

SMART CABLES FOR SMART PEOPLE

Miguel Miranda

President of IPMA
Chair of EMSO-ERIC



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LISTENING TO THE EARTH
UNDER THE ATLANTIC



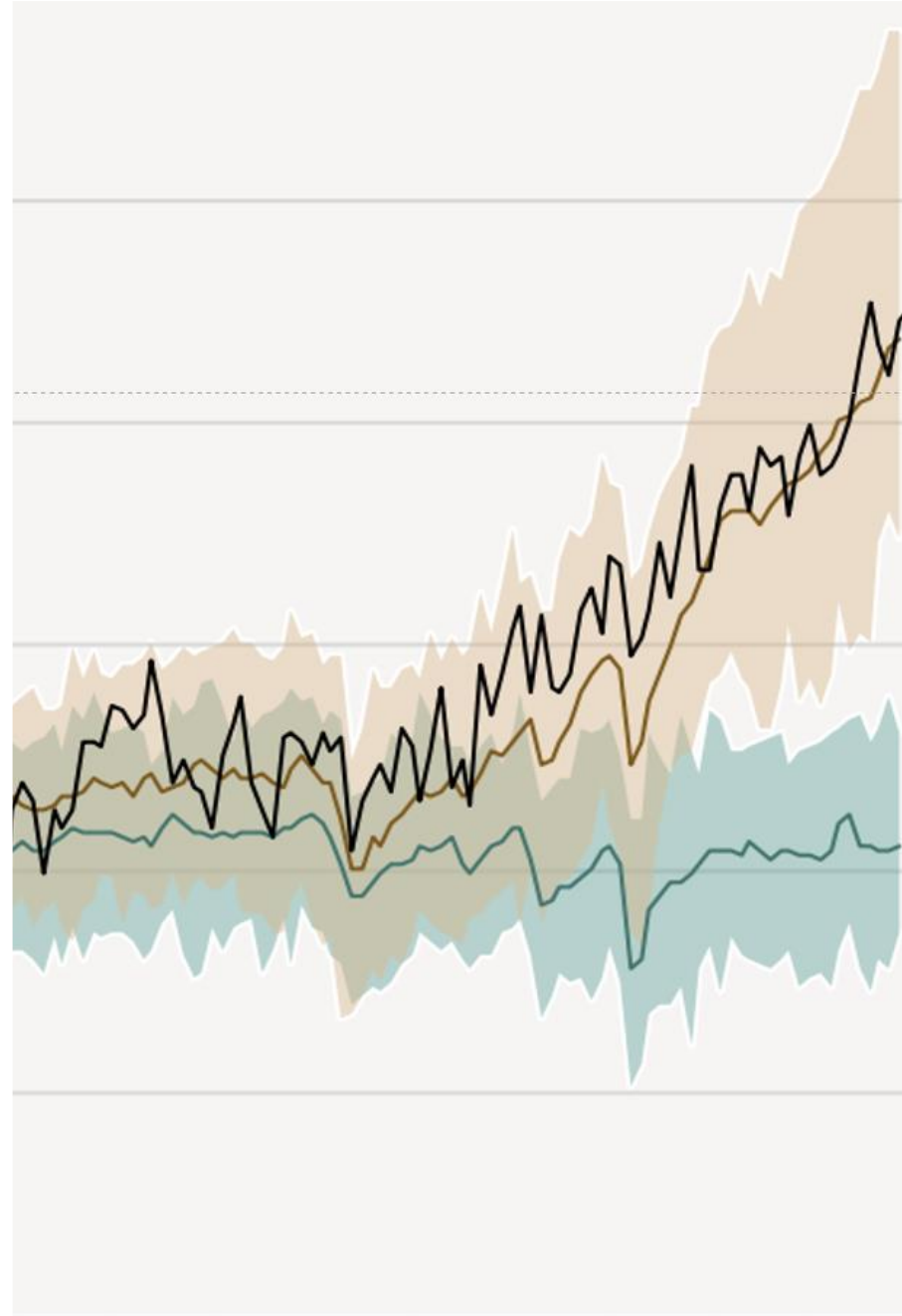
SOMOSATLÂNTICO
WE ARE ATLANTIC



The Ocean Climate Challenge

Never before existed a social and political consensus on the idea that global development is only possible if mankind is able to redesign existing production processes, food and mobility systems, taking into account the finitude of geo and bio resources and the role of ecosystem services.

