AQUIFER Project

Forecasting groundwater levels and withdrawable volumes

Vivien Hakoun, BRGM

Barcelona, March 28th, 2023

AQUIFER project is funded by the Interreg Sudoe program and the European Regional Development Fund (ERDF)

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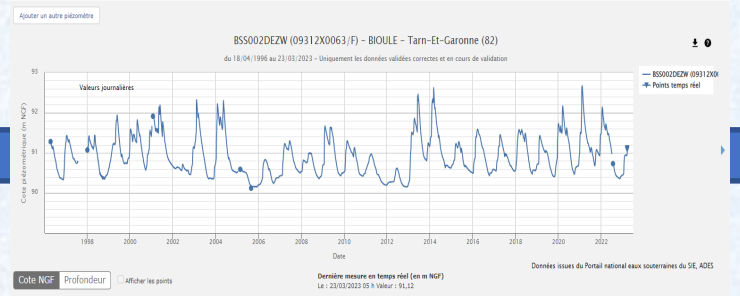
European Regional Development Fund

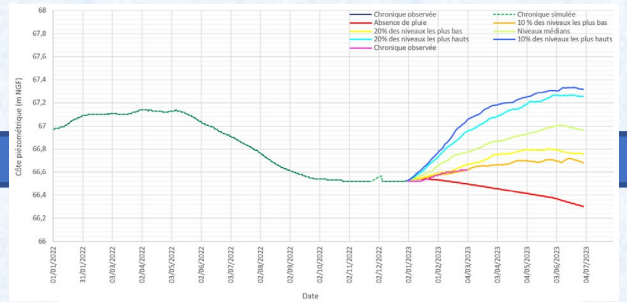
Collecting groundwater levels data

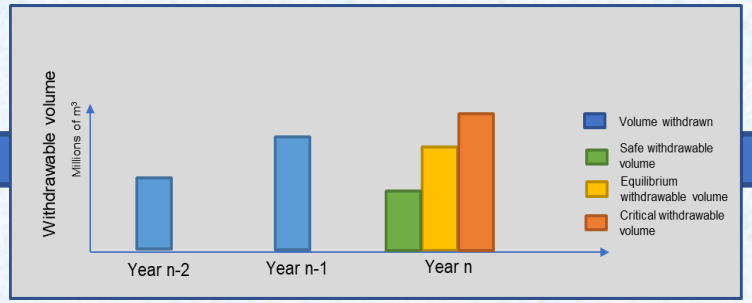
Modeling groundwater levels

Forecasting groundwater levels

Forecasting groundwater withdrawable volumes







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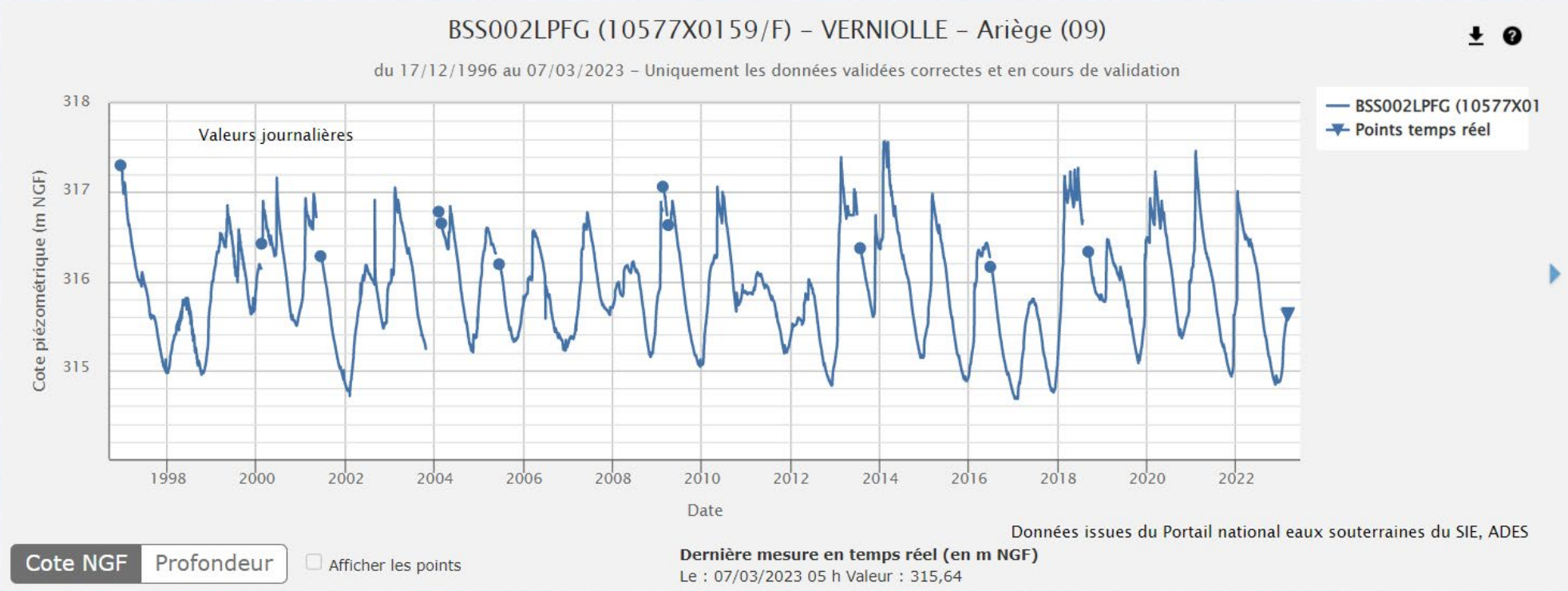

