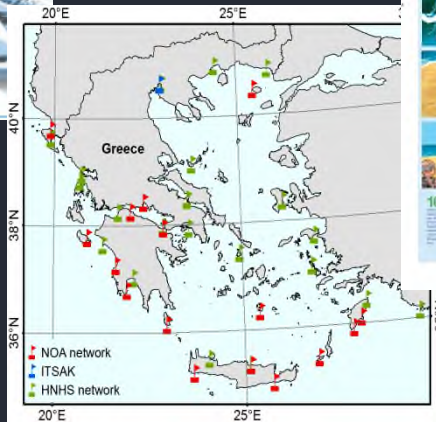
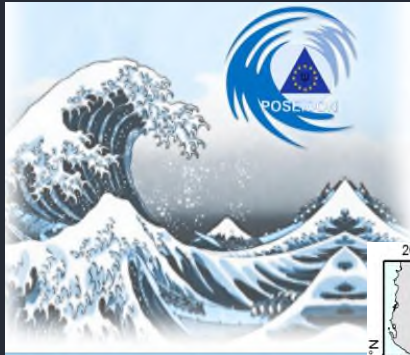


Earthquake and Tsunami Risk management in GREECE



C. GOUNTROMICHOU
Geologist MSc, PM

Head of Emergency Planning – Prevention Dept.,
EARTHQUAKE PLANNING AND PROTECTION ORGANIZATION (E.P.P.O.)



HELLENIC MINISTRY OF INFRASTRUCTURE AND
TRANSPORT

EU Exchange of Experts Programme 531

GR, IT – ES

- Hosts (Instituto Geografico Nacional, Dirección General de Protección Civil y Emergencias – for Madrid and Gobierno de Canarias for Canary Islands)
- Seismic, volcanic and tsunami risk management

Chrysa Gountromichou
Vasiliki Avramea
Maria Manousaki
Spyros Lalexos



Antonio Colombi
Antonio Ricciardi
Domenico Mangione



Greece - Hellas



- ❑ officially the **Hellenic Republic**
- ❑ is strategically located at the crossroads of Europe, Asia and Africa
- ❑ has the longest coastline on the Mediterranean Basin and the 11th longest coastline in the world at 13,676 km (8,498 mi) in length, featuring a vast number of islands, of which 227 are inhabited.
- ❑ 80% of Greece is mountainous, with Mount Olympus being the highest peak at 2,917 m (9,570 ft).
- ❑ According to the official statistical body of Greece, the Hellenic Statistical Authority (ELSTAT), the country's total population in 2011 was 10,815,197



Administrative structure in Greece

- The country is divided into three major administrative levels:
 - 14 Ministries and Central Authorities (national level)
 - 7 Decentralized Administrations (regional level)
 - 13 Regions and 325 Municipalities (local level)

