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GEOLOGICAL SERVICE FOR EUROPE

EUROPEAN GROUNDWATER RESOURCES

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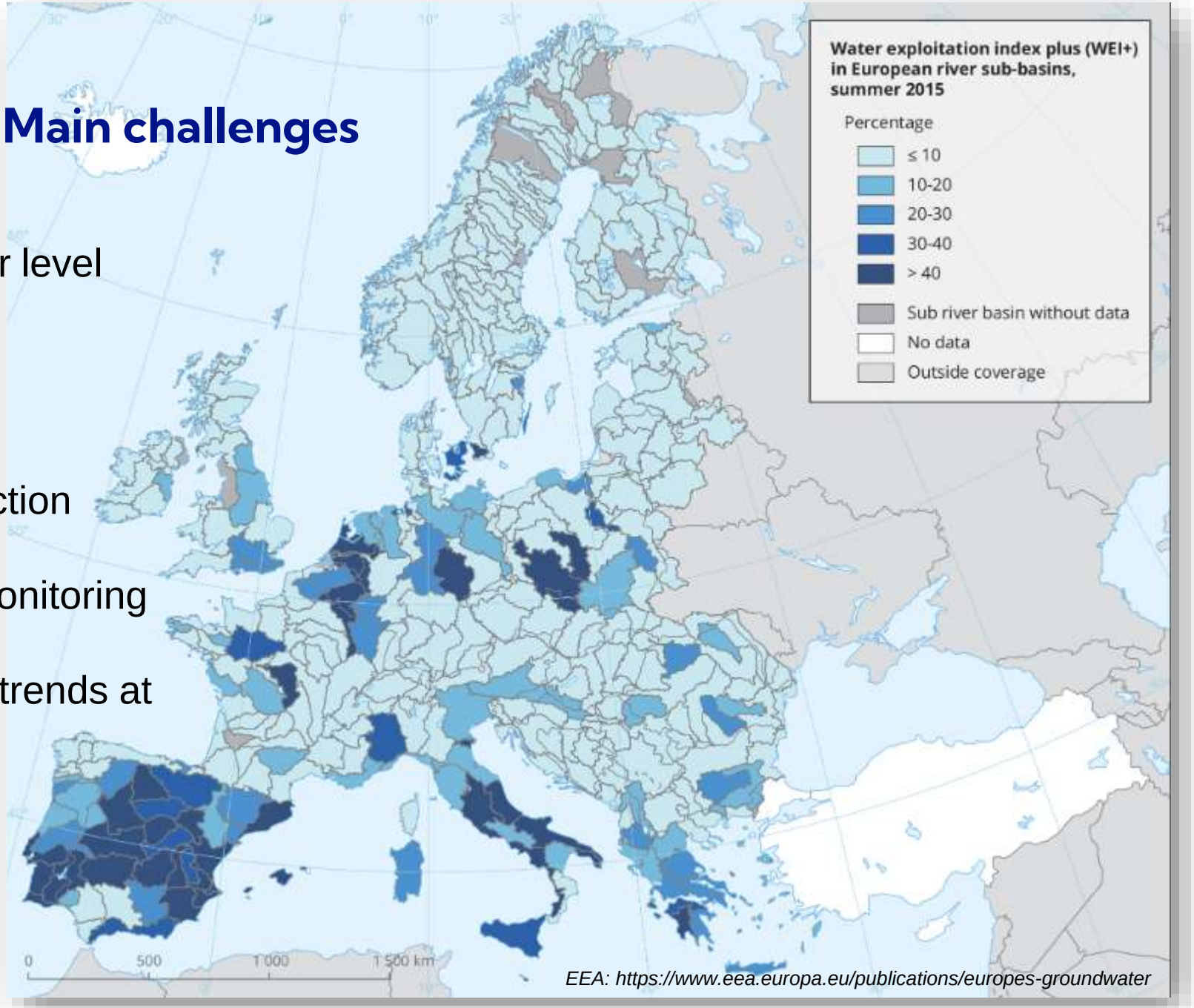
& the Groundwater Resources Group

Funded by the European Union

Groundwater Quantity: Main challenges

There is a need for a groundwater level forecasting system:

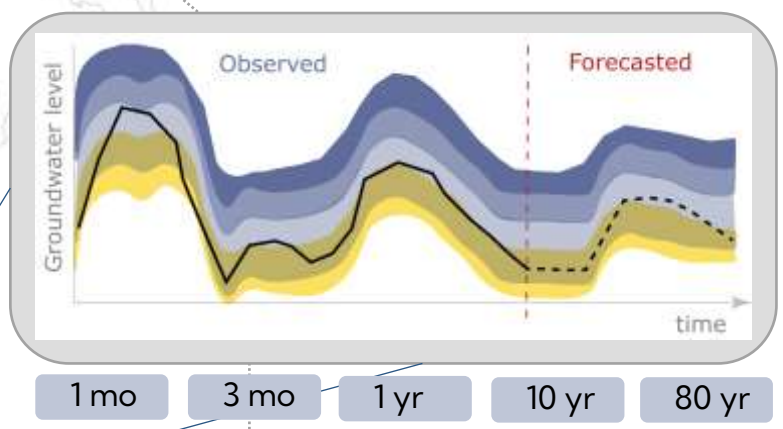
- operational
- data-driven
- combined with a drought detection system
- based on the near real-time monitoring of selected locations
- FAIR compliant data to detect trends at various scales.



EEA: https://www.eea.europa.eu/publications/europes-groundwater

Transnational, Harmonised Data Gathering, Monitoring and Evaluation of Groundwater Dynamics in the Context of Climate Change

European Groundwater Monitoring Database (**EUGM**)



Short and long-term forecast
Based on state-of-the-art machine learning aided techniques

Integration into the **EDGI** platform

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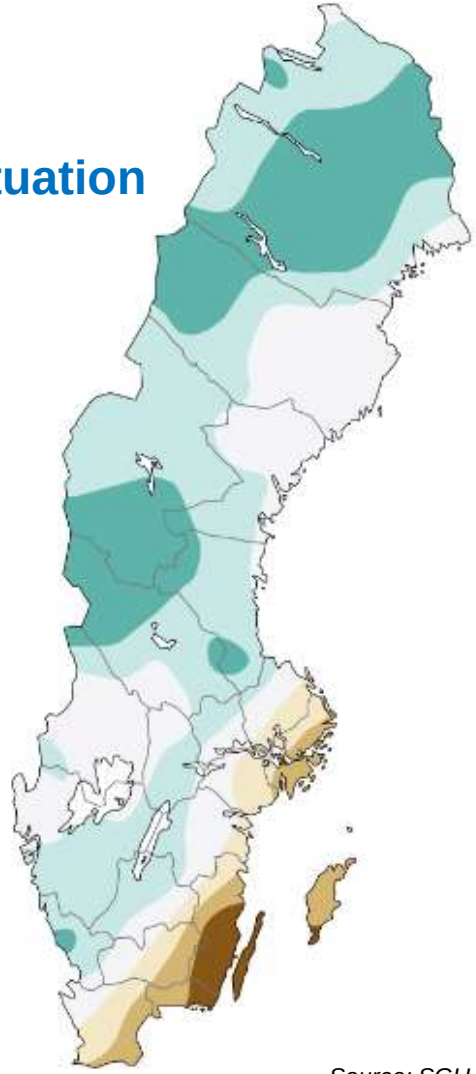
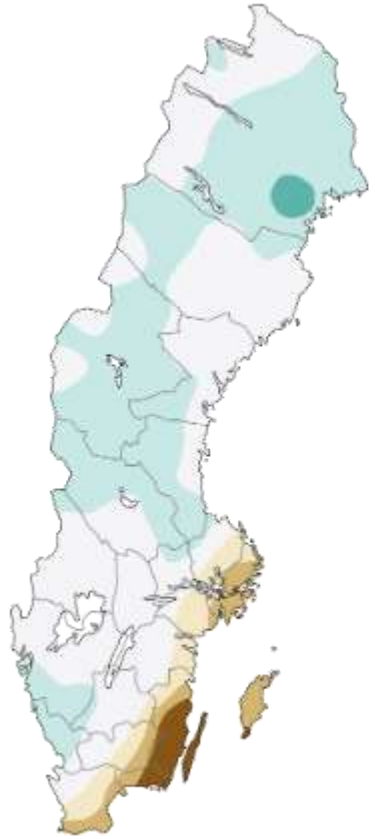
Transnational, Harmonised Data Gathering, Monitoring and Evaluation of Groundwater Dynamics in the Context of Climate Change

