



MedEWSa

MedEWSa



*Mediterranean and pan-European
forecast and Early Warning
System against natural hazards*



WORLD
METEOROLOGICAL
ORGANIZATION



Coordination: WMO,
Science & Innovation



MedEWSa

MedEWSa: the key points

- Led by WMO Science & Innovation, MedEWSa is a €5m, 3 year project, awarded competitive funding from the EU Horizon Programme
- MedEWSa will develop multi-hazard EWS to support first responder decision making around natural hazards/extreme weather events
- Focus on WMO regions VI (SE Europe) and I (NE Africa) with pilots extending from Spain to Georgia and from Sweden to Ethiopia
- MedEWSa will showcase how research and multi-stakeholder collaboration are fundamental to successful delivery of EW4All, extending meaningful operational EWS capability to new countries
- MedEWSa started in November 2023



MedEWSa

What is the MedEWSa vision?



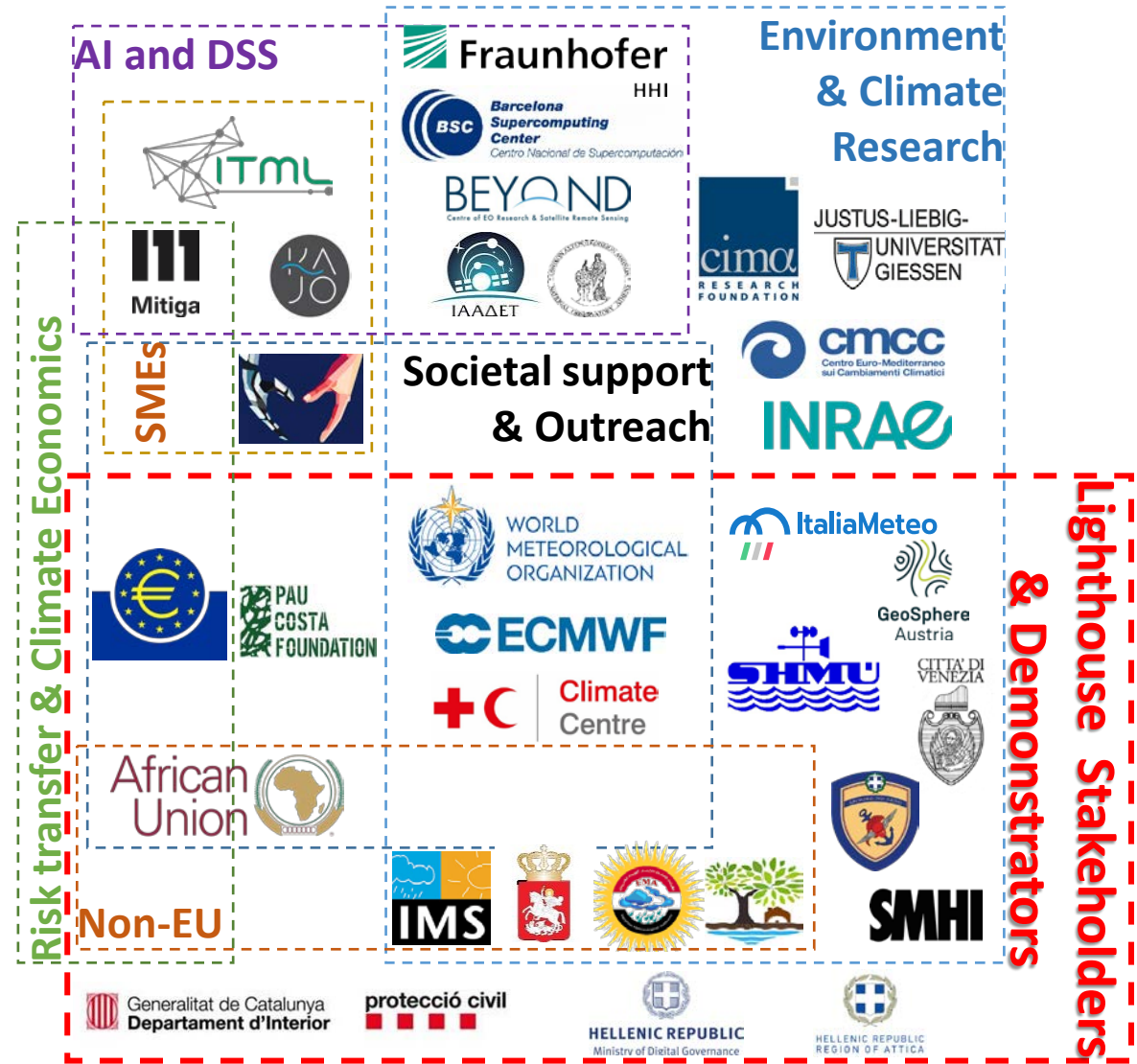
- Build on existing infrastructures and established tools
- Harmonize and fill gaps in existing patchy services with innovative technologies
- Deliver a **network of effective and inter-operable MHEWS**
- Use AI-based decision-support solutions to enhance multi-hazard impact prediction
- Concentrate on service delivery in **twins** (pilots) across Europe / Mediterranean / Africa to **demonstrate transferability and scalability**
- Focus on **extreme event hotspots and at-risk communities** to support the **rapid deployment of first responders**
- Provide **actionable** natural hazard and extreme weather impact and finance forecasting