Source : ADES (eaufrance.fr)

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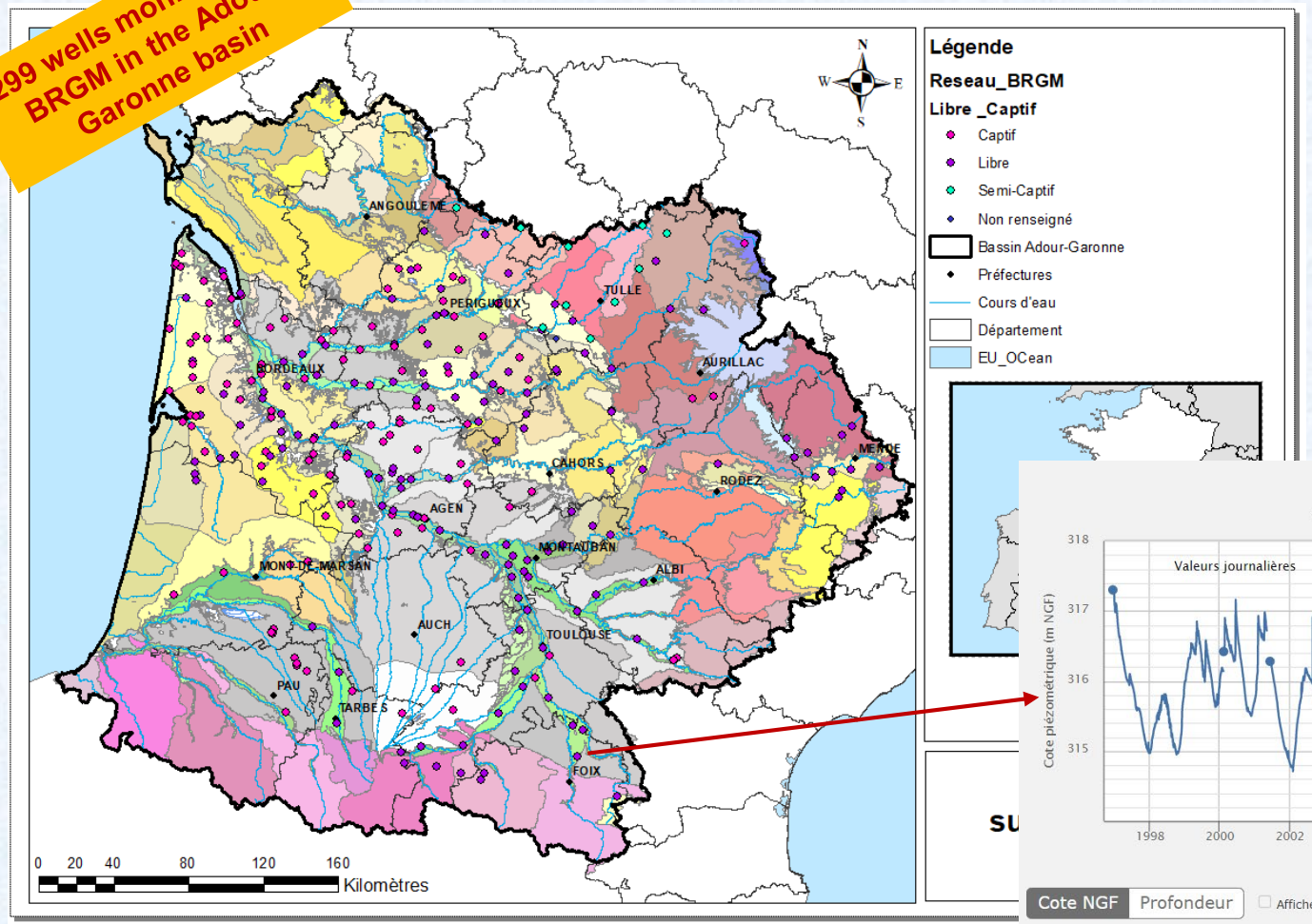
299 wells monitored by BRGM in the Adour-Garonne basin



