Disaster Risk Management Knowledge Centre -DRMKC

Supporting EU policies part 2

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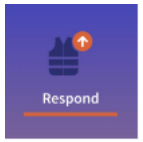
Joint Research Centre
the European Commission's
in-house science service

DRG – Disaster Resilience Goals

1. Anticipate
To improve risk assessment, anticipation, and disaster risk management planning. The complexity and interdependency of risks the EU faces makes it important to identify vulnerabilities in critical sectors, and anticipate hazards and threats.

2. Prepare
To increase risk awareness and preparedness of the population to reduce the impact of disasters.

3. Alert
To enhance early warning. This ensures that warning messages across the national, regional and local levels reach the right people on time.



4. Respond
To enhance the EU Civil Protection Mechanism response capacity. Through this, the EU can provide more help to fill critical gaps and avoid further deterioration of the situation when the capacity of a country is overwhelmed

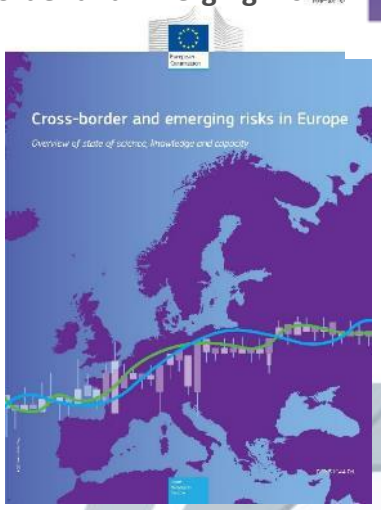
5. Secure
To ensure a robust civil protection system. Civil protection systems must remain operational 24/7, during and after disasters, when they are most needed.

European Commission

Bridging Policy Needs with Scientific Evidence for Effective Action

Recommendations for NRA

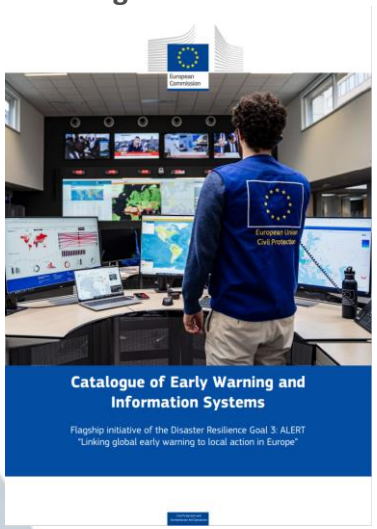
Understanding Cross Border and Emerging Risks



