Record dry summer in 2015 challenges precipitation projections in Central Europe

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Supplementary Table 1: List of considered CMIP5 models in this study. We analyzed daily data of precipitation and 2m-temperature from simulations for the historical period (1901-2005), the RCP4.5 scenario (except for models marked with *) and the RCP8.5 scenario. Superscripts MOD_DRY and MOD_ALL indicate which models belong to these groups.

| Employed CMIP5 models		
ACCESS1-0 $^{MOD\_DRY}$	CSIRO-Mk3-6-0	HadGEM2-ES $^{MOD\_DRY}$
ACCESS1-3	EC-EARTH *	inmcm4
bcc-csm1-1-m $^{MOD\_DRY}$	FGOALS-g2	IPSL-CM5A-LR
bcc-csm1-1	FIO-ESM $^{MOD\_DRY}$	IPSL-CM5A-MR $^{MOD\_DRY}$
BNU-ESM	GFDL-CM3	IPSL-CM5B-LR $^{MOD\_ALL}$
CanESM2 $^{MOD\_DRY}$	GFDL-ESM2G	MIROC5 $^{MOD\_DRY}$
CCSM4	GFDL-ESM2M	MIROC-ESM-CHEM $^{MOD\_ALL}$
CESM1-BGC	GISS-E2-H-CC	MIROC-ESM $^{MOD\_ALL}$
CESM1-CAM5 $^{MOD\_ALL}$	GISS-E2-H	MPI-ESM-LR $^{MOD\_ALL}$
CMCC-CESM *	GISS-E2-R-CC $^{MOD\_DRY}$	MPI-ESM-MR
CMCC-CM $^{MOD\_DRY}$	GISS-E2-R	MRI-CGCM3 $^{MOD\_ALL}$
CMCC-CMS $^{MOD\_ALL}$	HadGEM2-AO	MRI-ESM1 $^{MOD\_ALL}$ *