Current situation

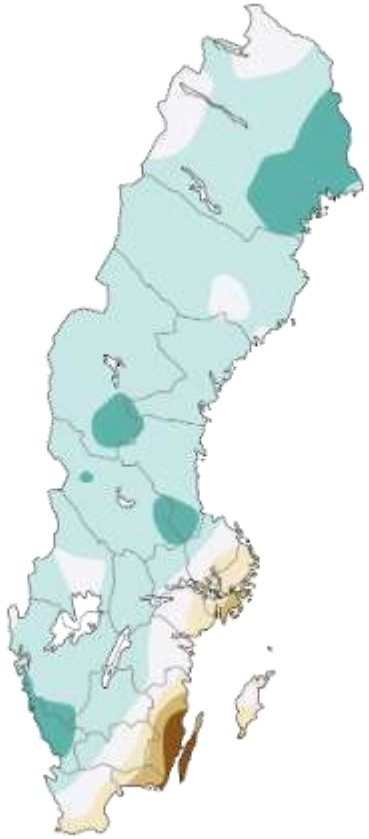


Near future situation (30 days) for different climate scenarios

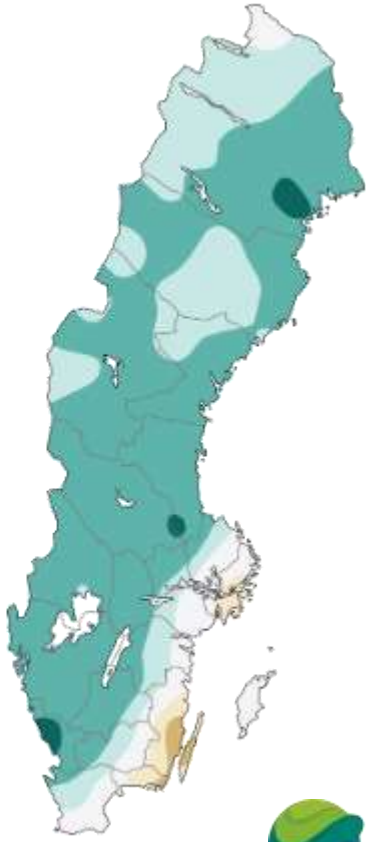
Dry



Normal



Wet



Source: SGU (https://www.sgu.se/grundvatten/grundvattennivaer/framtida-grundvattennivaer/)

