

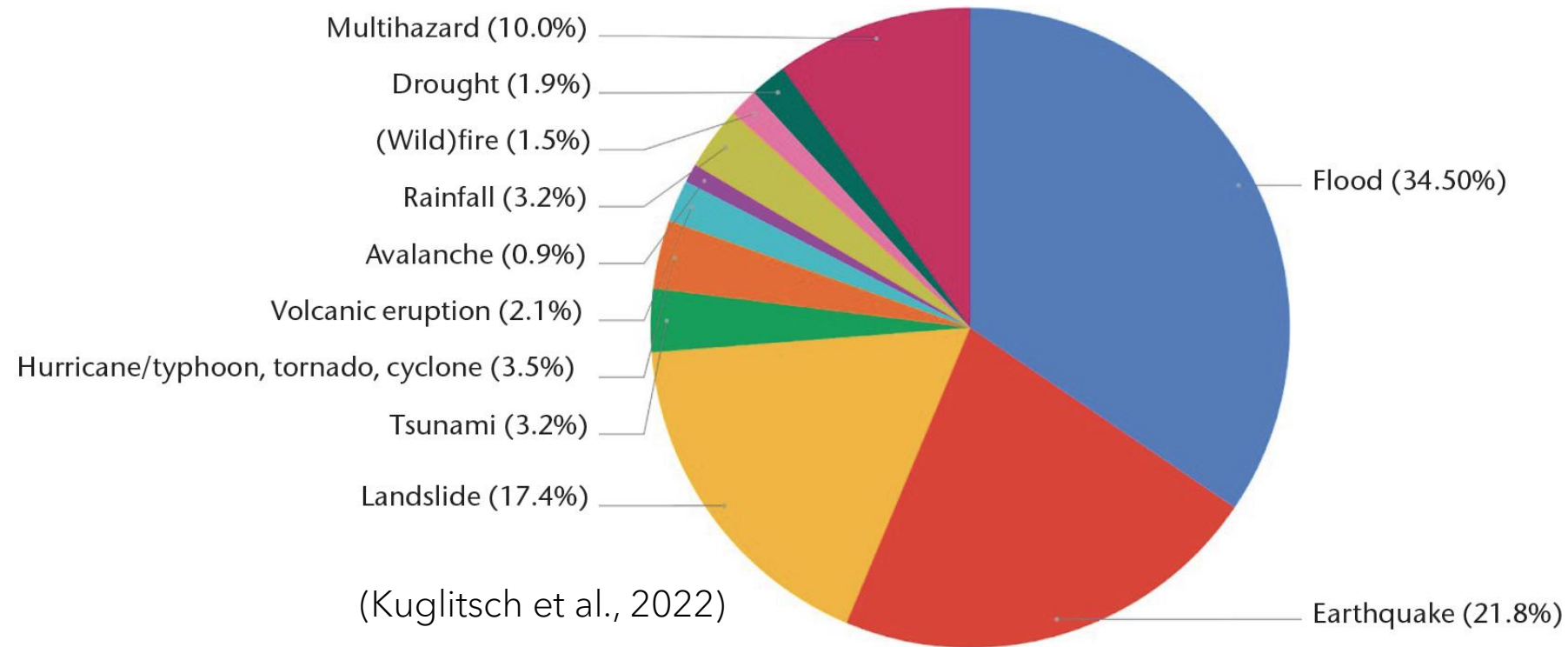
International Standards for AI in Disaster Management

