

Mediterranean and pan-European forecast and early warning systems against natural hazards: A contribution to the early warnings for all (EW4ALL) initiative

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Session 4, Recent advances in impact-based forecasting and system evaluations





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UN Early Warnings for All Initiative (EW4all)

Early
Warnings
for All





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Early Warnings for All: Structure & Objectives



Pillar 1

Disaster risk knowledge

Systematically collect data and undertake risk assessments

- Are the hazards and the vulnerabilities well known by the communities?
- What are the patterns and trends in these factors?
- Are risk maps and data widely available?



Pillar 2

Detection, observations, monitoring, analysis and forecasting of hazards

Develop hazard monitoring and early warning services

- Are the right parameters being monitored?
- Is there a sound scientific basis for making forecasts?
- Can accurate and timely warnings be generated?



Pillar 4

Preparedness and response capabilities

Build national and community response capabilities

- Are response plans up to date and tested?
- Are local capacities and knowledge made use of?
- Are people prepared and ready to react to warnings?

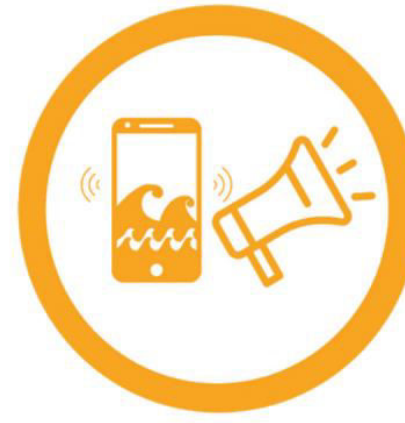


Pillar 3

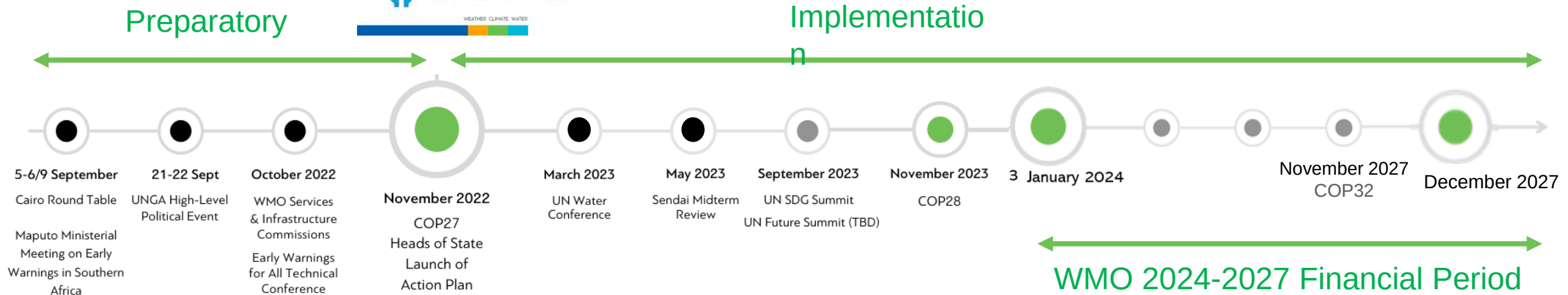
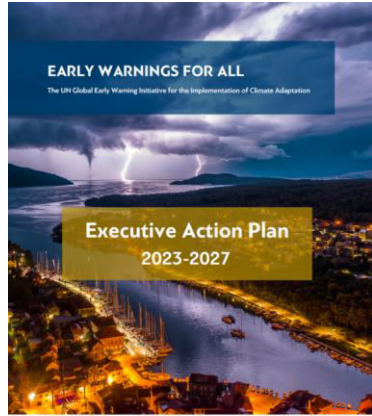
Warning dissemination and communication

Communicate risk information and early warnings

- Do warnings reach all of those at risk?
- Are the risks and warnings understood?
- Is the warning information clear and usable?



