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Earthquake, Landslide and Flood Disaster Prevention: the SciNetNatHaz project

SciNet NatHaz
Prevention



Acknowledgments:

The **SciNetNatHaz** Project is co-funded by the EU
within the context of the
Black Sea Basin Joint Operational Programme 2007-2013

K. Papatheodorou, Project Coordinator,
TEI of Central Macedonia, Hellas

www.scinetnathaz.net



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The Proposal

The trip to ...starting implementation

- **Proposal submitted on September (30th) 2011**
- **Approved on June 2012**
- **Preparation of the Grand Contract: August 2012 – February 2013**
- **Grand Contract Signed: April 2013**
- **Project Start: May 2013**



Romanian Ministry of Regional Development and Tourism
Joint Managing Authority

Grant Application Form

Reference: 2nd Call for Proposals

Joint Operational Programme "BLACK SEA BASIN 2007-2013"

Deadline for submission of proposals: 30th of September 2011

Title of the joint Action and acronym:	A Scientific Network for Earthquake, Landslide and Flood Hazard Prevention - SciNetNatHazPrev
Location(s) of the joint Action:	Greece (Kentriki Makedonia-Serres, Anatoliki Makedonia and Thraki- Komotini broader area, Evros/Marica river catchment within the eligible area, all towns), Bulgaria (Yugostochen, Evros/Marica river within the eligible area, all towns), Turkey (Tekirdag, Evros river catchment within the eligible area, all towns, Istanbul, Samsun), Romania (IUTS II region of the South-East, Danube river delta wider area, all cities), Moldova (Moldova, Danube river delta wider area), Ukraine (Odessa, Danube river delta wider area, all cities)
Name and country of the Applicant	TECHNOLOGICAL EDUCATION INSTITUTE of SERRES, GREECE
Name of the IPA Financial Beneficiary ¹	BOGAZICI UNIVERSITY, KAHIDILLI OBSERVATORY AND EARTHQUAKE RESEARCH INSTITUTE (KOERI), Istanbul, TURKEY
Priority and measure	Priority 2 (Sharing resources and competencies for environmental protection and conservation), Measure 2.1. (Strengthening the joint knowledge and information base needed to address common challenges in the environmental protection of river and maritime systems)

¹ If at least one Turkish partner is involved in the project



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The Partnership!

Project Details

Black Sea Basin Joint Operational Programme 2007-2013

Duration: 31 months

Starting-Ending Dates: 01.05.2013 -
31.11.2015

Budget (ENPI + IPA): 1.053.000,00 €

EU Contribution (ENPI + IPA): 947 700,00 €



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From “Hazard” to ...Disaster!

Why is that?

Vulnerability and Insufficient capacity to reduce the Risk

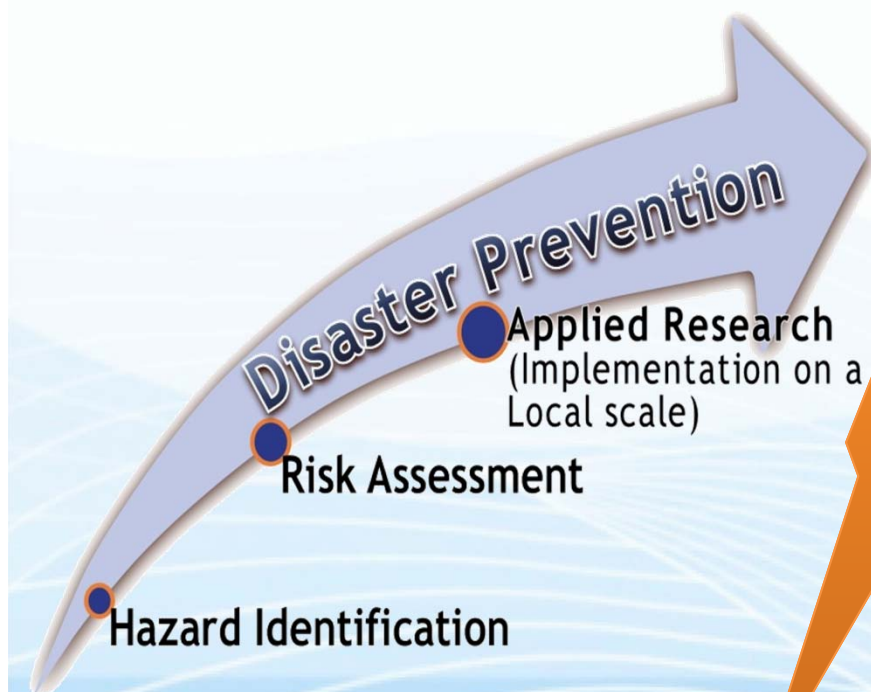
Possible reasons

- Unforeseen events
 - Inaccurate foreseen **location** and estimation of **magnitude** of events
 - Lack of **Preventive** measures
 - Limited public awareness
- ...lack of sufficient resources...money and time!



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Disaster Prevention – overcoming blocks



- Lack of Data
(the...information gap!)

- A methodological"Babel"

- Lack of Applied Research

- Flash Floods

- *Most (if not all) of these problems have already been identified and recognized by the EU Commission DG Environment and there are some effort towards resolving them (ie. Directive 2007/60/EC).*



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Scope of the SciNetNatHaz Project



- A.** To establish a strong regional (BS) cooperation by developing a SCientific NETwork for Earthquake, Landslide and Flood (ELF) Hazard Prevention that will set the basis for:
- B.** Systematic data acquisition, harmonization, management and sharing with the scientific community
- C.** Harmonization of Methodologies and Procedures used to assess ELF hazards
- D.** A systematic Hazard assessment - Pilot implementation in selected areas so that preventive measures can be proposed



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Some of the Project Achievements & Outputs

The **SciNetNatHaz** project was awarded by the **Joint Managing Authority (JMA)** of the Black Sea JOP 2007-13 as a “Best Practice” project (May 2014, Thessaloniki, Hellas)



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...some of the outputs #1

- A. More than 80 Scientists** are already participating in the Project coming from 12 different Universities, Academies of Sciences and Research Institutes around the Black Sea area. More scientists have expressed their interest in being voluntarily involved in the implementation phase.
- B. Maps** in analogue and digital format, **digital and tabular data were collected, processed and Metadata files created** according to the INSPIRE directive (around 1000 files).
 - A **Geodatabase** has been developed as part of a WeGIS which hosts both data and Results produced by the Project. The **Web GIS platform** has been developed and is already operational. It will provide free access to data and pilot implementation results to stakeholders.
 - **Open source software has been adopted** for all applications in order to be freely shared with the stakeholders.