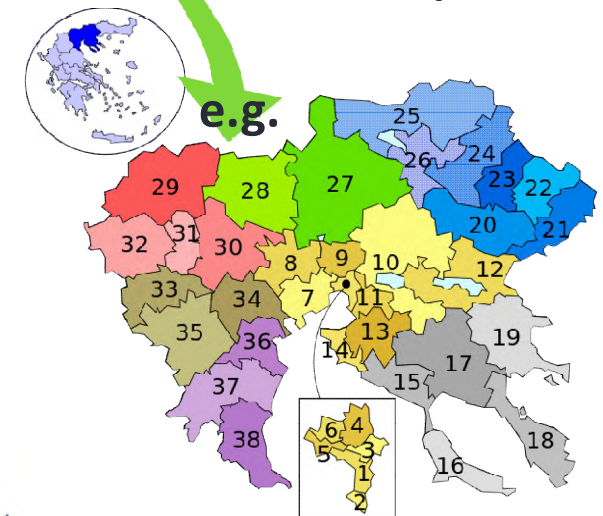
7 Decentralized Administrations



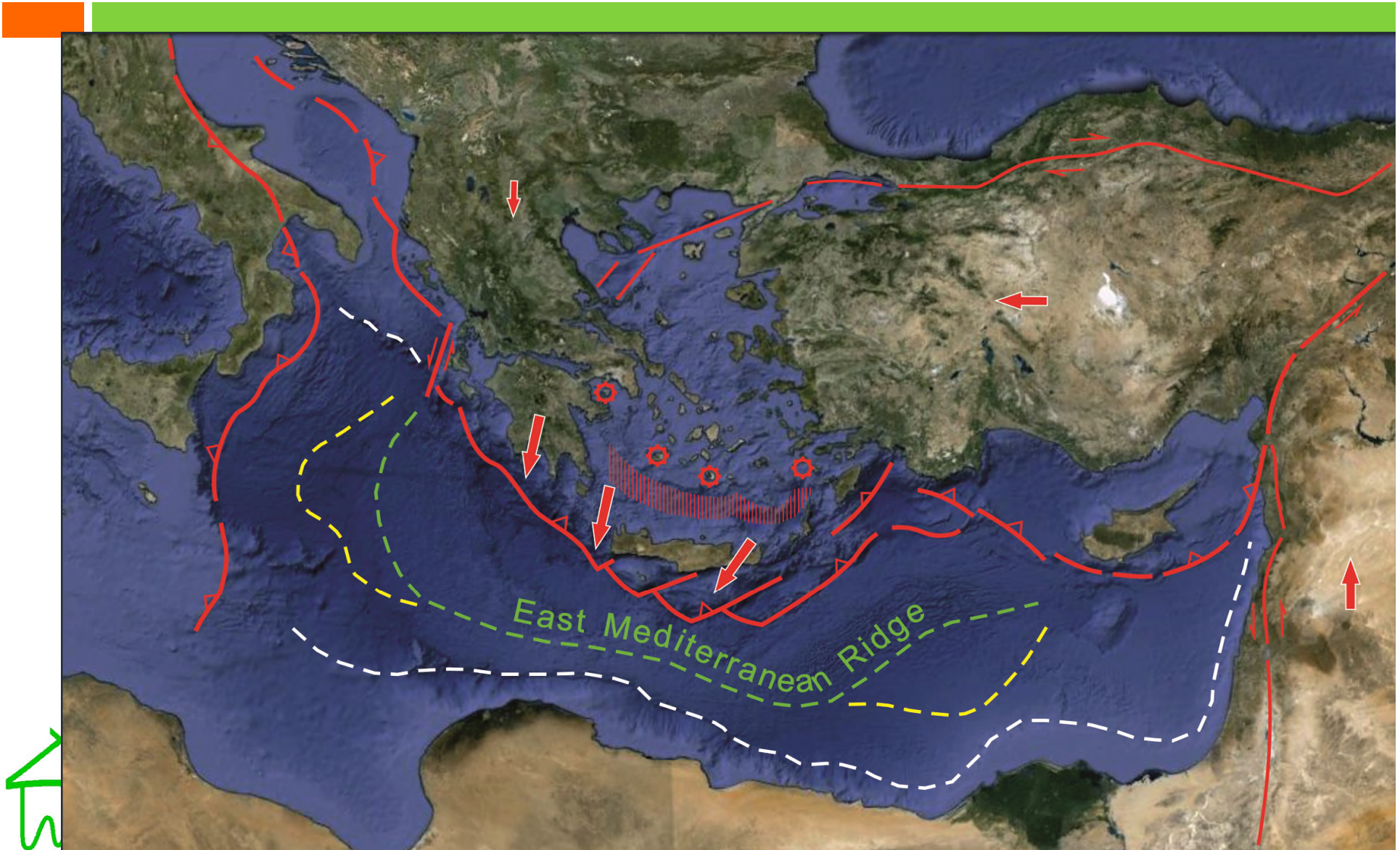
13 Regions



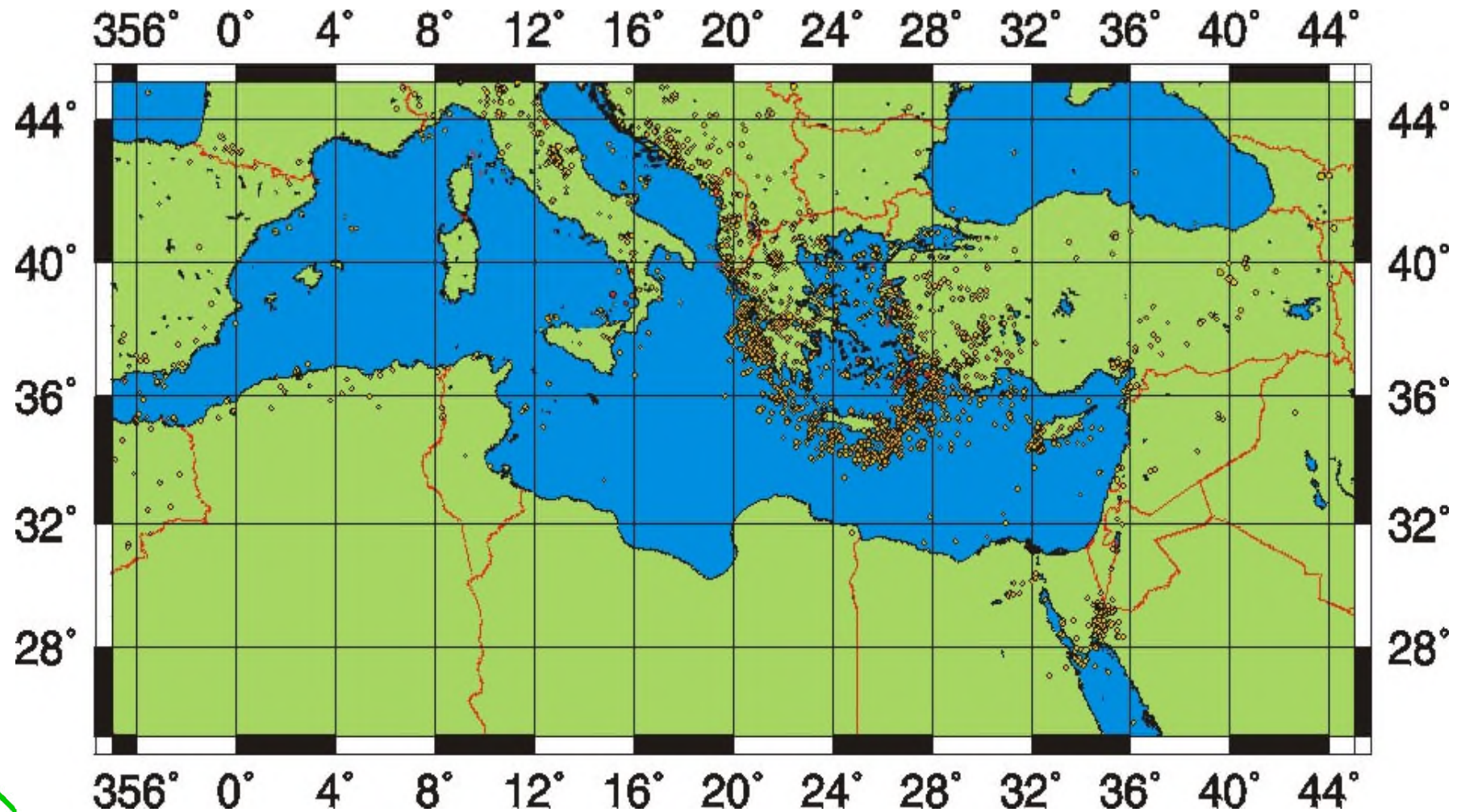
325 Municipalities



Geodynamic Setting of Greece



Seismicity - Mediterranean area & Greece

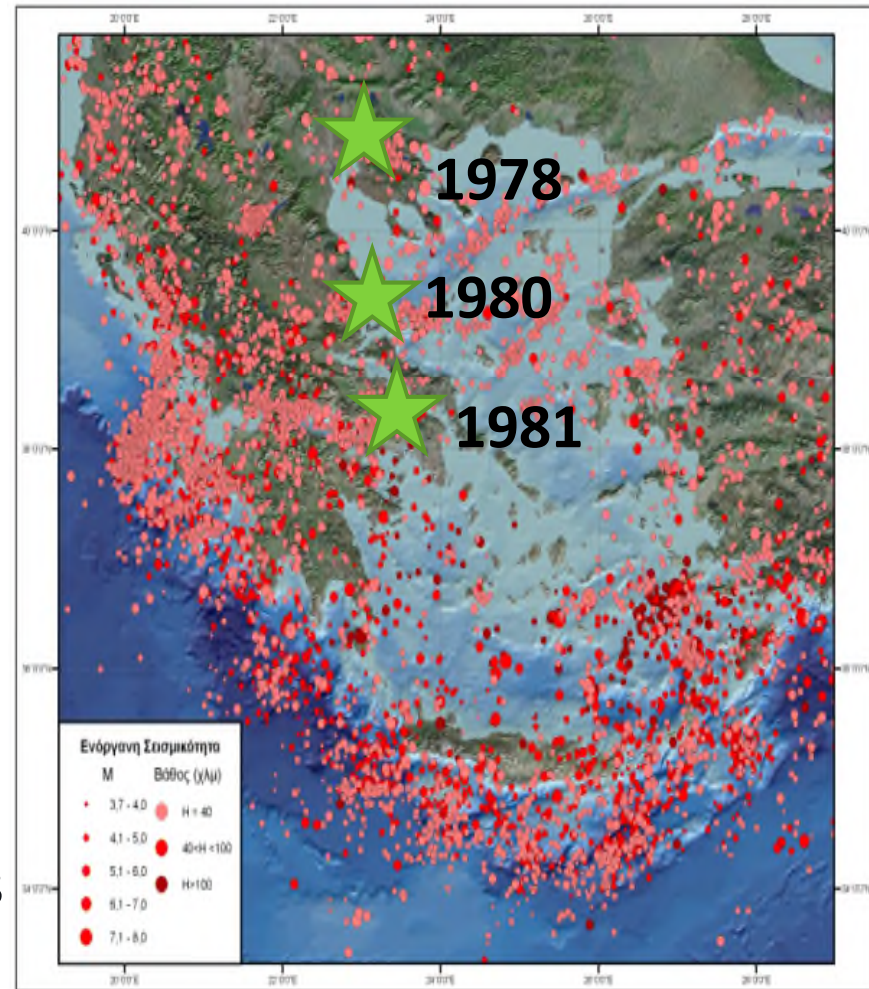


M \geq 5, 1900-2014



Earthquake Planning and Protection Organization (E.P.P.O.)

