2020 Evidence and Policy School
Florence, Italy
13-15 January 2020

Situational Awareness and Information Management in Emergencies

Understanding and making sense of data and information

Miguel Roncero, Olimpia Imperiali
DG ECHO, European Commission

Emergencies

- Natural or anthropogenic (man-made) origin
  - Events, incidents, accidents or malicious acts
- Sudden or slow onset
- Time-bounded
- Defined affected area and population
- Limited scale (albeit potentially large)

Why?

When?

How?

Who?

Where?

Why we act

> ...encourage cooperation between Member States for preventing and protecting against natural or man-made disasters.
>
> *(Lisbon Treaty, Article 196)*

> To provide...assistance and relief and protection for people in third countries... victims of natural or man-made disasters...
>
> *(Lisbon Treaty, Article 214)*

Janez LENARČIČ
European Commissioner for Crisis Management

European Commission

Humanitarian Aid

European Commission

Humanitarian aid is carried out **on basis of need**
regardless of nationality, race, gender, religion, class or political opinions.

Funding to humanitarian operations

Food & Nutrition
- Specialised food assistance
- Protection of livelihoods
- Training

Healthcare
- (Emergency) Medical assistance
- Primary and secondary healthcare
- Psychological support
- Containment of epidemics

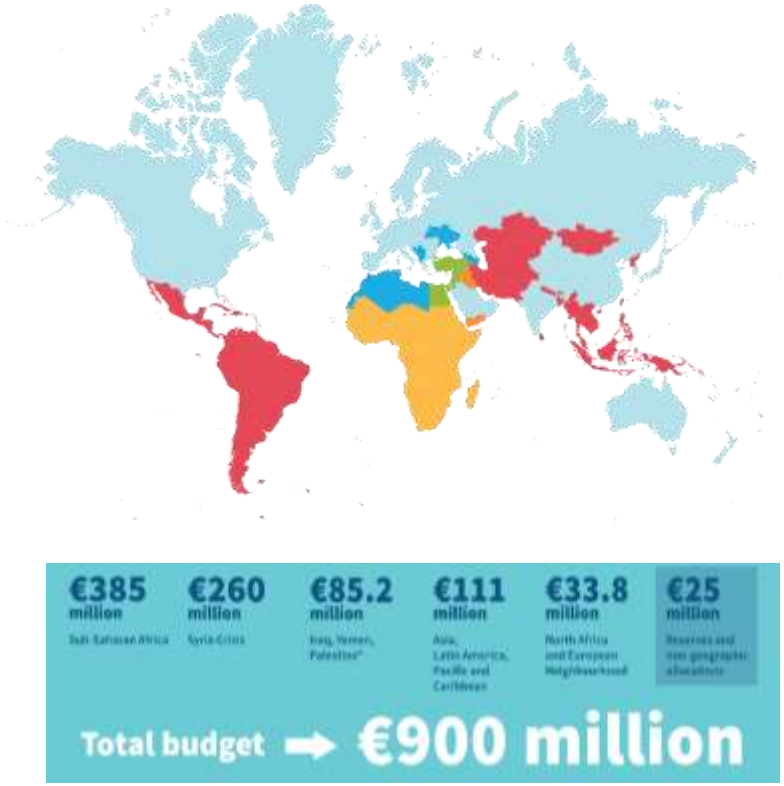
Shelter
- (Emergency) Settlement planning
- Tents and building material

Clean water & Sanitation
- Water wells
- Latrines and waste water treatment
- Hygiene education

Resilience & Prevention
- Preventing and reducing the risk of disasters
- Building resilience of local populations

Education in Emergencies
- Around 10% of global funding efforts
- 6.5 million children reached in 55 countries

EU's Initial Humanitarian Aid for 2020



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Civil Protection
Katastrophenschutz
Protection civile
Protezione civile

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A comprehensive emergency management cycle

- Advisory Missions
- Peer Reviews
- EU funding

- Experts
- Trainings
- Exercises

- CECIS registration
- European Civil Protection Pool
- **rescEU**

- ERCC
- EUCP Team
- UCPM Deployments

- Scientific and Data Analysis
- (Scientific) Expert Support, Operational Information
- Lessons Learnt

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When an emergency overwhelms national response capacities, the **EU Civil Protection Mechanism** enables a coordinated assistance by

all EU Member States

+

6 Participating States

Since its creation in 2001 until 2019,

the EU Civil Protection Mechanism

has been activated for more than

300 emergencies

European Commission

UCPM Activation

Natural or man-made **disaster** inside or outside the EU

Affected country requests assistance from the Mechanism through the **Emergency Response Coordination Centre (ERCC)**

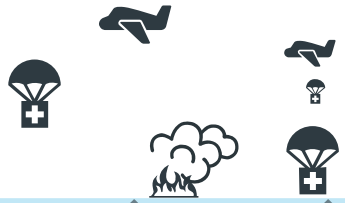
EU Civil Protection Mechanism is activated

Participating states offer assistance, such as personnel and equipment

Once the affected country has **accepted the offers...**

...ERCC coordinates the deployment and delivery of assistance

ERCC may deploy a team of **EU Civil Protection** experts



Assistance delivered, experts return.

End of the emergency response

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The Emergency Response Coordination Centre (ERCC)

European Commission

In May 2013, we launched the…

Emergency Response Coordination Centre (ERCC)

Monitors disasters around the globe **24/7**

Monitors disaster risks

Provides real-time information

Coordinates joint European response operations

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The UCPM in Action

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Emergency Response Coordination Centre (ERCC) | DG ECHO Daily Map | 03/01/2020

EU Civil Protection Mechanism - Requests for Assistance in 2019

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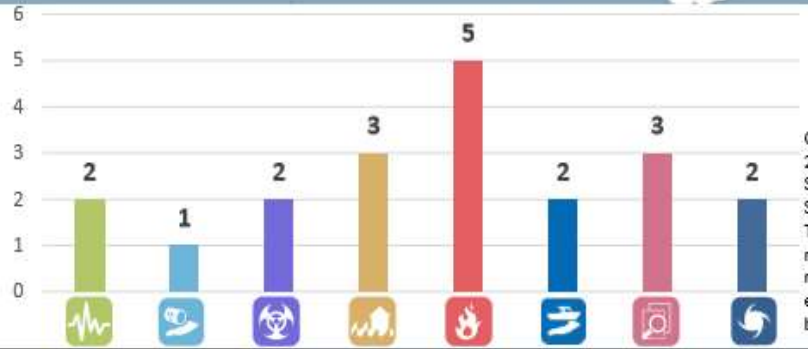
Affected country

Disaster type

- Earthquake
- Environmental accident
- Epidemic
- Floods
- Forest fire
- Marine pollution
- Prevention and preparedness
- Tropical cyclone



When an emergency happens…
… who you gonna call…?