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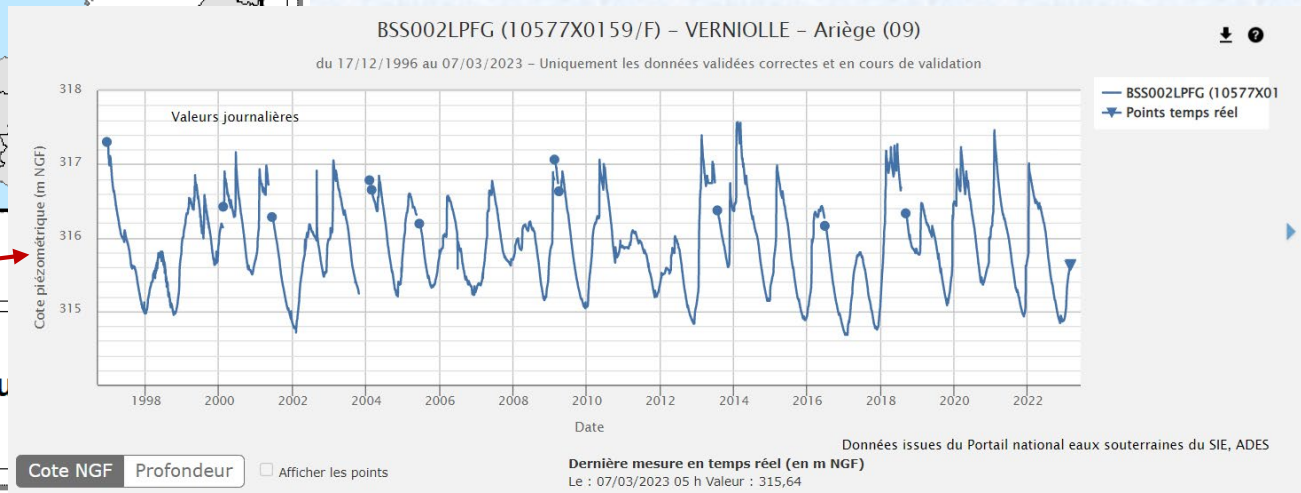

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Input data

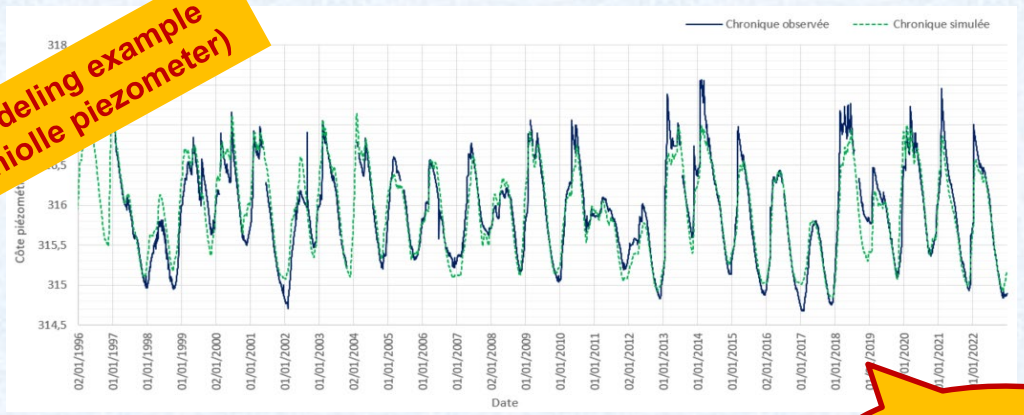
Lumped parameter modeling

Meteorological data:
- Rainfall
- Evapotranspiration

GARDENIA software
Developed by BRGM

Model validation:
Compare modeled groundwater levels versus observed groundwater levels

A modeling example (Verniolle piezometer)



