Project description:  

Background  

Floods and forest fires can be among the most devastating natural disasters, causing severe socioeconomic impacts, including loss of life, the destruction of private and public property and the disruption of economic activities and cultural heritage.

Floods and fires also contribute to the degradation of Europe's ecosystem services. This ecological degradation becomes even more severe when events have overlapping effects. For example, a flood event becomes more probable and is likely to be more catastrophic when occurring in an area where forest cover has been devastated by wildfire.

Efficient risk assessment and effective management of floods and forest fires are national priorities for most Mediterranean countries, where peri-urban areas are particular vulnerable to the combined effects of these natural hazards. Floods and forest fire risks have traditionally been assessed separately, with separate systems for collecting information and modelling risks. In Greece, in particular, flood and forest fire management in recent decades has mainly focused on suppression, which have not brought about the desired results.

Objectives
The aim of the FLIRE project is to introduce a combined, effective and robust risk-assessment and management system for both flash floods and forest fires, using state-of-the-art tools, technologies and methods, and taking into account prevention, adaptation and interaction issues.

The project's main objectives are:

- To develop a Weather Information Management Tool (WIMT) that will receive short-term weather forecasting information and dynamically take account of local conditions to classify the risk of floods and fires;
- To develop a near real-time flood risk assessment and management tool, which will include a catchment modelling component, an urban modelling component and an Early Warning System (EWS). This tool will receive flood risk information from the WIMT and activate, if necessary, the corresponding EWS;
- To develop a near real-time forest fire risk assessment and management tool, which will include a fire modelling component and an EWS. It will receive forest fire risk information and, if necessary, activate the corresponding EWS;
- To develop a planning tool for flood risk assessment and management, based on the catchment modelling and urban modelling components of the flood management tool;
- To integrate these components into a common decision-support system for integrated flood and forest fire management.

Expected results:

- A report on the current environmental status of the study area, including information on locations vulnerable to floods and forest fires;
- Flood and forest fire hazard and risk maps for the study area;
- Forest fire and flood risk-management tools that will operate under near real-time conditions and will inform local authorities, stakeholders and the general public of the risk of imminent fires and floods;
- A planning tool for flood risk assessment and management in peri-urban environments;
- An integrated Decision Support System for combined flood and forest-fire risk management.

Results

Top

Environmental issues addressed:

Themes

Risk management - Natural risks (Flood - Forest fire - Landslide)

Keywords
forest fire, decision making support, modelling, forecast, risk assessment, flood protection

Natura 2000 sites

Not applicable

Beneficiaries:

Coordinator National Technical University of Athens
Type of organisation University
Description The National Technical University of Athens (NTUA) is Greece's oldest and most prestigious technological educational institution. The Laboratory of Hydrology and Water Resources Management is one of four laboratories in the Department of Water Resources & Environmental Engineering, which is part of the NTUA School of Civil Engineering.

Partners Imperial College London, United Kingdom Research Institute for Geo-Hydrological protection-Italian National Research Council, Perugia, Italy National Observatory of Athens, Greece ALGOSYSTEMS S.A., Kallithea, Greece Foundation for Research and Technology–Hellas, Institute of Applied and Computational Mathematics, Crete, Greece

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