

21 Jan 2022





Volcanic Eruption of the 15th of January 2022 and induced tsunami, Hunga Tonga-hunga Ha'apai Volcano

Preliminary Satellite-Derived Damage Assessment

'Eua Island, Kingdom of Tonga

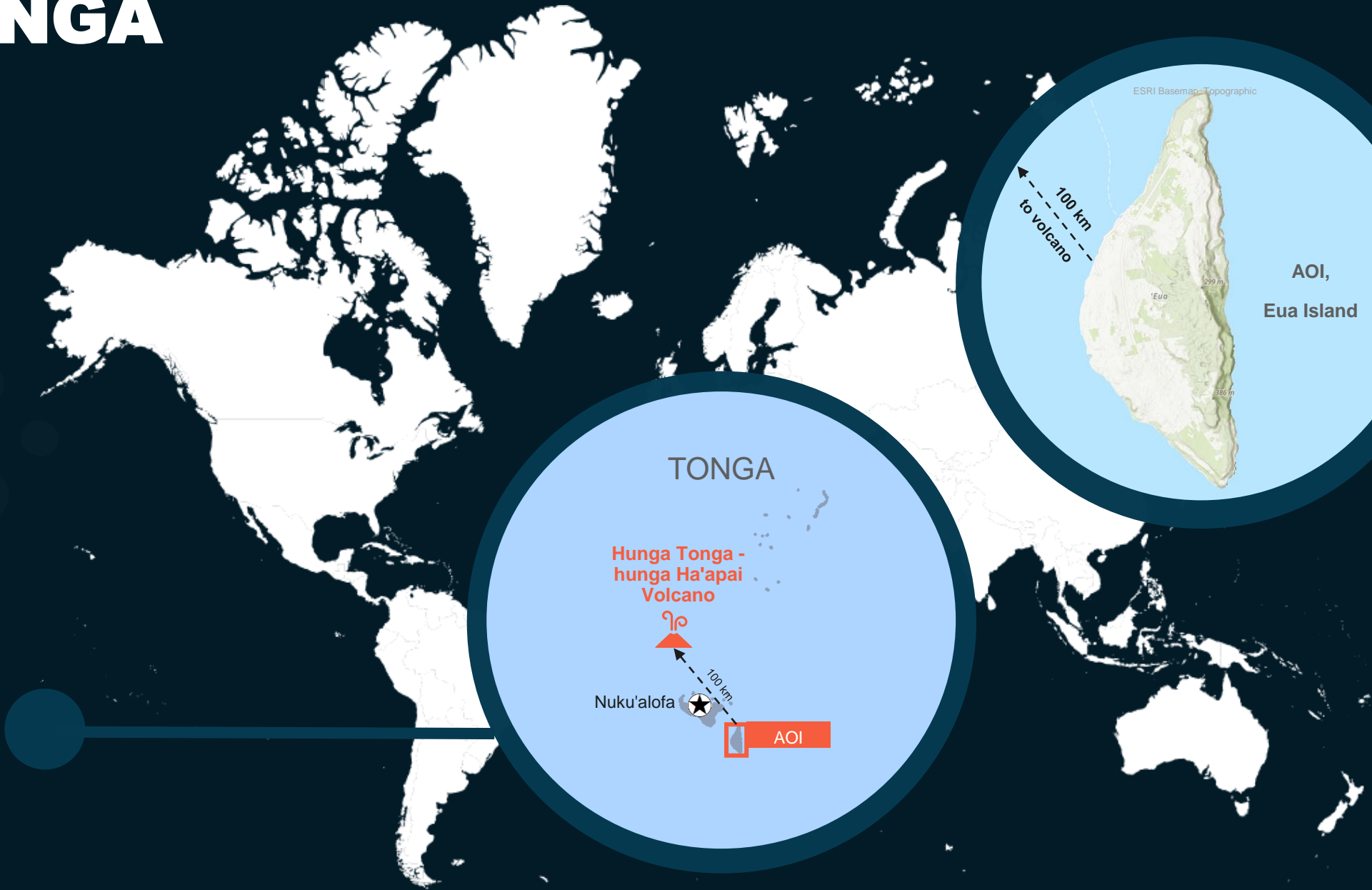


 Status: Extensive damage to structures and road along the shoreline in Ohonua town observed

