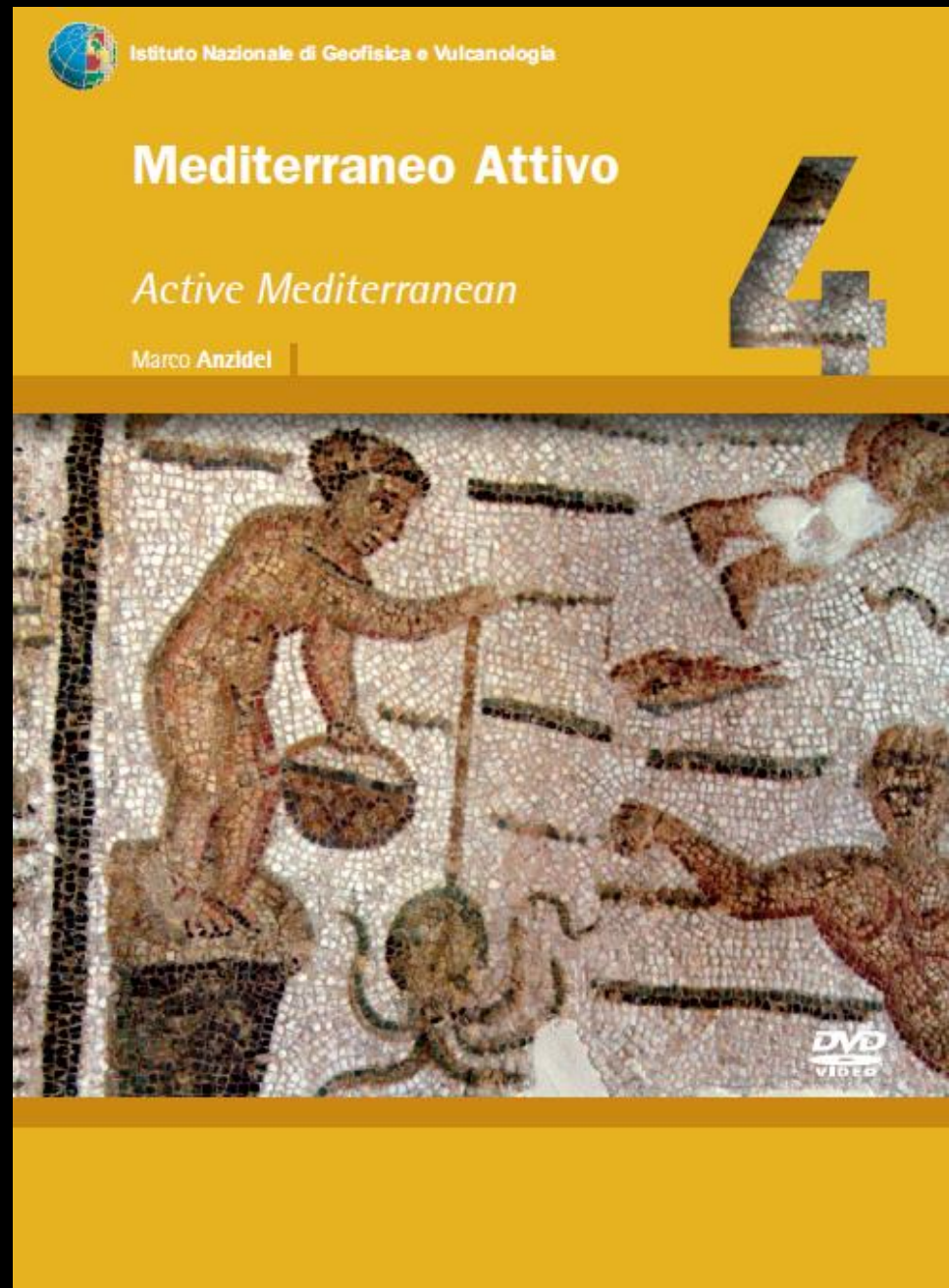


Active Mediterranean Multimedia DVD – 2011

Selected by and awards

- ❖ Vedere la Scienza, Milano 2011
- ❖ Rassegna Internazionale del Cinema Archeologico, Rovereto 2011
- ❖ DocScient 2011, Roma
special award
- ❖ AC, Oregon University, USA 2011
invited
- ❖ Film & Water Symposium, 2011
Marseille **invited**
- ❖ Festival du Film d'Archéologie
d'Amiens, 2011 **invited**
- ❖ Pelagosarea, Roma, 2011
**special award in science
communication**



Active Mediterranean is a MIUR project



Active Mediterranean is a multimedia video





Active Mediterranean: hardware and software



**Sony P170 Mini DV (non HD)
recycled camera from the INGV
photo Lab**



**Nikon D100/D300
(my own camera)**



**Underwater video camera
Sony HC9E (Mini DV-HD)**



**Underwater photo camera
Nikon D70 (second hand)**



**Video editing by
Premiere Pro
and Final Cut**



MENU

- RIPRODUCI IL FILM
PLAY
- SELEZIONA SCENE
SCENE SELECTION
- CONTENUTI AGGIUNTIVI
ADDITIONAL CONTENTS
- CREDITI
CREDITS

**Authoring by
TERRA srl**

**Graphics by
INGV Lab**





Some numbers for *Active Mediterranean* (57 min long multimedia documentary - HD quality)

- **760** GB of data
- **82** directory
- **30** hours of video footage
- **48** animations
- **11** sound effects
- **2** speakers (Italian & English: Daniele Valenti and Clive Richie)
- **1** soundtrack (Davide Citrolo)
- **7** interviews
- **8** chapters with subtitles
- **8** texts with extra information
- **10** extra videos
- **2** additional contents: photogallery, interviews, focus on specific zones
- **4** months of working time (weekends and nights only!)
- **5000** **cost in Euro:** speakers soundtrack, authoring, copyright, audio/video optimization and print of **3000** DVD copies with cover (graphics included).

Powerful computers with high quality graphic boards, are required to manage video files



Goals of *Active Mediterranean*

- ✓ Translate scientific findings in a simple language understandable for everyone
- ✓ Show how scientists work
- ✓ Tell the evolution of the Mediterranean basin and show why earthquakes, volcanic eruptions, tsunamis, climate and sea level changes are part of the Earth system that have conditioned the human life in time.
- ✓ Low cost documentary! Scenes taken during field surveys, lab work and meetings.

Why show the Mediterranean by a video?



- ✓ **Scientific communication is a crucial task for scientists**
Videos are a powerful way to capture the attention and curiosity of people of every age.
- ✓ **Show our job**
some people do not know what scientists do
- ✓ **Share scientific findings by an attractive story**
simple, attractive, reassuring and with exciting scenes
- ✓ **Past examples: a famous scientific communication in 1851**
Focault explained to the citizens of Paris the Earth's rotation, using a simple suspended pendulum in the Pantheon. It was a great mediatic success.

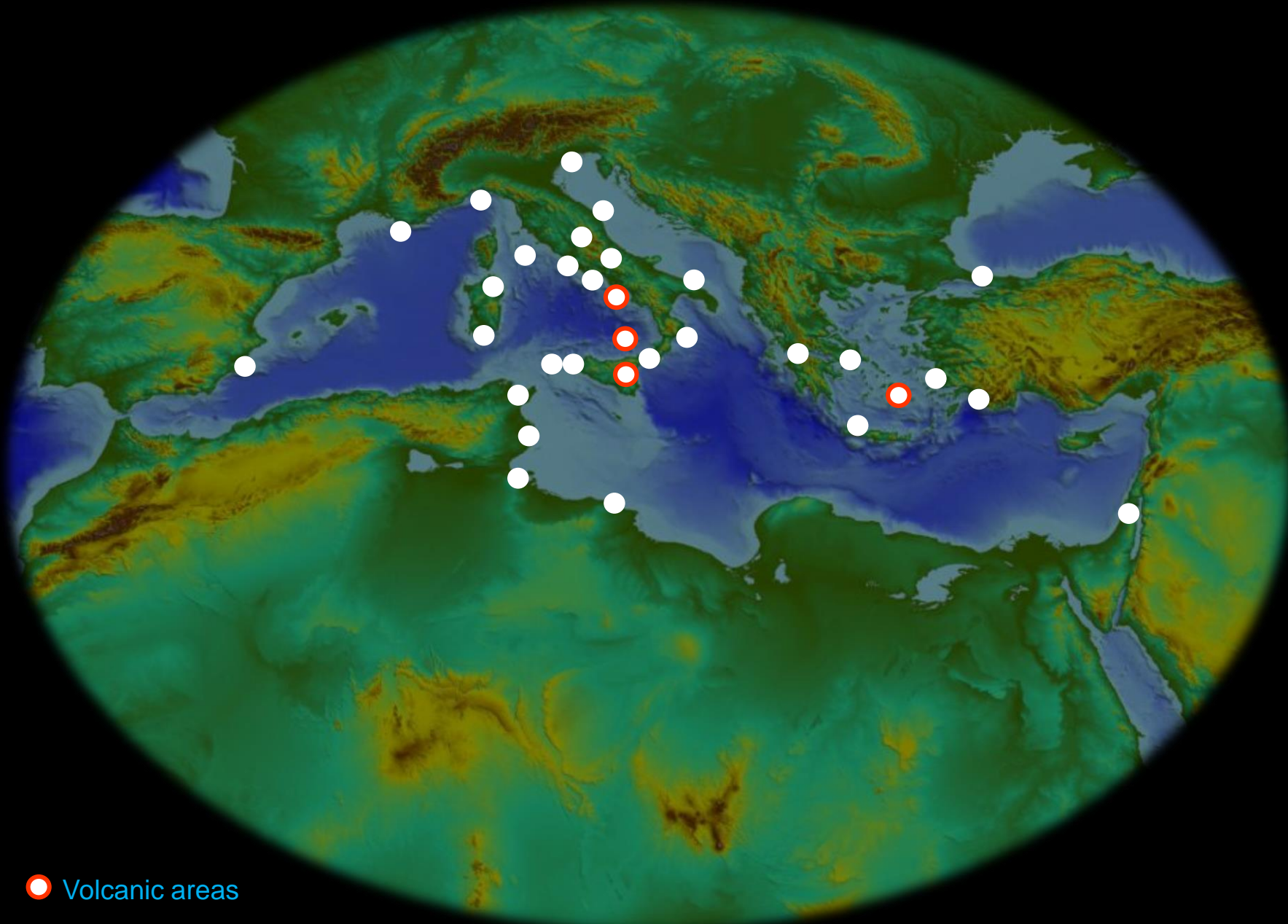


Active Mediterranean: main topics

- ✓ **The Mediterranean: an overview**
- ✓ **Geological evolution**
- ✓ **The salinity crisis**
- ✓ **The flooding of the Black Sea**
- ✓ **The archaeological evidence of sea level changes**
- ✓ **Earthquakes, volcanoes and tsunamis**
- ✓ **The next Mediterranean**

Additional contents: photogallery, interviews, etc.

