

The following supplement accompanies the article

Statistical downscaling of daily temperatures in the NW Iberian Peninsula from global climate models: validation and future scenarios

S. Brands^{1,2,*}, J. J. Taboada², A. S. Cofiño³, T. Sauter⁴, C. Schneider⁴

¹Instituto de Física de Cantabria (CSIC-UC), 39005 Santander, Spain

²MeteoGalicia, Xunta de Galicia, 15707 Santiago de Compostela, Spain

³Department of Applied Mathematics and Computer Science, Universidad de Cantabria, 39005 Santander, Spain

⁴Department of Geography, RWTH Aachen University, 52056 Aachen, Germany

*Email: brandssf@unican.es

Climate Research 48: 163–175 (2011)

Supplement. Additional figures

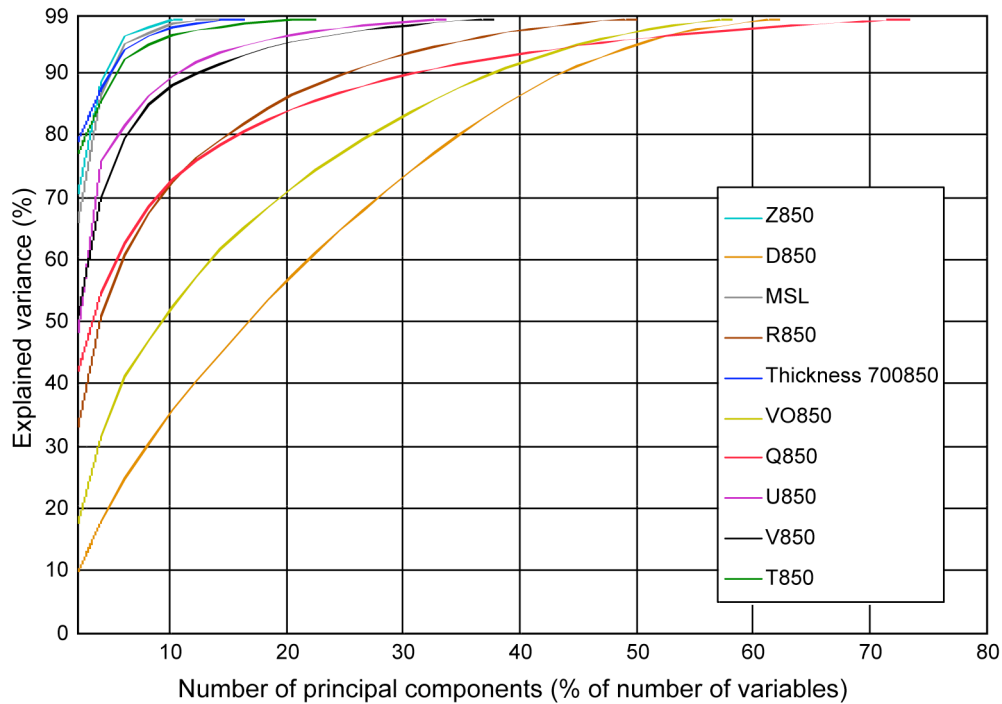


Fig. S1. Effect of reducing the dimensions of the predictor data under optimal conditions; x-axis: degree of dimensionality reduction (in % of the number of original atmospheric variables), y-axis: corresponding percentage of explained variance. MSL: mean sea level pressure; 850 denotes the 850 hPa pressure level — Z: geopotential; R: relative humidity; VO: relative vorticity; Q: specific humidity; U: zonal component of the geostrophic wind; V: meridional component of the geostrophic wind; T: temperature; Thickness 700850: geopotential thickness between 700 and 850 hPa

