


10 September 2023

PRELIMINARY SATELLITE-DERIVED DAMAGE ASSESSMENT



Adassil/Al Haouz, 6.8M earthquake of 08-09-2023 (22:11 UTC)
Chichaoua Province, Marrakech-Safi Region, Morocco




 Status: Severe damage observed in several Atlasian villages around Adassil

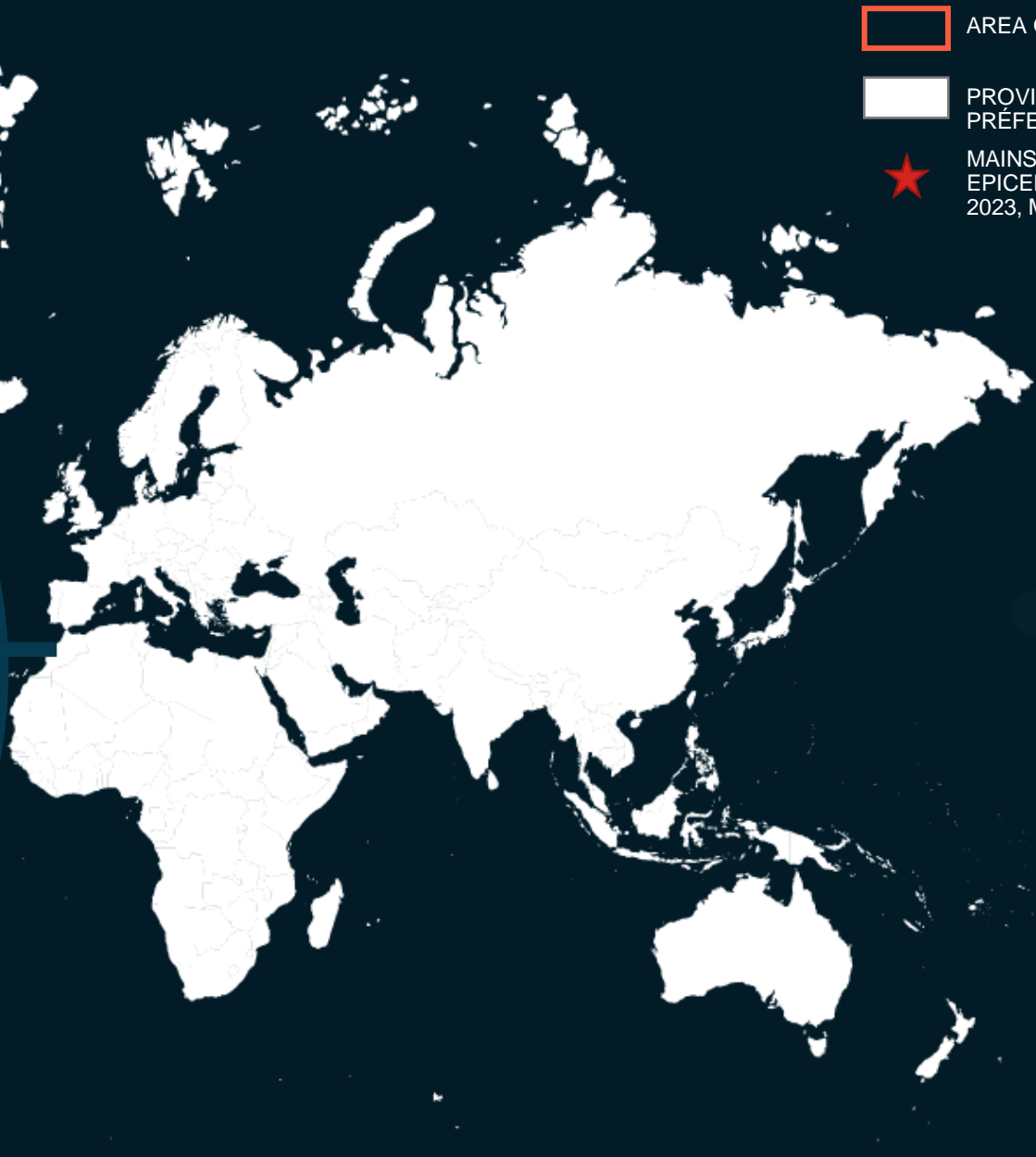
 Further action(s): Full building damage assessment to be conducted



