

Marine Geohazards in the Mediterranean Sea:

a specific threat to economic activities in a geologically active region

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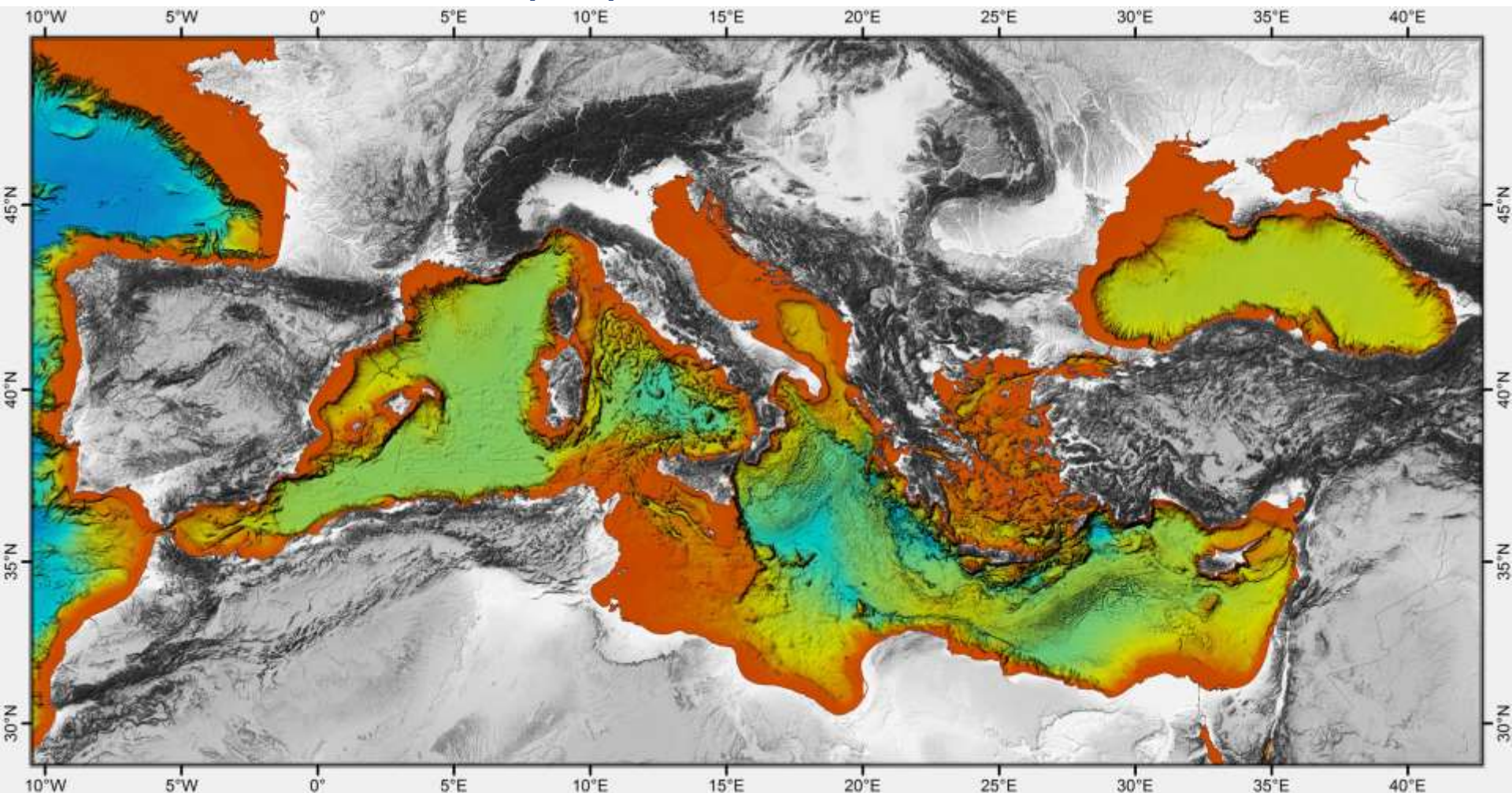
ΜΕΣΟΓΕΙΟΣ
Earth's
center

