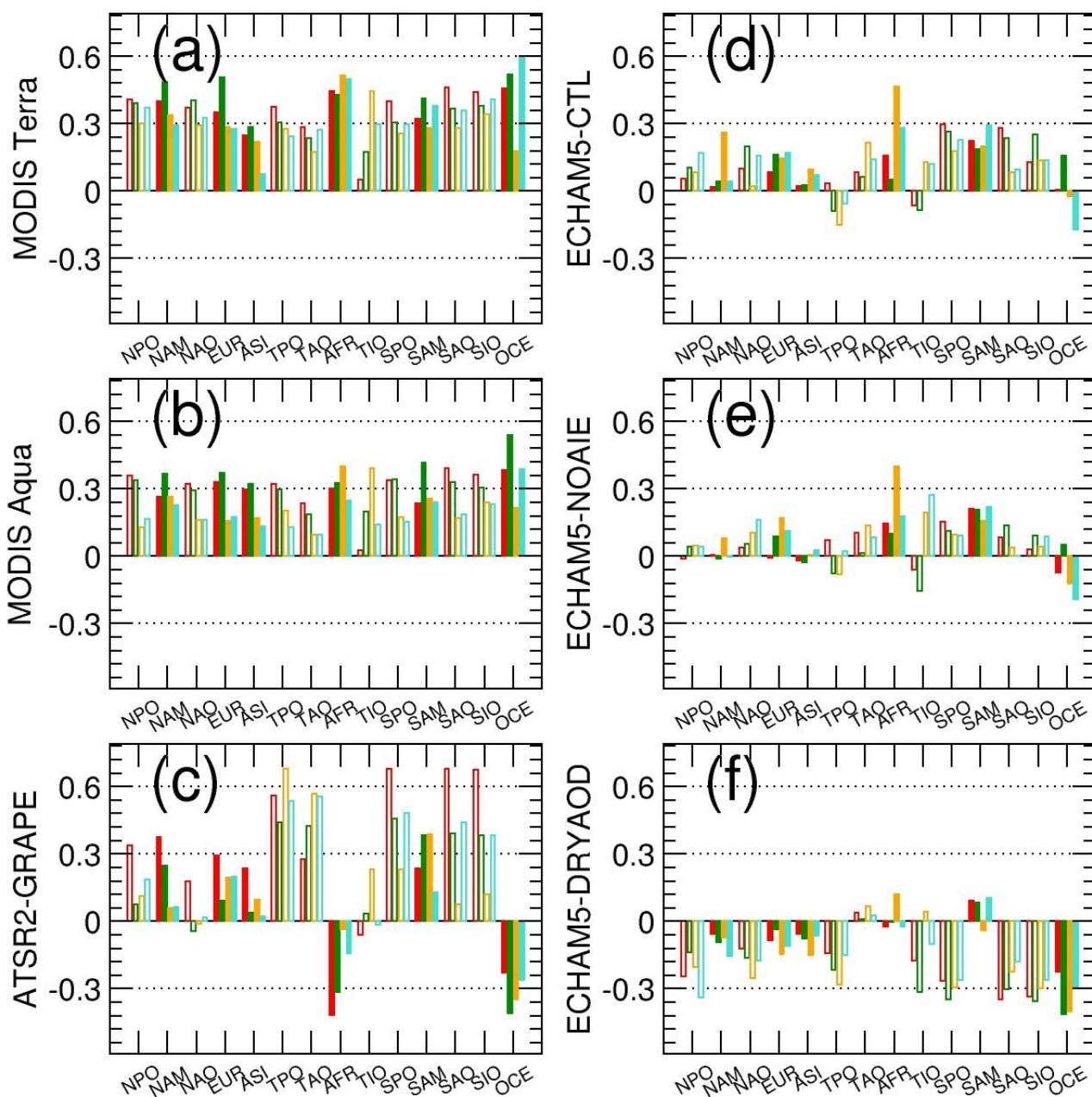


Supplementary Fig. 1. Geographical definition of the fourteen regions. NPO – North Pacific Ocean, NAM – North America, NAO – North Atlantic Ocean, EUR – Europe, ASI – Asia, TPO – Tropical Pacific Ocean, TAO – Tropical Atlantic Ocean, AFR – Africa, TIO – Tropical Indian Ocean, SPO – South Pacific Ocean, SAM – South America, SAO – South Atlantic Ocean, SIO – South Indian Ocean, OCE – Oceania.



10 **Supplementary Fig. 2.** Slopes of the relationship \ln TCC vs. \ln AOD, for (a) MODIS Terra, (b)
 15 MODIS Aqua, (c) ATSR2-GRAPE, (d) ECHAM5 control simulation, (e) ECHAM5 simulation without
 aerosol indirect effects, and (f) as (e), but using dry rather than humidified AOD. The slopes for the
 individual regions are shown (abbreviations as in Supplementary Fig. 1), with oceanic regions in
 open, land regions in filled bars. Colours show the different seasons: Red – December-January-
 February, Green – March-April-May, Yellow – June-July-August, Turquoise – September-October-
 November.