



**Earth Systems and
Climate Change
Hub**

National Environmental Science Programme



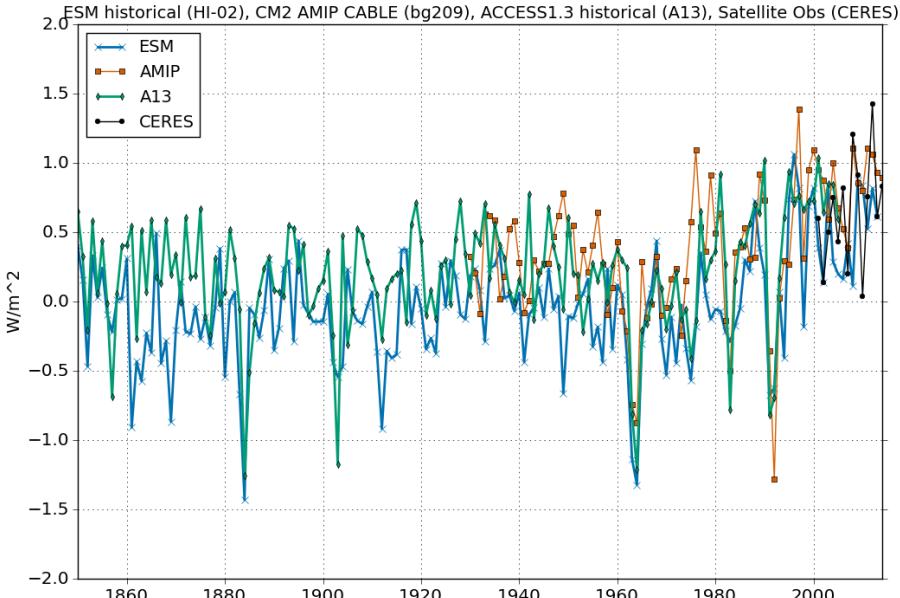
ACCESS-ESM1.5 – ESM Historical simulation

24 May 2019

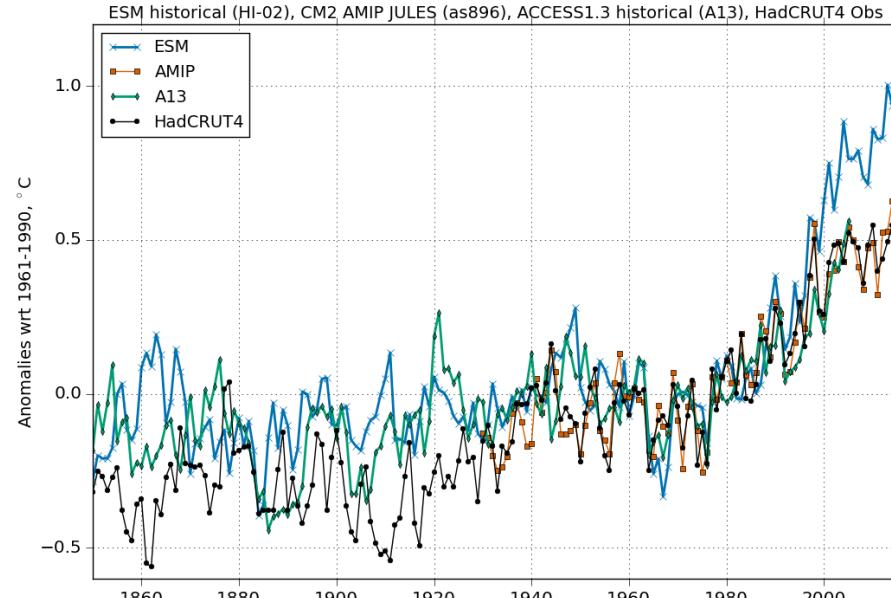
Roger Bodman | University of Melbourne & CSIRO

ESM historical – TOA radiation and surface air temperature (SAT)