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The ERCC Situational Awareness Sector

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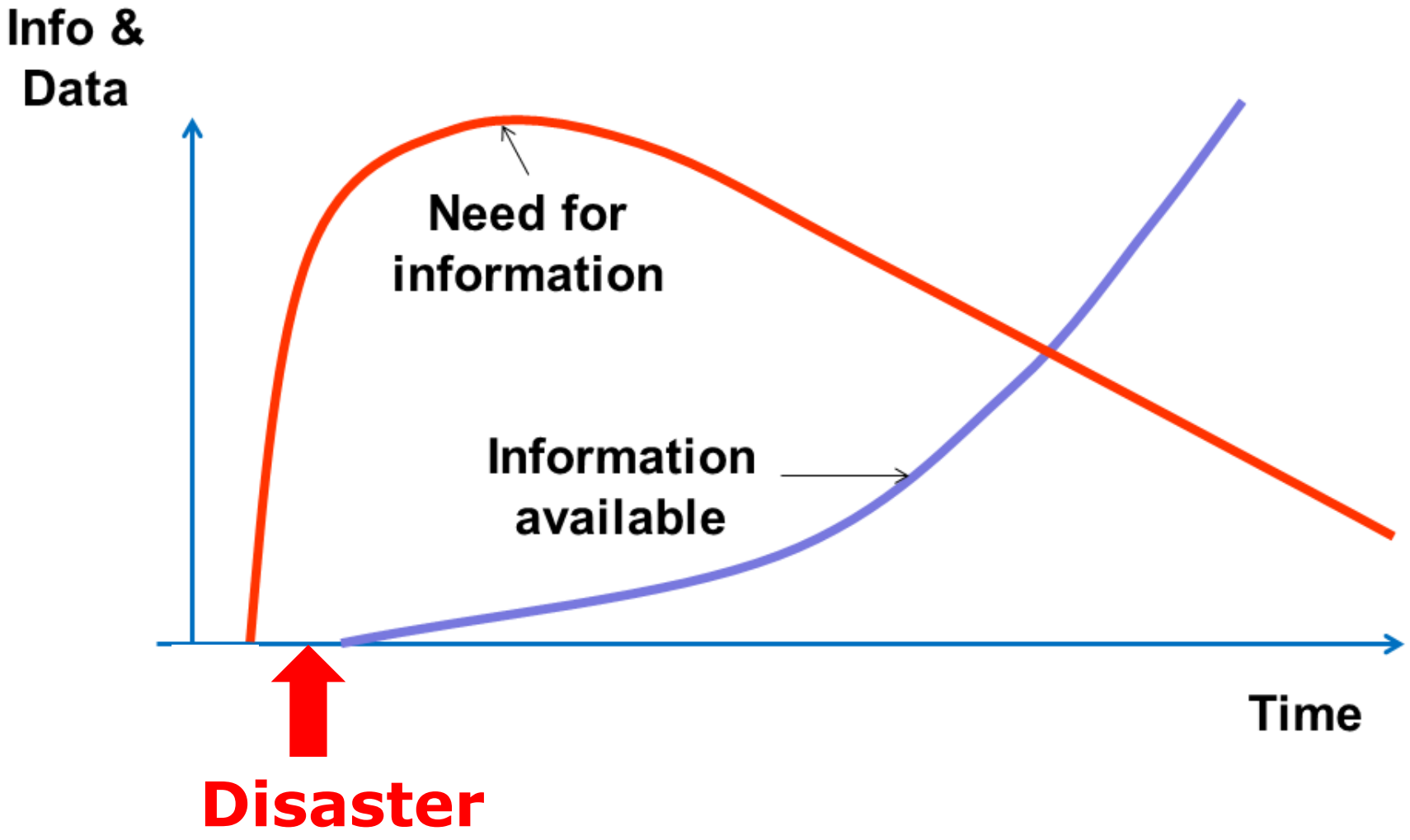
The need for information



But what do we look at?


EU Scientific Tools

GDACS

Global Disaster Alert and Coordination System

GDACS is a cooperation framework between the United Nations, the European Commission and disaster managers worldwide to improve alerts, information exchange and coordination in the first phase after major sudden-onset disasters.