Never before the ocean was considered as the main challenge for survival.



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and we have great expectations ...

- Portugal has the 4th European largest marine exclusive economic zone and the 11th in the world which is still largely unknown and unexploited;
- The extended platform will provide Portugal with jurisdiction over a very large area of the NE Atlantic: arguably, the whole area (EEZ + extended platform) contains a greater diversity of habitats than the marine areas under the jurisdiction of any other European country;

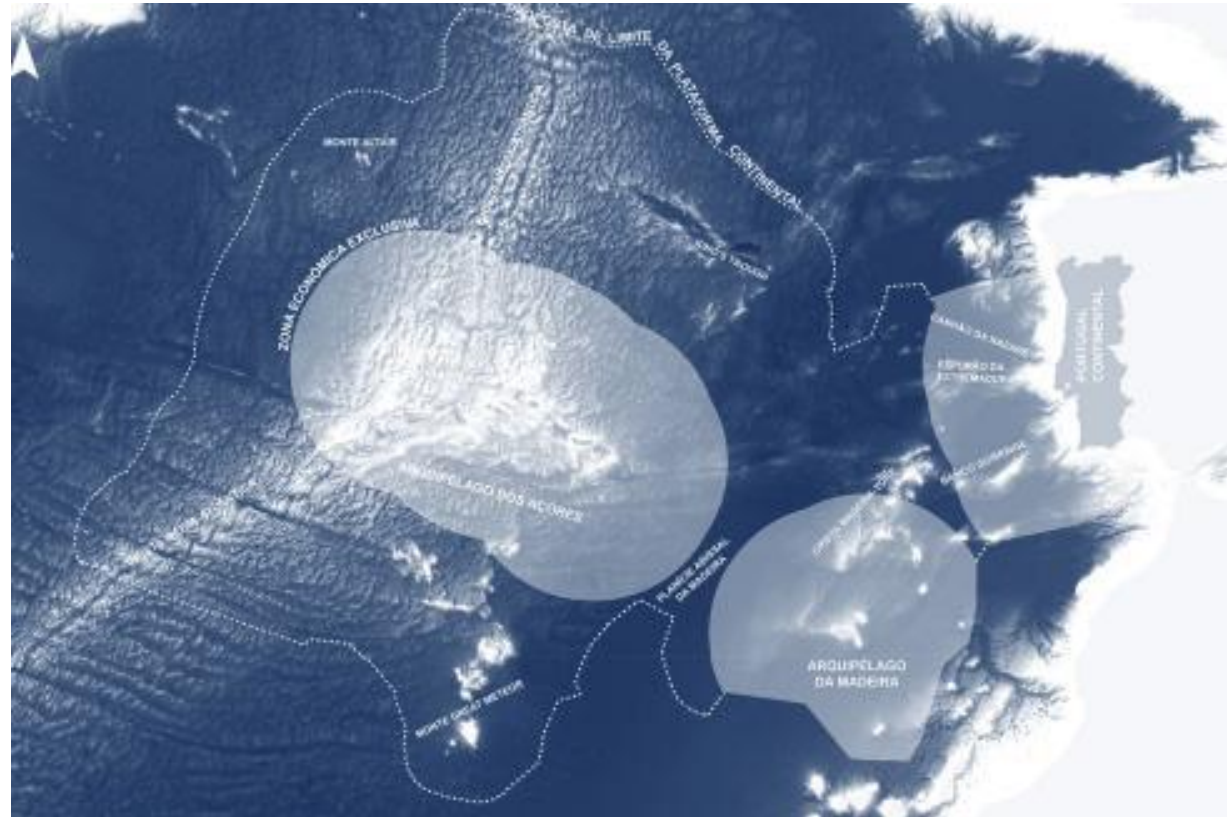


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and we have great expectations ...



and time is running fast !



