

What uses of piezometric network's data in hard-rock aquifers ? Example of Brittany's network 10 years after its implementation.

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What uses of piezometric network's data in hard-rock aquifers ? Example of Brittany's network 10 years after its implementation.

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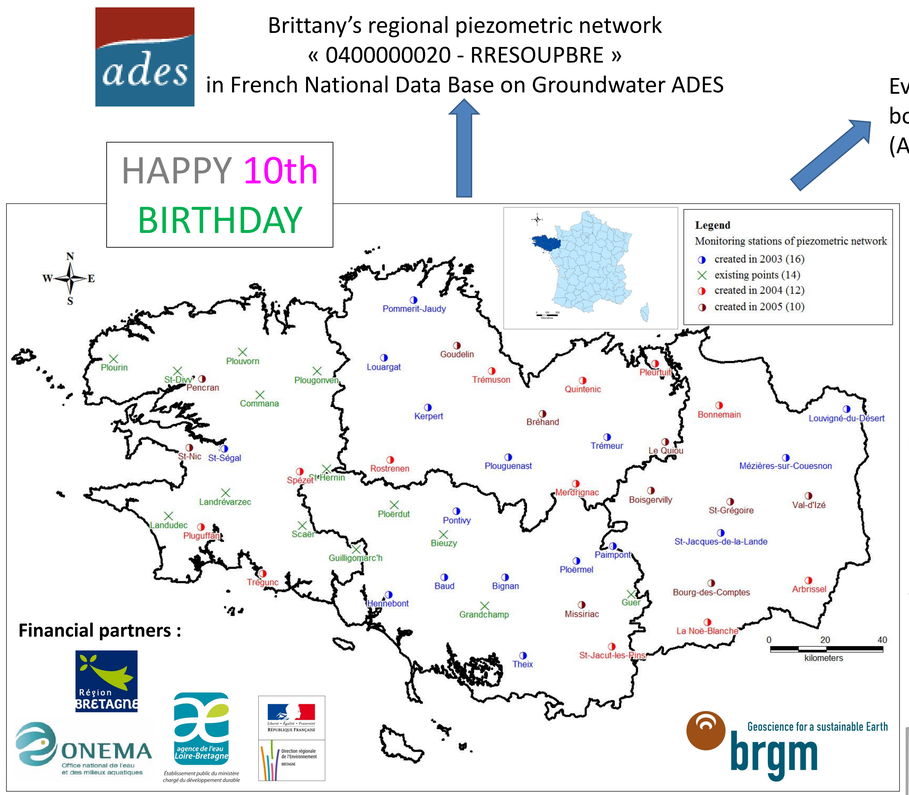
Geoscience for a sustainable Earth — brgm

For a long time ago considered as a region devoid of big aquifers, the Brittany region (in France) has a piezometric network since 10 years contrary to other regions equipped since the 1970s. Among the 52 monitoring stations, 48 are settled in hard-rock aquifers (4 others follow alluviums or tertiary aquifers). 10 years after its implementation, piezometric network's basic data of Brittany are useful for various valorisations and plenty of different uses.

Brittany's piezometric network is constituted by 52 boreholes (average depth 35 m) equipped with automatic acquisition of groundwater level (1 measure/hour) and with data's remote transmission. Their location has been carefully cogitated : it allows to cover main geological and hydrogeological formations existing in Brittany and takes into account weather conditions which are very contrasted from west to east and between coasts and the inland. After check and validation, data are stored (1 measure/day) and put at the public's disposal twice a month on the French National groundwater Data Base called ADES (Mougin et al., 2012).

Brittany's regional piezometric network
« 0400000020 - RRESOUPBRE »
in French National Data Base on Groundwater ADES

HAPPY 10th BIRTHDAY



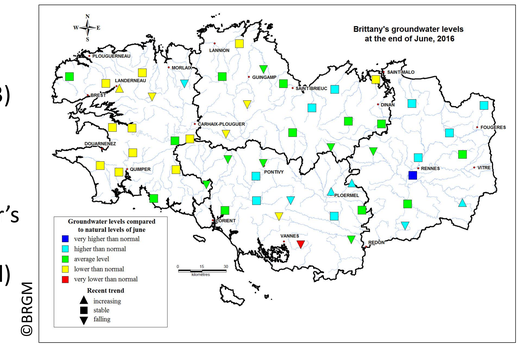
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Evaluation of groundwater bodies quantitative status (Agence de l'eau Loire-Bretagne, 2013)

Bulletins of groundwater's level situations (regional, basin, national)



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Elaboration of piezometric indicators dedicated to the departmental management of drinking water (Lucassou et al., 2015a)

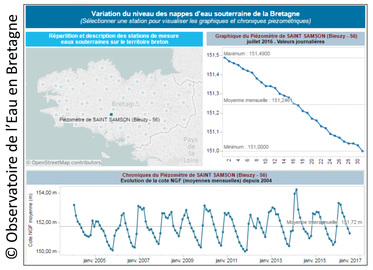
Contribution of groundwater to rivers flows



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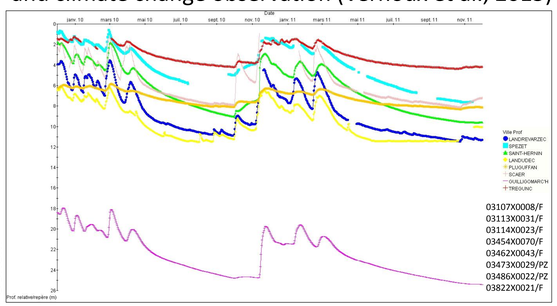
Diagnosis of floods by water table rise (Lucassou et al., 2015b)

Interactive dashboard (Observatoire de l'Eau en Bretagne, 2012)



© Observatoire de l'Eau en Bretagne

Knowledge of hard-rock aquifers : dynamics and slowness, cycles of data variation, memory effect, overflowing, time of water table's drop, sea-level, ground signals, and climate change observation (Vernoux et al., 2015)



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Levels of 8 monitoring stations located in South of Finistère department (years 2010-2011)



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Installation of piezometric equipment on a station of the network (Paimpont in July, 2015)

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References (in French)

Agence de l'eau Loire-Bretagne (décembre 2013) - État des lieux du bassin Loire-Bretagne établi en application de la Directive cadre européenne sur l'eau

Lucassou F., Mougin B. avec la collaboration de Stollsteiner P. (2015a) - Essai d'élaboration d'indicateurs piézométriques pour la gestion quantitative AEP dans le département des Côtes d'Armor. Rapport final BRGM/RP-64123-FR

Lucassou F. (2015b) - Avis hydrogéologique suite aux inondations par remontée de nappe survenues le 12 février 2014 sur la commune de Tréogat (Finistère), dans le cadre d'une demande de reconnaissance de l'état de catastrophe naturelle. Rapport d'expertise CATNAT. Rapport BRGM/RP-65017-FR

Mougin B., collaboration Jégou J-P. et Marmu B. (2012) - SILURES Suivi - Gestion du réseau de surveillance piézométrique régional de Bretagne - Valorisation des données des 52 piézomètres et annuaire 2011 - Rapport final - BRGM/RP-60673-FR

Observatoire de l'Eau en Bretagne (Janvier 2012) - Tableau de bord interactif Eau souterraine. Variation du niveau des nappes

Vernoux J.F. (2015) - Réseau de référence piézométrique pour le suivi de l'impact du changement climatique sur les eaux souterraines. Rapport final BRGM/RP-64858-FR