Timeline





MedEWSa

MedEWSa



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



Coordination: WMO,
Science & Innovation

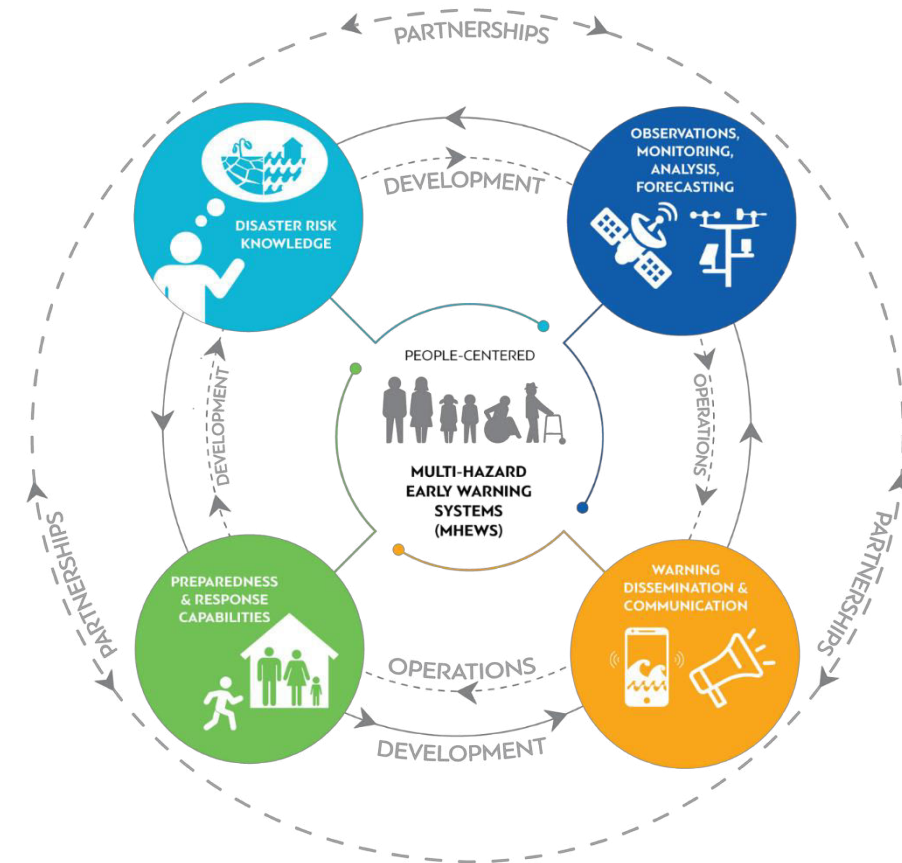


MedEWSa

What is MedEWSa about?

A solution to the global need for coordinated preparedness and response mechanisms that bridge administrative and geographical regions

- Multi-hazard capacity building for emergency responders
- Timely handle unexpected cascading effects
- Efficient response mechanisms to extreme events
- Fully address the early warning cycle, from data and models to public safety





MedEWSa

What is MedEWSa's vision?



- MedEWSa's core vision is two-fold:
 - ↳ To provide novel solutions to ensure timely, precise, and actionable natural hazard and extreme weather event impact and finance forecasting
 - ↳ To deliver EWS that support the rapid deployment of first responders to vulnerable areas
- MedEWSa will deliver a sophisticated, comprehensive, and innovative European-Mediterranean-African solution, comprising a range of complementary services
- MedEWSa will build on existing tools MedEWSa will develop a fully integrated impact-based multi-hazard Early Warning System
- MedEWSa directly addresses the challenge of the UN SG's EW4All initiative



The MedEWSa twins

MedEWSa

CROSS-CUTTING TECHNOLOGIES

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

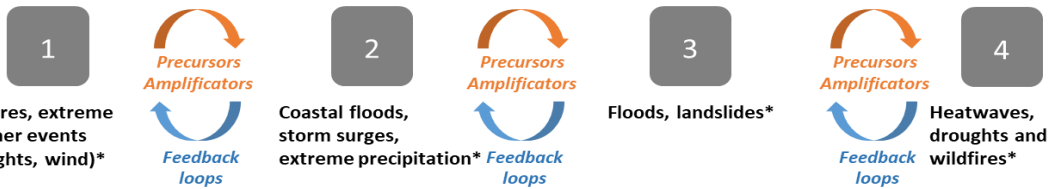
High-resolution NWP forecasts & km-scale nested grids in pilots