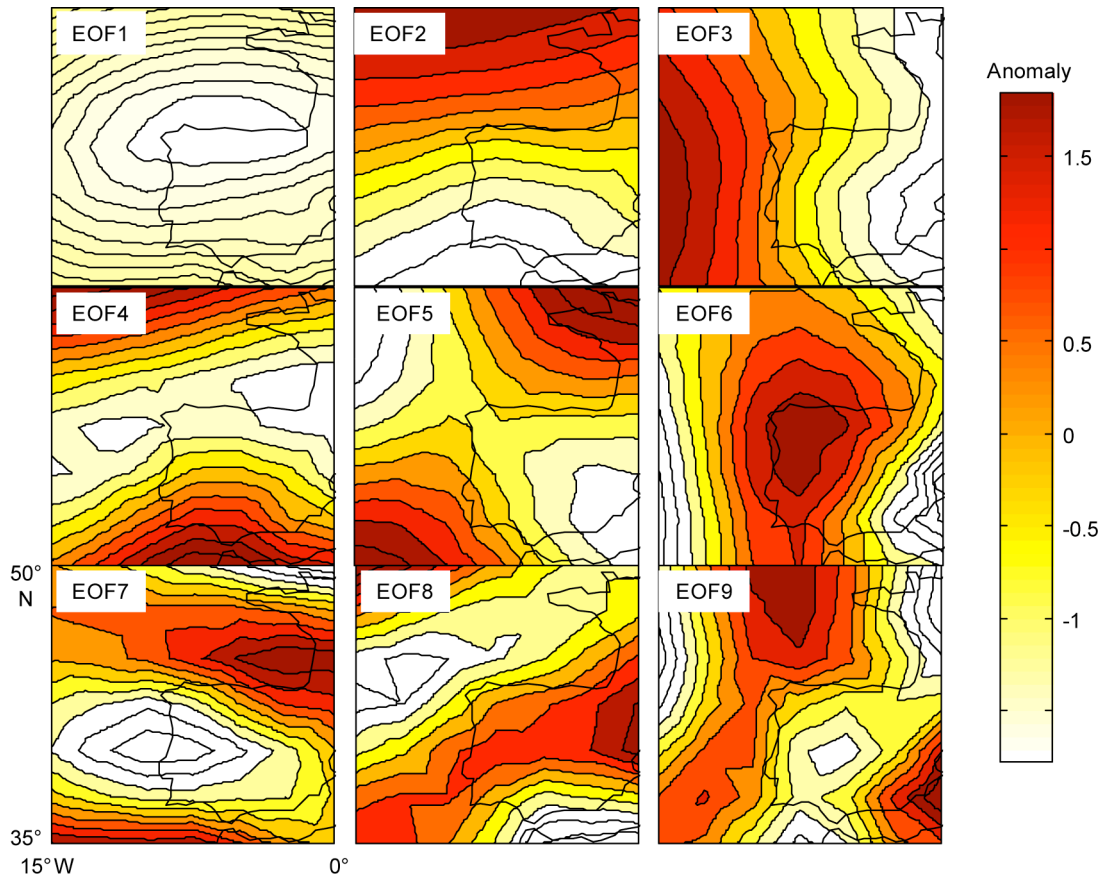


Fig. S2. Empirical orthogonal functions (EOFs) 1 to 9 for mean sea level pressure (MSL) under optimal conditions