- Is a Legal Entity of Public Law and operates under the supervision of the Hellenic Ministry of Infrastructure, Transport and Networks
- Was founded in 1983, as **the responsible authority for planning and processing the earthquake policy in Greece** – as well as to coordinate the public and private resources for the implementation of this policy



Seismicity of Greece (1900-2007)



E.P.P.O.

Website: www.oasp.gr

Permanent Scientific Committees

**A- Permanent Scientific
Committee of
Seismotectonic**

**B- Permanent Scientific
Committee of Earthquake
Engineering and
Engineering Seismology**

**C- Permanent Scientific
Committee of
Earthquake Civil
Protection**

**Permanent Special Scientific Committee of supporting the Seismic
Codes**

Special Scientific Committee of Seismic Sequence Assessment in short term period

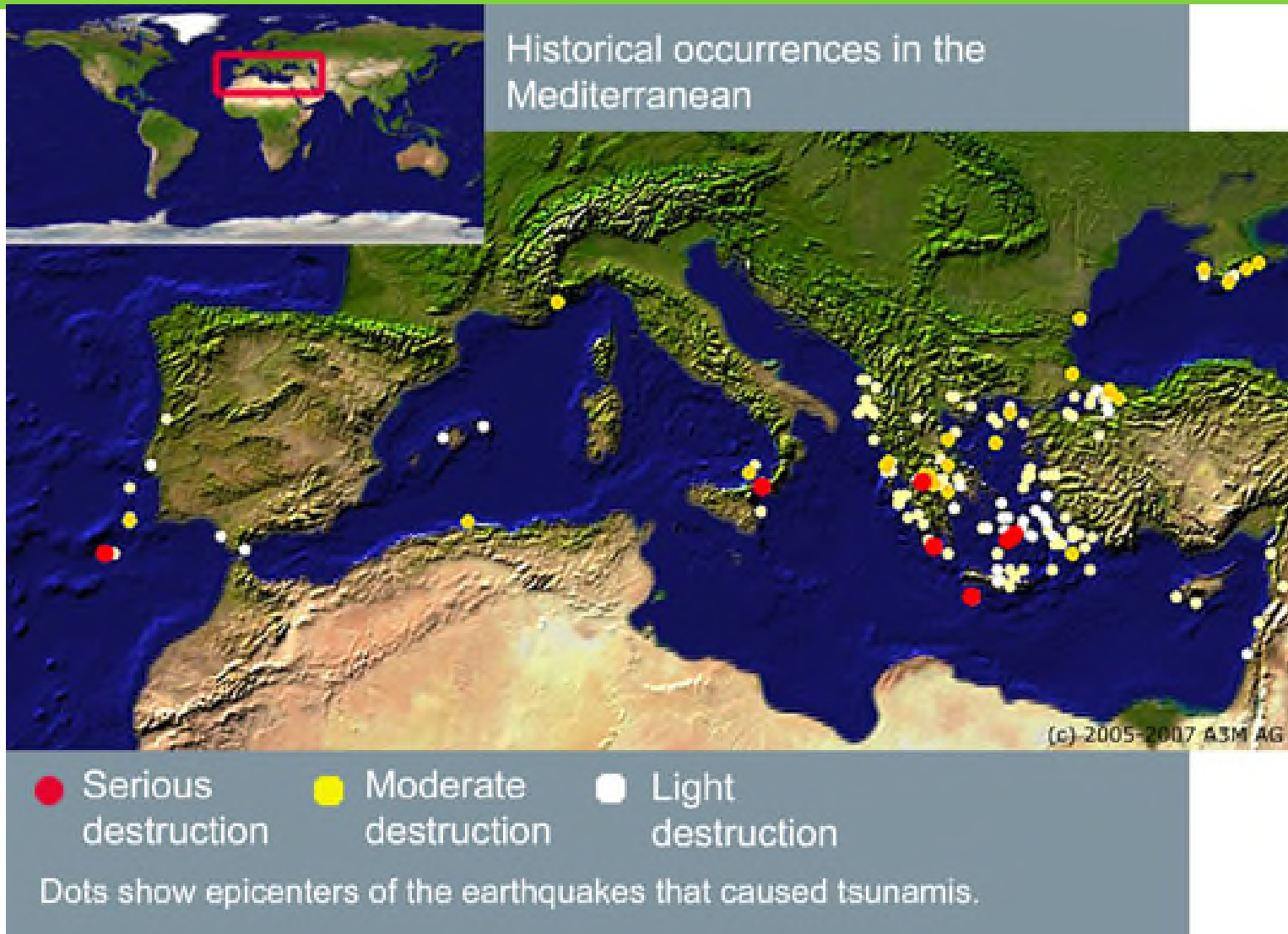
Special Scientific Committee of Santorini – volcano Observation



Priority Actions of the Earthquake Policy in Greece (E.P.P.O.)

- ▣ The strengthening of the **seismic capacity of structures**
- ▣ The promotion of knowledge on **seismic risk and seismic hazard**
- ▣ The planning and the monitoring of earthquake **preparedness measures**
- ▣ The increasing of **awareness** and the **education** of the population
- ▣ **The immediate response** in case of a destructive earthquake
- ▣ The support and conduction of **applied earthquake**

Historical records of Tsunamis - Greece



Historical records of Tsunamis - Greece



Table I Some important *tsunamis* in Greece

Date	Source area	Cause
1700 BC	Santorini (Thira)	Volcanic eruption (?)
AD365	Western Crete	Earthquake
AD1650	Santorini (Thira)	Volcanic eruption
AD1956	Amorgos	Earthquake

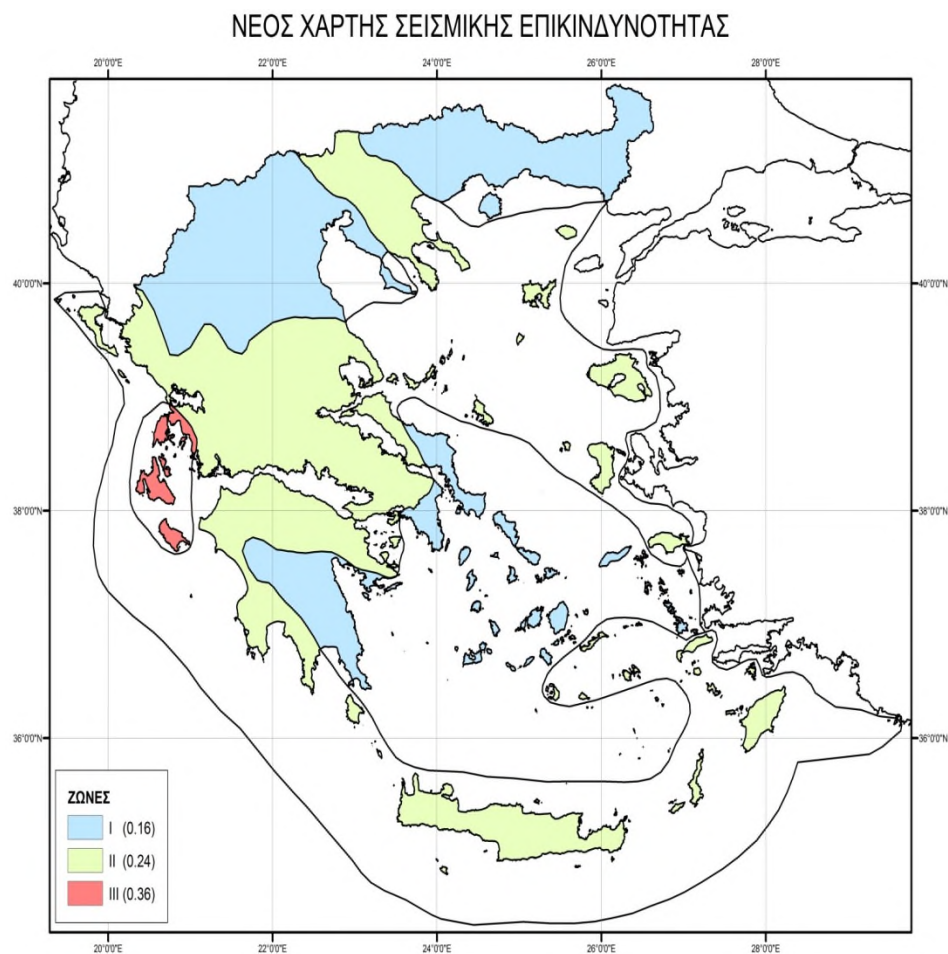
Source: Adapted from Papadopoulos and Chalkis (1984)

