

Creating flood event based information merging GloFAS, GFM and media sources



**COPERNICUS
EMERGENCY
MANAGEMENT
SERVICE**

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Joint Research Center

Initial requirements ...

- Serve as single entry point to all flood related information
- Store harmonized flood information at the global scale
- Gather information throughout event lifecycle (before, during and after the event)
- Preserve the highest level of detail and allow easy aggregations
- Build on the existing standards in DRM and damage and loss reporting
- Provide automated, harmonized stream of information to EU Emergency Response Coordination Centre , GDACS (possibly other humanitarian organizations e.g. WFP, RedCross, etc.)
- Flood reports exposed in Common Alerting Protocol, extended with specific event and impact parameters

Basic principles ...

- location, timing, urgency, severity, certainty (CAP)
- damage/loss parameters loosely linked to Sendai indicators and Humanitarian Exchange Language (HXL)

Sendai Global Targets addressed:

- Health (C5, D2)
- Education (C5, D3)
- Industrial, commercial, Services (C3)
- Critical Infrastructure and Basic Public Services (C5, D4, D6)
- Cultural Heritage (C6)

affected agriculture bridges communications cultural heritage damage death displaced economic total education environment forest health sector houses industry injured magnitude missing power energy relocated rescued roads sewerage social total spatial extent transport water supply

Flood event parameters ...

BREAKING NEWS 4 days ago - Zambia - "Catastrophic Situation" After Floods Hit Southern and Central Provinces

Madagascar – Tropical Storm Cheneso Leaves 30 Dead, 40,000 Displaced

31 JANUARY, 2023 BY RICHARD DAVIES IN AFRICA, NEWS

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Tropical storm Cheneso has continued to cause flooding, fatalities and damages in Madagascar. As of 30 January, the National Office for Risk and Disaster Management (BNGRC) said at least 30 people have lost their lives and a further 21 are still missing.

Floods in the district of Atsimondrano in Madagascar, 27 January 2023. Photo: BNGRC

Tropical Storm Cheneso made landfall in northern Madagascar on 19 January 2023. One person was reported missing at sea in the storm, off the coast of Antsiranana II district in the Diana Region. BNGRC reported 730 homes were flooded in the Maroantsetra District of the Ananjirofo Region, affecting a total of 2,192 residents. At least 214 people were displaced.

Heavy rain brought by the storm has continued to fall across the country, increasing rivers to dangerous levels. The storm also damaged infrastructure. Several bridges have collapsed and many roads have been blocked by floodwaters or landslides.

In an update of 30 January, BNGRC reported a total of 90,519 people have been affected by the storm across 18 regions. As many as 26,397 homes have been flooded or damaged, and a total of 1,073 homes and 199 schools completely destroyed. On 29 January BNGRC reported 39,380 people had been displaced from their homes. This figure fell slightly to 36,805 the following day.

The Emergency Management Service of Copernicus, the European Union's Earth observation programme, has been activated to provide flood extent and damage assessments. The service is mapping flooded areas of Ambatoboeny, Analava, Andapa, Belo sur Tsiribihina, Mahajanga, Maintirano, Mampikony, Mananjary, Maroantsetra and Morombe.

RE Tropical Storm Cheneso, Madagascar, January 2023 [Madagascar]

gdacs alert Unknown Green Orange Red

hazard classifications search **Flood**

- Geophysical
- Hydrological
- Meteorological
- Climatological
- Biological
- Extraterrestrial
- unknown

id df81a1d6-1553-4cbe-a631-0273e62367ec

date onset: January 19th 2023; expires: January 21st 2023; effective: January 23rd 2023

event Tropical Storm Cheneso, Madagascar, January 2023

headline Tropical Storm Cheneso made landfall in northern Madagascar on 19 January 2023. One person was reported missing at sea in the storm, off the coast of Antsiranana II district in the Diana Region. BNGRC..

description Tropical Storm Cheneso made landfall in northern Madagascar on 19 January 2023. One person was reported missing at sea in the storm, off the coast of Antsiranana II district in the Diana Region. BNGRC reported 730 homes were flooded in the Maroantsetra District of the Ananjirofo Region, affecting a total of 2,192 residents. At least 214 people were displaced. UNOCHA reported flooding in Andapa District in Sava Region. As of 21 January, levels of the Betsiboka and Mahajamba rivers were dangerously high presenting flood risks in Ambatoboeny, Marovoay, Madirovalo and Maraloany districts. Local media reported some pre-emptive evacuations. In an update of 22 January, BNGRC reported 3 fatalities, 6 missing, 3,985 homes damaged, 7,240 people displaced and 13,180 people or 3,443 households affected across the regions of Analamanga, Analanjirofo, Betsiboka, Boeny, Diana, Sava, Sofia, Vatovavy. Heavy rainfall was forecast until 26 January. heavy rain also affected the Comoros Islands and Mozambique from 22 January.