CNRM-CM5 $^{MOD\_DRY,\ MOD\_ALL}$	HadGEM2-CC	NorESM1-ME $^{MOD\_ALL}$
		NorESM1-M
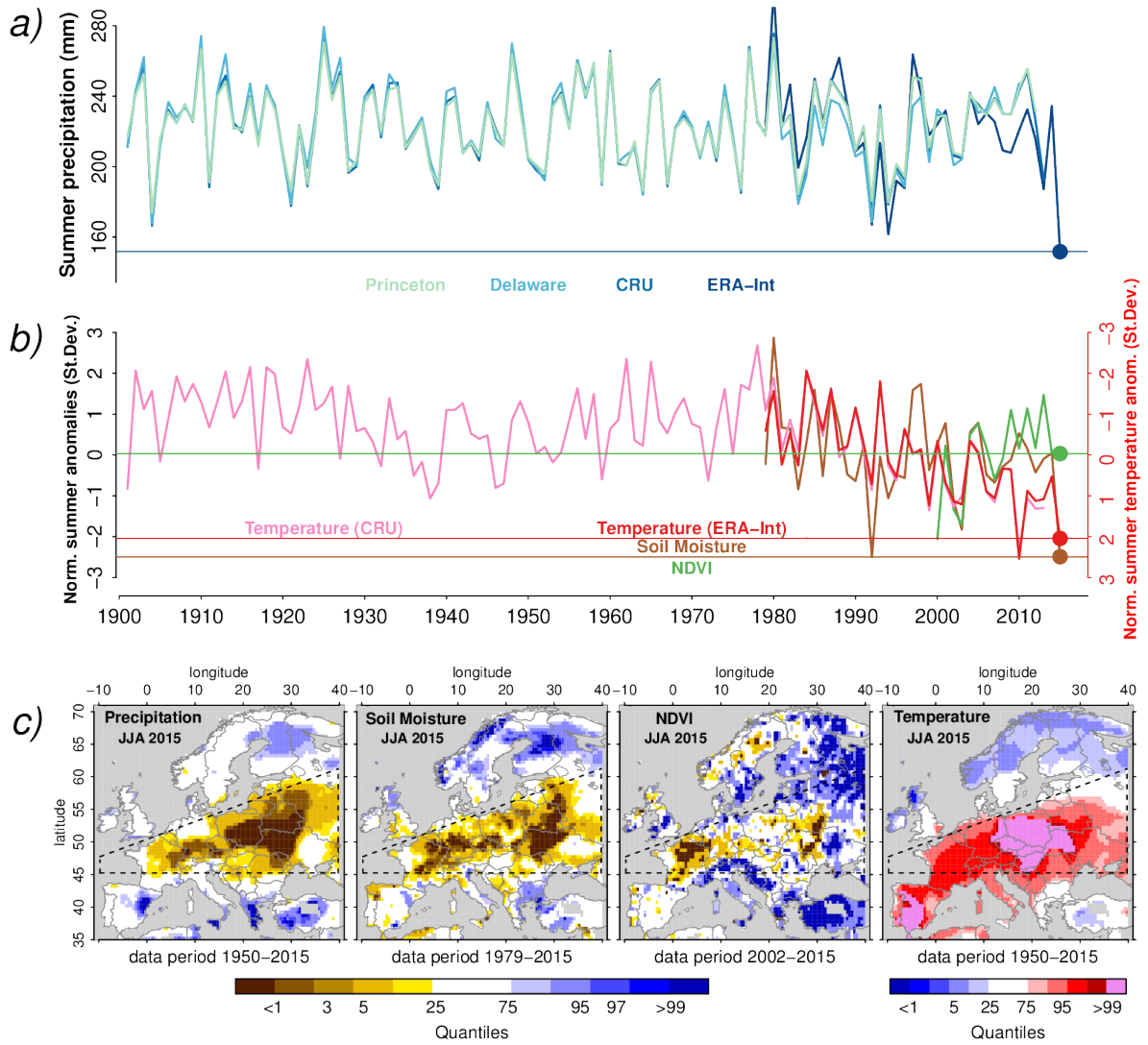
Supplementary Figure 1: Description of the 2015 summer drought with alternative data. Same as in Figure 1 but with ERA-Interim temperature and precipitation data. The soil moisture product is based on E-OBS temperature and precipitation, and on ERA-Interim radiation data. Figure created with R version 3.1.2 (www.R-project.org).
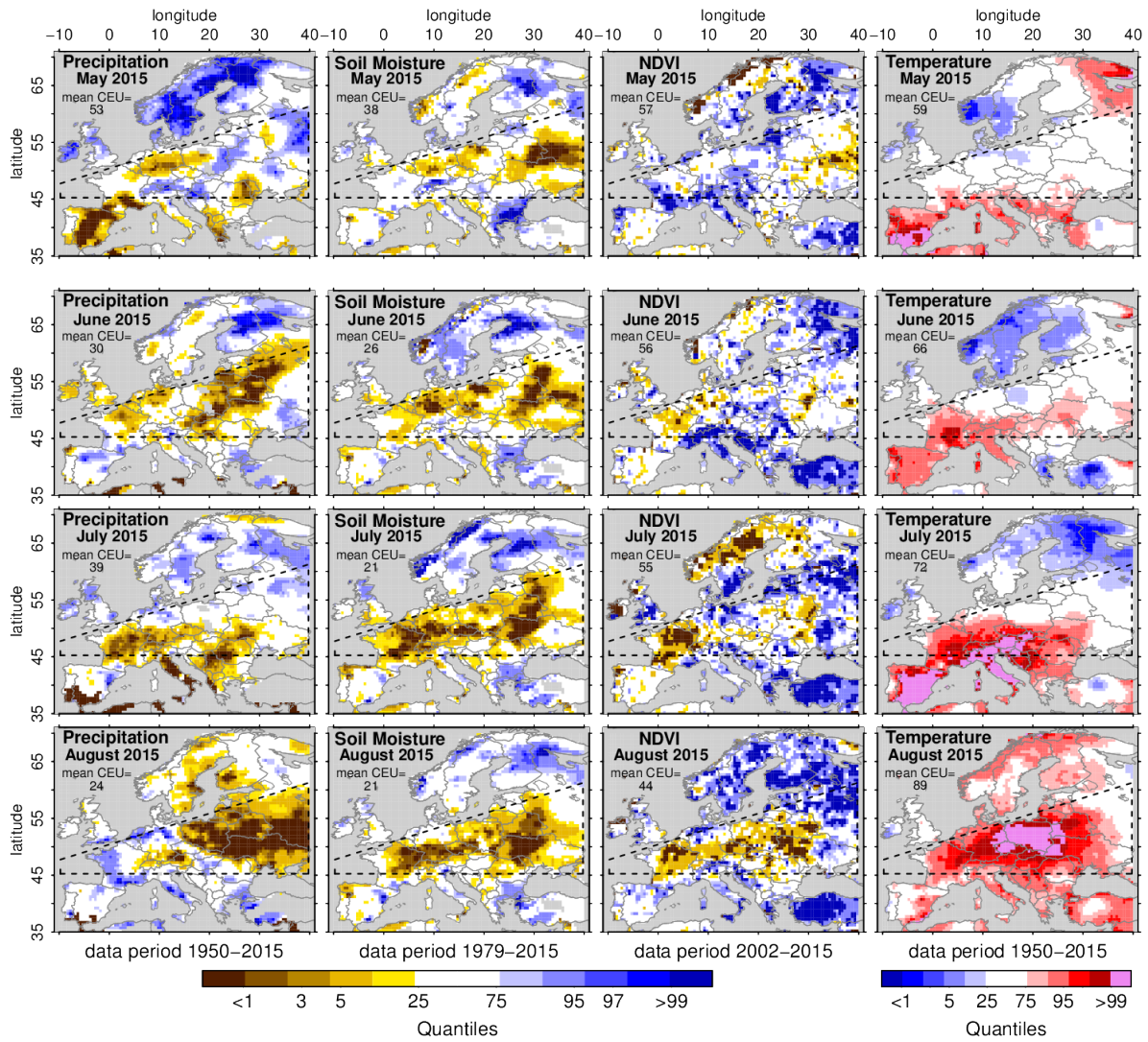
Supplementary Figure 2: Evolution of the 2015 summer drought. Evolution of anomalies of precipitation (E-OBS), soil