1 Mar. 2022

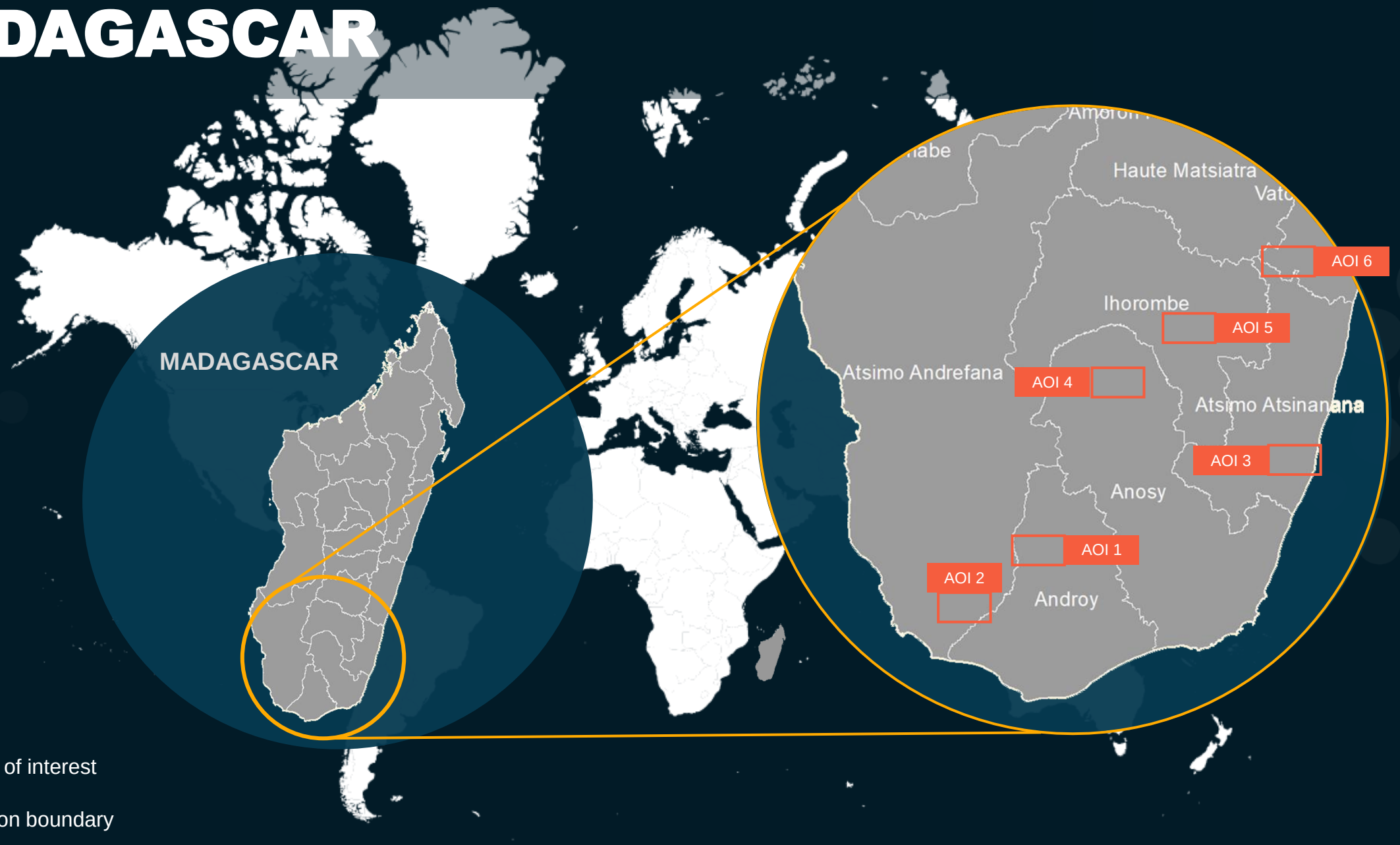
TROPICAL CYCLONE EMNATI-22 PRELIMINARY SATELLITE-DERIVED DAMAGE ASSESSMENT

Androy, Atsimo Andrefana, Atsimo Atsinanana, Ihorombe, Anosy
and Atsimo Atsinanana Regions, Madagascar

Status: Damaged structures & affected transportation network observed

Further action(s): Continue monitoring

MADAGASCAR



Area of interest

Region boundary

AOI1-BEKILY TOWN, BEKILY DISTRICT, ANDROY REGION

No visible damage

Pléiades image acquired on 28 February 2022
Image Center : 45°18'49.162"E 24°13'15.687"S