resources <https://reliefweb.int/report/madagascar/madagascar-cyclone-season-flash-update-no-1-18-january-2023>
<https://www.madagascar-tribune.com/Cyclone-Cheneso-1-enfant-porte-disparu-2-192-sinistres.html>
<https://www.facebook.com/BNGRCMID/posts/pfbid03WzUsTYuHef?gclid=EAQ5hWGNqb1c1qW4HgadBnDQaBDcl>
<https://reliefweb.int/report/madagascar/madagascar-cyclone-season-flash-update-no-2-19-january-2023#:~:text=Tropical%20Storm%20Cheneso%20made%20landfall%20in%20the%20north%20of%20Antalaha.up%20to%20120%20km%2Fh>
<https://www.madagascar-tribune.com/Crue-de-Betsiboka-evacuation-preventive-des-riverains.html>
<https://www.facebook.com/BNGRCMID/posts/pfbid0k4BH1doL8Yrwy464wugo2gR6PVf2eeDdEeXUvc2sA25juek65seah7wtu6iaRBfSI>
<https://reliefweb.int/report/madagascar/madagascar-cyclone-season-flash-update-no-3-20-january-2023>

Flood event parameters ...

Location is defined by

- point/polygon/polyline/footprint
- location name (OSM hierarchy (feature, city, province, region, country, continent) including geometries

The screenshot displays the 'GLOBAL ERCC REPORTING' web application interface. The browser address bar shows the URL 'https://www.floods-cap.com/web-stage/index.html'. The application header includes navigation buttons for 'LIST VIEW', 'MAP VIEW', 'SEARCH', 'INFO', 'ALERT', and 'V1.0.5'. The main content area is titled 'Add new info' and features a progress bar with three steps: '1 Select Region', '2 Create Info', and '3 Add Params'. A map of North Africa is shown with several blue-shaded regions and points. Below the map, there are two panels listing location names and their corresponding geometries. The left panel is titled 'ispra' and lists several locations in Italy, each with a green location icon and a green footprint icon. The right panel lists locations in Algeria and Libya, each with an orange location icon and a red footprint icon.

Location Name	Geometry Type
ispra	Location
ispra, Varese, Lombardy, 21027, Italy	Footprint
ISPRA, 48, Via Vitaliano Brancati, Zona XXIV Fonte Ostiense, Rome, Roma Capitale, Lazio, 00144, Italy	Footprint
Ispra, Via dei Mille, San Paolino, Parco, Milazzo, Messina, Sicily, 98057, Italy	Footprint
Ispra, 78, Via Piave, San Carlo, Ispra, Varese, Lombardy, 21027, Italy	Footprint
Ispra, Via Giosuè Carducci, Cascina Maria Teresa, Ispra, Varese, Lombardy, 21027, Italy	Footprint
Ispra, Piazzale Rapazzini, San Carlo, Ispra, Varese, Lombardy, 21027, Italy	Footprint
Istituto Superiore per la Protezione e la Ricerca Ambientale, 305, Viale Cesare Pavese, Zona XXIV Fonte Ostiense, Rome, Roma Capitale, Lazio, 00144, Italy	Footprint
Istituto Superiore per la Protezione e la Ricerca Ambientale, Via Massimo Bontempelli, Zona XXIV Fonte Ostiense, Rome, Roma Capitale, Lazio, 00144, Italy	Footprint
Reggane, Reggane District, Adrar, 1004, Algeria	Footprint
Illizi, Illizi District, Illizi, 33000, Algeria	Footprint
Wadi al Shatii, Libya	Footprint
Murzuq, Libya	Footprint
Wadi al Hayaa, Libya	Footprint

