



Emergency Management

New product: Sub-seasonal to seasonal forecasts

Fredrik Wetterhall

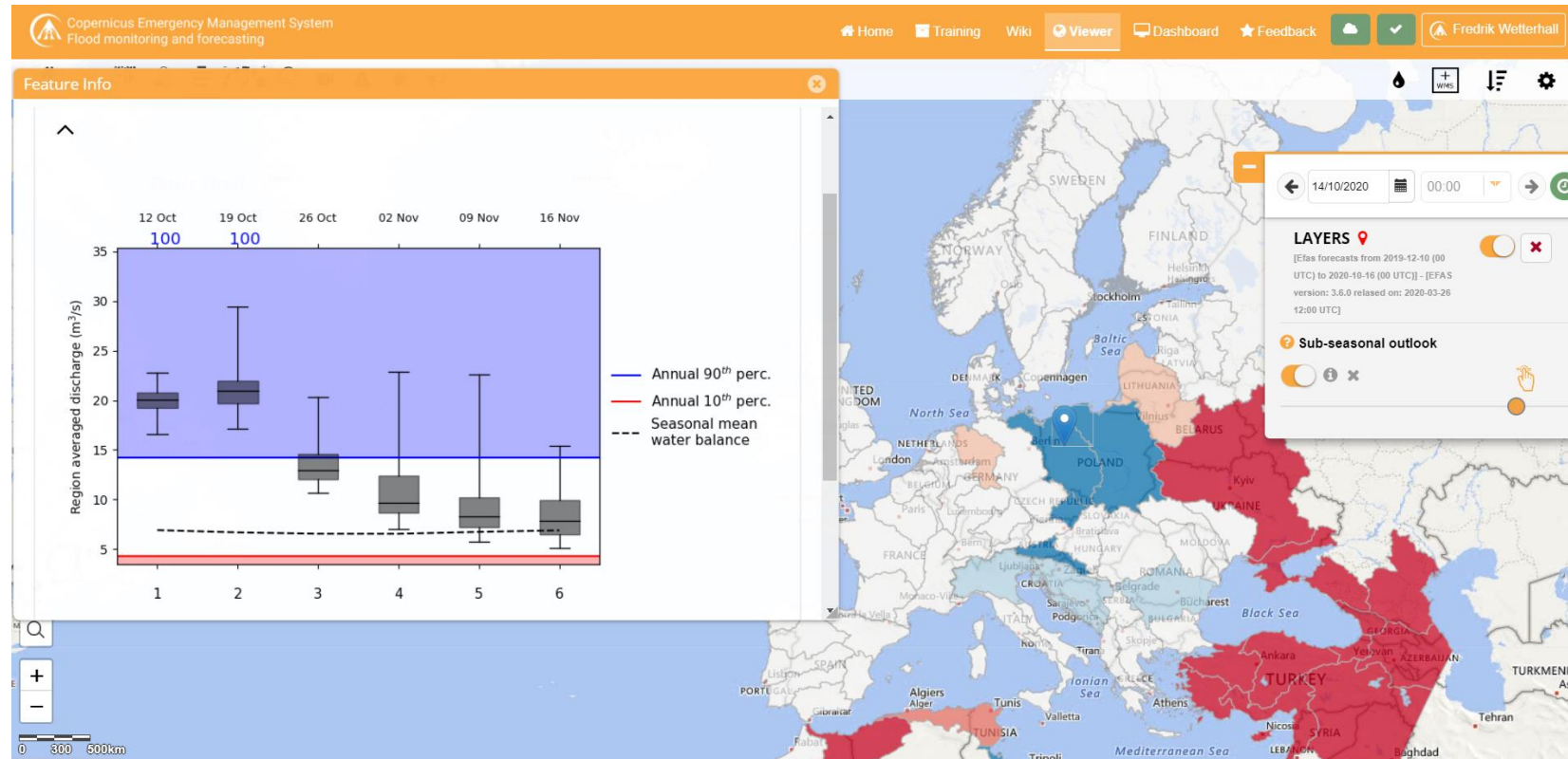




New product: S2S

Emergency Management

- Sub-seasonal to seasonal layer introduced in December 2019 (v3.4)
 - Overview map with blue (red) for wetter (drier) than normal
 - Weekly forecast up to 8 weeks (reduced to 6 weeks in EFAS v4.0)

