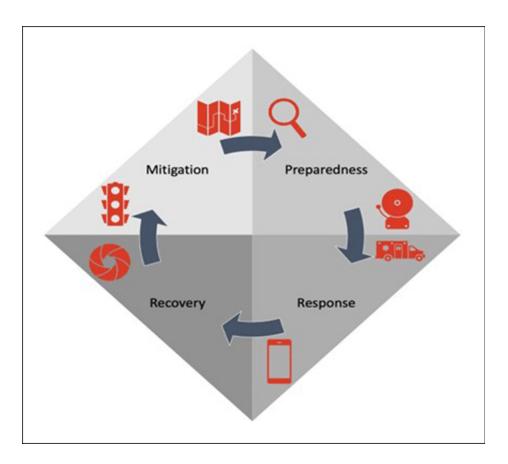
## Al to the rescue: Enhancing Disaster Warnings with Tech Tools

Elena Xoplaki, Ph.D., Justus Liebig University Giessen



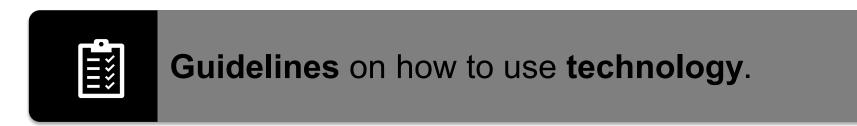
# How is AI being used to support disaster management?

Fig. 1. AI can contribute at each phase of disaster management, from mitigation (e.g., optimizing the location of traffic sensors and providing susceptibility maps), to preparedness (e.g., forecasting or monitoring conditions and triggering alerts), to response (e.g., providing situational awareness and decision support), and into recovery (e.g., damage assessment).



Kuglitsch, M. M., I. Pelivan, C. Danakkaew, J. Dramsch, and R. Arghandeh (2024), Cultivating trust in AI for disaster management, *Eos*, *105*, <u>https://doi.org/10.1029/2024EO240402</u>. Published on 11 September 2024.

# What are standards and why do we need them?





Produced by an international SDO.





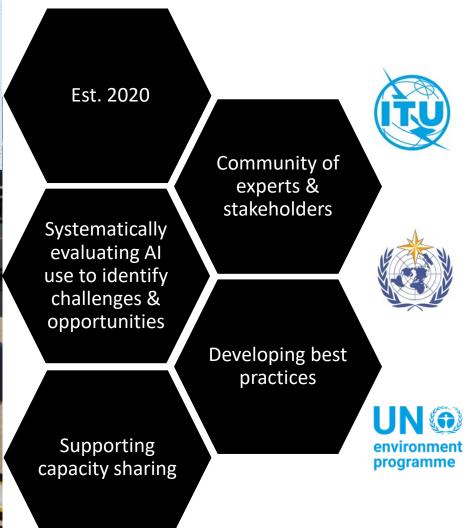
Mandatory by adoption into national laws.

