**CMCC climate simulations**

Data in NetCDF format (.nc) represent bias corrected daily climate projections provided by the Fondazione Centro Euro-Mediterraneo sui Cambiamenti Climatici (CMCC). Data were generated by the REMHI Division and bias-corrected (for precipitation and temperature) by the IAFES division (<http://www.cmcc.it/it/divisions>).

The variables of interest for bias-correction are:

* Total amount of daily precipitation (TOT\_PREC; kg/m2\*day = mm/day);
* 2-meter daily maximum temperature (TMAX, °C);
* 2-meter daily minimum temperature (TMIN, °C);

Original climate projections come from COSMO-CLM simulations performed under the project GEMINA (Project Italian MIUR/MATTM n. 232/2011), at ca. 0.0715° grid resolution and for the period 1971-2100. Please cite this original model simulations as *Bucchignani et al. 2016; Zollo et al., 2016*.

COSMO-CLM was forced by the global model CMCC-CM (*Scoccimarro et al. 2011*), using 20C3M forcing (i.e. GHGs as observed in the 20th century; <http://www.ipcc-data.org/ar4/scenario-20C3M.html>) from 1971 to 2005 and two IPCC-AR5 emission scenarios from 2006 to 2100: RCP4.5 and RCP8.5.

The bias correction approach adopted is described in *Sperna-Weiland et al. (2010)*, Eqs. (1) and (3), and it uses an additive correction for temperatures and a multiplicative factor for precipitation, starting from observed series of the same variables.

Observed data were assumed those provided by the UNIFI and derived from downscaling daily E-OBS dataset (v 10.0) at 1 km resolution (please refer to *Maselli et al. 2012* for methodology) and then aggregating them at the same resolution used in COSMO-CLM runs, under CARBOTREES project.

Observed data refer to the time frame 1981-2010; the subset 1981-2005 was here used for bias-correction purposes as matching with the period of observed emissions (20C3M) used in the modelling experiment.

Please note that no correction has been applied on other modelled variable as solar radiation, relative humidity and wind data, since robust methodology and literature are not yet available on that.

1. **References**

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