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Research Vessels
are important but
not enough



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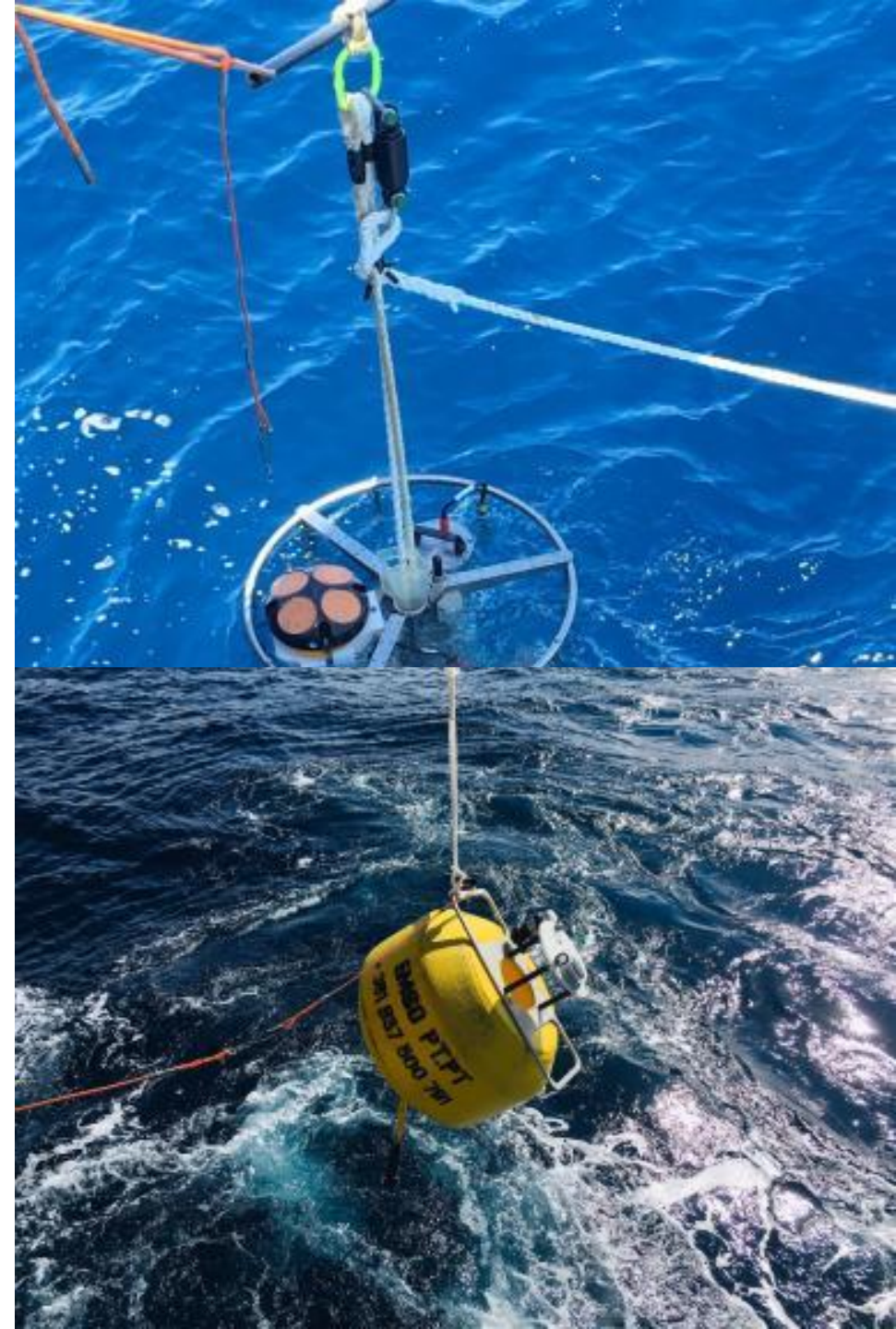
Fixed
observatories and
autonomous
vehicles are
important but not
enough



