N°107 -

Prédire le niveau des eaux souterraines du bassin Adour-Garonne pour permettre une gestion durable de la ressource

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Groundwater, key to the sustainable development goals
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Session 4F – Water management in groundwater-dependent watersheds, experiments and models

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The SUDOE AQUIFER project

Objectives :

Capitalize, test, disseminate and transfer innovative practices for the preservation, monitoring and integrated management of aquifers:

- **Support decision making** in groundwater resources management
- Develop common tools in a context of resource scarcity and environmental threats
- Improve **cooperation and technology transfer** between universities, research centers, and companies.
- Create new **synergies**

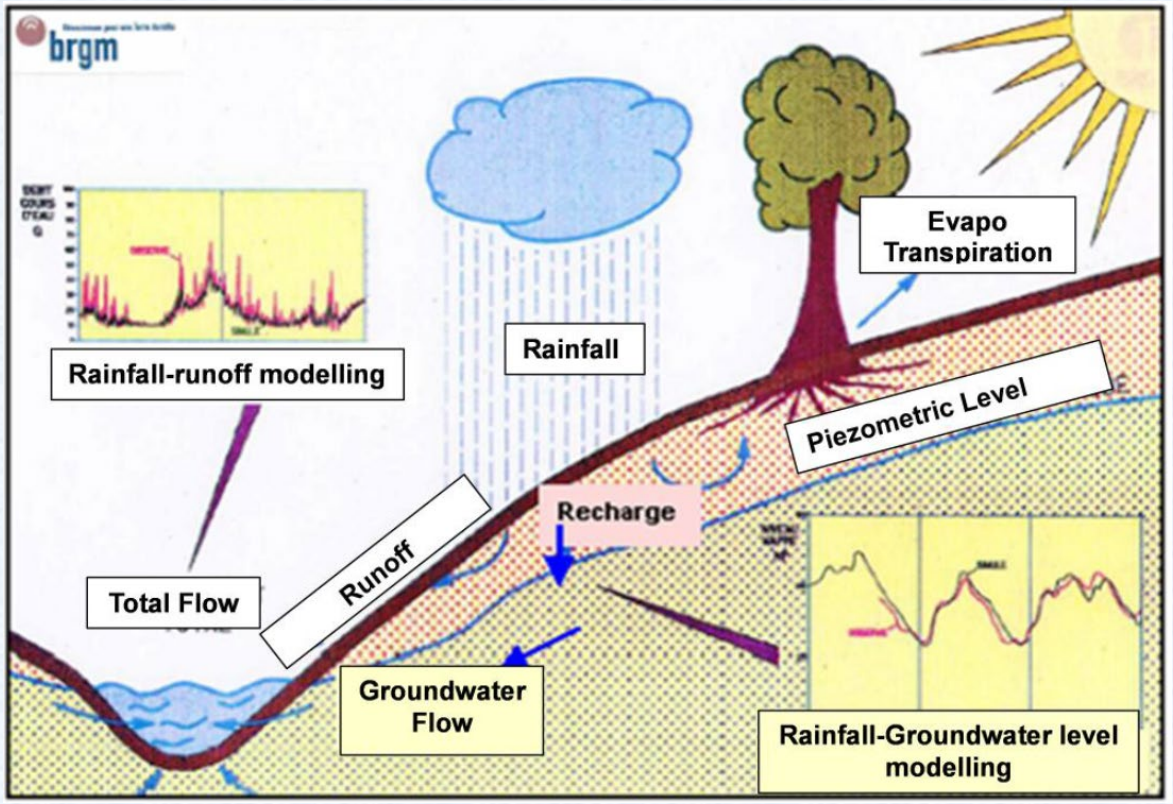
Objectifs :