**A cultural, touristic, economic center
developed diachronously along the
shoreline**



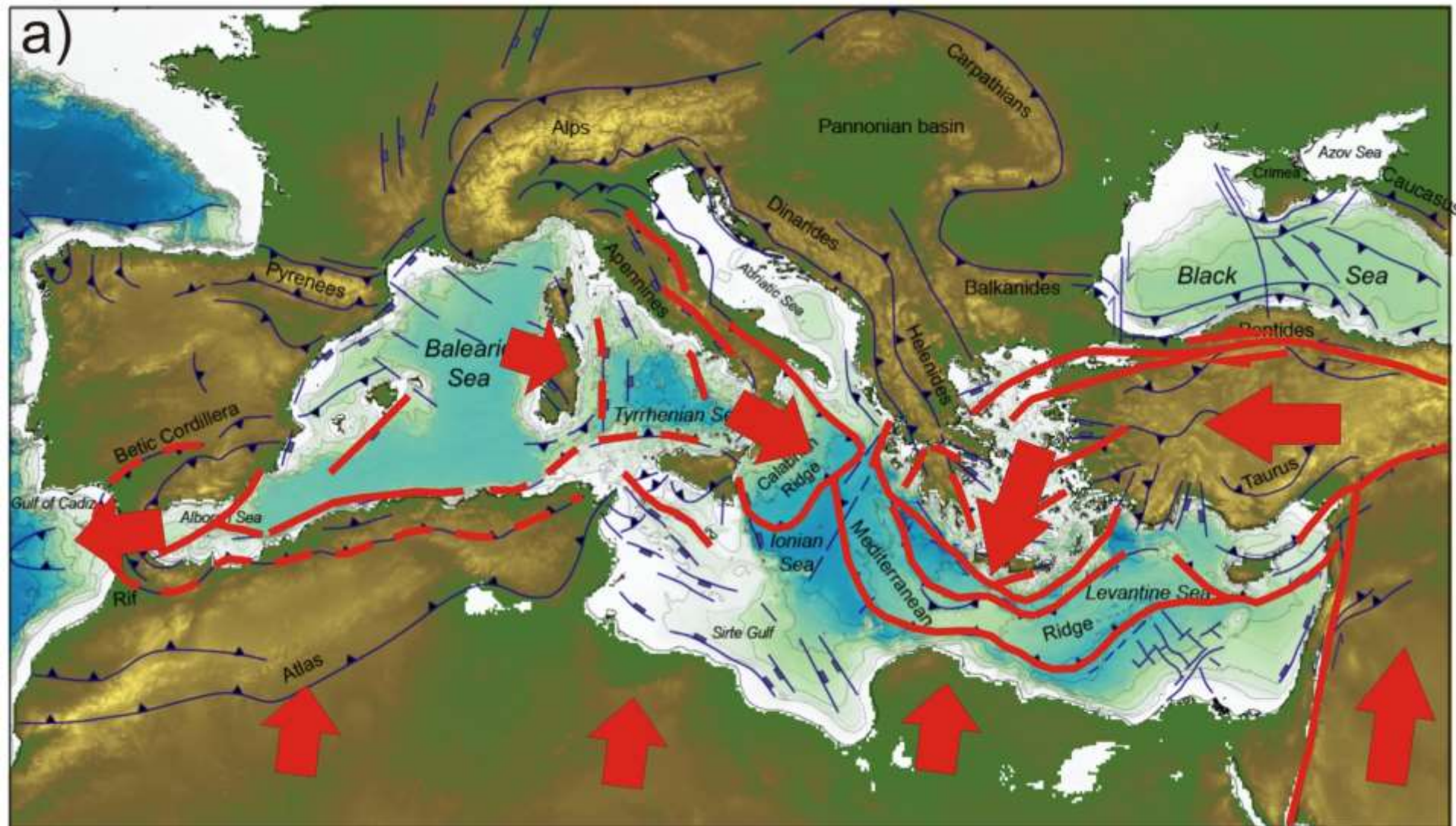
The Mediterranean Seafloor

**Maximum Depth 5200 m – Deep flat basins – Narrow trenches & troughs –
Steep slopes – Submarine mountains**

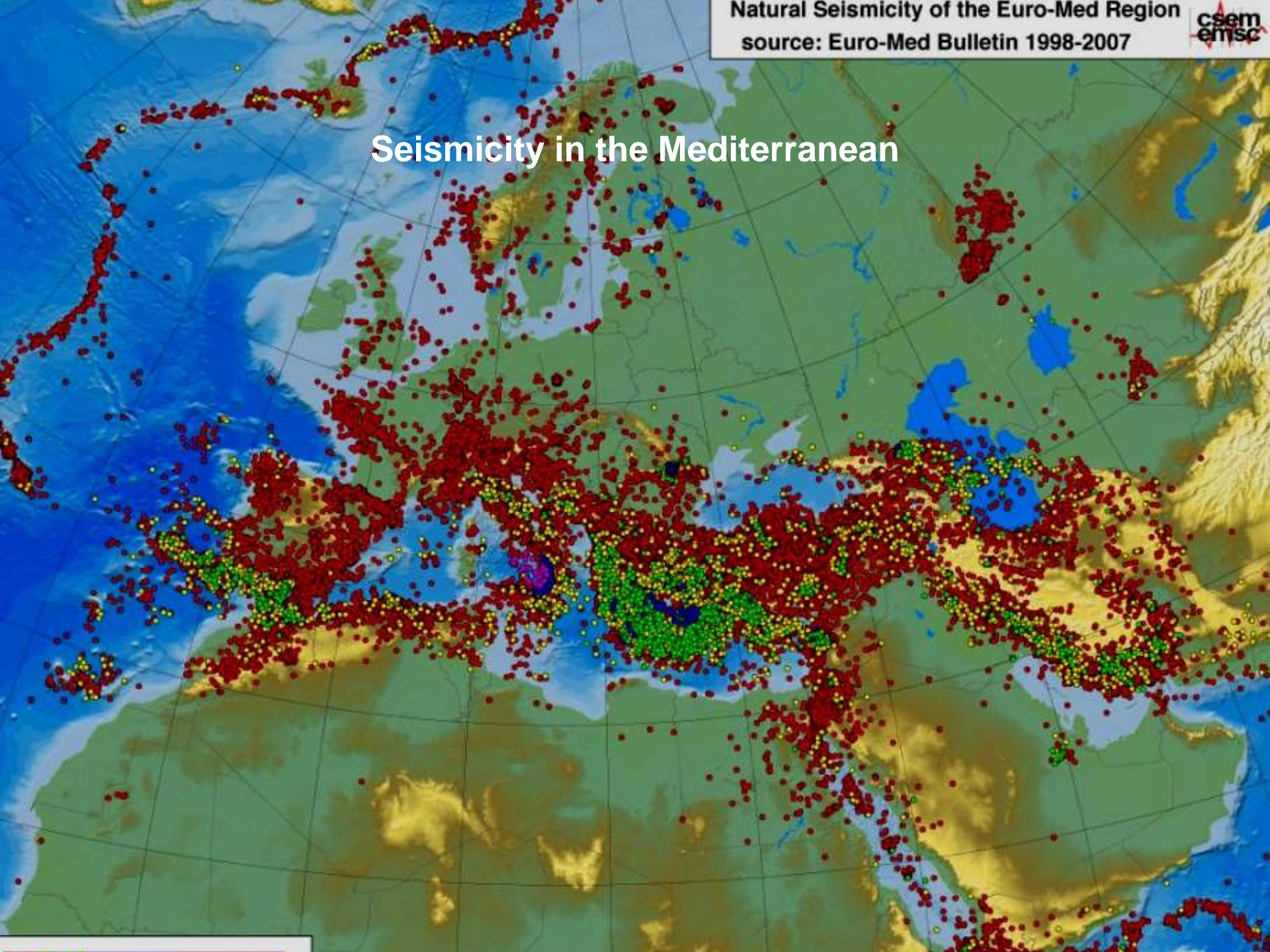


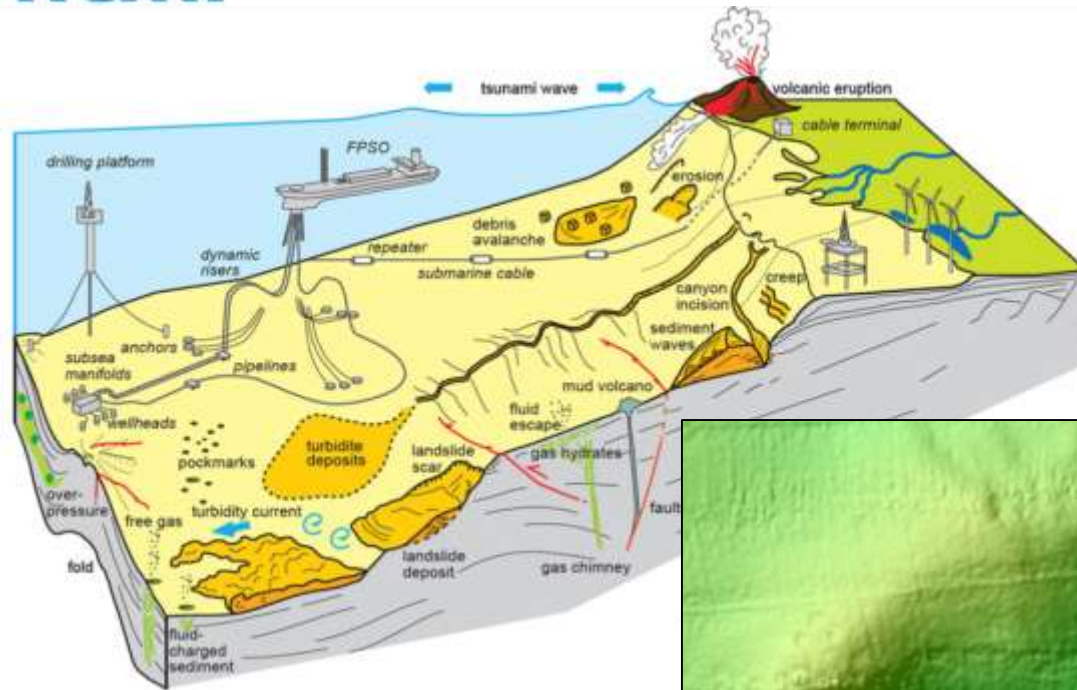
EMODNET Bathymetry 2016, www.emodnet.bathymetry