MedEWSa partners

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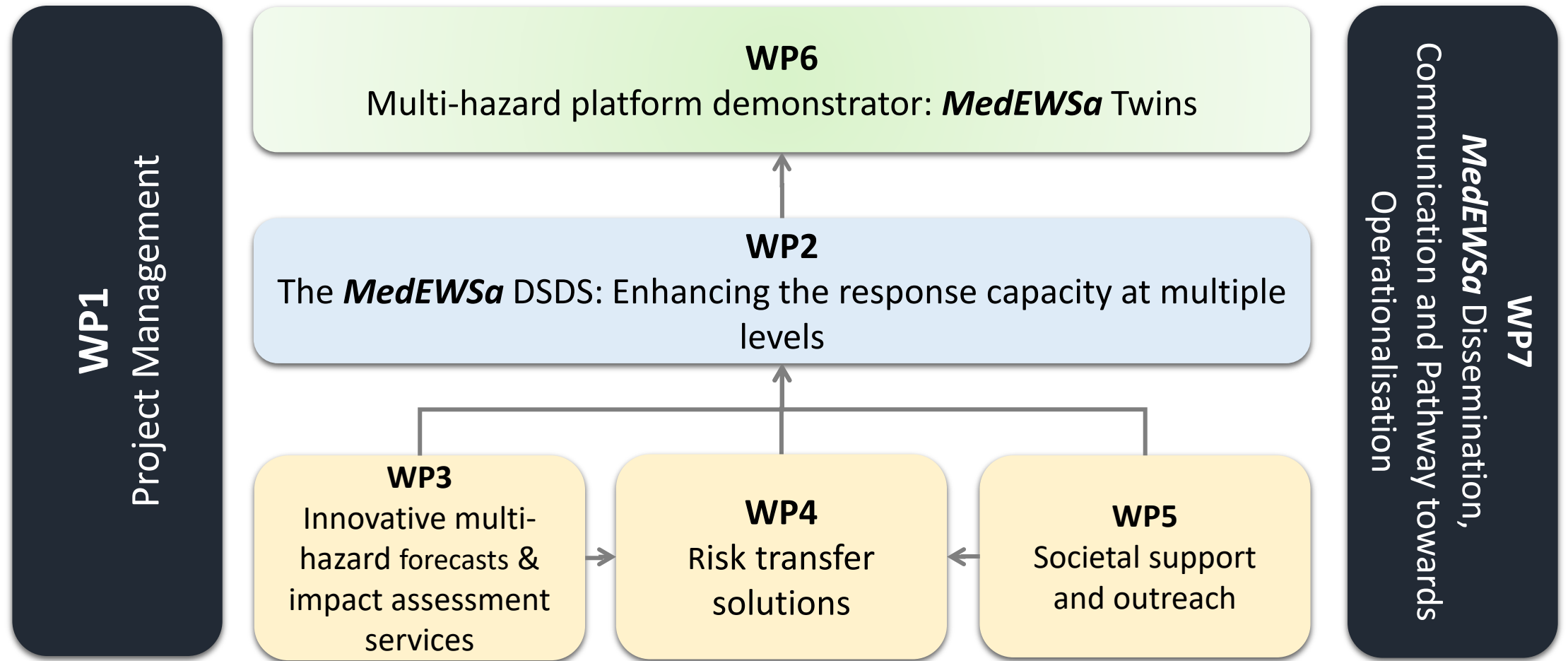
- 30 partners, coordinated by WMO
- Partners include NMHSs (Greece, Egypt, Sweden, Israel (SEE-MHEWS), Slovakia, Austria, Italy), ECMWF, Red Cross, African Union, SMEs, academia, research institutions, first responders, civil protection organisations, NGOs, local & regional governments, private sector SMEs, crisis planners
- Geographical coverage across WMO regions I (Africa) and VI (Europe), with a focus on the Mediterranean (southern Europe, north Africa)





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MedEWSa project structure





Concept and coverage

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CROSS-CUTTING TECHNOLOGIES

Data spaces/ Datacubes with diachronic data, federate data from other event logs & portals

High-resolution NWP forecasts & km-scale nested grids in pilots

Existing operational platforms (e.g., FireHub for fire prediction, smoke dispersion models, MOSE etc.)