Copernicus Europe's eyes on Earth

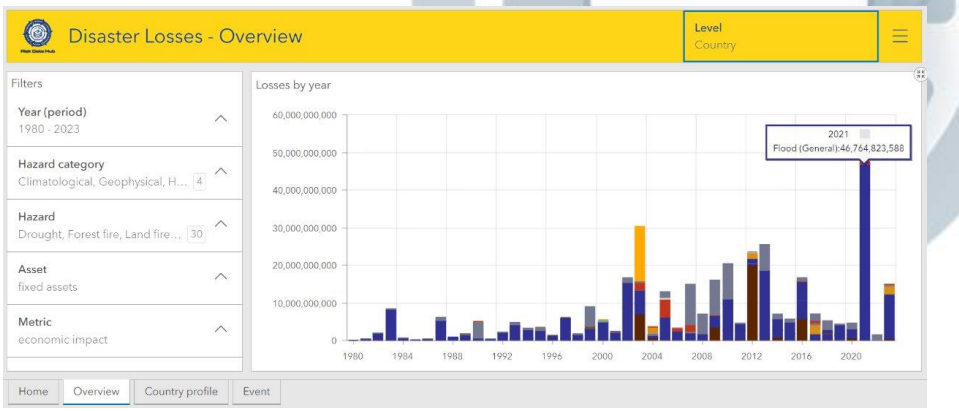
Emergency Management

Catalogue for EWS



Risk Data Hub

EU wide Damage and Loss Data

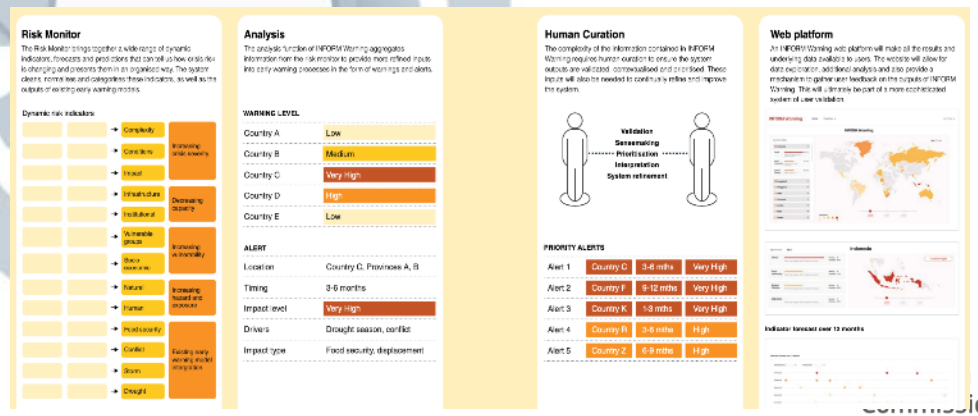


DRMKC

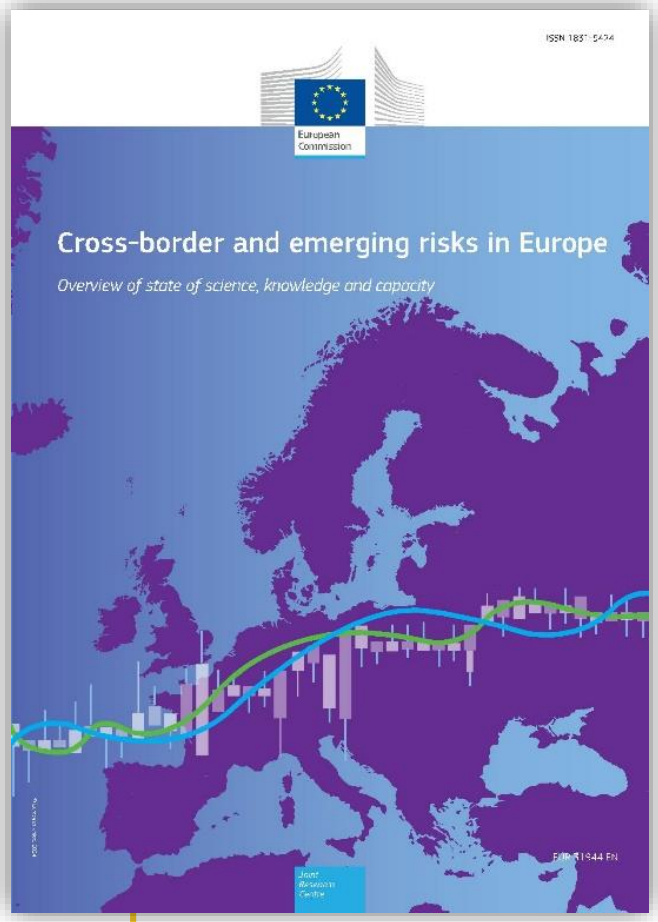
INNOVATION PARTNERSHIP KNOWLEDGE

Crisis Anticipation and mid-term EWS

INFORM SHARING CRISIS ANALYSIS



Cross-Border and Emerging Risks

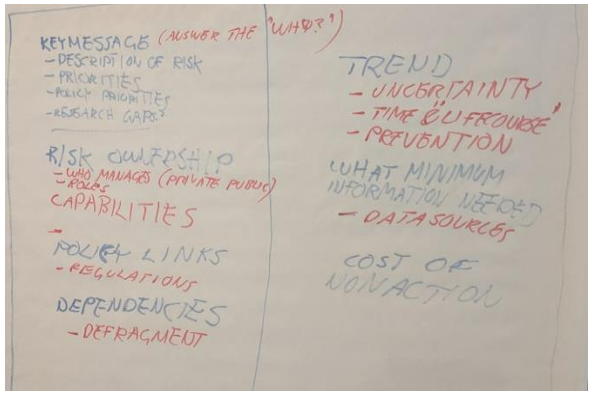


Workshop on Cross-border and emerging risks

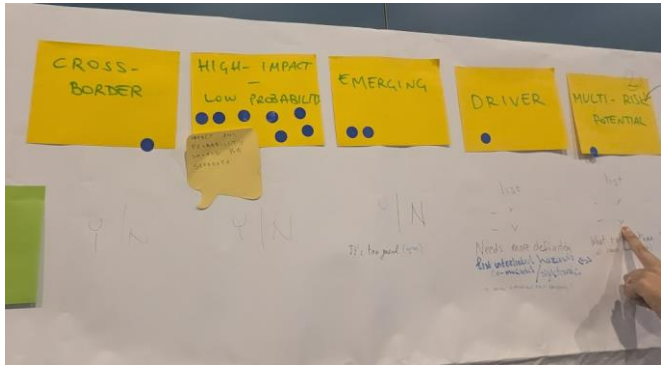
13 September 2024

Exercise 1: Risk classification and risk interaction
Introducing the concept of the complexity of risks.

Exercise 2: Risks summary card templates



Exercise 3: Comparative overview table of risks



Exercise 4: Multiple and complex risks through causal loops

European Commission

Knowledge Management

“The point of exchanging knowledge
Is to avoid making old mistakes,
and only make new mistakes”

©gordzam - stock.adobe.com

European Commission

Disaster Risk Management Knowledge Cent

Union Civil Protection Knowledge Network

KNOWLEDGE GAPS

- **Early Warning Systems and Monitoring**: Better understanding of multi-hazards and cascading risks, especially those occurring simultaneously or impacting multiple sectors and systems. Lack of common global terminology / standards.
- **Data Accessibility and Missing Information**: Quantifying resilience deficits and understanding how disasters escalate. Accessibility, availability and usability of data for monitoring and forecasting remains a concern.
- **Public Warning Systems and Communication**: Clear guidance and protocols, including stakeholders' role and definition of thresholds, as well as ensuring interoperability at all levels. A common language is vital in this regard.
- **Risk Assessment for Emerging Systemic Risks**: Comprehensive framework to assess emerging systemic risks, focusing on root causes and interconnections. Methodological challenges arise from uncertainty, reliability of data and transboundary risks.
- **DRM Governance**: Definition of acceptable risk tolerance levels, clarifying terminology for a common understanding, and improving communication between scientists, policymakers, and citizens.

EU POLICY DEVELOPMENTS

- The **European Climate law**, entered into force in 2021, which requires Member States to enhance climate resilience and improve adaptive capacity.
- **Assessments** by the Commission on Member States' progress on adaptation (report in October 2023). Country-specific recommendations in December 2023.
- The first ever **European Climate Risk Assessment** is set for publication in 2024, offering a comprehensive overview of major EU risks and discussing pathways to bolster resilience.
- The **EU Critical Entities Resilience Directive**, in force since January 2023, aims to ensure critical entities remain resilient in evolving disaster risk landscapes, including cross-sectoral or cross-border challenges that may impact essential service provision. Member States are obliged to transpose it by October 2024 and identify critical entities by July 2026.

INNOVATIVE SOLUTIONS

- **Risk Assessment**: Selecting the appropriate assessment tool for various situations, including time-based assessments, scenarios, indicators-based approaches, and local data analysis, with consideration for the incorporation of social science.
- **Early Warning Systems and Monitoring**: Standardization of indicators globally. An example of technological advancement is Galileo Emergency Warning Satellite System and its use of pre-set translation for alerts.
- **Communication**: Targeted communication based on demographics and technological advancements, like the Alert Cell Broadcast in Greece.
- **DRM Governance**: Measuring risk perception in all levels of society. Good practices include the IMPACTO project aiming to create a Spanish national disaster loss database aligned with the JRC Risk Data Hub.
- **Artificial Intelligence**: AI helps in analysing vast data for risk assessments, downscaling hazards impact, and combining different types of data in support of early warning systems. Additionally, AI can enhance the management of compound, systemic, and multi-hazard risks.
- **Foresight**: Helps anticipate and prepare for future circumstances, improving awareness and enhancing risk communication. The OECD Foresight Toolkit offers 25 future scenarios for policymakers.

ROLE OF SCIENCE

Science can help build stronger resilience and implement disaster resilience goals by:

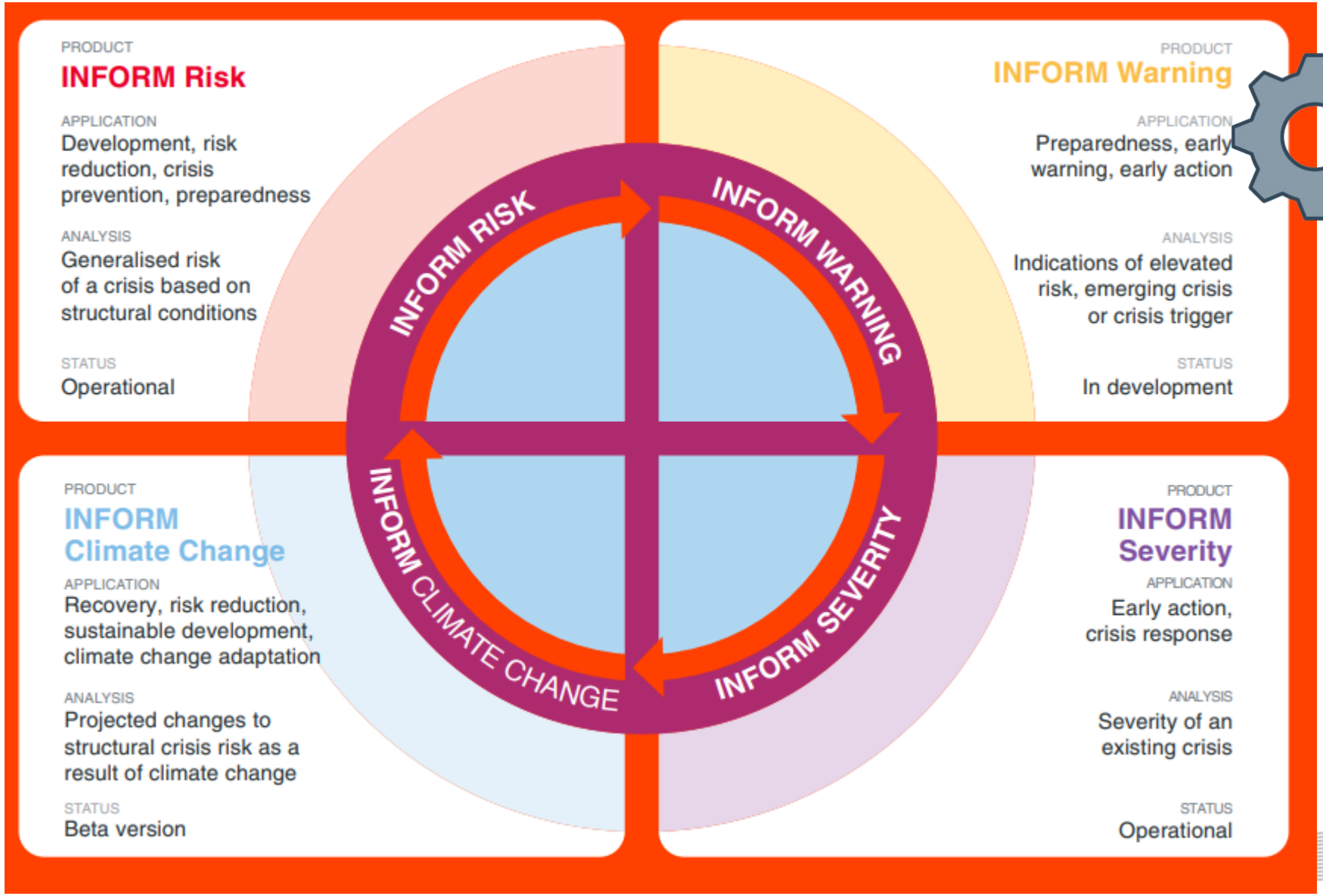
- Providing insights to **fill knowledge gaps**.
- Promoting advancements for more global, faster, effective, and efficient **geo-targeted alerts**.
- Addressing and communicating uncertainty and defining a **common language and glossary** that is easily understood by all key actors involved in the decision-making process.
- Providing transparent and accessible **scientific data**, to ensure public confidence and informed decision-making and anticipating future scenarios.
- Fostering **knowledge exchange** and strengthened collaboration among scientific communities, civil protection authorities, and operational actors. European examples illustrate the impact of enhanced cooperation in disaster management such as the Knowledge Network that acts as innovation catalyst.
- From a national perspective, science supports policy decision making also in the **draft and implementation of EU-funded projects**.

