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EMO-5: Copernicus pan-European high-resolution meteorological data set for large-scale hydrological modelling

Vera Thiemig¹, Peter Salamon¹, Goncalo N. Gomes¹, Jon O. Skøien¹, Markus Ziese², Armin Rauthe-Schöch², Kira Rehfeldt², Damien Pichon⁴, and Christoph Schweim³

¹European Commission, Joint Research Centre, Disaster Risk Management, Italy (vera.thiemig@gmail.com)

²Deutscher Wetterdienst, Global Precipitation Climatology Centre, Offenbach, 63067, Germany

³Kisters AG, Aachen, 52076, Germany

⁴Kisters France SAS, Chatou, 78400, France

We present EMO-5, a Pan-European high-resolution (5 km), (sub-)daily, multi-variable meteorological data set especially developed to the needs of an operational, pan-European hydrological service (EFAS; European Flood Awareness System). The data set is built on historic and real-time observations coming from 18,964 meteorological in-situ stations, collected from 24 data providers, and 10,632 virtual stations from four high-resolution regional observational grids (CombiPrecip, ZAMG - INCA, EURO4M-APGD and CarpatClim) as well as one global reanalysis product (ERA-Interim-land). This multi-variable data set covers precipitation, temperature (average, min and max), wind speed, solar radiation and vapor pressure; all at daily resolution and in addition 6-hourly resolution for precipitation and average temperature. The original observations were thoroughly quality controlled before we used the Spheremap interpolation method to estimate the variable values for each of the 5 x 5 km grid cells and their affiliated uncertainty. EMO-5 v1 grids covering the time period from 1990 till 2019 will be released as a free and open Copernicus product mid-2020 (with a near real-time release of the latest gridded observations in future). We would like to present the great potential EMO-5 holds for the hydrological modelling community.

footnote: EMO = European Meteorological Observations