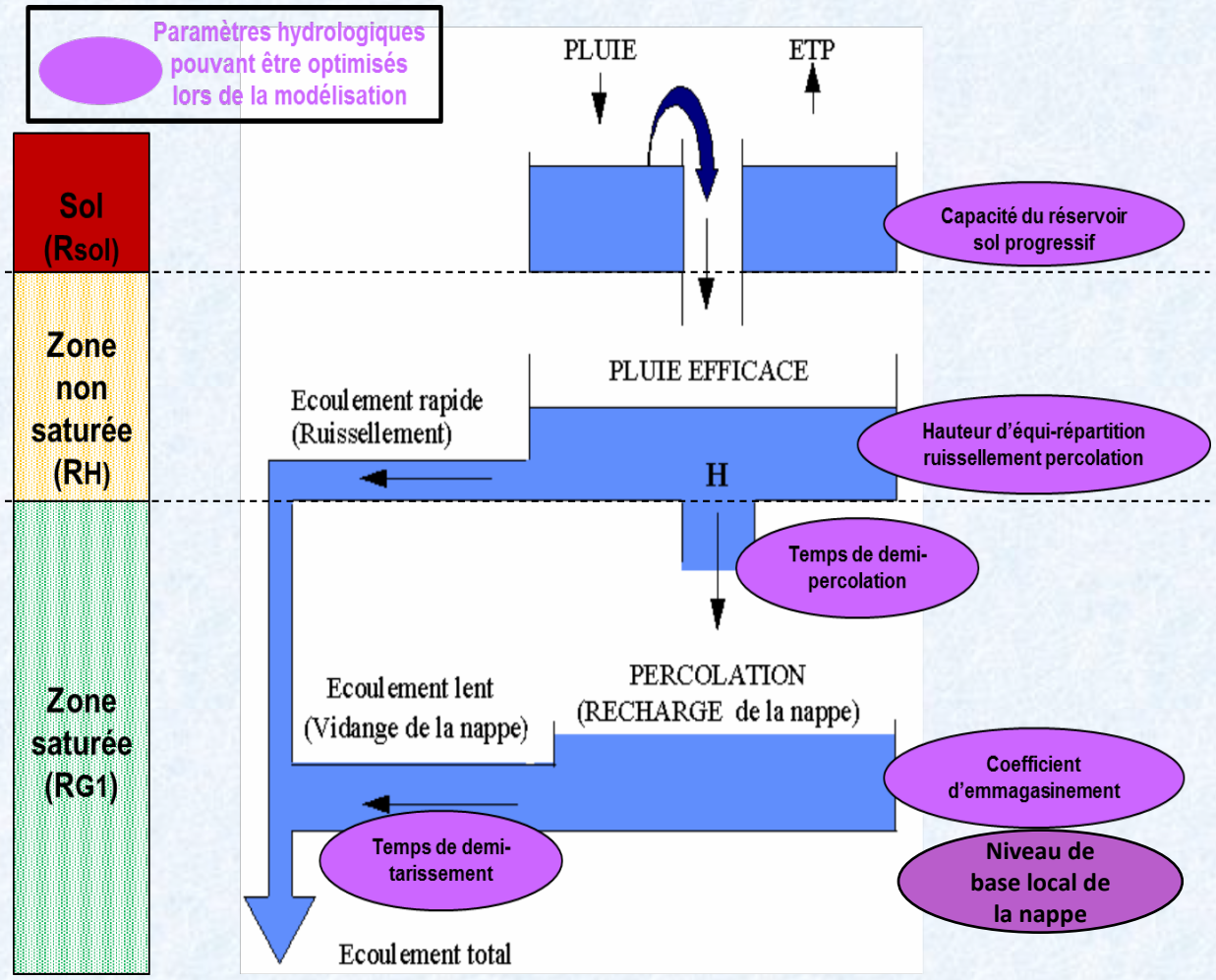
Capitaliser, tester, diffuser et transférer des pratiques innovantes pour la préservation, la surveillance et la gestion intégrée des aquifères :