Monique M. Kuglitsch, Ph.D.
Fraunhofer Heinrich Hertz Institute, Berlin, Germany

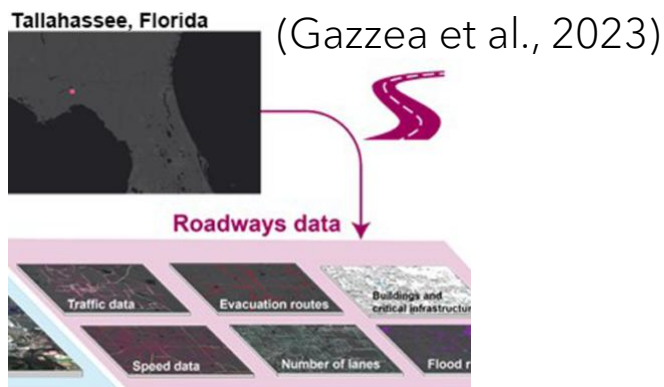
Brussels, December 2025



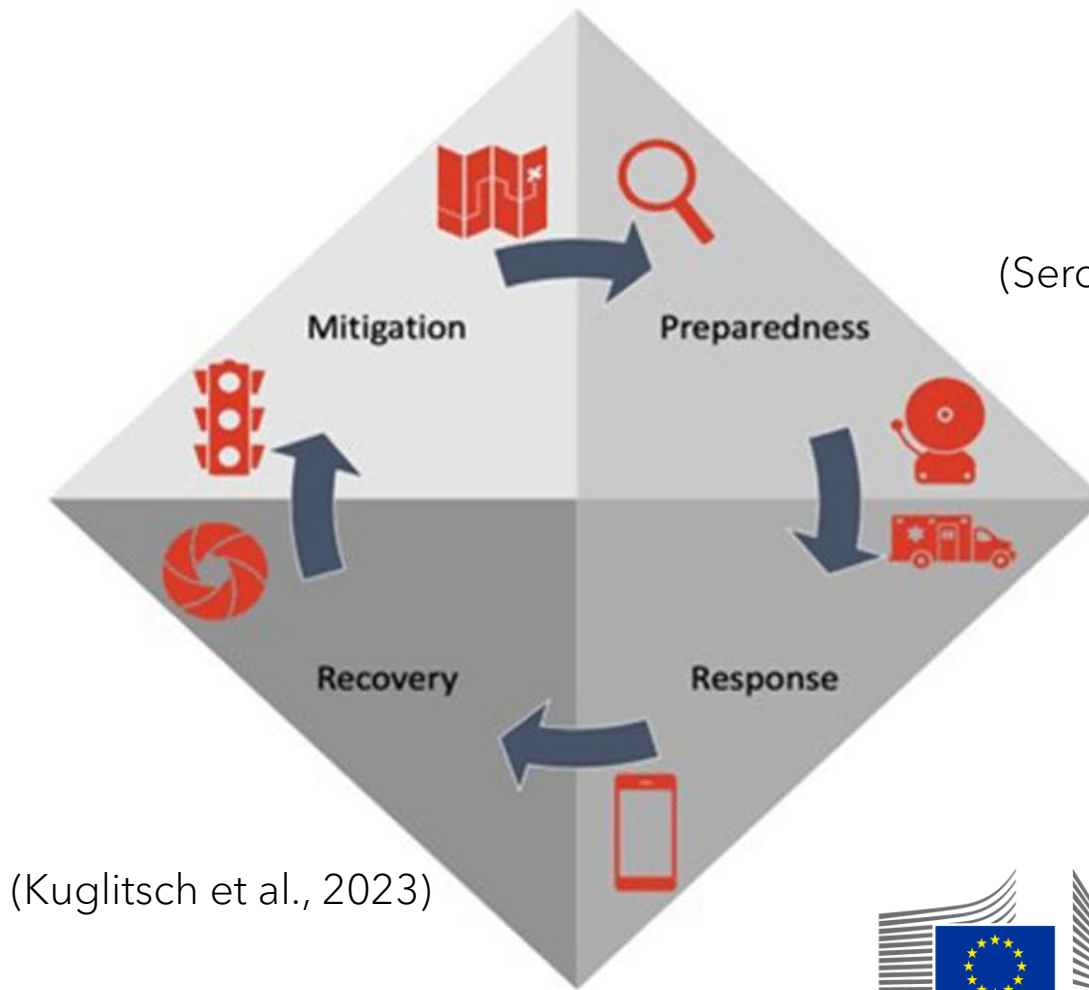
AI in disaster management



AI in disaster management



(Kuzin et al., 2021)