HOME ALERTS VIRTUAL OSOCC MAPS & SATELLITE IMAGERY KNOWLEDGE ABOUT

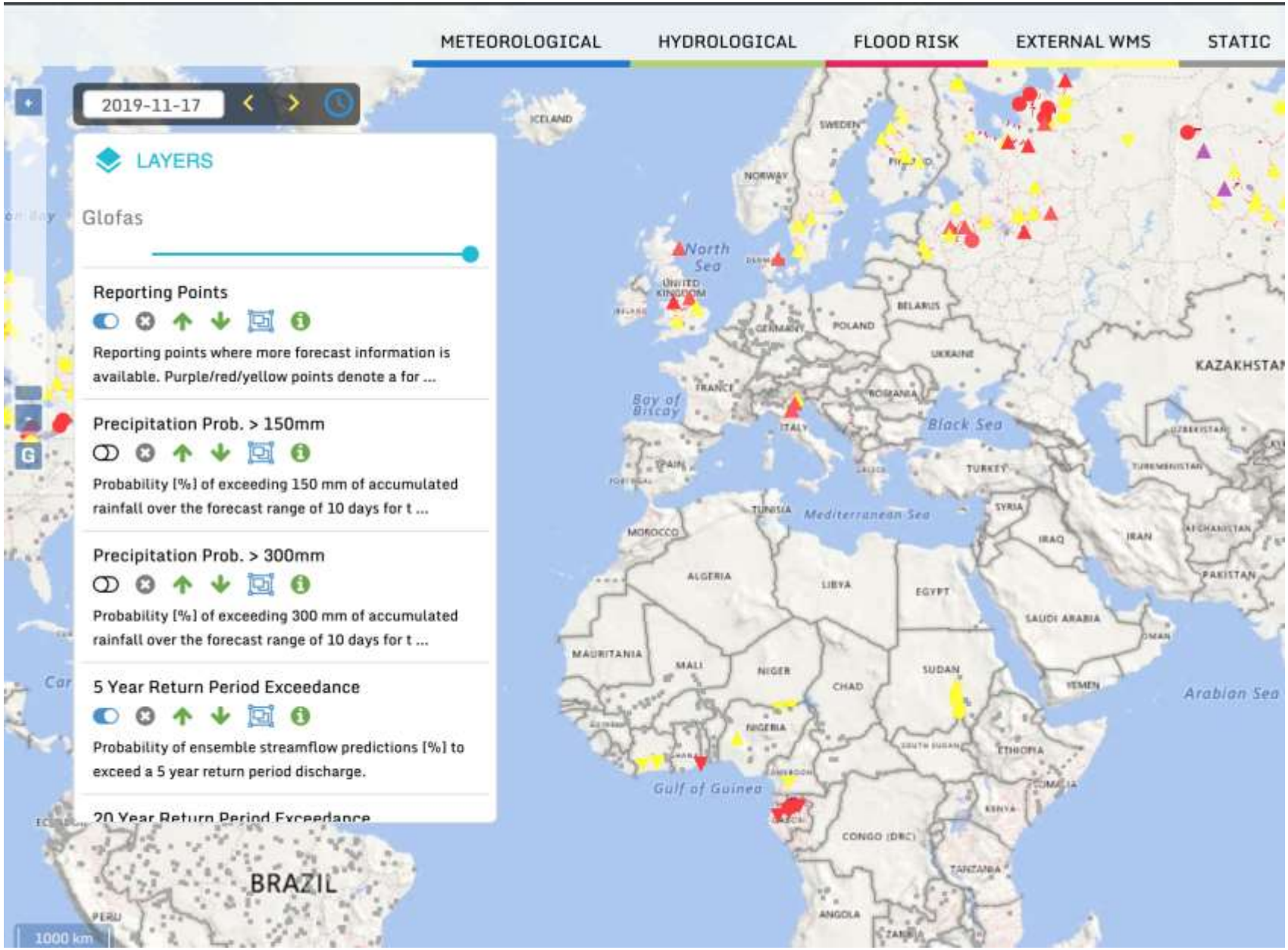
Latest news

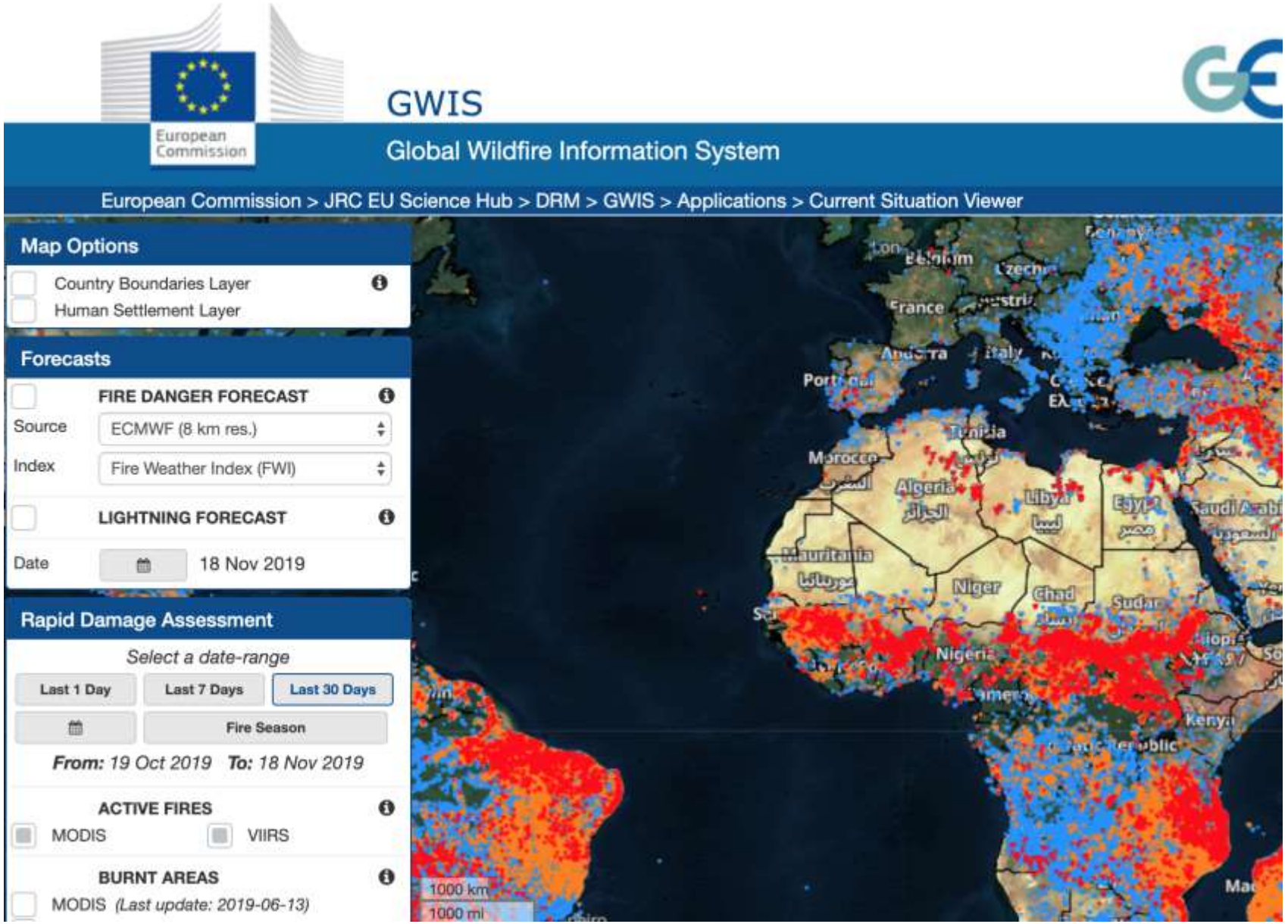
yclones RAYMOND-19

Tropical Cyclones KALMAEGI-19

Map of disaster alerts in the past 4 days. European Union, 2015. Map produced by EC-JRC.The boundaries and the names shown on this map do not imply official endorsement or acceptance by the European Union.
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) events where new information products are available (Global Drought Observatory Report).