- Appuyer la **prise de décision** dans la gestion des ressources en eaux souterraines
- Développer des **outils communs** dans un contexte de raréfaction de la ressource et de menaces environnementales
- Améliorer la **coopération et le transfert de technologie** entre les universités, centres de recherche, entreprises.
- Créer de nouvelles **synergies**

Groundwater level forecast

GARDENIA[1] rainfall – groundwater level modelling:

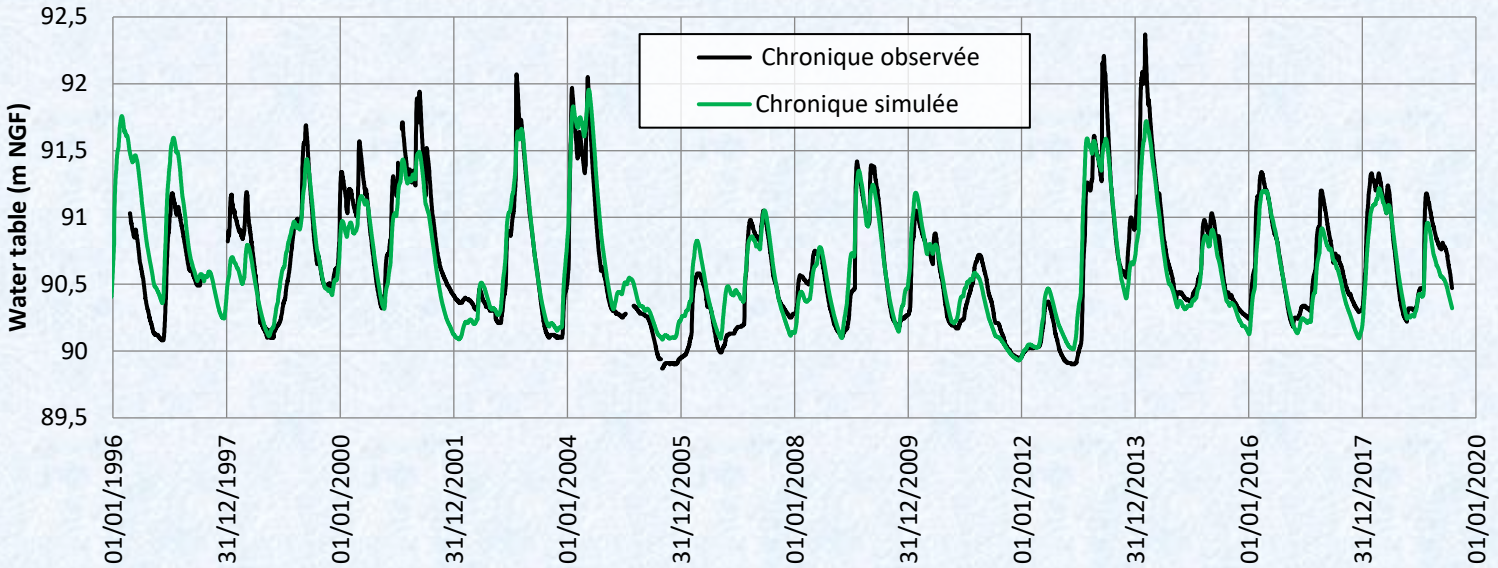


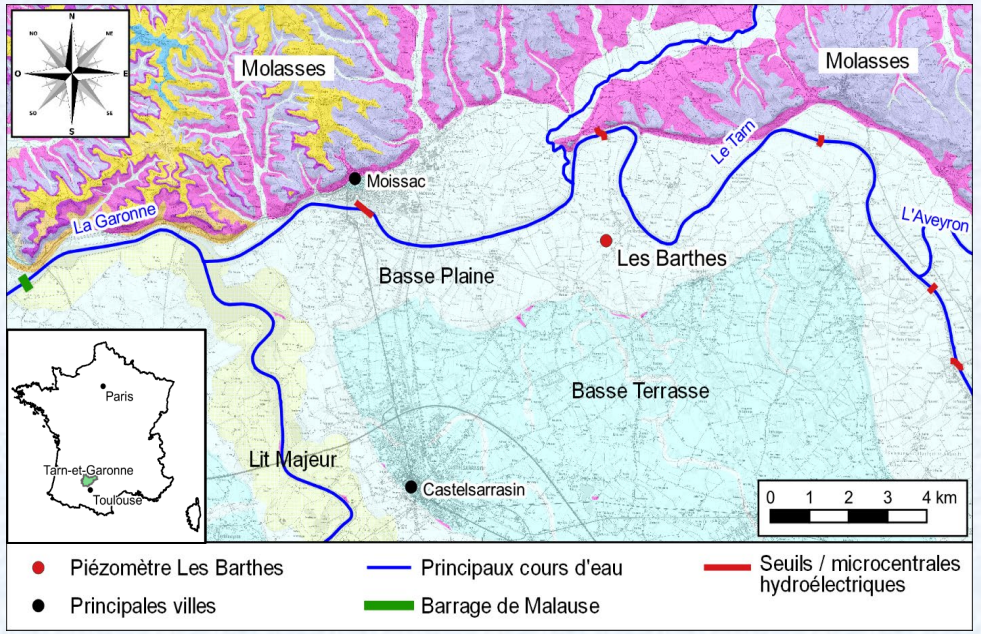


[1]: https://www.brgm.fr/en/software/gardenia-lumped-hydrological-modelling-catchment-basin

A modeling example

An example of water table simulation (Les Barthes piezometer):