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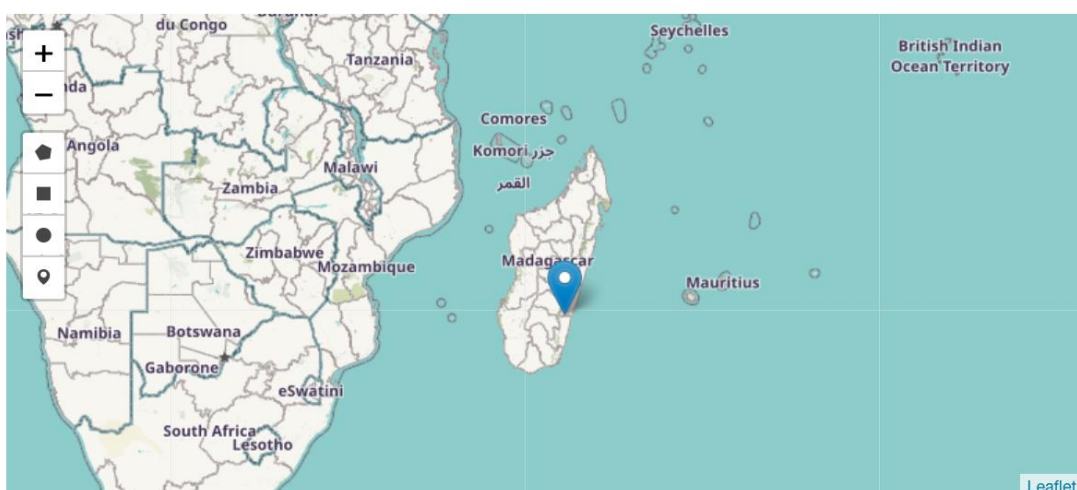
Heavy rain brought by the storm has continued to fall across the country, increasing rivers to dangerous levels. The storm also damaged infrastructure. Several bridges have collapsed and many roads have been blocked by floodwaters or landslides.

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Parameters











name	displaced
description	7,240 [people] Evacuated in Madagascar
value	7240 quantitative
date	onset: January 19th expires: January 23rd effective: January 23rd
areas	Madagascar



Search

Flood event parameters ...

Parameters

	Name	Value	onset	expires	effective	location	
	displaced	7240	January 19th 2023	January 23rd 2023	January 23rd 2023	7,240 [people] Evacuated in Madagascar	
	affected	13180	January 19th 2023	January 22nd 2023	January 23rd 2023	13,180 [people] Affected in Madagascar	
	death	3	January 19th 2023	January 23rd 2023	January 23rd 2023	3 [people] Fatalities in Madagascar	
	houses	3985 damaged	January 19th 2023	January 22nd 2023	January 23rd 2023	3,985 [Buildings] Buildings damaged in Madagascar	
	missing	6	January 19th 2023	January 23rd 2023	January 23rd 2023	6 [people] Missing people in Madagascar	