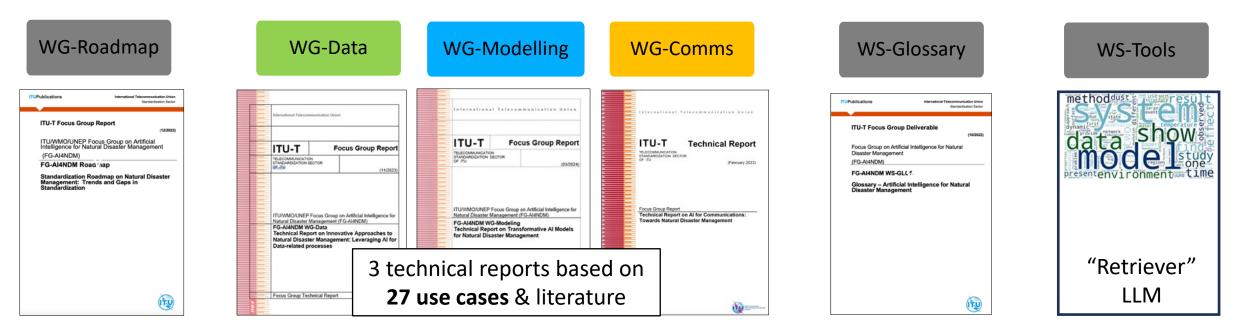


#### Al for Natural Disaster Management

**ITU Focus Group** 









Supplementary material for this article is available colin

- training sessions
- scientific publications

Environ. Res. Lett. 18 (2023) 993004	https://doi.org/10.1005/1748-9336/acfe01	scien	
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TOPICAL REVIEW			
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Monique M Kuglitsch <sup>1,4</sup> , Arif Albayrak <sup>2</sup> , Jürg Luterbacher <sup>3</sup> , Allis Paula Padrino Vilela <sup>4</sup> , Elena Xoolaki <sup>14</sup> , Rui Kotani <sup>8</sup> , Dominique		Traffic	
<sup>1</sup> Frannhofer Institute for Telecommunications, Heinrich Hertz Institute, Berlin <sup>2</sup> NASA Goddard Space Flight Center, Gerenbelt, MD, United States of America <sup>3</sup> Wold Meteorological Occumination. General. Switzerhand		hazaro	
<sup>4</sup> NASA Jet Pospelsion Laboratory, California Institute of Technology, Pasadena <sup>5</sup> European Commission Joint Research Centre, Ispra, Italy	CA, United States of America	Michele Ga	
<sup>8</sup> UN Environment, Geneva, Switzerland <sup>7</sup> Department of Geography, Climatelogy, Climate Dynamics and Climate Chan <sup>8</sup> Center of International Development and Environmental Research, Justus Liel <sup>9</sup> Center of International Development and Environmental Research, Justus Liel <sup>9</sup> Center of International Development and Environmental Research, Justus Liel <sup>9</sup> Center of International Development and Environmental Research, Justus Liel <sup>9</sup> Center of International Development and Environmental Research, Justus Liel <sup>9</sup> Center of International Development and Environmental Research, Justus Liel <sup>9</sup> Center of International Development and Environmental Research, Justus Liel <sup>9</sup> Center of International Development and Environmental Research, Justus Liel <sup>9</sup> Center of International Development and Environmental Research, Justus Liel <sup>9</sup> Center of International Development and Environmental Research, Justus Liel <sup>9</sup> Center of International Development and Environmental Research, Justus Liel <sup>9</sup> Center of International Development and Environmental Research, Justus Liel <sup>9</sup> Center of International Development and Environmental Research, Justus Liel <sup>9</sup> Center of International Development and Environmental Research, Justus Liel <sup>9</sup> Center of Cen		Ozguven &	
<ul> <li>Group on Earth Observations, Geneva, Switzethand</li> <li>Author to whom any correspondence should be addressed.</li> </ul>		Scientific R	

Reza Arghandeh eports 13. Article number: 4883 (2023) Cite this article 1847 Accesses | 2 Citations | 2 Altmetric | Metrics Keywords Earth observation, remote sensing, disaster risk reduction, artificial intelligence, machine learnin

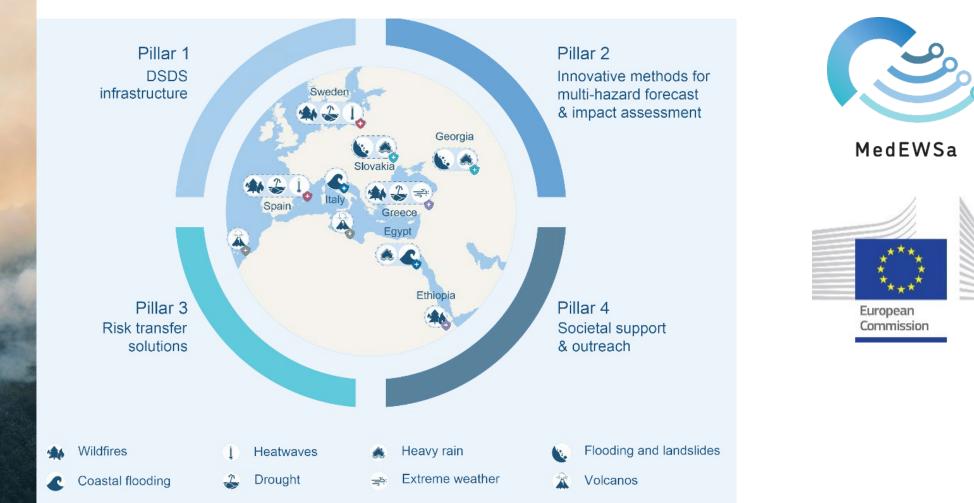
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Cultivating Trust in AI for Disast	ter Management
tificial intelligence applied in disaster management must be reliable, accurate, a Insparency in AI mean, why do we need it, and how is it achieved?	and, above all, transparent. But what does
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Monique M. Kuglitsch, Ivanka Pelivan, Chinnawat Danakkaew, Jesper Dramsch, and Reza Arghandeh 11 September 20	*New*
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COMMENT   01 October 2024	
AI to the rescue: how to en	hanco
disaster early warnings wi	ith tech tools

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

By Monique M. Kuglitsch 🖂, Jon Cox, Jürg Luterbacher, Bilel Jamoussi, Elena Xoplaki, Muralee Thummarukudy, Golestan Sally Radwan, Soichiro Yasukawa, Shanna N. McClain, Rustem Arif Albayrak, David Oehmen & Thomas Ward

### **Proof-of-concept**

Mediterranean and pan-European forecast and early warning system against natural hazards



@Arcansel/Shutterstock

### Focus Group -> Global Initiative



Transition of Focus Group into a Global Initiative announced by the ITU Secretary General during the **AI for Good Global Summit**, June 2024.