MOROCCO

10 Sep 2023

-  AREA OF INTEREST (AOI)
-  PROVINCE OR PRÉFECTURE BOUNDARY
-  MAINSHOCK EARTHQUAKE EPICENTRE (8 SEPTEMBER 2023, M6.8)

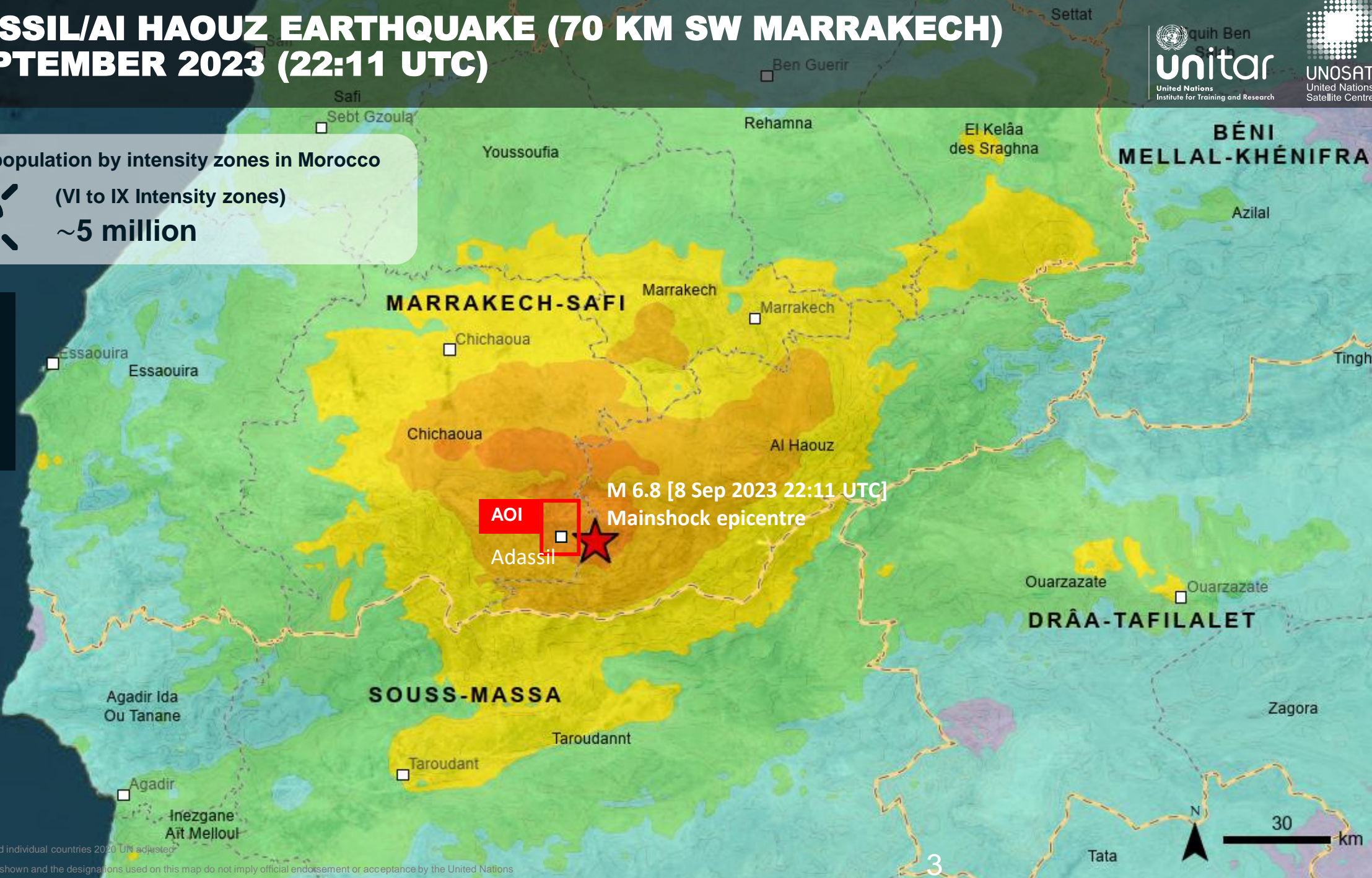


M6.8 ADASSIL/AI HAOUZ EARTHQUAKE (70 KM SW MARRAKECH) OF 08 SEPTEMBER 2023 (22:11 UTC)