(Sercan Kucuksahin/Anadolu Agency/Getty)



European
Commission



Added value

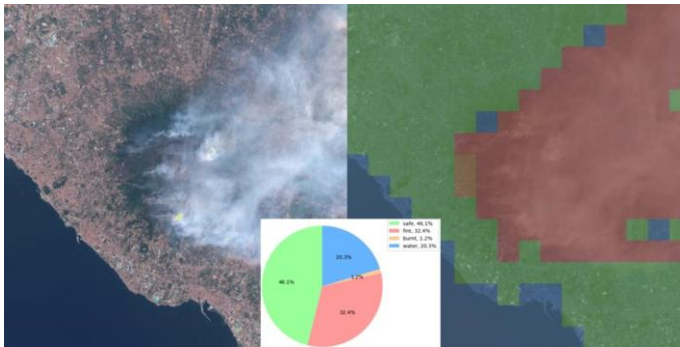


AIFS OPERATIONAL

data fusion

prediction

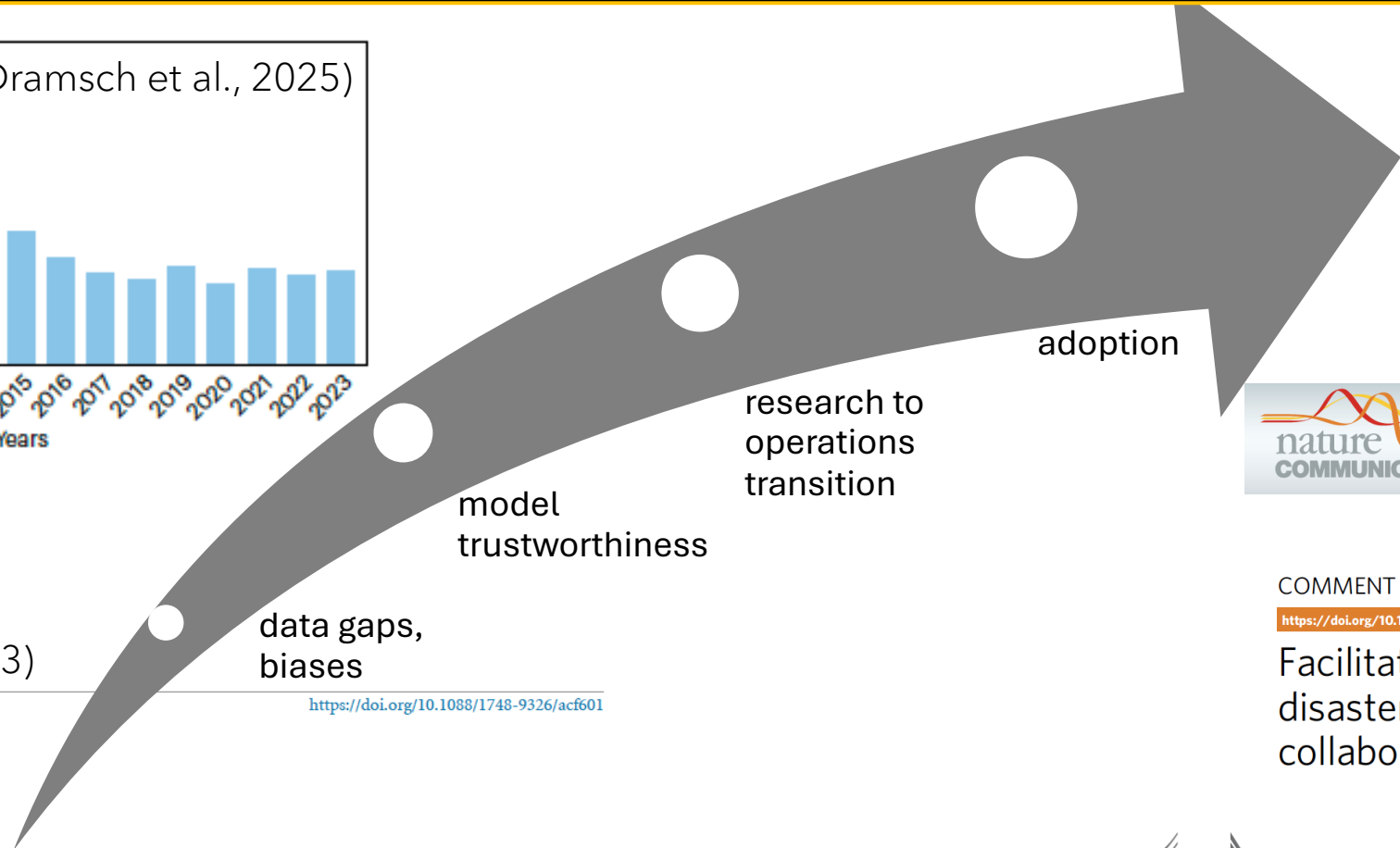
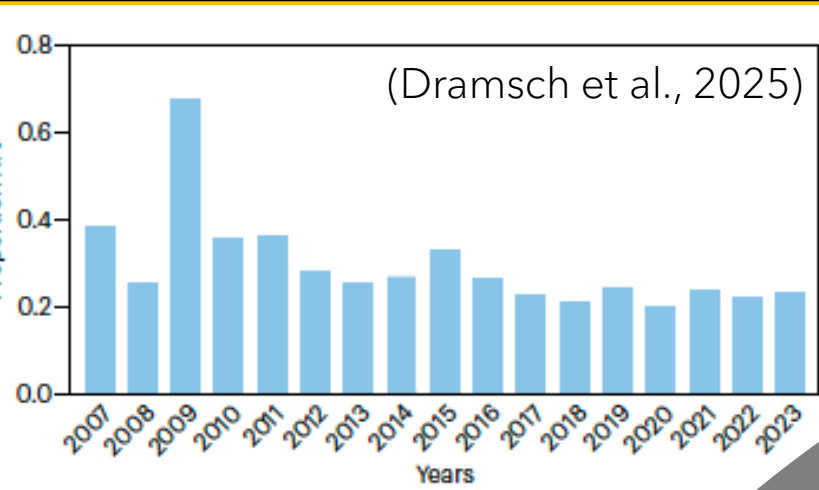
(ϕ sat-2 PhiFireAI app, ESA)