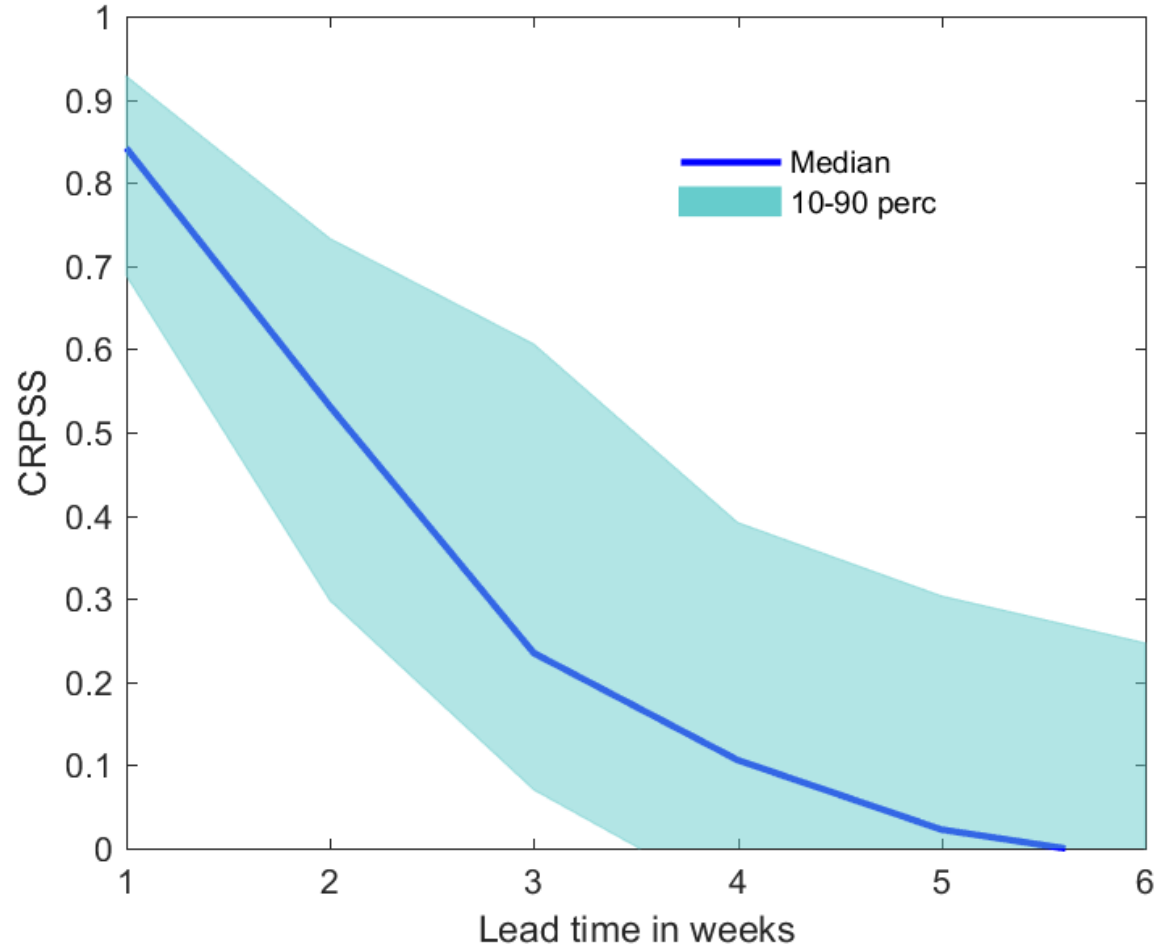




New product: S2S

Emergency Management Specifics:

- Twice weekly runs (Monday Thursday)
- Latest model cycle of ECMWF Ensemble
- Skill on average >5 weeks against climatology

