

Extension of the national meteorological real-time measurement network by integration of partner networks

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Many steps forward were made in numerical weather prediction and natural hazard management. This asks for more and more real-time data that can be used amongst others for: model input, model verification, warning, now-casting and decision making.

In Switzerland we estimate about thousand precipitation measurement gauges. These were built up by different institutions and for different use cases such as flood prevention, insurances, agriculture, water purification stations and road weather. These institutions are f. ex. Cantons, federal offices, insurances and private weather services. However, none of these institutions has access to the whole dataset of Switzerland.

MeteoSwiss is realizing an extension of the meteorological measurement network and an automation of the precipitation network. The strategy of MeteoSwiss is making more real-time data accessible in one Database for three main reasons:

1. MeteoSwiss is defined to feed the governmental information portal for natural hazards with meteorological data
2. automation of the precipitation network to better fit the needs for flood prevention
3. filling the gaps in the general meteorological measurement network to realize better severe weather warnings

This needs to be done in a cost and time efficient way. Integrating existing measurement networks data from other institutions is more cost and time efficient than building new ones. By having a strong and flexible infrastructure - the MeteoSwiss Data Warehouse – it is possible to integrate almost any kind of data and metadata and thus to make all the data accessible in the same way.

For the second and the third aim in a measurement concept the requirements (the missing localities) are defined in order to fill in gaps in meteorological warning regions and water catchment areas.

Nevertheless, a control of the data quality as much as enough metadata for better interpretation is absolutely important. Quality Management of the data is done by certification of the stations and an accessible set of metadata of each station that gives the information about place, instruments, exposition and so on. This metadata is linked to the measurement data of each station.

The integrative approach will save money and time and leads to a multiplication of the benefits of each measurement station in the platform. However, it assumes a flexible database, requires organizational skills as much as basic standards in measurements and data exchange.