identification



Challenges



(Kuglitsch et al., 2023)

Environ. Res. Lett. 18 (2023) 093004

ENVIRONMENTAL RESEARCH LETTERS

TOPICAL REVIEW

When it comes to Earth observations in AI for disaster risk reduction, is it feast or famine? A topical review

<https://doi.org/10.1088/1748-9326/acf601>



(Kuglitsch et al., 2022)

COMMENT

<https://doi.org/10.1038/s41467-022-29285-6>

OPEN

Facilitating adoption of AI in natural disaster management through collaboration



European Commission



International standards



Guidelines & best practices on how to use **technology**.



Produced by an **international SDO**.



Mandatory by **adoption** into national laws.

nature

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COMMENT | 01 October 2024

AI to the rescue: how to enhance disaster early warnings with tech tools

Artificial intelligence can help to reduce the impacts of natural hazards, but robust international standards are needed to ensure best practice.

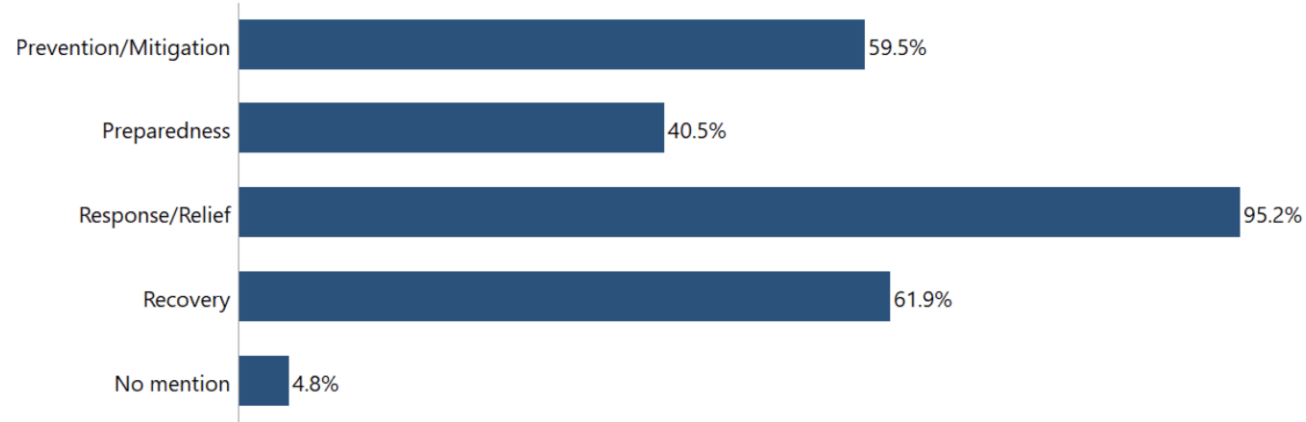
(Kuglitsch et al., 2024)



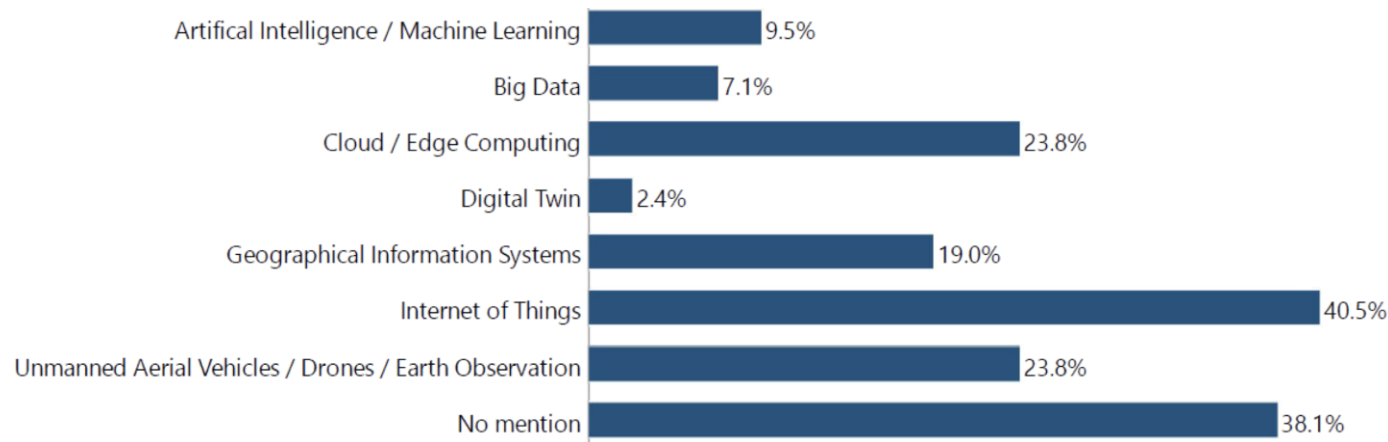
International standards

a. Management phase

(WG-Roadmap Technical Report)



b. Technologies





Global Initiative on Resilience to Natural Hazards through AI Solutions



Filling the gaps

2024- ...

Community of
experts &
stakeholders

Systematically
evaluating AI
use to identify
challenges &
opportunities

Developing
best practices

Supporting
capacity
sharing



Outcomes

ITUPublications

International Telecommunication Union
Standardization Sector

WG-Data

ITU-T Focus Group Technical Report

(11/2023)

Data themes

Disaster management

Data interoperability

Disaster management

Metadata

Disaster management

Curation & delivery

Disaster management

Temporal data processing

Disaster management

Annotation

Disaster management

Validation

Disaster management

Bias

Disaster management

Visualization

Disaster management

ITUPublications

International Telecommunication Union
Standardization Sector

WG-Modelling

ITU-T Focus Group Technical Report

(03/2024)