Amorgos Earthquake 1956 (IX)



Prevention Policy - Seismic Hazard Map of Greece

- The seismic Hazard map of Greece is a result of the active faulting and the seismicity of the country.
- According to this map, Greece is divided into **Three seismic hazard Zones I (a=0,16), II (a=0,24), III (a=0,36)**.
- The Seismic Hazard Map is part of the Greek Seismic Design Code.
- The values of the ground accelerations are estimated to have a 10% probability of exceeding in 50 years according to the seismological data.



Fostering of the Operational Preparedness for Earthquake at LOCAL LEVEL – A National Programme



A Project:

Workshops for Seismic policy at Regional Level (and for the Regional Units)

November 2011 – end of 2012

(duration 13 months)



B Project:

Workshops for Emergency Planning for EQ at Municipalities Level

October 2013 - May 2015

(duration 20 months)



C Project:

1. Strengthening of the preparedness level at Municipalities in Seismic Hazard Zone III

May 2015 – May 2016

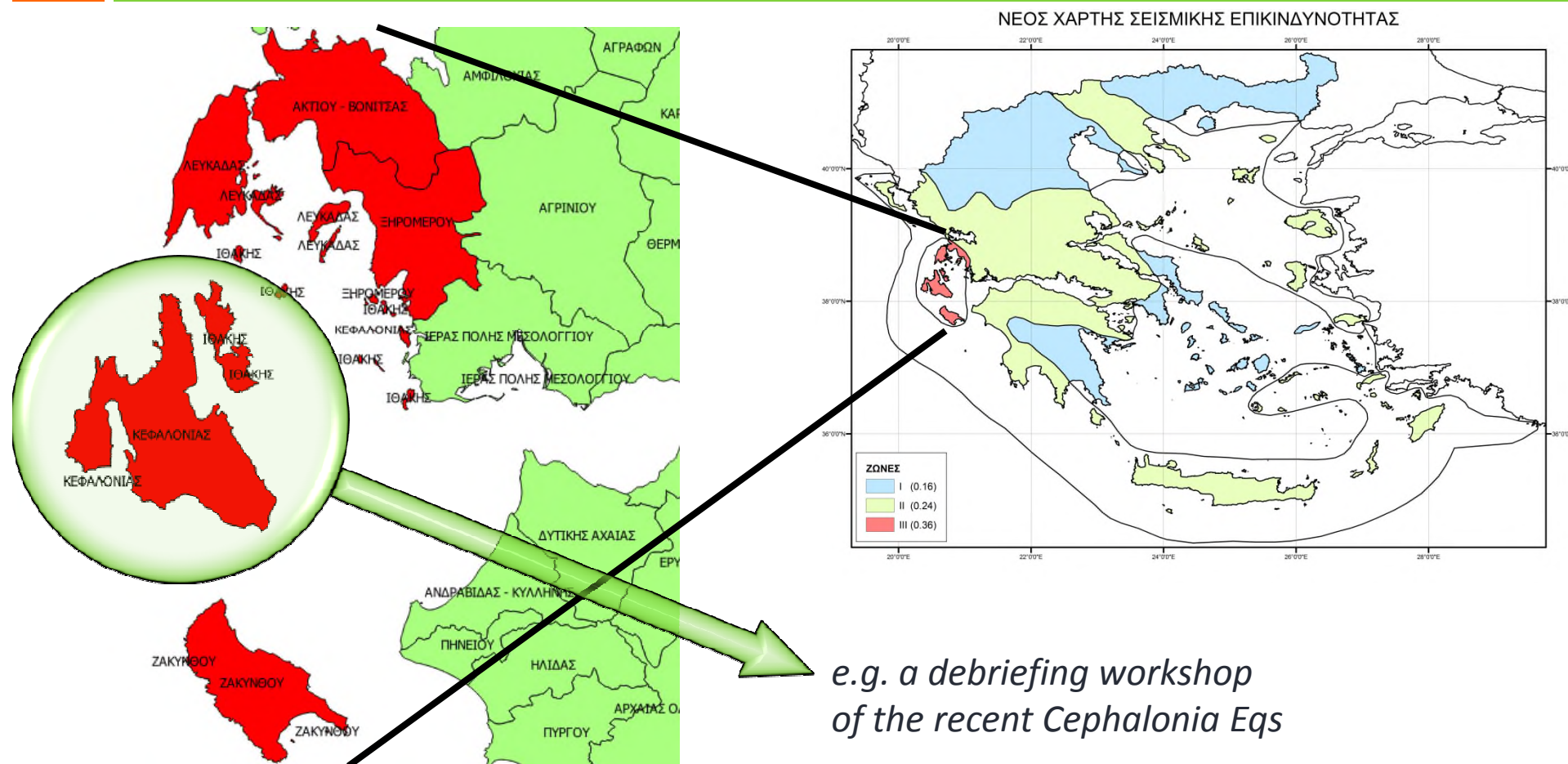


C Project:

2. Operational Exercises for EQ (table top and field) for Local Level (Regions – Regional Units and Municipalities)

April 2014

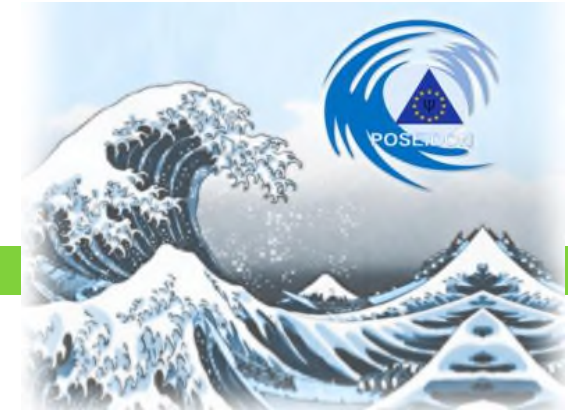
A special Action for ZONE III of the Seismic Hazard map of Greece – PHASE III