Exposed population by intensity zones in Morocco
(VI to IX Intensity zones)
~5 million

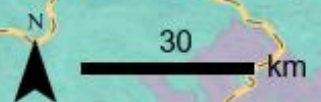


SEISMIC INTENSITY SCALE	
Light Green	V (Moderate)
Yellow	VI (Strong)
Orange	VII (Very Strong)
Dark Orange	VIII (Severe)
Red	IX (Violent)



AOI
Adassil

M 6.8 [8 Sep 2023 22:11 UTC]
Mainshock epicentre



Seismological data: USGS

*Population data : WorldPop/ Unconstrained individual countries 2020 UN adjusted

Important note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations

AOI 1: Chichaoua Province, Marrakech-Safi Region, Morocco

Destroyed & damaged structures observed at 11 km from epicentral area



Adassil
أداسيل
AOI1-1

Mjdid

Tigunarine

Tizgui
AOI1-2

~6km to epicentre
[USGS]



Pleiades image acquired on 10 September 2023, 11:55 UTC
Image Center : 08°28'28"W 31°06'07"N

AOI 1 – 1: Adassil Village, Chichaoua Province, Marrakech-Safi Region, Morocco

Destroyed & damaged structures



Image center:
31°06'41"N
08°29'40"W



BEFORE

WorldView-2 / 25 March 2023



AFTER

Pleiades / 10 September 2023

AOI 1 – 2: Tizgui Village, Chichaoua Province, Marrakech-Safi Region, Morocco

No major visible structural damage



Image center:
31°05'19"N
08°28'56"W



BEFORE

WorldView-2 / 25 March 2023



AFTER

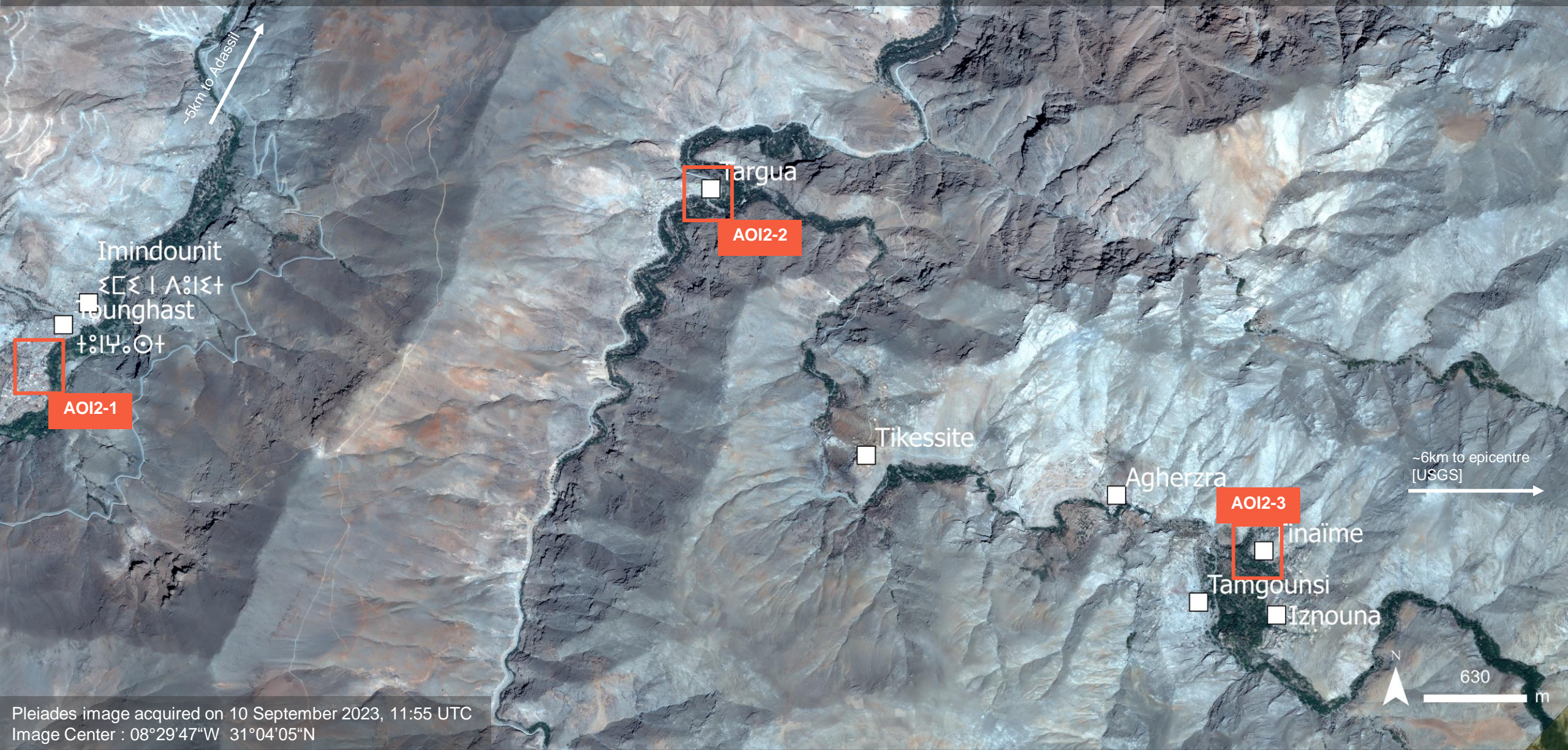
Pleiades / 10 September 2023

AOI 2: Chichaoua Province, Marrakech-Safi Region, Morocco

Potentially damaged structures observed up to about 14 km from epicentral area



UNOSAT
United Nations
Satellite Centre



Pleiades image acquired on 10 September 2023, 11:55 UTC
Image Center : 08°29'47"W 31°04'05"N