Parameters adjustement

Output

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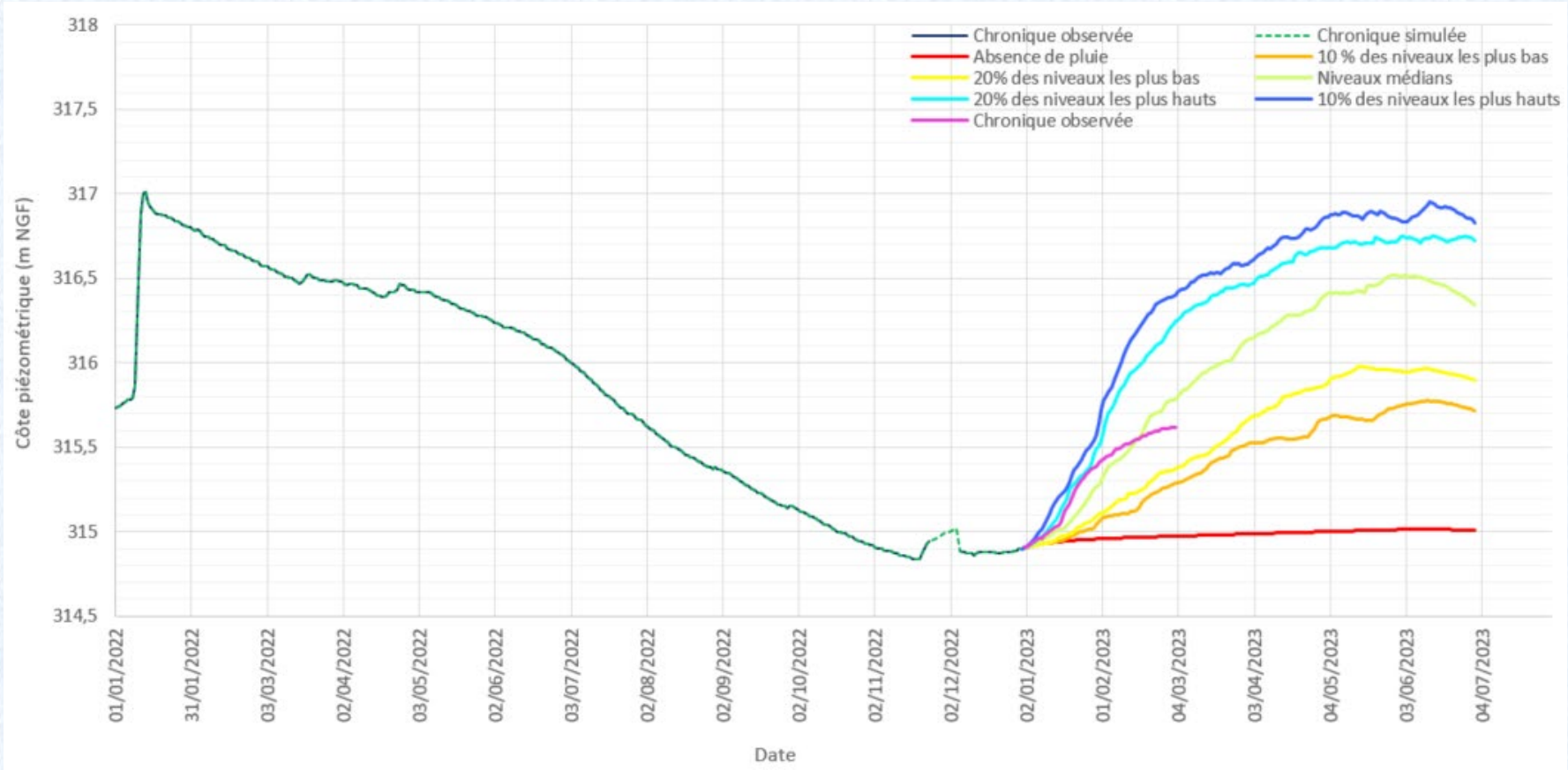

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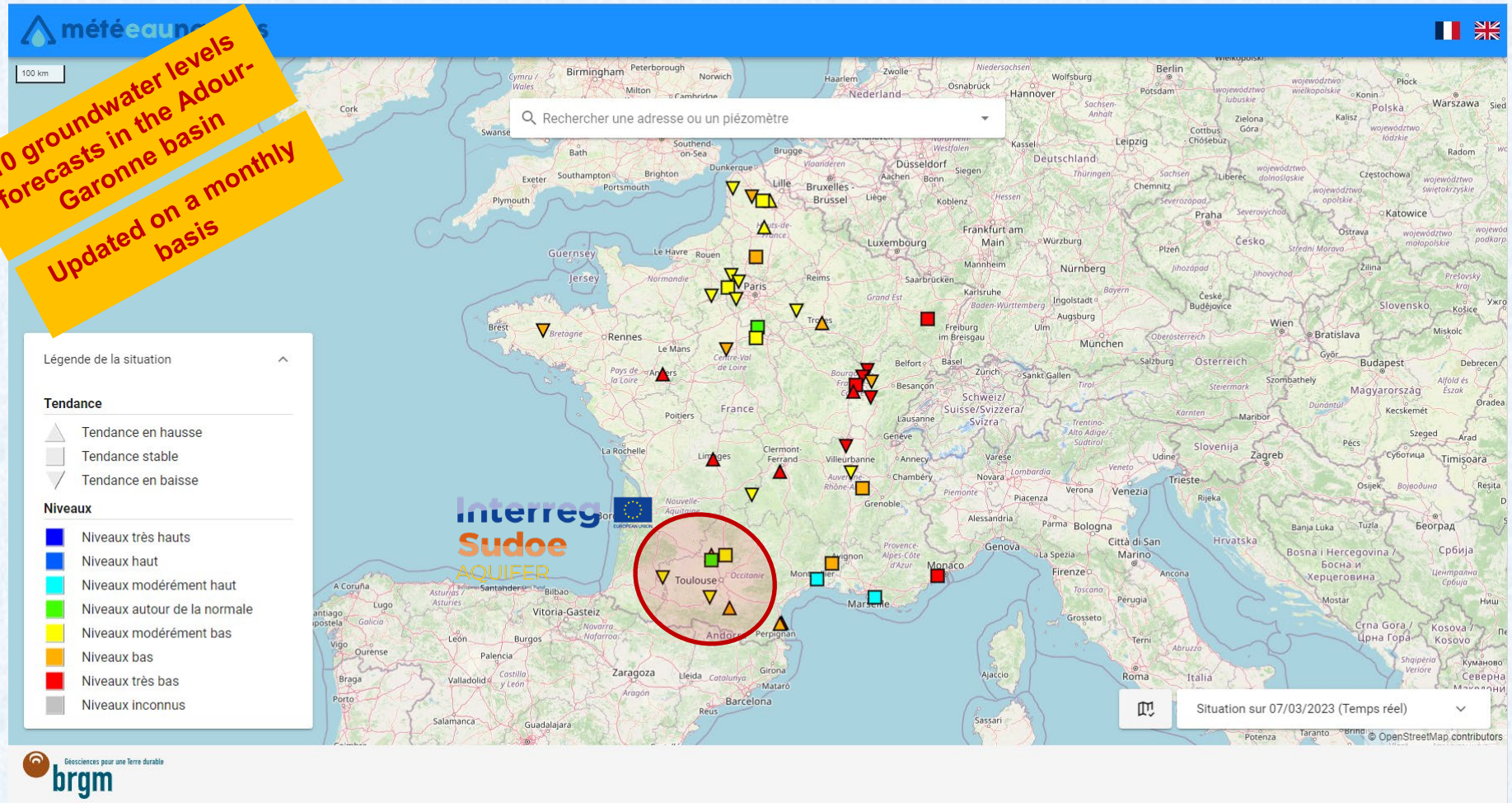
Source : [MétéEAU Nappes (brgm.fr)]