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...some of the outputs #2

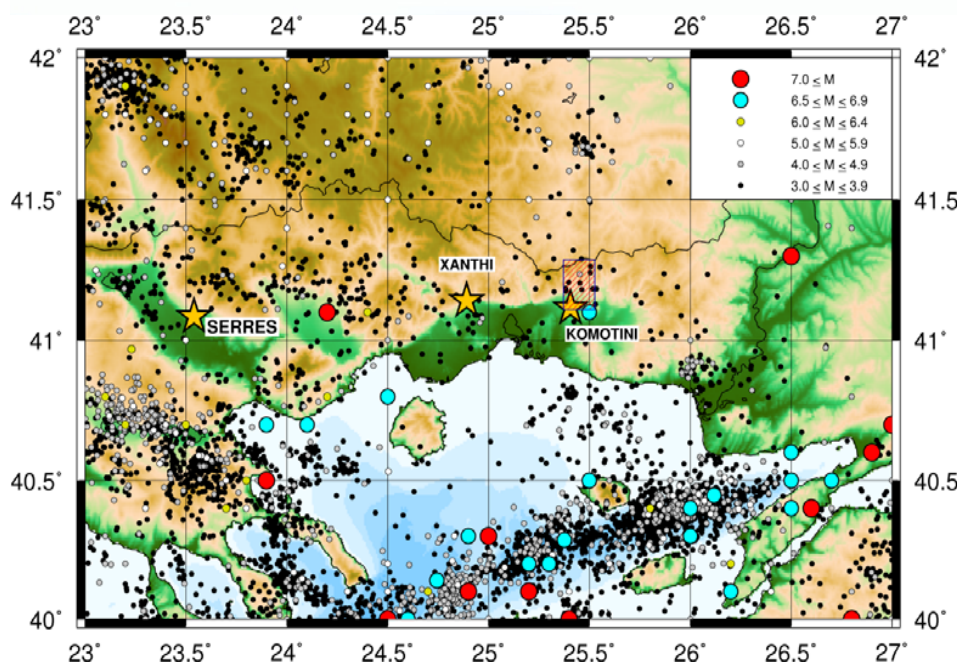
- C. Harmonized Methodologies** selected/adapted to local conditions are proposed and **are being used for ELF Hazard assessment** throughout the implementation area.
- D. Pilot Implementations of Flash Flood Hazard** assessment/Design of Preventive measures, have already been carried out in Greece, in Turkey, in Romania, in Bulgaria, in Moldova and in Ukraine.
 - A large number (more than 18) of presentations in International Conferences and publications in Scientific Journals have already been supported by the project. Publications are being made in order to communicate the Project Outputs, funding resources & Programme with the stakeholders –especially the Scientific Community and practitioners-and receive feedback.
 - **Open Seminars** have been organized in partner countries. In Hellas alone, **more than 360 people** (experts, executives, staff members working in the public sector, researchers etc) **have attended**.

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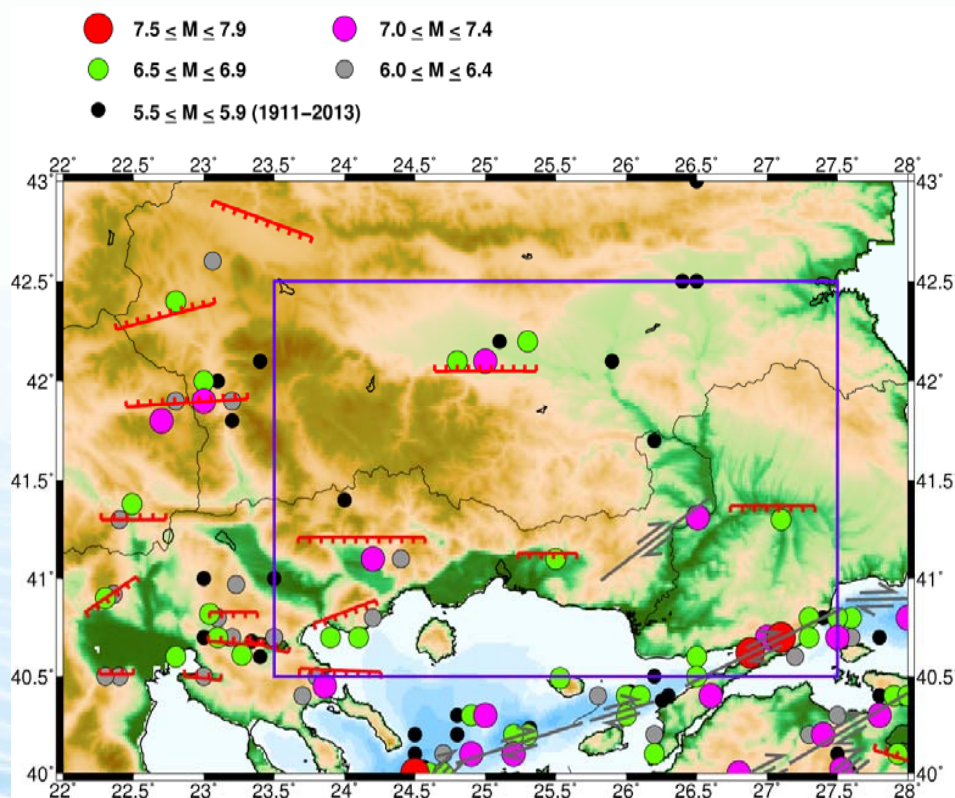
Earthquake Hazard - Seismicity