Active Mediterranean: about 40 locations



● Volcanic areas

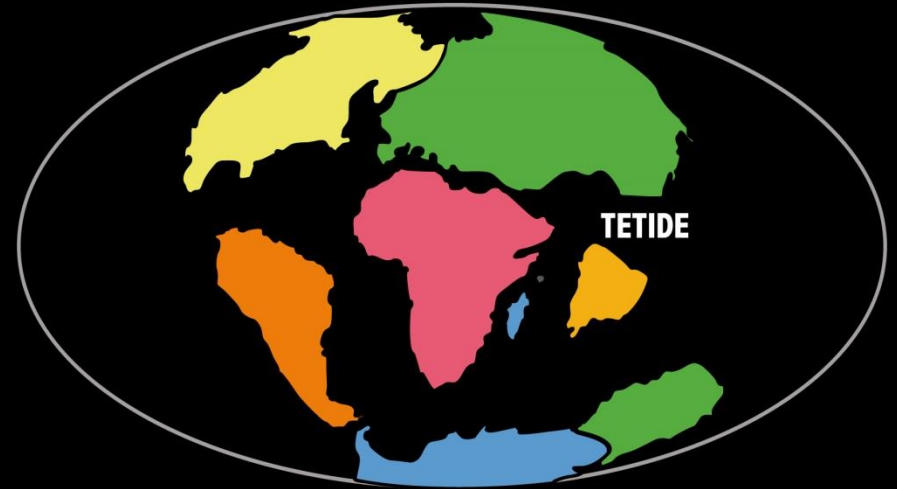


The Mediterranean since the beginning

250-200 Ma BP



140-60 Ma BP

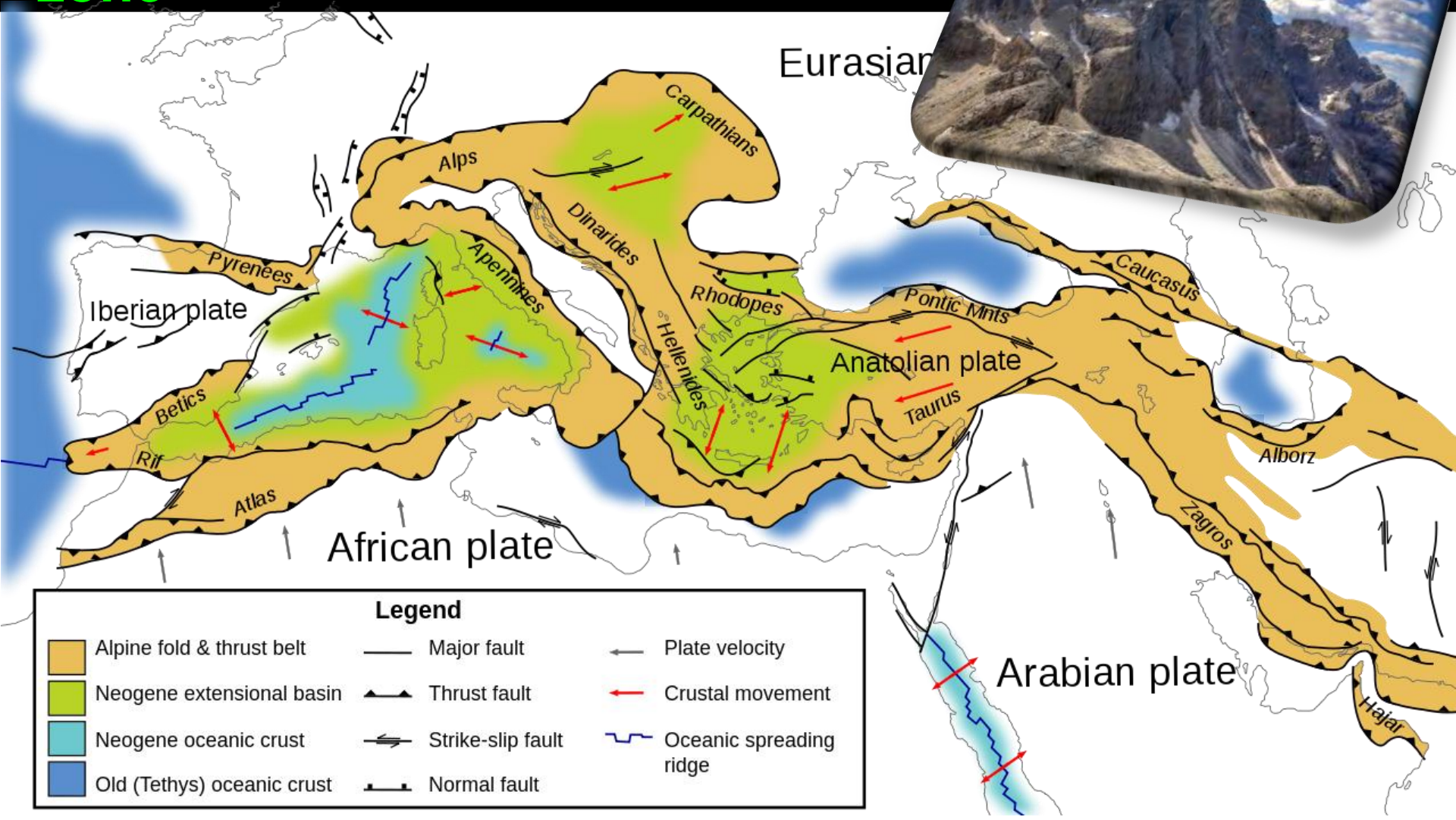


Today



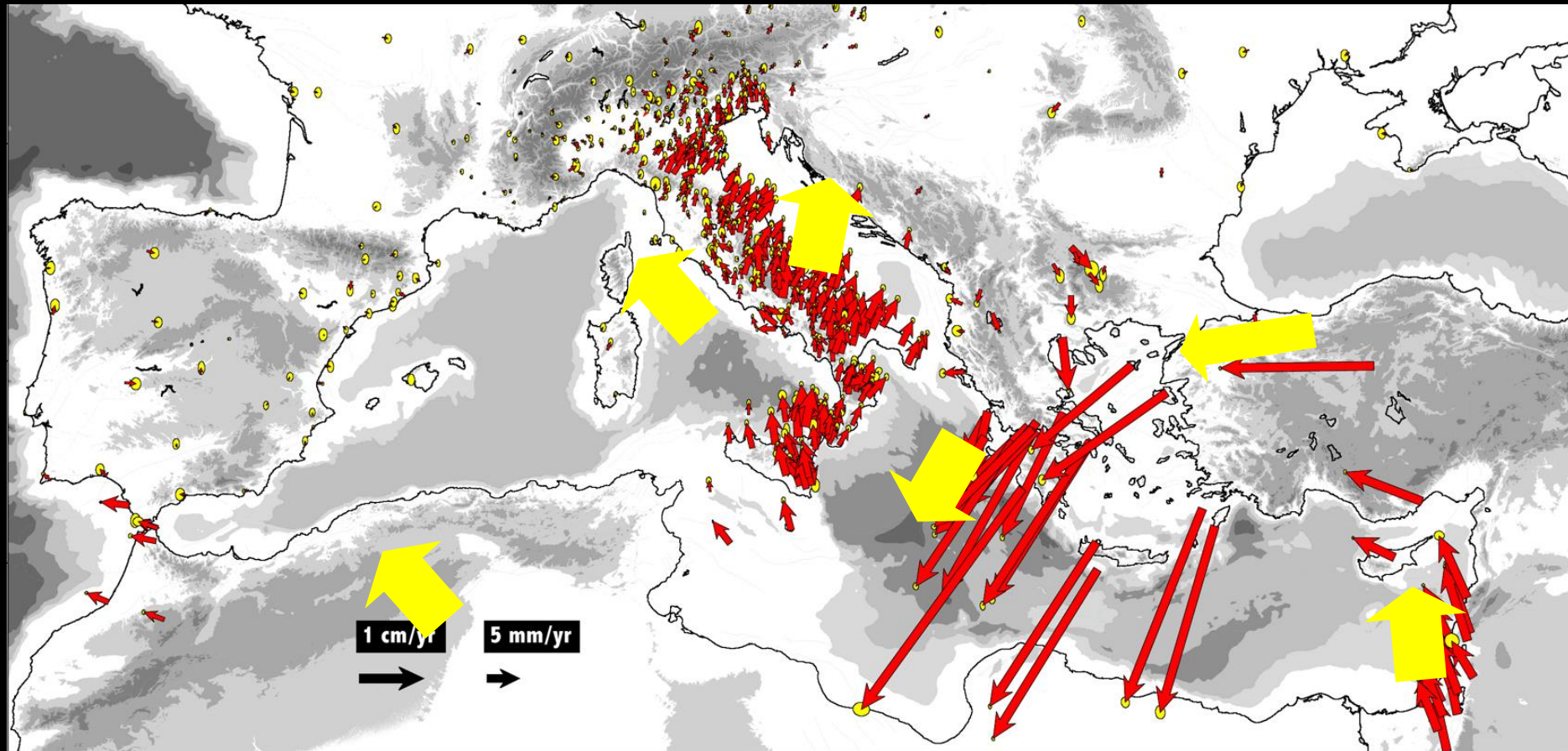


The Mediterranean is an active and highly deformed tectonic zone





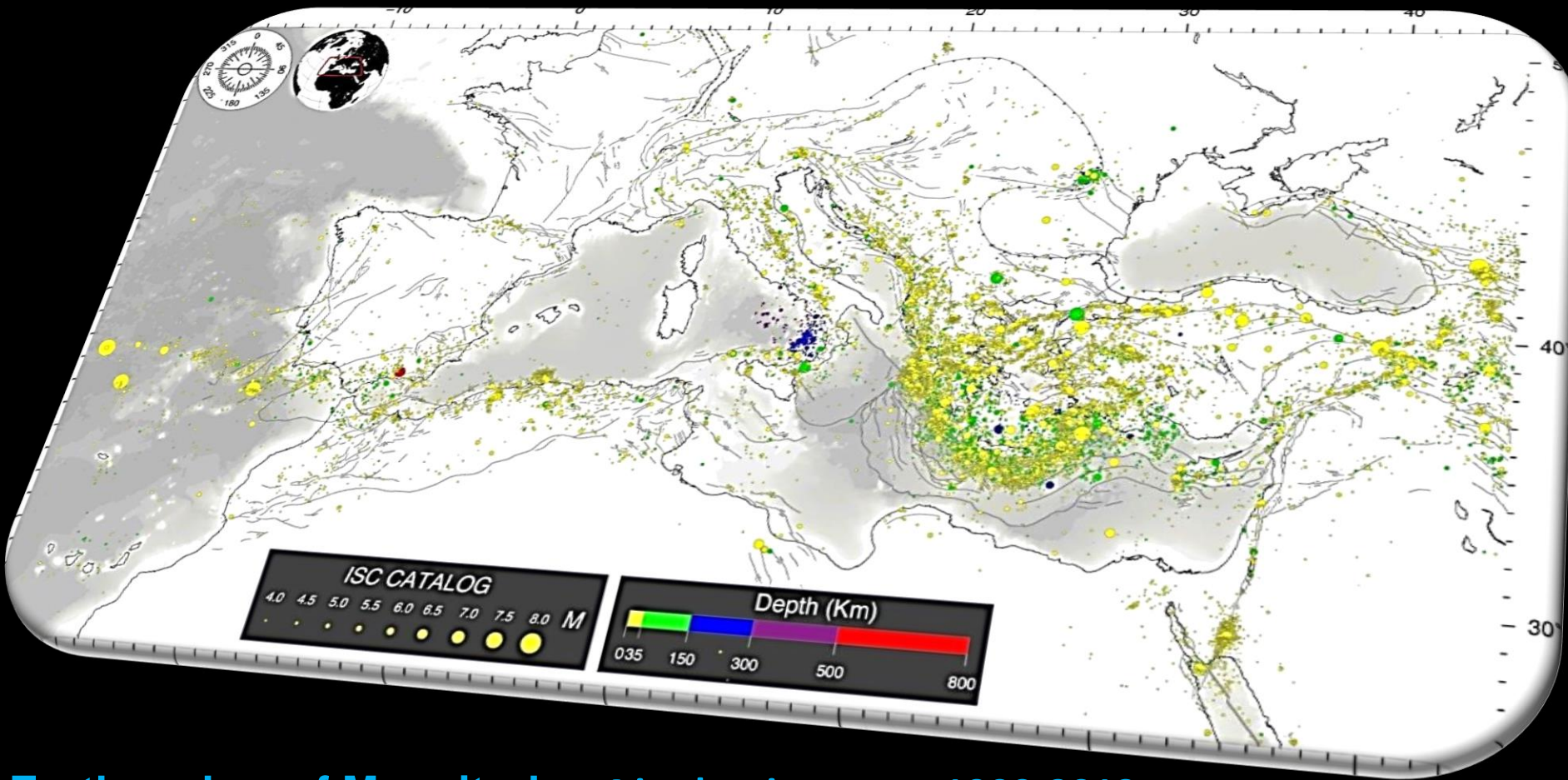
Plates and microplates are moving



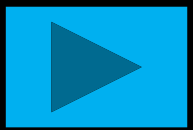
GPS horizontal velocity in the Mediterranean from GPS data (95%) with respect to Eurasia.
Yellow arrows are the mean directions.



Earthquakes are continuously shaking the Mediterranean



Earthquakes of Magnitude >4 in the time span 1900-2012
