GEOSPATIAL STANDARDIZED SERVICES FOR INTEGRATION OF WEATHER DATA COMING FROM PUBLIC AND VOLUNTARY STATIONS

OBJECTIVES
To point out the potentiality of using data from Volunteer Weather Observations (VWO) for spatial data dissemination of meteorological information at Earth surface. To promote the use of weather observation into a standardized environment such as Spatial Data Infrastructure (SDI).

INTRODUCTION
The observation of the meteorological phenomena has evolved over the time in the course of continuous technological change:
- The use of automated equipment which register and transmit observations.
- The implementation of remote sensing techniques.
- Algorithms that allow defining weather values.
- The use of automated equipment which register and transmit observations.

BACKGROUND
An alternative information source for climate values at ground level could be the Volunteer Weather Observations (VWO) Networks. In Spain, we have detected several VWO networks covering an important area. But all of them have their own several features which imply complexity at working with all networks at the same time.

THE CHALLENGES
To identify networks of Volunteer Weather Observations (VWO) for all over Spain and their features such as, access point for data of each station, data format, observations periodicity and its meteorological variables, etc. To develop a bunch of software services that collect information from all stations on earth, and subsequently publish the resulting information into an access point according to the SDI standards irrespective of possible differences in their sources.

METHODS
The information obtained from both 560 AEMET stations (at near-real time) and the 1293 Meteoclimatic stations (VWO Network) are our study case.

- PROPOSAL ARCHITECTURE

RESULTS AND DISCUSSION
- A Database (DB) which gathers all the Networks of Volunteer Weather Observation Stations (VWO) at near-real time for Spain has been carried out. This DB includes the access point, access way, data format and data periodicity for each station.
- As for the spatial densification of meteorological stations at ground level, an untrained approach was accomplished. This strategy counts the cases in which the topographic maps at 1:50’000 contain at least one weather station:
- Several automated software services for collecting and storing the information from AEMET and Meteoclimatic have been created and are working properly up to date.
- A Set of standardized internet services according to the Spatial Data Infrastructures (SDI) specifications are available on-line: (WMS, WFS, SOS) for the collected information.
- Both, the implementation of web clients applications for each SDI service with distinct filters and the download options, allow the SDI services of weather observation to be explored.

CONCLUSIONS
There is a wide array of weather stations which publish their information in near-real time on the internet through VWO networks. Such weather stations can help densifying weather observations at ground level. By providing a single entry point for several weather networks, and by using one standard access and data format, the use of data collected from all the meteorological stations is facilitated regardless of their source network.

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