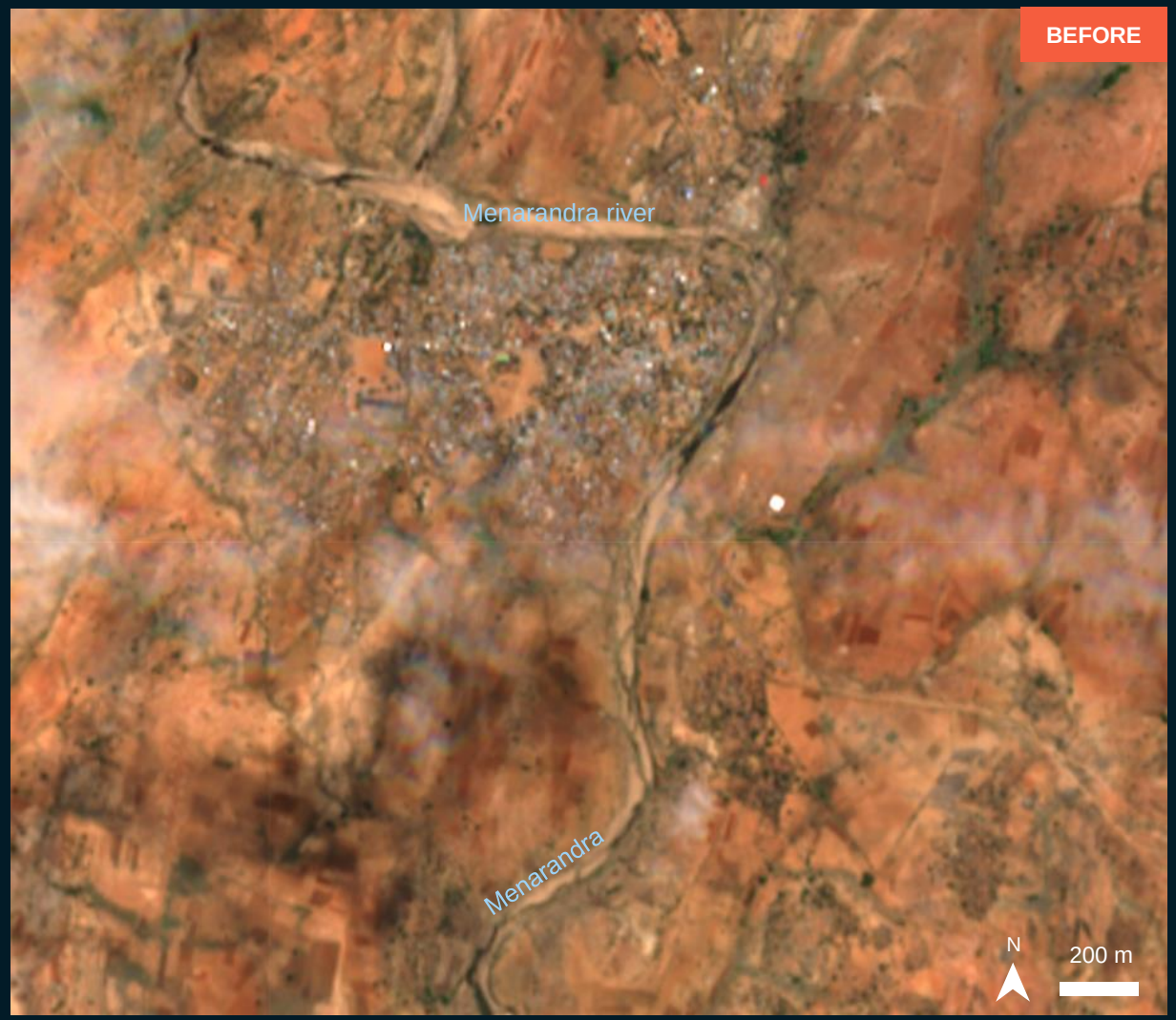
AOI1-BEKILY TOWN, BEKILY DISTRICT, ANDROY REGION

Increased water of Menarandra river

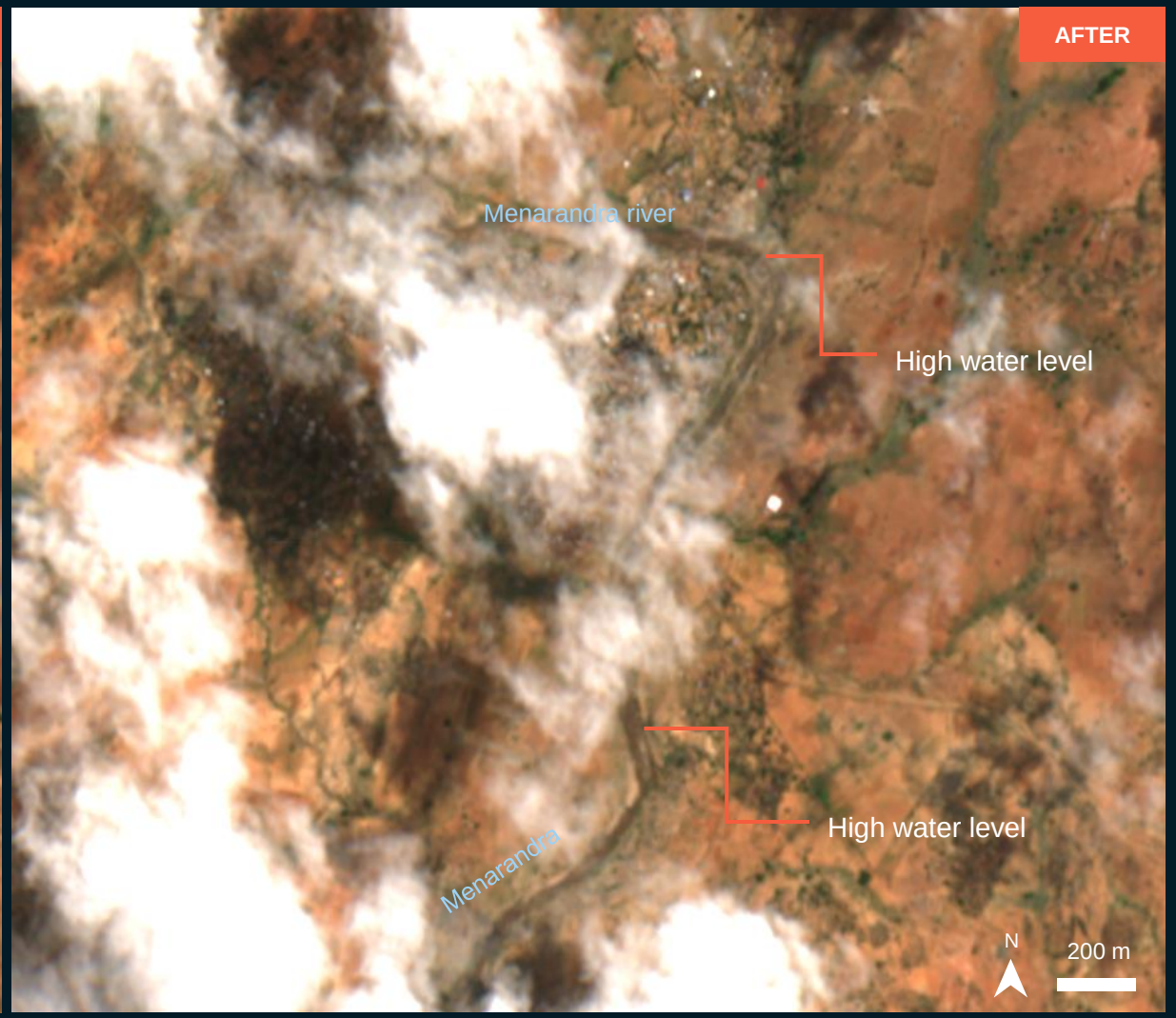
Image center:
45°19'8.273"E
24°13'35.924"S