AI (Impact assessments, multi-level decision support, cascading effects prediction)



HAZARDS

1



Wildfires, extreme weather events (droughts, wind)*

2



Coastal floods, storm surges, extreme precipitation*

3



Floods, landslides*

4



Heatwaves, droughts and wildfires*

TWINS

Greece (Attica)

Italy (Venice)

Slovakia (Košice)

Spain (Catalonia)

Ethiopia (National parks)

Egypt (Alexandria / Nile Delta)

Georgia (Tbilisi)

Sweden (countrywide)

Impacts on:

Critical infrastructure, power plants, factories, cultural heritage, food supply, PV panels, energy, agriculture, residential buildings, national parks

Impacts on:

Society (casualties, population relocation), urban landscape, agriculture, tourism, groundwater deterioration, cultural heritage, soil erosion

Impacts on:

Agriculture, critical infrastructure, food supply, energy, soil erosion, society (casualties, relocation, property damage)

Impacts on:

Forestry, public health (respiratory diseases, food-borne and water-borne diseases), agriculture, water quality

Multi-level Decision Support EWS: provision of alerts, reports and tailored dissemination information

MedEWSa DSDS (Pillar 1)

Interfaces for multi-hazard and cascading effects
Multi-hazard dynamics analytics

MedEWSa forecasts & impact assessments (Pillar 2)

Risk modeling
Risk transfer mechanisms
Independent triggering mechanisms

MedEWSa risk transfer solutions (Pillar 3)

Complex information to actionable knowledge
Outreach channels optimization

MedEWSa societal support (Pillar 4)

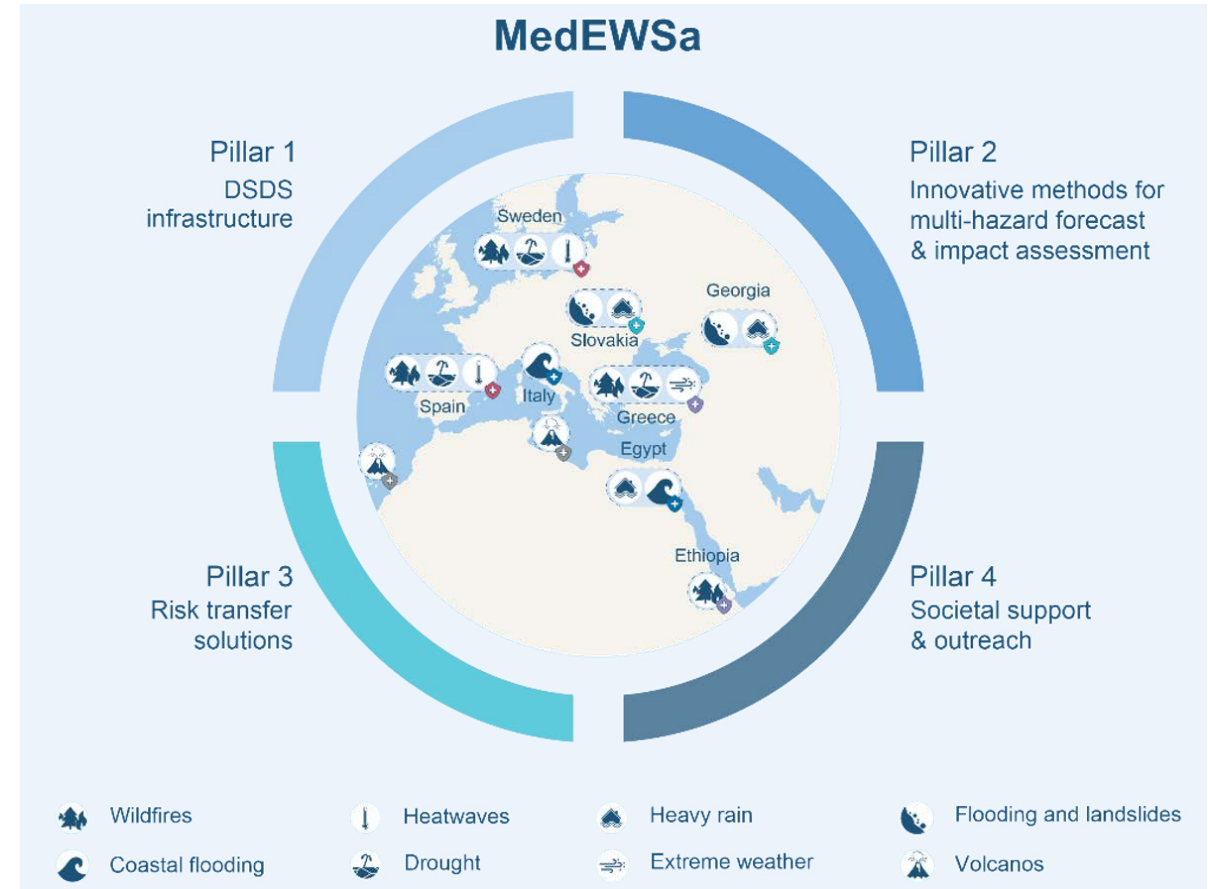
*potential volcanic eruptions will be included across all pilots/twins due to the large-scale impact