EARTHQUAKES	TROPICAL CYCLONES	FLOODS	VOLCANOES	DROUGHTS
Tonga (5.8M) - *17 Nov 12:13*	**TWENTY-ONE-E-19** (74km/h) - *17 Nov 21:00*	**Italy** - *18 Nov 16:00*	Manam - *06 Nov 2019*	Southern Africa-2018 - *56 Weeks*
Indonesia (5.8M) - *16 Nov 10:19*	**FENGSHEN-19** (213km/h) - *17 Nov 18:00*	United Kingdom - *07 Nov 2019*	Fournaise, Piton de la - *25 Oct 2019*	Central America-2019 - *60 Weeks*


METEOROLOGICAL
HYDROLOGICAL
FLOOD RISK
EXTERNAL WMS
STATIC
2019-11-17
LAYERS
Glofas
Reporting Points
Reporting points where more forecast information is available. Purple/red/yellow points denote a for ...
Precipitation Prob. > 150mm
Probability [%] of exceeding 150 mm of accumulated rainfall over the forecast range of 10 days for t ...
Precipitation Prob. > 300mm
Probability [%] of exceeding 300 mm of accumulated rainfall over the forecast range of 10 days for t ...
5 Year Return Period Exceedance
Probability of ensemble streamflow predictions [%] to exceed a 5 year return period discharge.
20 Year Return Period Exceedance
ICELAND
SWEDEN
NORWAY
North Sea
UNITED KINGDOM
GERMANY
POLAND
BELARUS
UKRAINE
KAZAKHSTAN
FRANCE
ROMANIA
Bay of Biscay
ITALY
Black Sea
SPAIN
TURKEY
TUNISIA
Mediterranean Sea
SYRIA
IRAQ
IRAN
MOROCCO
ALGERIA
LIBYA
EGYPT
SAUDI ARABIA
PAKISTAN
MAURITANIA
MALI
NIGER
CHAD
SUDAN
YEMEN
Arabian Sea
NIGERIA
ETHIOPIA
Gulf of Guinea
KENYA
CONGO (DRC)
TANZANIA
ANGOLA
BRAZIL
PERU
1000 km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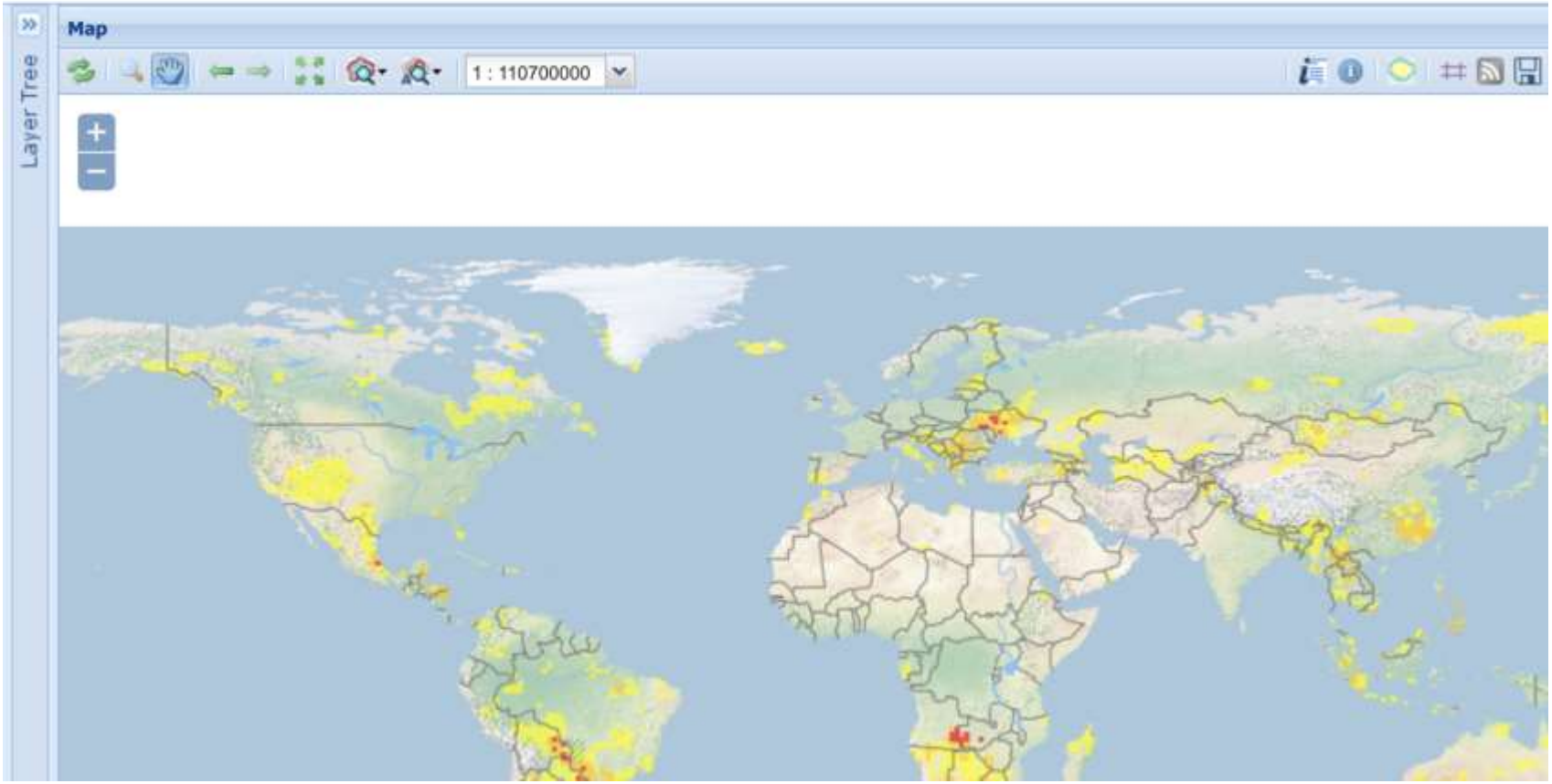
GWIS
Global Wildfire Information System
European Commission > JRC EU Science Hub > DRM > GWIS > Applications > Current Situation Viewer
Map Options
Country Boundaries Layer
Human Settlement Layer
Forecasts
FIRE DANGER FORECAST
Source
ECMWF (8 km res.)
Index
Fire Weather Index (FWI)
LIGHTNING FORECAST
Date
18 Nov 2019
Rapid Damage Assessment
Select a date-range
Last 1 Day
Last 7 Days
Last 30 Days
Fire Season
From: 19 Oct 2019 To: 18 Nov 2019
ACTIVE FIRES
MODIS
VIIRS
BURNT AREAS
MODIS (Last update: 2019-06-13)
France
Tunisia
Morocco
Algeria
Libya
Egypt
Mauritania
Niger
Chad
Sudan
Nigeria
Kenya
1000 km
1000 mi