(on-line ISC catalogue, 2013 <http://www.isc.ac.uk/>)



The largest earthquakes of the Mediterranean region



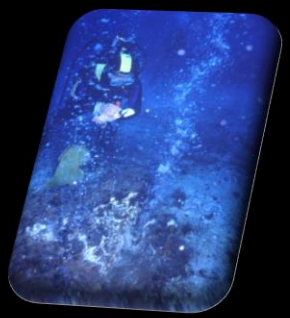
- ✓ Crete: 365 A.D. M=8 (?)
- ✓ Eastern Sicily: January 11, 1693, M=7.5 60.000 casualties
- ✓ Lisbona (PR): November 1, 1755, M=8 60.000 =
- ✓ Messina: December 28, 1908, M= 7.5 90.000 =
- ✓ Erzincan (TK): December 27, 1939, M=7.9 30.000 =
- ✓ El Asnam (AL): October 10, 1980, M=7.3 4.500 =





Active volcanoes of the Mediterranean

- ✓ Campanian Eruption 40.000 yr BP
- ✓ Santorini - Bronze Age 3.500 yr BP
- ✓ Vulcano 180 B.C.
- ✓ Vesuvis, 79 A.D.
- ✓ Etna and Stromboli
- ✓ Ferdinandea, Marsili and Panarea