Institute of Engineering "ITSAK"
Seismology & Earth-
quake Engineering,
EPPO



Scordilis 2015



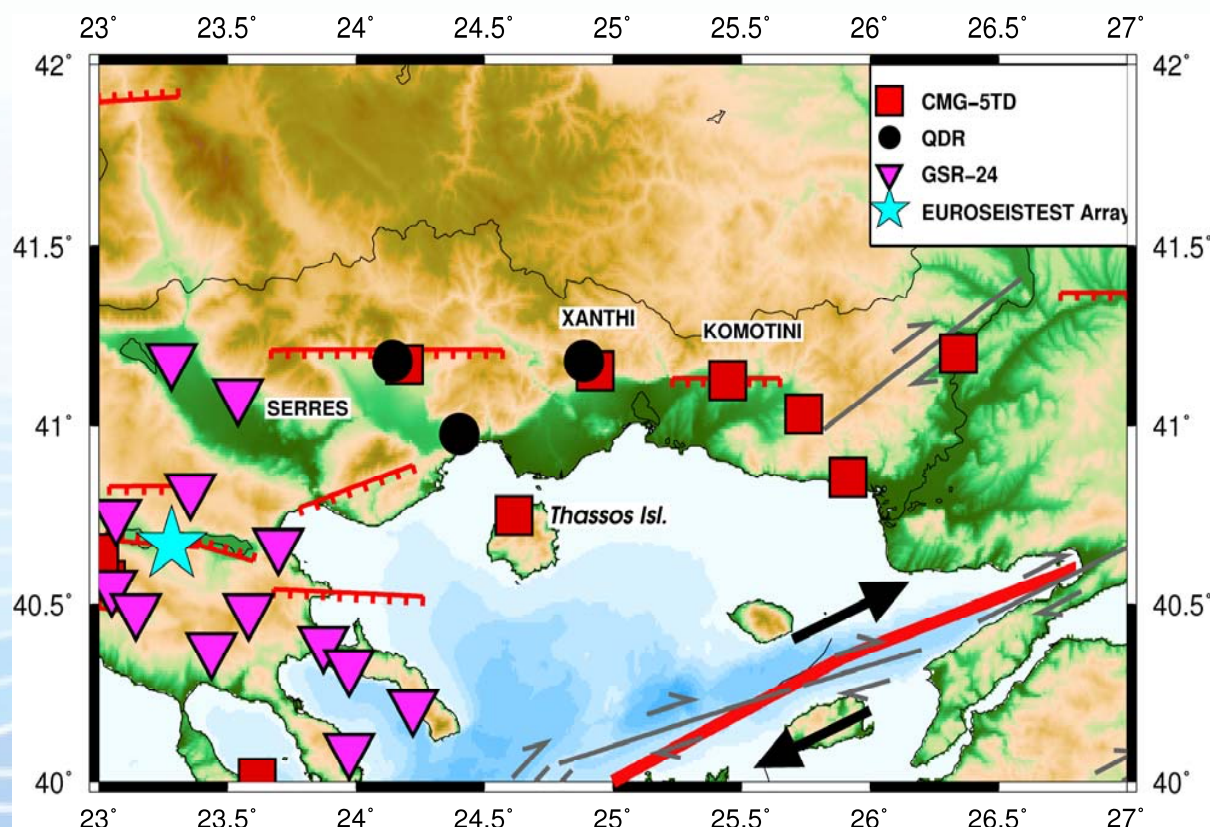
(Papaioannou, 2014)

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Seismic Hazard Assessment • Seismicity • Recording the Strong Ground Motion



Institute of Engineering
Seismology & Earth-
quake Engineering,
EPPO

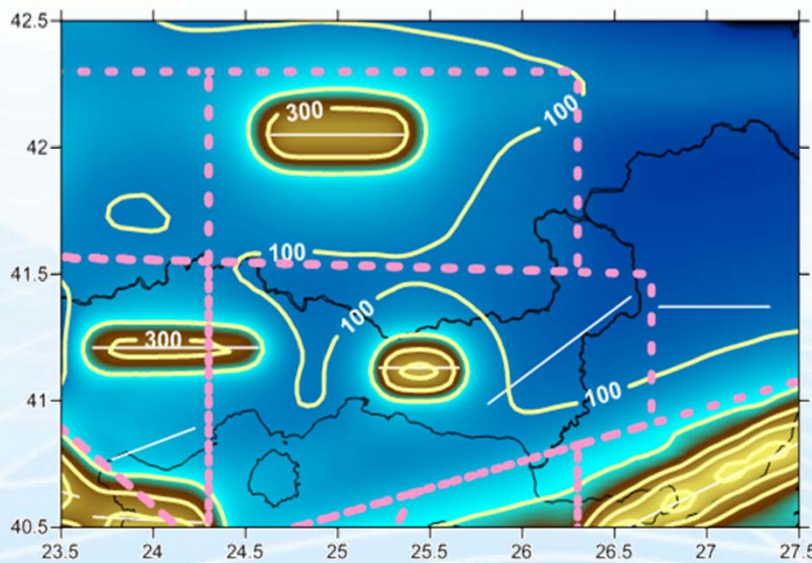


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Earthquake Hazard Assessment Results based on Peak Ground Acceleration (cm/sec^2)



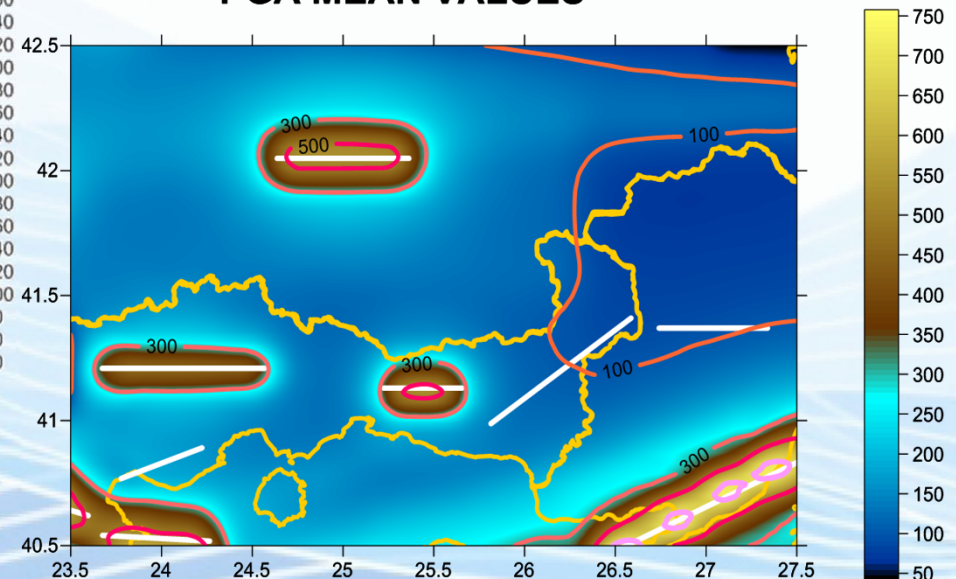
Institute of Engineering "Seismology & Earthquake Engineering, EPPO