AOI 2 – 2: Toungast Village, Chichaoua Province, Marrakech-Safi Region, Morocco

Damaged and destroyed structures and presence of IDPs



Image center:
31°03'43"N
08°31'55"W



BEFORE

WorldView-2 / 25 March 2023



AFTER

Pleiades / 10 September 2023

AOI 2 – 2: Targua Village, Chichaoua Province, Marrakech-Safi Region, Morocco



Image center:
31°04'23"N
08°29'56"W



Damaged structures



BEFORE

WorldView-2 / 25 March 2023



AFTER

Pleiades / 10 September 2023

AOI 2 – 3: Tinaïme Village, Chichaoua Province, Marrakech-Safi Region, Morocco

Damaged structures & presence debris



Image center:
31°03'11"N
08°27'59"W



WorldView-2 / 25 March 2023



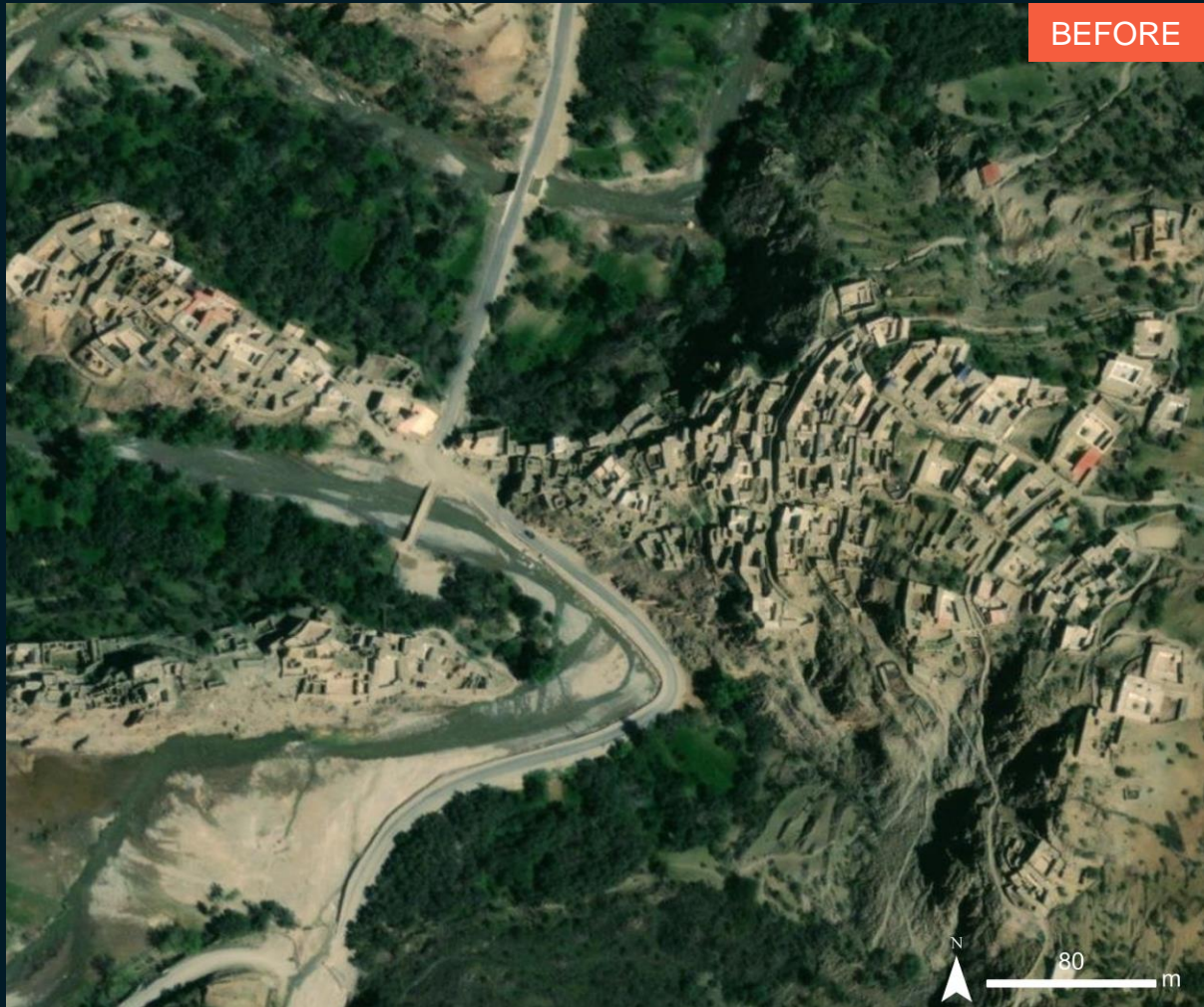
Pleiades / 10 September 2023

AOI 3: Anebdour Village, Chichaoua Province, Marrakech-Safi Region, Morocco

Damaged structures



Image center:
31°12'12"N
08°27'03"W



BEFORE



AFTER

WorldView-2 / 25 March 2023

Pleiades / 10 September 2023

SUMMARY OF FINDINGS

- Based on seismic intensities from USGS and population data from Worldpop, about 5 Million people were exposed to moderate to severe shaking in Marrakech-Safi, Drâa-Tafilalet and Souss-Massa Provinces of Morocco.
- Damaged and destroyed structures observed at ~14km west of the epicentral zone;
- Temporary shelters (IDPs) observed in Tounghast village as of 10 September 2023;
- Damaged structures observed at ~11km northwest the epicentral area;
- Damaged and destroyed structures in several villages in the Atlas mountains around Adassil (Chichaoua province).

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Data sources:

(1) Satellite Image (Post-event): Pléiades

Acquisition date : 10 September 2023, 11:55 UTC

Resolution: 50cm

Copyright: Includes Pleiades material © CNES (2023), Distribution

Airbus D&S

Source: Airbus D&S

(2) ESRI Basemap

(3) Ancillary data

Administrative boundaries: UNOCHA

Populated place: OpenStreetMap

Population data: Worldpop unconstrained [2020]

Seismological data: USGS

Analysis: United Nations Satellite Centre (UNOSAT)

Production: United Nations Satellite Centre (UNOSAT)

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