Note: *To have a broader overview of the Outcomes of the 7th DRMKC Annual Seminar, please consult the proceedings report, in particular chapter 3 'Key messages from the discussion'.*

https://drmkc.jrc.ec.europa.eu/events-news/drmkc-annual-seminars/7th-drmkc-annual-seminar

DRMKC - Innovation pillar

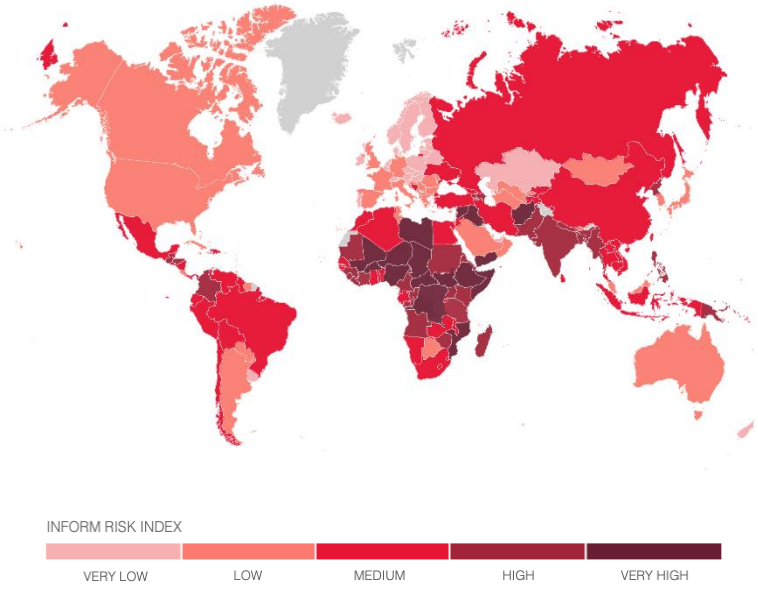
Suite of quantitative, analytical products to support decision-making at different phases of the humanitarian disaster management cycle at global level



Launch
June 2025

INFORM RISK

Risk of a disaster that exceeds national capacity to respond (next 3-5 years)



Components of risk covered by the INFORM Risk Index

INFORM RISK INDEX

DIMENSIONS

Hazard and exposure	Vulnerability	Lack of coping capacity

CATEGORIES

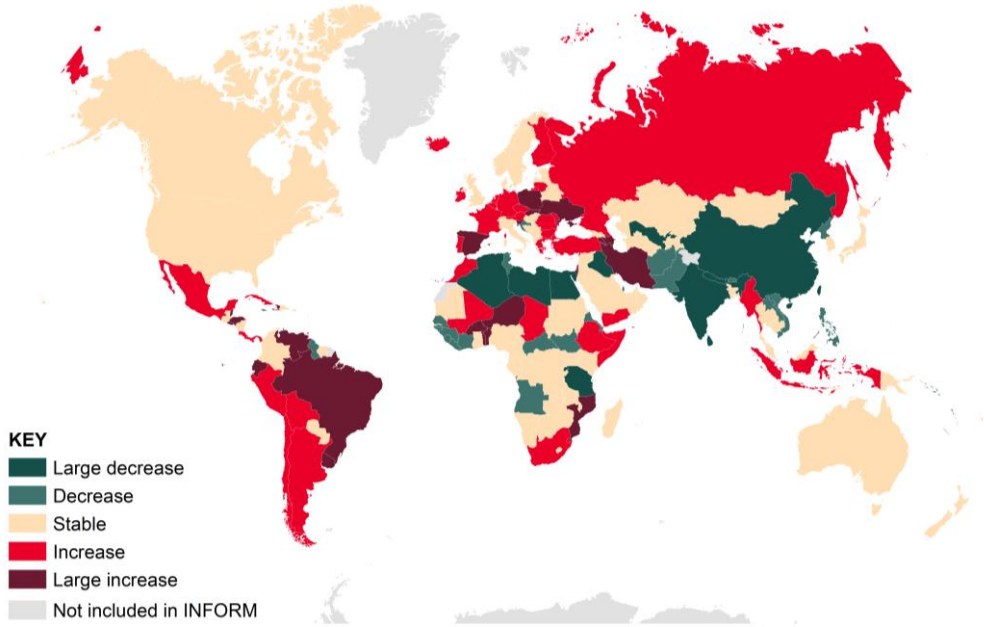
Natural	Human	Socio-economic	Vulnerable groups	Institutional	Infrastructure

COMPONENTS

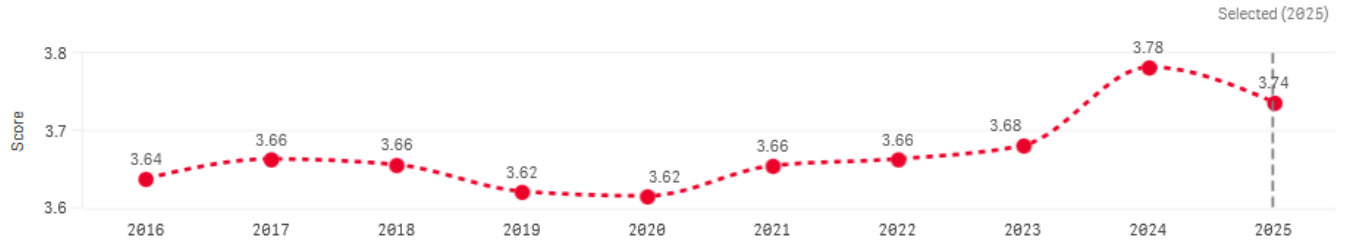
Earthquake	Current conflict intensity	Development and deprivation (50%)	Uprooted people	DRR	Communication
Tsunami	Projected conflict risk	Inequality (25%)	Other vulnerable groups	Governance	Physical infrastructure
Drought		Aid dependency (25%)			Access to health system
Flood					
Tropical cyclone					
Epidemic					

INFORM RISK INDEX 2025

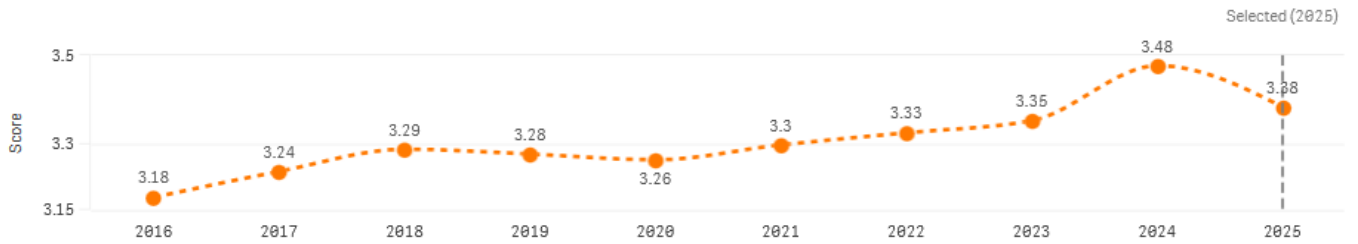
Changes in the INFORM Risk Index 2016 – 2025