Tr: 475 Yrs

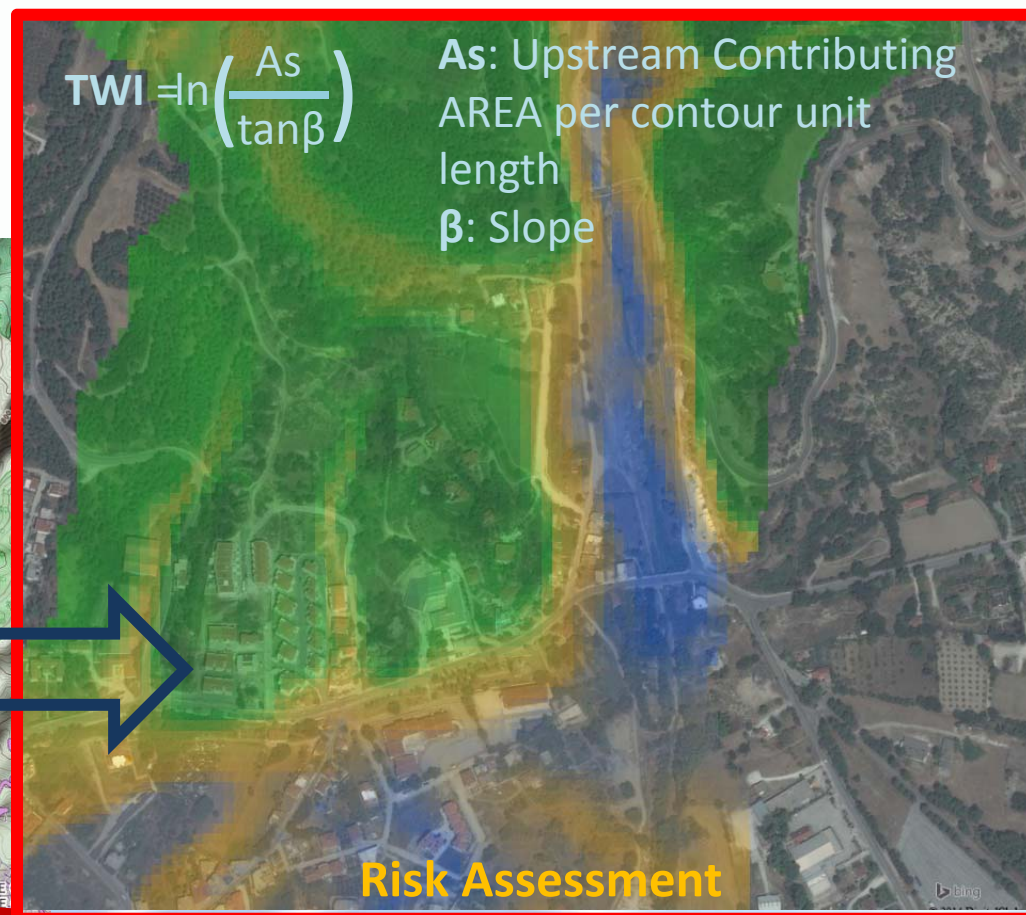
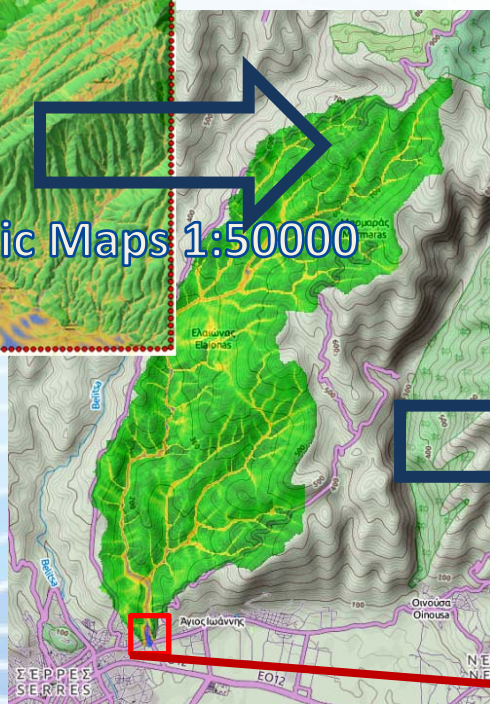
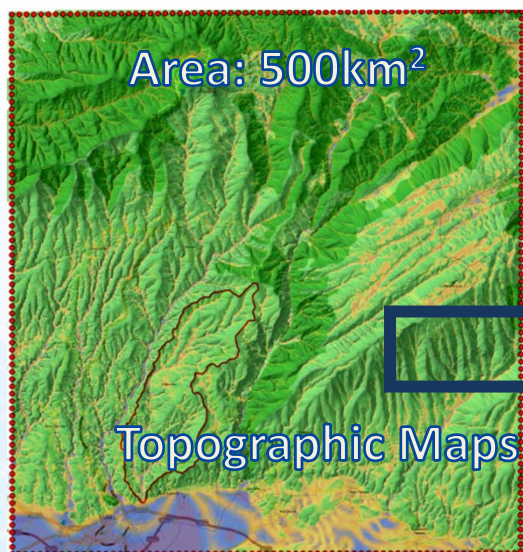
(Papaioannou, 2014)