Flood impact parameters and their evolution in time

updated on: February 2nd 2023

UPDATE ALL

DISCARD ALL

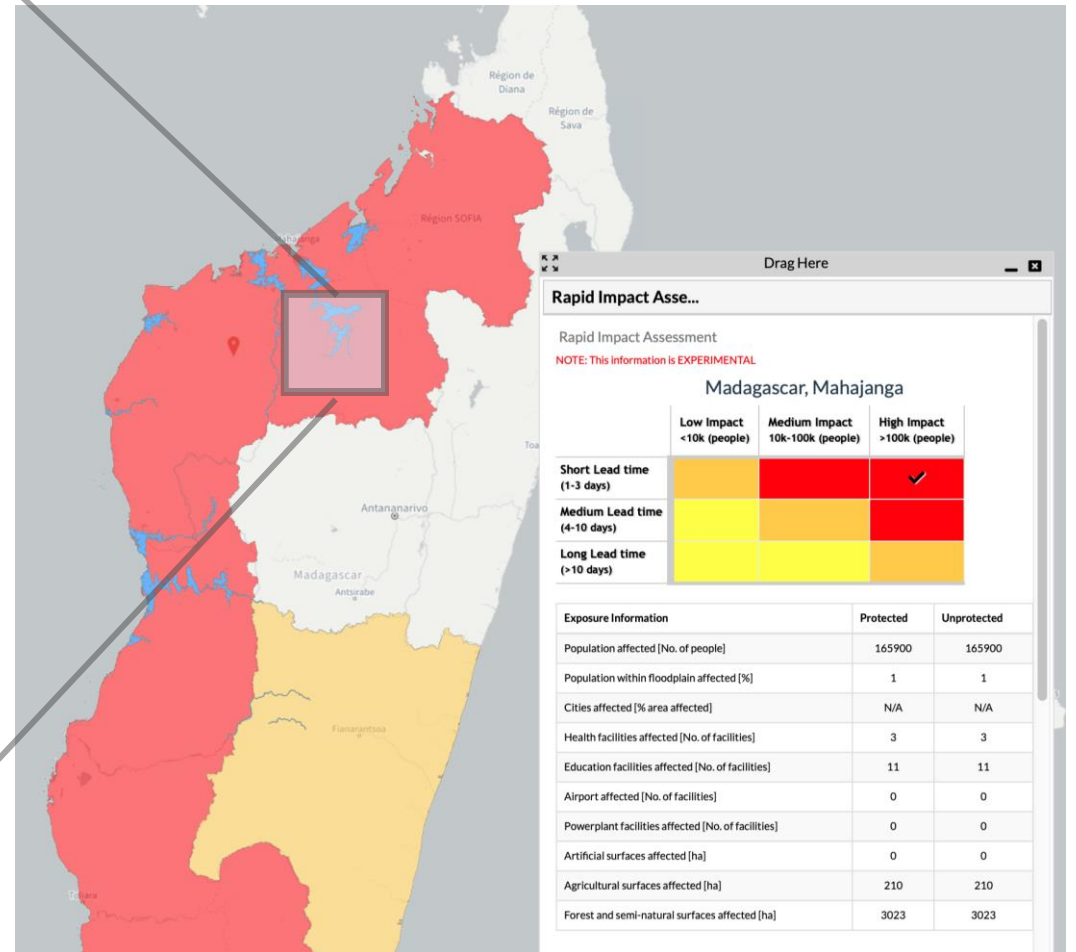
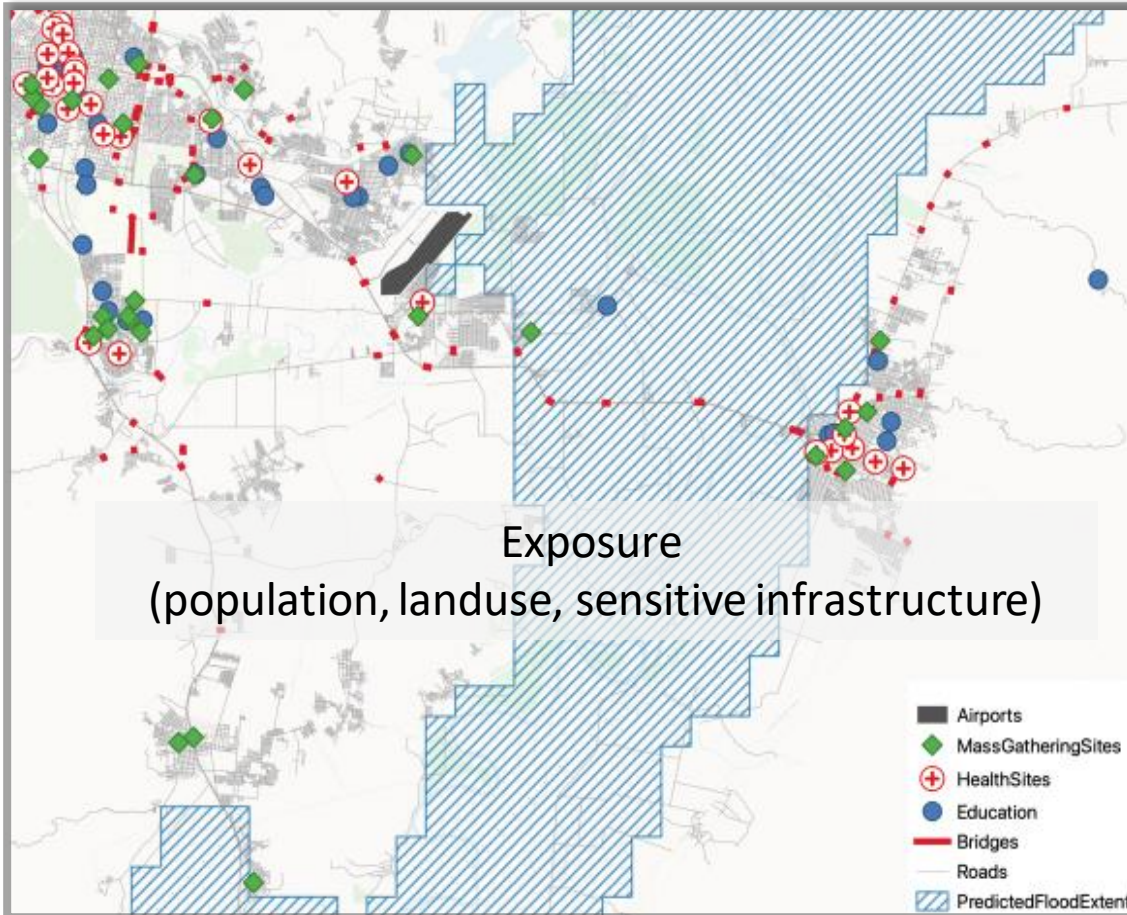
	name	value	onset	expires	effective	location
	displaced	39380	January 19th 2023	January 29th 2023	February 2nd 2023	39,380 [people] Evacuated in Madagascar
	affected	90870	January 19th 2023	January 31st 2023	February 2nd 2023	90,870 [people] Affected in Madagascar
	houses	26403	January 19th 2023	January 31st 2023	February 2nd 2023	26,403 [Buildings] Buildings damaged in Madagascar
	death	33	January 19th 2023	January 31st 2023	February 2nd 2023	33 [people] Fatalities in Madagascar
	affected	20	January 19th 2023	January 31st 2023	February 2nd 2023	20 [people] Missing people in Madagascar
	houses	1073	January 19th 2023	January 30th 2023	February 2nd 2023	1,073 [buildings] Buildings destroyed in Madagascar

Basic principles ...