TOA Net Downward Radiation

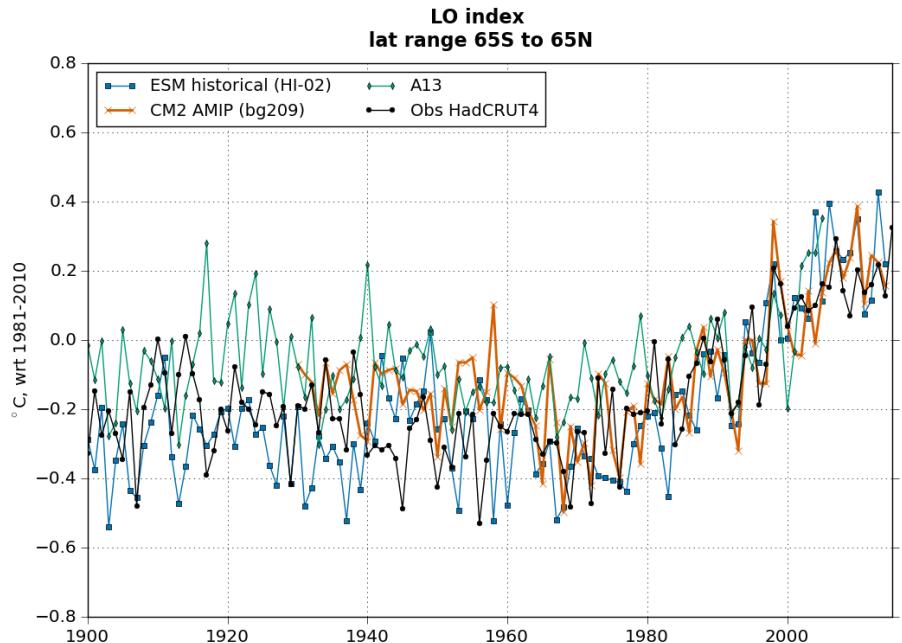


Global annual-mean surface air temperature

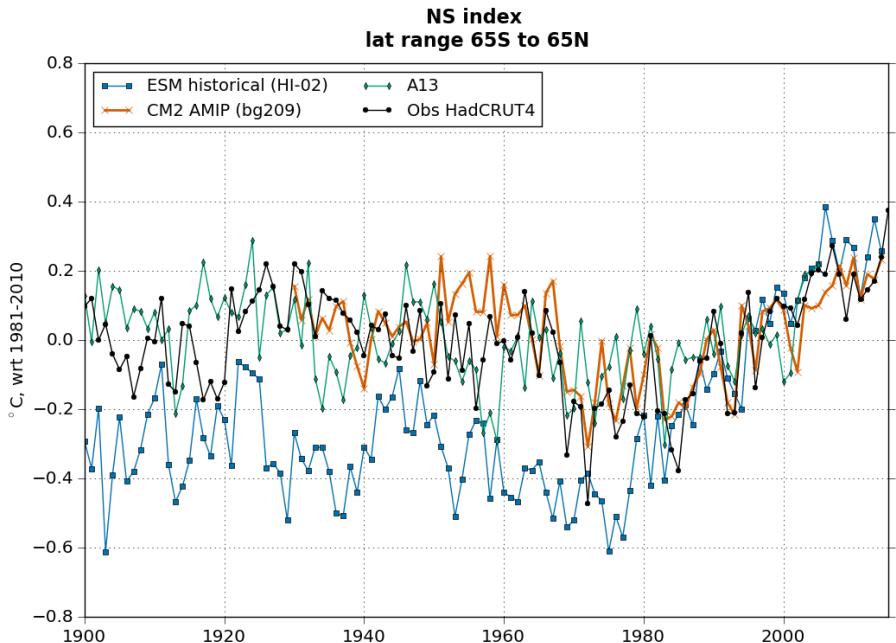


ESM coupled model with CMIP6 forcings, CABLE land surface model for both ESM and AMIP