Tr: 950 Yrs
PGA MEAN VALUES



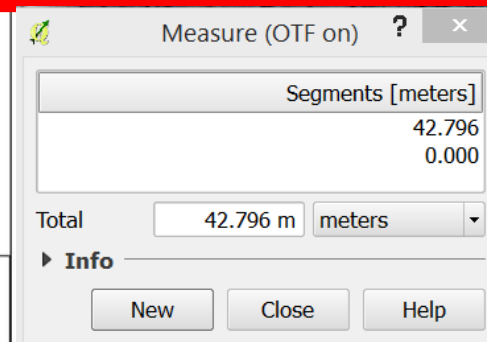
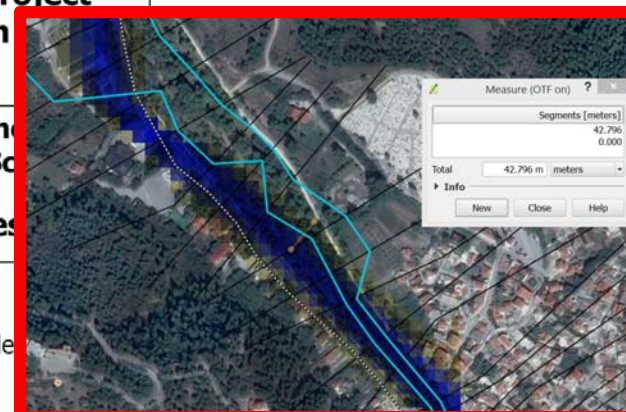
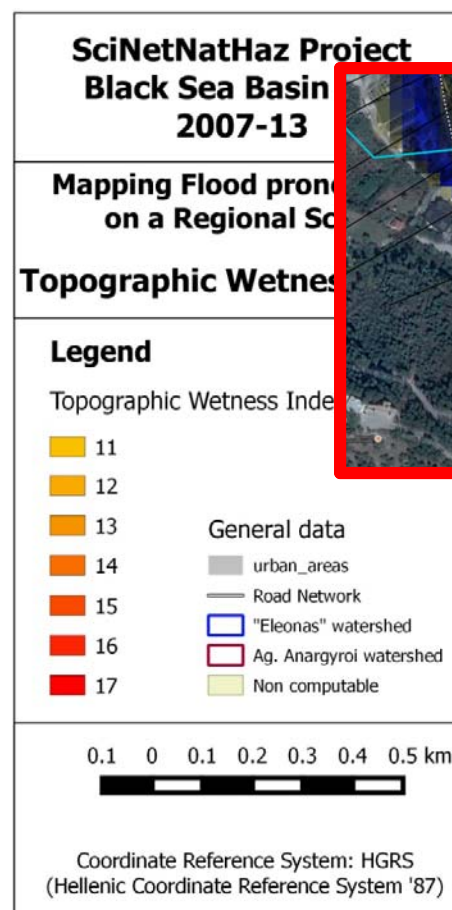
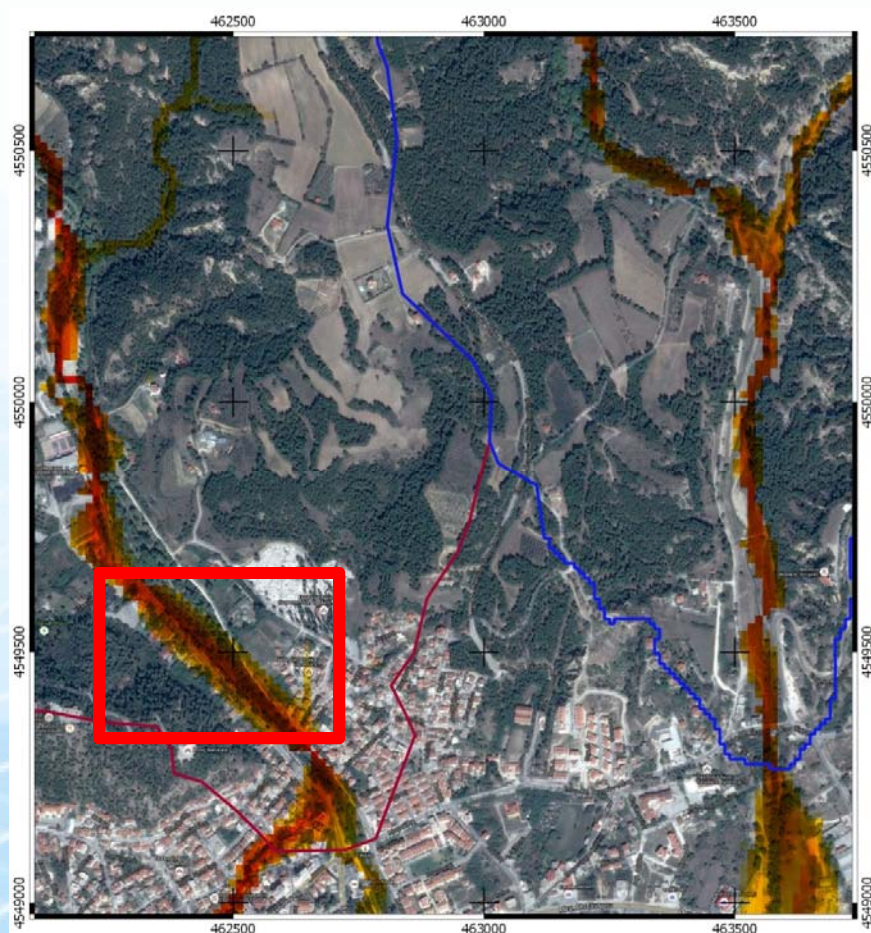
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Flood Hazard Assessment... in 2 steps!



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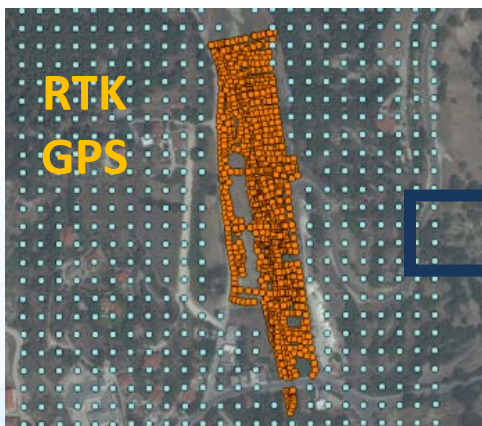
Regional scale - Reliability and Accuracy of Outputs



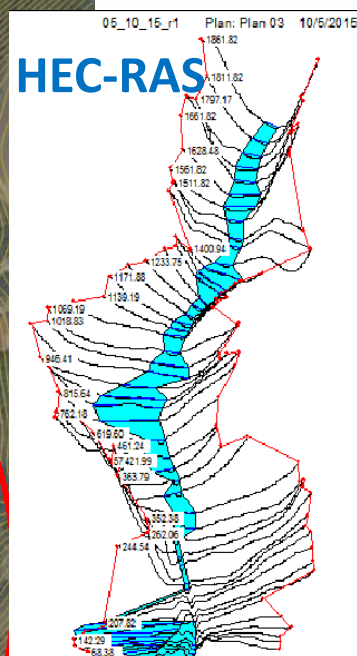
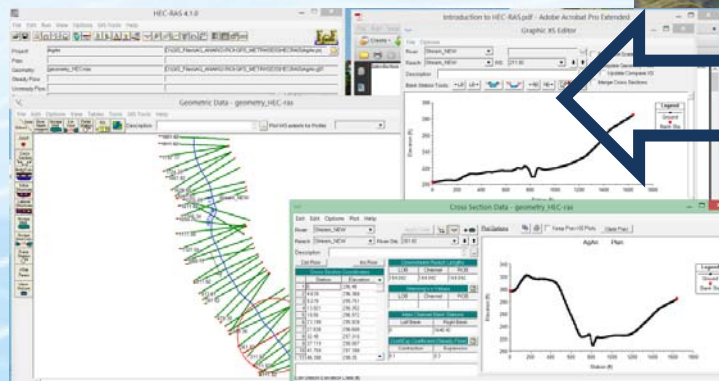


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Applied Research on a Local Scale