Bekily District

UNOSAT



Sentinel-2/ 22 Feb. 2022



Sentinel-2/ 27 Feb. 2022

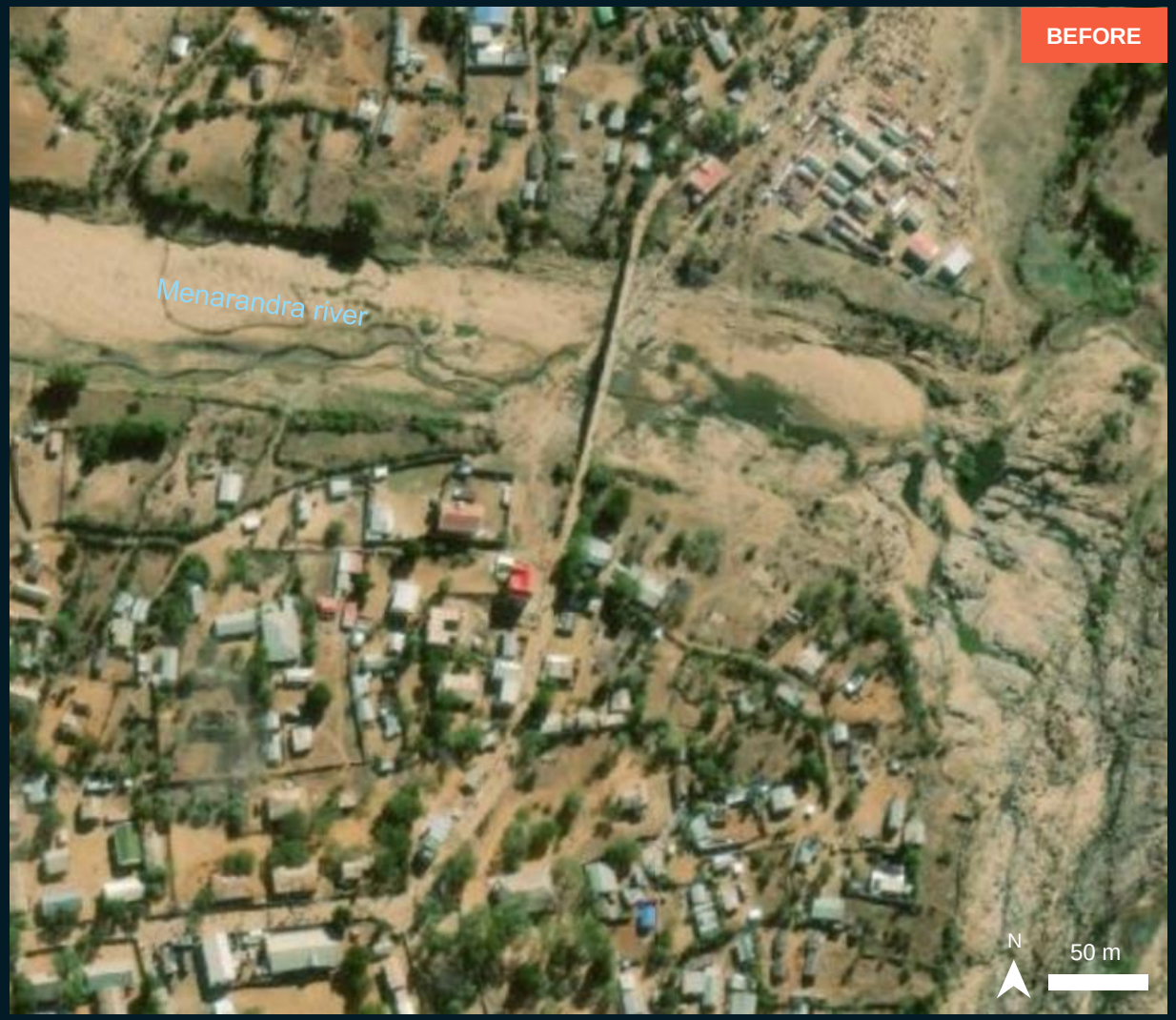
AOI1-1 - BEKILY TOWN, BEKILY DISTRICT, ANDROY REGION

Image center:
45°19'15.342"E
24°13'8.061"S

Bekily District

UNOSAT

Riverbanks erosion along the Menarandra river



ESRI Basemap/ WorldView-3/ 4 Jul. 2020

Pléiades/ 28 Feb. 2022

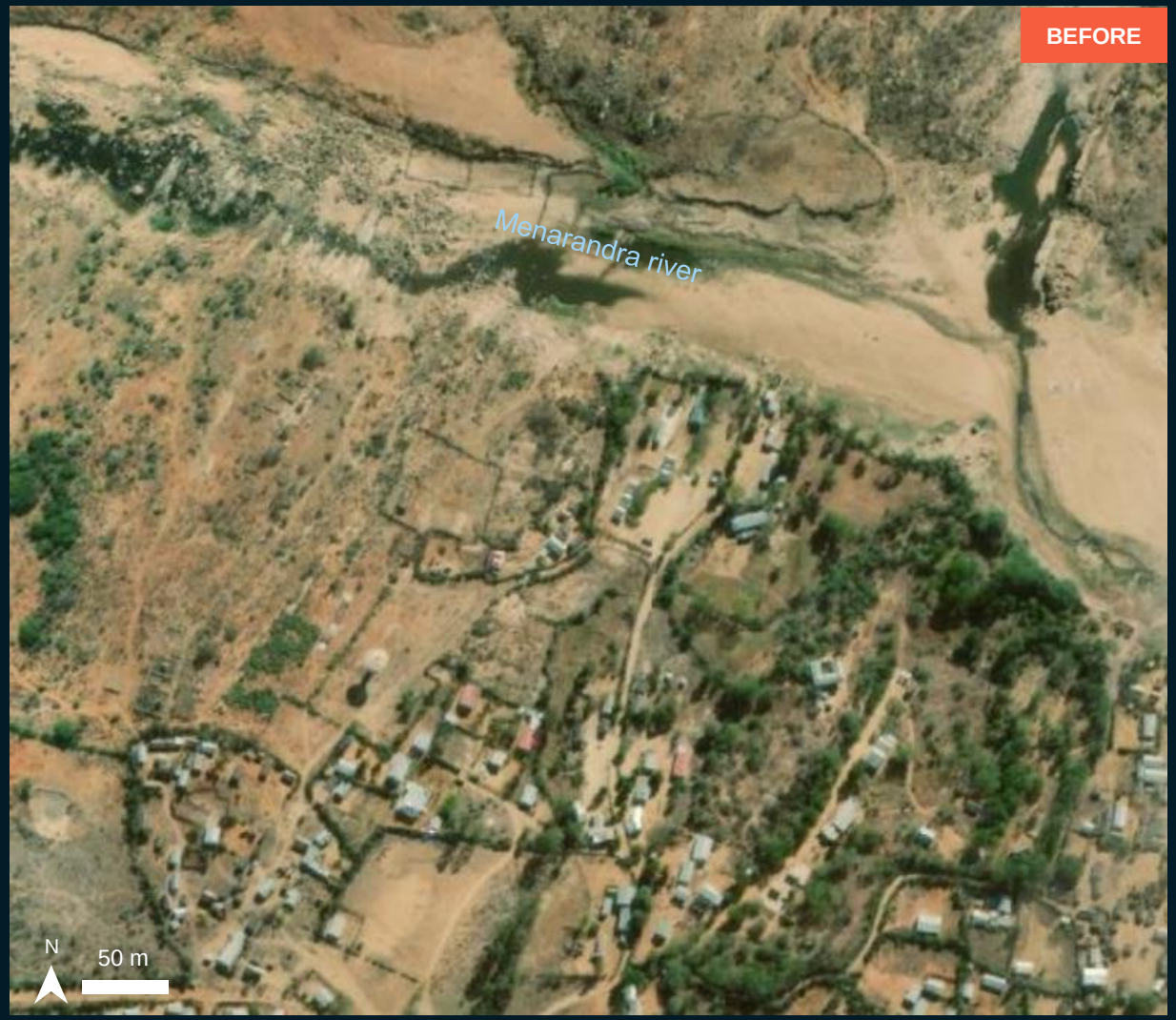
AOI1-2 - BEKILY TOWN, BEKILY DISTRICT, ANDROY REGION

