Supplementary Material for:

Aerosols-precipitation elevation dependence over the Central Himalayas using cloud-resolving WRF-Chem numerical modeling

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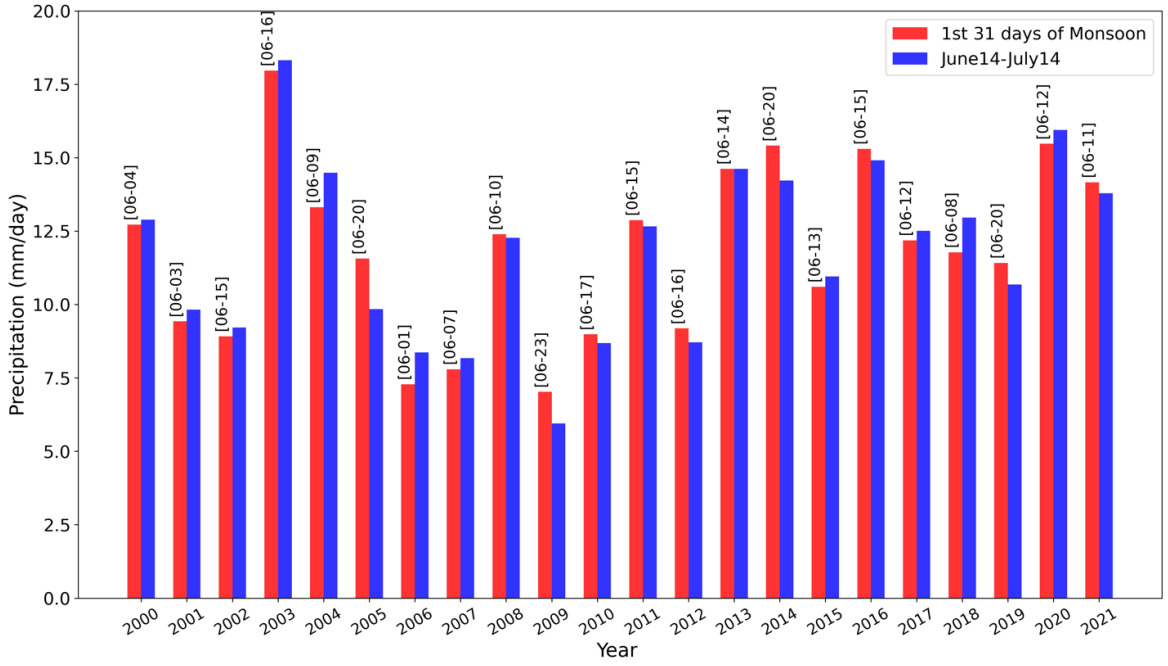

Figure S1: The 22 years of mean monsoonal precipitation for the first month (31 days after the monsoon onset) using IMERG data over the CenHim. In 2013 the monsoon onset occurred on June 14th in eastern Nepal, according to DHM. June 14th to July 14th is our simulation period, which includes the first 31 days after monsoonal onset for 2013 (or the first month of monsoon). The dates shown in the bracket at the top of the bar indicate the monsoon onset date over Nepal for that respective year.