moisture, NDVI and temperature (E-OBS) during May-August 2015. Figure created with R version 3.1.2 (www.R-project.org).
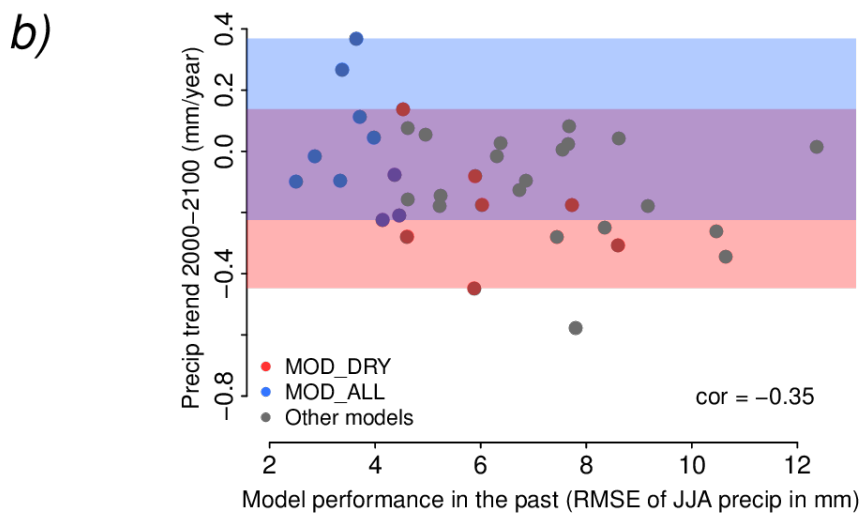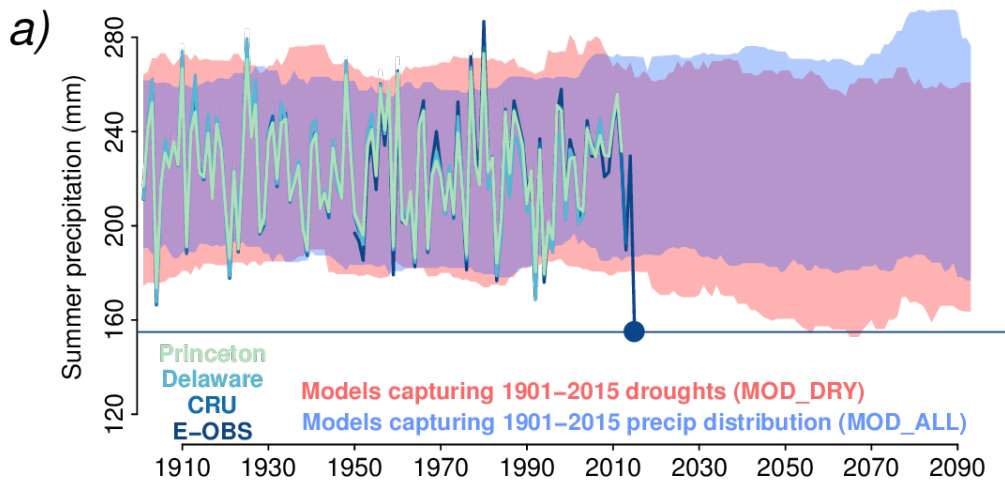
Supplementary Figure 3: Models that best capture droughts versus models performing best otherwise. Same as in Figure 2 but for the RCP4.5 emission scenario.
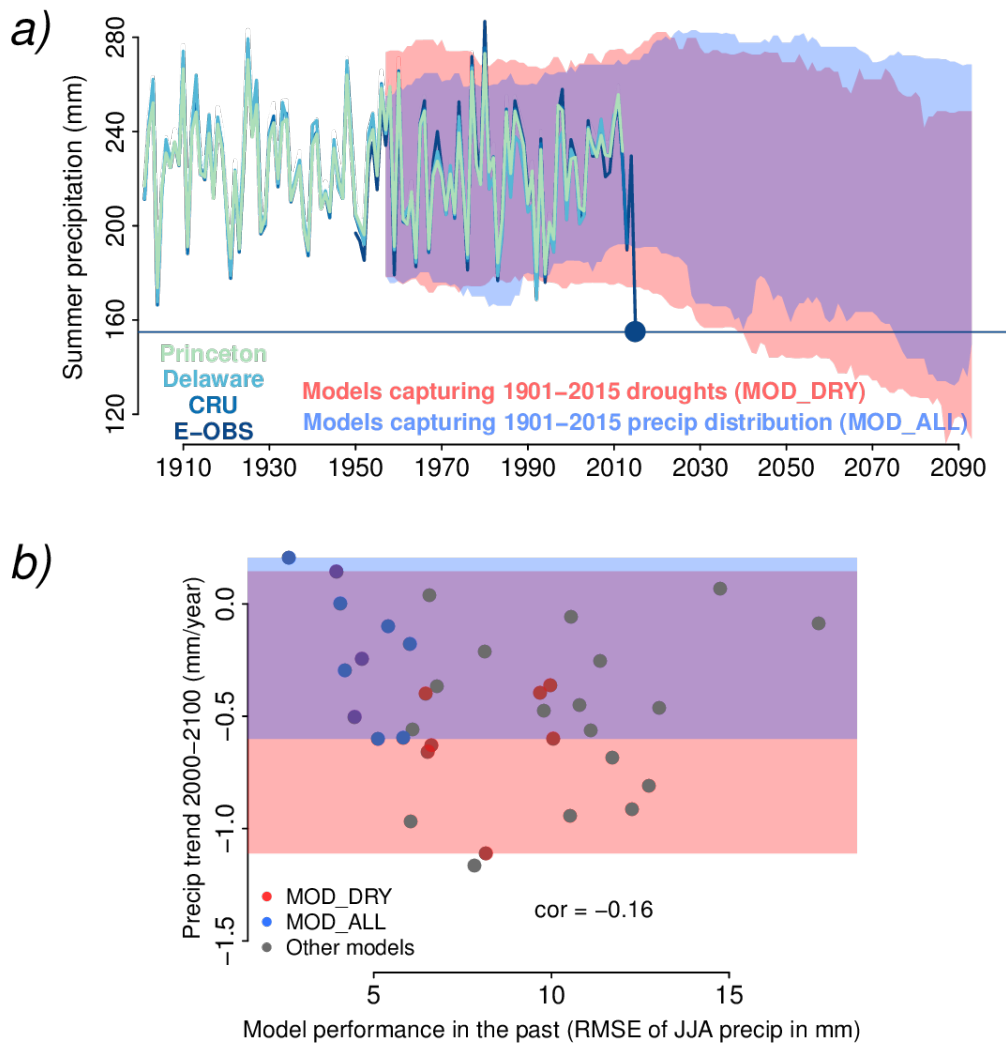
Supplementary Figure 4: Models that best capture droughts versus models performing best otherwise. Same as in Figure 2 but for model data bias-adjusted with the BCSD methodology.