Riverbanks erosion

Image center:
45°18'35.061"E
24°13'5.153"S

Bekily District

UNOSAT

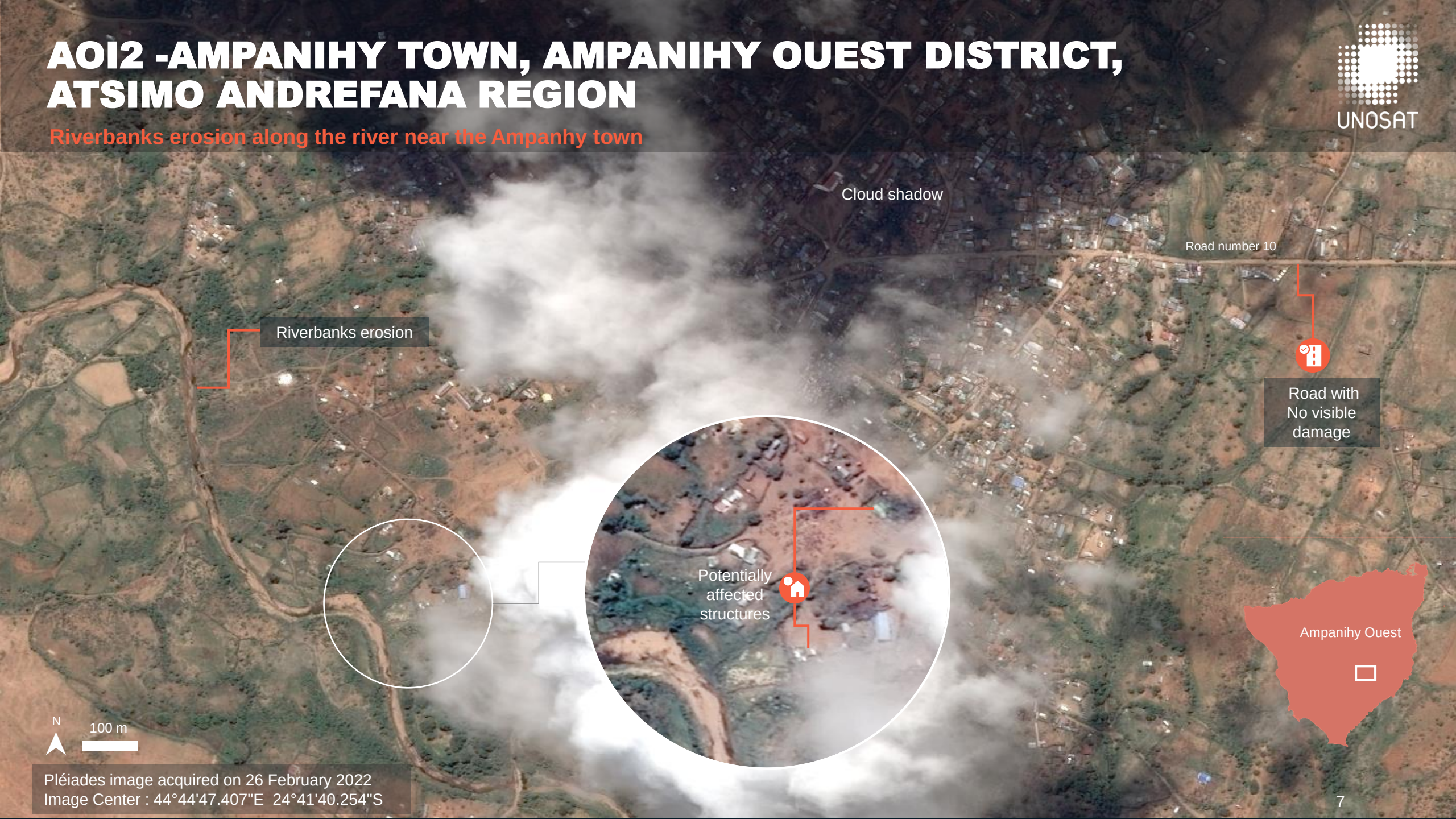


ESRI Basemap/ WorldView-3/ 4 Jul. 2020

Pléiades/ 28 Feb. 2022

AOI2 -AMPANIHY TOWN, AMPANIHY OUEST DISTRICT, ATSIMO ANDREFANA REGION

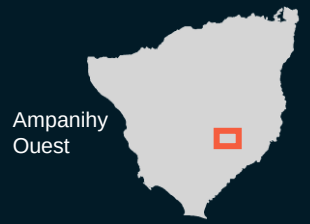
Riverbanks erosion along the river near the Ampanhy town



Pléiades image acquired on 26 February 2022
Image Center : 44°44'47.407"E 24°41'40.254"S