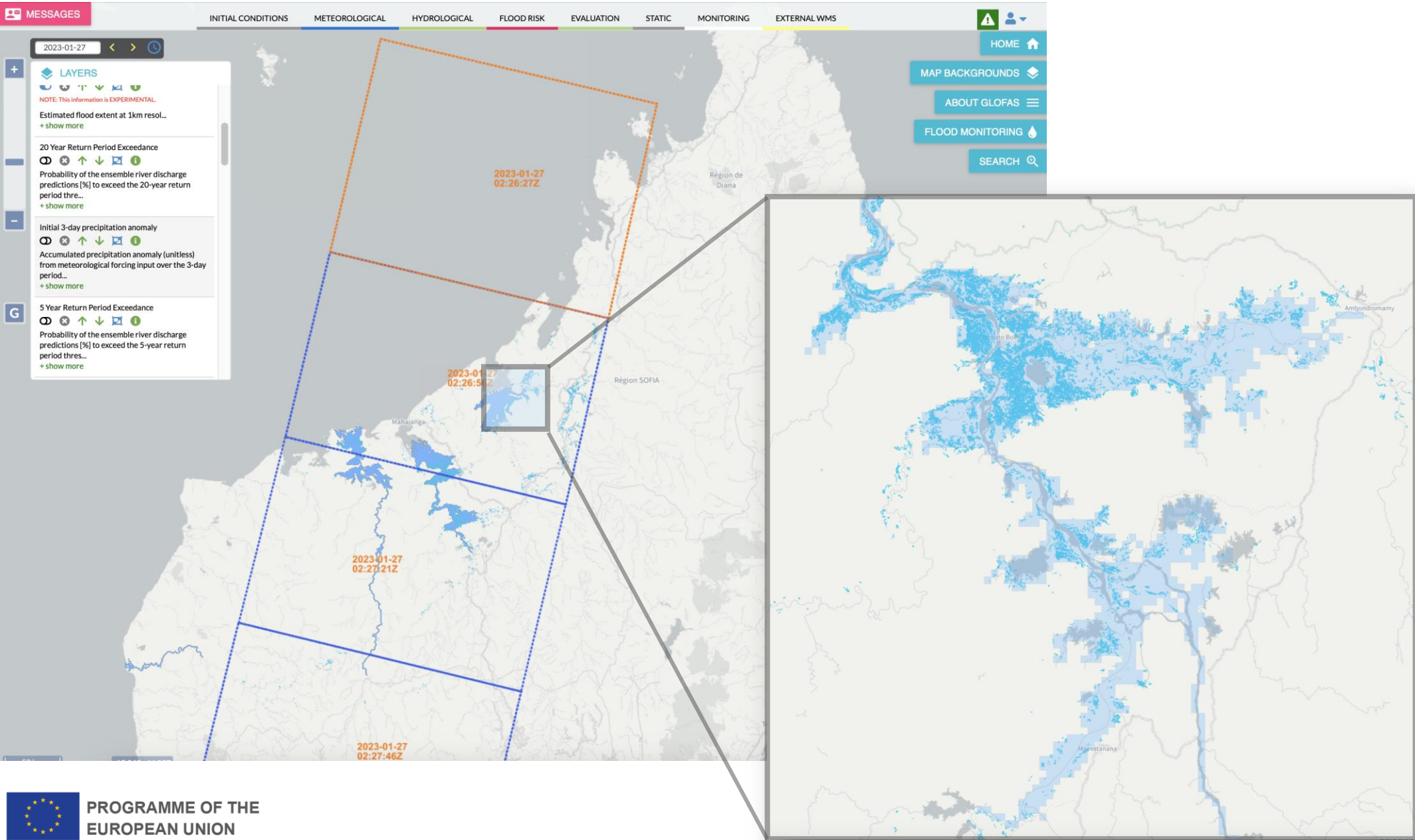
- Flood information from different sources is grouped into **EVENTS** by:
 - location - if more flood reports are located in certain area (radius, basin, region)
 - time - if more reports are located in the area and within short (user defined/fixed) time window
- Grouping is only tentative and can be changed by authorised users
 - authorised user can remove/add reports to a group
 - reviewed daily by trained experts
- Dissemination in CAP compliant, well-formatted GeoJSON through a dedicated API

