



Forecast the evolution of groundwater levels by improving national piezometric network's data, and provide public access to almost real-time data (maps and curves). From the sensor to measured data dissemination : “la MétéEau des nappes”.

Bruno Mougin, Jérôme Nicolas, Stéphane Loigerot, Hélène Bessiere

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In front of current societal expectations and of climate-related events more and more marked (water resource's quantity and quality, pressures, climate change, drought, floods by water table rise, the need to have as quickly as possible recently measured data), the BRGM internal research project called “MétéEau des nappes” is trying to provide public access to almost real-time basic and improved data that comes from the French national piezometric network. The aim of this project is to couple these data with meteorological data and rivers discharge. The objective is also to show modelled and forecast groundwater levels (high and low) on maps and curves.

The “MétéEau des nappes” project

This project, led by a multidisciplinary team (hydrogeologists, computer scientists, and geostatistical engineers of the BRGM), deals with various scientific and technical problems :

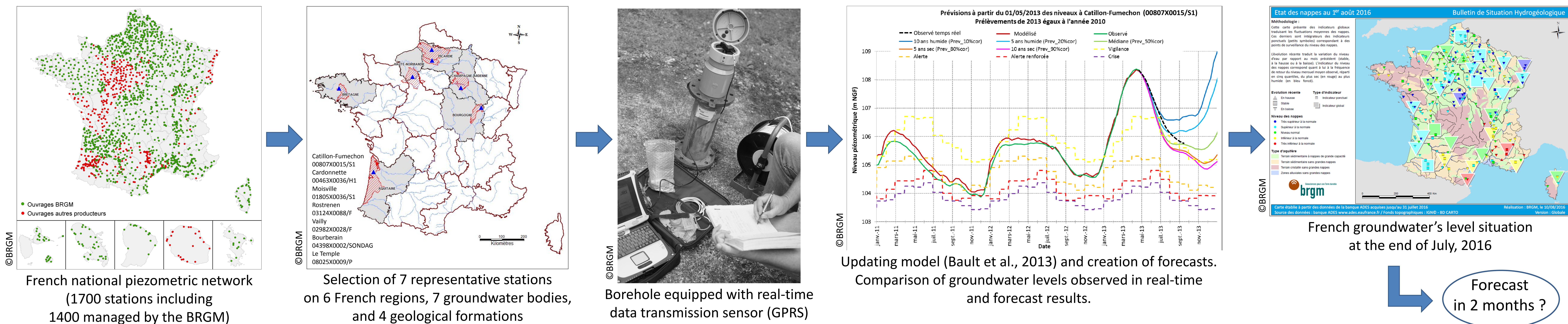
- 1) storage and provision of basic data coming from more than 1400 sensors of groundwater levels (Nicolas et al., 2013) and from model forecast of the aquifers behavior,
- 2) development of interoperable communication tools / standards (Grellet et al., 2015) allowing exploitation and cross-referencing data from other networks (meteorology, river flow) to daily characterize in almost real-time quantitative state of groundwater resources (droughts and flooding).

Work done in 2015 :

- inventory of global models done by the BRGM for various aims (rainfall-runoff or rainfall-runoff-piezometric level models)
- selection of 7 study areas, collection, development or updating of models
- first equipment of regional sites in GPRS (real-time data)
- edition a demo prototype tool for providing and visualizing data, beginning writing its technical and functional specifications
- technical exchanges with Météo-France and SCHAPI on meteorological and hydrometric data
- work on sensors interoperability and providing environmental data (Sensor Observation Service, Sensor Web Enablement)

A response to the French stakeholders needs

After 3 years of project (2015-2016-2017), a practical and innovative tool could be set up. It would allow varied uses : from a simple display of current and future groundwater table by water's stakeholders (French SAGE's moderators, technicians of river catchments), to the improvement of the water use management during high or low water levels by State's Services (for example : prefect order of water restriction). Among the French stakeholders interested in this initiative, we can also indicate : Water agencies, DREAL, DDT, Regions and Departments, Association of Municipalities, Industrial water producers...



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(1) b.mougin@brgm.fr, BRGM Direction régionale Bretagne, Rennes, France

(2) BRGM Direction Eau Environnement et Ecotechnologie, Orléans, France

(3) BRGM Direction des Systèmes d'Information, Orléans, France