AOI2 - AMPANIHY TOWN, AMPANIHY OUEST DISTRICT, ATSIMO ANDREFANA REGION

Image center:
44°44'22.889"E
24°41'44.173"S



UNOSAT

Potentially affected structures

ESRI Basemap/ WorldView-3/ 4 Jul. 2020

Pléiades/ 26 Feb. 2022

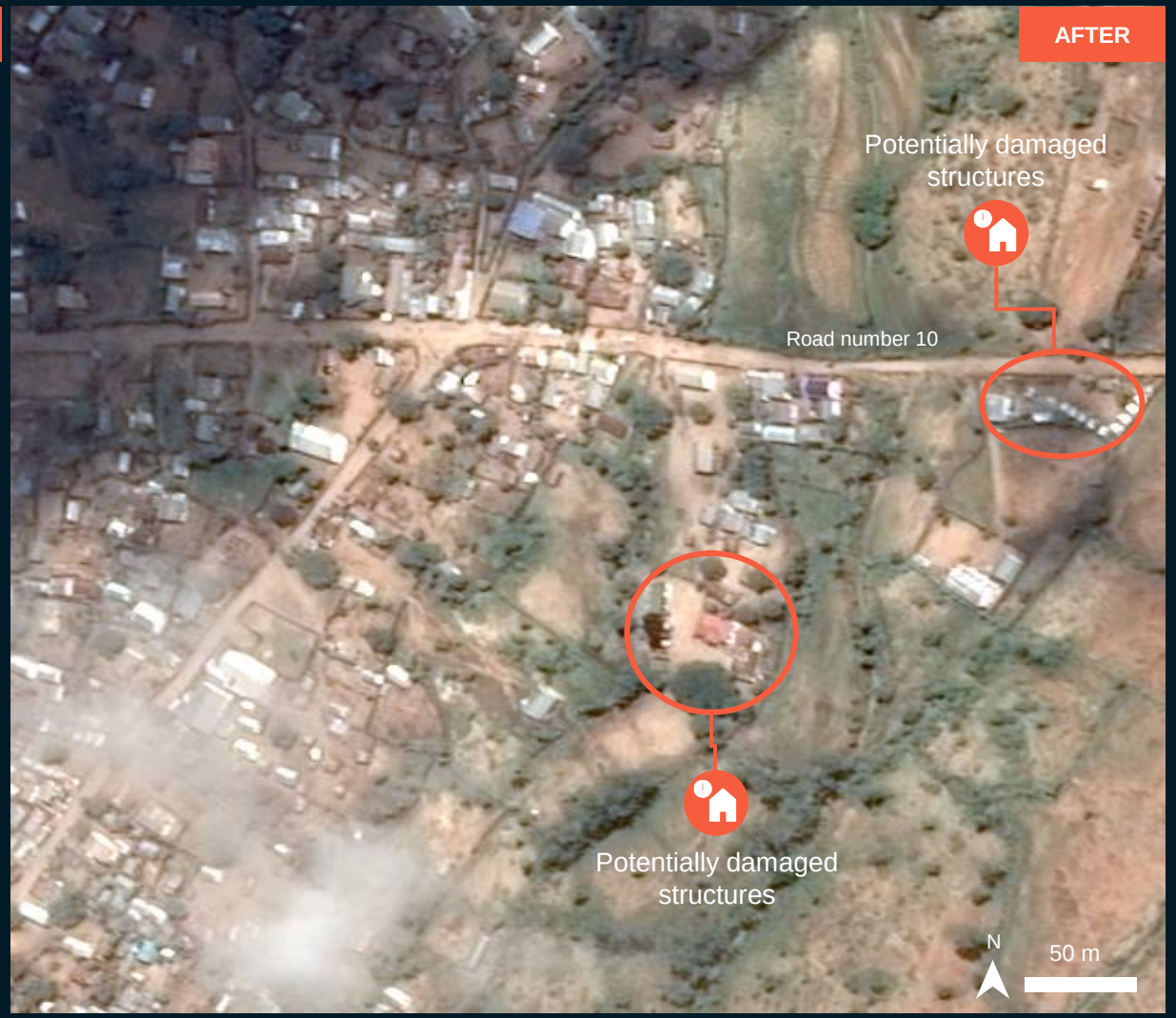
AOI2 - AMPANIHY TOWN, AMPANIHY OUEST DISTRICT, ATSIMO ANDREFANA REGION

Image center:
44°45'8.762"E
24°41'35.089"S

UNOSAT

Potentially affected structures

ESRI Basemap/ WorldView-2/ 9 Jul 2020



Pléiades/ 26 Feb 2022

AOI3-1 –MANAMBONDRO COMMUNE, VANGAINDRANO DISTRICT, ATSIMO ATSINANANA REGION

Inundated agricultural area and affected road

Pléiades image acquired on 28 February 2022
Image Center : 44°44'23.615"E 24°41'44.085"S