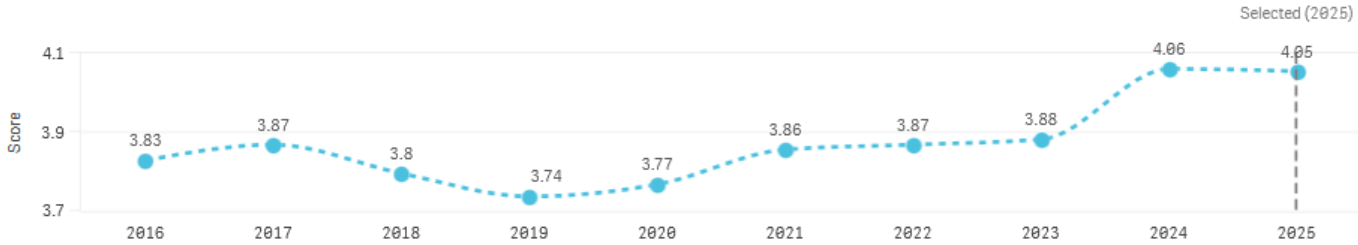
INFORM Risk Index Average Trend



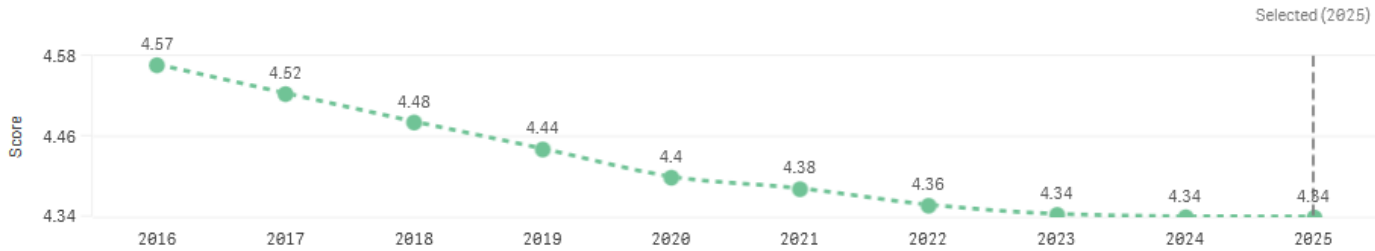
Hazard & Exposure Index Average Trend



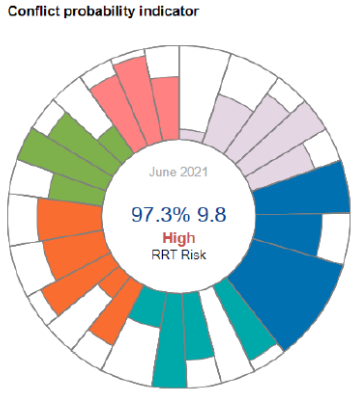
Vulnerability Index Average Trend



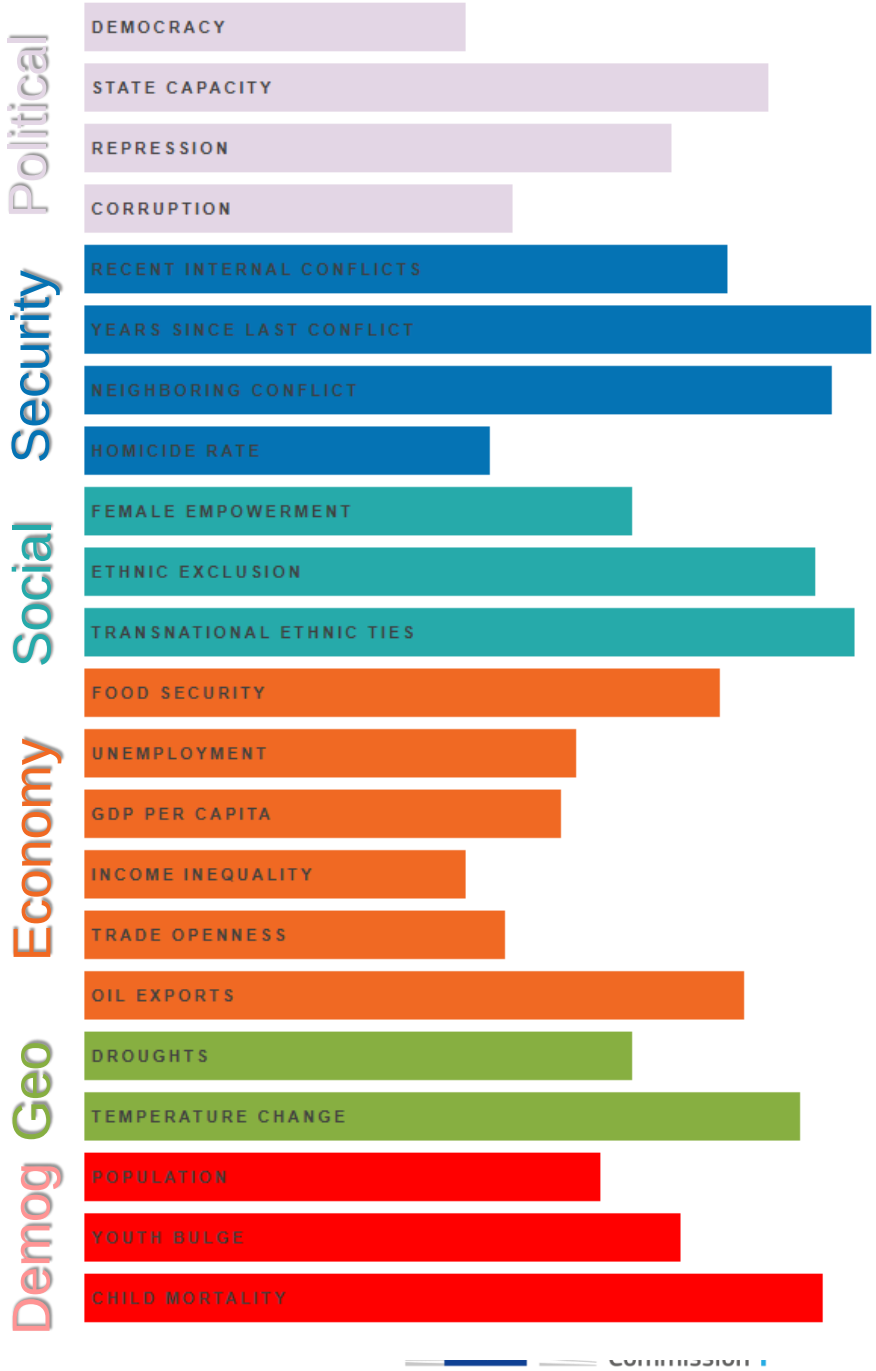
Lack of Coping Capacity Index Average Trend



Global Conflict Risk Index (GCRI) supporting external security policies



- Main input to the **EU Conflict Early Warning System**
- **Armed conflict risk** (probability & intensity) at country level in next **1-4 years**
- Focus on internal conflict: **State-based, Non-state conflict, One-sided violence**
- Models use **22 indicators** in **6 risk areas**



DRMKC - Innovation pillar: The Risk Data Hub

Supporting the EU Climate Change Adaptation Strategy and the EU effort in achieving the priorities of the Sendai Framework for Disaster risk Reduction

