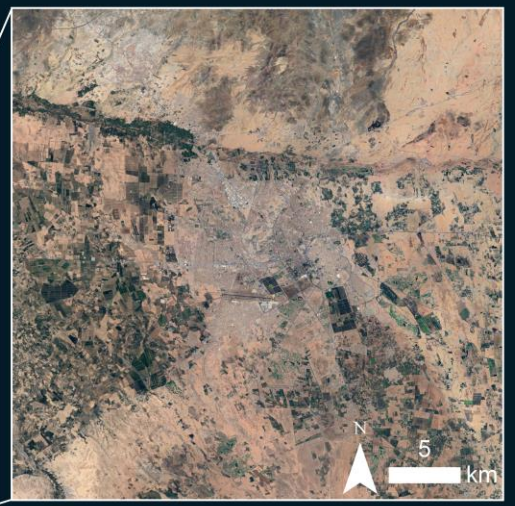




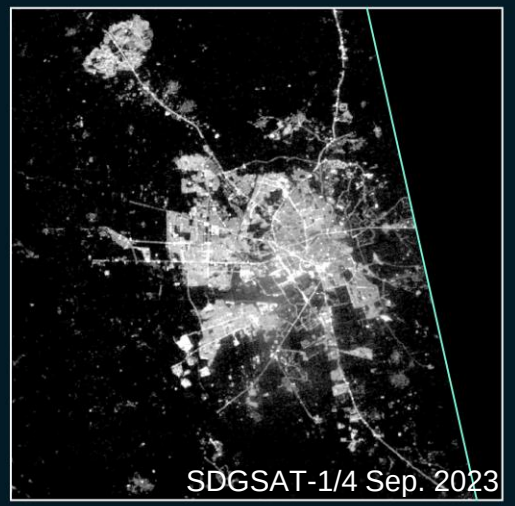
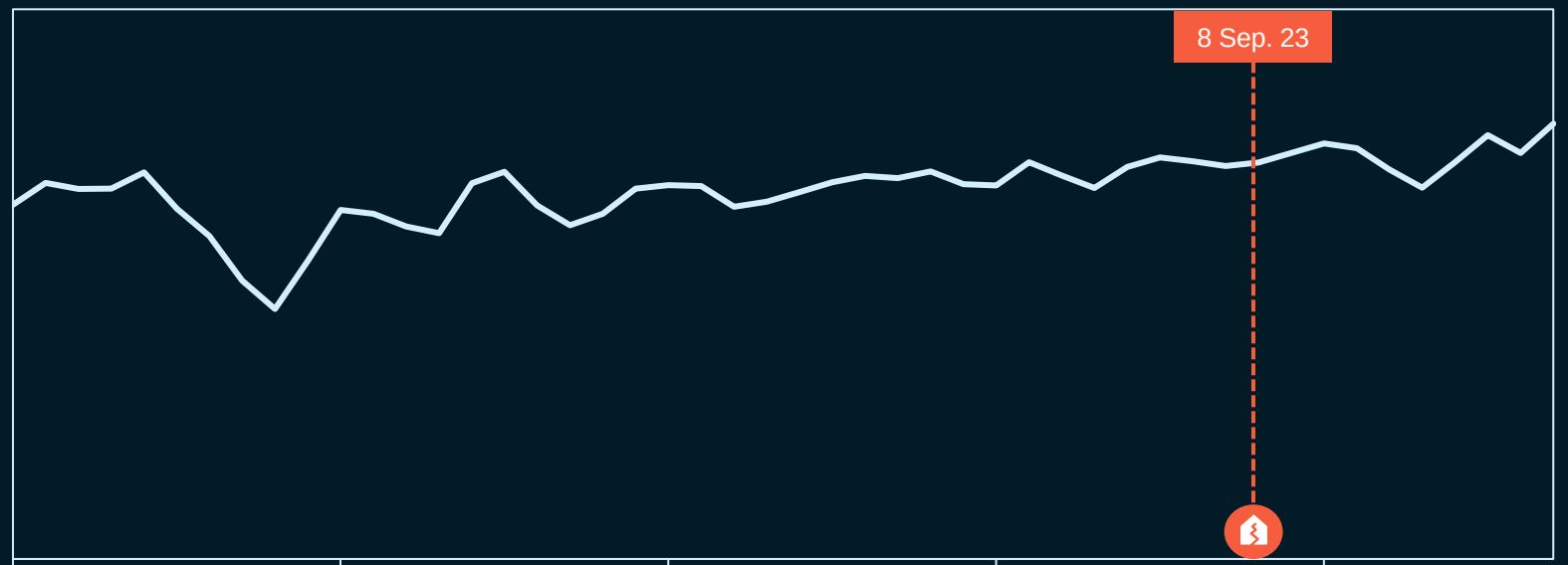


Image boundary

Brightness (DN)

850

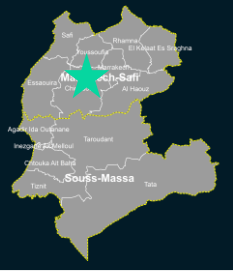
0



VIIRS Night-time Light Assessment in Chichaoua, Chichaoua Province, Marrakech-Safi Region

By 17 September, no significant power outage observed in Chichaoua (75 km SW Marrakech).

