

The Groundwater Drought Initiative (GDI): analysing and understanding groundwater drought across Europe

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Overview and aims of GDI

Groundwater droughts, such as the European drought of 2015 (**Figure 1**, Van Lanen et al. 2016), are a threat to water security and livelihoods and can have profound socio-economic and environmental impacts (Van Loon, 2015). To date there is no pan-European groundwater database and there have been no systematic studies of the impacts of groundwater droughts in Europe.

The Groundwater Drought Initiative, GDI, is a pan-European research collaboration that will address these research challenges by:

- Systematically analysing and modelling groundwater drought status across Europe (the focus of this poster)
- Investigating the impacts of groundwater drought in a range of different catchments
- Building a community to grow our understanding of the phenomenon of groundwater drought

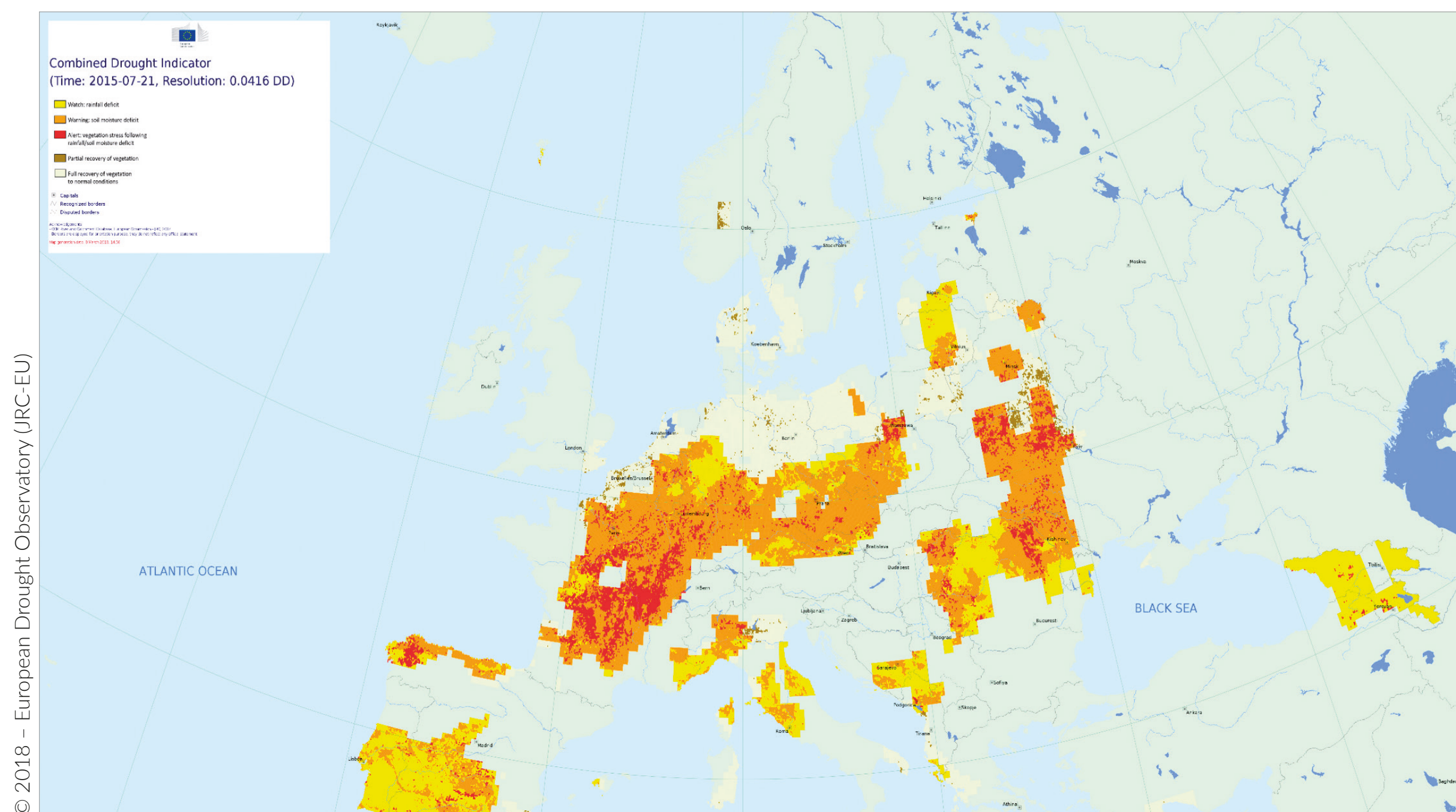
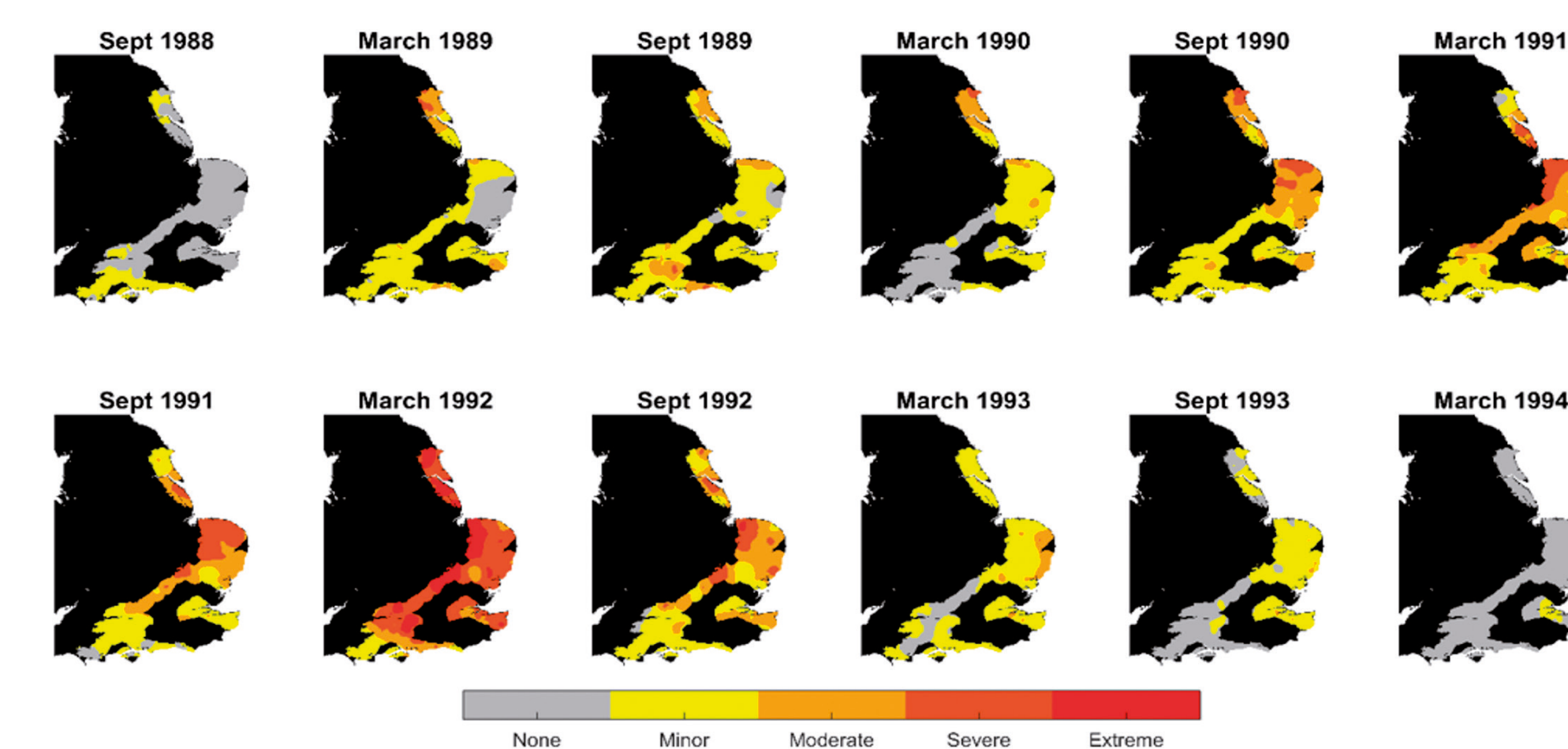
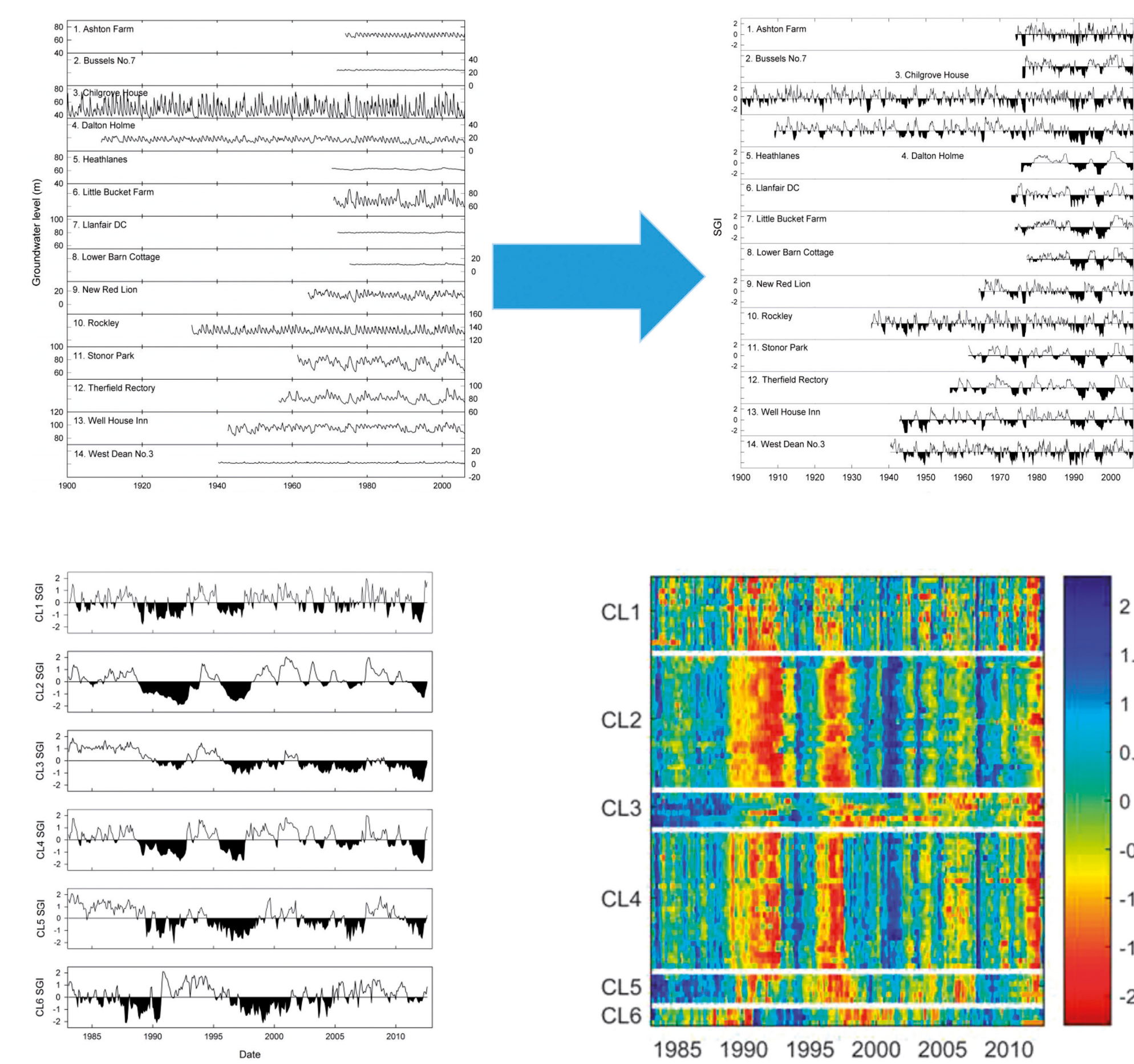
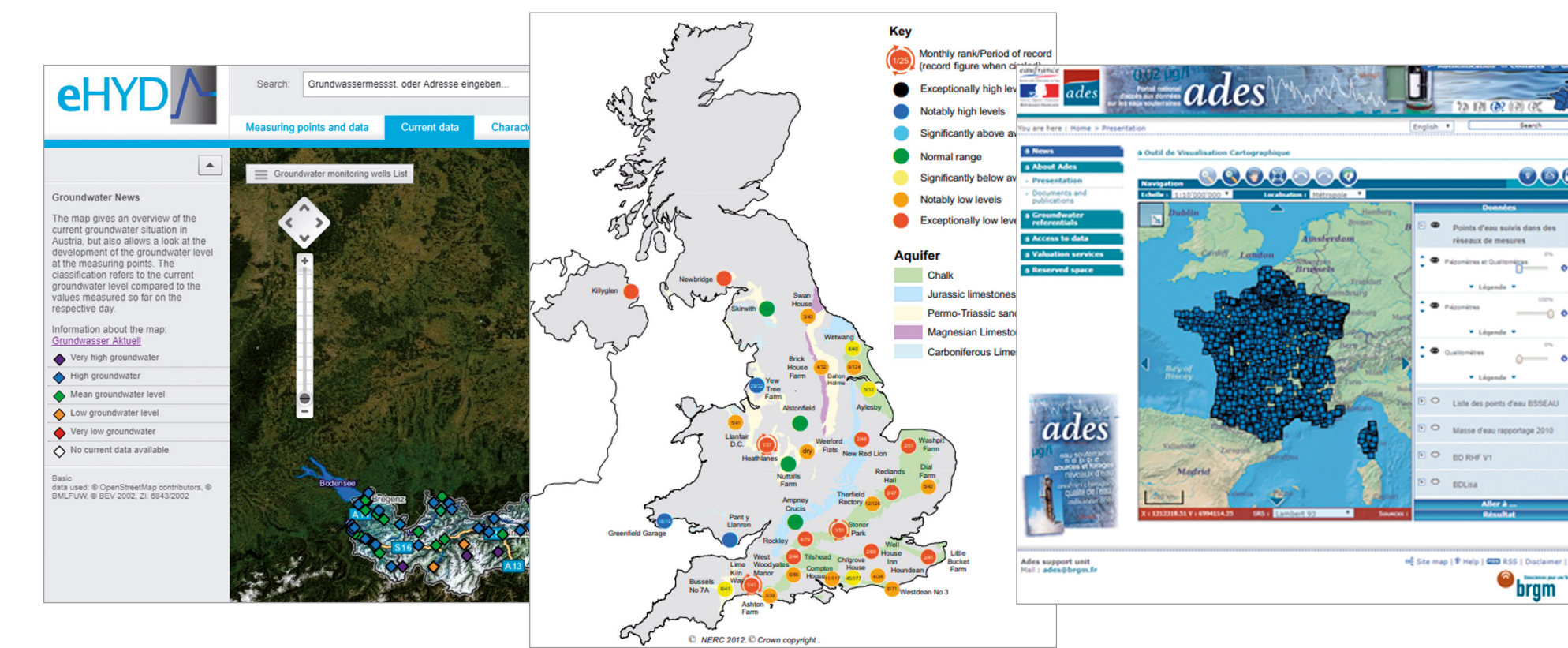