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

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

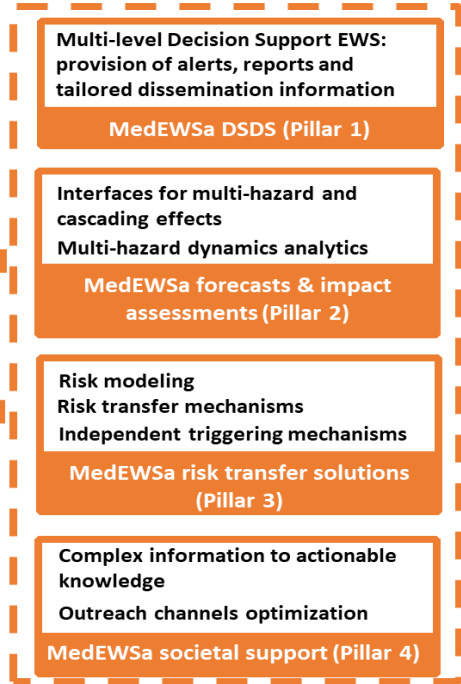


HAZARDS



TWINS

HAZARD	1	2	3	4
	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	Society (casualties, population relocation), urban landscape, agriculture, tourism, groundwater deterioration, cultural heritage, soil erosion	Agriculture, critical infrastructure, food supply, energy, soil erosion, society (casualties, relocation, property damage)	Forestry, public health (respiratory diseases, food-borne and water-borne diseases), agriculture, water quality



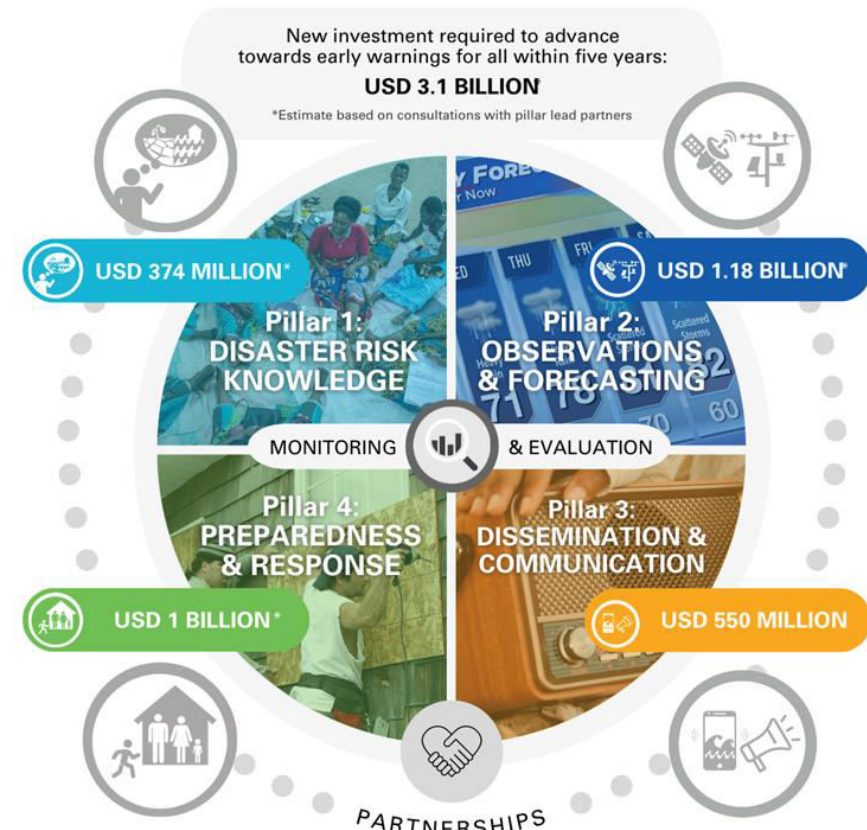
*potential volcanic eruptions will be included across all pilots/twins due to the large-scale impact



MedEWSa contribution to EW4All



- Offers hazard information/risk analysis for meaningful EW
- Contributes to impact-based forecasting
- Develops a fully integrated impact-based multi-hazard EWS
- AI-based decision-support solutions for improved multi-hazard impact prediction
- WMO research efforts to extend EWS to vulnerable and underserved regions, and communities



