CERIS Civil Engineering Research and Innovation for Sustainability

AGEO – Platform for Atlantic Geohazard Risk Management

Summary

AGEO is launching 5 Citizens' Observatory pilots on geohazards, to demonstrate how citizens' involvement in geohazard risks prevention can strengthen regional and national risk management systems. Parallel with this activity AGEO is fostering a more efficient uptake of Copernicus data, products and services on regional level.

A combination of these two actions will result in improved geohazard risk prevention and resilience to natural disasters in the Atlantic region.

Specific objectives:

- Encourage the regional-level uptake and use of products and services provided by European spatial data infrastructures, such as Copernicus or EGDI.
- Create a cooperation and resource platform on Atlantic geohazards risk assessment, preparedness, mitigation and prevention.
- Deliver concrete case studies to confirm the capacities of Citizens' Observatories in improving risk management systems.
- AGEO is engaging with local communities to actively participate in risk preparedness and monitoring and incorporate local capacities into risk management systems.
- Experiences gained during the implementation of the Citizens' Observatory pilots will be used to formulate recommendations for the creation of future observatories in response to the widest range of hazards (both natural and human-induced) in the Atlantic region.

The five pilots are as follow:

1. Citizens' observatory on rockfalls and rockfall-triggers in the Canary Islands, Spain: The aim of this pilot is to enhance IGME's early warning system developed during the SAFETY project. Three municipalities wiwere selected in the Canary Islands that are most affected by rock-falls. Direct observation by citizens will be supported bi-directional communication where citizens can provide and consult rockfalls geo-referenced data (IGME). SAR (such as Sentinel-1) and other Copernicus data will be used to assess risk triggers relying on ground-truth data provided by citizens (ULL).
2. Citizens' observatory on rockfalls and rockfall-triggers in Giants' Causeway and Carrick-a-rede, Northern Ireland: he pilot will establish a Citizen Observatory at Giants Causeway and Carrik-a-rede. GPS-tagged smart phone imagery (of morphological changes will be integrated with geological, climatic, terrestrial, visitor statistics, LiDAR and SAR data to enable accurate real time assessment of the changes taking place and assist in the management plan for the sites. GSNI will work with the National Trust to develop long term sustainable citizen participation and geohazard awareness.
3. Multihazard Citizens' Observatory in Lisbon, Portugal: Urban Geohazard CO for the Greater Lisbon area: introducing the concept of "urban geohazards" to the public followed by a citizens' action plan based on public engagement for risk reduction. This will be done through quantification of risk and implementation of preventative programs with the help of the WP6 Toolkit that will allow authorities and Civil Defense to incorporate citizens data such as precursors / ground truth controls to geotechnical hazards, flash-floods, landslides.
4. Citizens' observatory of slope instability monitoring in Madeira Island, Portugal: The aim of this pilot is to raise awareness among citizens about common geohazards, such as landslides, flash floods and rockfalls. This is going to be done through dissemination activities directed to the local community, authorities and other stakeholders. Specific dissemination activities will be held at some schools to educate and empower children and young people, strengthen their resilience to these natural disasters and encourage them to share their knowledge with the community. Since most of the natural disasters that occur in the region are associated to extreme precipitation events, students will be invited to measure and share data collected with weather stations, that will be available at each school. Citizens will also be invited to participate actively by gathering and uploading spatial environmental data through a mobile app to help monitor changes in landscape and identify eventual dangerous or problematic areas. As awareness to seismic risk has grown recently in Madeira due to recent moderate seismic events, dissemination activities are also going to provide information about this type of risk. The potential of using Copernicus Satellite images for the characterization of specific areas and detection of mass movements is going to be evaluated.
5. Citizens' observatory of vulnerability to coastal Risks in Brittany, France: To meet stakeholders needs for a coherent coastal vulnerability evaluation, the proposed Pilot

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Project Reference

EAPA_884/2018

Leading Institution

IST – Instituto Superior Técnico (Portugal)

Partners

APG – Portuguese Association of Geologists (Portugal), LPRC – La Palma Research Centre (Spain), IGME – Instituto Geológico y Minero de España (Spain), UBO– Université de Bretagne Occidentale (France), United Kingdom Research and Innovation represented by its component body British Geological Survey (United Kingdom), UCD – University College Dublin (Ireland), Cerema – Centre d'Etudes et d'Expertise sur les Risques Environnement Mobilité et Aménagement (France), LNEG – Laboratório Nacional de Energia e Geologia (Portugal), ULL – Universidad de La Laguna (Spain), LNEC – National Laboratory for Civil Engineering (Portugal), UMA – Universidade da Madeira (Portugal), Lisbon Municipality (Portugal)

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Funding

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Period

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is engaging with the citizens of Britanny to implement an innovative methodology based on interdisciplinary indicators of coastal erosion and sea-flooding supported by geoenvironmental data input by citizens. The pilot follows up on the French initiative: OSIRISC (2017-2019) associating both academics and public authorities that identified the need for public engagement for observations sustainability.

Citizens' Observatories have not yet been integrated with risk management systems for geohazards risk prevention. On the other hand, citizen science is very much on the rise: using their own observations and mobile devices, it has been confirmed via experimental case studies that citizens can provide valuable data streams of local information complementing state (and EU-level) systems and data sources. Recently completed projects, such as H2020 COBWEB (Citizen Observatory Web, www.cobwebproject.eu) have successfully demonstrated the potential to enable citizens to collect environmental data using mobile devices.

Other RD projects, such as SCENT (Smart Toolbox for Engaging Citizens into a People-Centric Observation Web, www.scent-project.eu) have helped engage citizens in environmental or land-cover/use changes using their smartphones and tablets. AGEO will build on these initiatives and will demonstrate the effective use of Citizens' Observatories for geohazards monitoring under operational conditions as integral part of regional/national risk management systems.

An important task at each of the AGEO pilots will be to demonstrate interoperability with national risk management systems and EC data infrastructures. The supporting tools to be developed will thus be based on harmonised procedures ready to be deployed elsewhere in the Atlantic and Europe.

Total

3 223 240.00€

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325 750.00€

Project Website

ageoatlantic.eu