Panarea

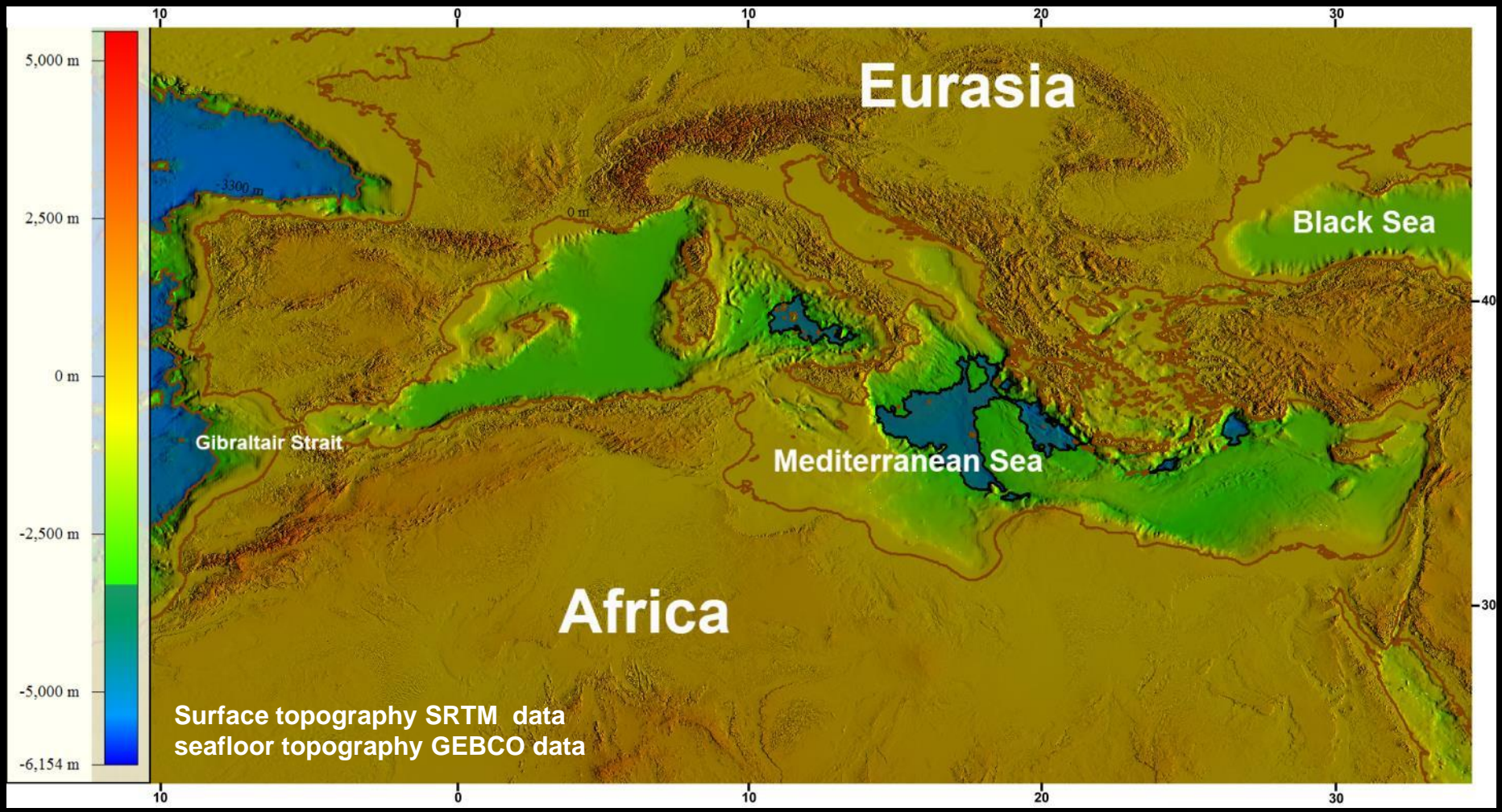


Stromboli

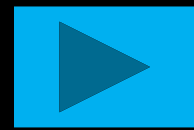


The Salinity Crisis ~6 Ma BP

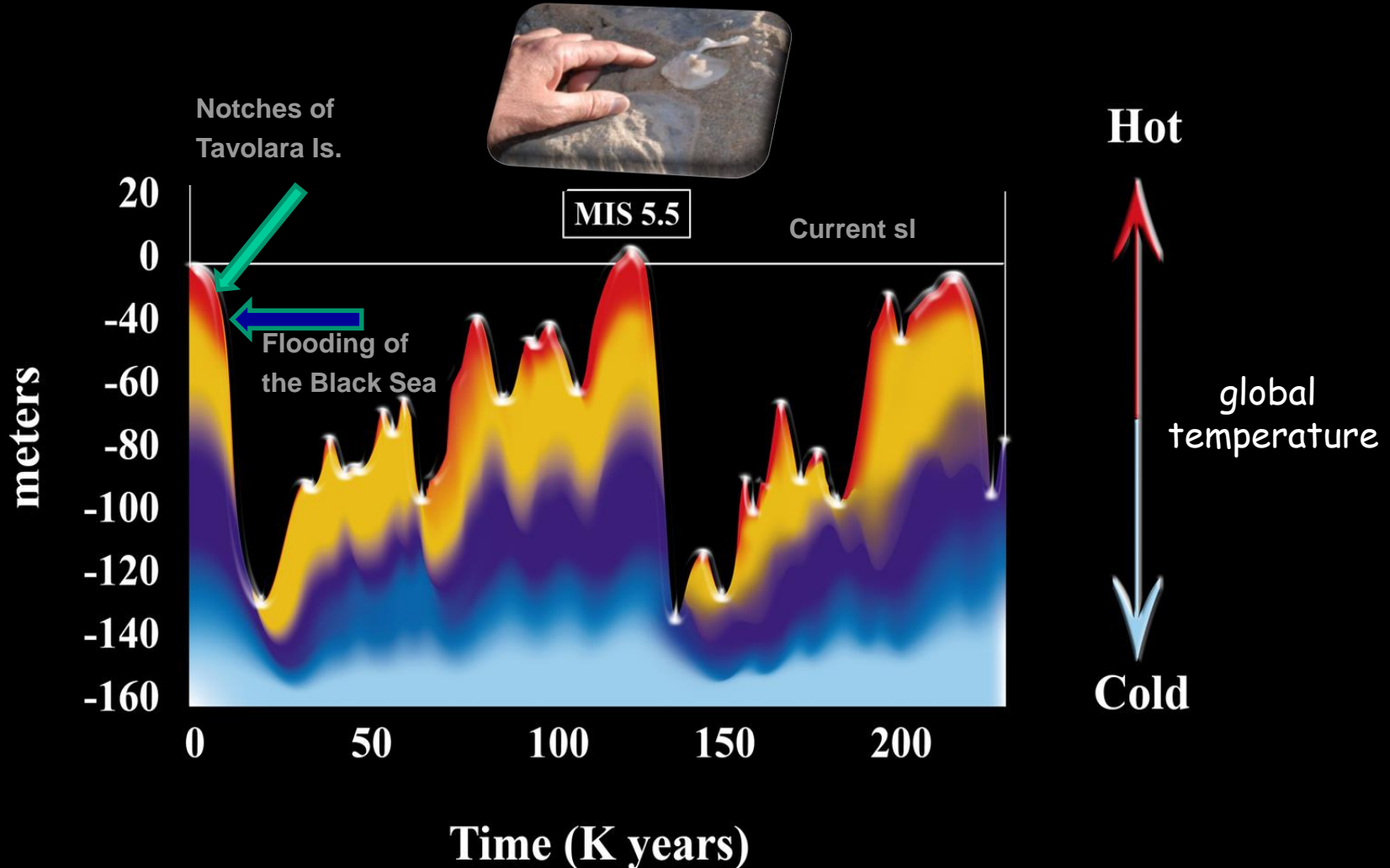
Did you know that ~6 Ma ago the Mediterranean has almost dried up?



Indicative palaeogeographic reconstruction of the Mediterranean coastlines during the Messinian salinity crisis, about 6 Ma BP. Erosion and tectonic displacements are not taken into account.



Sea levels during the last 250 ka

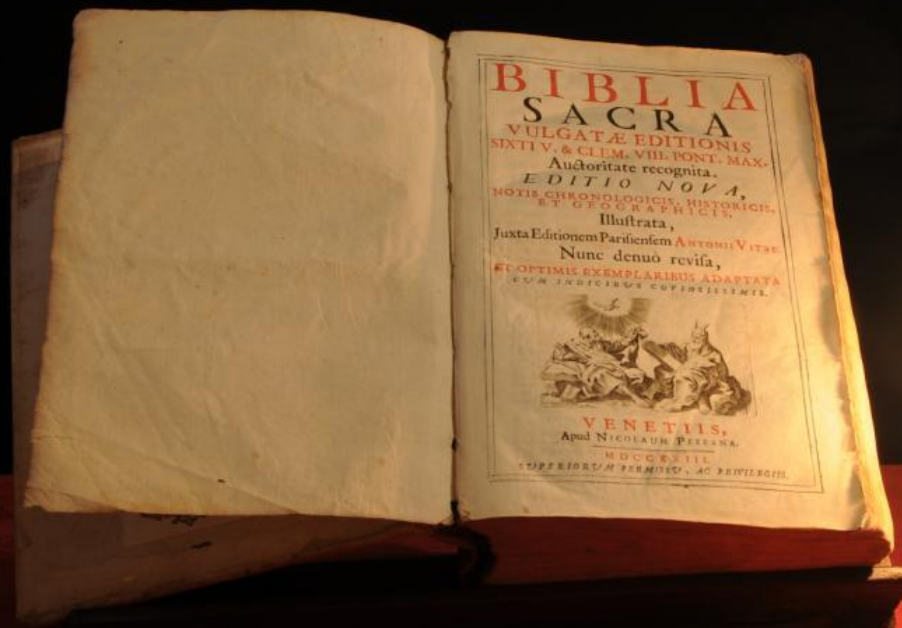


- ✓ 125 ka BP sl was ~7 m higher than today
- ✓ 18 ka BP, during the LGM, sl was ~130 m lower than today
- ✓ 7.5 ka BP the Mediterranean flooded the Black Sea

Tavolara

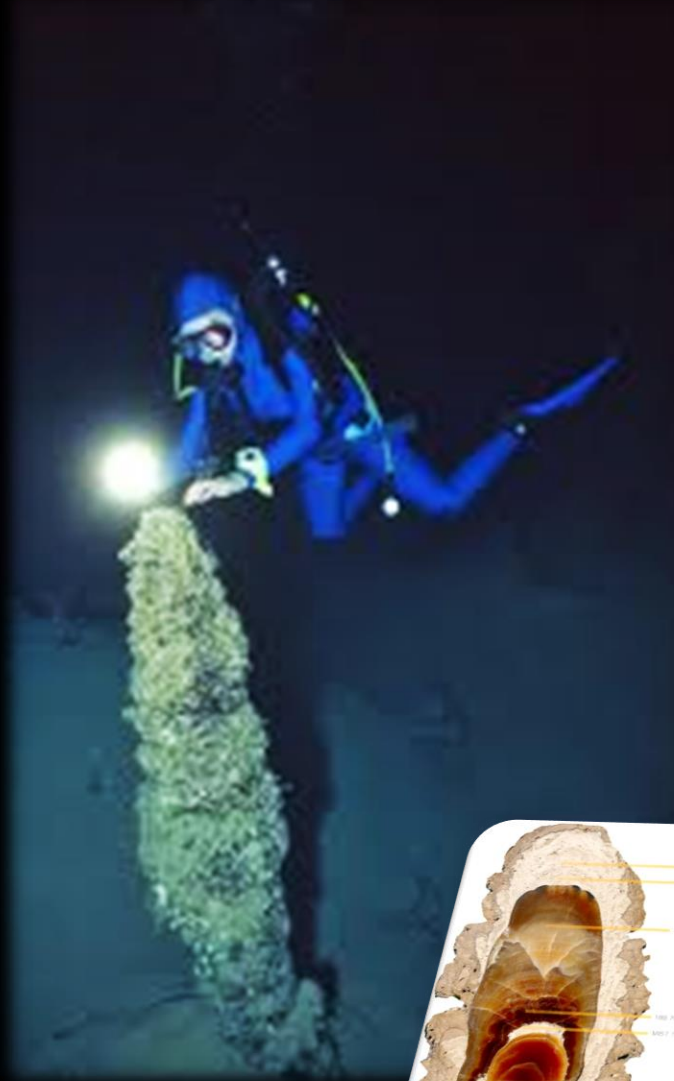


Did you know that about 7.500 years ago
the Mediterranean has flooded the Black
Sea?