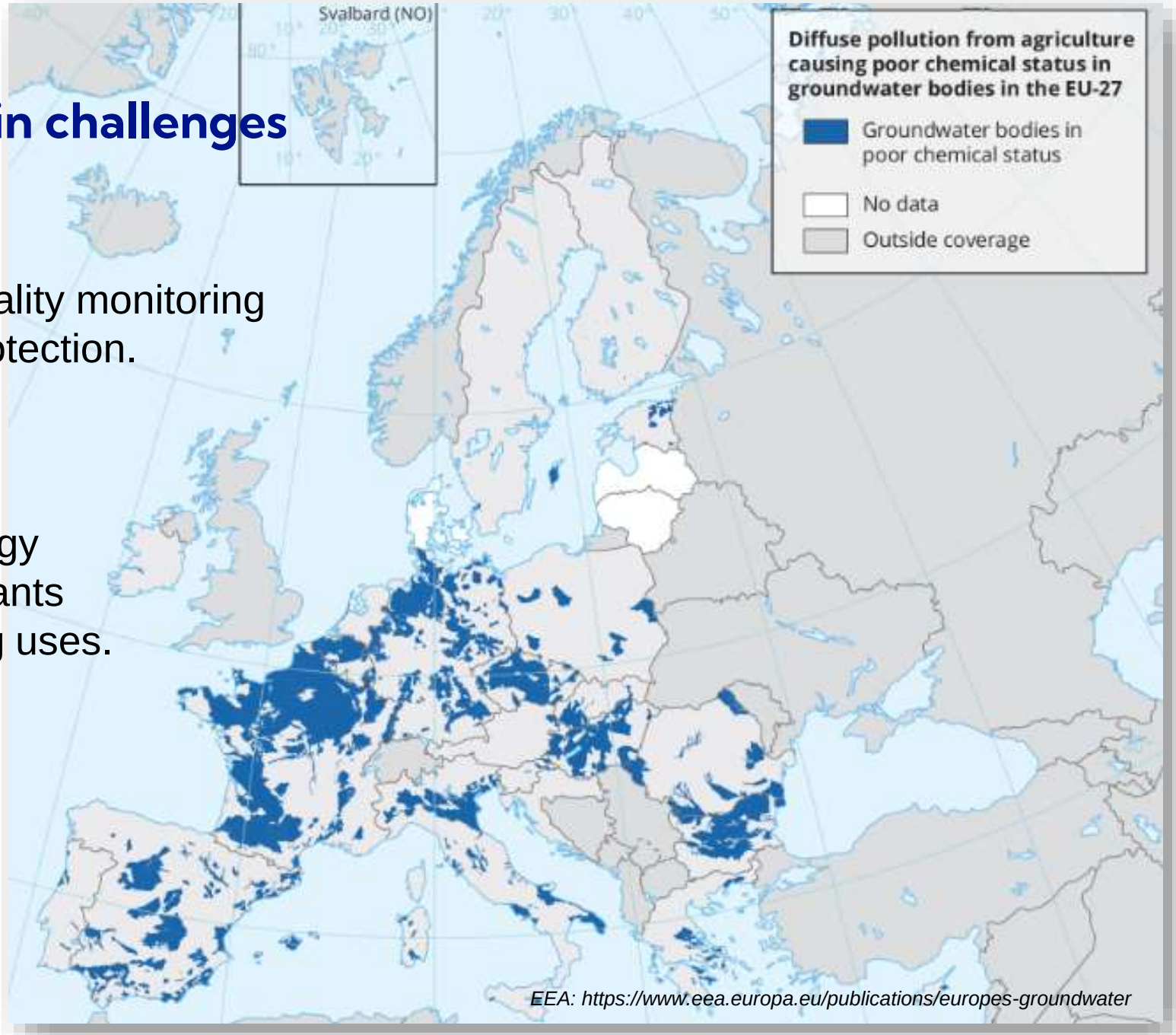
Groundwater Quality: Main challenges

There is a need for Groundwater quality monitoring system to support environmental protection.

Based on a good knowledge of:

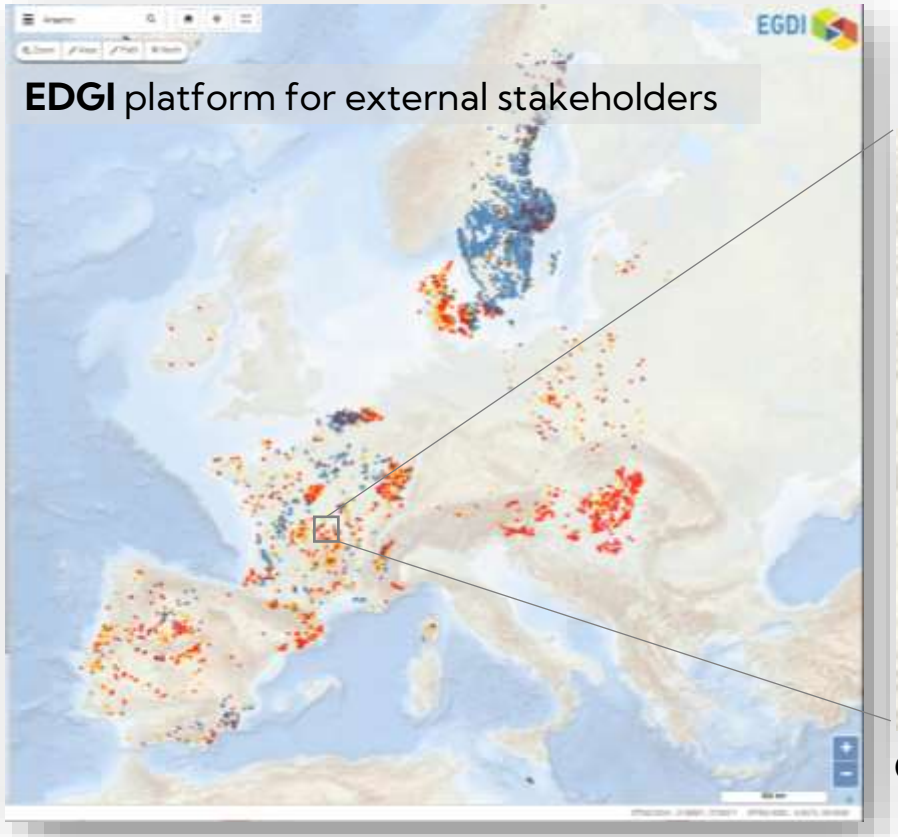
- intrinsic properties such as geology
- Chemical properties of contaminants
- drivers, pressures and competing uses.