Integration of CEMS GloFAS Rapid Risk Assessment

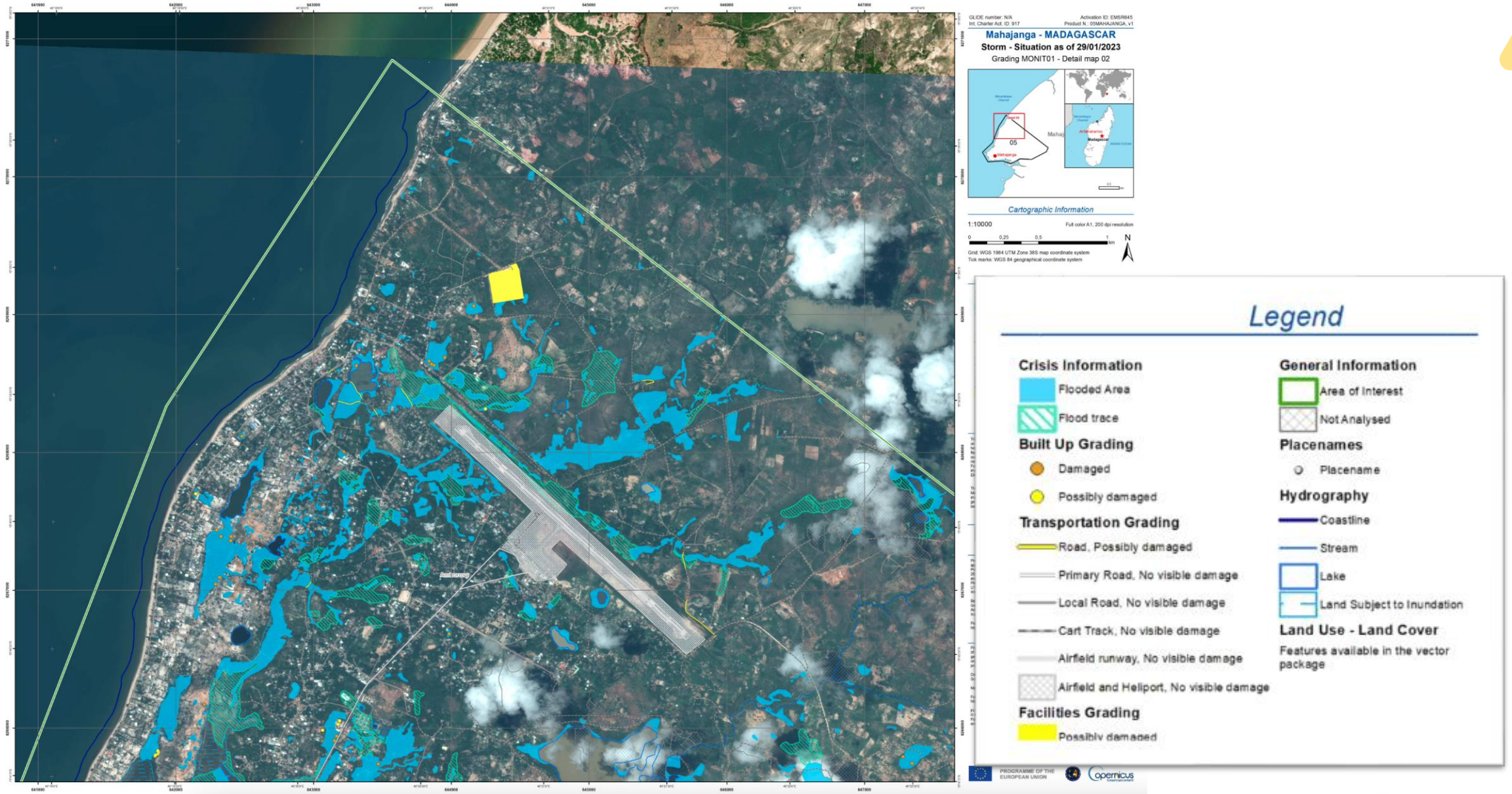
Potential impact aggregated over administrative regions



Integration of CEMS Global Flood Monitoring impact assesment



Integration of CEMS Rapid Mapping activations





Map of disaster alerts in the past 4 days. European Union, 2023. Map produced by EC-JRC. The designations employed and the presentation of material on the map do not imply the expression of any opinion whatsoever of the European Union concerning the legal status of any country, territory or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The blurred events in the list below are the past events before last 4 days. For drought alerts, all the events listed in the homepage are ongoing events. In bold: i) new events; ii) events where a significant worsening has been detected (+ 0.5 GDACS score or increase in the Alert Level); iii) event information products are available (Global Drought Observatory Report). For Forest Fires alerts, the events are all the ongoing events of class Orange or Red plus the Green alerts with burned area exceeding 10k ha and population within 5 km exceeding 10k.