Active Plate Tectonics in the Mediterranean



Seismicity in the Mediterranean

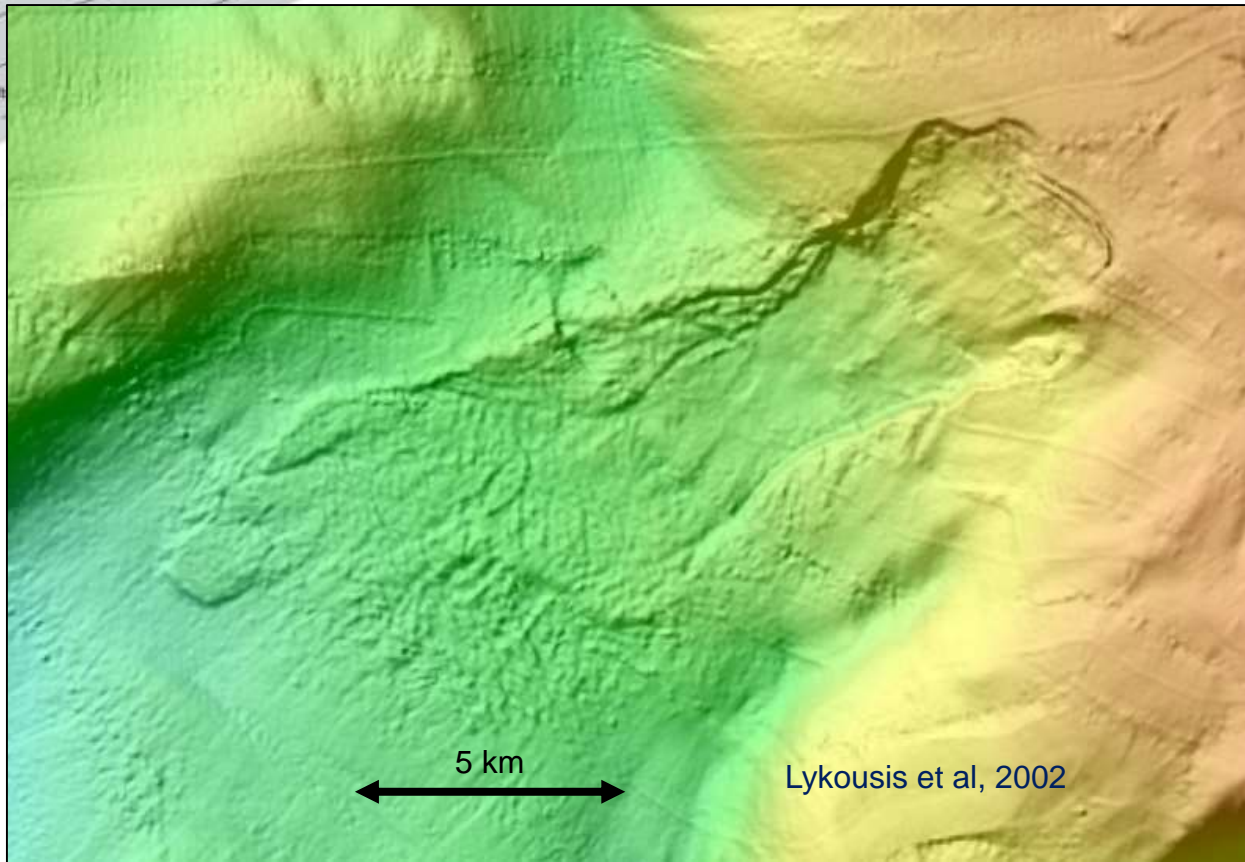




**Are marine geohazards
a potential threat
for the Mediterranean?**

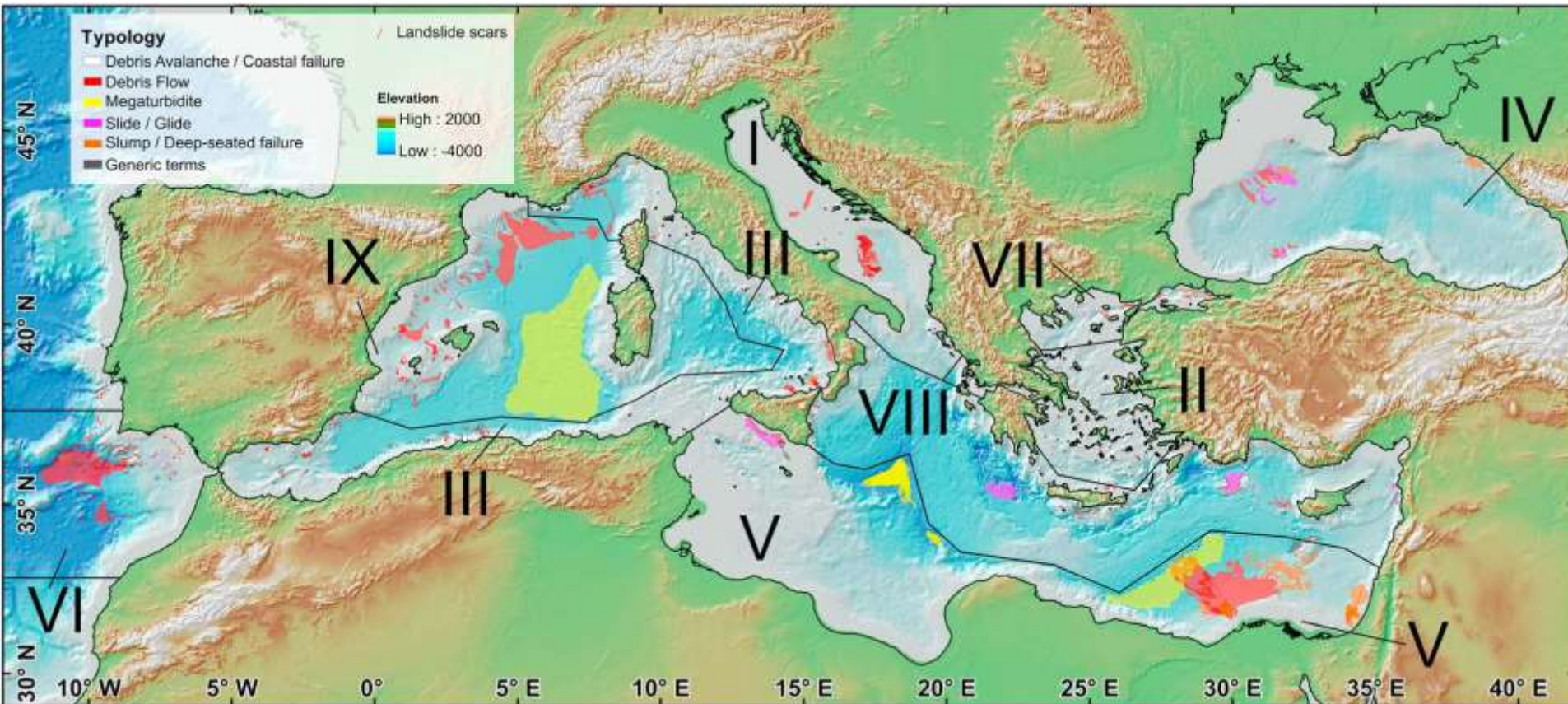
Chiocci et al. (2011)
Marine Geophysical Researches