Modules

Disaster Risk

Curated European-wide risk data

Vulnerability to Disasters

Composite vulnerability index

Disaster Loss data

Historical loss and damage data from open sources

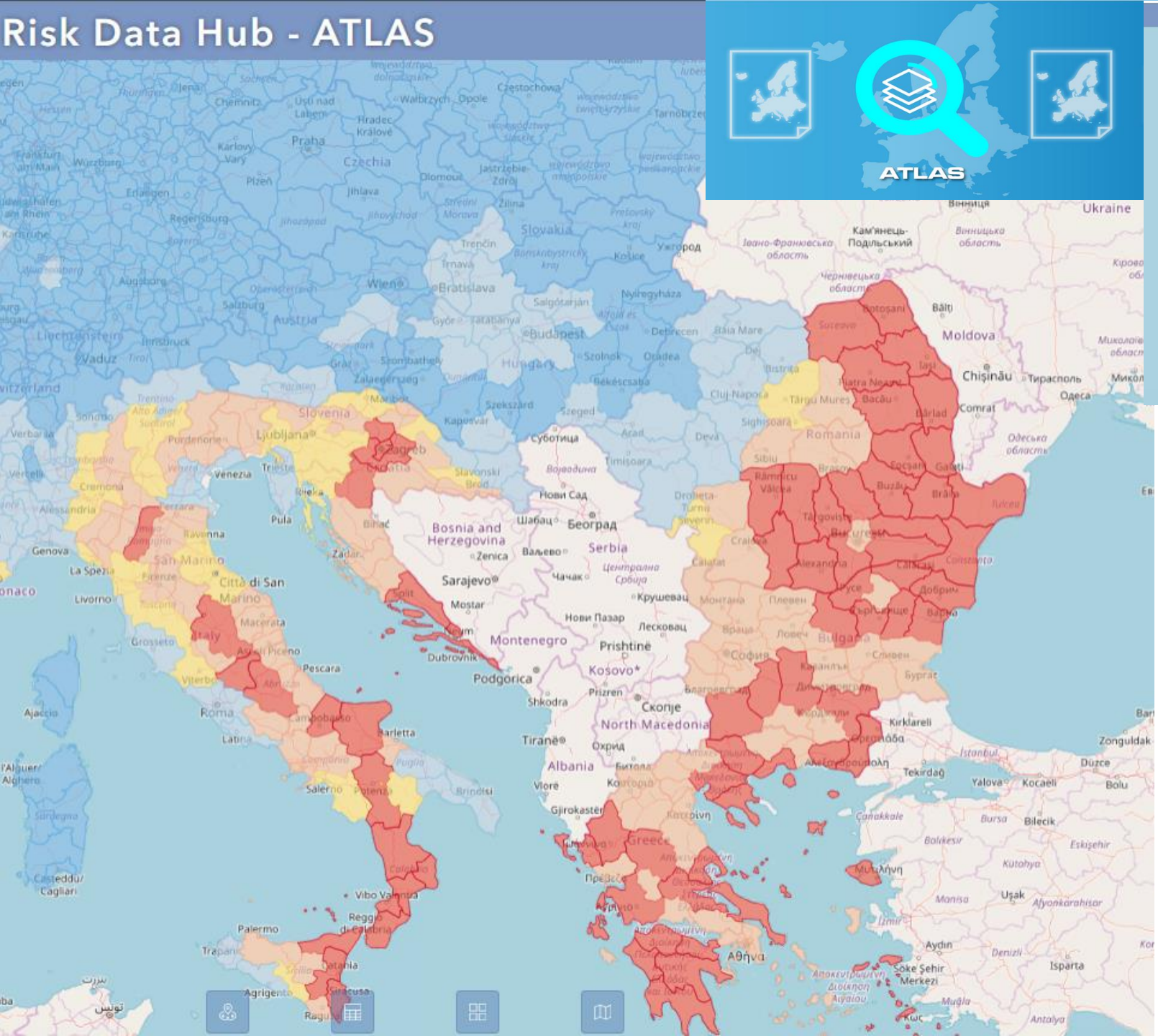
Hosted projects

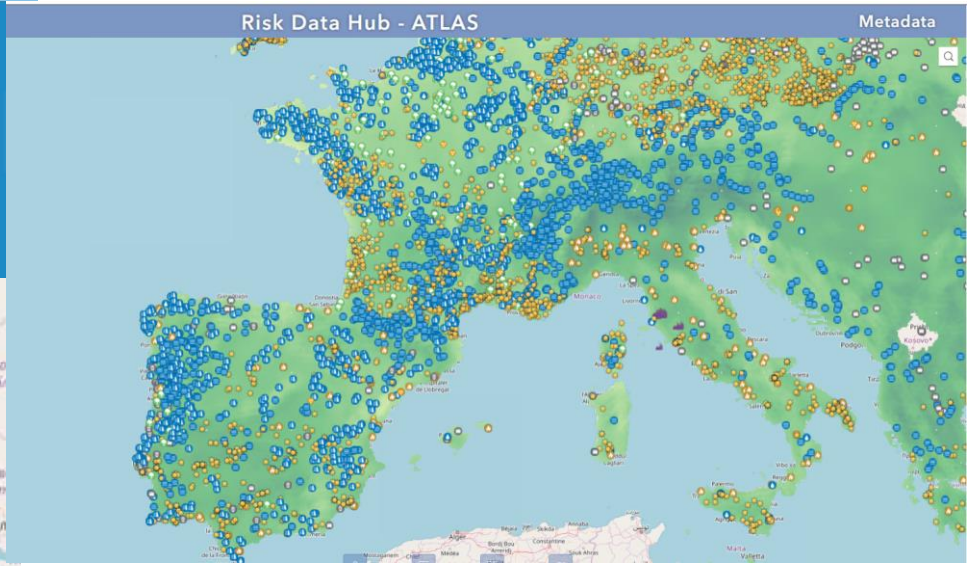
Outcomes from EU funded DRM projects

Knowledge library

A learning and training space

European Commission

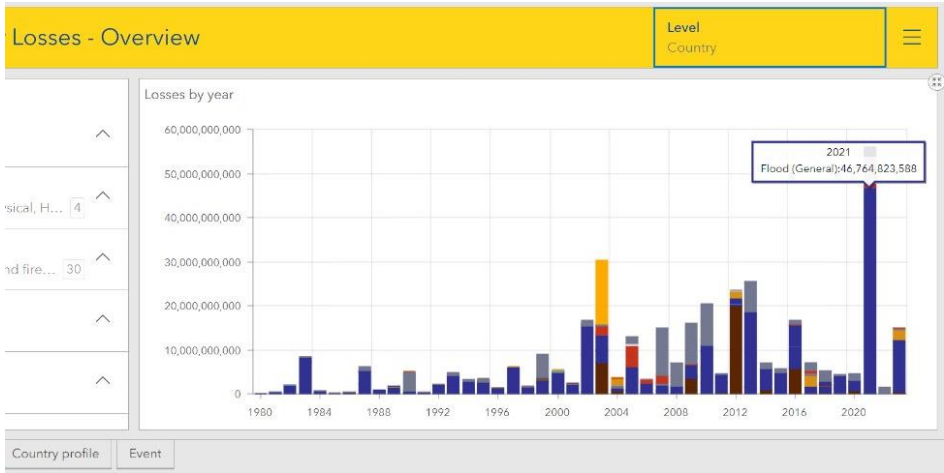




Risk Data Hub Atlas,

https://drmkc.jrc.ec.europa.eu/risk-data-hub/#/

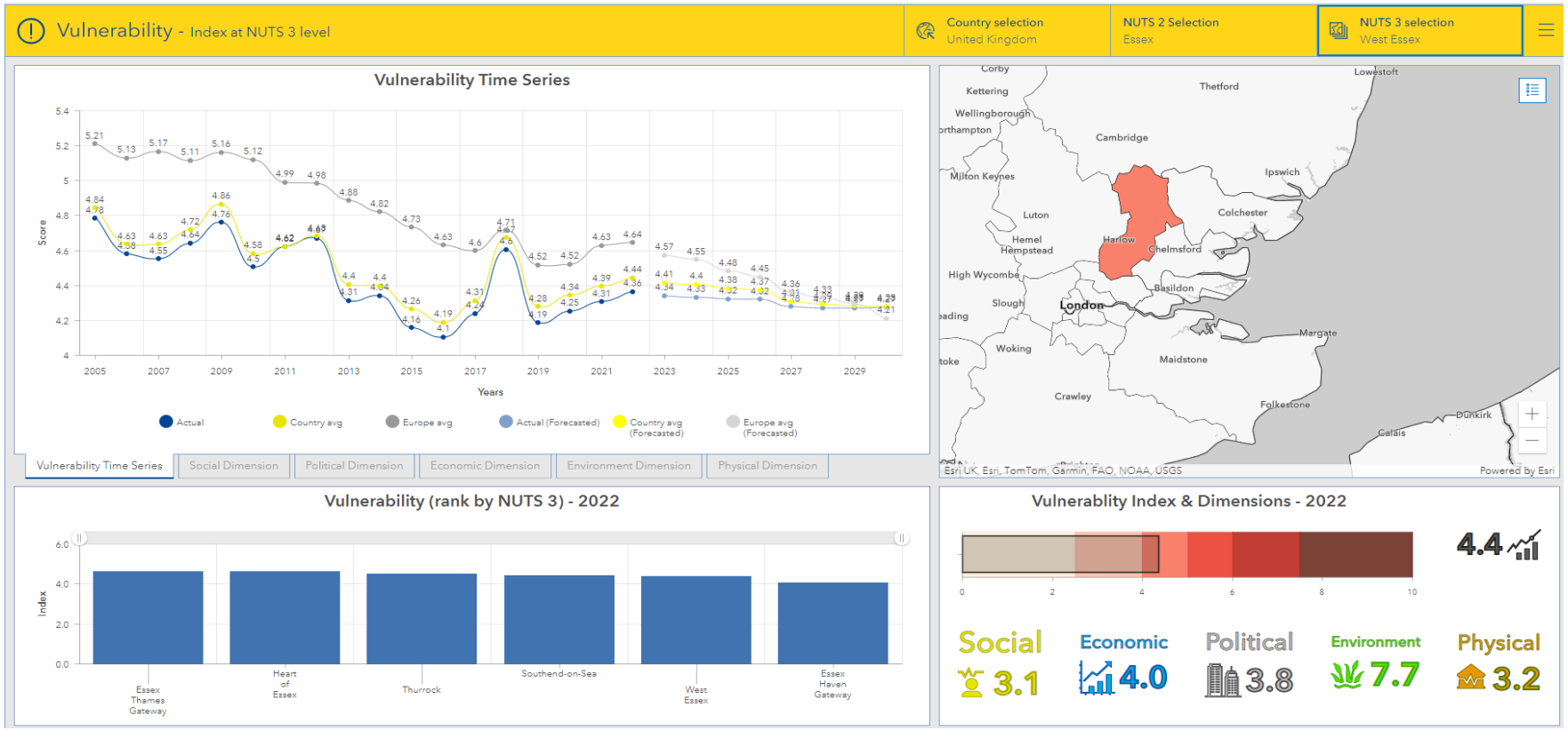
Vulnerability dashboard and more

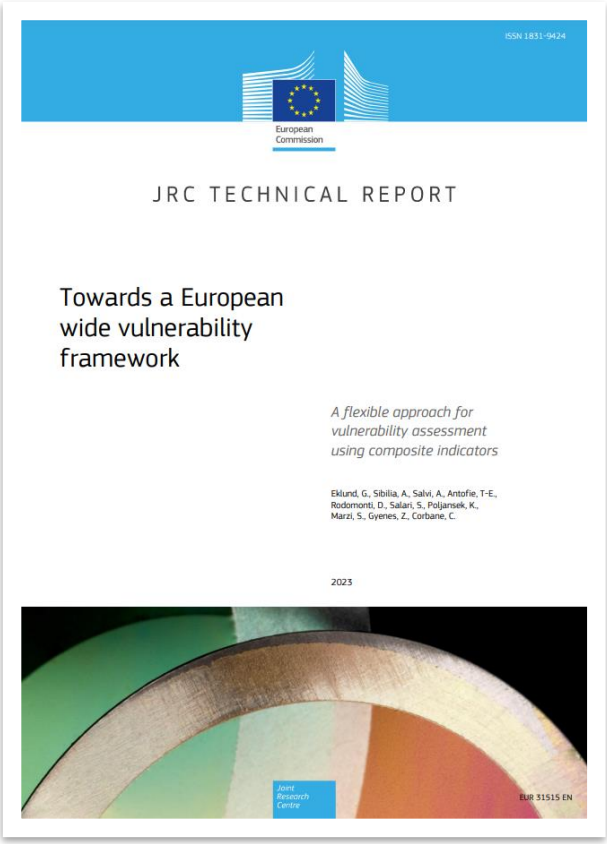