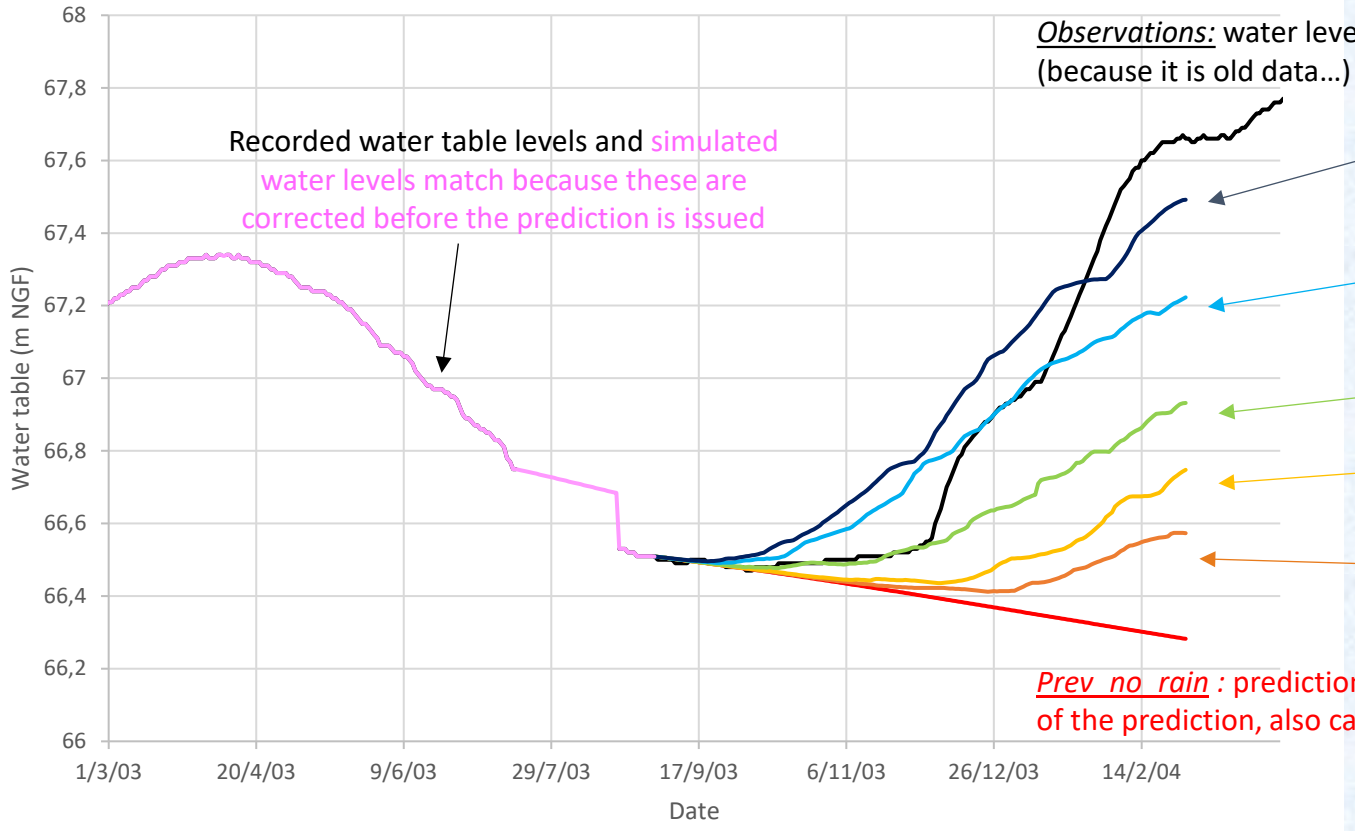


	Soil storage capacity (mm)	Reservoir H level where runoff = recharge (mm)	Recharge half-life time (month)	Drying out half-life time(month)	Storage coefficient (%)
Initial values	180	15	1	1,5	7