**Coastal / submarine
failures:
the most frequent
geohazard in the Med**



Lykousis et al, 2002

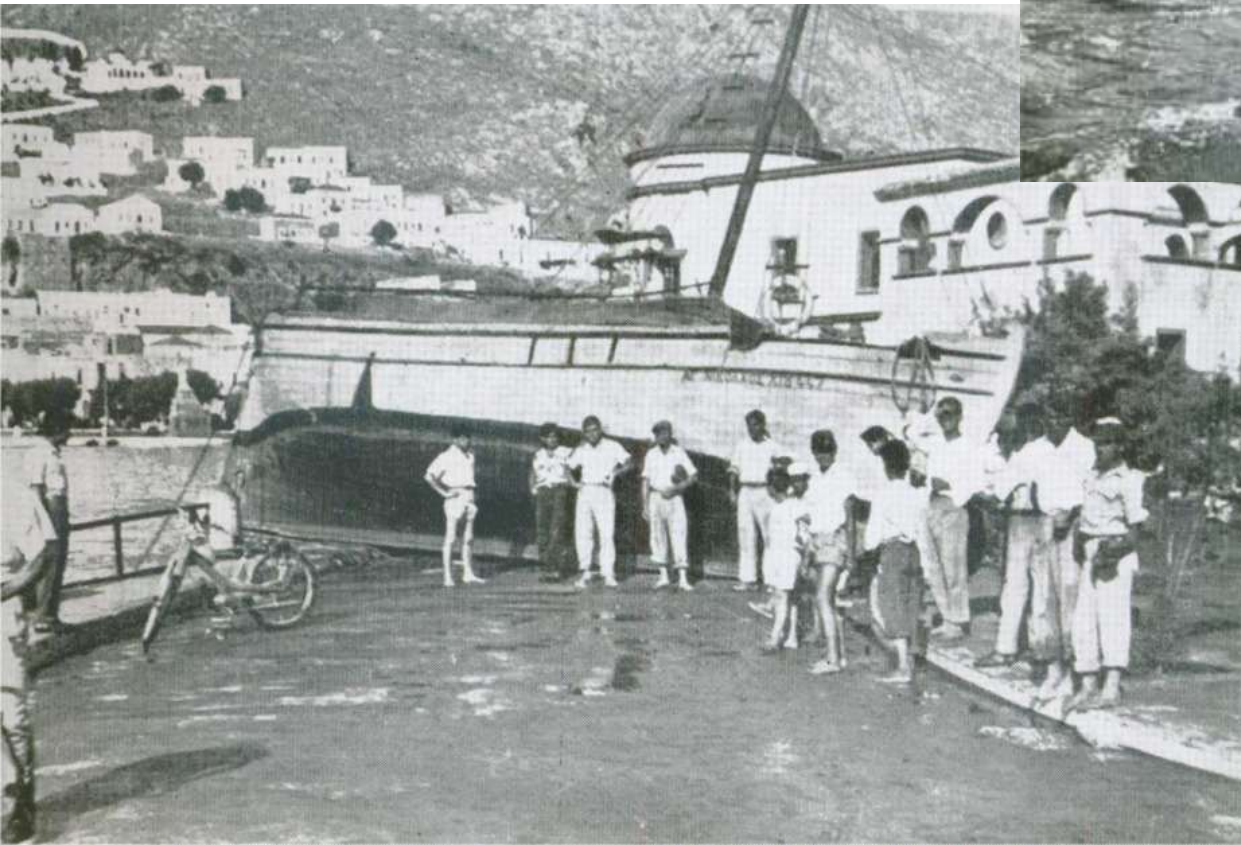
Submarine landslide deposits on the Mediterranean seafloor



Urgeles & Camerlenghi, 2013

Amorgos, Aegean Sea, Greece, July 1956:

**An M:7.5 earthquake triggered
submarine landslides
>15m tsunami runup**



Goia Tauro, Italy, July 1977: Coastal collapse off the harbor generated local tsunami, 5 m high

