Recent developments in the European Climate Assessment & Dataset

ECA&D project team

EMS2017-359

Overview

The European Climate Assessment & Dataset (ECA&D) provides National Meteorological Services and the scientific community with observational data and derived products on the European climate. New developments in this service are the homogenization of daily temperature data and the development of a new approach for the gridded E-OBS dataset.

Homogenization

Within the EU-FP7 EUSTACE and UERRA projects, ECA&D daily temperature data are homogenized using the quantile matching approach (Trewin, 2012). Break detection is based on a blend of methods proposed by Kuglitsch et al. (2012). Fig.1 shows one example of the homogenization; fig. 2 shows the effect on trends (1961-2010).

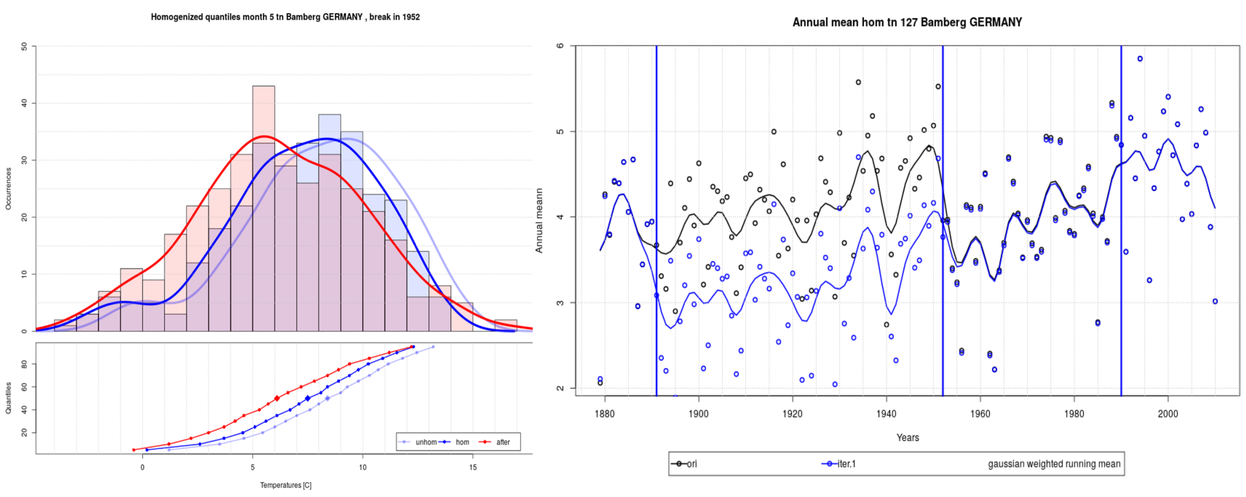

Fig. 1: Quantile adjustments to daily minimum temperature TN for Bamberg, Germany (left) and adjusted series (right).

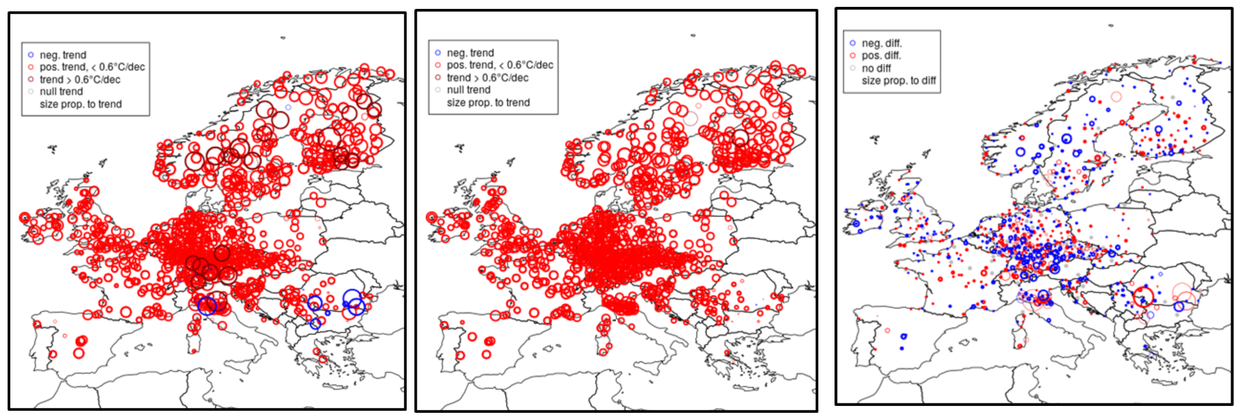

Fig. 2: Trends in annual mean TN before (left) and after (middle) homogenization. Difference plot is shown in the right panel.

A new approach for E-OBS

Within the UERRA project, a new approach for E-OBS is developed. Fig. 3 shows averaged differences between the old and new approaches.