Image center:
31°32’27"N
08°45’18“W



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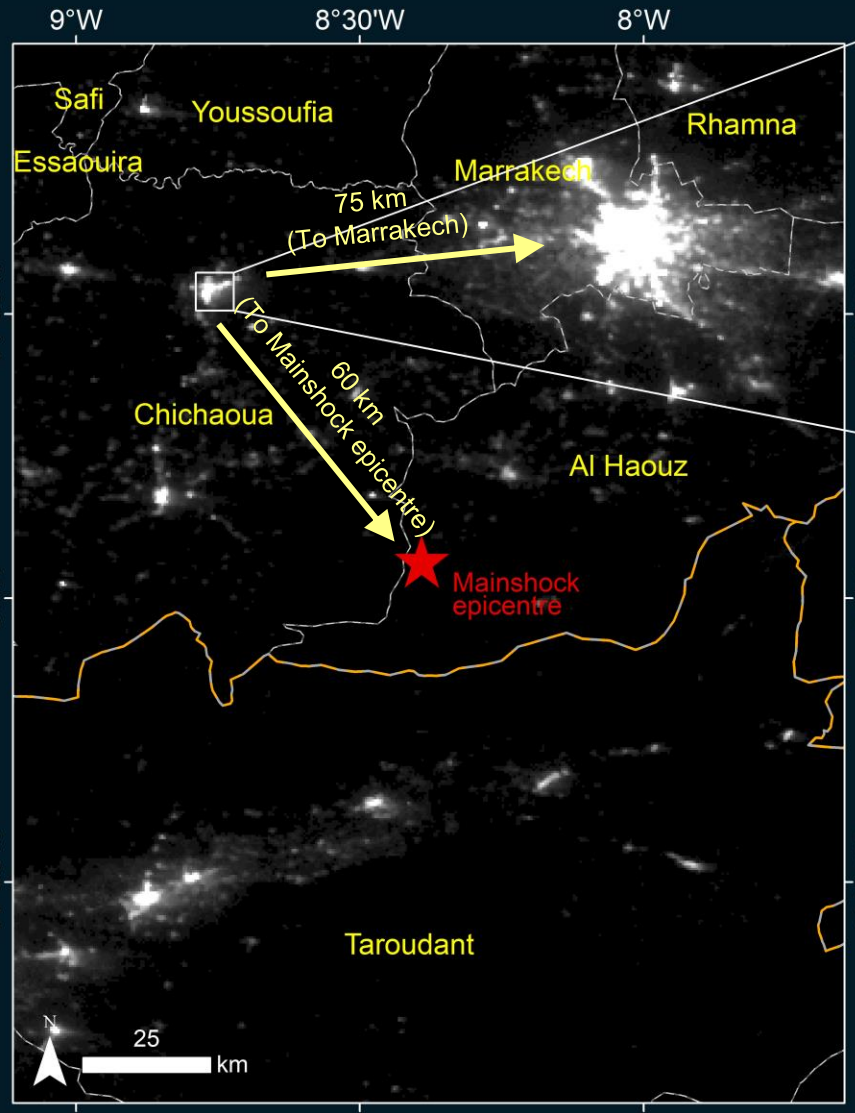

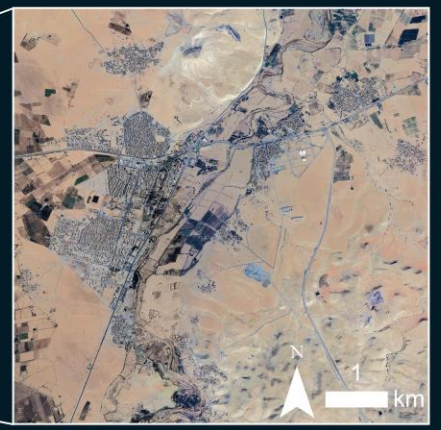

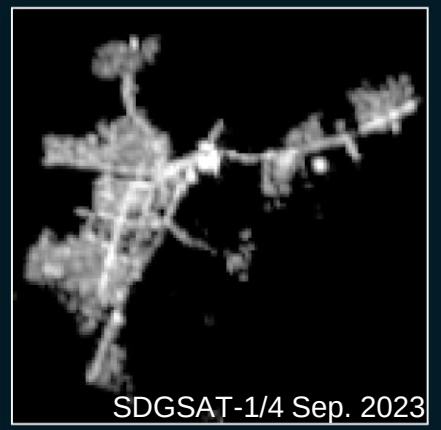

Brightness (DN)
850
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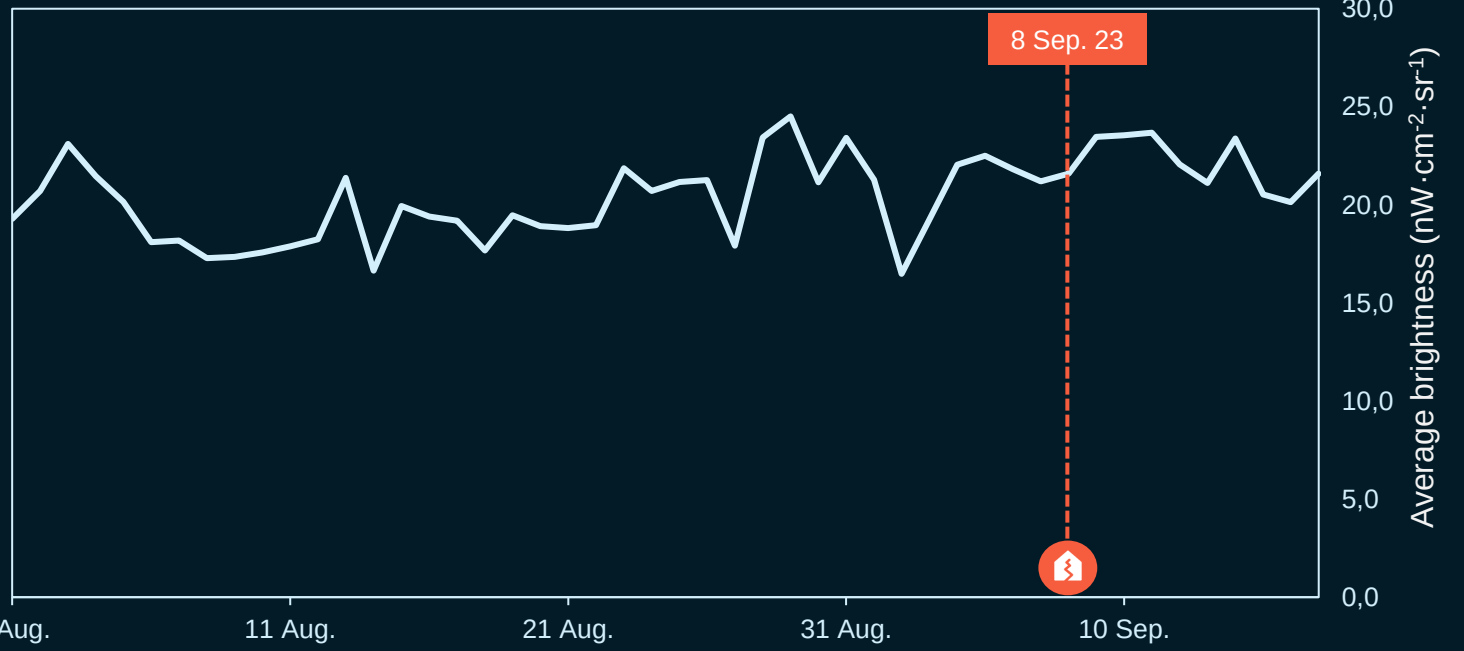