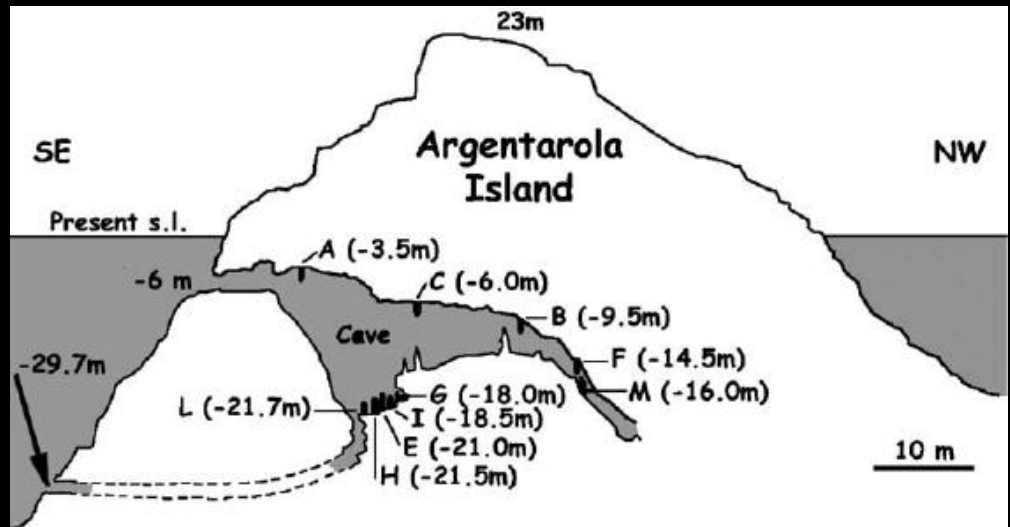
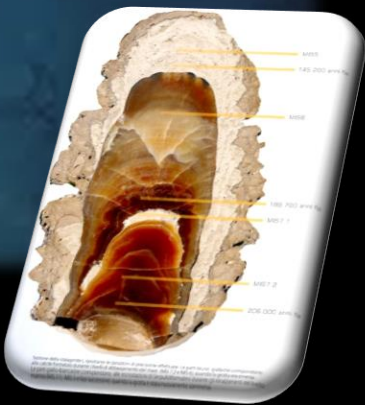




The evidence of past sea levels: the speleothems



The Argentarola cave



The human evidence of past environment

Genovese cave - Egadi islands





The archaeological evidence of sea level changes



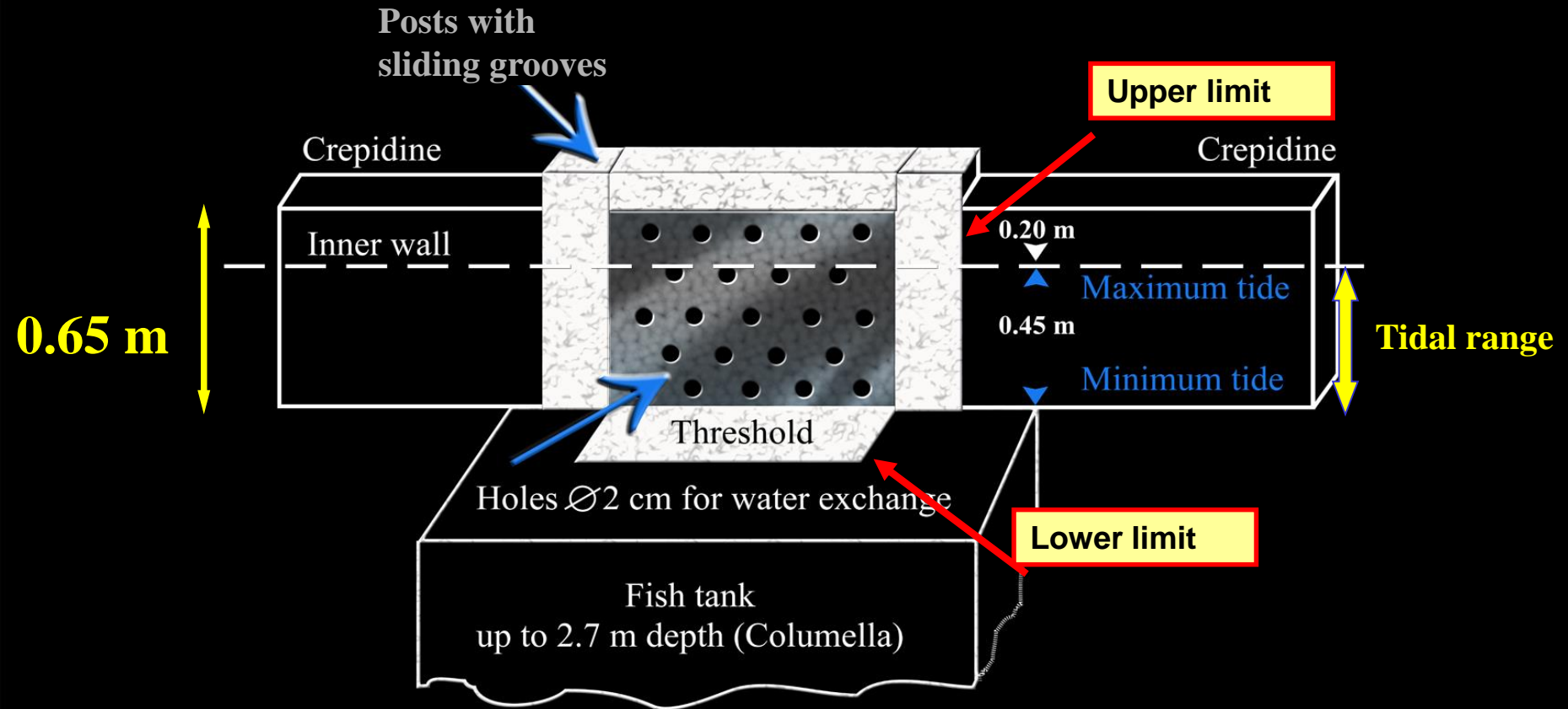
Photo by Fabrizio Antonioli



Fish tanks – the best palaeosea-level indicators



Sketch of a sluice gate for the water exchange in a Roman Fish tank

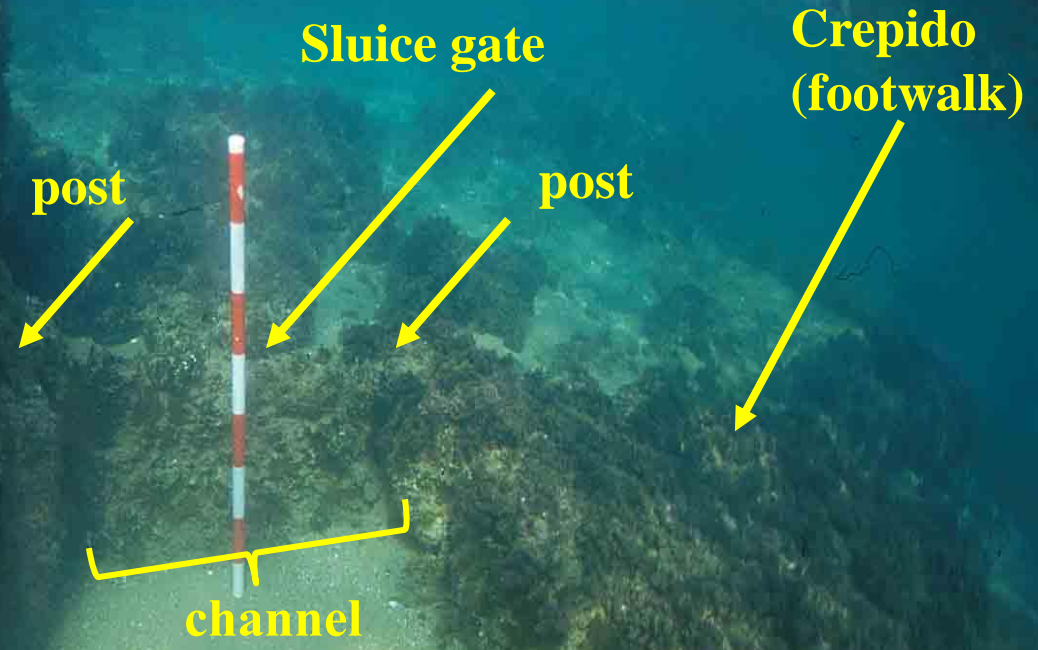


The top of the sluice gate coincides with the elevation of the lowest level foot-walk (crepido), to a position above the highest tide level.



Fish tanks – historical sources & the channels for water exchange

La Banca fish tank



Spissi deinde clatri marginibus infiguntur, qui super aquam semper emineant, etiam cum maris intumuerit (Columella R.R. XVII,10)

The top of the sluice gate coincides with the elevation of the lowest level foot-walk and, to keep a safety margin, corresponds to a position above the highest tide level





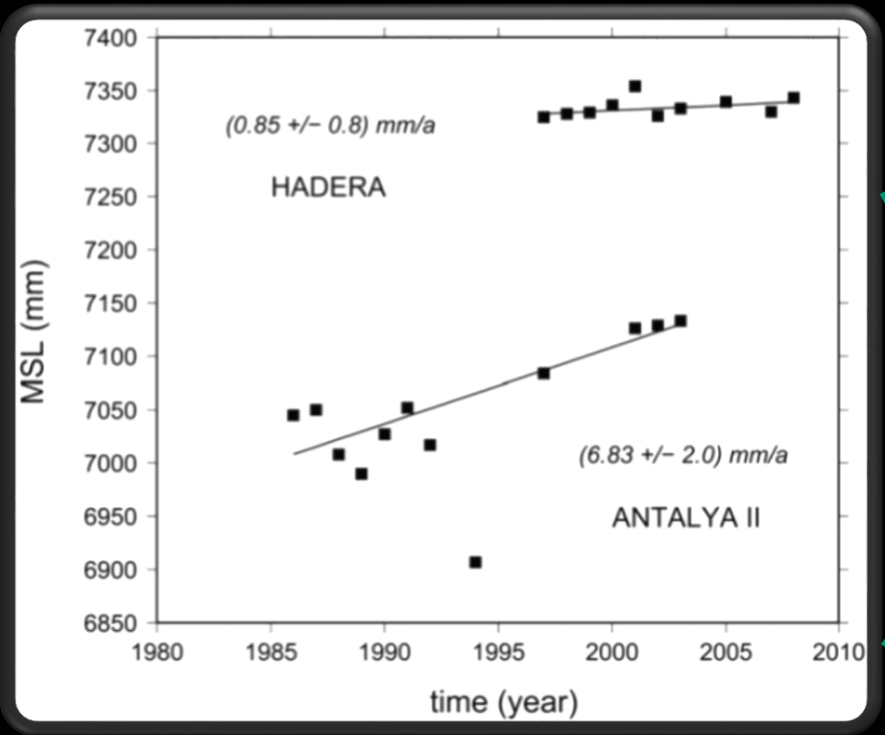
Torre Astura from the sky





The coasts of Israel

Instrumental and observational data are in agreement to indicate high rslc rates



RSLC in 2ka from archaeological indicators

Turkey: 2.41 to 4.50 m → 2.2 mm/yr → $T=1.48 \pm 0.30$ mm/yr
 Israel : 0.0 to 0.18 m → 0.1 mm/yr → $T=0.05 \pm 0.14$ mm/yr