Contribution to EW4all initiative

EW4all pillars



MedEWSa pillars



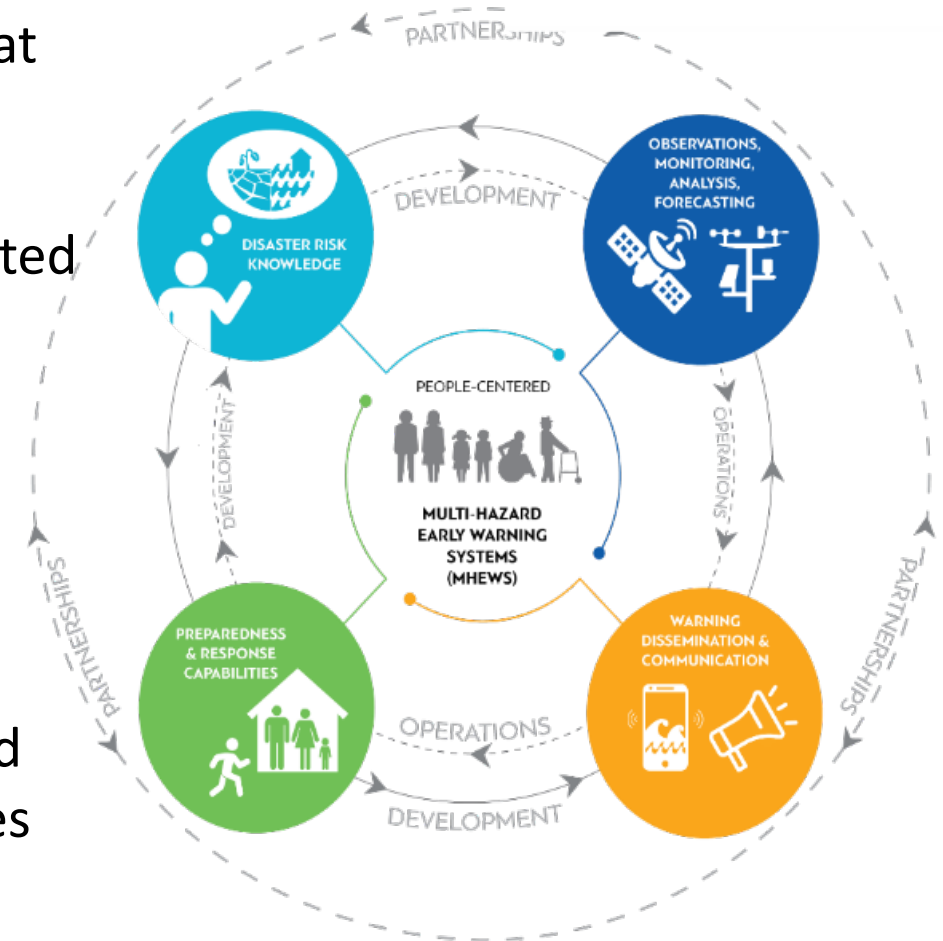


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MedEWSa contribution to EW4All



- Offers hazard information/risk analysis for meaningful EW that allow governments, communities and individuals to understand risks and act to minimise impacts
- Contribute to impact-based forecasting, service delivery related to natural hazards for different countries
- Develops a fully integrated impact-based multi-hazard EWS in areas of Europe/N Africa
- AI-based decision-support solutions for improved impact prediction of multiple hazard dynamics and their interdependencies
- Demonstrates how WMO research is leading efforts to extend EWS to vulnerable and underserved regions, and communities