VIIRS Night-time Light Assessment in Taroudant, Taroudant Province, Souss-Massa Region

By 17 September, no significant power outage observed in Taroudant (150 km SW Marrakech).

Image center:
30°28’43"N
08°50’50“W

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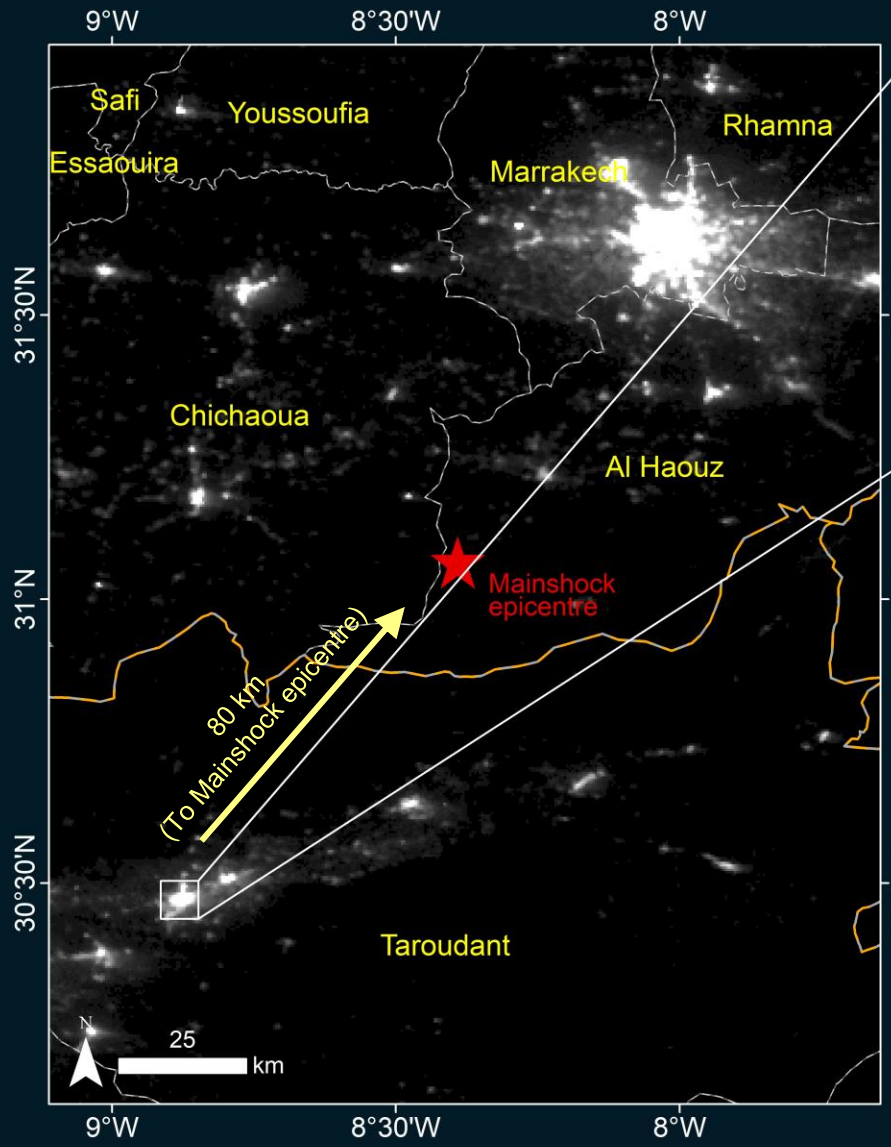