Implementation on a Local (site-specific) scale

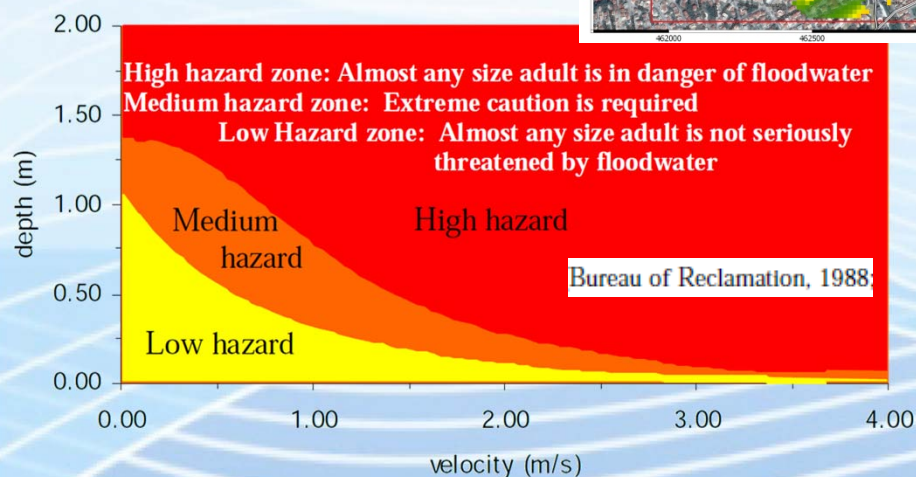
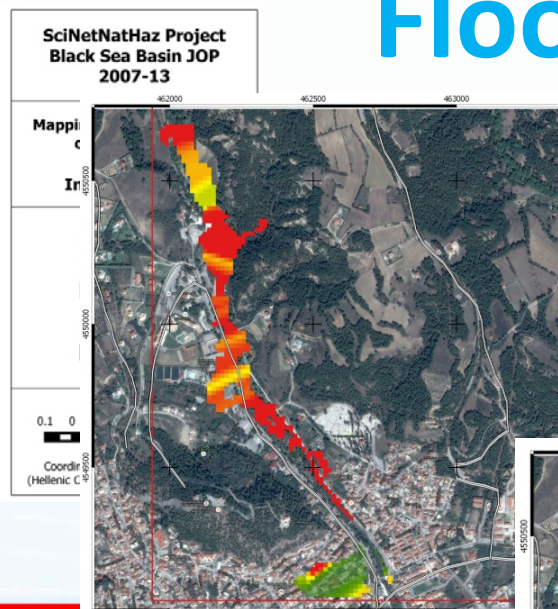


Software used

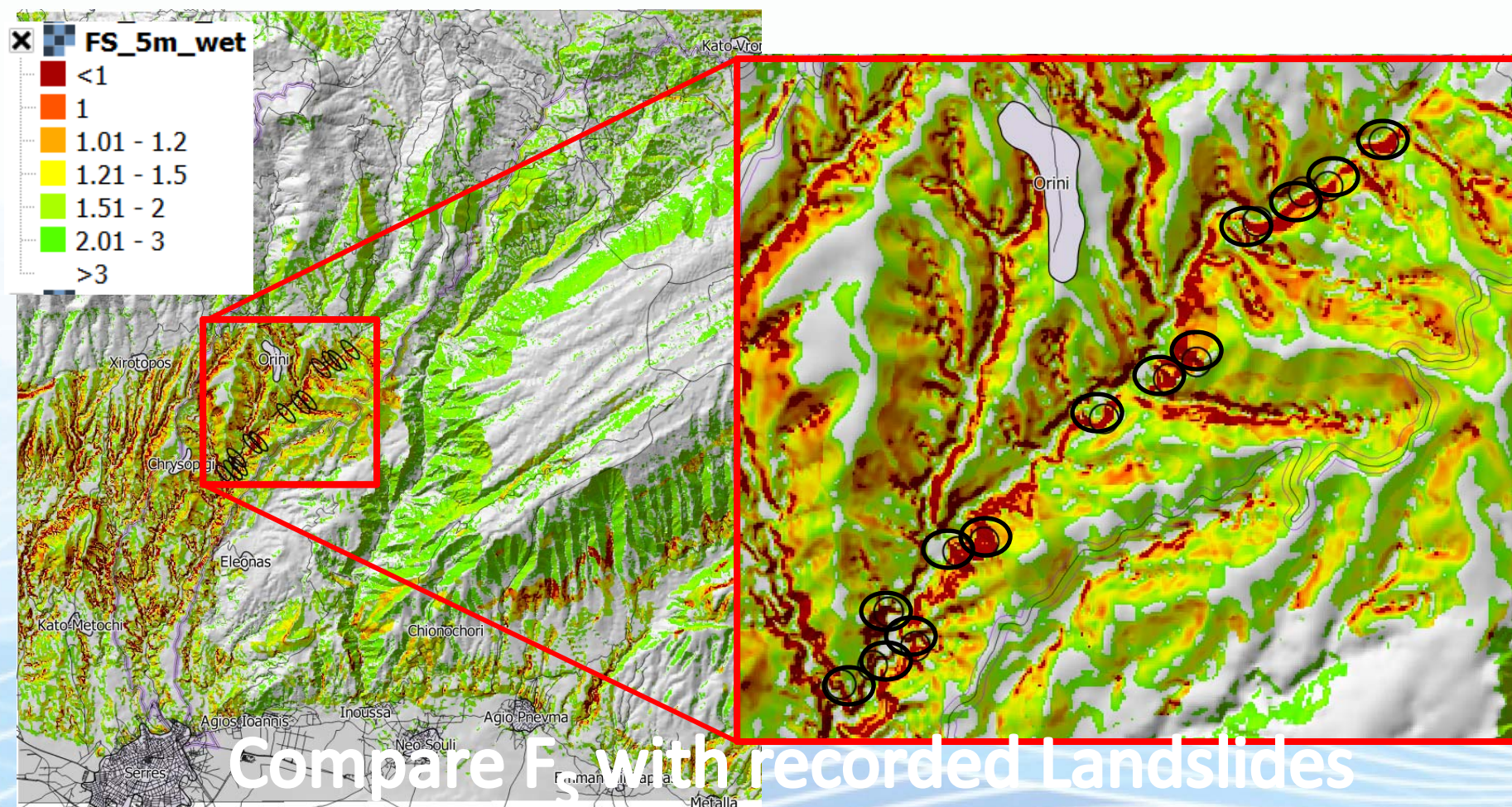


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Flood Hazard Maps



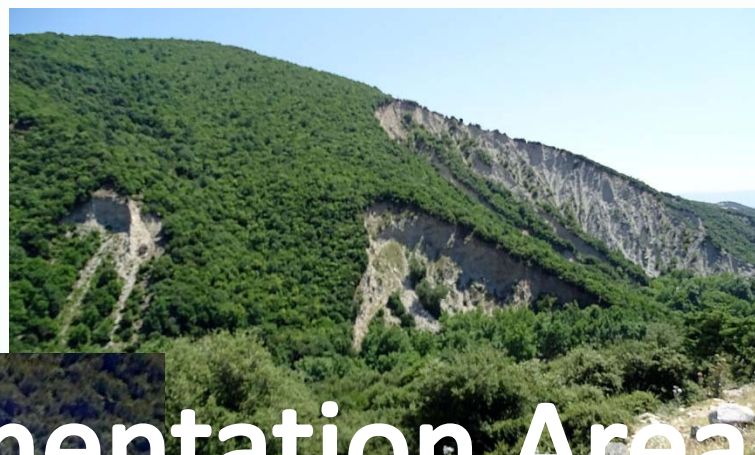
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Landslide Hazard Assessment



