

A SENSOR OBSERVATION SERVICE CLIENT TO RECEIVE ENVIRONMENTAL CONDITIONS ON ANDROID MOBILE PHONES

Hermann Klug,¹ Werner Poegl,¹

¹ Paris-Lodron University of Salzburg, Interfaculty Department of Geoinformatics (Z_GIS), Salzburg, Austria

ABSTRACT

According to the latest Intergovernmental Panel on Climate Change (IPCC) report, extreme climate events will increase and will likely influence our living environment. To monitor and understand the status of the environment and to adapt to these extreme events, Wireless Sensor Networks (WSNs) provide a basis for post analysis of events. Once datasets are publicly accessible in real-time and provided in a standard compliant way, this would enable responsible stakeholders and the public for immediate information access on websites, handhelds and mobile phones.

This poster demonstrates an open source based mobile Android application (app) connecting to an Open Geospatial Consortium (OGC) standard compliant Sensor Observation Service (SOS). In the context of the SMART Aquifer Characterization Program (SAC) this app retrieves near real-time climate, hydrology and soil sensor data from multiple sensors in an open and interoperable way.

The measurements provide an immediate access to present environmental conditions and the course of previous short term measurements of a few days. Since the reduced processing capacity of mobile phones, a fast working app is the main challenge to ensure customers not spending their time in waiting for requested answers.

The results are visualised sensor values from the SOS server displayed as table view (Figure 1) and chart diagramme. The table shows the latest measured values whereas the chart can be used to highlight time series. The user can choose the number of dates of the time series to be visualised.

Given the standard compliant, interoperable and platform independent development, the implemented sensors can be easily adapted. Additional environmental sensors and their measurements can be inserted. Thus, the app is adoptable for any hydro-climate stations based on the SOS standard.

Besides the visualisation of available environmental statuses, the user is also able to publish measurements into the SOS. This has been exemplified with snow depth measurements taken at a GPS determined place. However, this upload procedure could be adapted to manual groundwater level measurements directly feeding publicly accessible information with related metadata.

Medium term developments foresee in situ measurement triggering messages to users via a Sensor Event Service in emergency cases. This Early Warning System in combination with a weather forecast system should inform local stakeholders and the public in advance of another extreme event, e.g. causing flooding.

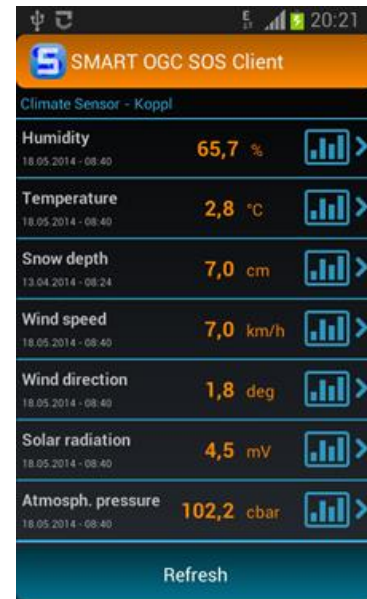


Figure 1: The SMART OGC SOS Client Android App table view