The coast of Turkey



Cleopatra's baths

r.s.l.c. 3.5 m in 1.6 ka

Contents lists available at ScienceDirect

Quaternary International

ELSEVIER

journal homepage: www.elsevier.com/locate/quaint

Sea level change and vertical land movements since the last two millennia along the coasts of southwestern Turkey and Israel

M. Anzidei^{a,b,*}, F. Antonioli^c, A. Benini^d, K. Lambeck^e, D. Sivan^f, E. Serpelloni^g, P. Stocchi^g

Kekova Tombs of Lycian age



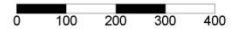
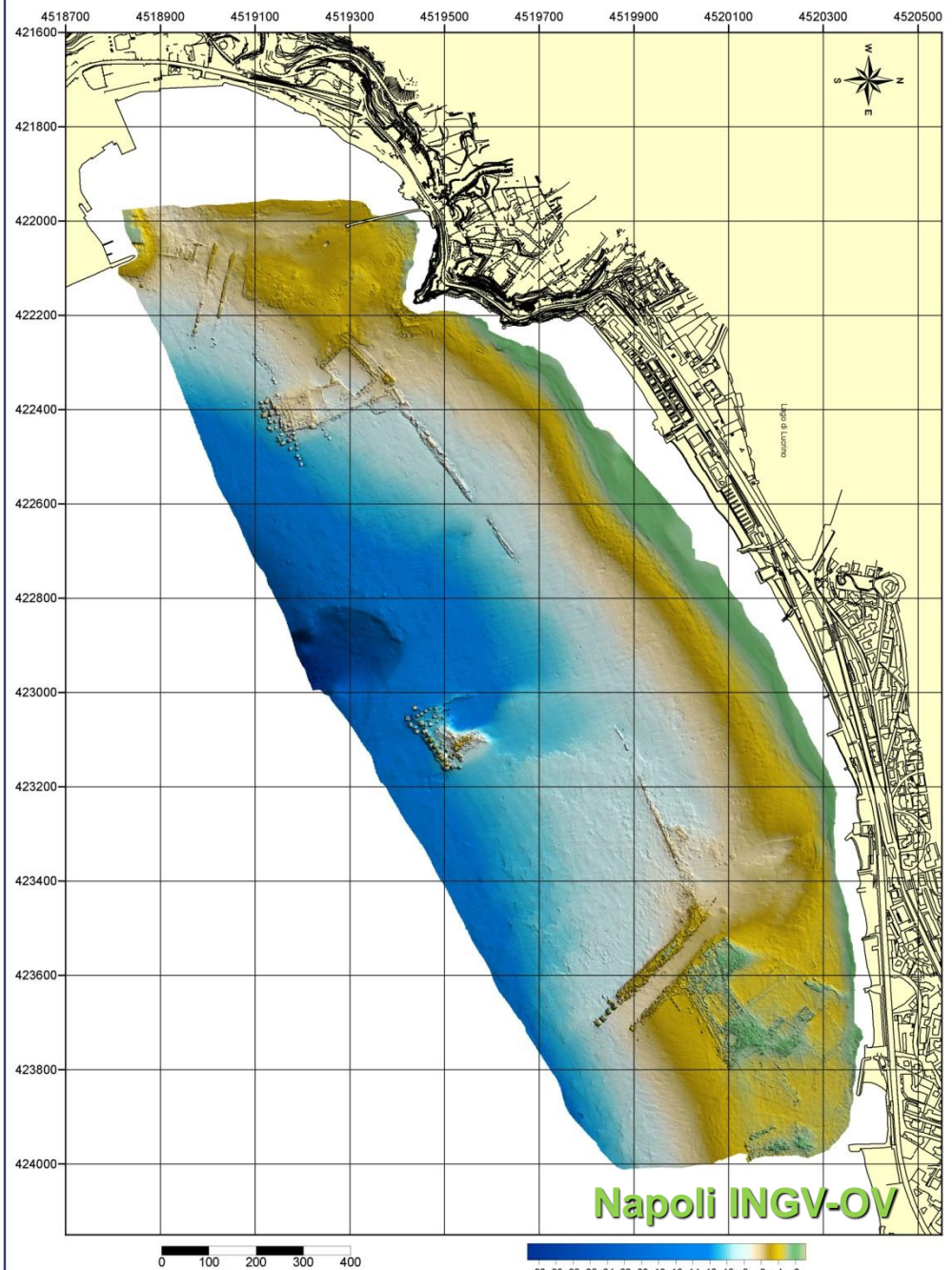
r.s.l.c. 4.5 m in 2.5 ka



Sunken Roman cities: the case of Baia, Phlaegrean Fields

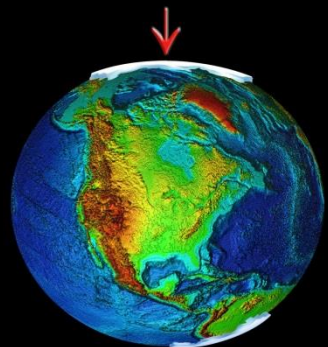


3D Surface Map
A.M.P. Parco Sommerso di Baia
SCALA: 1:7500

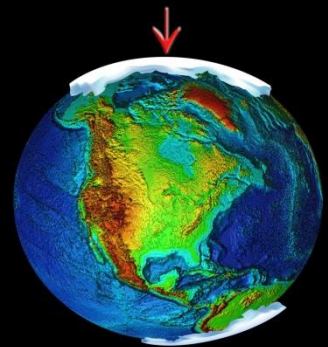




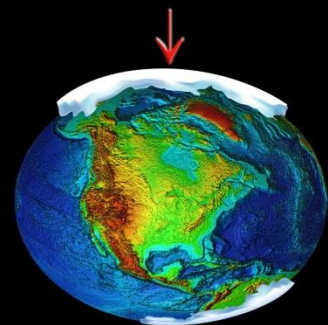
The Global Isostatic Adjustment – a simple cartoon



1

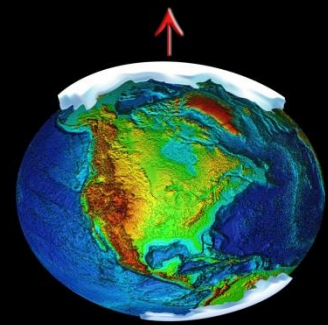


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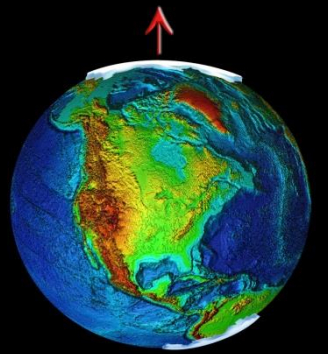


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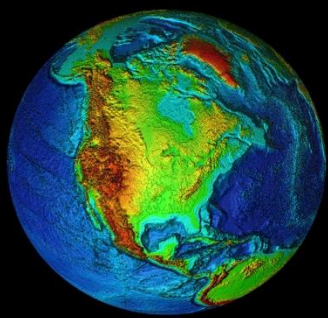
1-3 the load of the growing ice sheets causes a flexure of the Earth's crust and of the mantle.



4

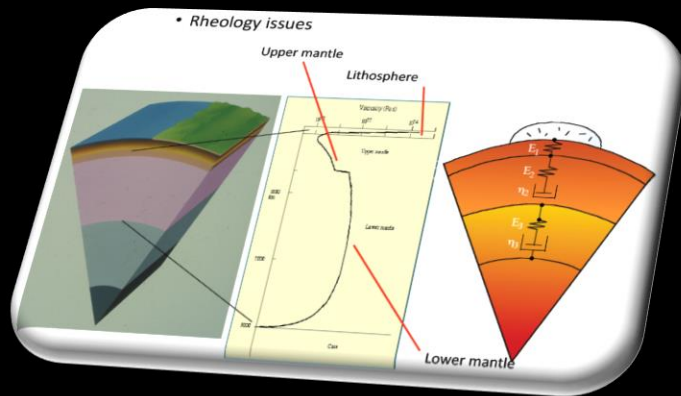


5



6

4-6 when the ice sheets are melting and the ice weight reduces in the polar regions, a rebound of the Earth's crust and of the mantle is triggered. Poles are uplifting while the Earth's surface at middle latitudes is subsiding.





Tsunamis of the Mediterranean

Did you know that large tsunamis have struck the Mediterranean in the past?





