

UWeather – A Web Portal for your Weather Data

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Sensors and complex sensor systems can nowadays be found in every household. A good example for such systems is the steadily growing number of home weather stations. They are equipped with a range of high precision sensors to monitor the local weather in gardens and on balconies of many people. Usually the gathered data is only used privately by the operator. But many of the current home weather stations provide interfaces to connect them to a PC. Thus, a public distribution of the data via the World Wide Web can be imagined.

This contribution demonstrates the UWeather application, an internet portal which enables users to register their home weather station and to publish measured data. The uploaded data is provided to the public via Web services in a standardized and interoperable way. UWeather is based on OGC's Sensor Observation Service (SOS), which allows clients to ingest and query data in a standardized way.

The portal is developed as a mashup application based on the Facebook platform. This opens the opportunity of reusing the wide variety of Social Networking functionalities. The application shows a map, realized as a Google Map, and a time series graph visualization. The map displays the weather data as well as metadata about the stations in a geospatial context. The user can access an SOS to get information about the weather stations and observed phenomena like temperature, precipitation or wind.

The developed application demonstrates a successful mashing of the three different technologies, Google Maps, Facebook and OGC Web services. For the future various exciting evolvments of the application can be considered. E.g. it is envisaged to incorporate the Sensor Alert Service as another data source besides the already supported SOS. This would allow users to register for certain events happening in the registered network of weather stations (i.e. receiving warnings in case of high wind speeds).

Further on, the application will serve as a basis for research studies on the usability of voluntarily contributed sensor data. An example for a research question that will be addressed is: To which degree is it possible to use voluntarily contributed data in professional systems like weather forecast or flood management?