EARTHQUAKES	TROPICAL CYCLONES	FLOODS	VOLCANOES	DROUGHTS	FOREST FIRES
Türkiye (M 6.0) - 06 Feb 12:02	FREDDY-23 (185 km/h) - 06 Feb 12:00	Fiji - 05 Feb 2023	Kilauea (United States) - 06 Jan 2023	Angola-2022 - 8 Weeks	Ghana (10114 ha) - 05 2023
Türkiye (M 5.7) - 06 Feb 10:51	CHENESO-23 (169 km/h) - 29 Jan 2023	Peru - 03 Feb 2023	Cotopaxi (Ecuador) - 21 Dec 2022	Central South America-2021 - 163 Weeks	Ethiopia (12474 ha) - 05 2023
Türkiye (M 5.8) - 06 Feb 10:35	TEN-23 (65 km/h) - 21 Jan 2023	Indonesia - 03 Feb 2023	Fuego (Guatemala) - 13 Dec 2022	Patagonia (Argentina, Chile)-2022 - 120 Weeks	Chile (10619 ha) - 05 2023
Türkiye (M 7.5) - 06 Feb 10:24	IRENE-23 (93 km/h) - 19 Jan 2023	Brazil - 31 Jan 2023	Lascar (Chile) - 12 Dec 2022	Madagascar-2020 - 120 Weeks	Chile (12103 ha) - 05 2023

Global Disaster Alert and Coordination System integration

Summary **Impact** Media Resources

Flood impact summary

Flood France, Madagascar, Mauritius is expected to have a **medium** humanitarian impact based on the magnitude and the affected population and their vulnerability.

GDACS ID: 1101281

Deaths: 21

Displaced: -

Region: Province d'Antananarivo, Province de Toiliara, Toamasina Province, Province de Fianarantsoa, Province d'Antananarivo

Countries: France, Madagascar, Mauritius

From - To: 01 Feb - 09 Feb

Known identifiers for this event: FL-2022-000165-FRA

GDACS Score

0 1 **1.5** 2 3

For more info on GDACS alert score click here.

Impact Assesment as of 09-02-2022

SENDAI Indicator A	N	Country	Location	Info
death	21	Madagascar	Province d'Antananarivo, Province de Toiliara, Toamasina Province, Province de Fianarantsoa	i
SENDAI Indicator B	N	Country	Location	Info
affected	94150	Madagascar	Province de Toiliara, Toamasina Province, Province d'Antananarivo, Province de Fianarantsoa	i
SENDAI Indicator C	N	Country	Location	Info
houses damaged	14374	Madagascar	Toamasina Province, Province de Fianarantsoa, Province d'Antananarivo, Province de Toiliara	i

GloFAS integration /Floods Decision Support System

Quick summary (Liberia, Nimba)

observed



0



100

Forecast (3 days)



tendency: increasing
Peak in: 2 days
return period: 20 years



5,000

close

Quick summary (Cote d'Ivoire, Montagnes)