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Decision support tool for groundwater management of the alluvial aquifer in the Tarn-et-Garonne department (82)

Objective : Forecasting groundwater withdrawable volumes based on groundwater levels and current recharge

Groundwater levels forecasts

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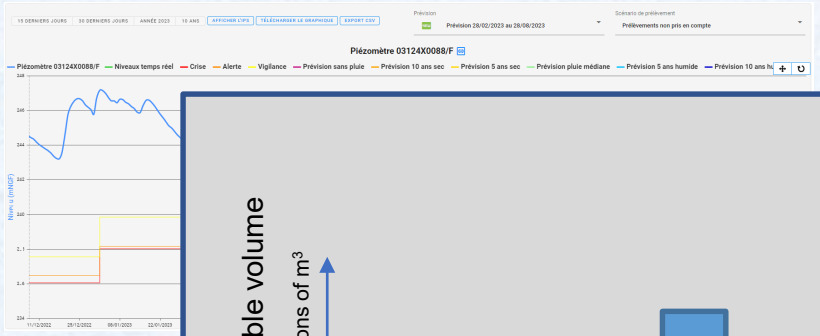
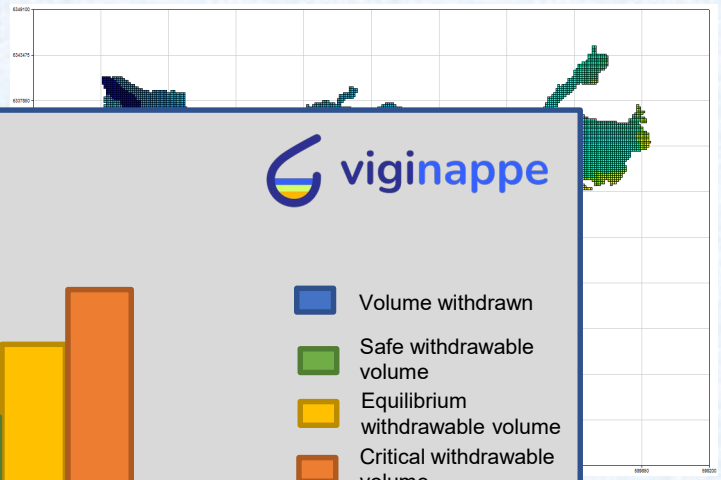
3D hydrodynamic modeling software