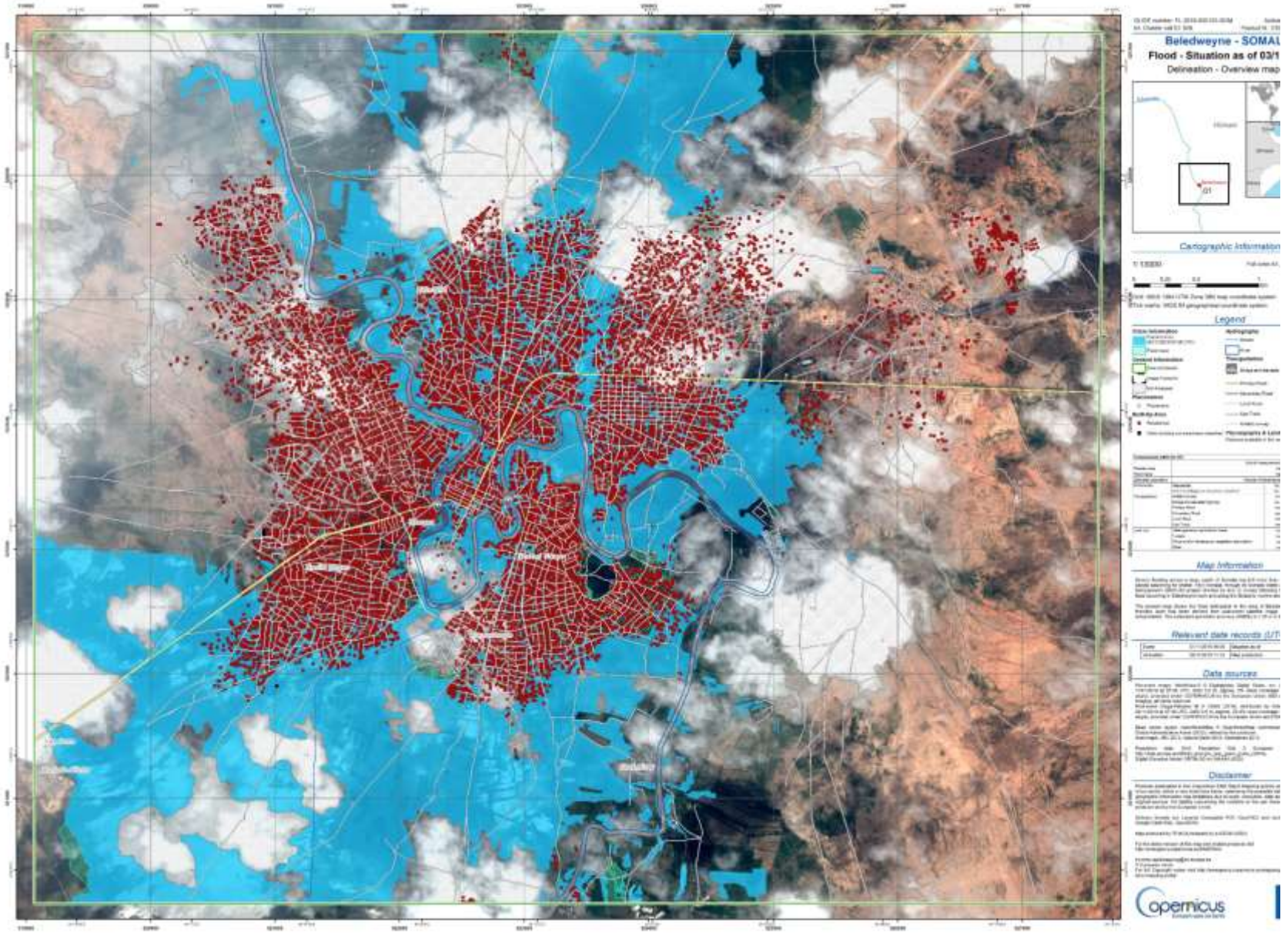
European Commission

GDO - Global Drought Observatory

Copernic Europe's eyes o

Emergency Management Service





Copernicus
Europe's eyes on Earth

EUROPEAN COMMISSION
JOINT RESEARCH CENTRE

Glaciers Lake Outburst Flooding Overview

JRC Emergency Report #036

7 May 2019

Executive S

- The **Glacial**
  suddenly dis
  catastrophic

GDO Analytical Report

Drought in the Greater Horn of Africa – April 2019

JRC Global Drought Observatory (GDO) and ERCC Analytical Team
15/04/2019

opernicus

ipcc
INTERGOVERNMENTAL PANEL ON climate change

The Ocean and Cryosphere in a Changing Climate

This Summary for Policymakers was formally approved at the Second Joint Session of Working Groups I and II of the IPCC and accepted by the 51th Session of the IPCC, Principality of Monaco, 24th September 2019

Summary for Policymakers

The population in the Horn is extremely vulnerable, due to poverty and political instability, with

To produce what?

Operational outputs

Flash Brief

Monsoon Floods in Bangladesh, India: Meteo forecast

Situational Awareness Team – 19 July 2019

Flash Brief

Monsoon Floods in Bangladesh, India: Meteo forecast

Situational Awareness Team – 19 July 2019

Forecast rainfall anomaly (mm per day)

SUMMARY:

- The
- This

Analytical Brief

Hurricane DORIAN in the Bahamas

DG ECHO A3 - Situational Awareness Team – 02 September 2019

Analytical Brief

Hurricane DORIAN in the Bahamas

DG ECHO A3 - Situational Awareness Team – 02 September 2019

Rainfall forecas
foreseen. After
northern Bangla
will extend to SE

Figure 1 Pro

The flooding of
and currently d
rivers in Assam,

SITUATION

- DORIAN hit the Abaco
afternoon of 1 Septembe
center was still over th
morning of 3 September.
- The winds, storm surge a
winds) landfalling Atlanti
Bahama (CNN). Hurrican
which means that the po
- The country's prime mi
residents of the Grand Ba