Figure 1 Hydrological drought of 2015 exhibiting spatial coherence across Europe.

References

- Bloomfield, J P, and Marchant, B P. 2013. Analysis of groundwater drought building on the standardised precipitation index approach. HESS, 17(12), 4769–4787.
- Van Lanen et al. 2016. Hydrology needed to manage droughts: the 2015 European case. Hydrological Processes, 30, 3097–3104.
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Proposed approach analysing European groundwater droughts



1. Compile European-scale groundwater level dataset based on national and regional data from GDI partners.

2. Estimate Standardised Groundwater level Index (SGI, Bloomfield and Marchant, 2013) for European-scale data.

3. Identify drought typologies using cluster and factor analysis and relate to catchment and aquifer characteristics, and to anthropogenic influences.

4. Map and analyse spatio-temporal evolution of recent major drought episodes at European-scale.

Why join the GDI?

Joining the GDI will:

- Enable you to place your groundwater level data in a regional- to continental-scale context
- Enhance your ability to predict the timing, magnitude and end of major episodes of groundwater drought
- Provide you insights into the impacts of future major groundwater droughts in your region
- Give you access to the expertise of a growing cohort of drought researchers



The GDI is funded by the NERC International Opportunities Fund and supported by the European Drought Centre (EDC), the FRIEND Low Flows & Drought network, IGRAC, and is already partners with the following institutions:



Please contact us to find out more about the GDI:

Website: www.bgs.ac.uk/groundwaterDrought

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