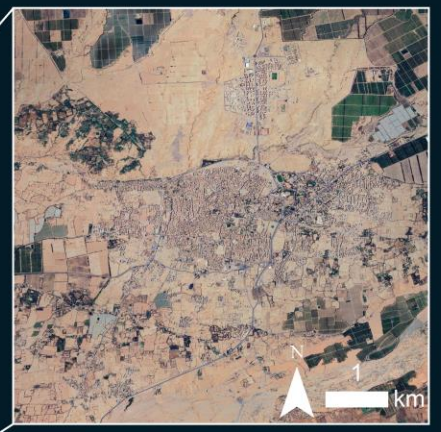

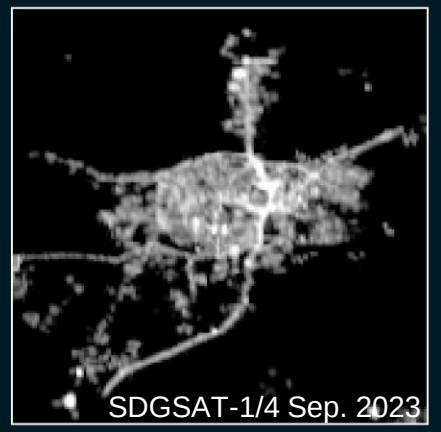

Brightness (DN)
850
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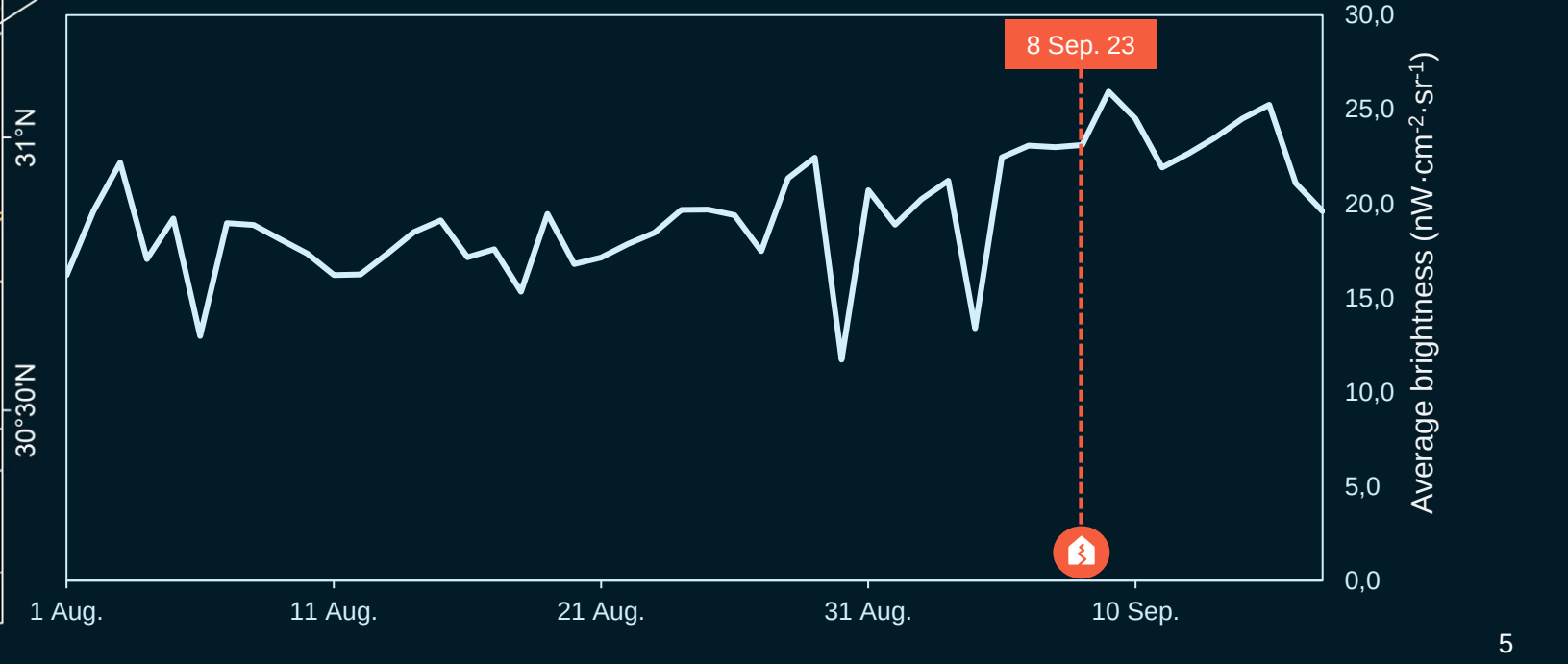

Night-time Light Assessment in Tameslohte, Al Haouz Province, Marrakech-Safi Region

By 17 September, power supply in Tameslouht (20 km SW Marrakech) has recovered to its usual and normal level.