Risk Data Hub: vulnerability dashboards

Eklund, G., Sibilia, A., Salvi, A., Salari, S., Rodomonti, D., Poljansek, K., Marzi, S., Gyenes, Z., Corbane, C., Antofie, T-E., *Towards a European wide vulnerability framework*, Publications Office of the European Union, Luxembourg, 2023, doi: 10.2760/353889, JRC118850

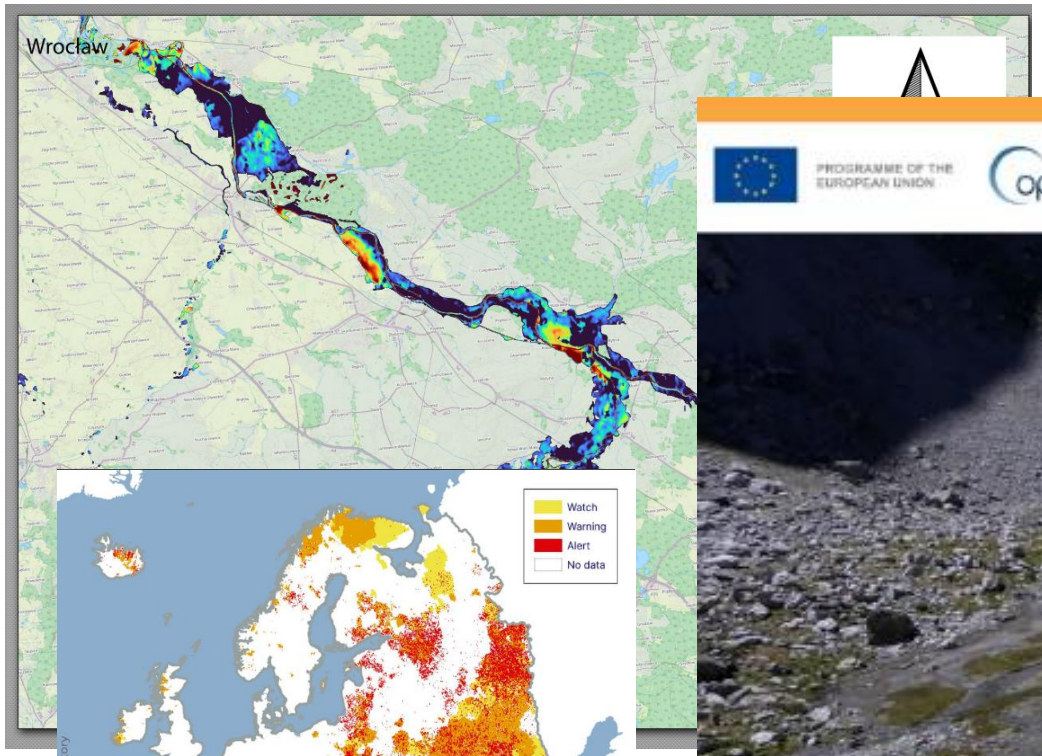
Eklund, G., Sibilia A., Salvi A., Antofie T-E., Rodomonti D., Salari S., Corbane C., Pal J., Melchiorri M., *Vulnerability to Disasters in Europe*, Disaster Risk Management Knowledge Centre, European Commission, 2022, https://drmkc.jrc.ec.europa.eu/risk-data-hub#/vulnerability-in-europe

