



4onse: open data, software, hardware and standard to cope with climate data

Daniele Strigaro, Massimiliano Cannata, and Milan Antonovic

SUPSI, Istituto scienze della Terra, DACD, Canobbio, Switzerland (daniele.strigaro@supsi.ch)

The monitoring of hydro-meteorological parameters supports several activities such as the mitigation of natural disasters, the management of the water resources, the implementation of smart agriculture solutions and the forecast of the weather conditions.

Thanks to the recent technological developments (Internet of Things, big data, ubiquitous of Internet, etc.) and to the increased reliability of the Open Source solutions, “non-conventional” monitoring systems based on Open Software, Open Hardware, Open Data and Open Standards can represent a great opportunity both as a complement to official monitoring networks and as main sources of weather information in regions where traditional networks are totally missing or in decline.

The system demonstrates a totally open solution to monitor environmental parameters collecting high quality data at low cost. The main hardware and software components of the 4onse architecture will be described and discussed. The solution is based on Arduino (Open Hardware) as main controller to read data from sensors and istSOS (Open Software) as main data management system. istSOS is the FOSS4G software used to enable environmental data sharing (Open Data) through the SOS standard service (Open Standard).

A total of 30 stations are deployed in a Sri Lankan basin. A management platform for floods and droughts has been studied. For almost one year the system will be evaluated to fully understand the real cost of ownership, data quality and applicability in real situations and derive scientific conclusions on the real applicability of these technologies in real cases. The aimed impact of the project is the empowering of developing countries in environmental monitoring system development, management and evaluation.

For more information please refer to the 4onse project website: www.4onse.ch