### Advancing AI for hazard resilience

Artificial intelligence (AI) can help countries tackle climate volatility and reduce disaster risks. A new global initiative explores how.

Learn more





## Focus Group -> Global Initiative

**Kick-off meeting of the** ITU • WMO • UNEP • UNFCCC • UPU Global Initiative on Resilience to Natural Hazards through AI Solutions



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How AI Is Being Used to Respond to Natural Disasters in Cities 7 MINUTE READ

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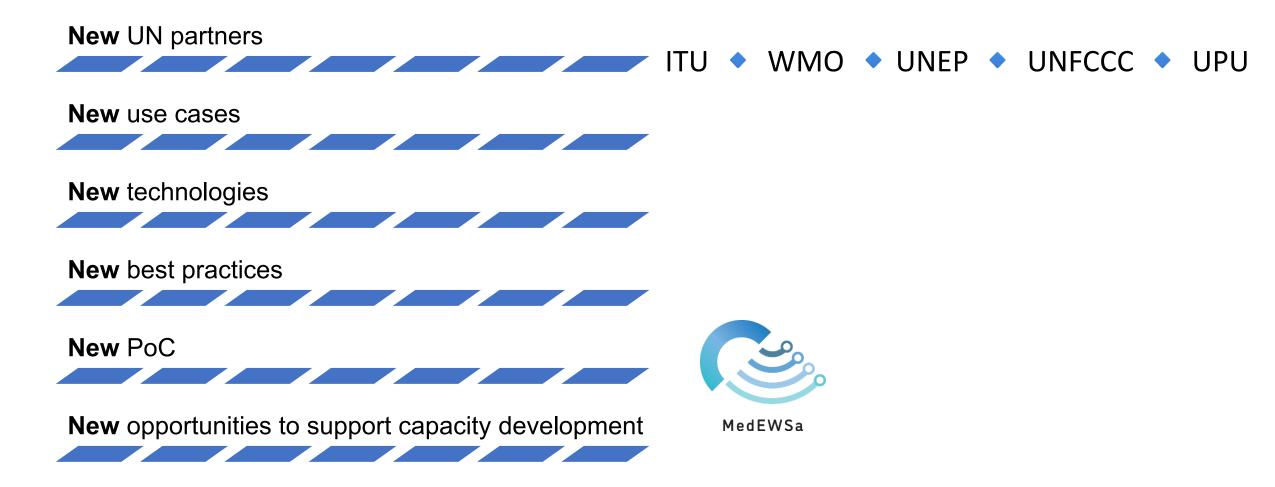


Al was used to identify damage in Adıyaman, Turkey, after last year's earthquake. ILVAS AKENGIN—AFP /Getty Images

#### BY HARRY BOOTH AND THARIN PILLAY

NOVEMBER 4, 2024 11:01 AM EST

## Focus Group -> Global Initiative



Bridging the digital divide: **Ensuring inclusive frontier** technology for climate action



#### **18 November 2024** Capacity Building Hub, Baku Stadium, Baku, Azerbaijan





Maria João Sousa



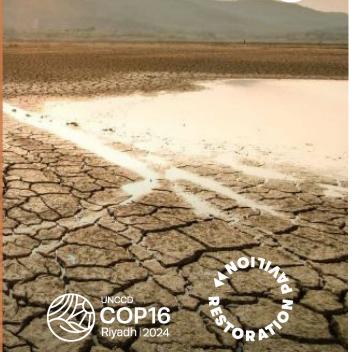
Co-organizers: ITU, WMO, Climate Change AI, Fraunhofer HHI



#### Digital technologies:

A boon for drought management

**& INNOVATION DAY** 



Date // 9 Dec 2024 Time // 10:00-11:00 AST Location // Blue Zone, **Restoration Pavilion** 

This workshop delves into the potential of digital technologies like artificial intelligence and digital twins for forecasting, monitoring, and managing drought risks, impacts, and cascading effects within new international initiatives. It also addresses challenges inherent to these technologies, highlighting the need for governance standards. The session includes expert presentations followed by a panel discussion, inviting audience interaction on advancing drought resilience through technological innovation.

#### Register here: **bit.ly/3AAd4rm**



#### **Participants**





Mythili Menon

International

**Telecommunication Union** 

Andrea Toreti European Commission, Joint Research Centre



**Hwirin Kim** World Meteorological Organisation



Matteo Zampieri

King Abdullah University

of Science and Technology

Elena Xoplaki Universität Giessen











Scan to learn more about the Focus Group

Scan to learn more about the Global Initiative