Calibrated values	**145,25**	**50**	**0,43**	**1,8**	**3,68**

- **Nash criterion = 0.8364**
- **Part of groundwater flow= 74,7%**

A forecast example

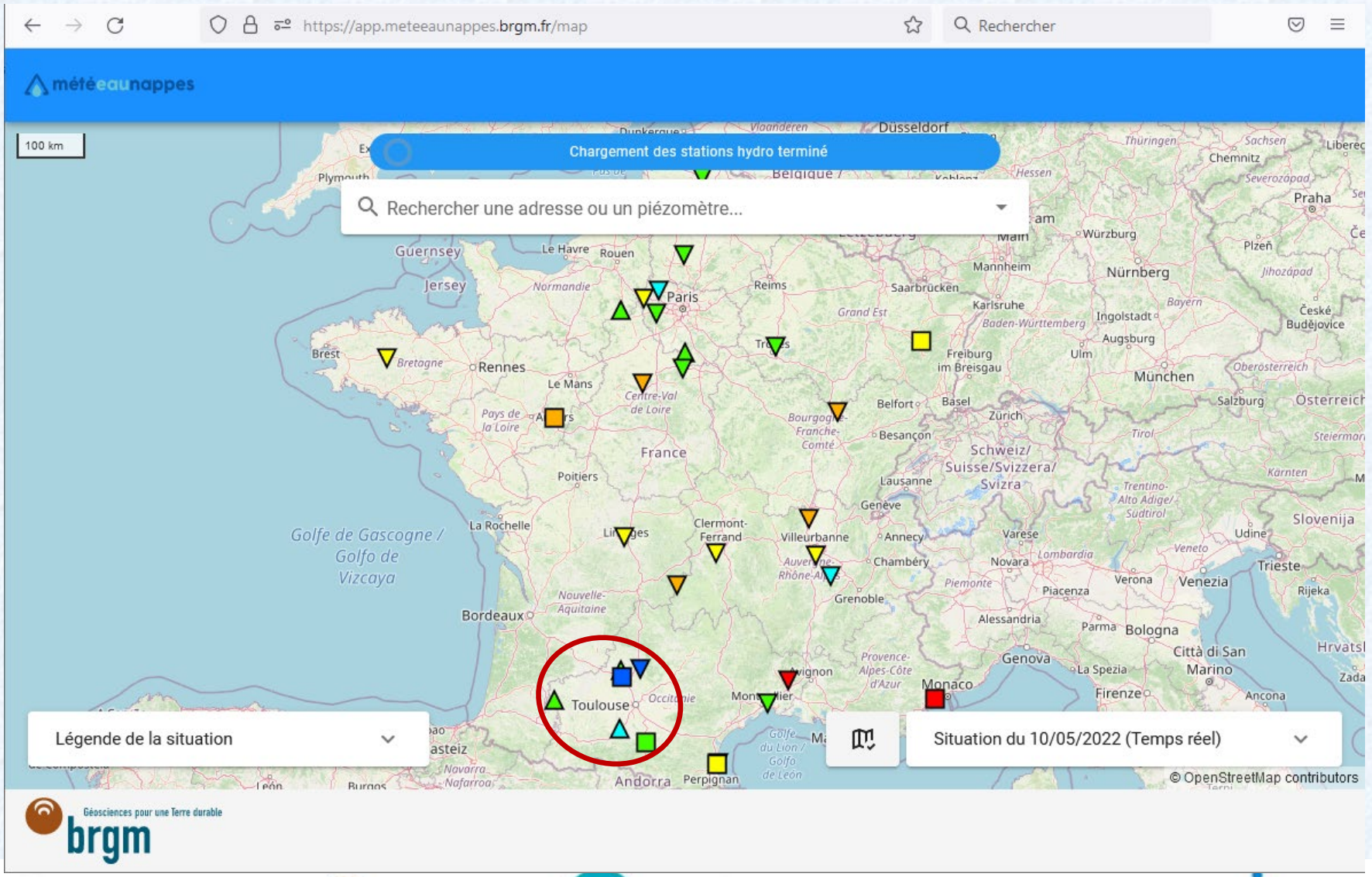
An example of water table prediction (Les Barthes piezometer):



