Citizen-scientists on the hydro-meteorological scene: mashup technology for research on Mediterranean Storms.

T. Bedrina (1), A. Quarati (2), A. Clematis (2), A. Parodi (1), and R. Rudari (1)

(1) CIMA Research Foundation, Savona, Italy, (2) Institute of Applied Mathematics and Information Technology – National Research Council, Genoa, Italy

In this study, some preliminary results about the application of mashup technology for the study of Mediterranean storms are presented: emphasis is devoted to the importance of those technologies to support a range of hydro-meteorological activities of interest for researchers, hydro-meteo professionals (e.g. Civil Protection agencies, Meteorological Services etc), and finally the population at large.

A better exploitation of data archives according to a multidisciplinary perspective is a critical issues in HMR (Hydro-Meteorology Research).

The main challenges stem from the large quantity, complexity and heterogeneity of the tools and datasets originated by various sources: remote sensory observations, satellites, ground-based radars and ensemble forecasting methods.

The use of Web technologies on the collection and accumulation of the geoscientific data is now well-established. There are significant increase in the availability of free sensor data over the Internet (Weather Underground, WeatherBug, etc).

It is therefore essential to develop IT initiatives and tools enabling rapid data discovery from different web sources, their aggregation and development of functionality to homogenize, compare and interpolate these datasets.

The concept of "mash up", which has recently become very popular in many fields, could be useful and productive in case of information integration from a number of web sources. Mashup technology stands for a methodology that permits to combine data from two or more external online sources into an integrated experience. In other words a mashup application grabs data from one place on the Web, mix it up with relevant information from another place on the Web and presents it in a single application.

Individual citizen-scientists, often meteorology enthusiasts, are providing over the weather web services with affordable weather monitoring stations a growing amount of real-time data such as temperature, precipitation and wind-speed. On different online sources the weather data is registered in various formats and schemas. The aggregation methodology will permit to implement the transformation into one format (WaterML OGS format) and representation the data in homogenized form.