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sea level rise scenarios along the mediterranean coasts

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Centro Euro-Mediterraneo sui cambiamenti climatici (CMCC) Italy

ISOTECH environmental reserach and consultancy Cyprus

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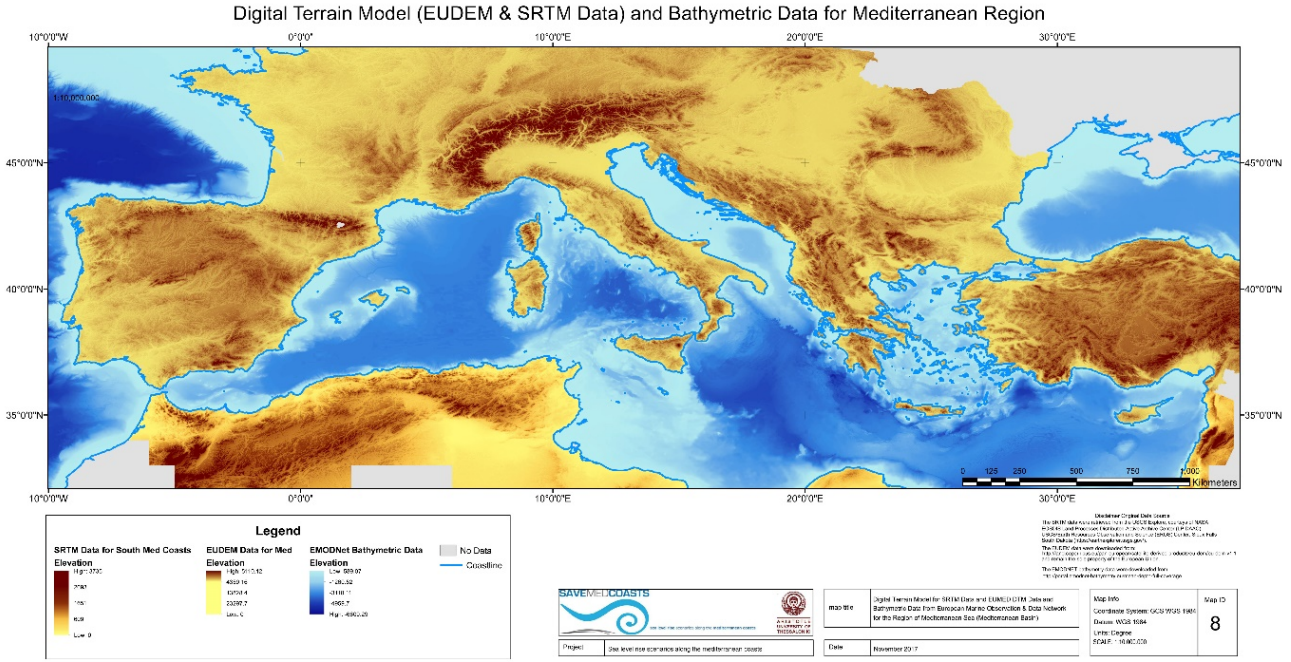
Article I

DTM AND BATHYMETRY OF THE MEDITERRANEAN REGION: THE SAVEMEDCOASTS BASE MAPS



This digital map shows the land and seafloor surfaces of the Mediterranean region at the best current resolution. It was created for the SAVEMEDCOASTS project combining free available global datasets from spatial and bathymetric data. The map is represented in the widely used World Geodetic Reference System (WGS 84; EPSG: 4326), using the GeoTIFF format for raster data and the ESRI © Shapefile format for vector data. The following global / regional dataset were used for the map creation:

- Coastline 4326 provided by NOAA.
- DTM from the EUDEM (25 x 25 m grid) provided by Copernicus for the European section of the Mediterranean region, and the SRTM 1 Arc (30 x 30 m grid) provided by USGS for the remaining part of the region.
- Bathymetry from the EMODnet project (250 x 250 m grid).

The map is released in ArcMap and Global Mapper formats and will highlight the coasts of the Mediterranean most prone to marine flooding due to relative sea level rise.