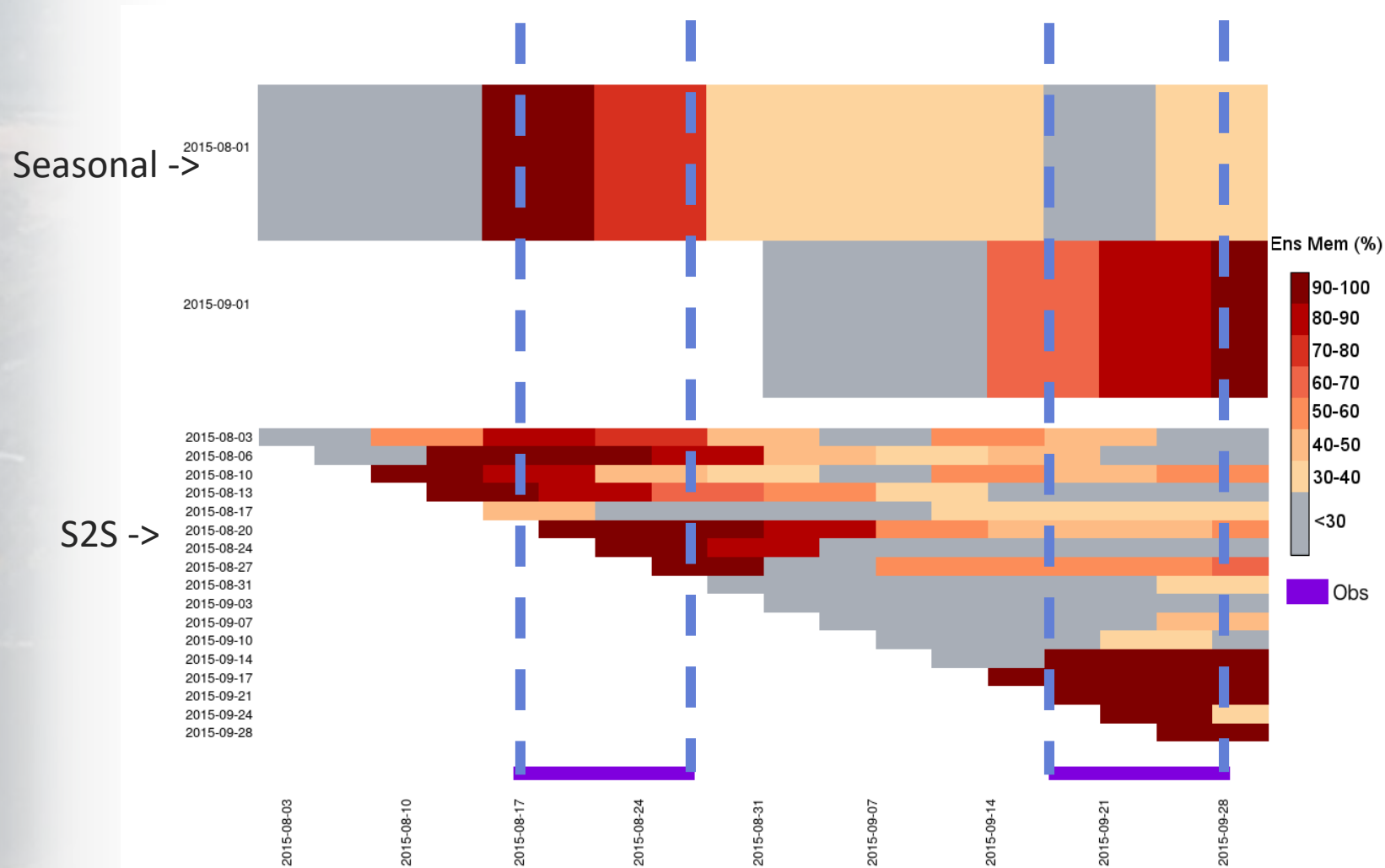




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New product: S2S

More “actionable” information on S2S time scales



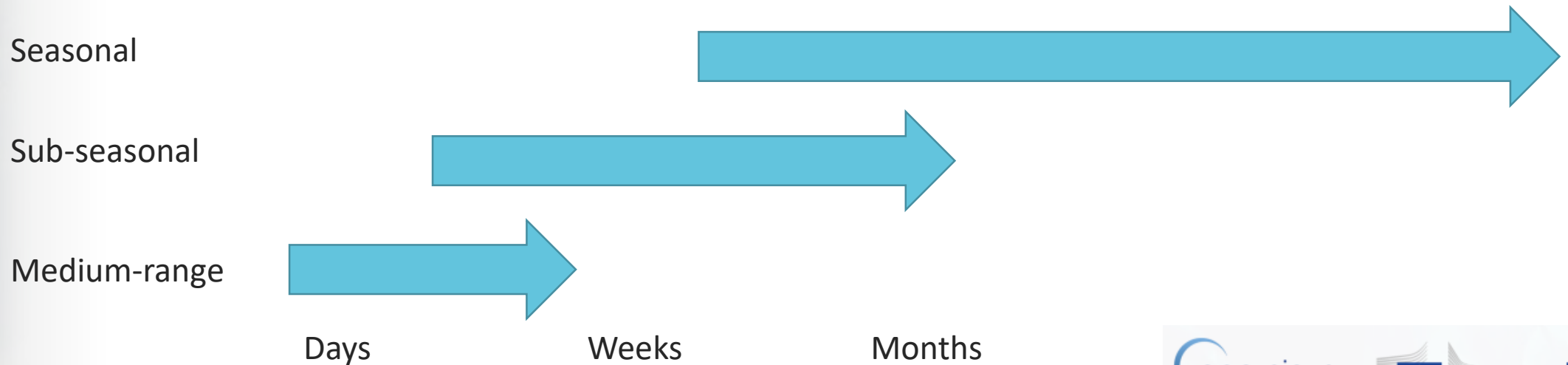
Example from low-flow situation in the Rhein in 2003.