SEVERITY OF HAZARDS

- **WIND:** During landfall at
(Category 5). At 09.00 U
The minimum wind resis
be 240 km/h. A large per
completely destroyed.
- **STORM SURGE:** A storm
NW Bahamas. Given that
and Freeport in Grand Ba
to inundate these cities t
- **RAIN:** Rainfall of more th
very severe coastal flood
and the capital Nassau.
- All the above phenomen

POSSIBLE IMPACT and

- Impact: Severe to destru
such as hospitals and s
Freeport and Marsh Harb
- Local media reports, pho
- Needs: Search and Rescu

Analytical Brief

Increase of Arctic wildfires in 2019

ECHO A3 - Situational Awareness Team – 25 July 2019

Analytical Brief

Increase of Arctic wildfires in 201

ECHO A3 - Situational Awareness Team – 25 Jul

EXECUTIVE SUMMARY

A large number of forest fires,
season, have been occurring in
Alaska and Siberia. The daily he
times larger than the average. Th
in the region, linked to climate c
anomalies are much more signi
degrees more than average.

Given the projected continuou
boreal forests, Arctic fires can be
amounts of greenhouse gases an

Contents

1. The Arctic – definition and cha
2. Recent wildfires in the Arctic ..
3. Climate Change and rising tem
4. Situation outlook and future ri
5. Sources .....

Analytical Brief

Climate Change Impacts – Update from the latest WMO & IPCC

ECHO A3 - Situational Awareness Team – October 2019

EXECUTIVE SUMMARY

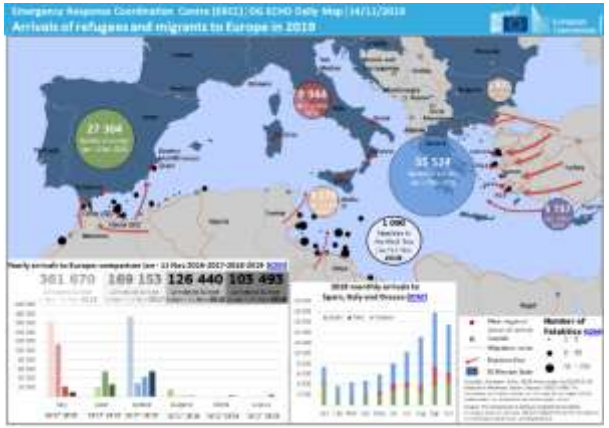
WMO and IPCC published two reports in September 2019 on the state of climate in the past 4 years and the latest scientific evidence on the impact of climate change on the oceans and cryosphere.

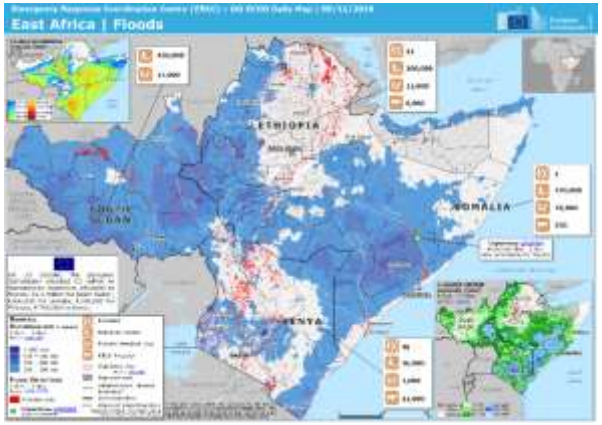
Global mean temperatures continue rising inexorably, following a similarly continuous rise in the greenhouse gas concentrations in the atmosphere. Climate extremes have long been predicted as a result of climate change and in the past years an increasing number of these were observed, most notably heatwaves. Most extremes were found to have a significant anthropogenic influence.

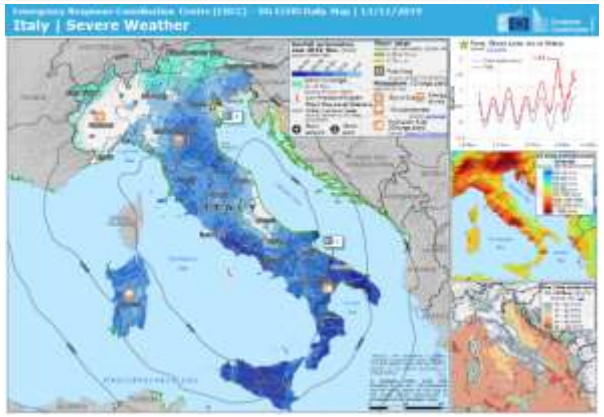
Sea levels are rising at an accelerated pace and ocean heat content is also continually increasing. Both are acutely relevant to future civil protection and humanitarian operations as they contribute to stronger tropical cyclones, increased risks of coastal flooding and population displacement from low-lying areas. Even under low emissions scenarios the number of people potentially affected is hundreds of millions.

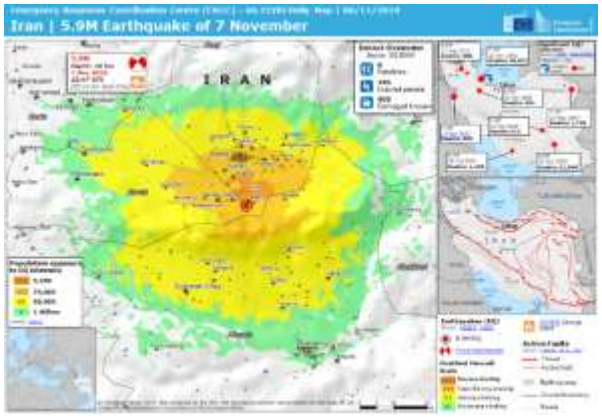
Extreme sea-level events resulting from these phenomena that used to happen every 100 years are now being observed to happen yearly in some places and this tendency is expected to expand to numerous coastal areas around the world.

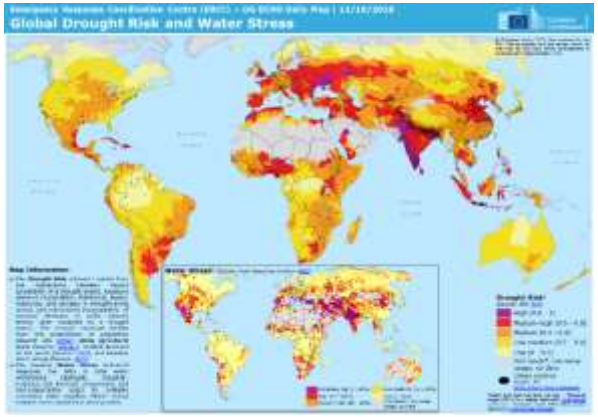
In the WMO report it is stated that "there is growing recognition that climate impacts are hitting harder and sooner than climate assessments indicated a decade ago." The civil protection and humanitarian organisations must consider this new situation seriously and act accordingly.

