

**Fig. 4 a-f** Annual cycle climatology for rainfall rate averaged between 70°E-90°E from **a** GPCP, **b** CMAP, **c** MIROC5, **d** csiro-mk3.5, **e** CMIP5 MMM, and **f** CMIP3 MMM. Also given in **b-f** is the pattern correlation of the model with GPCP over the region 10°S-30°N, for May-September (the dashed region in **a**). The units are (mm day<sup>-1</sup>). **g** Models stratified by their pattern correlation with GPCP. GPCP and CMAP data are from 1979-2007 and the model data is from 1961-1999



































































