 Further action(s): Continue monitoring



TONGA



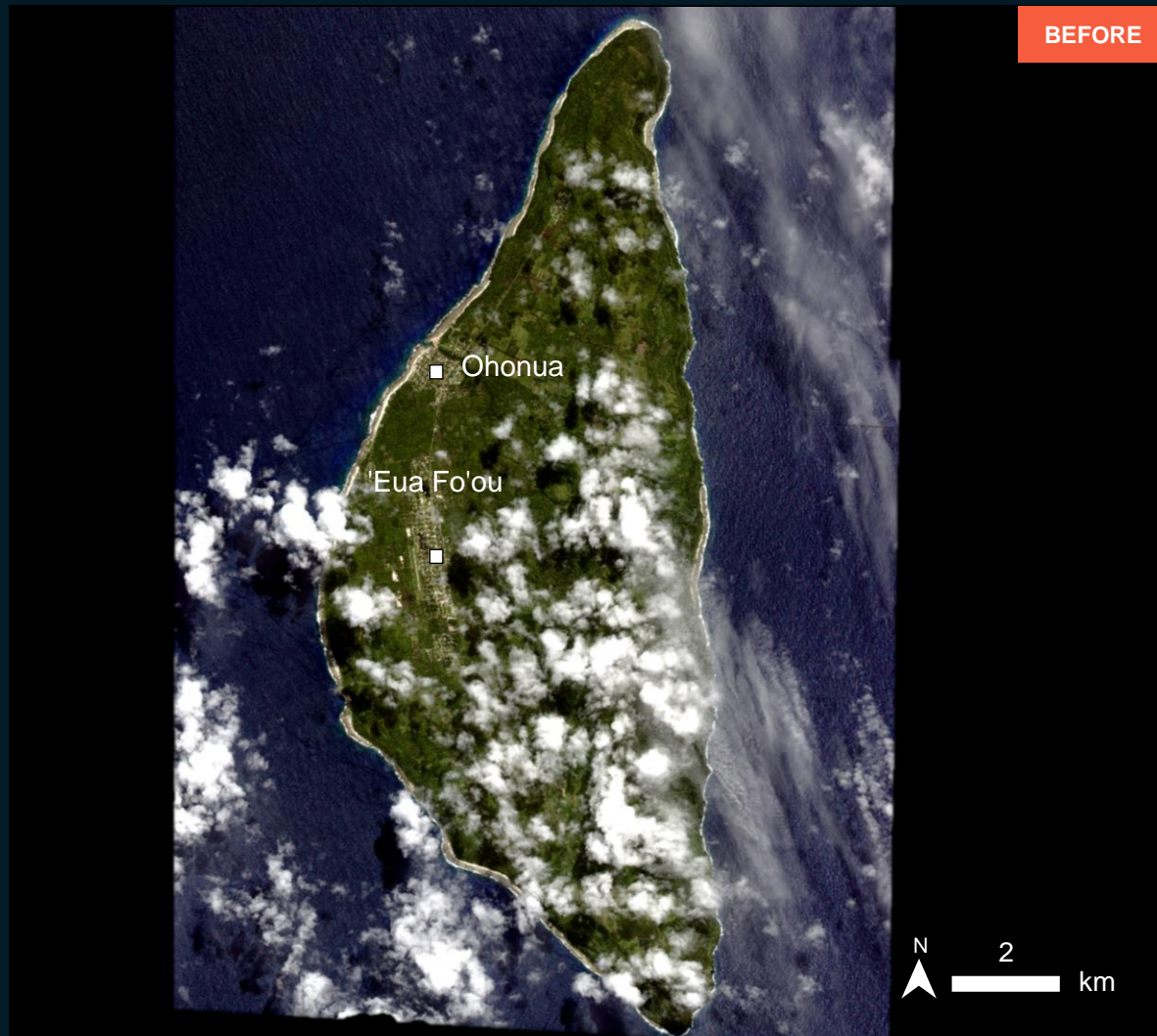
AOI 1-1 'EUA ISLAND, 'EUA PROPE DISTRICT, 'EUA DEVISION