AOI3-1 –MANAMBONDRO COMMUNE, VANGAINDRANO DISTRICT, ATSIMO ATSINANANA REGION

No visible damage

Image center:
47°32'39.413"E
23°48'2.802"S

UNOSAT

ESRI Basemap/ WorldView-2/ 9 Dec. 2018

Pléiades/ 28 Feb. 2022

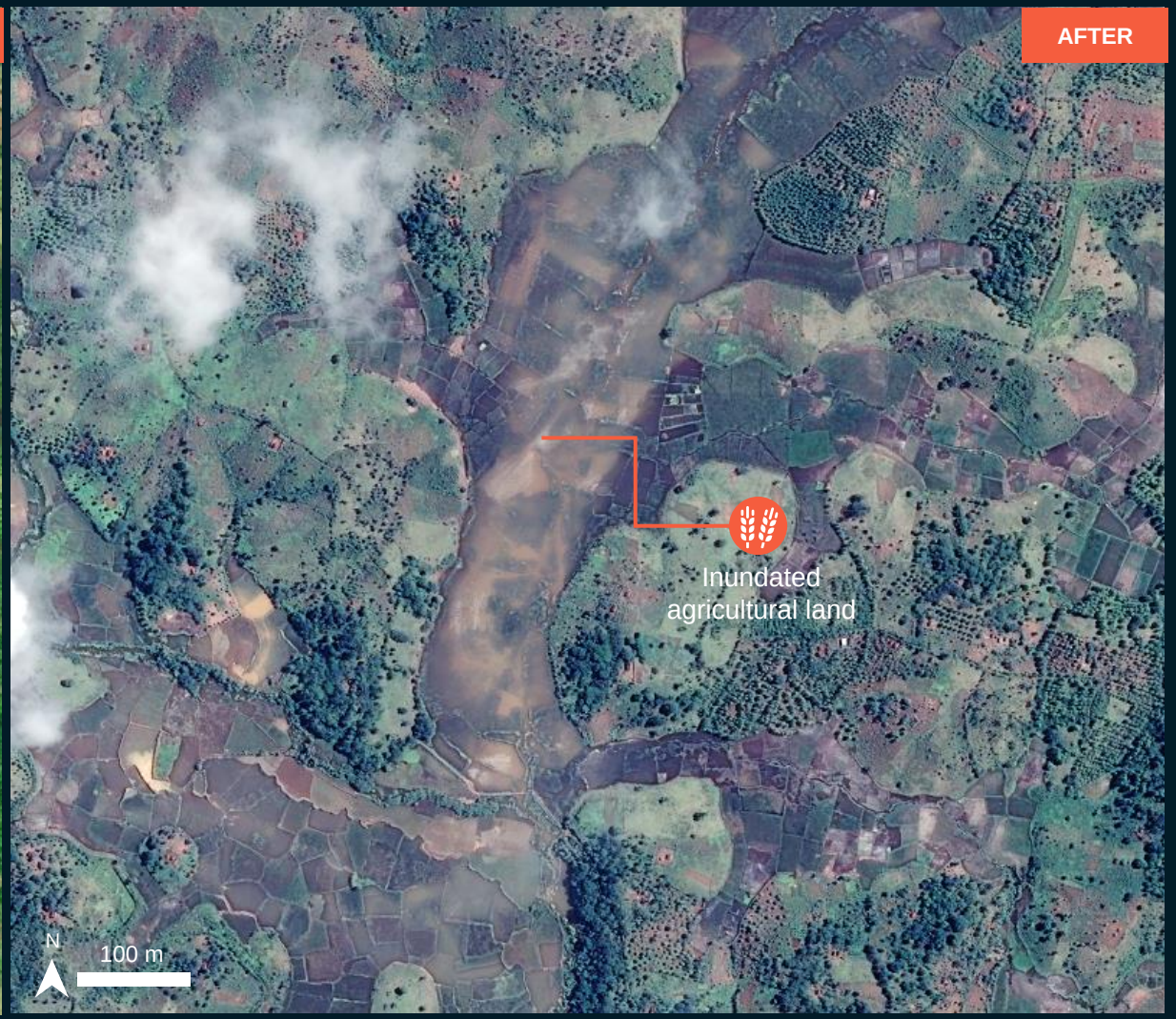
AOI3-2 –VOHIMALAZA COMMUNE, VANGAINDRANO DISTRICT, ATSIMO ATSINANANA REGION

Inundated agricultural area

Image center:
47°31'54.888"E
23°45'59.476"S

UNOSAT

ESRI Basemap/ WorldView-2/ 9 Dec. 2018



Pléiades/ 28 Feb. 2022

AOI4-1 IAKORA COMMUNE, IAKORA DISTRICT, IHOROMBE REGION

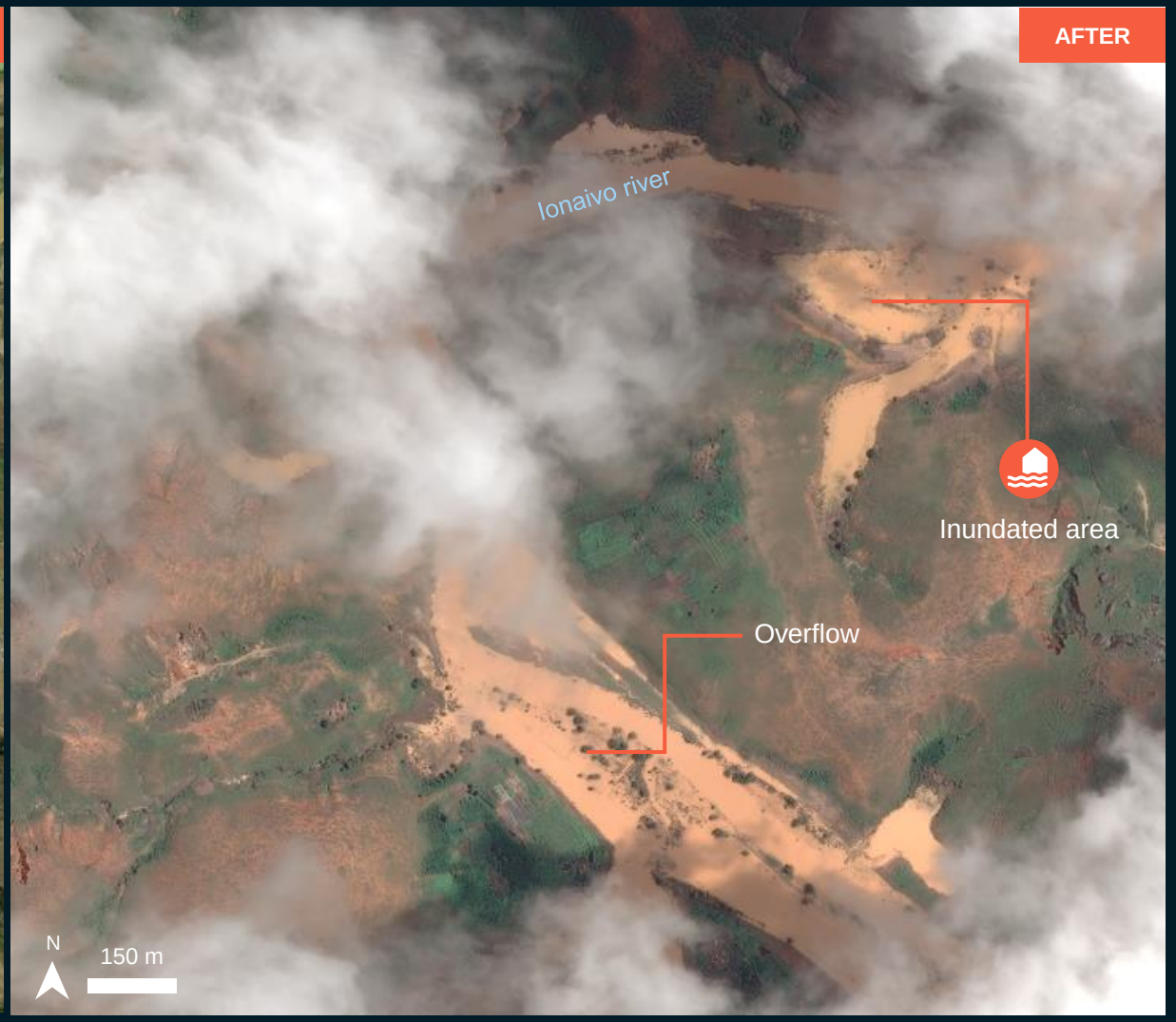
Image center:
6°40'25.04"E
23°7'43.598"S