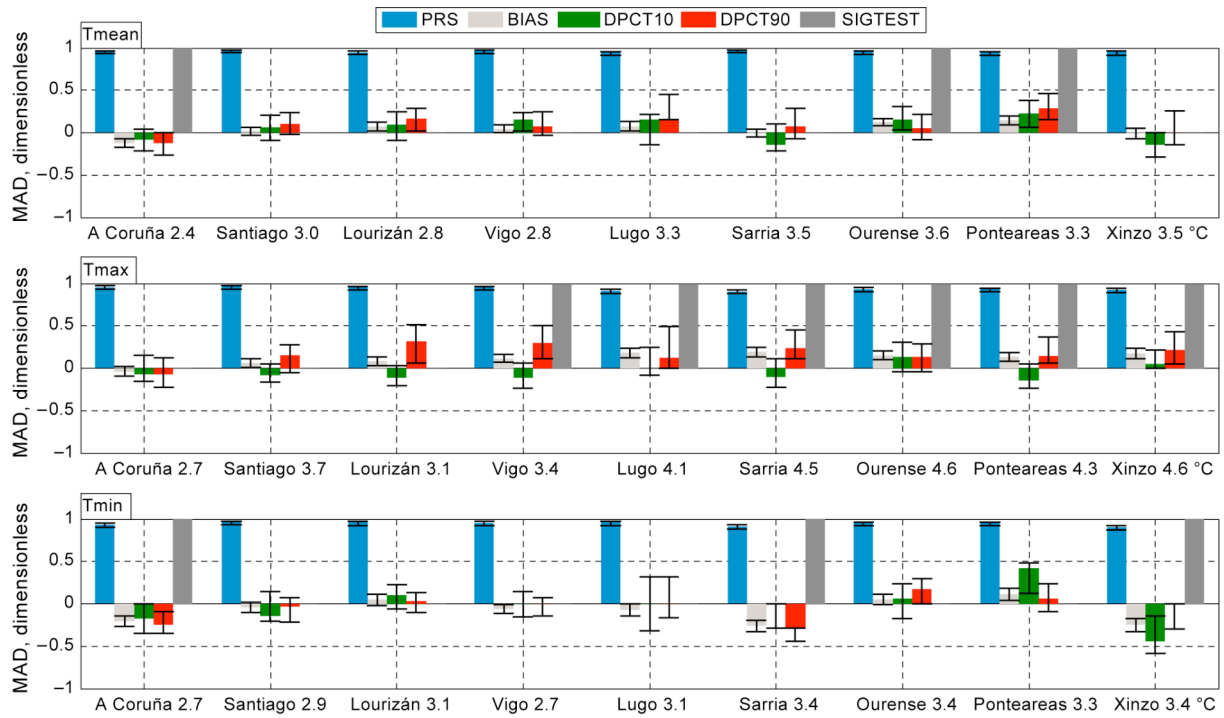


Fig. S3. Validation under optimal conditions in autumn (SON) for daily mean (T_{mean}), maximum (T_{max}) and minimum (T_{min}) air temperatures. MAD: mean absolute deviation from the median; PRS: reliability score described in Perkins et al. (2007); BIAS: the bias described in Eq. (4); DPCT10 and DPCT90: difference between forecasted and observed 10th and 90th percentiles, respectively; SIGTEST: 2-sided t -test for significant bias. On the x-axis, the equivalent of 1 MAD in °C is given for each station. Error bars: 95% confidence intervals obtained using the bootstrap percentile method