observed



15

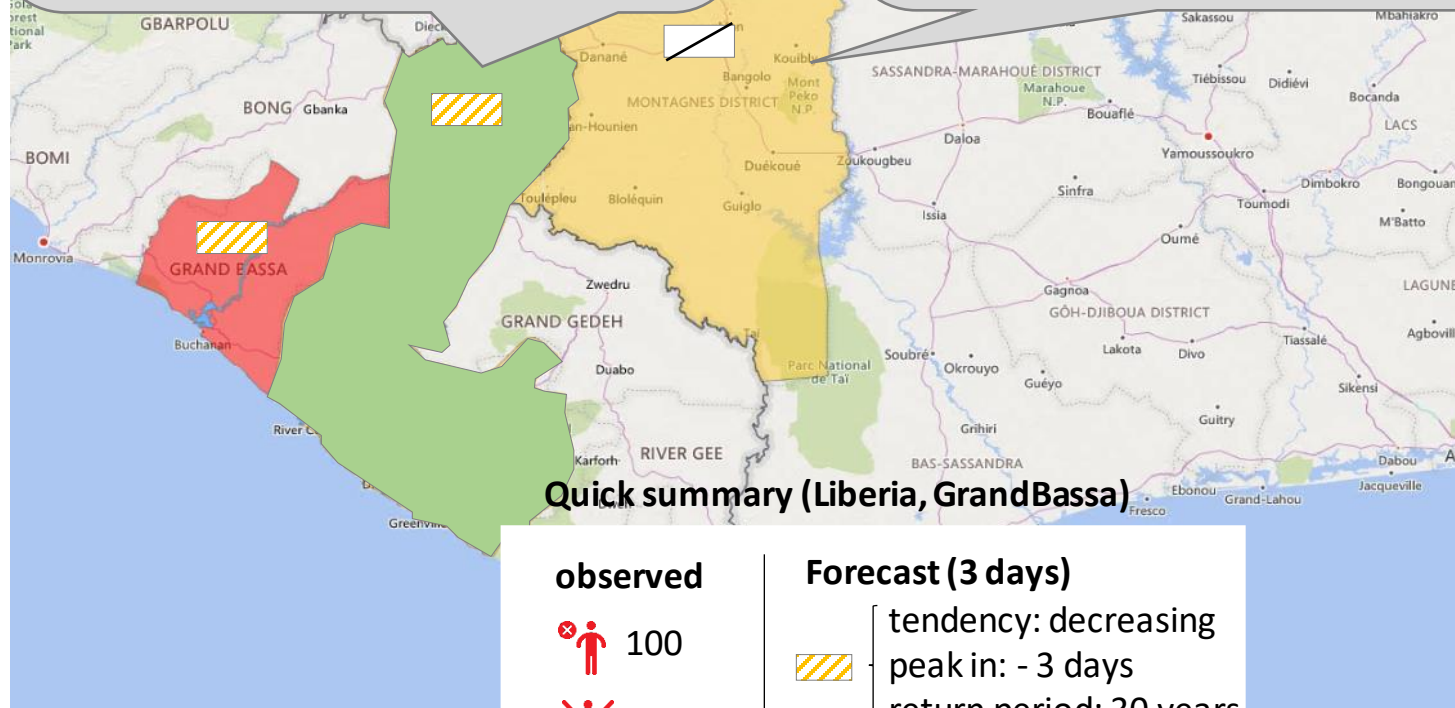


5,000

Forecast (3 days)

GloFAS did not forecast this event

close



Quick summary (Liberia, GrandBassa)

observed



100



125,000

Forecast (3 days)



tendency: decreasing
peak in: - 3 days
return period: 30 years



200,000

Legend



No flood forecasted



Forecasted flood, code yellow



Forecasted flood, code orange



Forecasted flood, code red



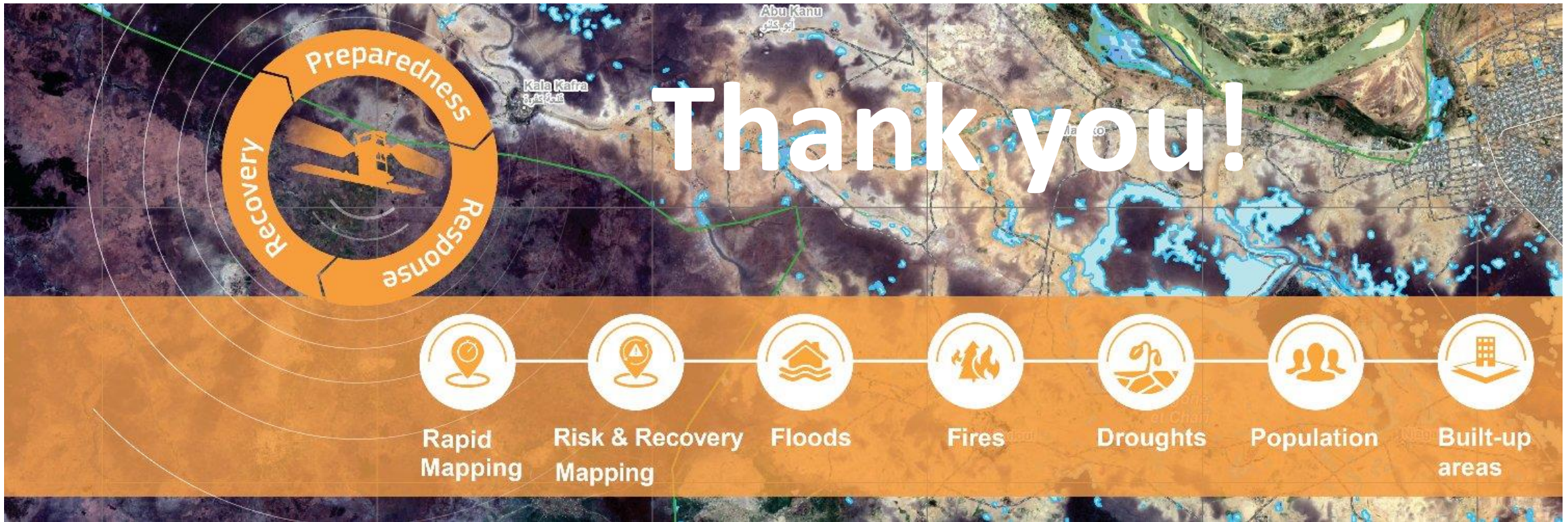
Dead



Estimated affected



Forecasted affected



Website - <https://emergency.copernicus.eu/>

Mail - support@copernicus.eu

Twitter - [@CopernicusEMS](https://twitter.com/CopernicusEMS)