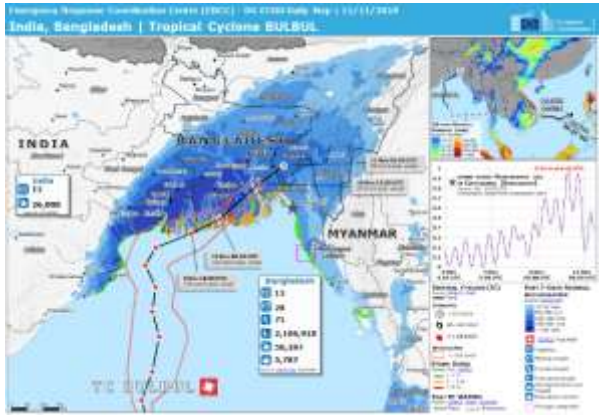


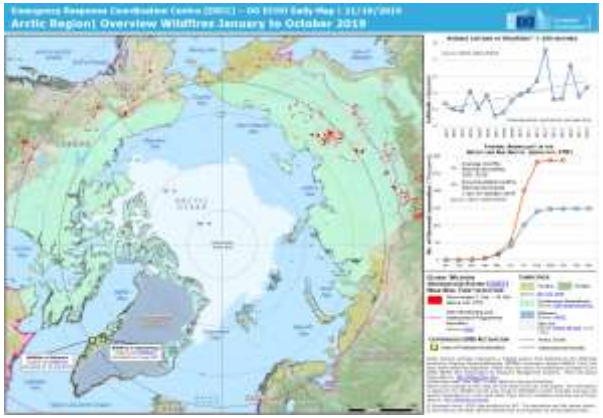


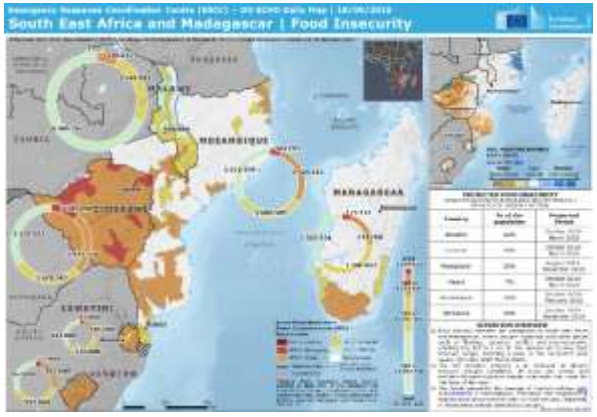












European Commission

Some considerations

- Brief and to the point
- Main messages first
- Tailored to the user
- Assessing possible options and their possible consequences/implications
- Political or other sensitivities into account
- Duly cleared
- Distribution

For whom?

European Commission

For what purpose?


response to cyclone
Civil Protection and Human
by EU Civil Pr
EU response

How do we talk to each other?

What information do policymakers need?

- Anticipation (monitoring, forecasts, evolution, updates)
- Analysis (impact, severity and impact, consequences, context)
- Internal and external communication messages
- Next steps… *So what now? How do we react? What options do we have?*
- **Clarity, briefness, timeliness, reliability**

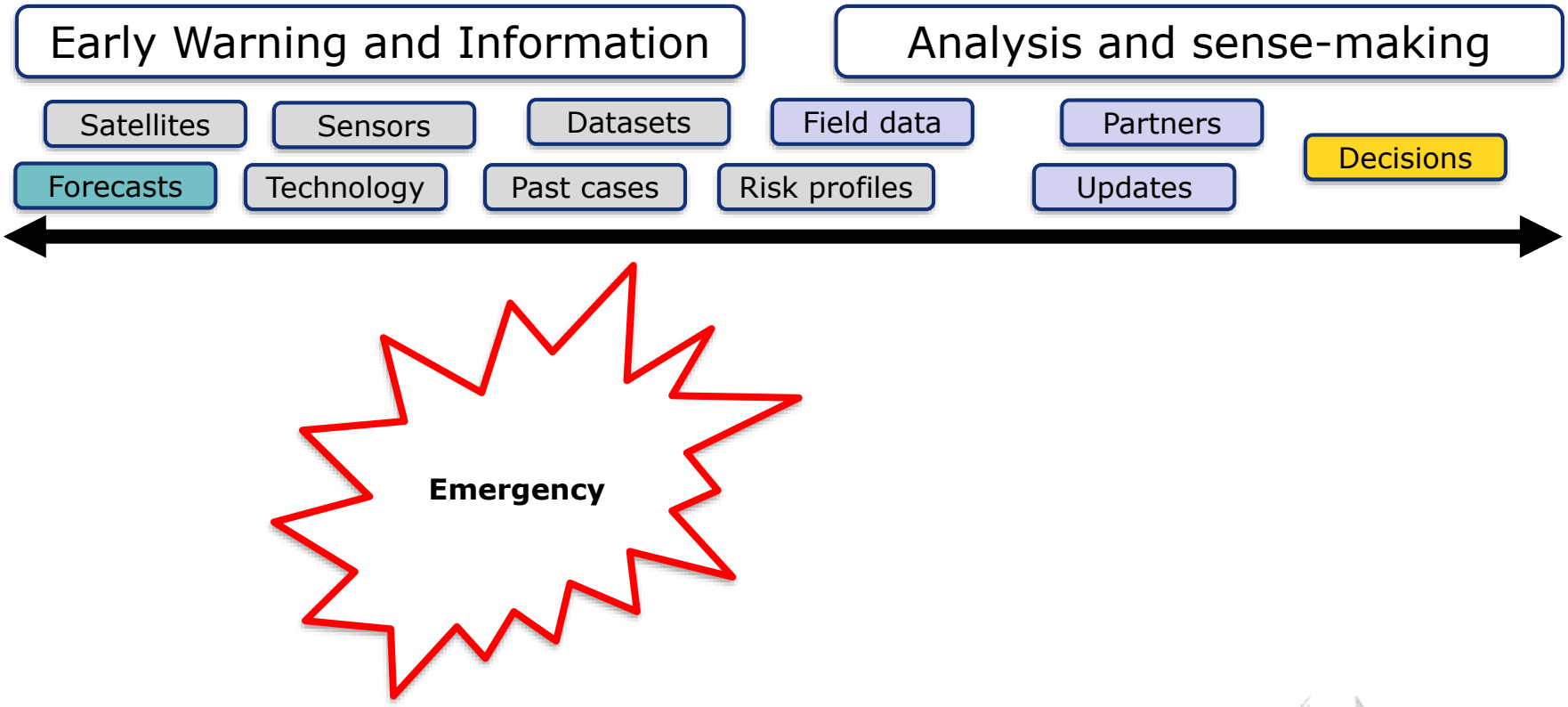
What policymakers should expect from scientists?