**Seismic Zone III - 7 “New” Municipalities
Specialized Actions related to their “profile”**



Actions for arising Tsunamis Preparedness - EU Exercises

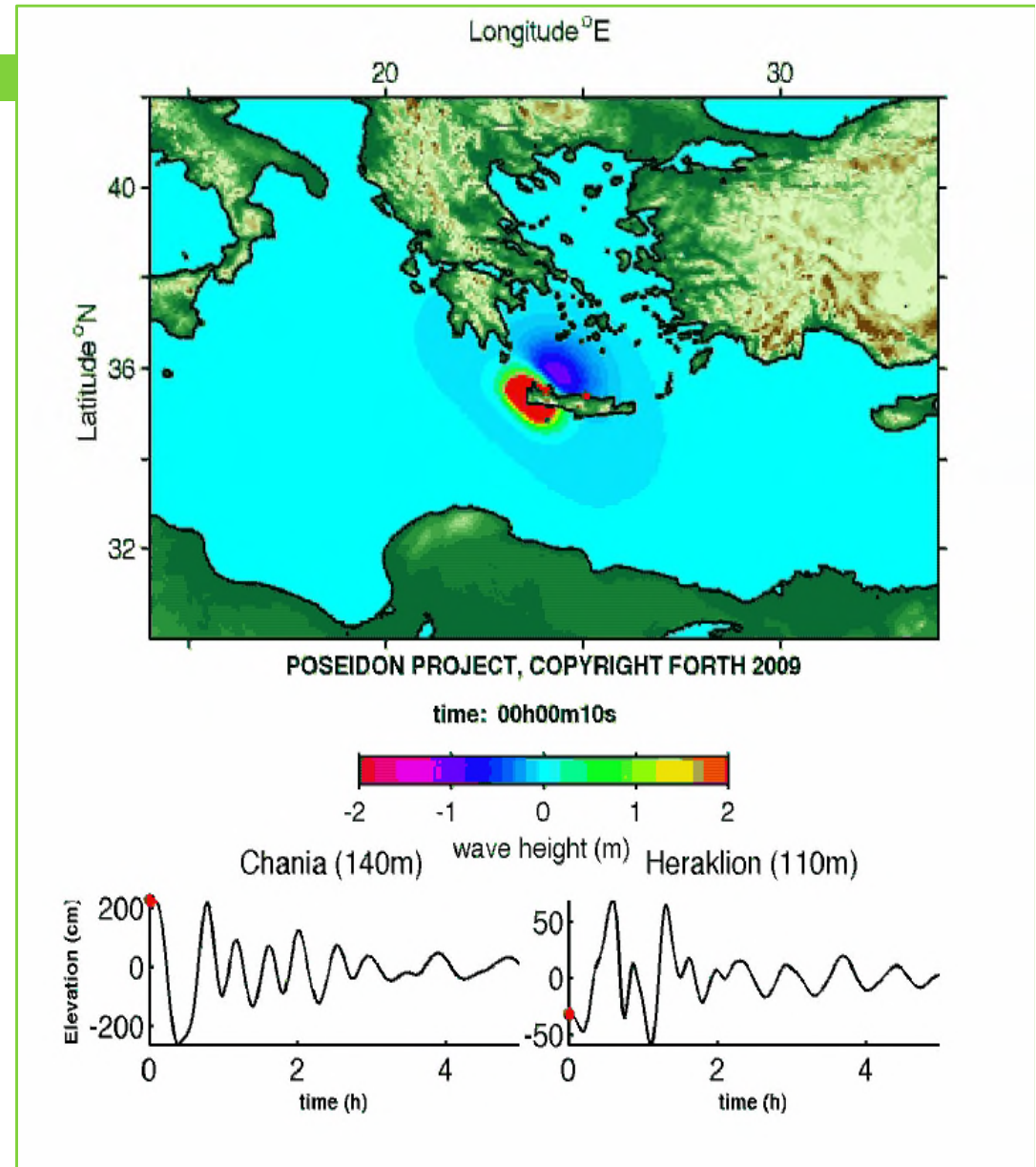


POSEIDON 2011



Poseidon 2011 - Scenario

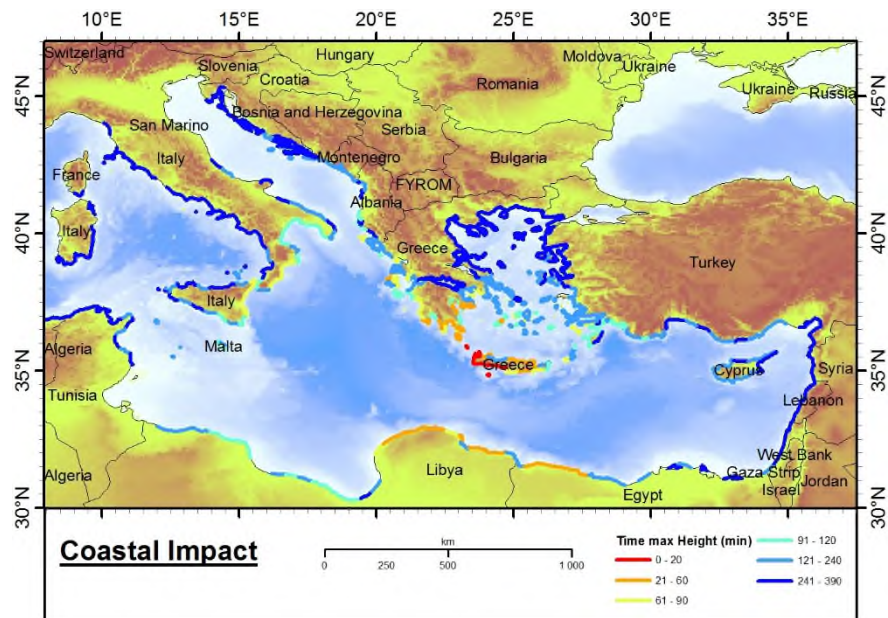
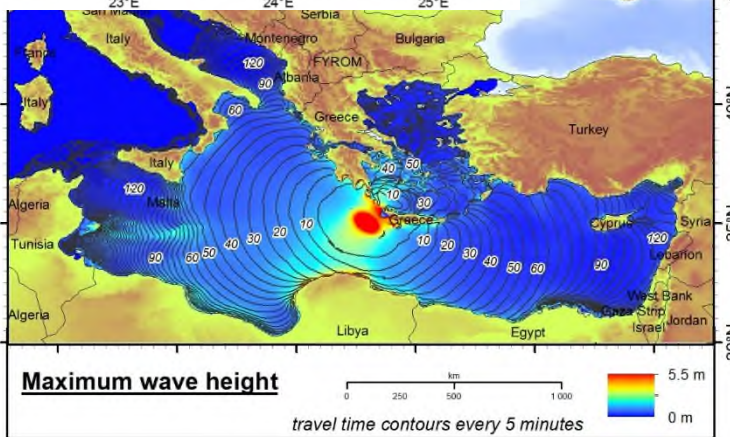
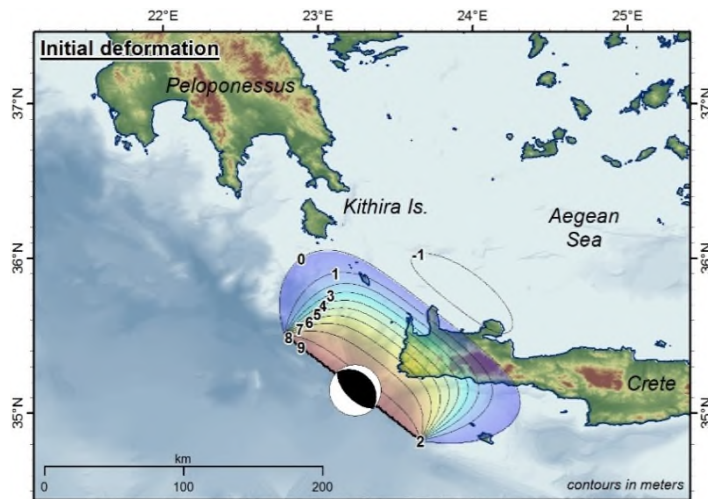
- The strong EQ in 365 A.D. (Crete Island, Greece)