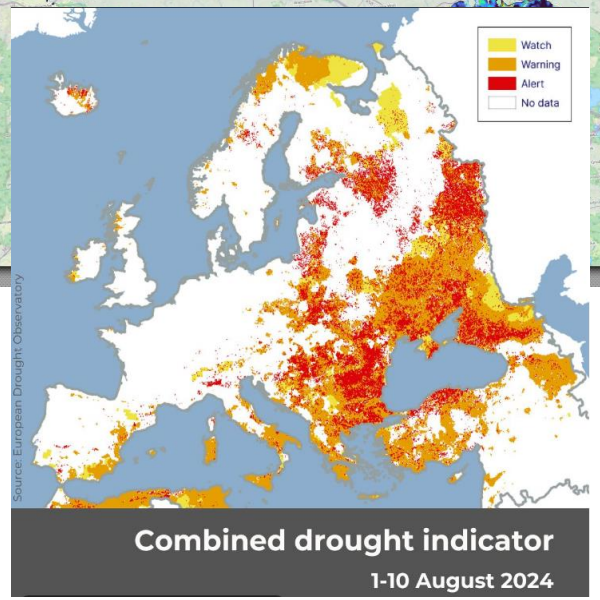




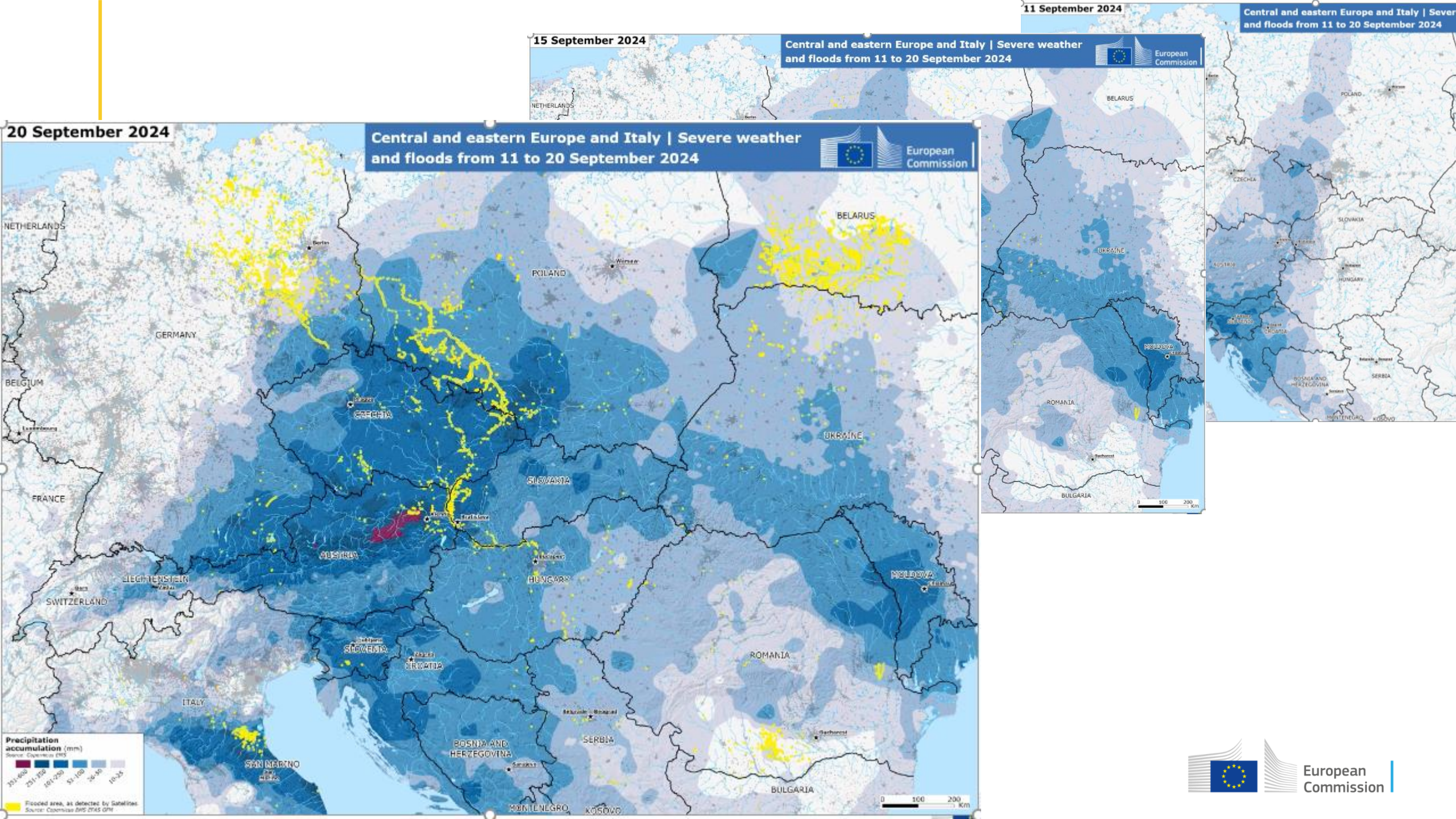
European Commission

Copernicus Emergency Management Service (CEMS) – updates





[Drought Observatories (copernicus.eu)]


15 September 2024
Central and eastern Europe and Italy | Severe weather and floods from 11 to 20 September 2024
European Commission
11 September 2024
Central and eastern Europe and Italy | Severe weather and floods from 11 to 20 September 2024
20 September 2024
Central and eastern Europe and Italy | Severe weather and floods from 11 to 20 September 2024
European Commission
NETHERLANDS
BELGIUM
GERMANY
FRANCE
SWITZERLAND
LIECHTENSTEIN
AUSTRIA
CZECHIA
POLAND
BELARUS
UKRAINE
SLOVAKIA
HUNGARY
MOLDOVA
ROMANIA
SLOVENIA
CROATIA
ITALY
SAN MARINO
BOSNIA AND HERZEGOVINA
SERBIA
MONTENEGRO
KOSOVO
BULGARIA
Precipitation accumulation (mm)
Flooded area, as detected by Satellites