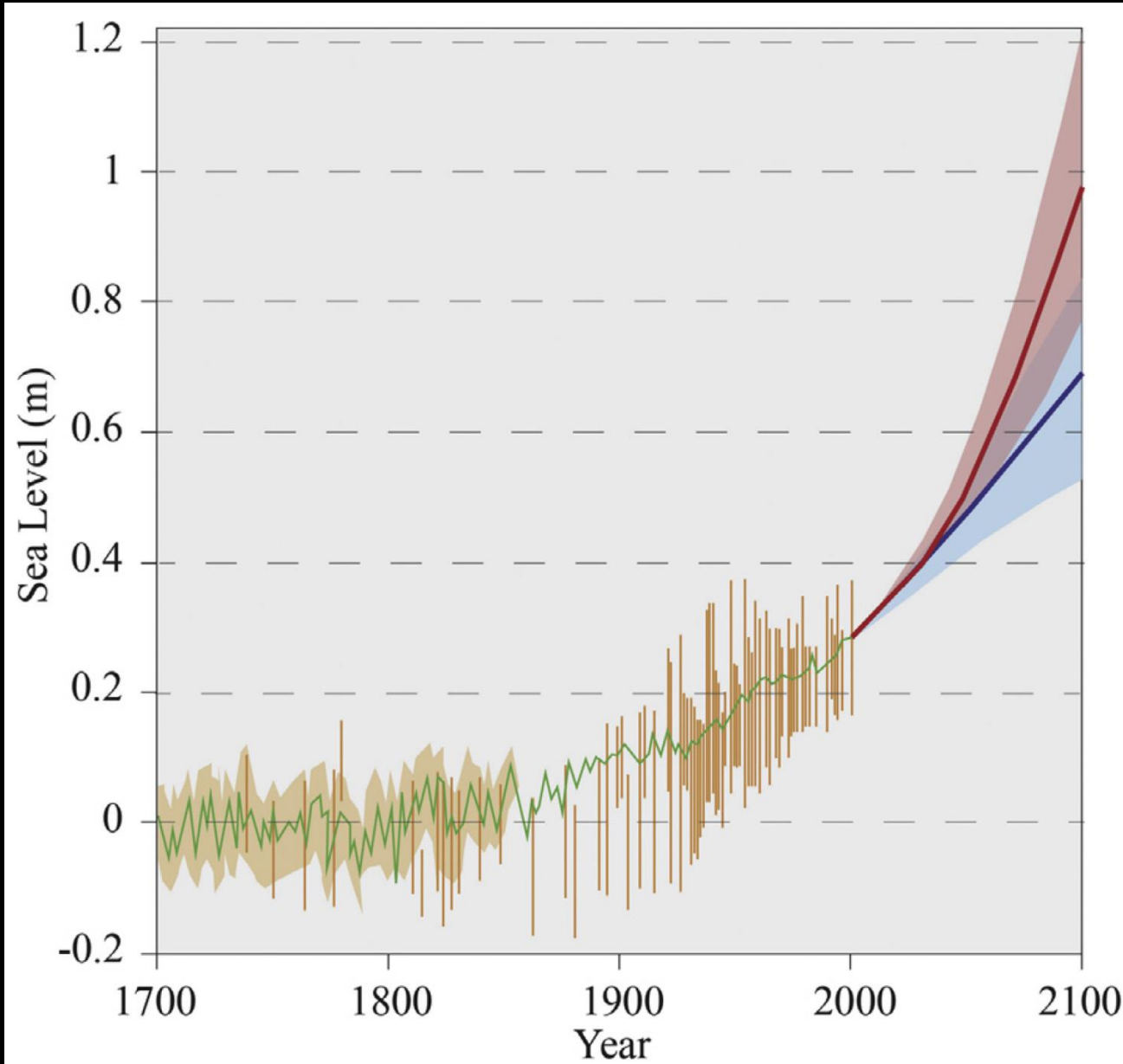
Earthquakes and tsunami in the Mediterranean: the case of Falasarna, Crete



**The Roman harbor of Falasarna, Crete.
Coseismic uplift > 6.5 m in 365 A.D.
Estimated Magnitude 8.3÷8.5
(Pirazzoli et al., 1992; Stiros and Drakos, 2006;
Shaw et al., 2008).**



Next Mediterranean: sea levels by 2100



Projection of global sea-level rise from 1700 to 2100, based on IPCC AR5 report on temperature projections for different emission scenarios (www.ipcc.ch, 2013).

Past and future sea levels: for the past periods, proxy data are shown in light brown, for the future, the IPCC projections are reported for two different emissions: very high (red, scenario RCP8.5) and very low emissions (blue, RCP 2.6 scenario).



Expected global sea level rise by 2100

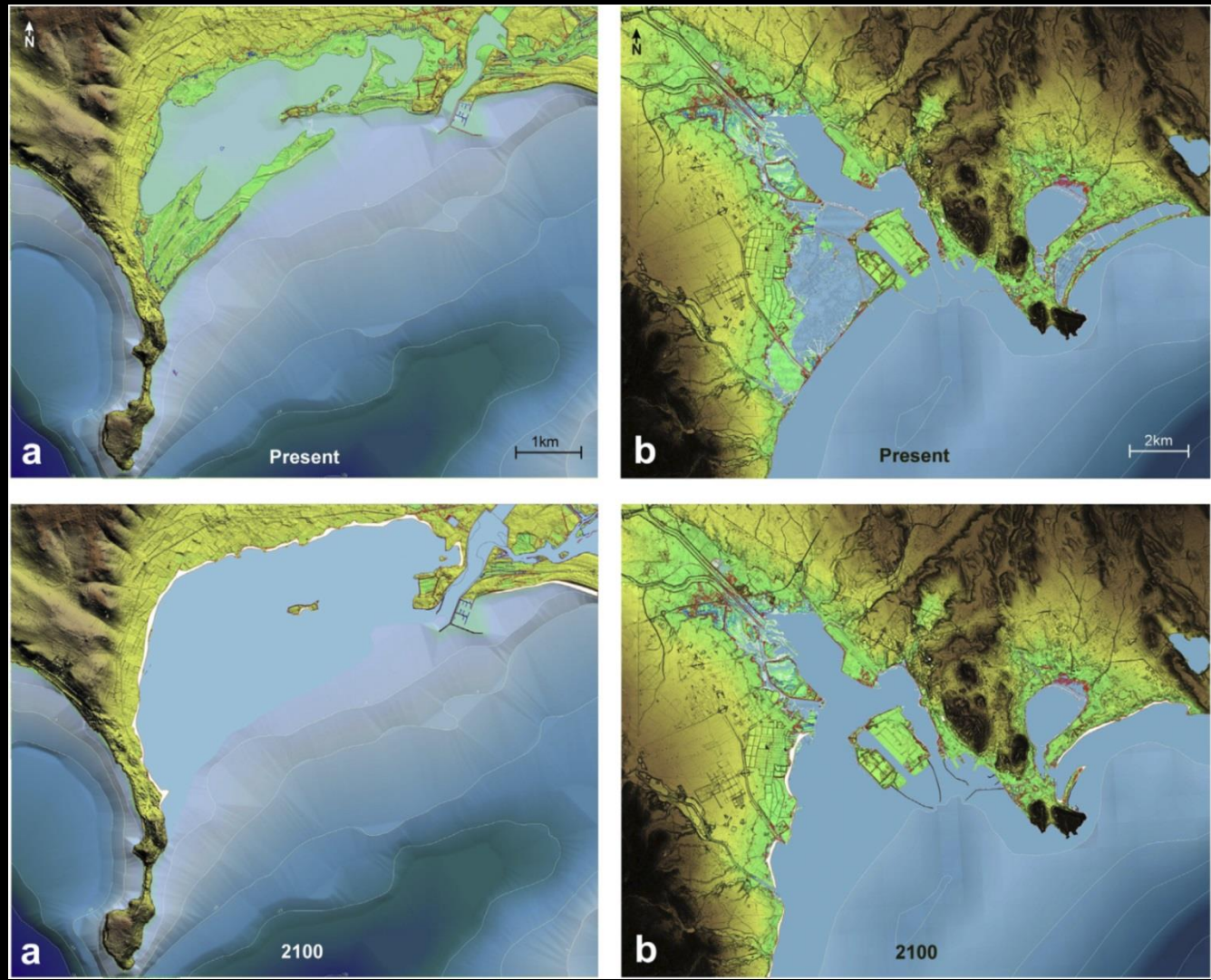
An example: the gulf of Cagliari, Sardinia

Sea level rise and land flooding expected for Cagliari gulf (Sardinia) for 2100, based on the IPCC-AR5 8.5 and 4.5 climatic scenarios.

Lower bound 547 mm
Upper bound 956 mm

Rahmstorf projections (2007), 1356 mm

DTM from Lidar data



Quaternary Science Reviews 158 (2017) 29–43

Contents lists available at ScienceDirect

Quaternary Science Reviews

journal homepage: www.elsevier.com/locate/quascirev

Sea-level rise and potential drowning of the Italian coastal plains: Flooding risk scenarios for 2100

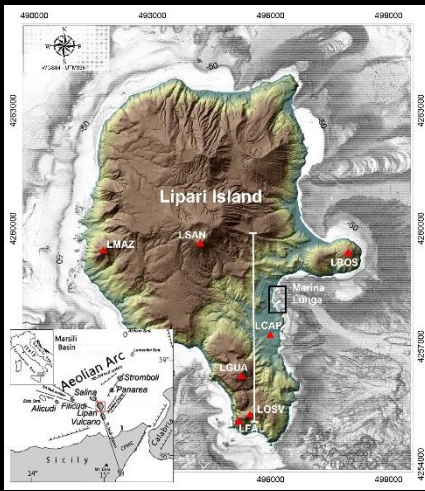
F. Antonioli ^{a,*}, M. Anzidei ^b, A. Amorosi ^c, V. Lo Presti ^a, G. Mastroruzzi ^d, G. Deiana ^e, G. De Falco ^a, A. Fontana ^a, G. Fontolan ^b, S. Lisco ^a, A. Marsico ^a, M. Moretti ^a, P.E. Orrù ^a, G.M. Sannino ^a, E. Serpelloni ^a, A. Vecchio ^f

^a CNR-IRPA, ^b CNR-IGPP, ^c CNR-IGG, ^d CNR-IGG, ^e CNR-IGG, ^f CNR-IGG

(from Antonioli et al., 2017)