Actions for arising Tsunamis

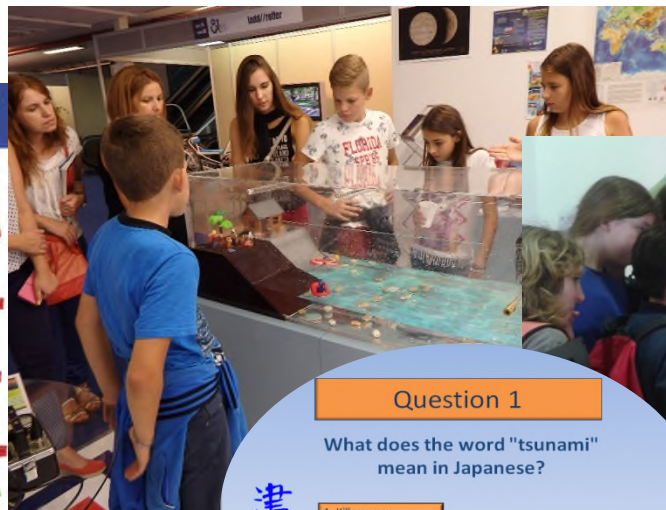
Preparedness

IOC coordinated Exercises



Actions for arising Tsunamis Knowledge and Awareness

- Promotion of the 5th of November as World Tsunami Awareness Day - WCDRR Sendai (2015) & Meeting with Japan Delegation in Lisbon (2015)
- Informative material (poster, leaflets, etc.) and campaigns



Question 1

What does the word "tsunami" mean in Japanese?

津波

A. Killer wave

B. Harbor wave

C. Large wave



EU PROJECT “PACCE”



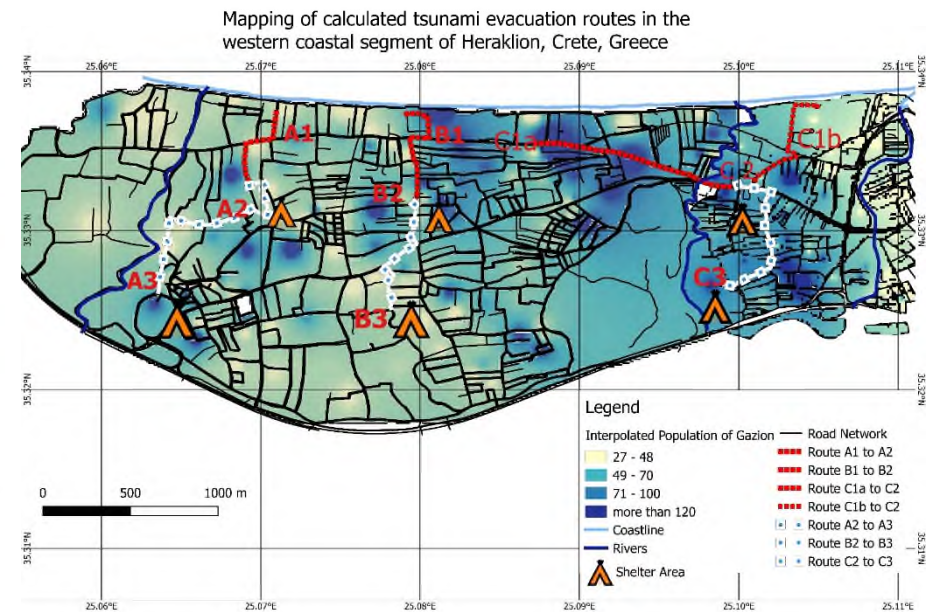
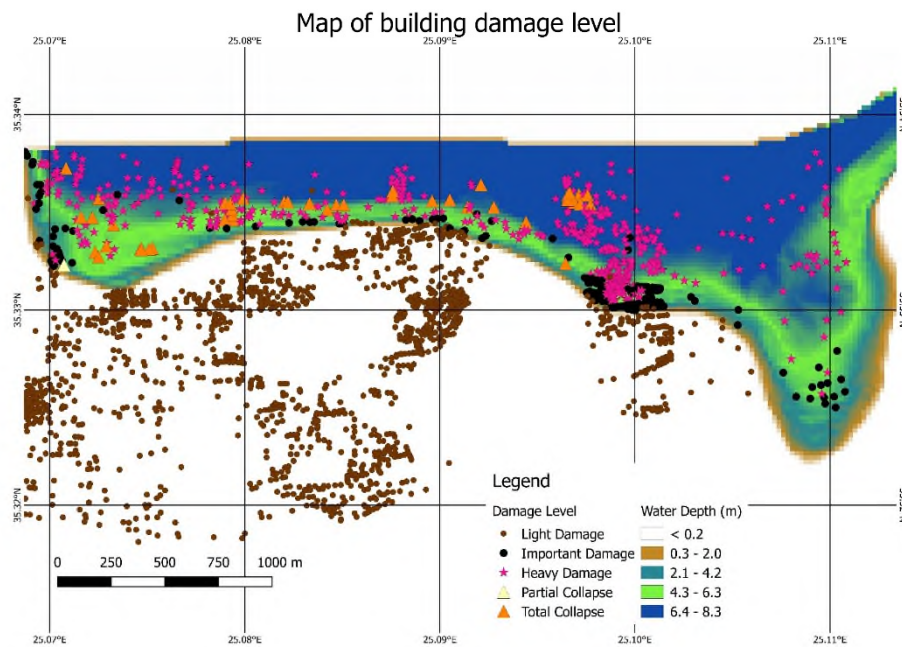
- “RACCE” - Raising earthquake Awareness and Coping Children’s Emotions
- The project was addressed to children and aimed to help them cope in case of a natural hazard (earthquake, volcanos and their secondary effects)
- In the framework of RACCE have been implemented:
 - Educational Kit “Earthquakes and Volcanoes”
 - Travelling Exhibition



Actions for arising Tsunamis Preparedness - EU Exercises



ASTARTE EU-FP7 - Assessment, Strategy And Risk Reduction for Tsunamis in Europe

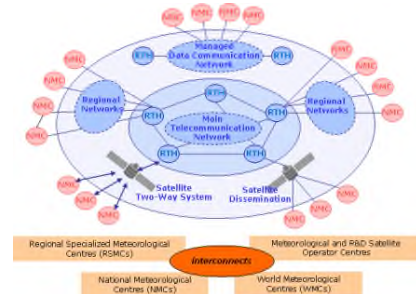


E.P.P.O's Response Policy - in case of major events **(at national level)**

- E.P.P.O. mobilizes to the disaster area the following teams:
- **Immediate Response Teams (IRT) of Experts** -which consists of well educated & experienced EPPO staff and members of EPPO Advisory Board
 - Assess the extent of the disaster, provide the proper information to the central authorities and support local authorities to cope with emergencies and manage the consequences of the event
- **Technical Teams of Experts** - which consists of E.P.P.O. staff – scientists and researches
 - Interpret the phenomenon and install more instruments for better monitoring of the seismic sequence (if it's necessary)