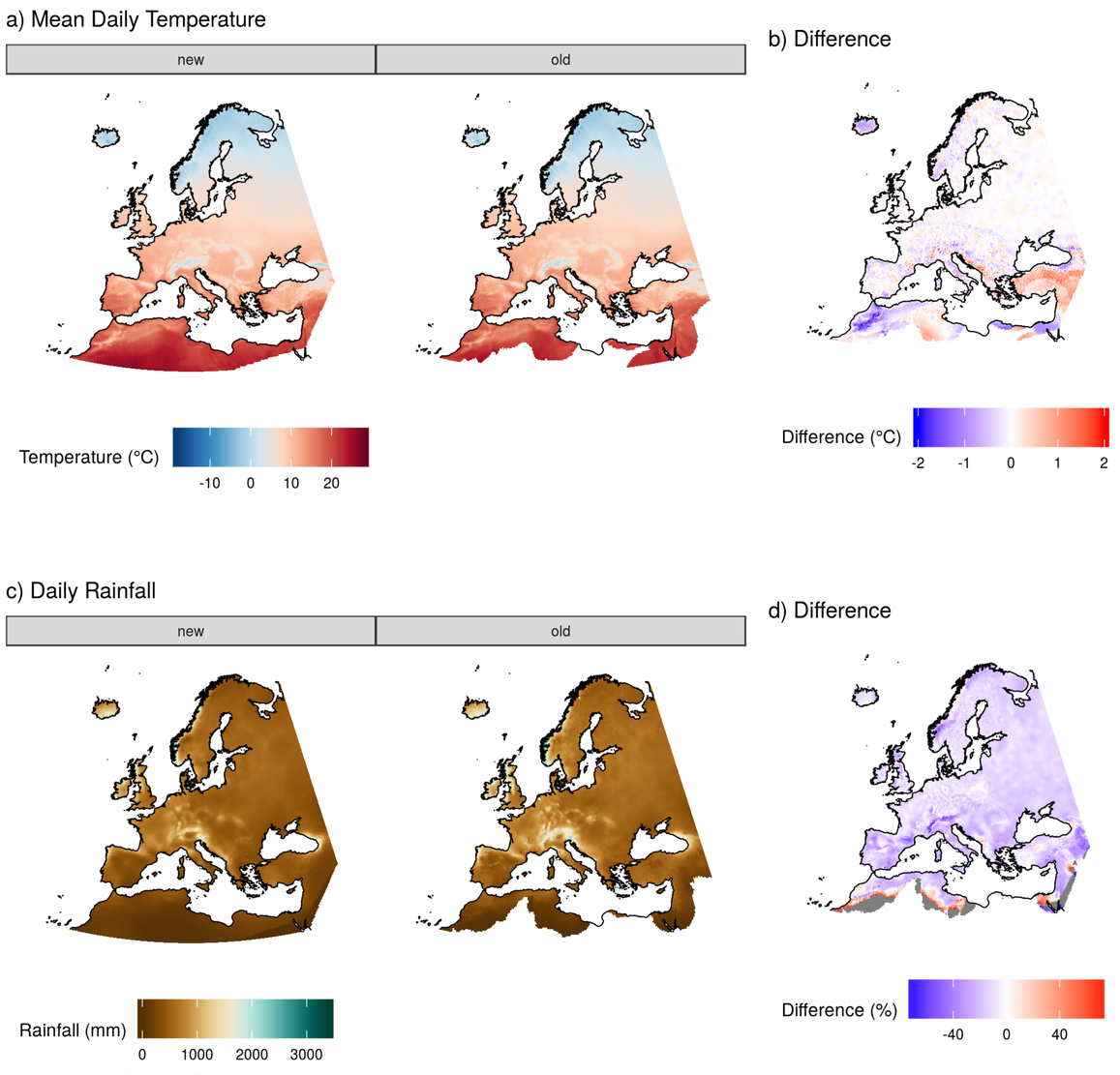

Fig. 3: Changes in mean daily temperature and daily rainfall in the new and old E-OBS.

The main improvements in the new E-OBS are:

- ensemble-based
- generally drier but with wetter extremes
- temperature has larger extremes

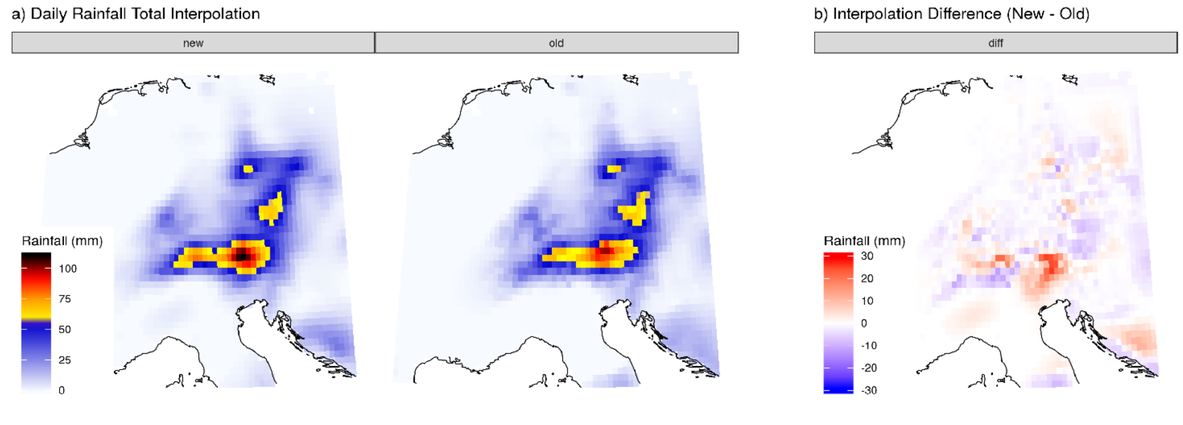

Fig. 4: E-OBS precipitation for June 1 2013, showing higher values for the new version for this extreme rainfall event.

ON BEHALF OF ECMWF FOR THE EUROPEAN COMMISSION

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