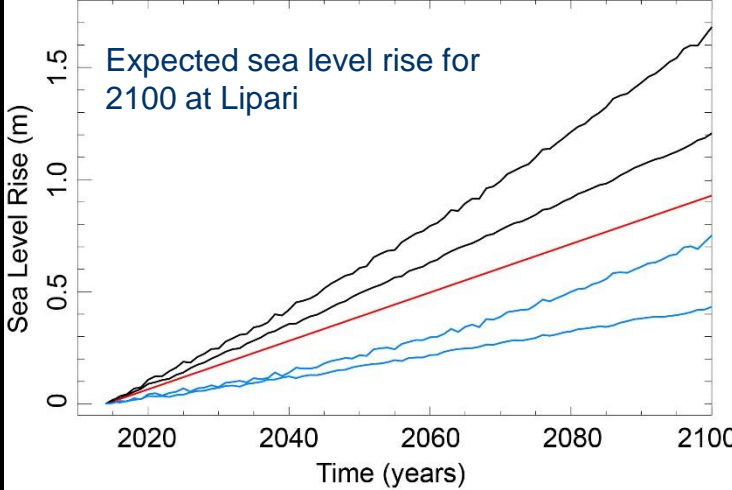
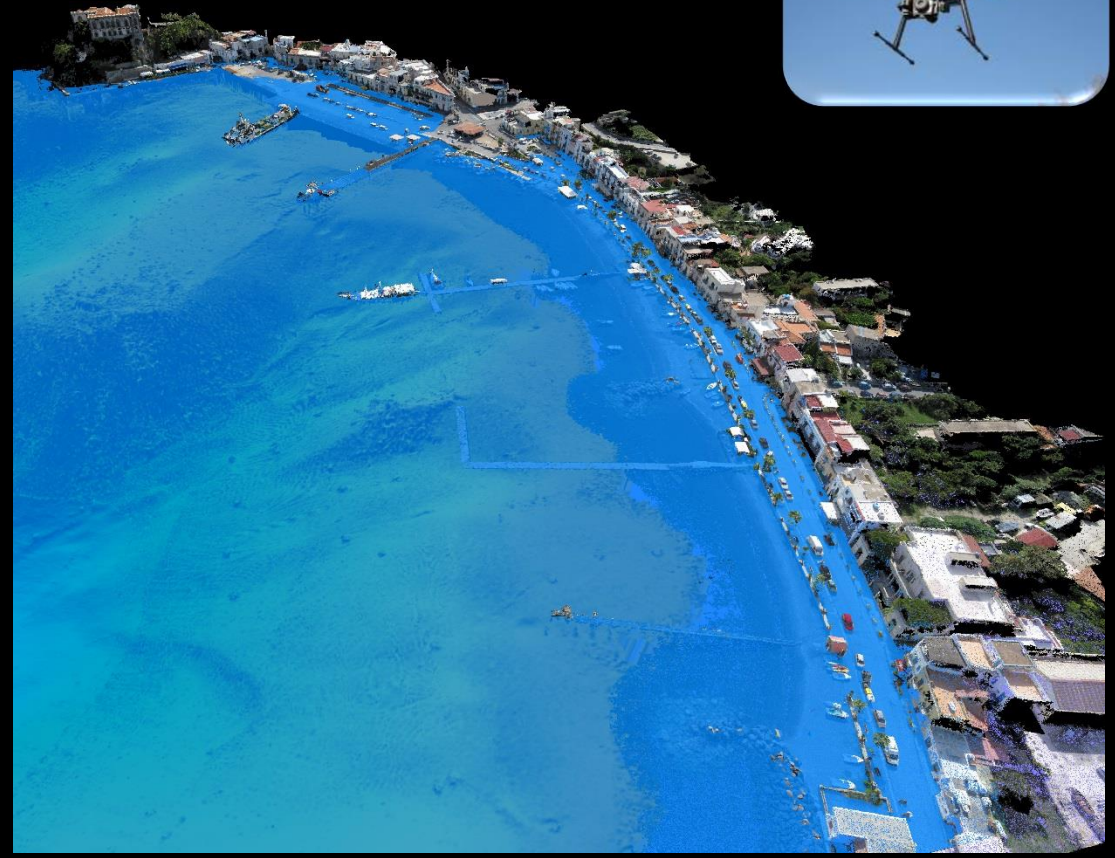


Marine flooding scenario for Lipari Is. for 2100 AD



Lipari Island.
 In red are the GPS stations that provided data on land subsidence at $9.0 \pm 2.0 \text{ mm a}^{-1}$ (Anzidei et al., Terra Nova, 2017)

Topo from UAV aerial photogrammetry and MB bathymetry



Scenario based on rates of **land subsidence at $9.0 \pm 2.0 \text{ mm a}^{-1}$** (vertical GPS velocities) and regional sea-level rise, as predicted by the IPCC.

Local sea level is expected to rise for 2100 at 1.36 m and 1.60 m higher than 2014 epoch, flooding 12.500 m² and 17.500 m² of the coast of Lipari, for the two IPCC scenarios, respectively, along a coastal strip about 700 m long.



What is your perception on sea level rise?

Please fill the interactive forms on

WWW. SAVEMEDCOASTS.EU

1. Italiano: <https://goo.gl/forms/l1aoqIRMVRKtgLkp2>
2. English : <https://goo.gl/forms/k05XRByr6GGN73d12>
3. ελληνικά: <https://goo.gl/forms/06fjP1TF6YeHMEDo2>

questionnaires

SAVEMEDCOASTS

sea level rise scenarios along the mediterranean coasts

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What is your perception on sea level rise?

Facebook Like Twitter LinkedIn Share

We invite you to take part in the survey "Perceptions on sea level rise". The purpose of the survey is to understand what people's opinions are about sea level rise (SLR); the threat that it poses, its impacts, gaps and needs and solutions to mitigate and address it.

Please, click on one of the following links to fill the questionnaire in your preferred language:

1. Italiano: <https://goo.gl/forms/l1aoqIRMVRKtgLkp2>
2. English : <https://goo.gl/forms/k05XRByr6GGN73d12>
3. ελληνικά: <https://goo.gl/forms/06fjP1TF6YeHMEDo2>

Thank you for your cooperation !

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Funded by European Union Humanitarian Aid and Civil Protection

Perceptions on Sea Level Rise

We invite you to take part in the survey "Perceptions on sea level rise". The purpose of the survey is to understand what people's opinions are about sea level rise (SLR); the threat that it poses, its impacts, gaps and needs and solutions to mitigate and address it.

The survey is part of the European project SAVEMEDCOASTS "Sea level rise scenarios along the Mediterranean coasts". The project aims to protect people and assets in the Mediterranean from SLR, which can cause coastal erosion, and land flooding. By developing and disseminating knowledge and methodologies for SLR scenarios, the project aims to foster cooperation among science, affected communities and civil protection organizations in targeted Mediterranean areas. With this questionnaire, we aim to capture the opinions of stakeholders representing a wide range of sectors, and that is why we are contacting you. We would be grateful if you could take part in the survey. The survey takes about 30 minutes and there is no right or wrong answer to the questions. We are interested in your views and opinions. Therefore, please answer spontaneously! No googling please!

Participation in this research guarantees confidentiality of the information you provide. No one, apart from the research team, will have any access to the information you provide. Once the data are analysed a report of the findings may be submitted for publication. Only broad trends will be reported and it will not be possible to identify any individuals.

Please, visit our web site at www.savemedcoasts.eu to know more about Savemedcoasts. If you require further information or have any queries about this survey, please contact Demetra Petsa (coordination@isotech.com.cy).

AVANTI

Non inviare mai le password tramite Moduli Google.



**Follow the SAVEMEDCOASTS presentation at
PICO-5a session on April 27, time 08:30**

www.savemedcoasts.eu

SAVEMEDCOASTS



sea level rise scenarios along the mediterranean coasts



Thank you!

Sabratha Lybia



Thank you !

Villa di Tiberio, Sperlonga





Contents

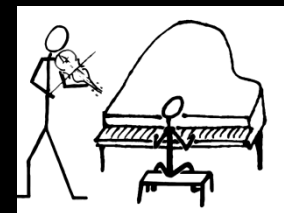
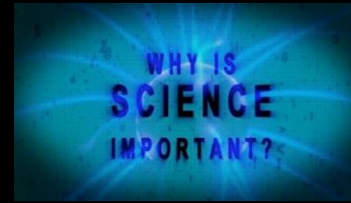
Some simple rules

'Essentials' checklist

What is the title of your video ?	Choose one brief and incisive
Write in one sentence what you want the audience to remember. What is your core message?	be simple and clear with links to everyday life
Write down 3 points that will support your message in the introduction	be straight, simple and clear
What do you want to achieve with your video? What is your call for action?	disseminate your findings convince people that science is part of their everyday life
Why should the audience care about your idea or message?	be attractive and convincing
Write down your opening scenes and introductory sentence	be able to capture interest immediately using amazing scenes and music
Write down your conclusion	short, simple and straight, to remain remembered

Some tips!

- ✓ Look at many scientific videos
- ✓ Read books and manuals of video and photographic techniques. Practice!
- ✓ Be in touch with professional video makers and when possible attend courses in video editing
- ✓ Use external microphones for interviews
- ✓ Be careful with light conditions, exposure and shooting controls during filming
- ✓ Choose the most suitable music for your videos (respecting copyrights)



Some key points while making a scientific video



- ✓ **Stress on the importance of science and its impact on society, human life and the environment**
convince people of the importance of patient work that scientists do
- ✓ **Tell of the difficulties met to achieve goals and solutions to overcome them**
put the interviewee at ease!
- ✓ **Introduction**
prepare a good and strong introduction to give a broad description of the science is going to tell, without focusing only on own research.

Some key points while making a scientific video



✓ Develop an idea

Like a good film, scientific videos should be new and surprising. Are you telling people something you're pretty sure they have not heard and seen before?

✓ Is it interesting?

Think about how your idea might apply to a classroom full of varied kinds of people with different age and level of education.

Attract their attention and curiosity.

✓ Make sure an outline and script

Explain and show science clearly and with conviction. Describe the scientific evidence.

End by addressing how your video could affect your audience if they were happy to accept it

Create your video!



- ✓ **Shot key photos for planning scenes**
To help in the video editing
- ✓ **Create timing for planning scenes duration**
in minutes and seconds, to plan duration of single scenes
- ✓ **Plan the overall length of the video**
Short videos 10-15 min could be long enough in most cases. Longer videos (>1 hour) are difficult to manage and require very good script strategies and organization not to bore the audience.



Disseminate your video

- ✓ Before disseminating your video make tests with your colleagues and non expert friends and parents
- ✓ Fix errors
- ✓ Use web pages of your institution and/or popular video web sites (YouTube, etc.), to disseminate your video
- ✓ participate in scientific in national and international video competitions to prove your ability as scientific videomaker



EGU 2017 - Vienna