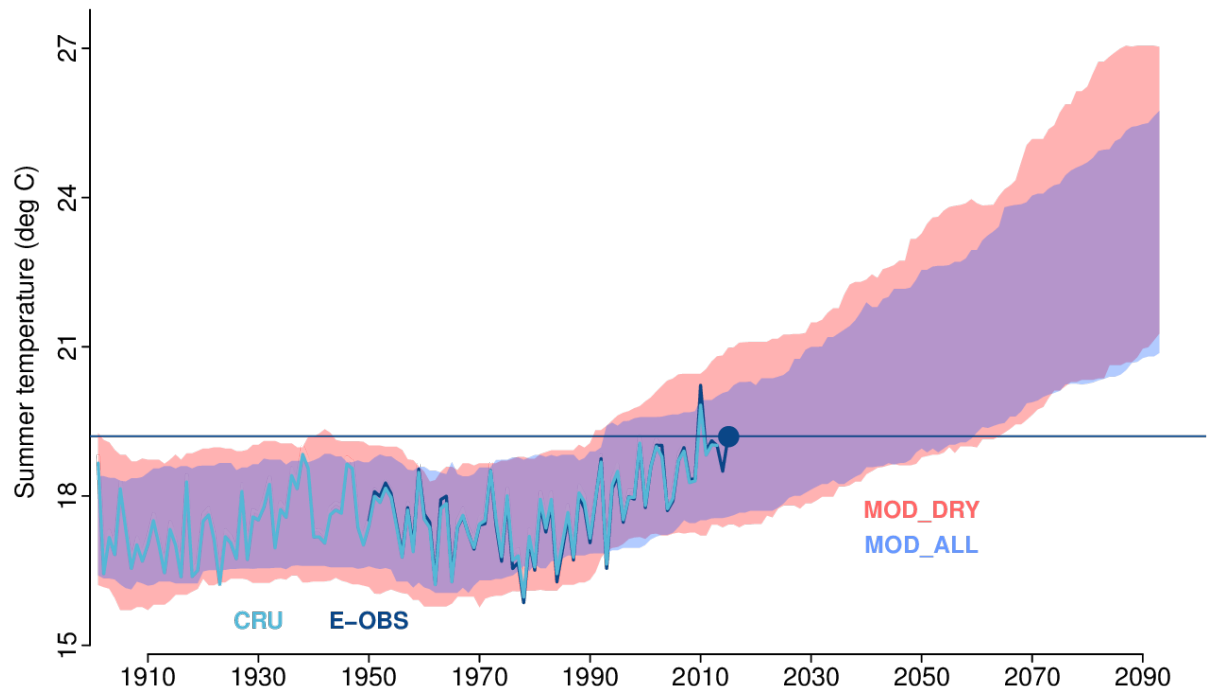
Supplementary Figure 5: Temperature projections, MOD_DRY models vs. MOD_ALL models.
Same as in Figure 2a but for mean summer temperature. Results based on the RCP8.5 scenario.