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Article II

TEST SITES AT LIPARI AND CINQUE TERRE (ITALY)

During September - October 2017 the INGV with AUTH P&RS-LAB (the Laboratory of Photogrammetry and Remote Sensing [perslab.topo.auth.gr/general-en], School of Rural & Surveying Engineering [www.topo.auth.gr]), performed the first aerial surveys in the UNESCO sites of Lipari (Aeolian islands, Sicily) and Cinque Terre (Liguria, Italy). The aerial photogrammetric surveys have been carried out by a powerful multicopter system equipped with a 20 MP high resolution camera, over three coastal zones of Lipari (Acquacalda, Baia Portinenti and Canneto) and the maritime villages of Monterosso and Vernazza (Cinque Terre, Liguria).

The UAV take off at Lipari

A phase of the GPS/RTK surveys on GCPs

Some hundreds of high resolution aerial images were acquired in these two regions. The images were analysed by the Structure For Motion technique to produce the Digital Surface Models (DSM) and orthophotos of the investigated zones, with a pixel size even better than 4 cm. The photogrammetric processing included several Ground Control Points (GCP) in each test site, that were measured with an accuracy of 2-3 centimetres by GPS receivers, using the Real Time Kinematic (RTK) technique.

Land data will be soon combined with available bathymetric data to realize very high resolution Marine and Digital Terrain Models (MDTM) of the investigated coastal zones. The coastline positions and the marine flooding scenarios for 2100 due to the expected relative sea level rise will be represented on the MDTMs and the orthophotos.

Lipari (Acquacalda village). The ultra high resolution orthophoto.

Monterosso village (Cinque Terre). The ultra high resolution 3D model.

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Article III

NEW RESULTS ON STAKEHOLDERS' ANALYSIS

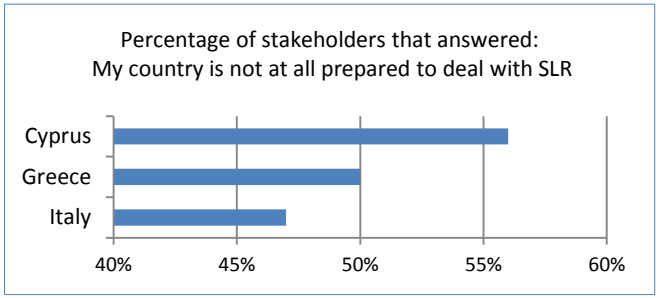
Direct Impact on Policy Makers and Policy Making through small group meetings and face to face interviews with key stakeholders in Greece, Italy and Cyprus.

The small group meetings allowed an open discussion among key stakeholders, whereas the face to face interviews lead to a more detailed perception record of their gaps, needs and actions to be taken to address SLR.

From the online questionnaires, we highlighted the perception of SLR. Several differentiations on how SLR is affecting each country, as well as several common attributes, were underlined. For example, most of the stakeholders located in Italy, Greece and Cyprus, are aware that their countries are not well prepared in dealing with any problems that may arise from SLR, especially on the loss of land, safety of coastal infrastructures and economic issues.

The most frequent comments of the key stakeholders that participated to the small group meetings and interviews were relevant to the project:

- *"I am surprised to realize through this interview that I did not know about SLR, although I thought I knew. I am more aware on my need to be aware!"*
- *"It was a great opportunity to approach the issue of Climate Change and SLR in relation to the coastal zone. The priorities that emerged from the meetings are very interesting."*
- *"A parliamentary question was submitted to the Minister on Environment and the Minister of Education with regards to the actions Cyprus is implementing to address SLR"*



Next steps: The results from the stakeholders analysis and perception record activities, will allow a country specific approach of stakeholders' engagement during the future activities foreseen in the project.