A low-flow situation was present in both forecasts, but the S2S offers updated information in



Developing the seasonal forecasts into longer lead times and providing:

- Monthly averages to increase skill (weekly skill only for first 5 weeks)
- Spatial resolution (areas, catchments, points?)
- More defined climate variables
- Synergy with the multi-model seasonal hydrological forecasting being developed within C3S





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New product: S2S in the Climate Data Store

Three EFAS datasets now available on CDS:

- EFAS forecasts
- EFAS historical (v2, v3, v3.5 and v4)
- NEW! EFAS reforecasts for v4

Upcoming datasets (November)

- EFAS seasonal
- EFAS seasonal reforecasts

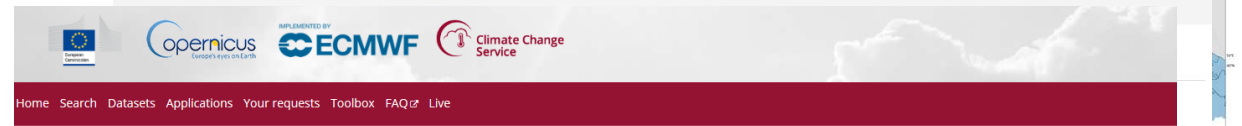
cds.climate.copernicus.eu



River discharge and related historical data from the European Flood Awareness System



River discharge and related historical data from the European Flood Awareness System



Reforecasts of river discharge and related data by the European Flood Awareness System

WARNING: Use with caution. Some areas may show extremely low soil moisture values. This does not affect the discharge reforecasts.

Overview Download data Documentation

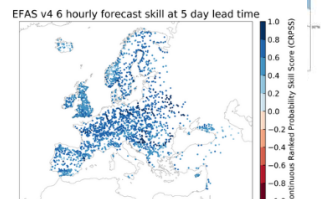
This dataset provides gridded modelled hydrological time series forced with medium- to sub-seasonal range meteorological reforecasts. The data is a consistent representation of the most important hydrological variables across the European Flood Awareness System (EFAS) domain. The temporal resolution is 20 years of sub-daily reforecasts run twice weekly (Mondays and Thursdays) of:

- River discharge
- Soil moisture for three soil layers
- Snow water equivalent

It also provides static data on soil depth for the three soil layers. Soil moisture and river discharge data are accompanied by ancillary files for interpretation (see related variables and links in the documentation).

This dataset was produced by forcing the LISFLOOD hydrological model at a 5x5km resolution with ensemble meteorological reforecasts from the European Centre of Medium-range Weather Forecasts (ECMWF). Reforecasts are forecasts run over past dates and are typically used to assess the skill of a forecast system or to develop tools for statistical error correction of the forecasts. The reforecasts are initialized twice weekly with lead times up to 46 days, at 6-hourly time steps for 20 years in the recent history. For more specific information on the how the reforecast dataset is produced we refer to the documentation.

Companion datasets, also available through the Climate Data Store (CDS), are the operational forecasts, historical simulations which can be used to derive the hydrological climatology, and seasonal forecasts and reforecasts for users looking for long term forecasts. For users looking for global hydrological data, we refer to the Global Flood Awareness System (GloFAS) forecasts and historical simulations. All these datasets are part of the operational flood forecasting within the Copernicus Emergency Management Service (CEMS).





- **Q1 (Peter Salamon, JRC): What are “more climate variables”?**
 - **A1a (Fredrik Wetterhall, COMP):** There will be some specific coefficients that would be derived, not only discharge itself, but also anomalies or indexes as well.
 - **A1b (Ilias Pechlivanidis, DISS):** We are still focusing on river discharge. This is the variable that we are putting to the CDS, but if there is a request from users of the adding another variable, it is an easy task.
- **Q2 (Boris Teunis, RWS): What is the difference in skill between high flow forecast and low flow forecast for the sub-seasonal forecast?**
 - **A2 (Fredrik Wetterhall, COMP):** We haven't done analysis in detail yet. There's a problem in the longer lead time when you have low flow, it is very sensitive to biases, correlation is quite good. For low flow very low numbers are compared, so this is difficult to provide a very good skills score. (More is available in <https://hess.copernicus.org/articles/22/3409/2018/#bib1.bibx15>).