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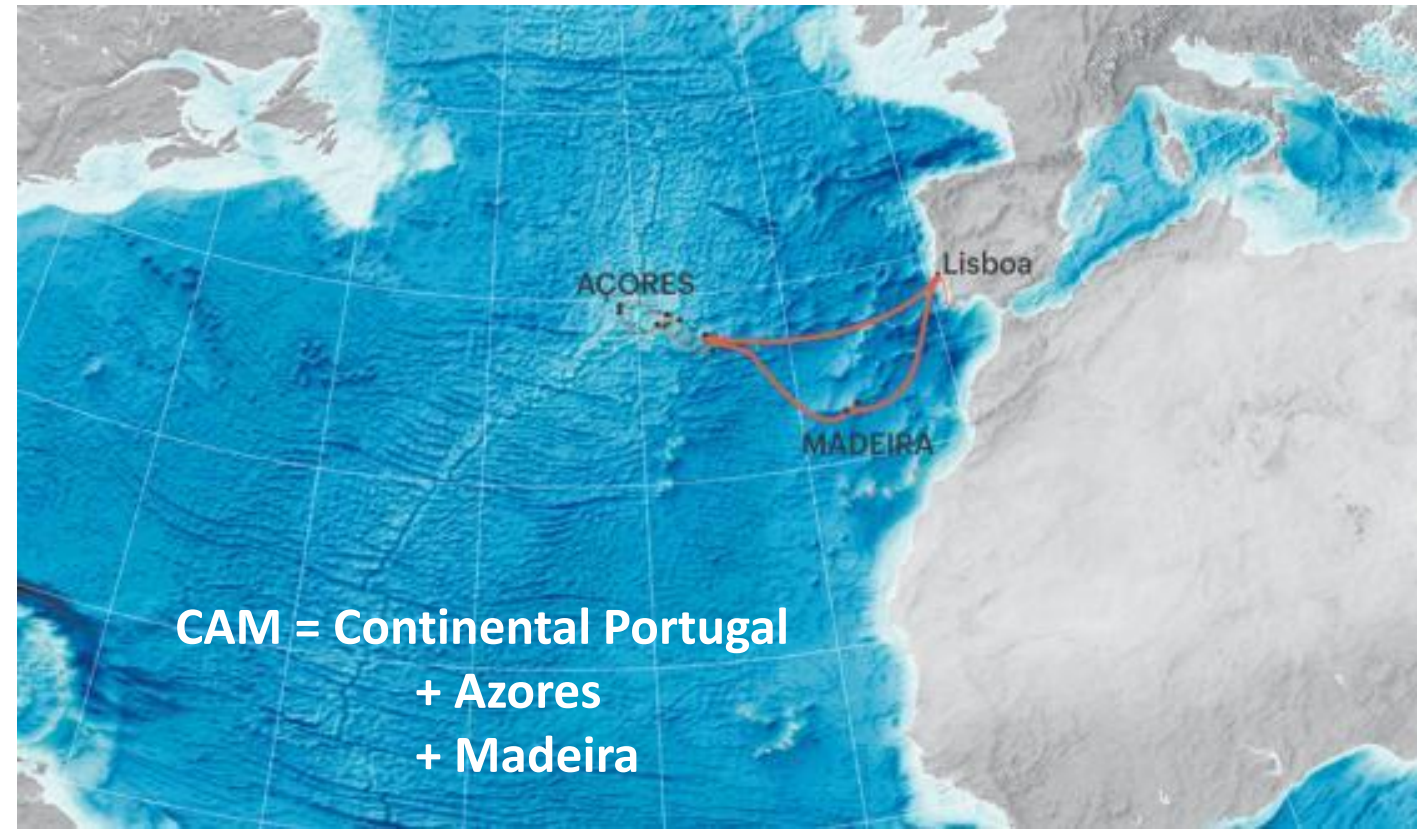
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We need
disruptive,
innovative
approaches for
ocean monitoring

...