Iakora District

UNOSAT

Floods along the Ionaivo river

ESRI Basemap/ WorldView-2/ 22 Jul. 2019



Pléiades/ 28 Feb. 2022

AOI4-1 IAKORA COMMUNE, IAKORA DISTRICT, IHOROMBE REGION

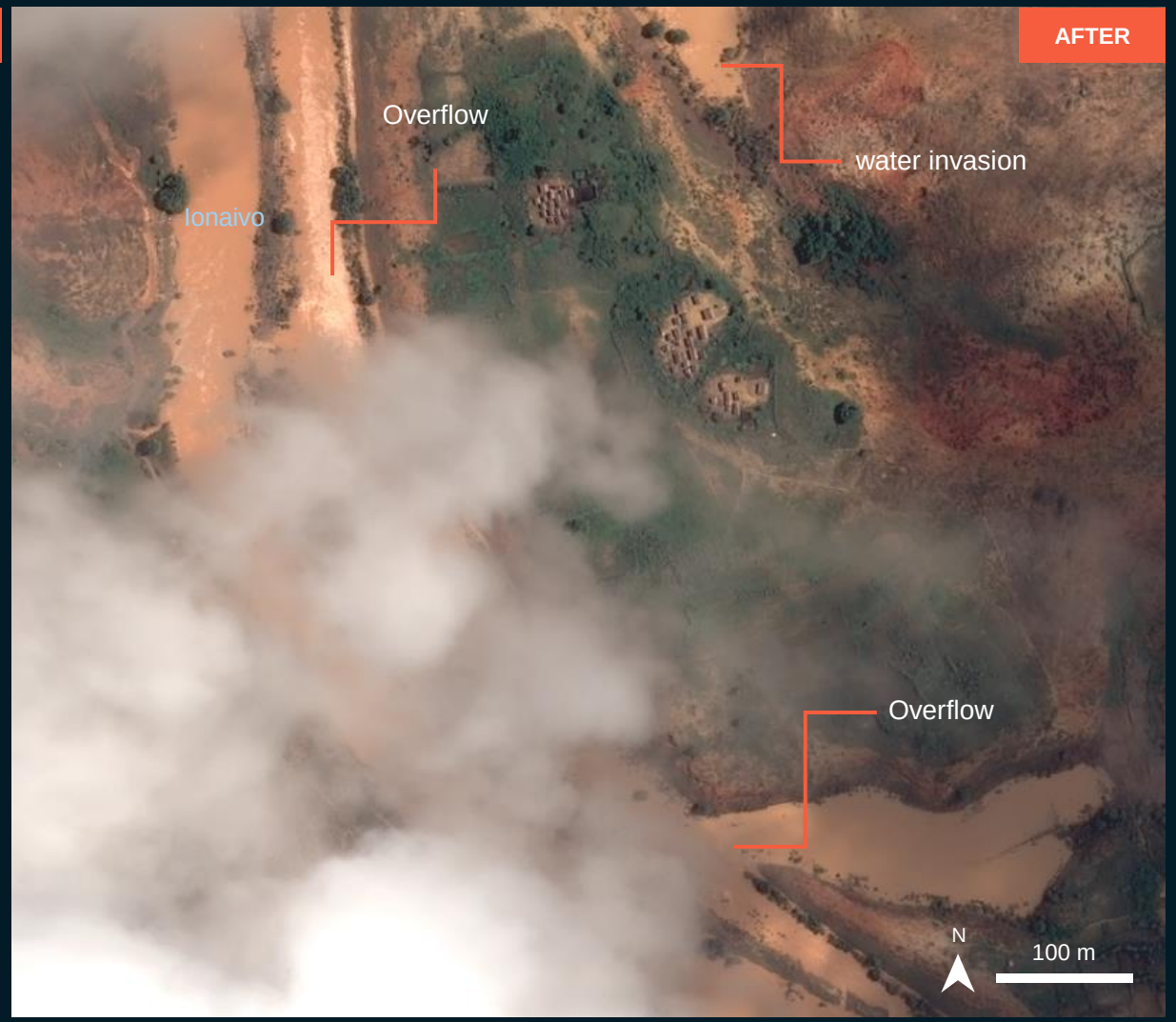
Floods along the Ionaivo river

Image center:
46°39'40.125"E
23°3'2.606"S

Iakora District

UNOSAT

ESRI Basemap/ WorldView-2/ 22 Jul. 2019



Pléiades/ 28 Feb. 2022

AOI 5-1 – BETROKA COMMUNE, BETROKA DISTRICT, ANOSY REGION

No visible damage

Pléiades image acquired on 28 February 2022
Image Center : 46°5'50.111"E 23°16'1.965"S

AOI 5-2 – BETROKA COMMUNE, BETROKA DISTRICT, ANOSY REGION

Inundated agricultural area

Pléiades image acquired on 28 February 2022
Image Center : 46°6'33.707"E 23°19'10.343"S

