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Integrating data and mashup concepts in Hydro-Meteorological Research: the torrential rainfall event in Genoa (4th November 2011) case study.

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One of the critical issues in Hydro-Meteorological Research (HMR) is a better exploitation of data archives according to a multidisciplinary perspective. Different Earth science databases offer a huge amount of observational data, which often need to be assembled, processed, combined accordingly HM scientists needs.
The cooperation between scientists active in HMR and Information and Communication Technologies (ICT) is essential in the development of innovative tools and applications for manipulating, aggregating and re-arranging heterogeneous information in flexible way.
In this paper it is described an application devoted to the collection and integration of HM datasets, originated by public or private sources, freely exposed via Web services API. This application uses the mashup, recently become very popular in many fields, (Chow S.-W., 2007) technology concepts. Such methodology means combination of data and/or programs published by external online sources into an integrated experience. Mashup seems to be a promising methodology to respond to the multiple data-related activities into which HM researchers are daily involved (e.g. finding and retrieving high volume data; learning formats and developing readers; extracting parameters; performing filtering and mask; developing analysis and visualization tools).
The specific case study of the recent extreme rainfall event, occurred over Genoa in Italy on the 4th November 2011 is shown through the integration of semi-professional weather observational networks as free available data source in addition to official weather networks.