MARTHE, developed by BRGM





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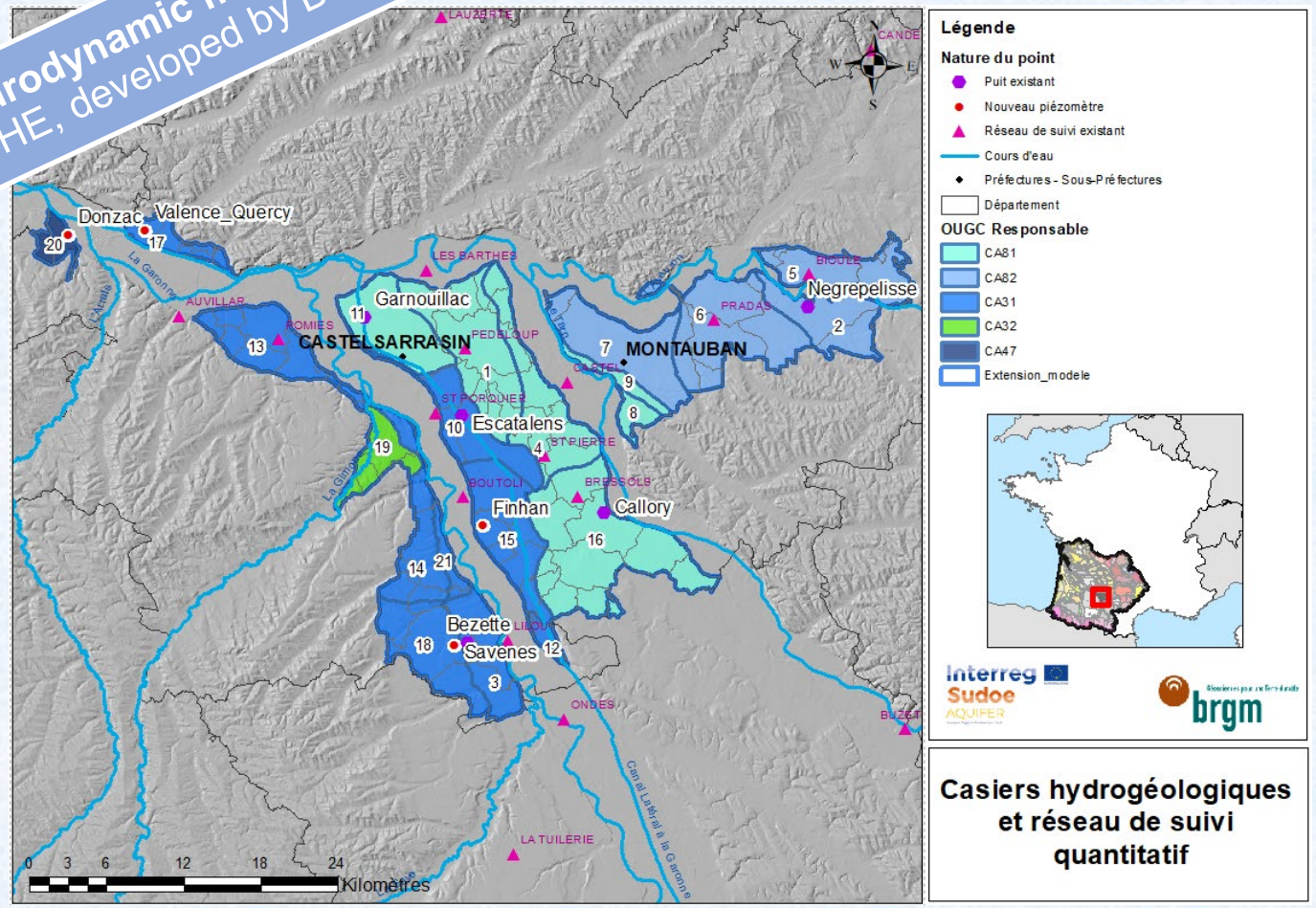
3D hydrodynamic model with MARTHE, developed by BRGM



Légende

Nature du point
- Puit existant
- Nouveau piézomètre
- Réseau de suivi existant
- Cours d'eau
- Préfectures - Sous-Préfectures
- Département

OUGC Responsable
- CA81
- CA82
- CA31
- CA32
- CA47