Karoly-Braganza Indices

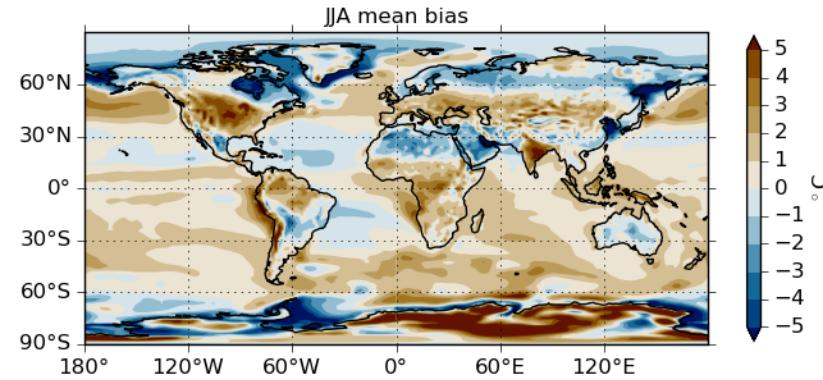
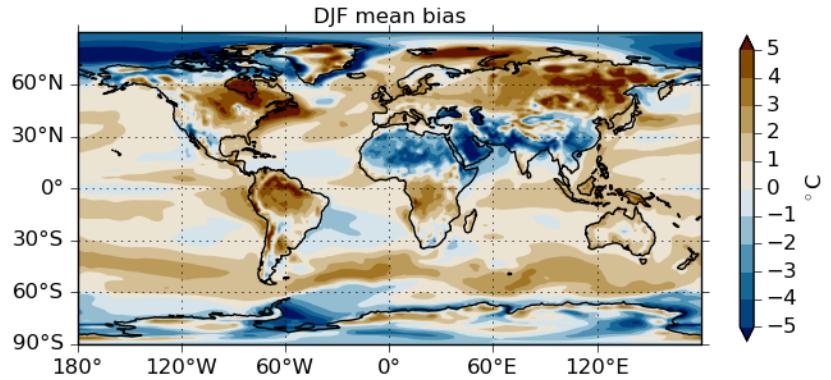
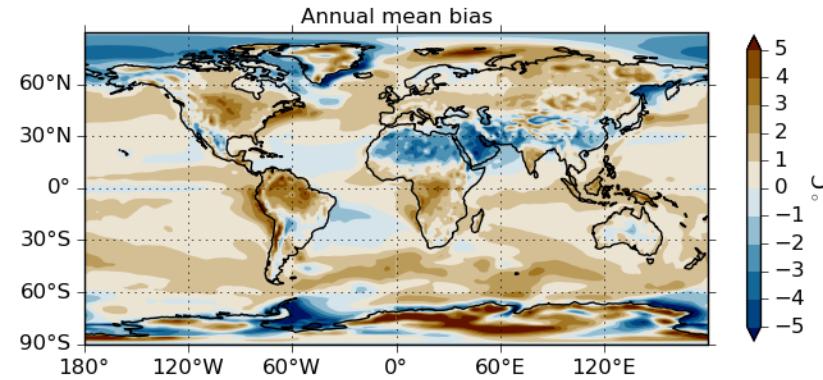
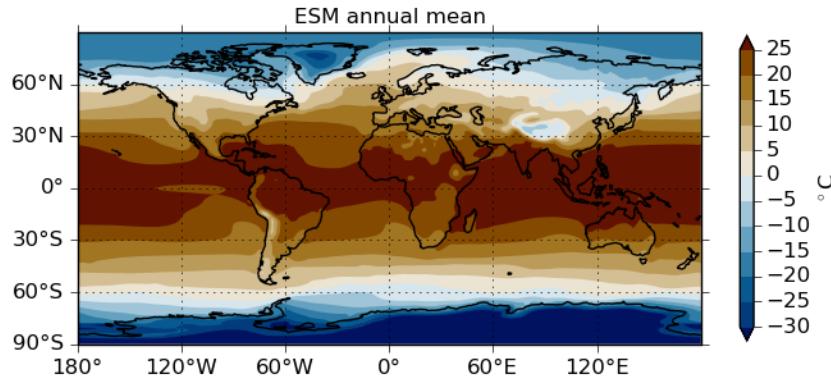