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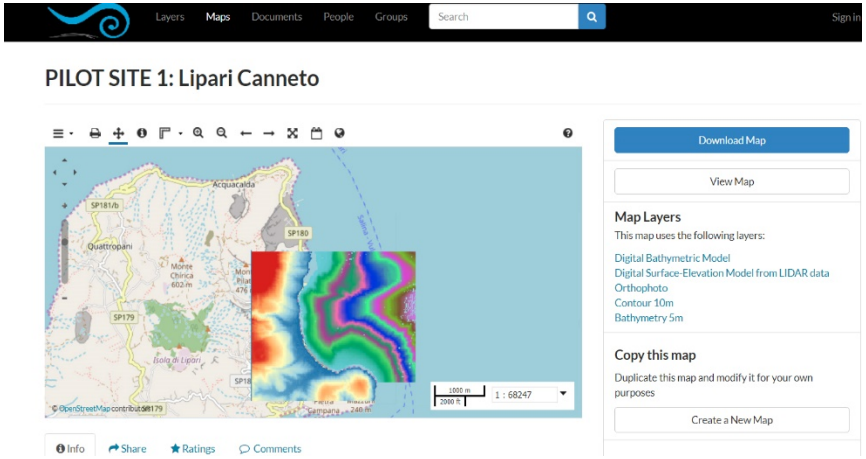
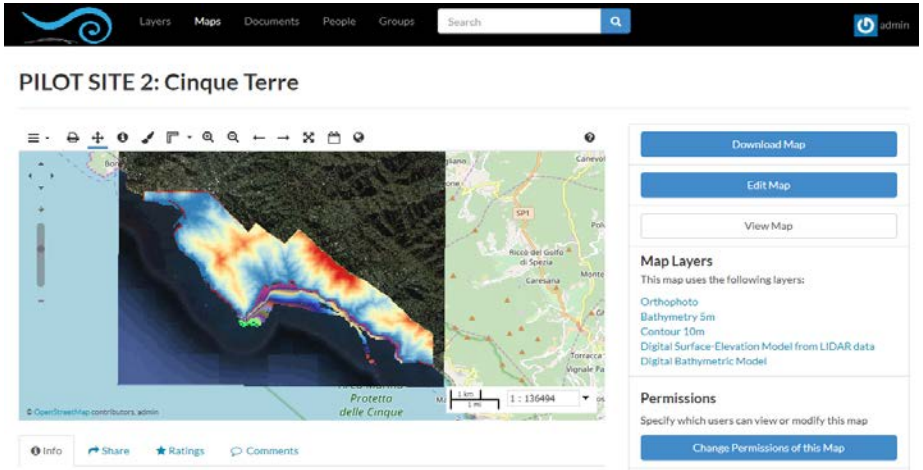
Article IV

THE SAVEMEDCOASTS WEBGIS

The SAVEMEDCOASTS' WebGIS is beginning to be on-line. The platform supports data integration and data sharing hub for the SAVEMEDCOASTS project partners. It is based on a user friendly information platform suitable for stakeholders and interested users. By data integration is provided the possibility to aggregate and combine different data sets of the database into one visualization, processing and/or catalogue interface.





Data sharing is supported by an intuitive interface for data contribution and upload into the data base.

Standard data formats and interfaces are used to access by the most common (web-) applications.

The platform tools will be soon fully operative with data and metadata at regional and local scales. Especially with high resolution results from the pilot sites at Lipari island and Monterosso (Italy) and Lefkada island (Greece).

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THE 2ND SAVEMEDCOASTS TECHNICAL MEETING – ROME, INGV

Article V

The 2nd Technical Meeting was held on December 1, 2017 at the INGV headquarter in Rome. During the meeting the project partners presented the state of the art of their activities, discussed the achieved results and prepared the forthcoming actions for the next 6 months of the project, according to the following key points:

- Assessment of milestones and deliverables,
- Reporting and communication to the DG-ECHO,
- UAV surveys in the pilot sites of Lipari and Cinque Terre (Italy),
- DTM and bathymetry of the Mediterranean region,
- Tsunami hazard assessment and mapping in the Mediterranean region,
- Relative sea level rise projection for 2100 in pilot sites,
- Coastal risk, vulnerability and impact analysis in the Mediterranean region,
- Development of an integrated flood damage model for climate risk assessment,
- The SAVEMEDCOASTS WebGIS structure and implementation,
- New results on Stakeholders analysis,
- Dissemination: statistics and next actions,
- What's fine and what's wrong: problems and solutions,
- Next activities.

At the end of the meeting, the partners enjoyed a social dinner downtown Rome.