- Extension_modele

Casiers hydrogéologiques et réseau de suivi quantitatif

21 management units
1 monitoring well per unit

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Available soon…

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ÁGUAS DO RIBATEJO
U LISBOA UNIVERSIDADE DE LISBOA
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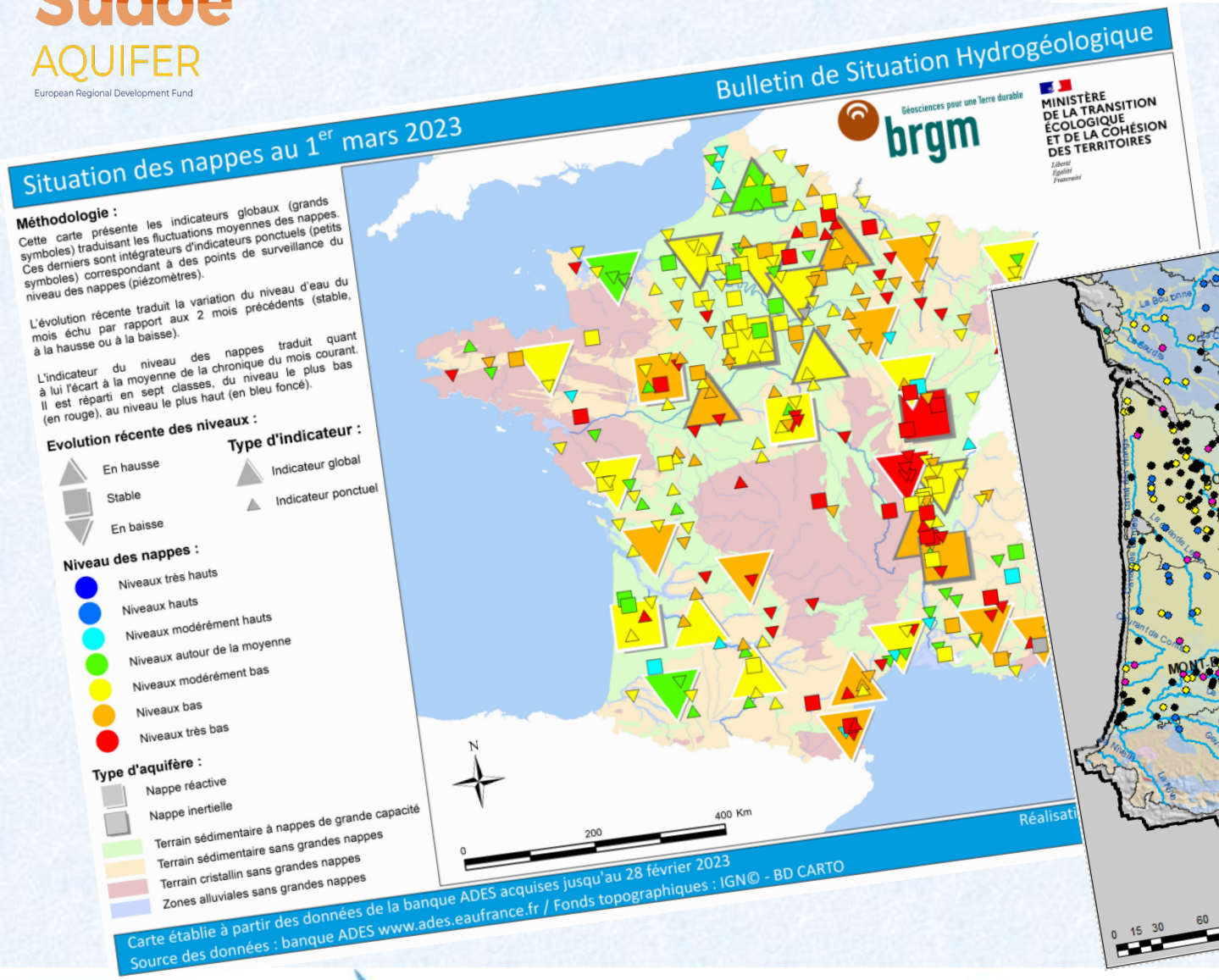

