



Open Geospatial Consortium standards supporting Lake Maggiore Early Warning System

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The Locarno area (Canton Ticino, Switzerland) is an area exposed to lake Maggiore flooding risk. In order to reduce the effects of such a kind of events, the Canton Ticino [1] and the Locarno and Vallemaggia Civil Protection [2] provide mandates to the Institute of Earth sciences of Southern Switzerland University of Applied Sciences (IST-SUPSI) [3] to supply a system for supporting the management, alerting and intervention in the area.

The system, that was originally created about 15 year ago, includes:

1. the management of the regional hydro-meteorological monitoring network,
2. the Lake Maggiore basins hydrological modelling,
3. the management of geoinformation that includes exposed and contextual elements and,
4. the provision of a Web platform for access and interact with the information.

In the last years, the IST-SUPSI has undertaken a process of renewal of the entire system following the concept of interoperability as identified in recently conducted European projects like SANY [4] or TRIDEC [5]. This mainstream leads us to adopt different open standards and to develop ad-hoc software. At the present time, the renewal process is almost finished: the Web interface is the only component currently under upgrade.

As a result today the IST-SUPSI offers:

- a Sensor Observation Service (SOS) for the monitoring data and has developed his own SOS implementation (istSOS [6]) capable to satisfy all the requirements identified in over 20 year of hydro-meteorological data management;
- Web Processing Services (WPS) for the elaboration of raw monitoring data (from the SOS) and meteorological forecasts to feed the hydrological model with customized and real-time inputs;
- Web Mapping Service (WMS) and Web Feature Service (WFS) for the visualization of exposed elements and base maps;
- a RESTful Web Services for the provision of all the civil protection information management and elaboration of specific requests;
- a security system for authentication and authorization management to OGC services with internally implemented software (GeoShield [7]).

The presentation illustrates the case study focusing on selected technical solution and strength, weakness and opportunities that the authors identified in the conduction of this experimentation.

References:

- [1] <http://www.ti.ch>
- [2] <http://www.pcilocarno.ch>
- [3] <http://www.supsi.ch/ist>
- [4] Klopfer, M., Simonis, I. (Eds.), SANY - An Open Service Architecture for Sensor Networks, SANY Consortium, 2009.
- [5] <http://www.tridec-online.eu>
- [6] <http://istgeo.ist.supsi.ch/software/istsos>
- [7] <http://sites.google.com/site/geoshieldproject>