



**Fig. 9 a** The ENSO-monsoon relationship skill is given by the lag 0 correlation between interannual JJAS anomalies of AIR and NINO3.4 SST. The AIR is for land-only gridpoints over 65°E-95°E, 7°N-30°N. The results are given for the Rajeevan rainfall data vs. HadISST SST (1961-1999; black), GPCP rainfall vs. SST used in the NCEP-NCAR Reanalysis (1979-2007; violet), CMIP5 models (1961-1999; red), and the CMIP3 models (1961-1999; green). The thick black dashed line is the 5% significance level assuming each year is independent for 37 degrees of freedom. **b** The AIR-NINO3.4 SST correlations in **a** are plotted vs. the pattern correlations of the interannual JJAS precipitation anomalies (mm day<sup>-1</sup>) based on linear regression with JJAS NINO3.4 SST anomalies (see Fig. 10). The pattern correlations are calculated with respect to GPCP over the region 60°E-100°E, 0°-30°N