LEA, an initiative of IT, IPMA, and
IDL, inspired by the vision of
ANACOM on SMART cables and
the CAM ring



CAM = Continental Portugal
+ Azores
+ Madeira



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Opportunity

- Deployment of the new CAM ring by 2024, in the PT EEZ.
- Portugal requested additional services on this new infrastructure, namely public services for civil protection and scientific research.
- We will establish a long-range, permanent, and real-time submarine observatory in the Atlantic by:
 - Attaching sensors to the submarine telecommunication repeaters/cables
 - Including interferometers in the submarine cables' landing stations for earthquake and tsunami sensing (ongoing research)



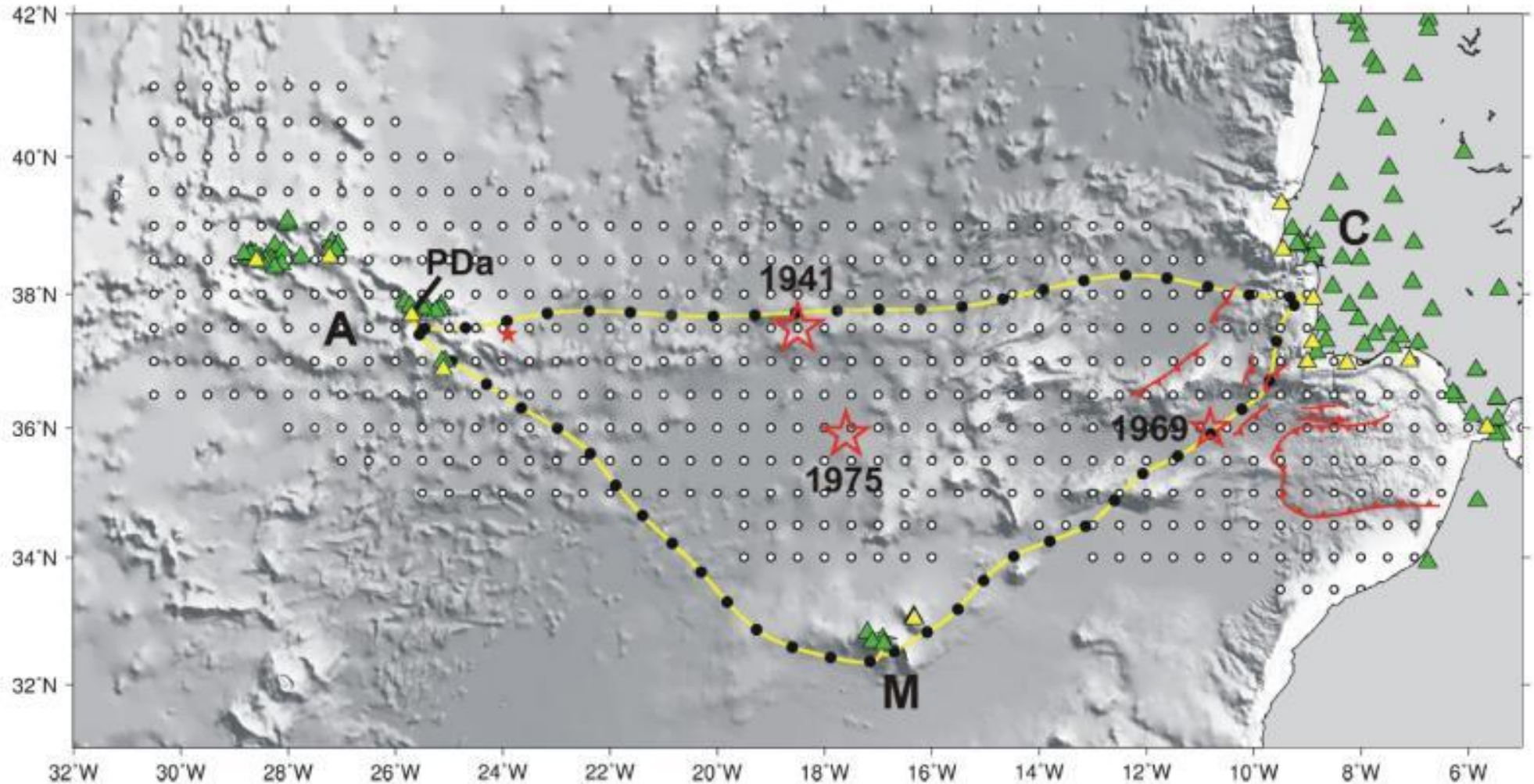
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A new framework