Image center:
31°29'47"N
08°05'50"W

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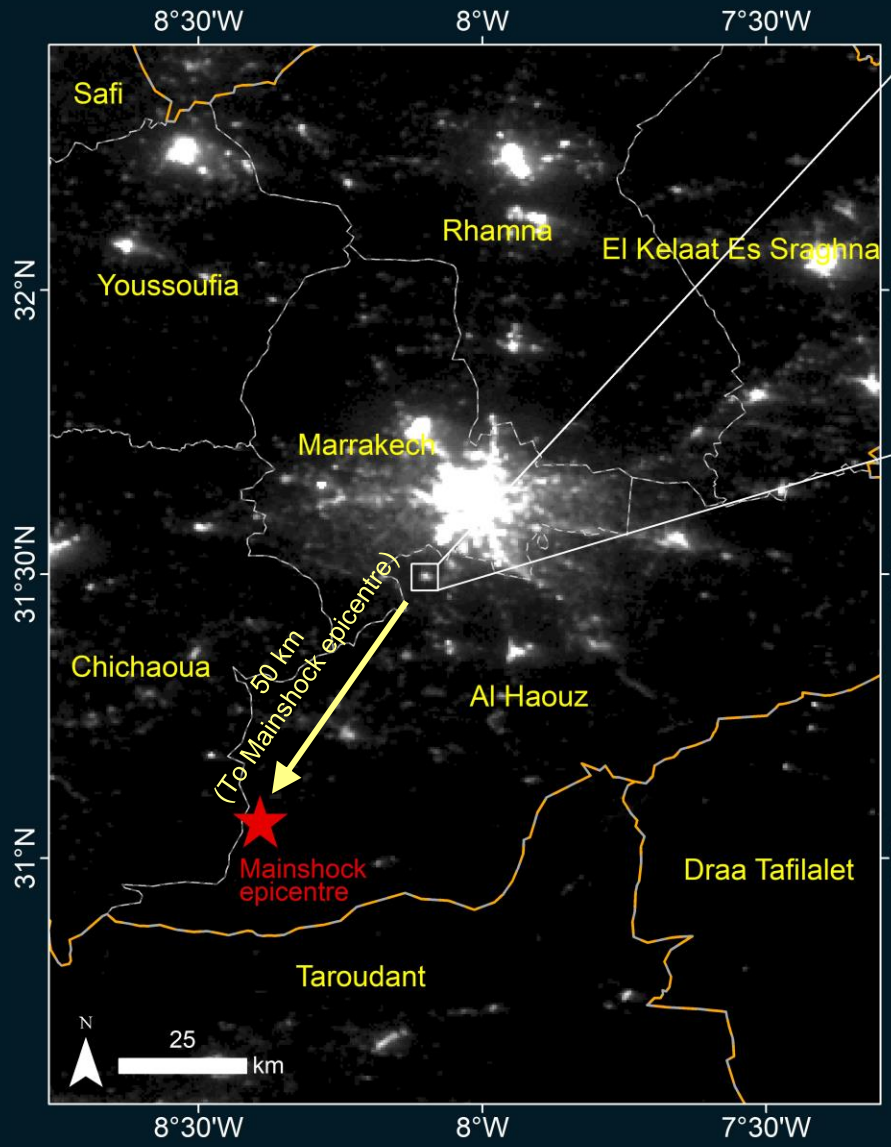

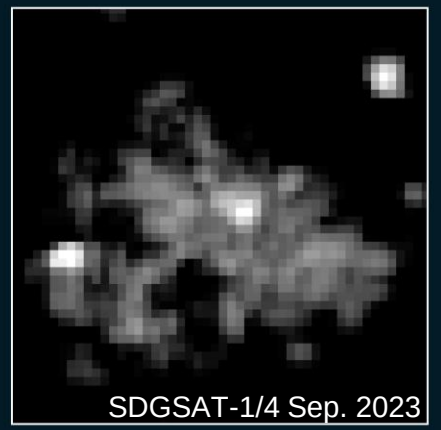

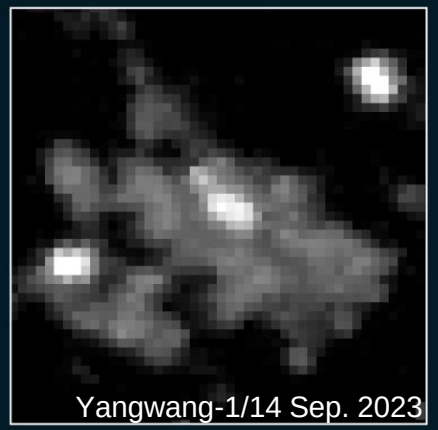

Brightness (DN)
850
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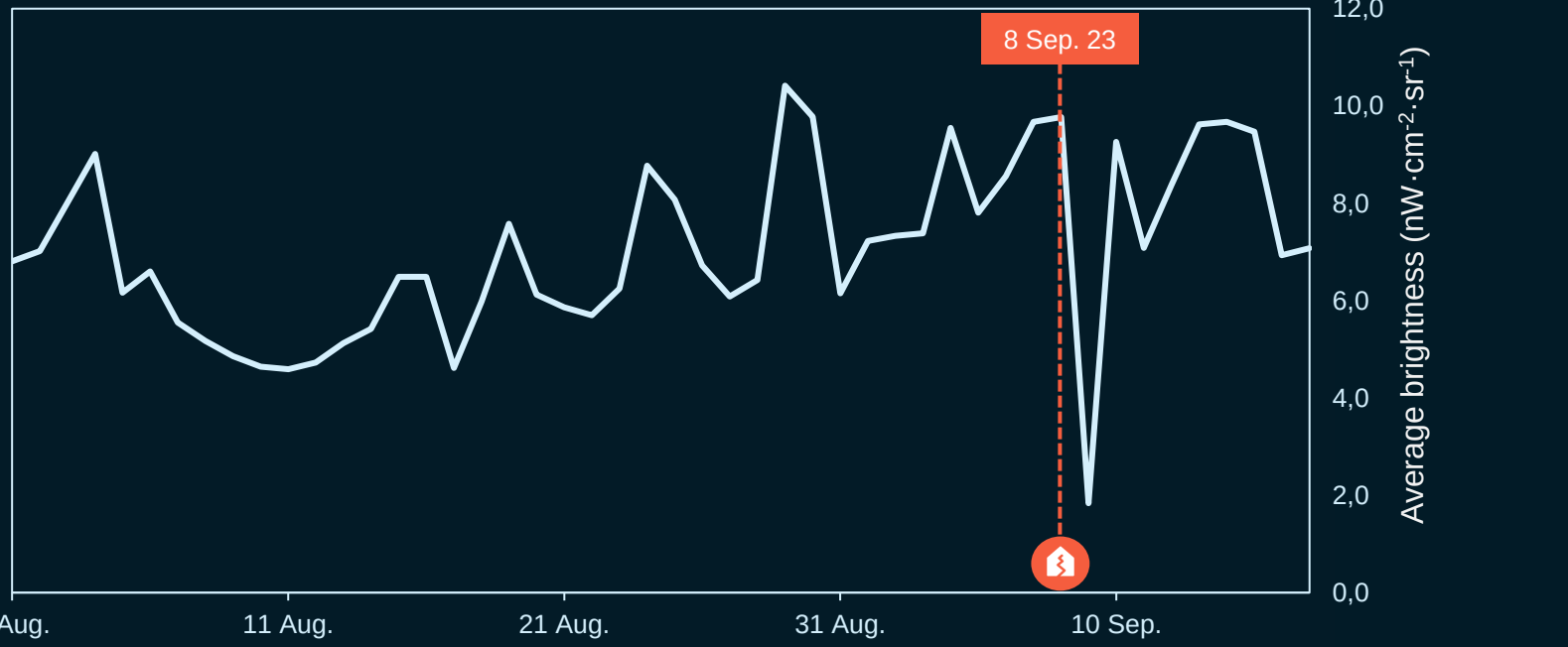