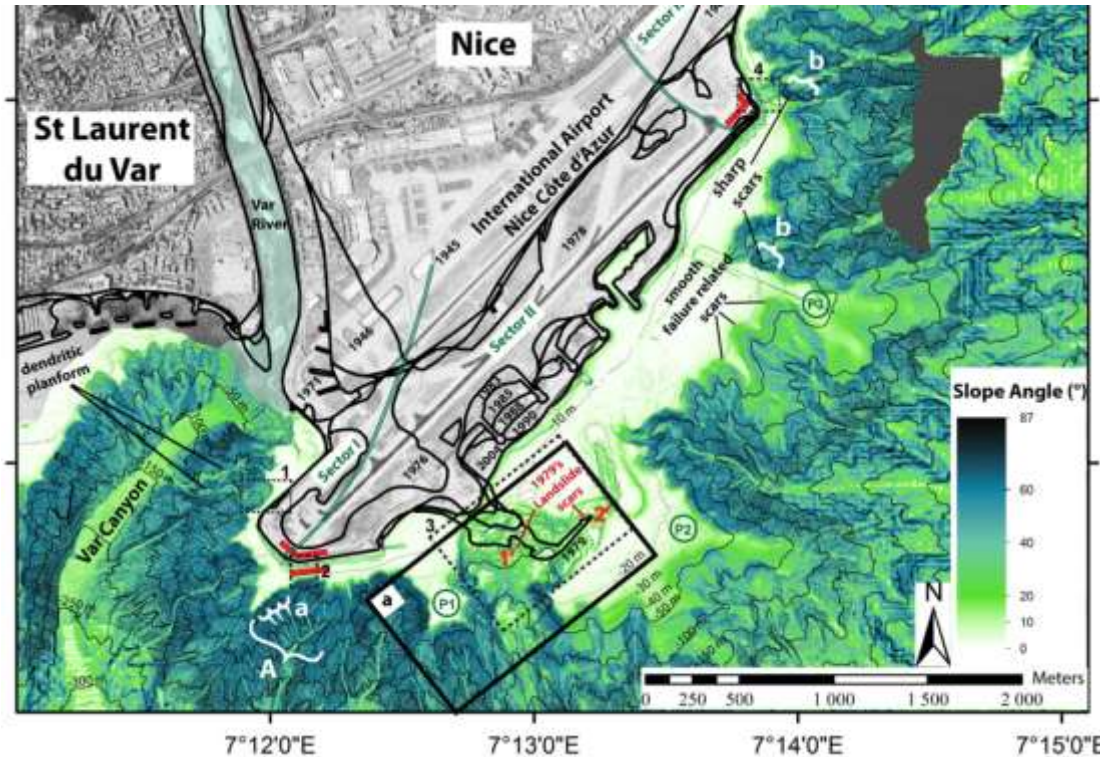


*Shaded relief map of the headwall
of Gioia Tauro Canyon*



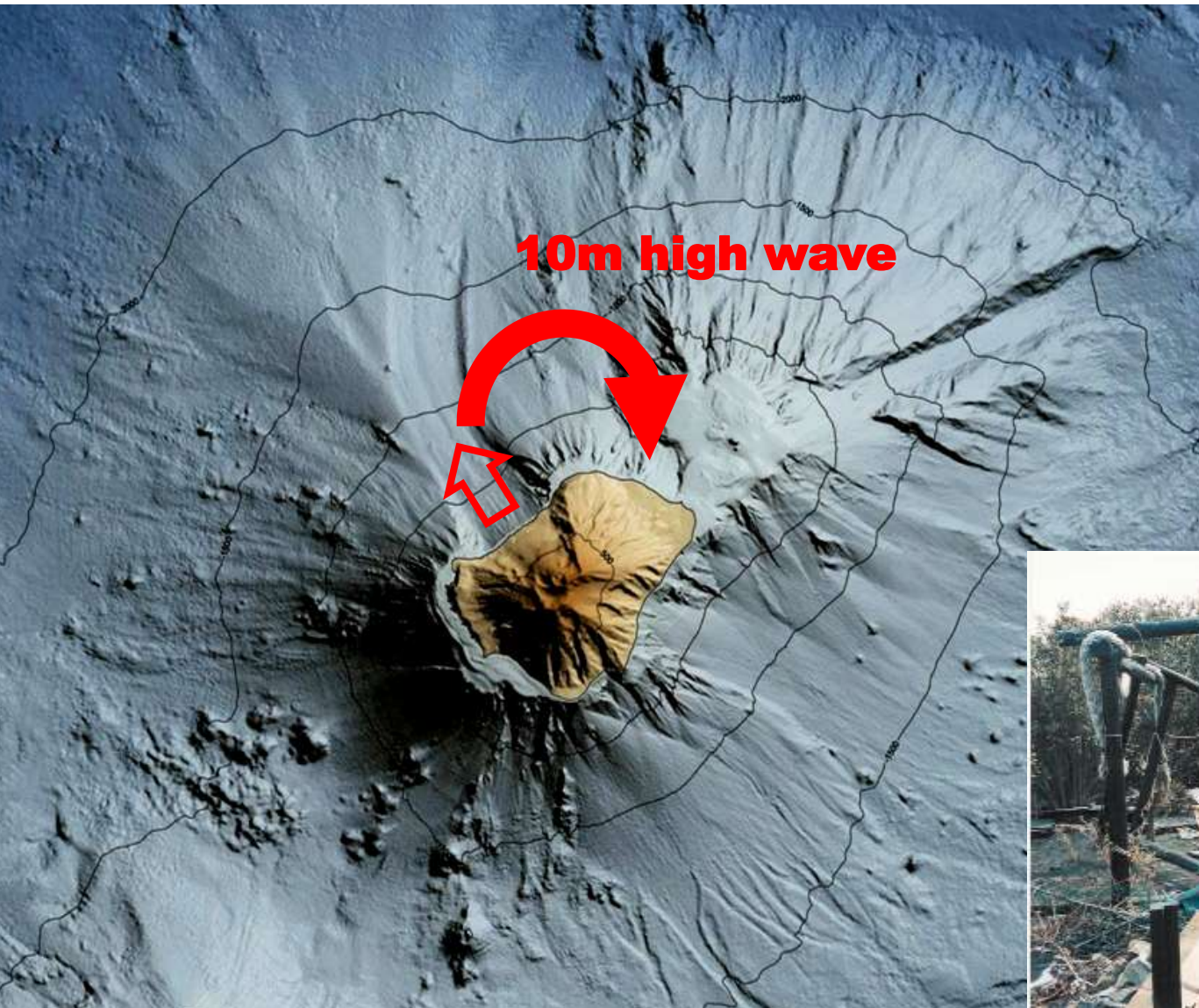
Gioia Tauro harbor under construction. Note the dredges at work within the basin and the barge disposing at sea the dredged material, just outside the harbor entrance, where a landslide will occur on 12/7/1977