~100 KM FROM HUNGA TONGA - HUNGA HA'APAI VOLCANO

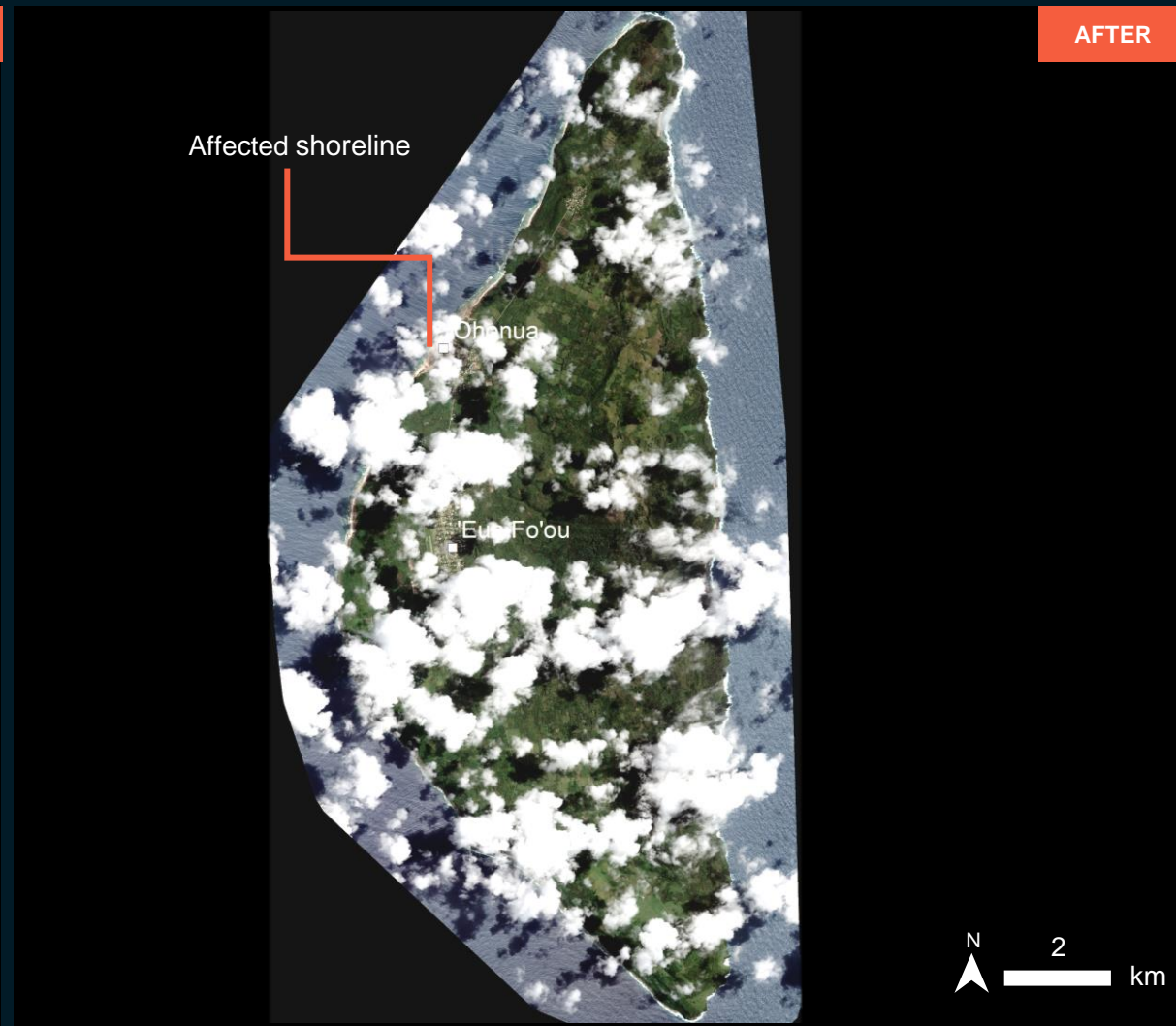
Image center:
174°56'6.317"W
21°22'27.887"S