Night-time Light Assessment in Amizmiz, Al Haouz Province, Marrakech-Safi Region

By 17 September, power supply in Amizmiz (50 km SW Marrakech) is still in recovering but not yet at the pre-earthquake level.

Image center:
31°13’16"N
08°14’10“W

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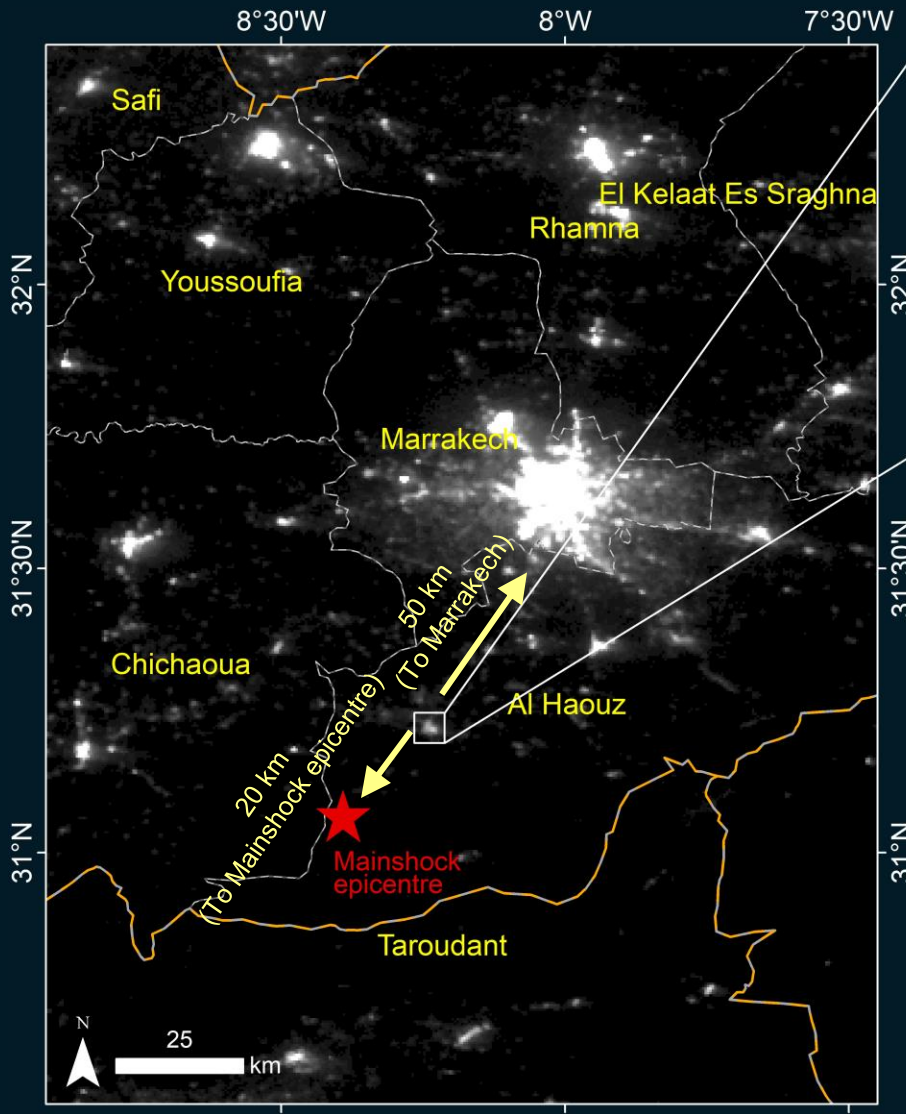
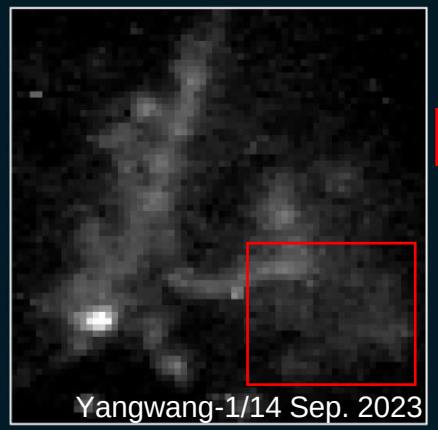
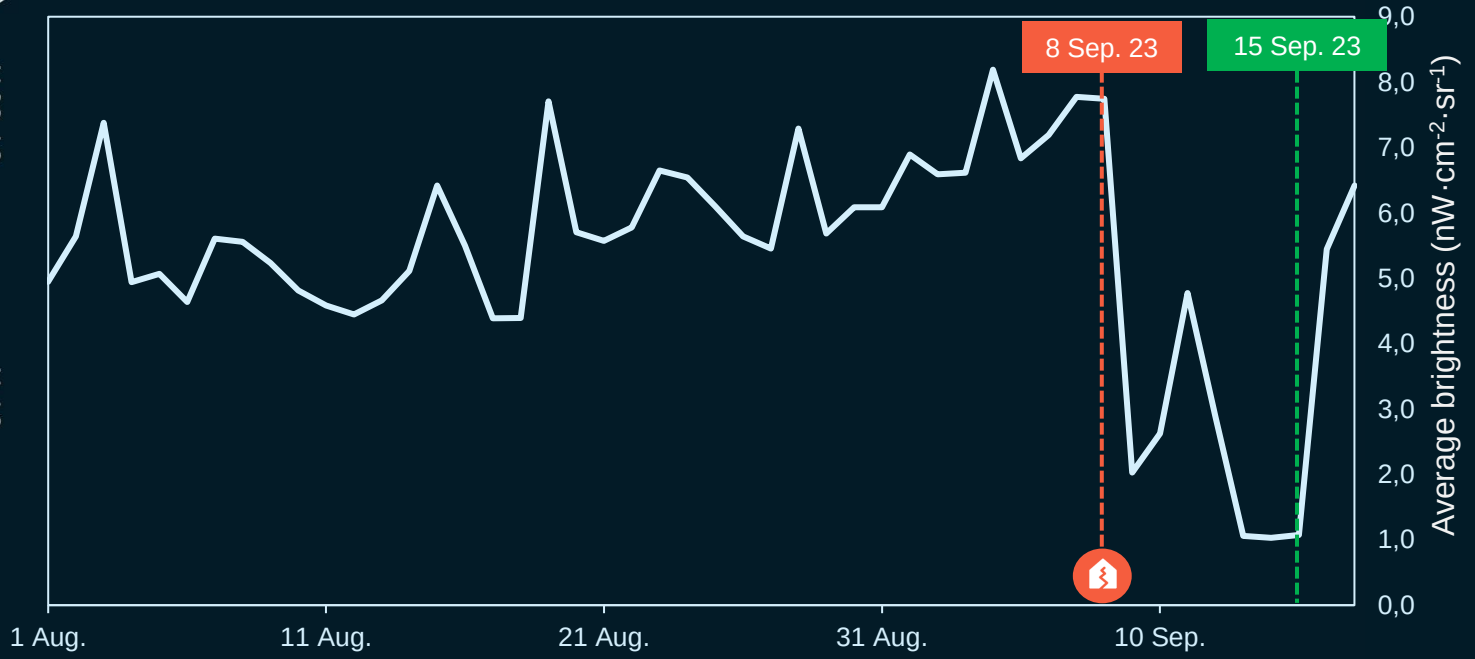