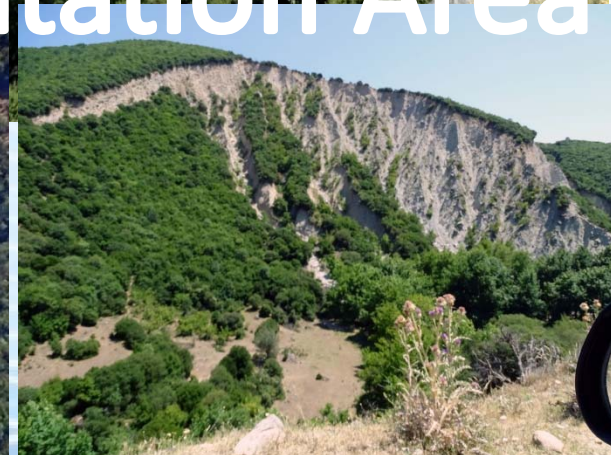
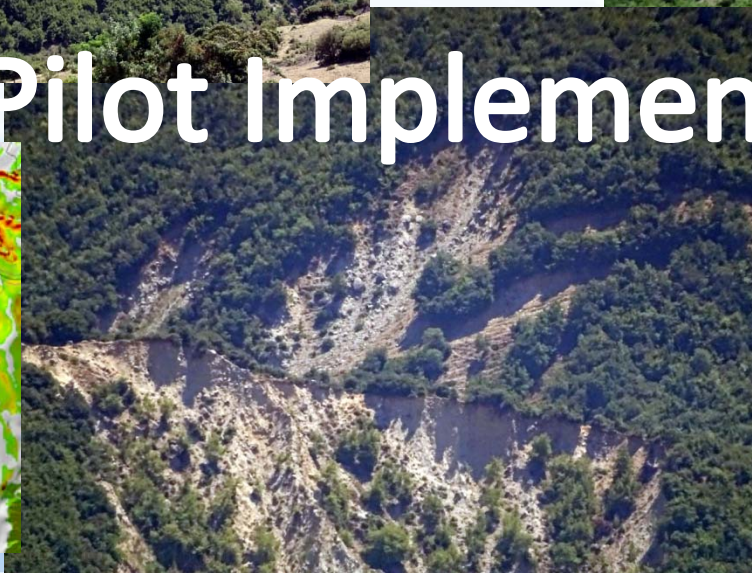
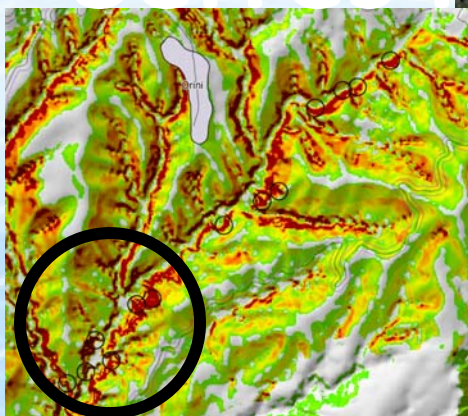


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Evaluation of outputs by comparison to actual facts