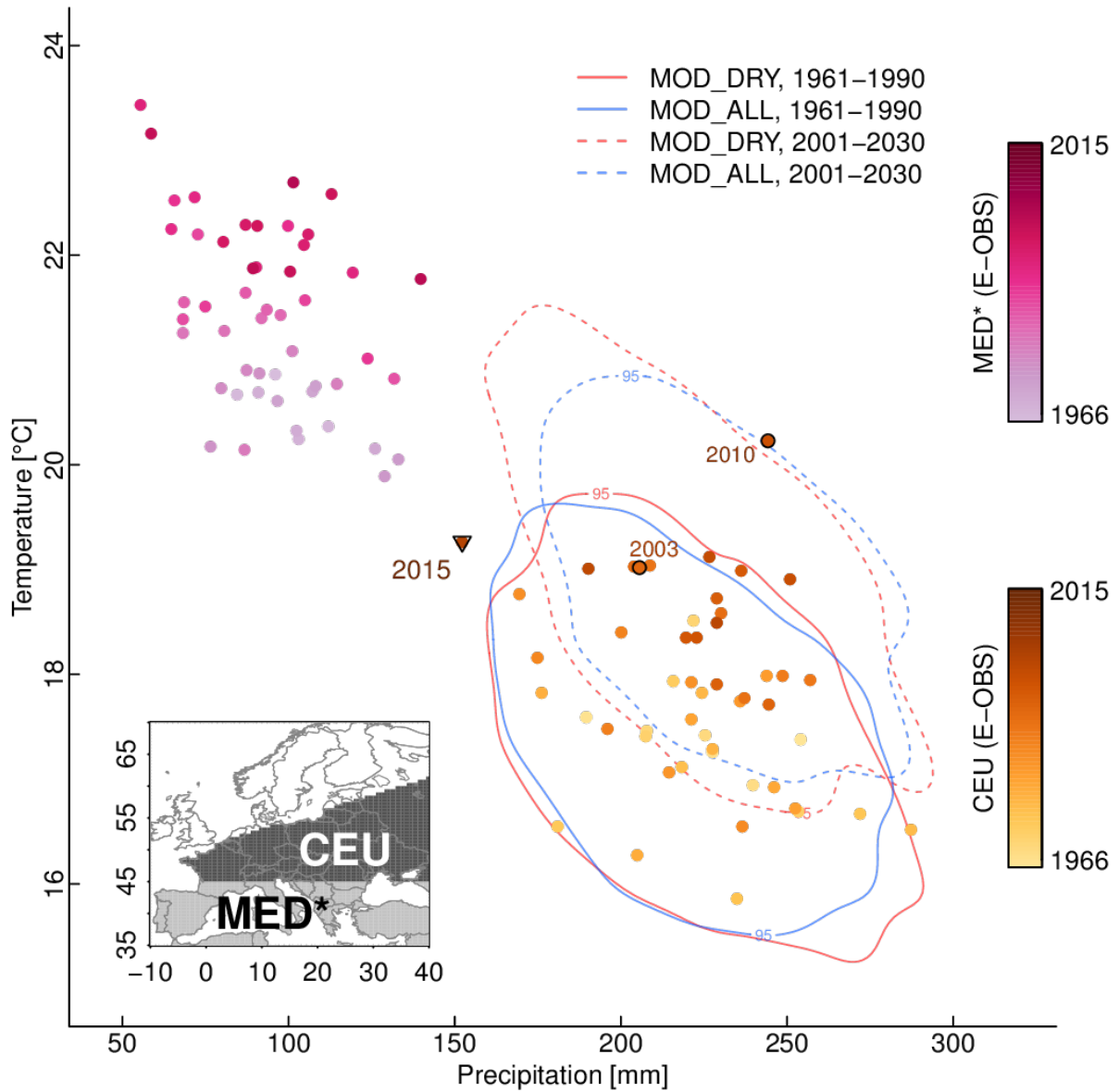
Supplementary Figure 6: 2015 summer climate conditions halfway between CEU and MED* climate. Same as in Figure 4 but for the RCP4.5 emission scenario. Figure created with R version 3.1.2 (www.R-project.org).