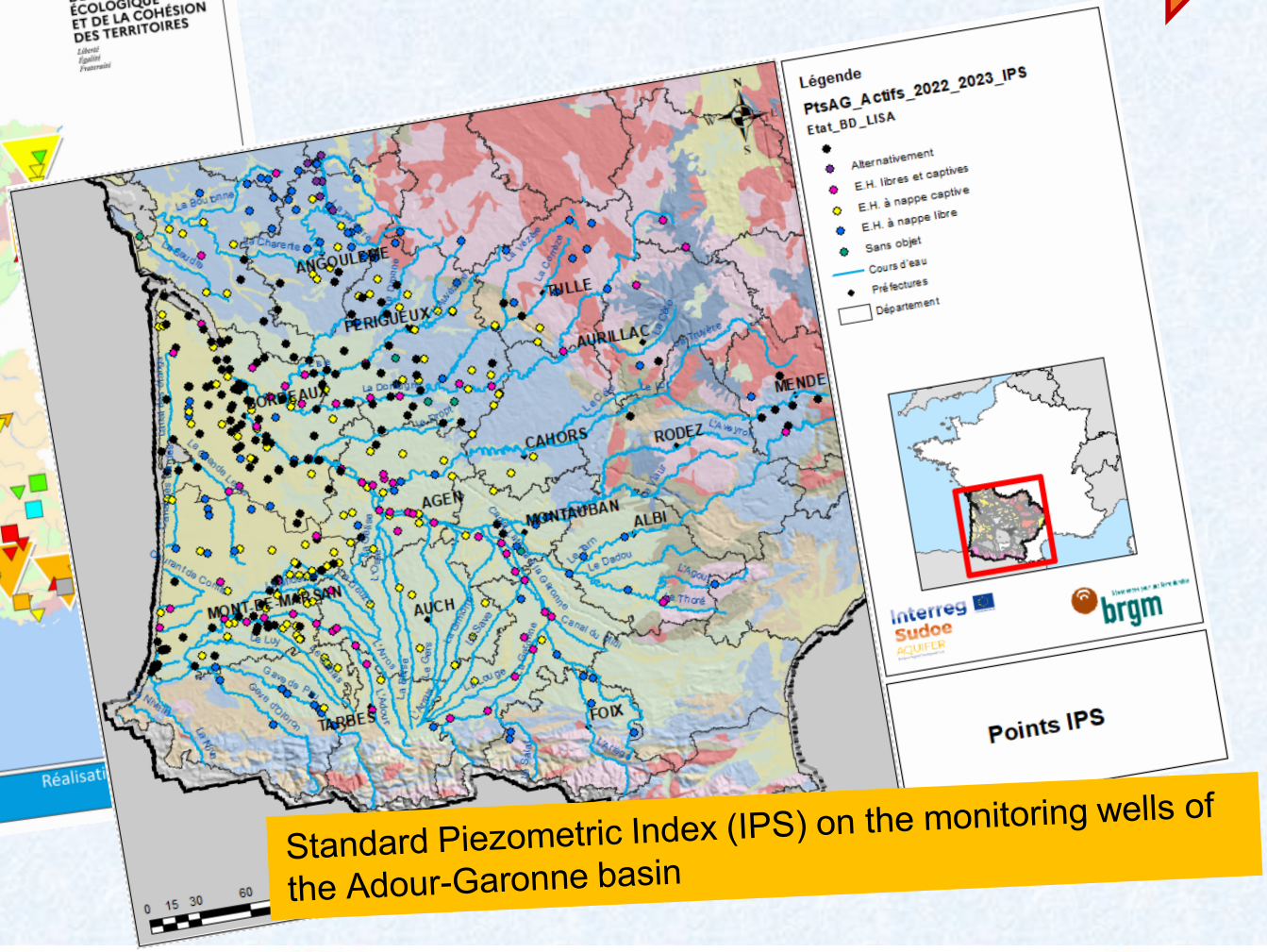

Standard Piezometric Index (IPS) on the monitoring wells of the Adour-Garonne basin

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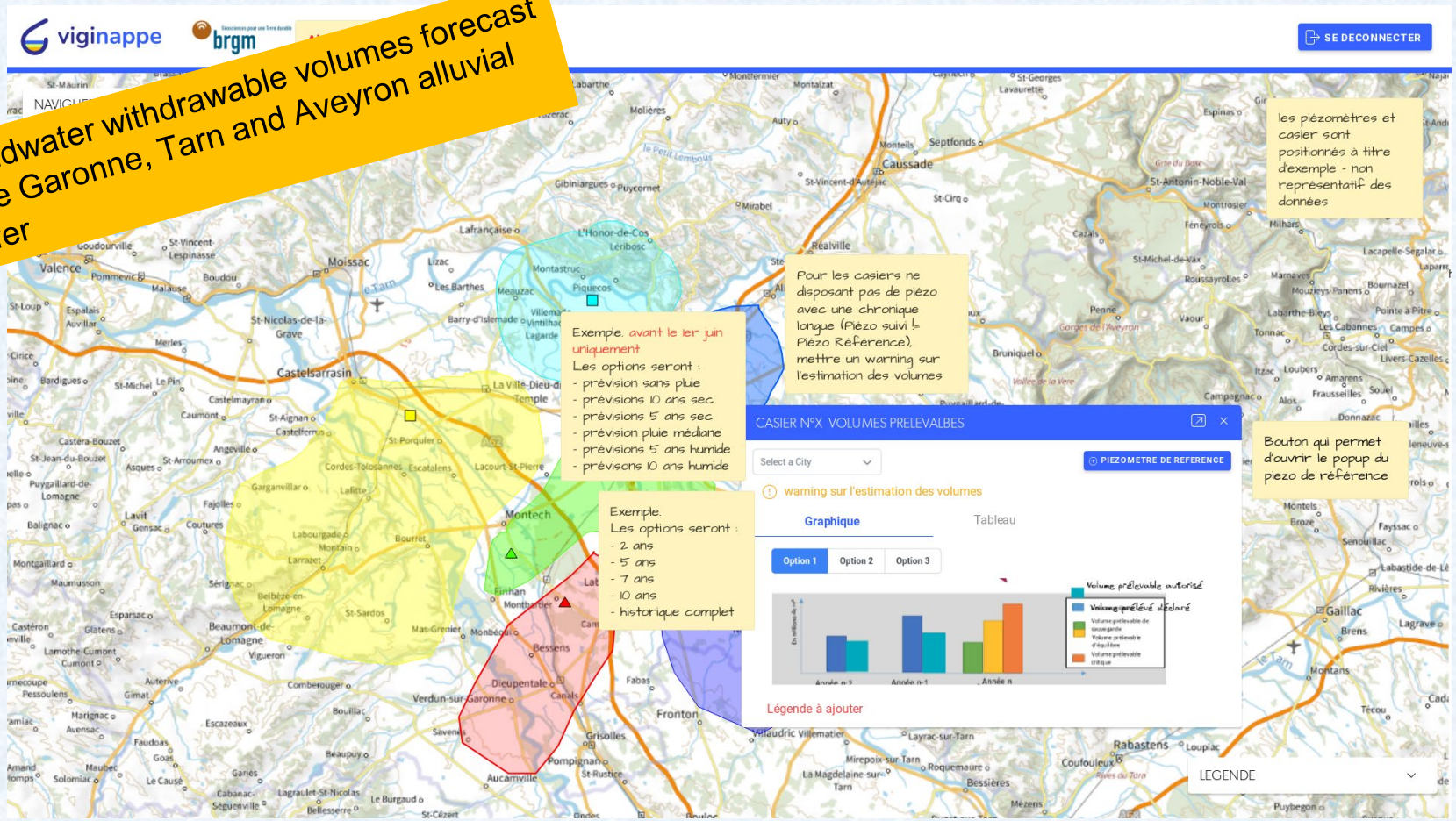
Groundwater withdrawable volumes forecast on the Garonne, Tarn and Aveyron alluvial aquifer



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Thank you for your attention

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