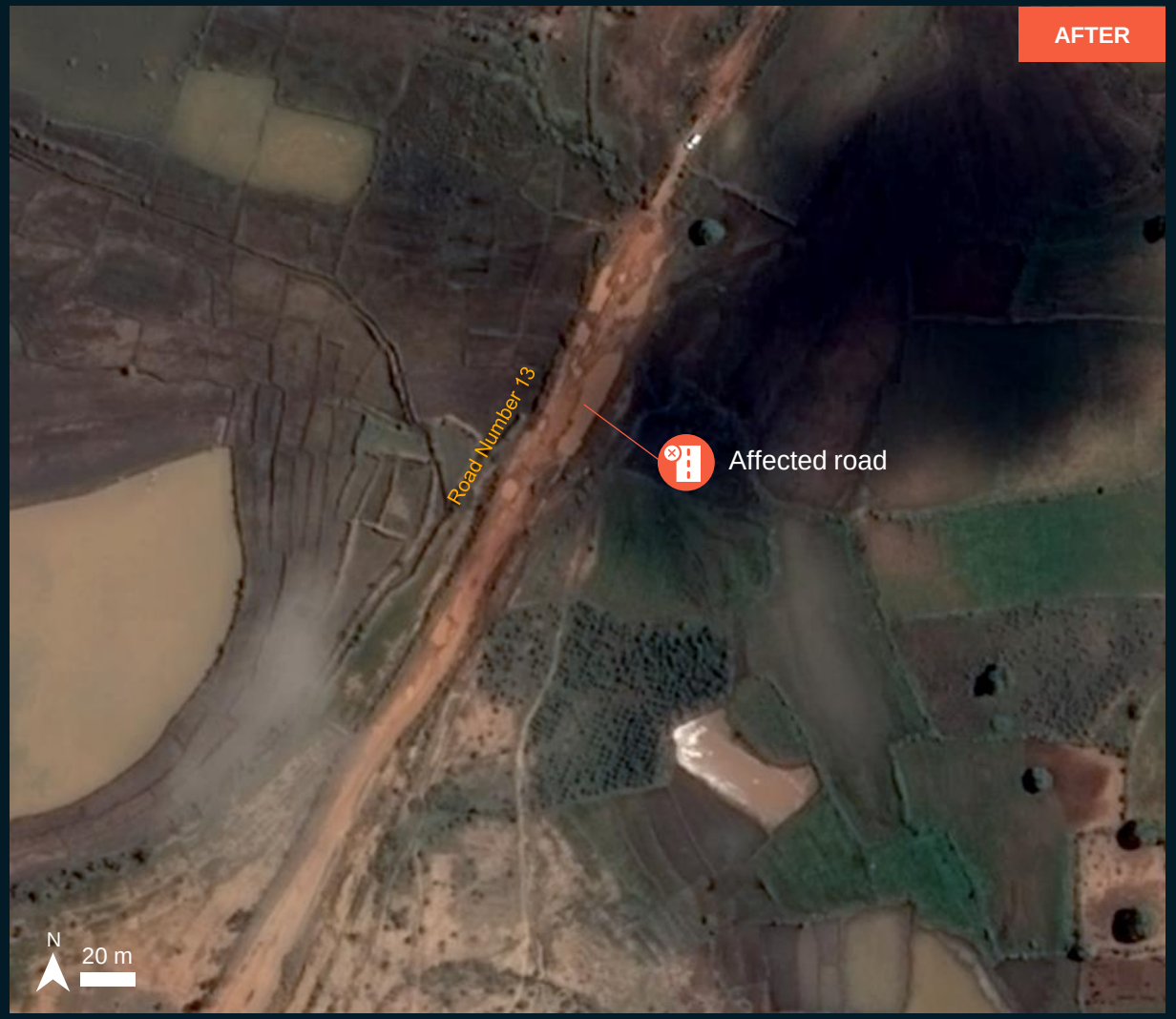
AOI 5-3 – BETROKA COMMUNE, BETROKA DISTRICT, ANOSY REGION

Image center:
46°5'28.369"E
23°16'51.206"S

UNOSAT

Road affected

Google Earth / Aug. 2019



Pléiades/ 28 Feb. 2022

AOI 5-4 – BETROKA COMMUNE, BETROKA DISTRICT, ANOSY REGION

Inundated agricultural area

Image center:
46°5'45.796"E
23°15'28.788"S

UNOSAT

Google Earth / Aug. 2019

Pléiades/ 28 Feb. 2022

AOI 6-1 – VONDROZO COMMUNE, VONDROZO DISTRICT, ATSIMO ATSINANANA REGION

Inundated agricultural area and affected buildings

Pléiades image acquired on 28 February 2022
Image Center : 47°19'31.842"E 22°49'1.424"S

AOI 6-2 – VONDROZO COMMUNE, VONDROZO DISTRICT, ATSIMO ATSINANANA REGION

Image center:
47°19'18.182"E
22°49'9.022"S

UNOSAT

Roofs damage

Google Earth / Jun. 2016

Pléiades/ 28 Feb. 2022

SUMMARY OF FINDINGS

UNOSAT

Bekily District, Androy Region

- No widespread damage observed in Bekily town Bekily District, Androy Region as of 28 February 2022;
- Increased water level of the Menarandra river observed as of 27 February 2022;
- Riverbanks erosion along the Menarandra river observed as of 28 February 2022;

Ampanihy Ouest District, Atsimo Andrefana Region

- Potentially damaged structures in Ampanihy Town, Ampanihy Ouest District, Atsimo Andrefana Region observed as of 26 February 2022;
- Riverbanks erosion observed along the river near the Ampanhy town as of 26 February 2022;

Vangaindrano District, Atsimo Atsinanana Region

- No widespread damage observed in Vangaindrano District, Atsimo Atsinanana Region as of 28 February 2022;
- Affected road and potentially affected bridge observed as of 28 February 2022;
- Inundated agricultural area in Manambondro and Vohimalaza Communes observed as of 28 February 2022;

Iakora District, Ihorombe Region

- Floods observed along the Ionaivo river in Iakora Commune, Iakora District, Ihorombe Region as of 28 February 2022;

Betroka Commune, Betroka District, Anosy Region

No widespread damage observed in Betroka Commune as of 28 February 2022;

- Inundated agricultural area in Betroka Commune observed as of 28 February 2022;
- Affected road observed as of 28 February 2022;

Vondrozo Commune, Vondrozo District, Atsimo Atsinanana Region

- Damaged roof and structure in Vondrozo Commune observed as of 28 February 2022;
- Inundated agricultural area in Vondrozo Commune observed as of 28 February 2022;

COPYRIGHTS AND SOURCES

Data sources:

(1) Satellite Image (Post-event)

Satellite : Pleiades
Imagery Date : 26 and 28 February 2022
Resolution : 50 cm
Copyright : ©CNES (2022), distribution Airbus D&S
Source : Airbus DS

Satellite : Sentinel-2A
Imagery Date : 27 February 2022
Resolution : 10 m
Copyright : Contains modified Copernicus Sentinel data [2022]
Source: ESA

(2) Satellite Image (Pre-event)

Satellite : Sentinel-2A
Imagery Date : 22 February 2022
Resolution : 10 m
Copyright : Contains modified Copernicus Sentinel data [2022]
Source: ESA

Google Earth
ESRI based map

(3) Ancillary data

Administrative boundaries: Madagascar National Disaster Management Office (BNGRC)

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

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