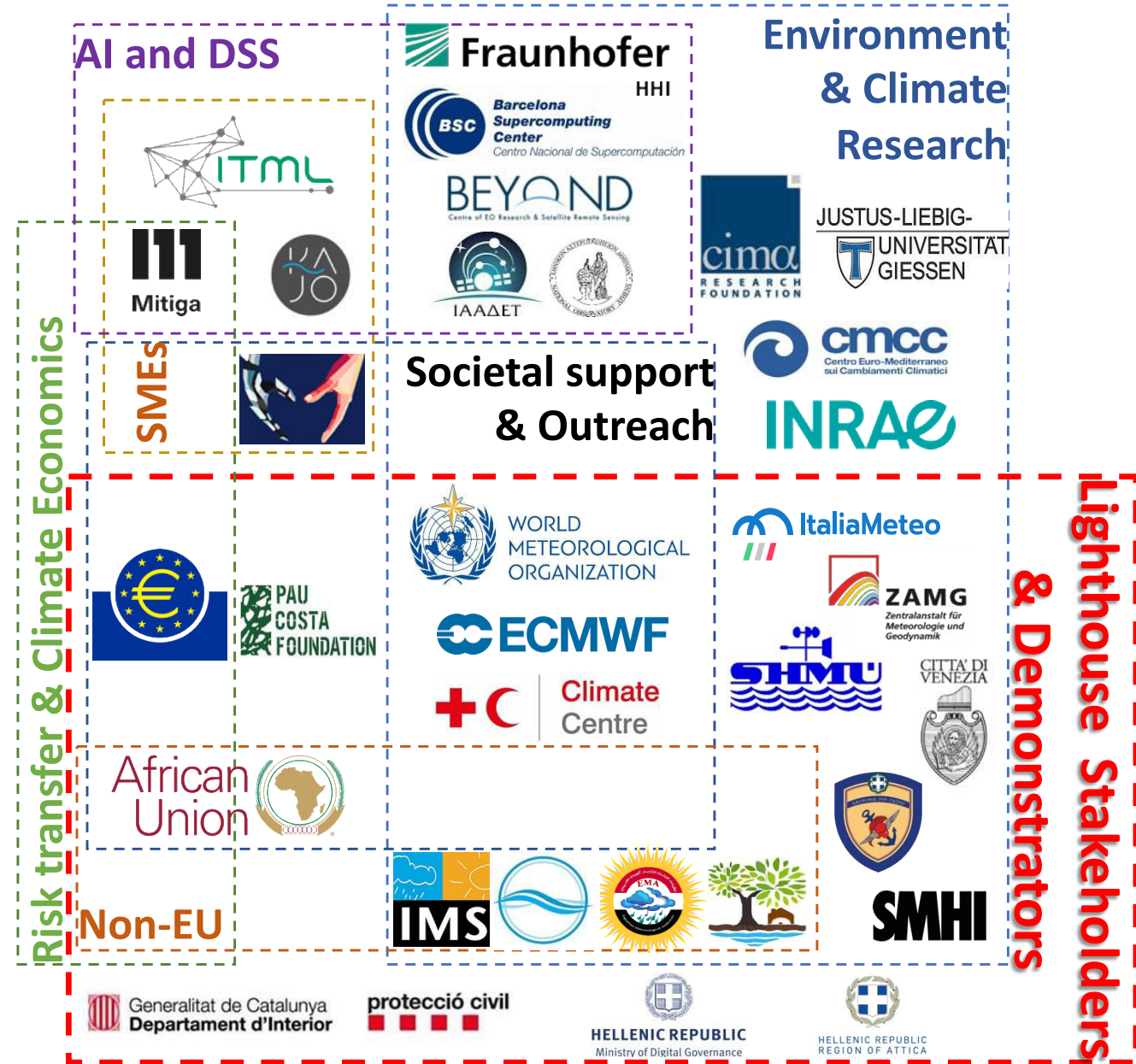
(WMO, 2022)



MedEWSa

Consortium

- 30 partners, coordinated by WMO
- NMHSs (Egypt, Sweden, Israel, Greece, Slovakia, Austria, Italiameteo), SEE-MHEWS-A, ECMWF, Red Cross, African Union, SMEs, academia, research institutions, first responders, civil protections, NGOs, local & regional governments, crisis planners
- Lighthouse stakeholders



Thank you very much!



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for All



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