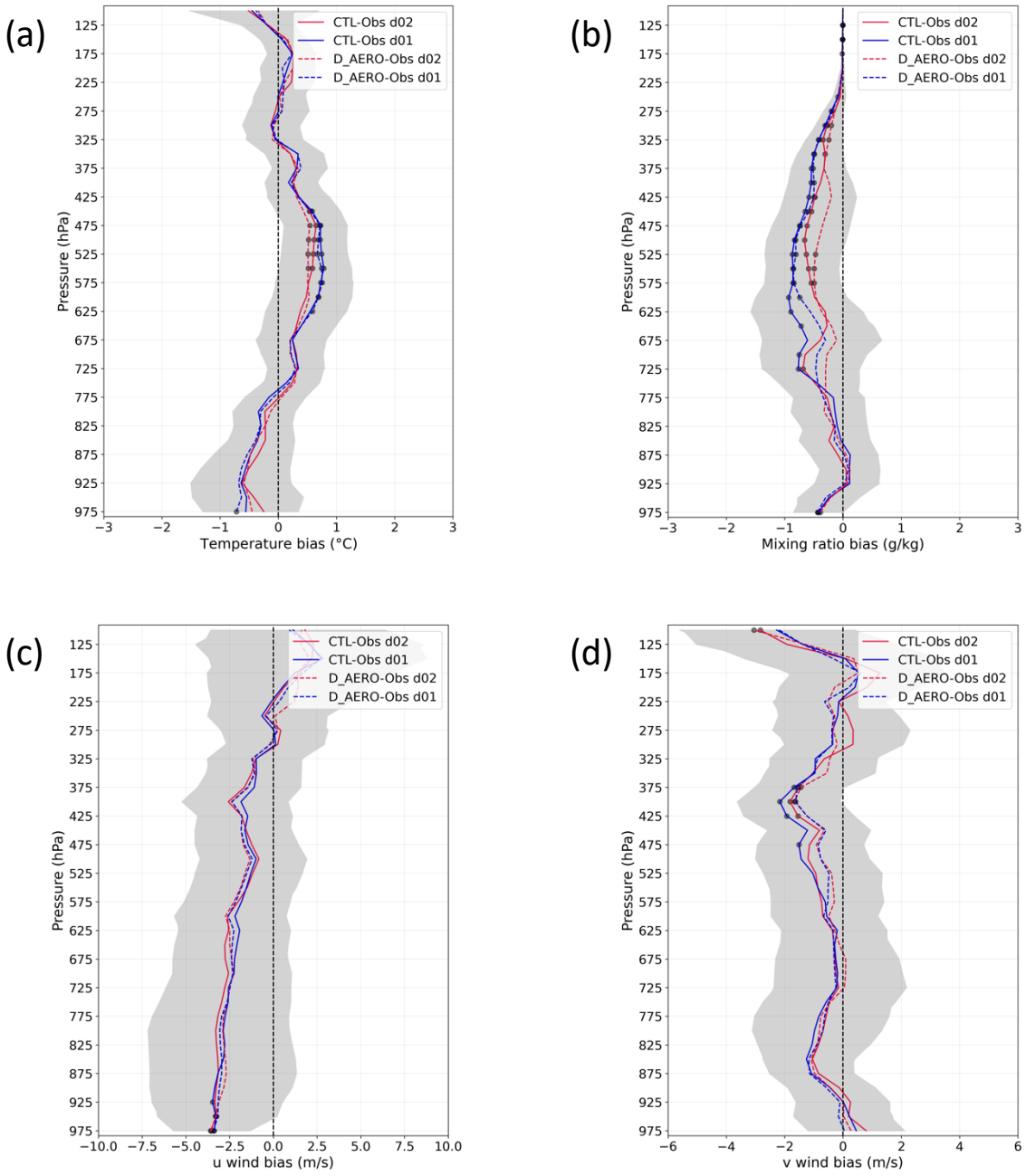

Figure S2: The mean (June 17 – July 14, except July 5th and 9th) **(a)** temperature, **(b)** mixing ratio, **(c)** zonal, and **(d)** meridional wind bias (simulated – observation) profiles from the simulated (CTL and D_AERO) output sampled at the nearest grid cell location from the upper air sounding observation location at Patna location. Shaded regions represent the 95% confidence interval of the difference between the model and observation. The dot indicates that the differences between the observation and model are only significantly different at those levels.