Warning Signal



Mass sms details

Group name: NEAMWAVE14 (32)

Originator: NOAA/NTWC

Date: 2014-10-29 16:08:28

Details: +90 (532) 752 11 01

Text Message: *TEST*TSUNAMI EXERCISE MSG:NEAMTWS-NOA Y.GZ.51:1408Z 29OCT2014:EQ Mw8.5;23.20E;22.5KM*TEST*

Originator	Message	Status	Count
NOAA/NTWC	ITLV1 38195522168	Delivered	2 sms
NOAA/NTWC	ISRAEL3 9732077867	Delivered	1 sms
NOAA/NTWC	EDWP2 20027791860	Sent	1 sms
NOAA/NTWC	SPAIN4 346799272	Delivered	2 sms
NOAA/NTWC	ISRAEL4 97256236028	Delivered	1 sms
NOAA/NTWC	ISRAEL2 97252774921	Delivered	1 sms
NOAA/NTWC	GREECE2 30694718401	Delivered	1 sms

Inbox

File Edit View Go Message Tools Help

Get Mail Write Chat Address Book Tag Quick Filter Search... <C>

Quick Filter: ☆ ★ 👤 📧

Subject	From	Date
TSUNAMI COMMUNICATION ...	tsunami.dase@cenalt.cea.fr	05/12/2012 08:18 AM
WEMQ40 LFPW 050818	mss_oper@hnms.gr	05/12/2012 08:18 AM
[ctwp_tr] TSUNAMI COMMUNI...	twfp_tr@boun.edu.tr	04/12/2012 1:07 PM
WEME40 LTAA 041307	mss_oper@hnms.gr	04/12/2012 1:07 PM
tsunami alerts	elgabry@nriag.sci.eg	04/12/2012 9:28 AM
KOERI's Annex 2B for NOA scen...	twfp_tr@boun.edu.tr	29/11/2012 3:33 PM
NEAMWave12 confirmation BSH	Stephan Dick	29/11/2012 2:17 PM
communicatons test	Seifert Wolfgang	29/11/2012 2:14 PM
[twfp] TSUNAMI MESSAGE NU...	twfp_tr@boun.edu.tr	27/11/2012 12:34 PM

From: mss_oper@hnms.gr

Subject: **WEMQ40 LFPW 050818**

To: hl_ntwc@noa.gr

069
WEMQ40 LFPW 050818
TSUNAMI COMMUNICATION TEST MESSAGE NUMBER 001
NEAM CENALT CANDIDATE TSUNAMI WATCH PROVIDER
ISSUED AT 0817Z 05 DEC 2012

Reply Forward Archive Junk Delete

05/12/2012 8:18 AM

Other Actions

No messages to download Unread: 0 Total: 76

ted1@194.177.194.085 - Yet Another Java HylaFAX Client (YajHFC)

Fax Table Server View Extras Help

Search: [] Reset

Time/Date	Sender	Error description	Time to receive	Pages	Filename
2012-12-09 08:15:38 AM	0225548020		00:00:17	1	fax000000594.tif
2012-12-06 01:04:10 PM	2103359981		00:00:22	1	fax000000590.tif
2012-12-06 12:59:39 PM	2103359981		00:00:23	1	fax000000589.tif
2012-12-05 08:21:44 AM	351 218402370		00:00:24	1	fax000000587.tif
2012-12-05 08:21:35 AM	351 218402370		00:00:24	1	fax000000586.tif
2012-12-05 08:19:52 AM	+33 169271874		00:00:38	1	fax000000585.tif
2012-11-28 03:01:20 PM	BOUN KOERI		00:00:34	1	fax000000577.tif
2012-11-28 01:03:18 PM	BOUN KOERI		00:00:37	1	fax000000576.tif
2012-11-28 12:26:29 PM	BOUN KOERI		00:00:36	1	fax000000575.tif
2012-11-28 12:11:59 PM	BOUN KOERI		00:01:08	2	fax000000574.tif
2012-11-28 10:43:43 AM	+33 169271874		00:00:37	1	fax000000573.tif
2012-11-28 09:57:00 AM	+33 169271874		00:01:27	2	fax000000572.tif
2012-11-28 09:18:59 AM	+33 169271874		00:01:11	2	fax000000571.tif

HylaFAX scheduler on noa-fax: Running

Modem ttyr01 (0030.210.3490198): Running and idle

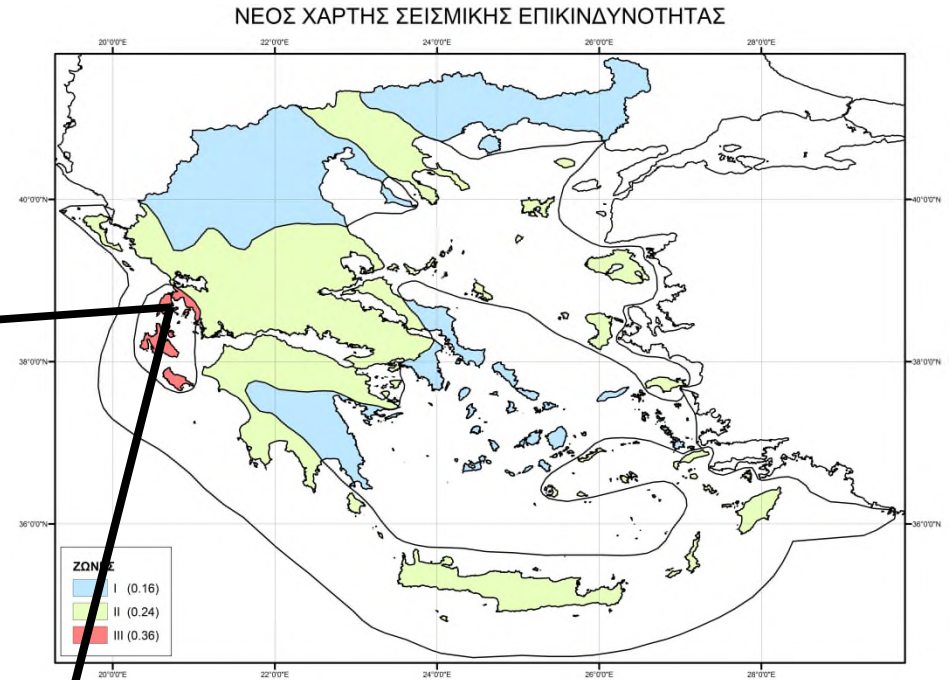
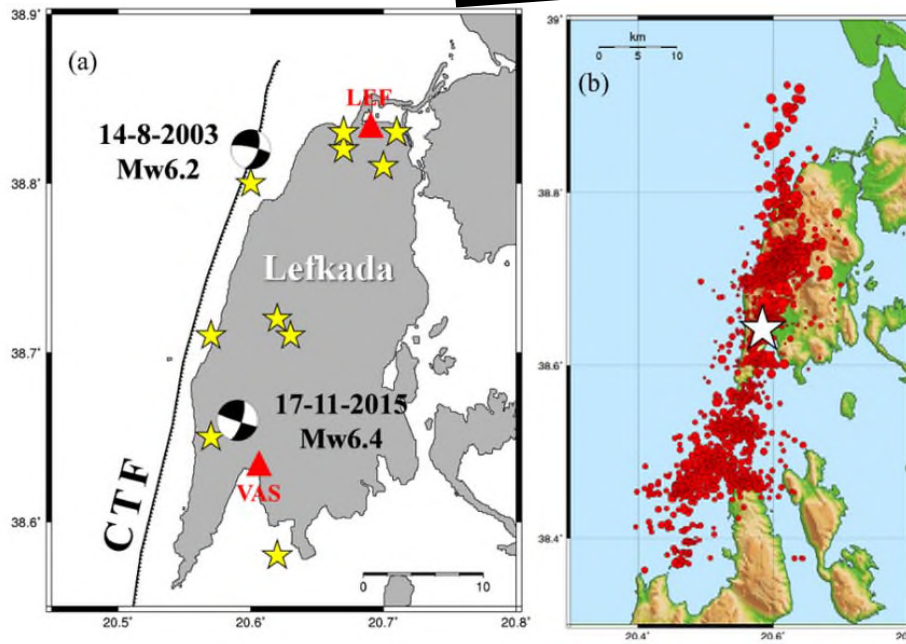
Modem ttyr00 (0030.210.3490050): Running and idle