Problem statements

Focus Group on Artificial Intelligence for Natural

Guiding principles

Technical Report on Transformative AI Models

Data preparation

Technical Report on Transformative AI Models

AI training

Technical Report on Transformative AI Models

AI algorithm selection

Technical Report on Transformative AI Models

AI evaluation approaches

Technical Report on Transformative AI Models

Transparency & open source

Technical Report on Transformative AI Models

Explainability

Technical Report on Transformative AI Models

Legal & ethical considerations

Technical Report on Transformative AI Models

ITUPublications

International Telecommunication Union
Standardization Sector

WG-Comms

ITU-T Focus Group Deliverable

(02/2023)

Alerts & early warnings

Disaster management

Forecasts

Disaster management

Hazard maps

Disaster management

Decision support systems

Disaster management

Dashboards & apps

Disaster management

Chatbots

Disaster management

Added value of AI

Disaster management

Warning, oversight, & failsafes

Disaster management

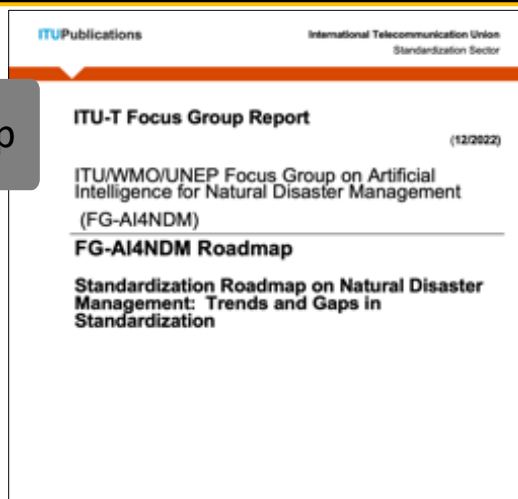
Human-centric design

Disaster management



Outcomes

WG-Roadmap

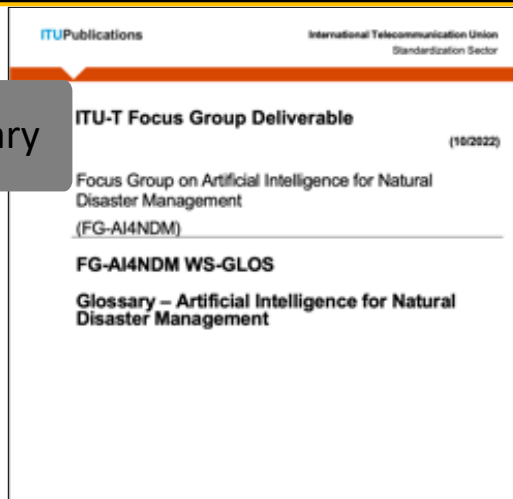


Surveyed existing standards.

Liaised with SDOs.

Made gap analysis.

WG-Glossary

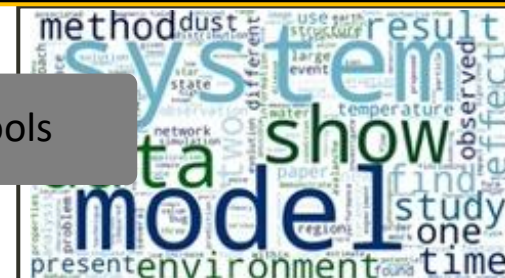


Scouted literature, use cases, and standards.

Identified terms of relevance.

Compiled definitions for different users.

WG-Tools



Trained LLM on 2.3 M ArXiv papers.

Applied to understand AI trends in geosciences.