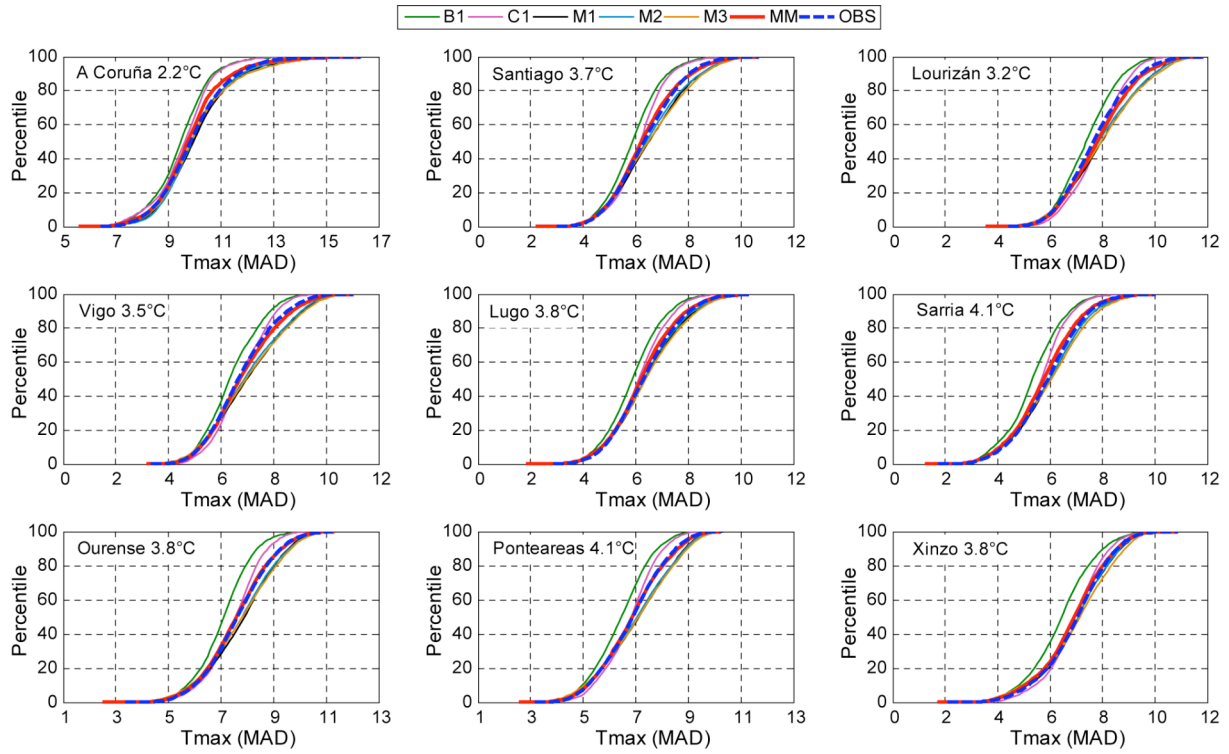


Fig. S4. Validation under suboptimal conditions for daily maximum air temperatures (T_{\max}) in summer (JJA) at all stations, showing observed (OBS) and downscaled (B1, C1, M1, M2 and M3: see Table 3; MM = multi-model) marginal cumulative distribution functions (CDFs)

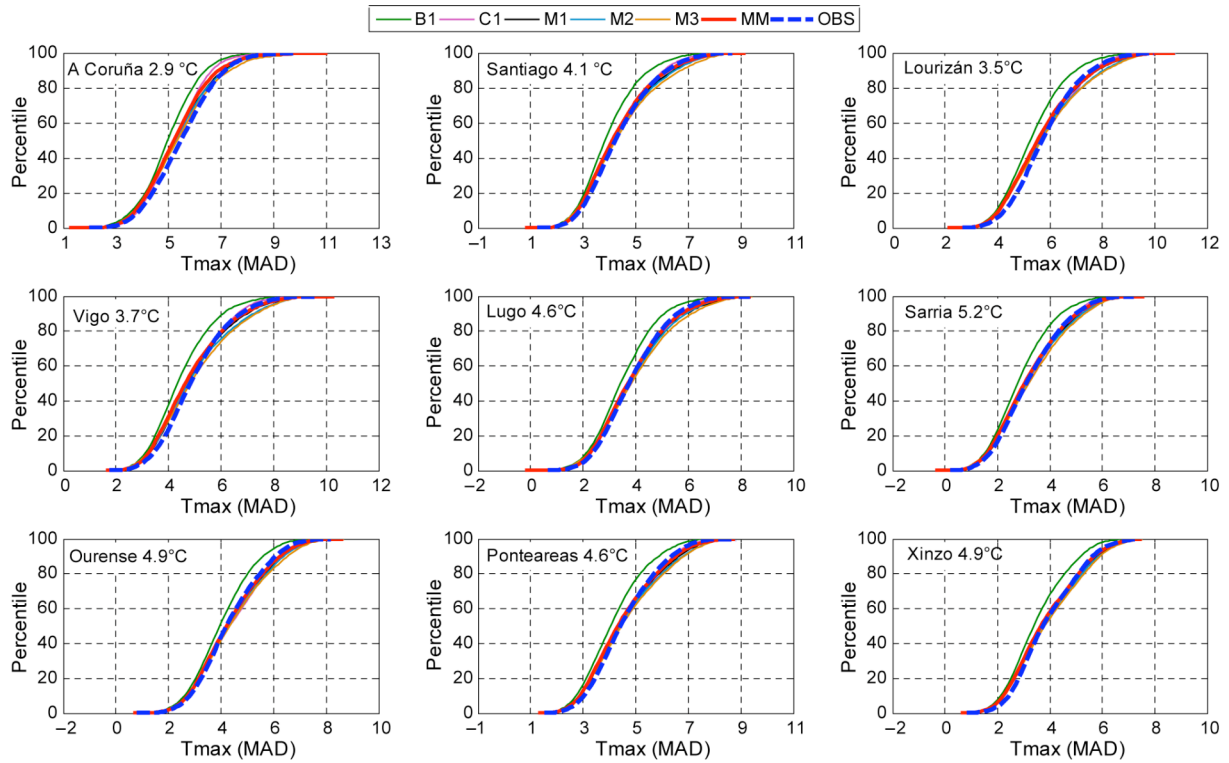


Fig. S5. Validation under suboptimal conditions for daily maximum air temperatures (T_{max}) in autumn (SON) at all stations, showing observed (OBS) and downscaled (B1, C1, M1, M2 and M3: see Table 3; MM = multi-model) marginal cumulative distribution functions (CDFs)