Land – Ocean



Northern – Southern Hemisphere

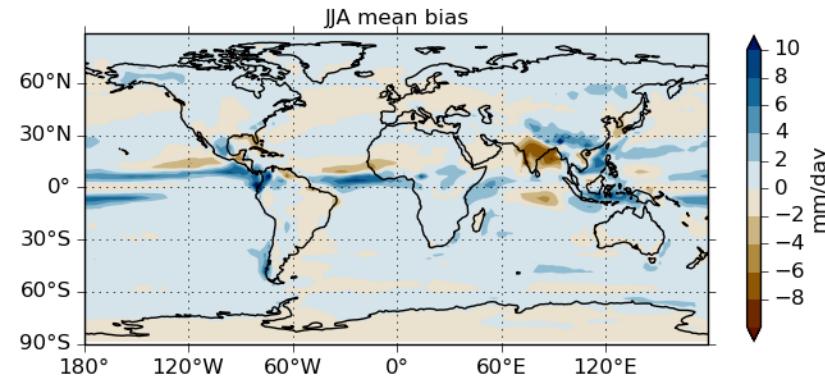
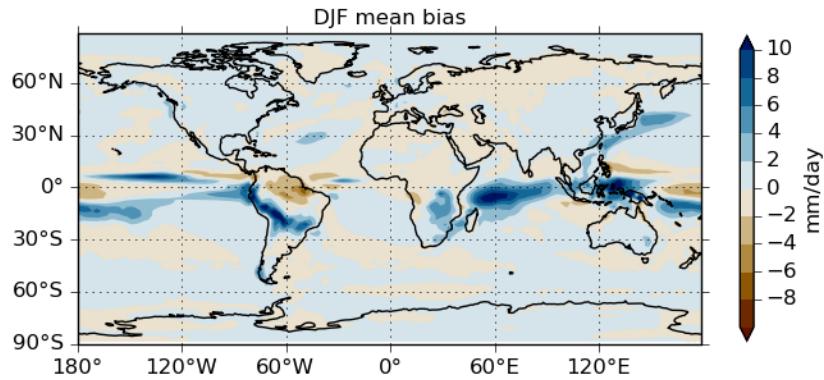
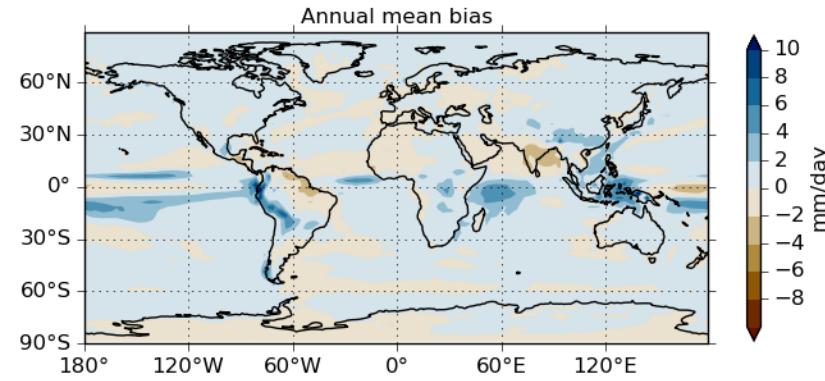
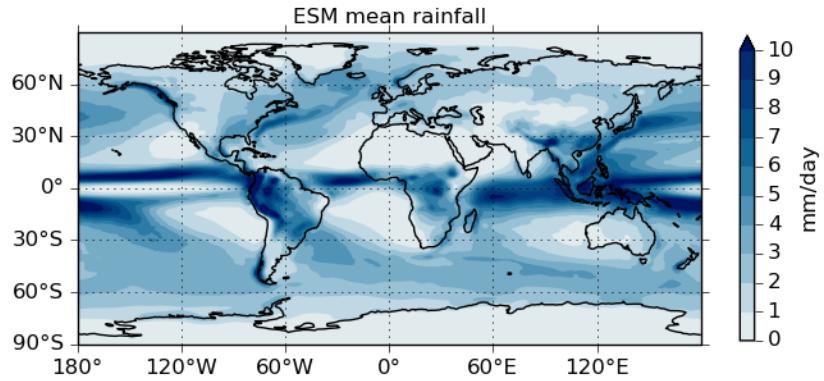
Global-mean temperature seasonal bias, ESM historical – ERAI, 1979-2014



Annual RMSE = 1.85
DJF RMSE = 2.27
JJA RMSE = 2.20

Annual AWRMSE = 1.62
DJF AWRMSE = 2.00
JJA AWRMSE = 1.87

Global-mean rainfall seasonal bias, ESM historical – GPCP, 1979-2014



Annual RMSE = 1.11
DJF RMSE = 1.57
JJA RMSE = 1.47

Annual AWRMSE = 1.33
DJF AWRMSE = 1.91
JJA AWRMSE = 1.74

Temp and Precip: global scale biases

AWRMSE bias: AMIP				Coupled	
	A1.3	CABLE	JULES ensemble*	A1.3	ESM historical
Temperature (model – ERAI)					
annual	1.21	1.04	1.06	1.68	1.62
djf	1.50	1.29	1.44	2.01	2.00
jja	1.44	1.34	1.33	1.91	1.87
Precipitation (model – GPCP)					
annual	1.26	1.34	1.23	1.43	1.33
djf	1.57	1.53	1.34	2.00	1.91
jja	2.02	1.88	1.72	1.88	1.74

* 3 realisations



End