- **Need long meteorologic records for the prediction to be reliable.**
- **Use of Météo-France SAFRAN model, starting in 1958 to complete shorter weather stations data.**

A website dedicated to groundwater level forecast

Website météeaunappes : https://meteeaunappes.brgm.fr/fr

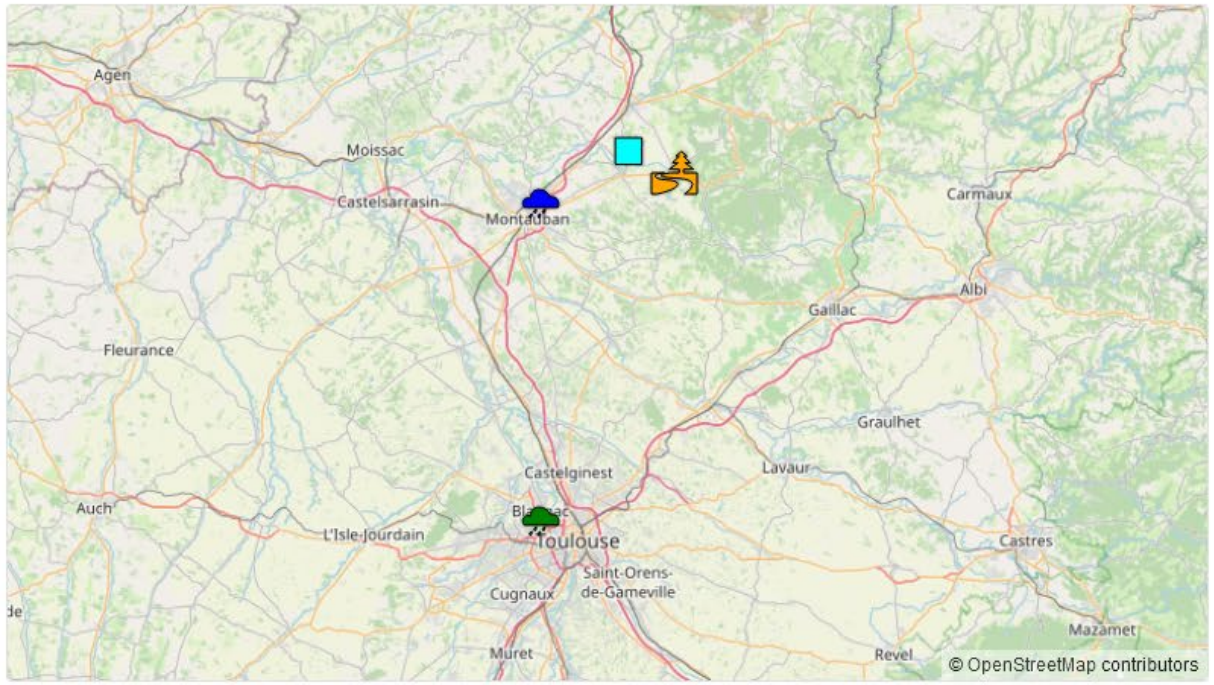


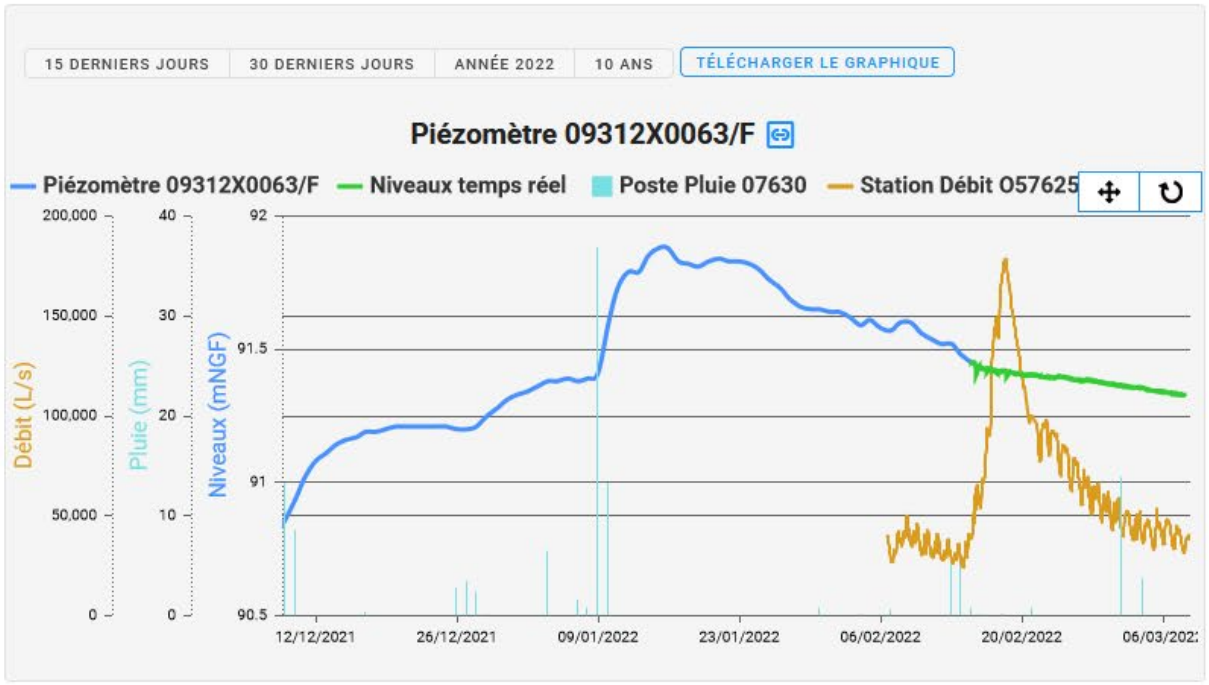
Data available on the website