To determine trends in groundwater quality patterns, mobility and persistence of contaminants.

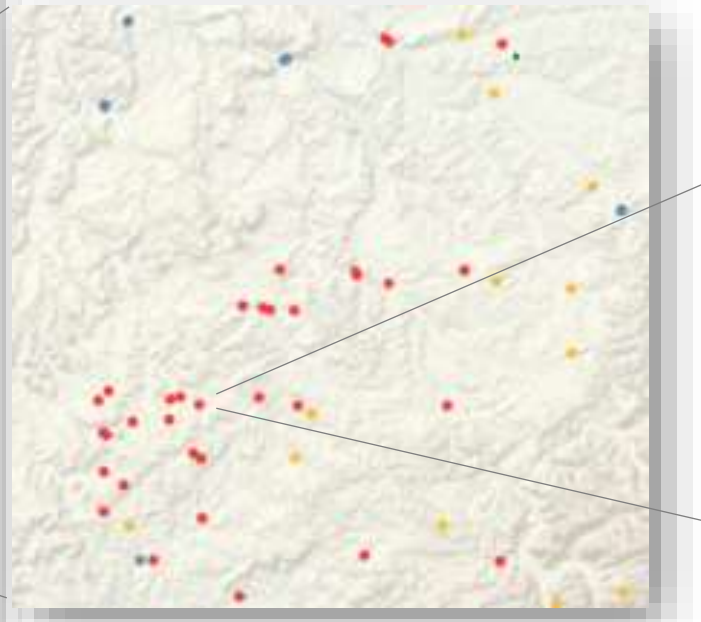


EEA: https://www.eea.europa.eu/publications/europes-groundwater

Transnational, Harmonised Data Gathering, Monitoring and Evaluation of Groundwater Quality Patterns and Trend Identification

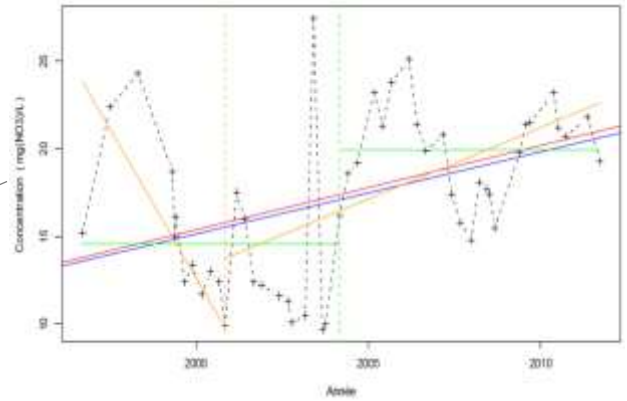


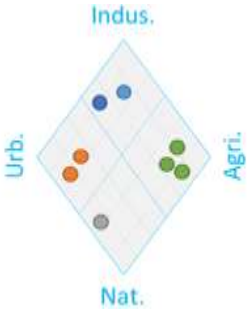
EDGI platform for external stakeholders



Groundwater Quality Monitoring Points

Nitrates trend analysis based on state-of-the-art machine learning aided techniques and geostatistical





Anthropogenic groundwater facies at certain location

Added Value

- Re-use of previously obtained information
- European Geological surveys collaboration
- Exchange of knowledge
- Novel GW quality indicators in relation to anthropogenic impact

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