(WMO, 2022)



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MedEWSa – beyond the twin sites

National NMHSs

- *Outside of twin pilot domains*
- *To inform and help drive national level scalability*
- *Matching regional characteristics*
- *Support tailoring of products to local conditions*

International org representatives

- *NGOs on the ground*
- *Trans-boundary roles*
- *Supra-national response chains*
- *Support governance issues and advocacy*

Private sector

- *Insurance and reinsurance*
- *Risk managers*
- *Energy generation and distribution*
- *Seasonal timeframes and focus, rather than short term*

First responders

- *Key to consult*
- *Civil authorities*
- *Last mile practitioners*
- *Short term, immediate focus*
- *Source of local knowledge and conditions*



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South Caucasus NMHSs and MedEWSa

Alignment with the UN's Early Warnings for All Initiative



In 2022, United Nations Secretary-General António Guterres initiated a global effort to protect everyone on earth with early warning systems (EWS) by the end of 2027.

In line with this initiative, the MedEWSa project emphasizes the importance of research and multi-stakeholder collaboration in enhancing Mediterranean and European countries' operational EWS capabilities. It aims to enhance collaboration, research, innovation, and the dissemination of knowledge and technologies in support of EU policies addressing global challenges.



Vision

MedEWSa delivers a network of effective and interoperable MHEWS spanning across the Mediterranean basin and its adjacent countries. It builds on existing infrastructures, fills gaps, and harmonizes through innovative technologies. Particular attention is paid to current and emerging extreme event hotspots, vulnerable areas, and at-risk communities. Central to MedEWSa is a suite of carefully selected pairs of pilot sites, "twins", that highlight discrepancies in coverage and capabilities and that foster collaboration and demonstrate the transferability of MedEWSa's tools.

GET INVOLVED

MedEWSa is seeking Lighthouse Partners. Here's how you can get involved:

- **Customize Project Services:** Tailor your participation to match your needs, and provide valuable feedback to our warning providers.
- **Join a Growing Community:** Belong to an emerging community of experts and stakeholders dedicated to Multi-Hazard Early Warning Systems (MHEWS).
- **Support Operational Excellence:** Help us to create effective operationalization and scalability plans.
- **Access Vital Information:** Gain essential insights into various types of multi-hazards and their cascading effects.
- **Share Your Expertise:** Exchange your experience and expertise with peers from diverse countries and regions.

MedEWSa welcomes input and support from:

- **Regional representatives** from pilot countries as well as from other Euro-Mediterranean-African countries and areas.
- **Representatives from International organizations**, including the UN system and affiliated non-governmental organizations.
- **Private sector** representatives, particularly from the insurance and reinsurance sectors, to harness and advance alternative risk transfer solutions.
- **First responders:** police, firefighters, coastal/marine safety units, and practitioners - teams responsible for the "last mile" of response efforts from the pan-European-Mediterranean-African countries.

Contact

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OBJECTIVES

- Provide multi-hazard information and conduct risk analysis.
- Contribute to impact-based forecasting.
- Develop a fully integrated impact-based Multi-Hazard Early Warning System.
- Use AI-based decision-support solutions to enhance multi-hazard impact prediction.
- Develop innovative financial solutions through risk transfer to capital markets, including Insurance-Linked Securities and parametric insurance.



Partners

World Meteorological Organization
National Meteorological and Hydrological Services
African Union
ECMMF
Academic institutions
Research organizations
Red Cross-Red Crescent Climate Centre

First responders
Civil protection organizations
Non-governmental organizations
Local and regional governments
Crisis planners across the Euro-Mediterranean-African area
Small and medium-sized enterprises

- MedEWSa will develop geo-focused clusters of lighthouse stakeholders
- Reach out to target communities via NMHSs to scope scalability and replication
- Need to also focus on engagement with regulatory frameworks (EU taxonomy of climate change)



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MedEWSa: interact with us

- Social media channels
 - LinkedIn - <https://www.linkedin.com/company/medewsa>
 - Twitter/X - https://twitter.com/medewsa_project
- Please follow, interact, and amplify!
- Website coming in New Year (www.medewsa.eu)
- Contact us directly at WMO:
 - Prof. Juerg Luterbacher (jluterbacher@wmo.int)
 - Dr. Jon Cox (jcox@wmo.int)

Thank you