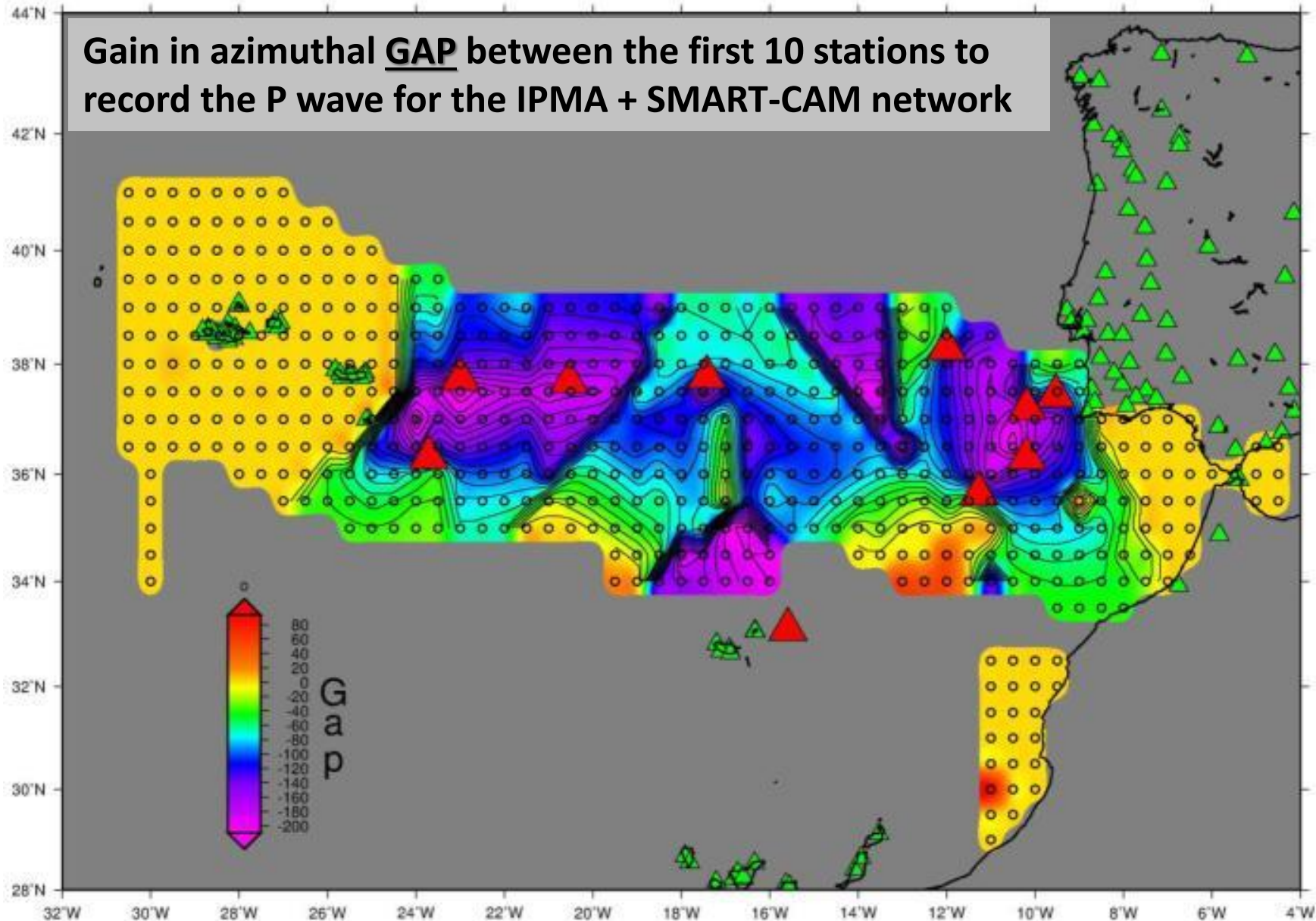
hypothetical sensor locations (accelerometers, pressure gauge, temperature sensors, seismometers, hydrophones, ...)