Power outage area

Brightness (DN)
850
0



Night-time Light Images in Rural Areas of Marrakech-Safi and Souss-Massa Regions

No obvious power outage areas observed in rural areas (60 km from mainshock epicenter) on 14 September.

Image center:
31°35’57"N
08°16’09“W

Image center:
30°32’51"N
08°38’40“W

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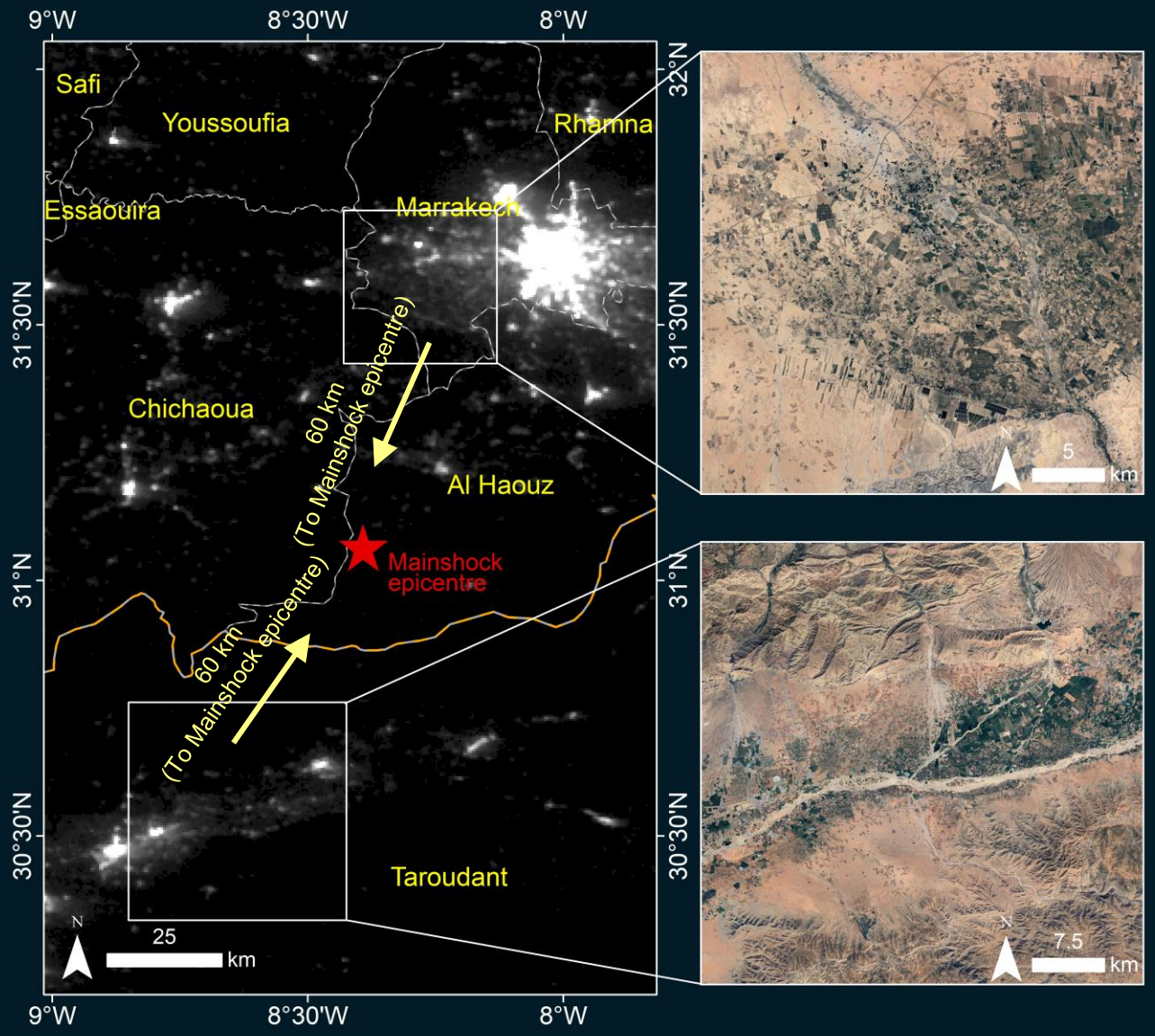