European
Commission



Capacity sharing & education



**Landslide Detection Challenge:
Integrating SAR and Optical
Imagery for Innovative AI**

In partnership with



WORLD
METEOROLOGICAL
ORGANIZATION



THE EUROPEAN SPACE AGENCY



UNIVERSITA
DEGLI STUDI
DI PADOVA



UNIVERSITY OF
CAMBRIDGE



WORKSHOP ON

**Resilience to natural hazards
through AI solutions**

March 13 - 15, 2024

+ NASA Goddard Space Flight Center, G
+ University of Maryland Baltimore Cour
+ Online



npj | natural hazards

Comment



<https://doi.org/10.1038/s44304-025-00154-8>

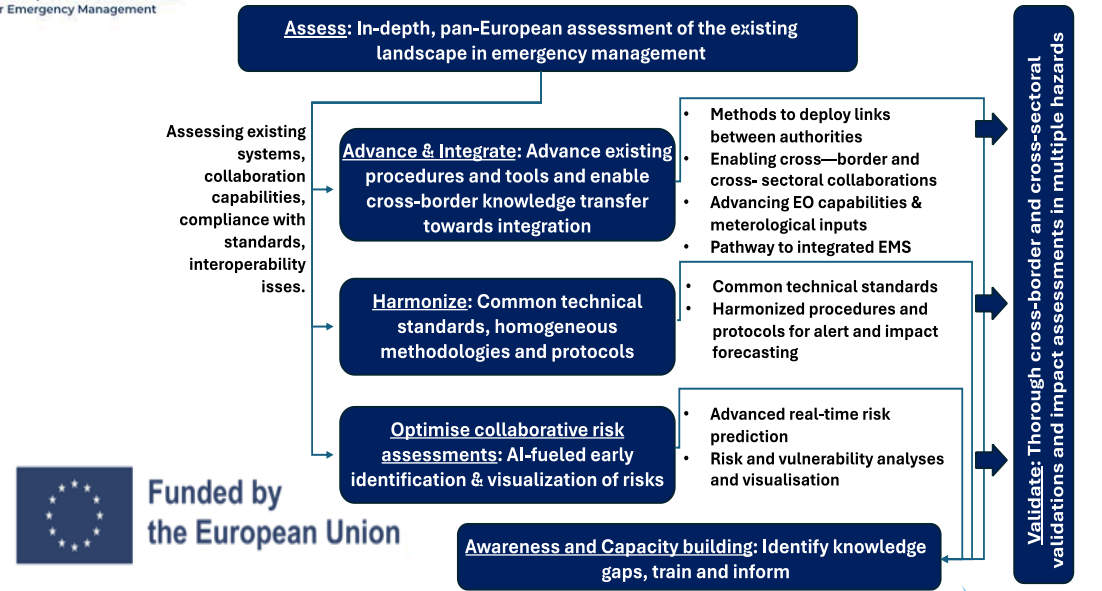
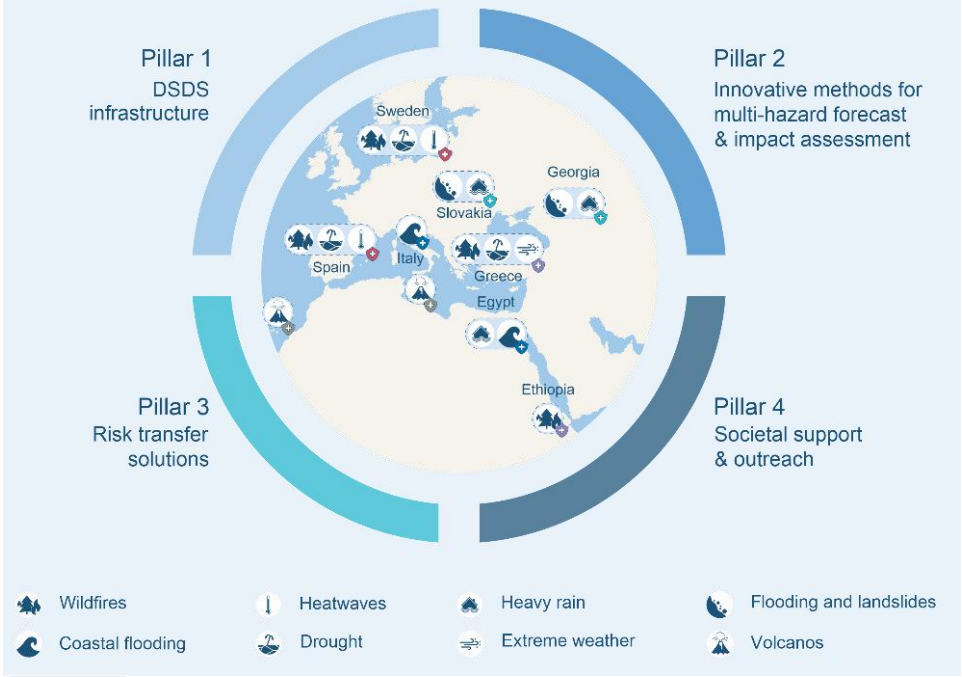
Introducing AI practitioners to international standards through online competitions