- ▲ seismic stations (land)
- ▲ coastal tide-gauge stations



A new paradigm on tsunami (and EQ) WS



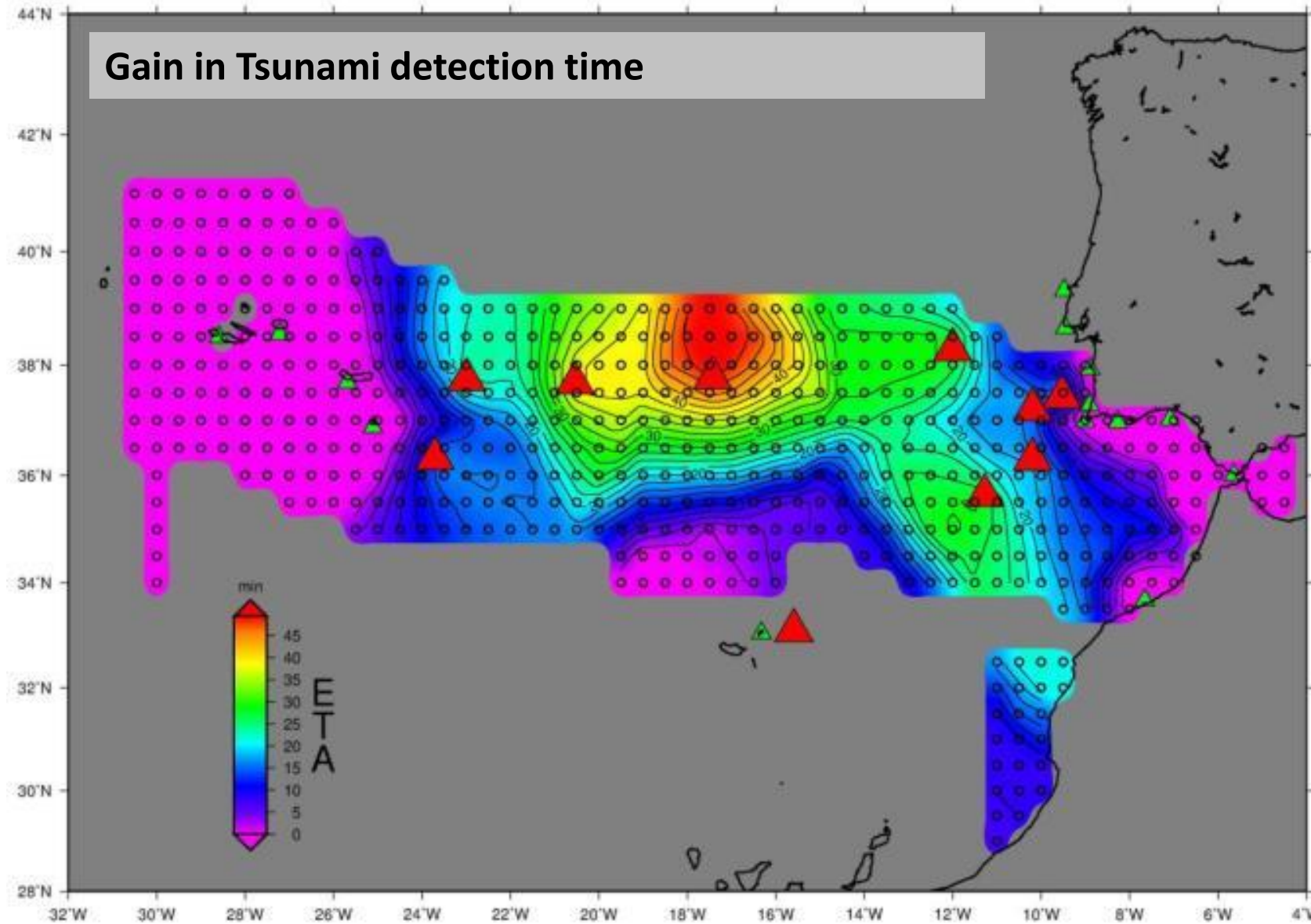
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Matias et al., 2020

A new paradigm on tsunami (and EQ) WS



The improvement on the tsunami early warning time is significant (greater than 10 minutes) in a wide area between 23°W and Portugal and Morocco coastal areas.