- Scientific integrity
- Accuracy vs uncertainty
- Completeness vs timeliness
- Clarity vs length

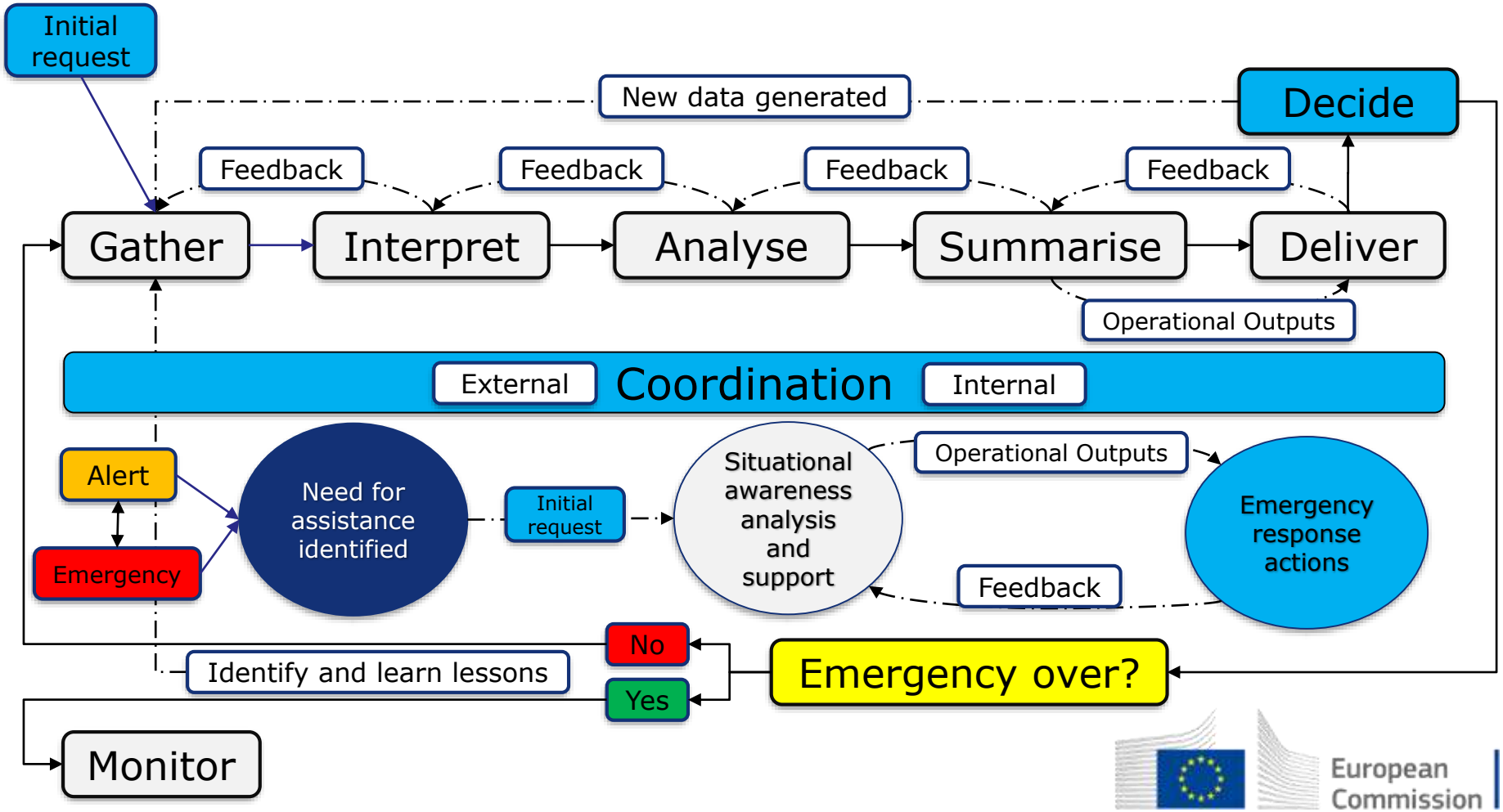
What do scientists need from policymakers?

- Clear mandate and framework
  - Clarity in the questions to be answered
  - Knowledge about options that **can** be considered
  - Realistic albeit flexible deadlines
- Access to data, resources and infrastructure
- A bridging team (situational awareness and analysis teams)
  - Translate scientific information into operational information
  - Liaising and engaging with crisis centres and policymakers
  - Responsibility

Before and during the emergency



Information flow for situational awareness



Tools used for decision and policymaking

- Crisis and emergency centres
- Crisis management mechanisms
- Intelligence, security, and analysis
- Tailored scientific information for operations
- Diplomatic and field actors
- Global or regional partnerships
- Exercises

Tools used for scientific and situational awareness analysis

- Technology and infrastructure; data collection systems (e.g. satellites, Copernicus programme)
- Early warning and information systems
- Scientific institutions
- Analytical and situational awareness cells
- Geographic Information System (GIS) expertise

Evidence-based policymaking

- Data to actionable and operational information
- Unknowns to knowns
- Balancing expectations while meeting needs
- Structural and conjunctural restrictions
  - Time, access to data, resources…

What information, and for what decision?

- Actionable situational awareness
- Bridging teams and fusion centres

ec.europa.eu/echo/

ec.europa.eu/echo/aid/factsheets_en.htm

https://erccportal.jrc.ec.europa.eu/About-ERCC

@ec.humanitarian.aid

@eu_echo

EU Civil Protection
& Humanitarian Aid
Operations

European Commission