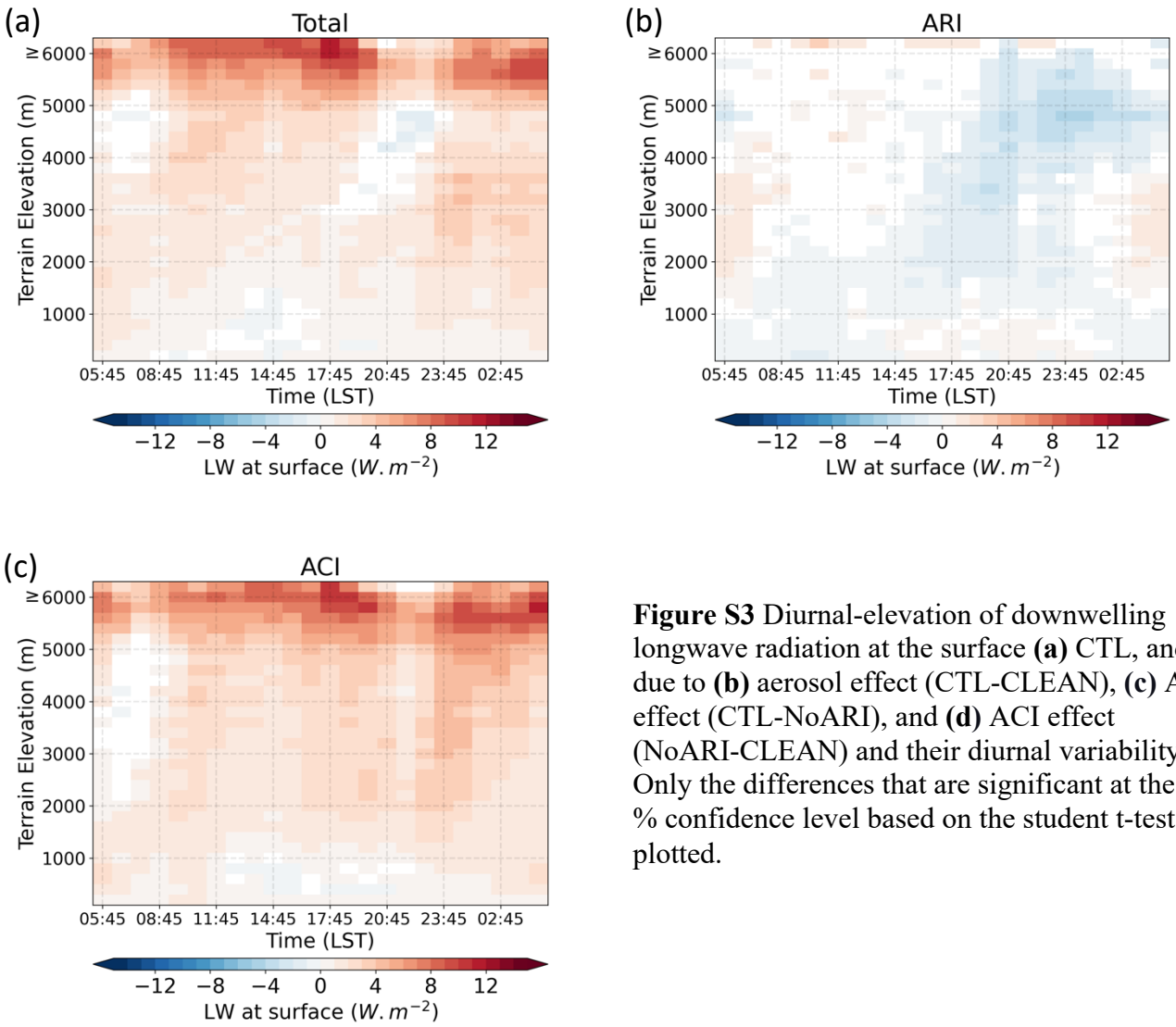

Figure S3 Diurnal-elevation of downwelling longwave radiation at the surface **(a)** CTL, and due to **(b)** aerosol effect (CTL-CLEAN), **(c)** ARI effect (CTL-NoARI), and **(d)** ACI effect (NoARI-CLEAN) and their diurnal variability. Only the differences that are significant at the 90 % confidence level based on the student t-test are plotted.