West coast of the island is Affected



WorldView-3 / 14 Sep 2021



Kompsat-3 / 18 Jan 2022

AOI 1-2 'OHONUA TOWN, 'EUA PROPE DISTRICT, 'EUA DEVISION

~100 KM FROM HUNGA TONGA - HUNGA HA'APAI VOLCANO

Extensive damage to structures and road along the shoreline

Image center:
174°57'14.242"W
21°20'32.587"S



Sentinel-2/ 14 Jan 2022

Sentinel-2/ 19 Jan 2022

AOI 1-2 'OHONUA TOWN, 'EUA PROPE DISTRICT, 'EUA DEVISION

~100 KM FROM HUNGA TONGA - HUNGA HA'APAI VOLCANO

Extensive damage to structures and road along the shoreline

Image center:
174°57'31.892"W
21°20'36.902"S



WorldView-3 / 14 Sep 2021



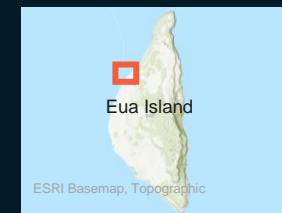
Pléiades / 21 Jan 2022

AOI 1-2 'OHONUA TOWN, 'EUA PROPE DISTRICT, 'EUA DEVISION

~100 KM FROM HUNGA TONGA - HUNGA HA'APAI VOLCANO

Extensive damage to structures and road along the shoreline

Image center:
174°57'18.523"W
21°20'21.781"S



AOI 1-3 'EUA FO OU TOWN, 'EUA FO'OU DISTRICT, 'EUA DEVISION

~100 KM FROM HUNGA TONGA - HUNGA HA'APAI VOLCANO

No visible damage

Image center:
174°57'19.188"W
21°22'29.21"S



WorldView-3 / 14 Sep 2021



Pléiades / 21 Jan 2022

AOI 1-4 HOUMA VILLAGE, 'EUA PROPE DISTRICT, 'EUA DEVISION

~100 KM FROM HUNGA TONGA - HUNGA HA'APAI VOLCANO

No visible damage

Image center:
174°55'54.92"W
21°18'53.452"S



WorldView-3 / 14 Sep 2021

Pléiades / 21 Jan 2022

SUMMARY OF FINDINGS

- Extensive damage is observed the Eua island as of 20 January 2022 likely caused by the tsunami waves triggered by the volcanic eruption;
- The settlement along the shoreline of Ohonua town seems to have been washed away by the tsunami waves as of 20 January 2022;
- 54 structures in cloud free zone are heavily damaged and/or destroyed as of 20 January 2022;
- Destroyed road along the shoreline observed as of 20 January 2022;
- Inland structures seems not to be destroyed but likely damaged;
- No damaged structures observed in 'Eua Fo Ou town and Houma village as of 20 January 2022;

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Data sources:

(1) Satellite Image (Post-event)

Pléiades : 20 & 21 Jan 2022 (11:20 and 11:13 Local time)
Resolution: 50 m
Copyright: © CNES (2022), Distribution Airbus DS.
Source: Airbus DS

Sentinel-2/ 19 Jan 2022
Resolution: 10 m
Copyright: Contains modified Copernicus Sentinel Data [2021]
Source: ESA

(1) (2) Satellite Image (Pre-event)

WorldView-3 : 14 Sep 2021
Resolution: 50 cm
Copyright: © DigitalGlobe, Inc. (2022)
Source: USGS

Sentinel-2/ 14 Jan 2022
Resolution: 10 m
Copyright: Contains modified Copernicus Sentinel Data [2021]
Source: ESA

(3) Ancillary data

Administrative boundaries: Secretariat of the Pacific Community, Statistics for Development Division

Analysis: United Nations Satellite Centre (UNOSAT)
Production: United Nations Satellite Centre (UNOSAT)

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