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Modelling soil moisture at the European scale for drought detection and forecasting

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The Joint Research Centre of the European Commission (JRC) is currently running a European Flood Alert System (EFAS) on a pre-operational basis. Due to the increased need for consistent and timely information on droughts on the European scale, JRC is performing a feasibility study in order to investigate how the currently existing modelling system for flood forecasting can be adapted and extended for the purpose of drought forecasting, detection, and monitoring.

Benefiting from the pre-operational mode of the EFAS that is running on a daily basis, drought-relevant information can be readily produced and regularly updated.

At this stage the actual soil moisture map and the trend map for the next week are produced. The maps are compared to a soil moisture climatology obtained by simulation on historical data. The soil water content, its normalized value and a seven days trends time series for some selected regions are also extracted.

The following information is updated on a daily basis on the http://natural-hazards.jrc.it website:

daily soil moisture maps of Europe;

daily soil moisture anomaly maps of Europe;

daily maps of the forecasted soil moisture development in Europe (seven days trend);

Soil moisture development for selected regions in Europe;

Normalized soil moisture development for selected regions in Europe;

Seven-days soil moisture forecast for selected regions in Europe.

The soil moisture development for the drought events of 2003 (almost Europe-wide extent) and 2005 (Spain and Portugal) drought events are presented.