Modem ttyr02 (0030.210.3490155): Running and idle

Modem ttyr03 (0030.210.3490194): Running and idle

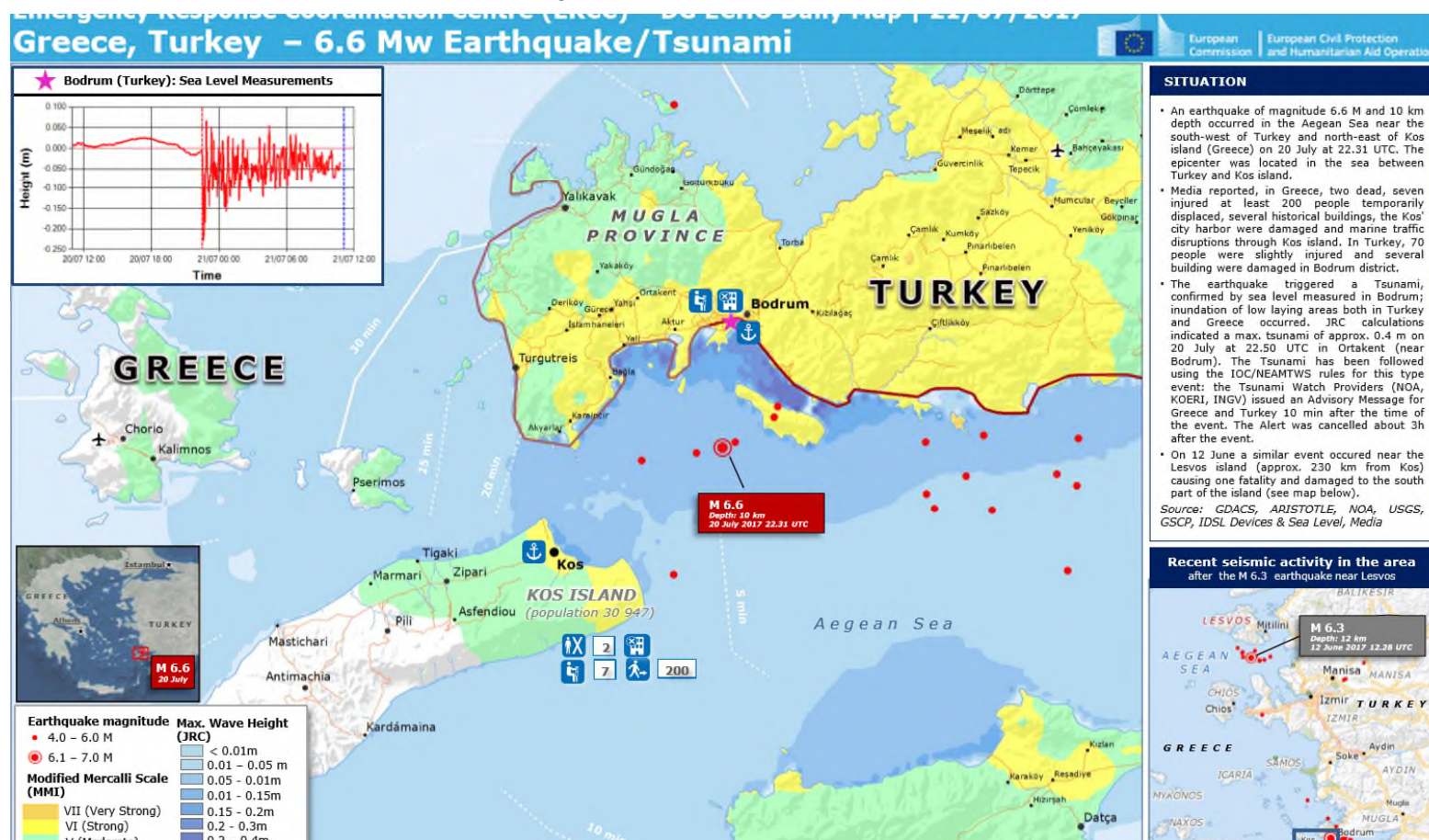
Examples & Experience

- The case of the 17th November 2015 Eq in Lefkas Island



Examples & Experience

■ The case of Bodrum – Kos Eq (20/07/2017 23:31 UTC)



EPPO website <http://www.oasp.gr>

ΟΡΓΑΝΙΣΜΟΣ ΑΝΤΙΣΕΙΣΜΙΚΟΥ ΣΧΕΔΙΑΣΜΟΥ ΚΑΙ ΠΡΟΣΤΑΣΙΑΣ
ΥΠΟΥΡΓΕΙΟ ΥΠΟΔΟΜΩΝ, ΜΕΤΑΦΟΡΩΝ & ΔΙΚΤΥΩΝ

ΕΠΠΟ Prepare now Regulations Research Programs Preparedness Publications Useful links Communication

Form "Protection Guidelines - aftershock Period"
The EPPO created this form to be informed citizens the aftershock period for protective measures to be taken, the initiatives must take to mitigate the psychosocial impact of their family members, and the actions of the State regarding the rehabilitation of areas affected earlier by an earthquake.

Videos
#IDIRA= (Interoperability of data and procedures in large-scale multinational disaster response actions)

Calendar of Events
June
K D T T F F In
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30

FAQ for Earthquake
Myths about earthquakes
Santorini Volcano
History of Events

Database Accelerograms Greek Area

Check seismically

KAN.EPE. 2013 REGULATION Contingency
Form for Querying Arrangements of KAN.EPE.

ECPFE
European Centre on Prevention and Forecasting of Earthquakes



Earthquake Planning and Protection Organization

Thank you very much!



**Earthquake Planning & Protection
Organization (E.P.P.O.)**

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– Prevention Depart.

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