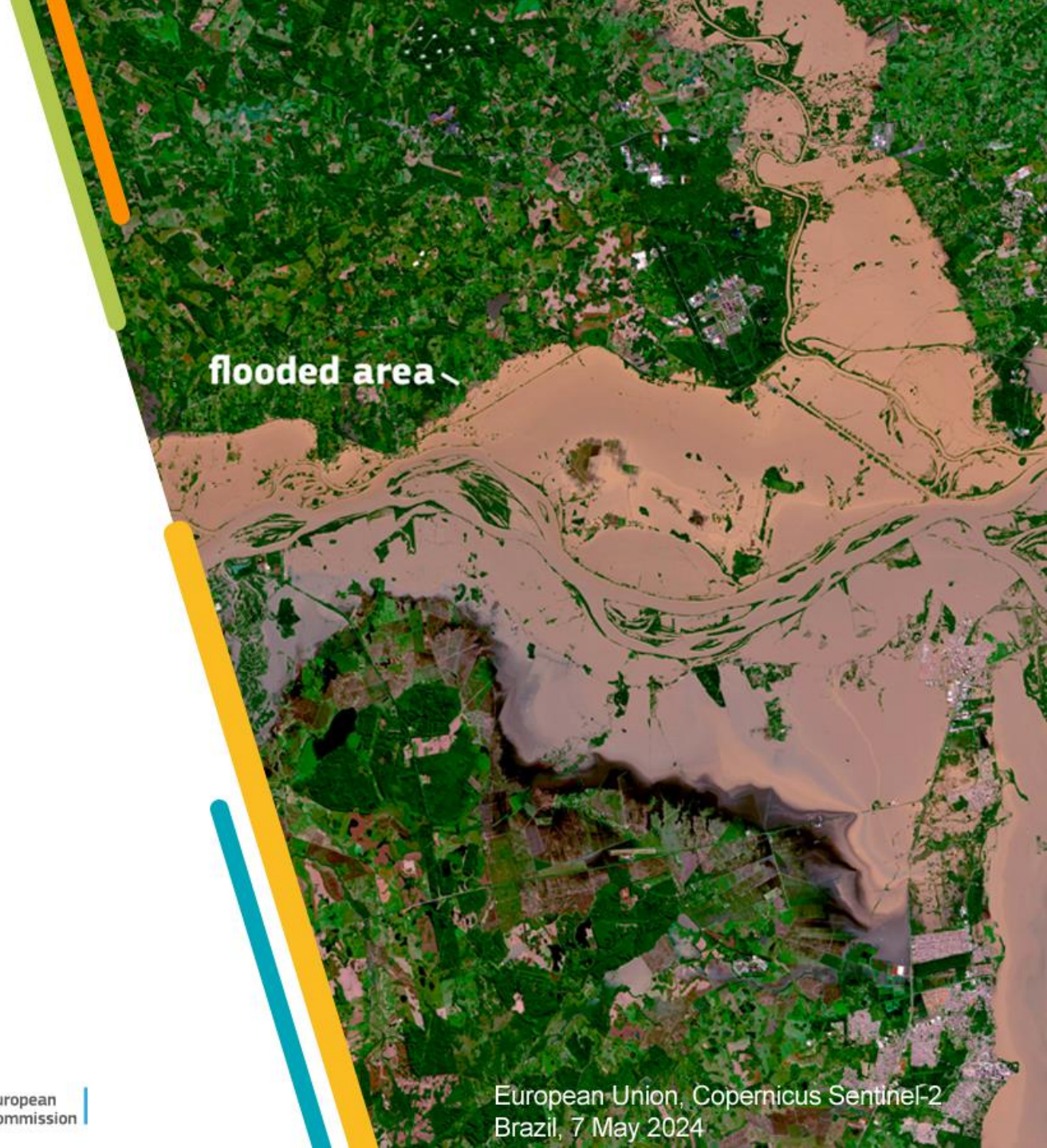
SAVE THE DATE

The Copernicus Emergency Management Service

Annual Conference

11 October 2024

Online

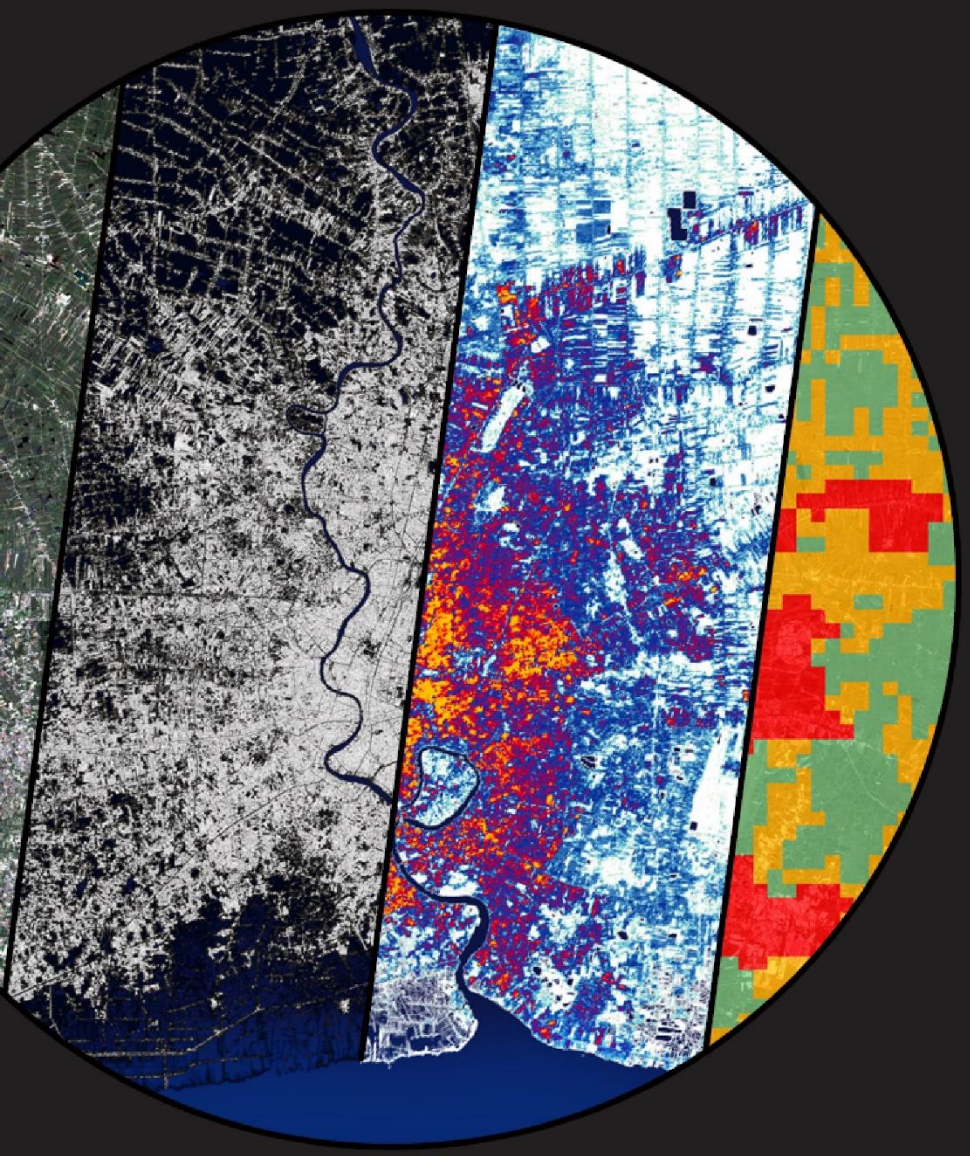


European Union, Copernicus Sentinel-2
Brazil, 7 May 2024

PROGRAMME OF THE EUROPEAN UNION

implemented by

European Commission



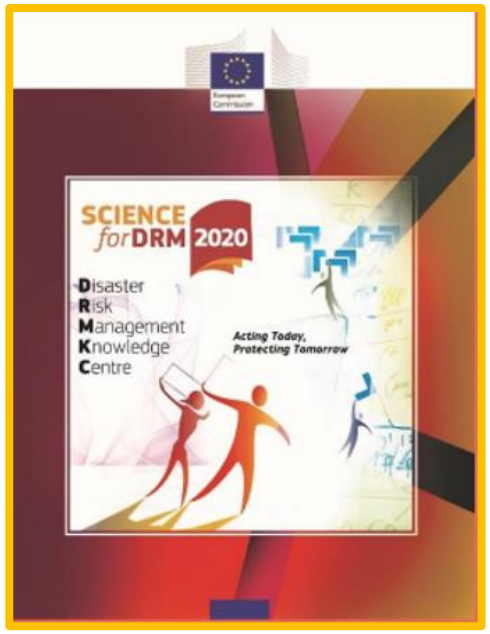
Atlas of the Human Planet 2024

30 OCTOBER
online event

Commission staff can attend the event **in presence** in Rue de la Loi 102, Brussels upon registration:
https://ec.europa.eu/eusurvey/runner/AtlasHumanPlanet

European Commission

Want to know more?



Knowledge Synthesis

DRMKC Flash News / UCP KN Newsletter

Training

European Commission