https://app.meteeaunappes.brgm.fr/model/30

météeaunappes

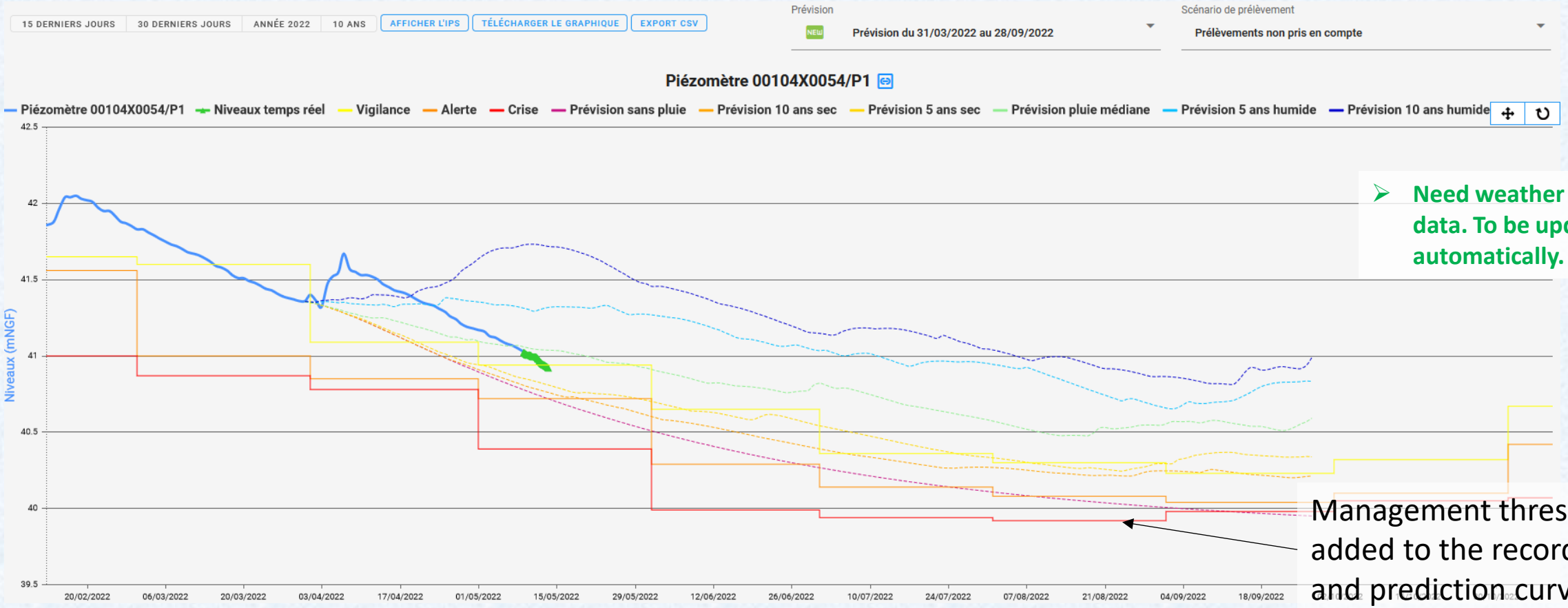
DÉPARTEMENT DE TARN-ET-GARONNE, COMMUNE DE BIOULE, PIÉZOMÈTRE 09312X0063/F





Potential use of groundwater level forecasts

An example of météeaunappes visualization:



- **Need weather stations data. To be updated automatically.**

Management thresholds added to the recorded data and prediction curves

Extend this innovative practise to other locations

Within the AQUIFER project :

- Modelling of 11 piezometric records : 6 in South-Western France, 3 in Spain and 2 in Portugal.
- Prediction up to 6 months of water table levels.

- And soon… forecasts refreshed monthly… and the forecast of groundwater extraction…

Interreg Sudoe AQUIFER

European Regional Development Fund

Thank you for your attention