Human-triggerred tsunami



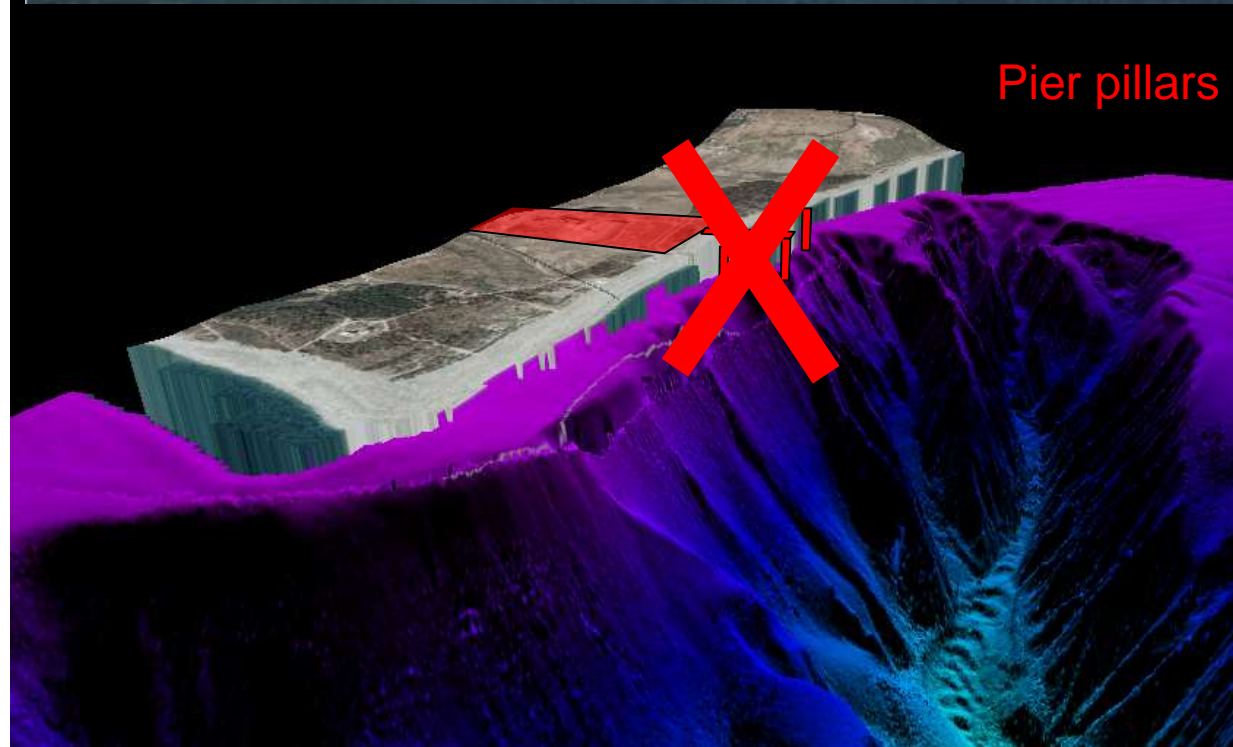
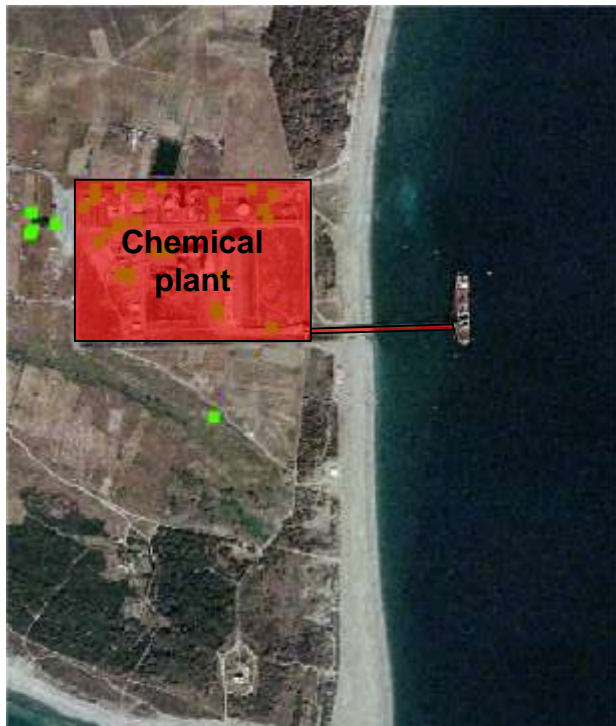
Tsunami runup: 3.5 m
8 people killed
Huge economic damage

Stromboli, Italy, December 2002: On/off-shore landslide generated local tsunami



Madonna del Mare, Ionian Sea, Italy, 2006

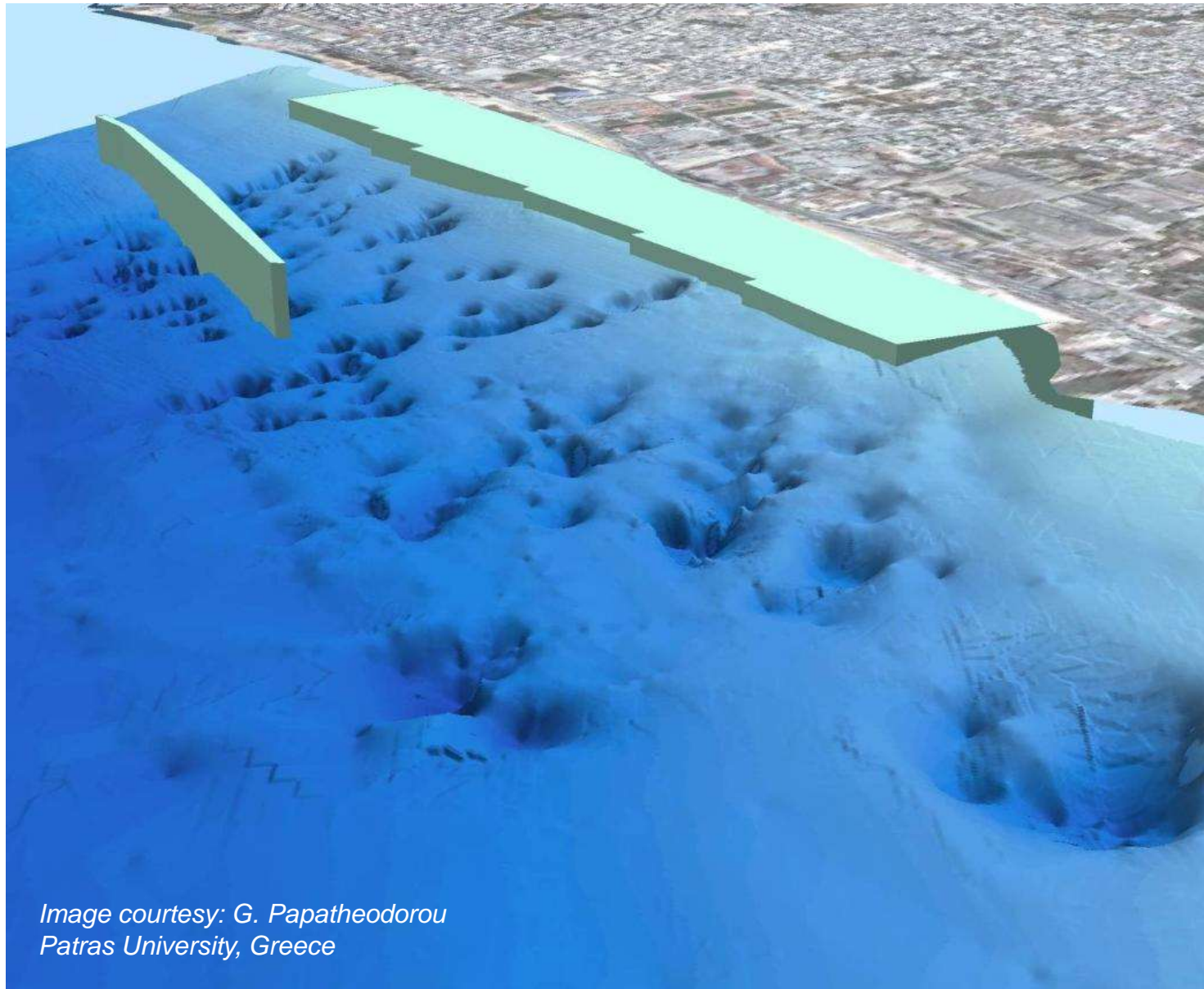
**Two pillars
incorporated in a
recent landslide at
the head of the
canyon**