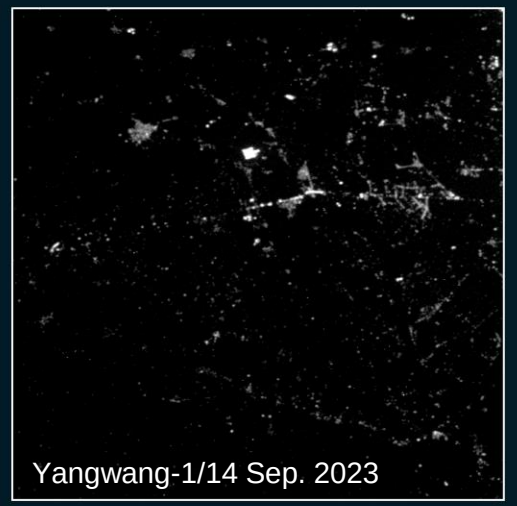

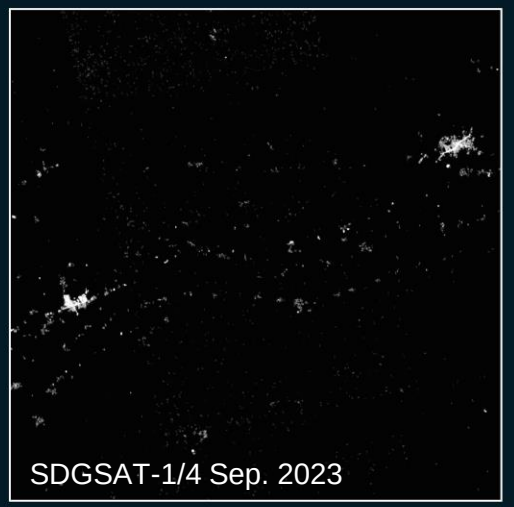

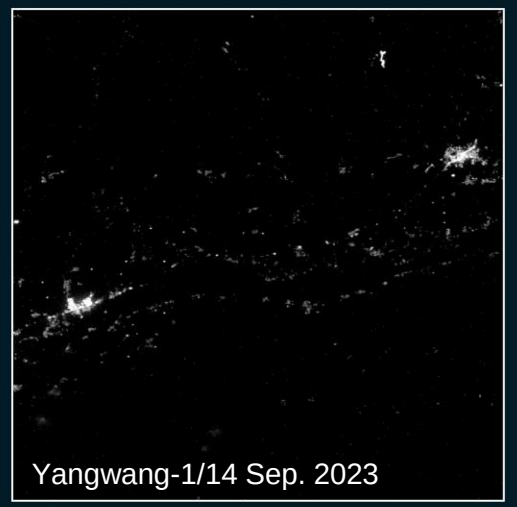

Brightness (DN)

8

SUMMARY OF FINDINGS

- No significant power outage observed in Marrakech (70 km NE mainshock epicentre), Taroudant (150 km SW Marrakech) and Chichaoua (75 km SW Marrakech).
- By 17 September, power supply in Tameslouht (20 km SW Marrakech) has recovered to the level observed before the earthquake of 08 September 2023.
- On 14 September, Southeast of Amizmiz likely to have power outage. By 17 September, power supply in Amizmiz (50 km SW Marrakech) was still in recovery phase but not yet at the before earthquake level.
- On 14 September, no evidences of power outage is observed in rural areas such as Ait Iaaza (60 km SW mainshock epicentre) and Sidi Zouine (60 km NE mainshock epicentre).

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Data sources:

(1) Satellite Images

Satellite Data : Yangwang-1 Space Telescope nighttime data
Imagery Date : 14 September 2023
Resolution: 40 m
Copyright : Origin Space Co., Ltd., China
Source : Origin Space Co., Ltd., China

Satellite Data : SDGSAT-1
Imagery Date : 4 September 2023
Resolution : 40 m
Copyright : International Research Center of Big Data for Sustainable Development Goals (CBAS)
Source : International Research Center of Big Data for Sustainable Development Goals (CBAS)

Satellite Data : VIIRS VNP46A1 & VIIRS VNP46A2
Acquisition date: 01 August 2023 - 17 September 2023 (UTC)
Resolution: 500 m
Copyright: NASA
Source: NASA

Satellite Data : VIIRS VNP46A3
Acquisition date: 01 July 2023 - 31 August 2023 (UTC)
Resolution: 500 m
Copyright: NASA
Source: NASA

(2) Ancillary data

Administrative boundaries: OCHA Field Information Services Section (FISS)

(3) Scientific references

Jia, M., Li, X., Gong, Y., Belabbes, S., Dell'Oro, L., 2023. Estimating natural disaster loss using improved daily night-time light data. International Journal of Applied Earth Observation and Geoinformation. 120, 103359

Analysis: Wuhan University & United Nations Satellite Centre (UNOSAT)
Production: United Nations Satellite Centre (UNOSAT) & Wuhan University

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