Lorenzo Nava, Monique M. Kuglitsch, Jennifer Selby, Amy Bray, Paul Kennedy, Joel Lontsi, Megan Yates, Ahmed Tambal, Ahmed Ilmane, Andrea Manara, Thomas Basikolo, Katharina Weitz, Arif Albayrak, Chester Karwatowski, Rakiya Babamaaji, Silvia Garcia, Elena Xoplaki, Stefan Uhlenbrook, Pierre-Philippe Mathieu, Raffaele Albano, Andrea Toreti & Filippo Catani



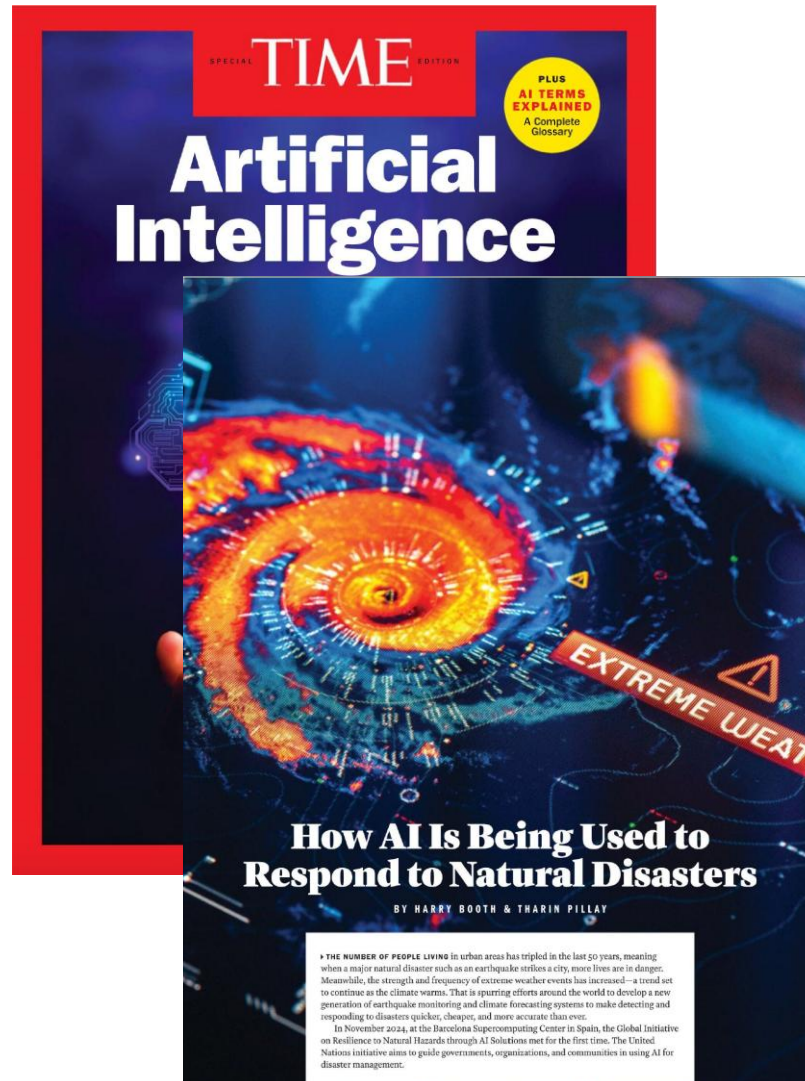
Check for updates

Proof of concept projects



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European
Commission