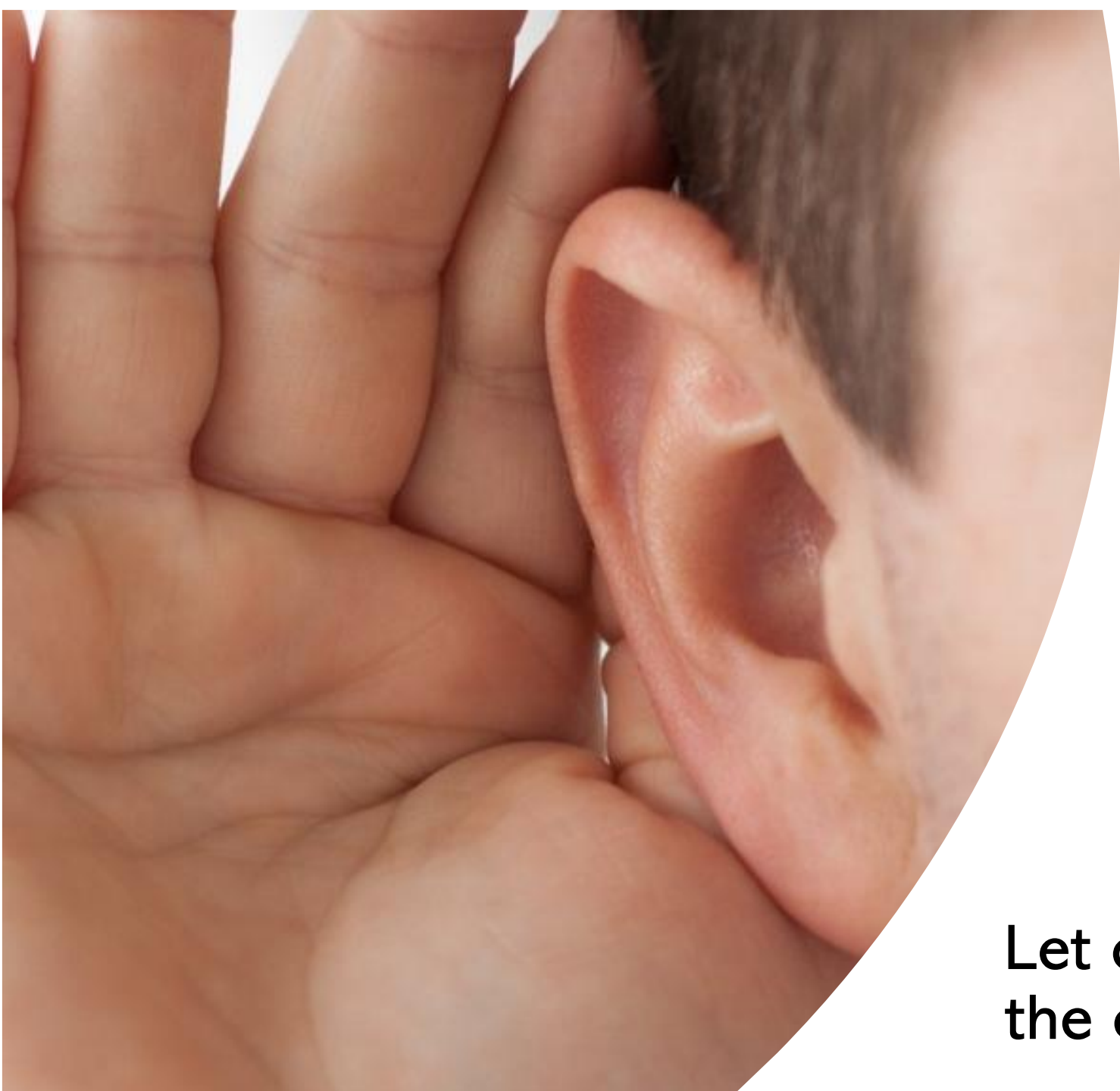
Matias et al., 2020



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**Let citizens listen to
the ocean !**



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from explorers to curators