Patras, Greece: The new harbor

A disaster to come:

The new harbor of Patras is constructed within an active pockmark field (gas release structures)

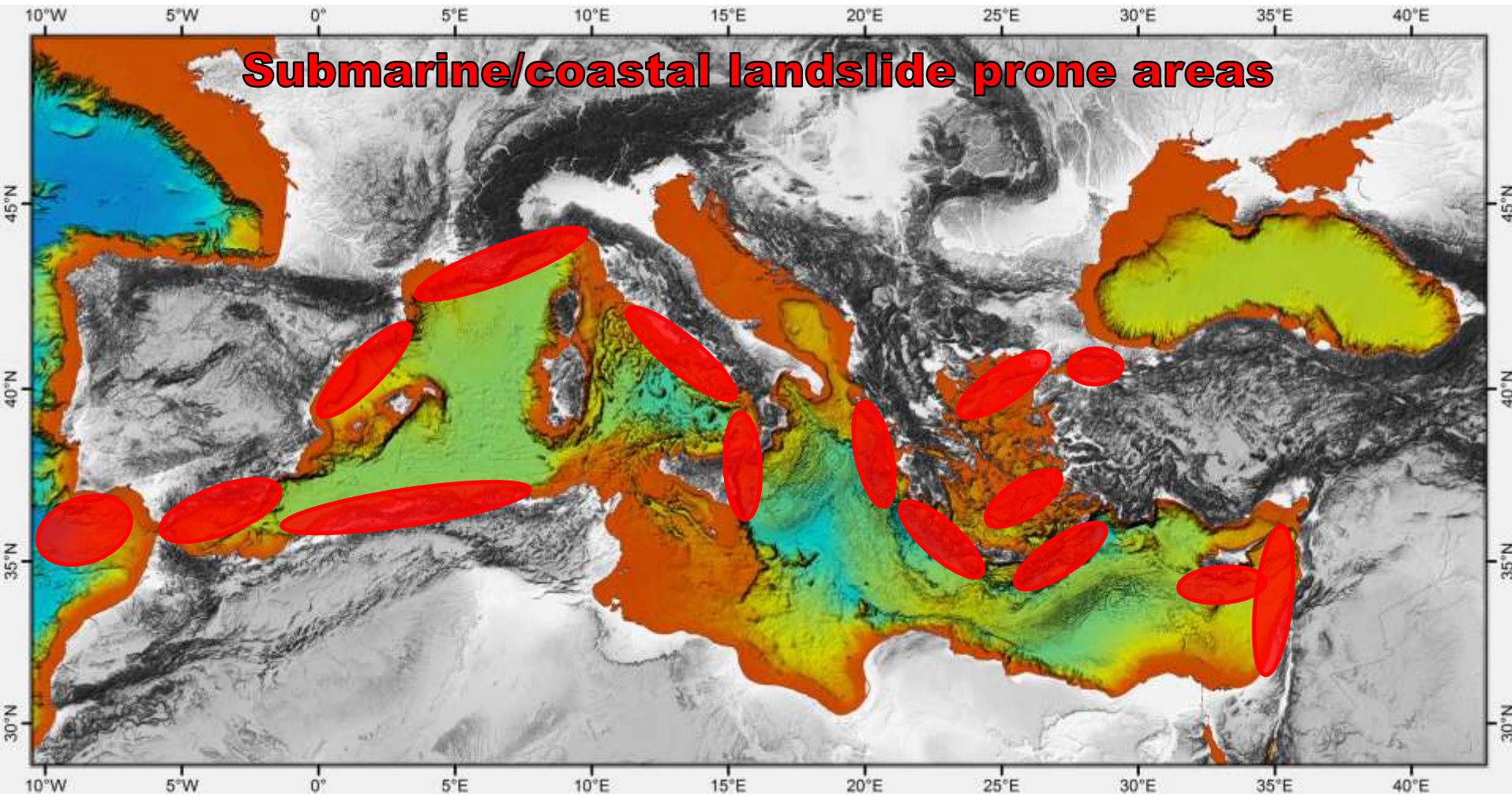


*Image courtesy: G. Papatheodorou
Patras University, Greece*

Is the Mediterranean coastal zone at threat?

The research community can generate/provide data, information, assessments

**Is the society willing / able to invest in research
to protect coastal zones against marine geohazards?**



COASTAL FAILURE, 7th March 2012

Derveni, Gulf of Corinth, Greece



THANK YOU