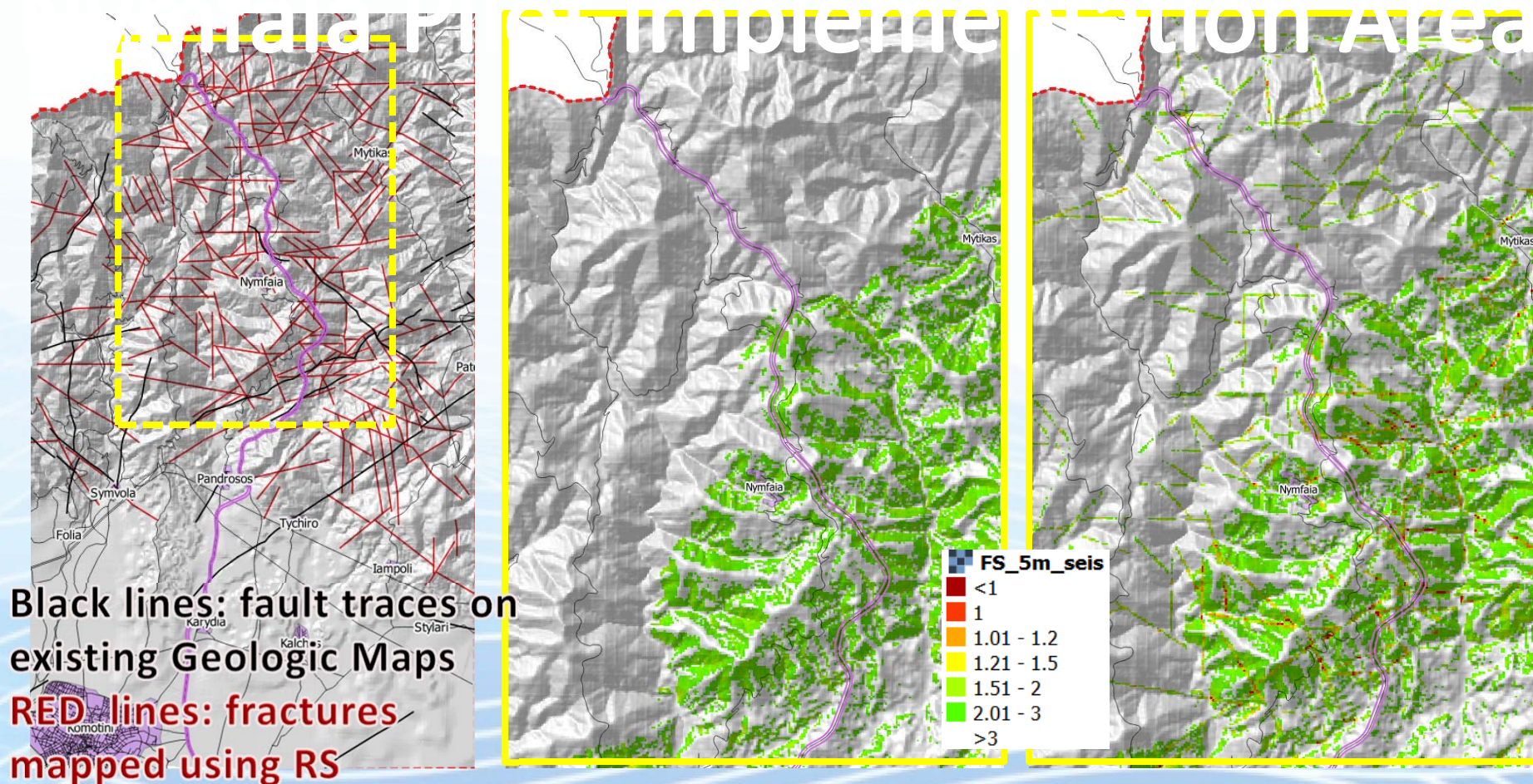


Serres Pilot Implementation Area



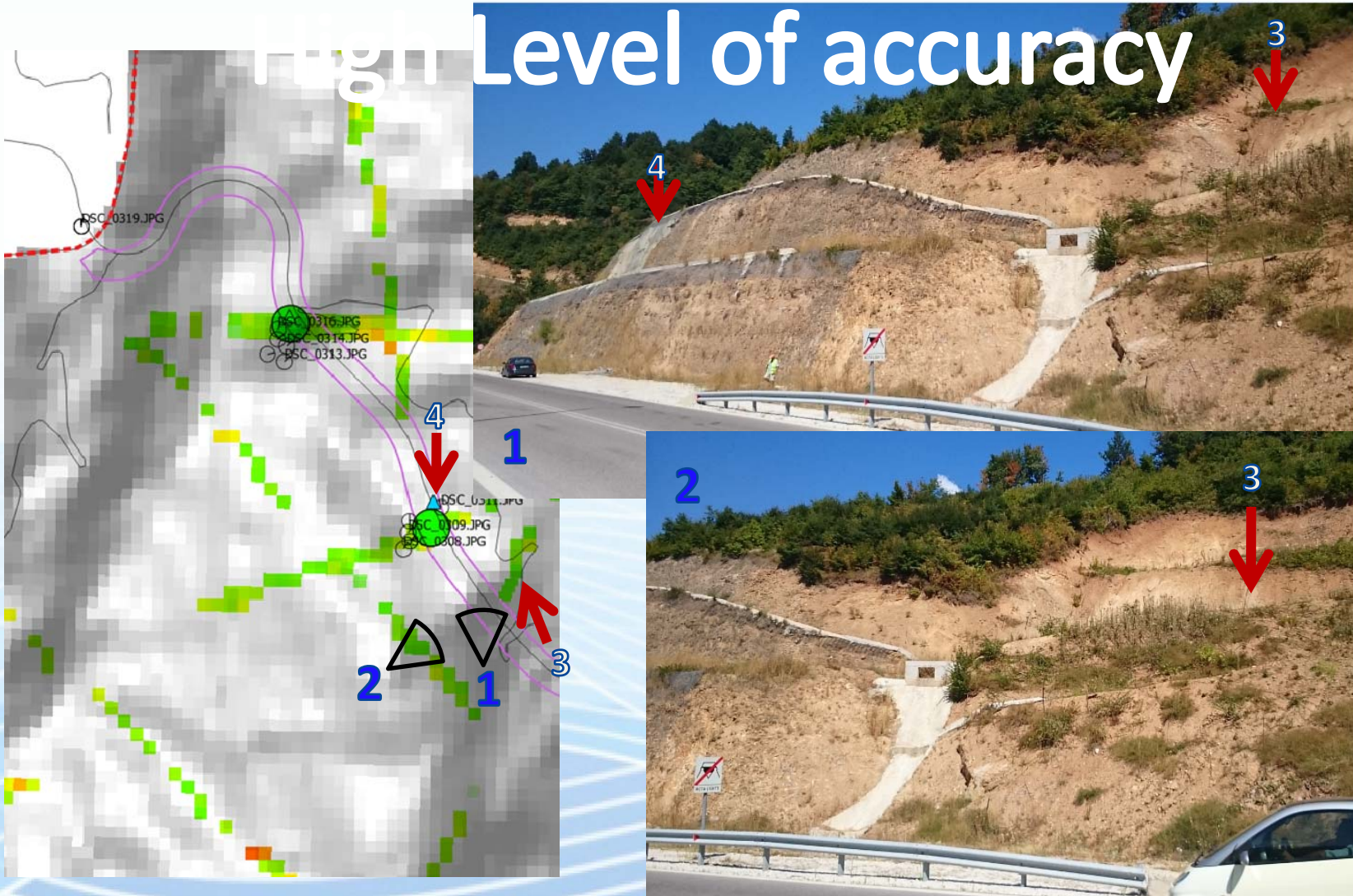
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Incorporation of Geomatics technologies



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High Level of accuracy





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The last task...Dissemination

- Dissemination of outputs
- Exploitation of new information regarding seismic hazard
- **Science and technology transfer** in order to **build capacity** in the **state authorities** (public sector) and **experts** regarding earthquake, landslide and flood hazard assessments
-in order to broaden the number of users assessing those hazards and to cover larger areas in less time, to **plan effective preventive actions** and **promote safety**.



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Contact & Information &!



News & updates @: <http://www.scinetnathaz.net/>



Facebook: <https://www.facebook.com/scinetnathaz.scinetnathaz>



Follow us on **Twitter:** <https://twitter.com/SciNetNatHaz>



YouTube Channel: <http://www.youtube.com/user/SciNetNatHaz>



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Final Stakeholders Meeting – ISTANBUL November 2015

A Scientific Network for
Earthquake, Landslide and Flood

Hazard Prevention

The Project

Acknowledgments:
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by the European Union in the context of the
Black Sea Basin Joint Operational Programme
2007-2013

Thank you for
supporting the
SciNetNatHaz project!



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Selected References

(just for the “problems and solutions” part)

- ✓ **Clark Ian, European Commission (2012): EU Civil Protection policy Priorities 2011-2013.** European Commission, DG Humanitarian Aid and Civil Protection, ECHO A5, Civil Protection Policy, Prevention and Preparedness
- ✓ **Clark Ian, European Commission (2012): The EU Contribution to the Implementation of the Hyogo Framework in Europe.** European Commission, DG Humanitarian Aid and Civil Protection, ECHO A5, Civil Protection Policy, Prevention and Preparedness
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Selected References

(just for the “problems and solutions” part)

- ✓ **Commission communication [P7_TA(2010)0326] (2010):** A community approach on the **prevention of natural and man-made disasters**. European Parliament resolution of 21 September 2010 on the Commission communication: A Community approach on the prevention of natural and man-made disasters (2009/2151(INI))
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- ✓ **European Commission: Research and innovation (2006):** Workshop on “**RESEARCH: Floods!: Managing the risks of flooding in Europe**”. Conference Minutes.
- ✓ **European Commission DG Environment (2008):** Member States' **Approaches towards Prevention Policy – a Critical Analysis**. Final Report. March 2008
- ✓ **Miet Van Den Eeckhaut and Javier Hervás (2012):** **Landslide inventories in Europe and policy recommendations for their interoperability and harmonisation**, A JRC contribution to the EU-FP7 SafeLand project. **JRC Scientific and Policy Reports**.