Supplementary Materials

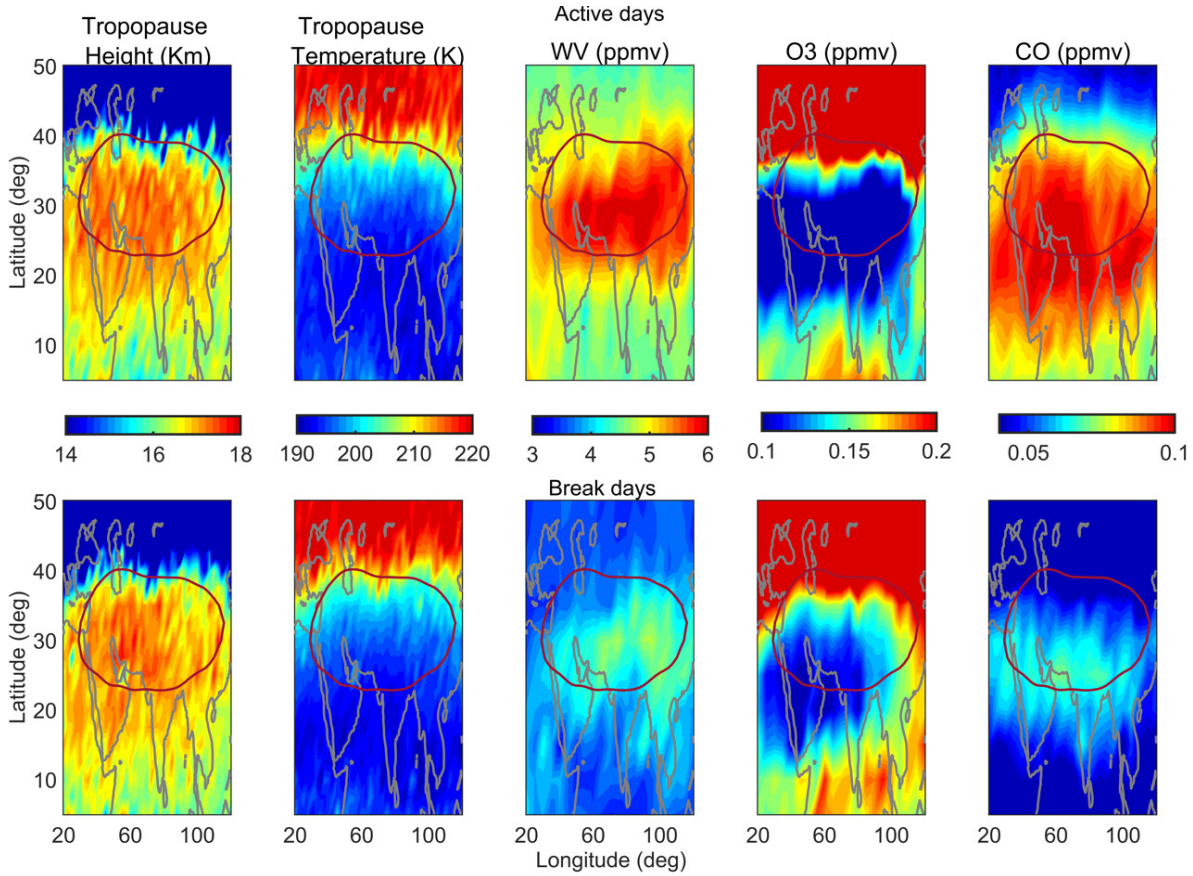


Figure S1. Composite mean spatial variability Tropopause height, Temperature, WV, O_3, CO during Active (top panel) and Break days (bottom panel) of Indian monsoon. Brown line denotes the GPH at 16.75 km which represents the core of the anticyclone.

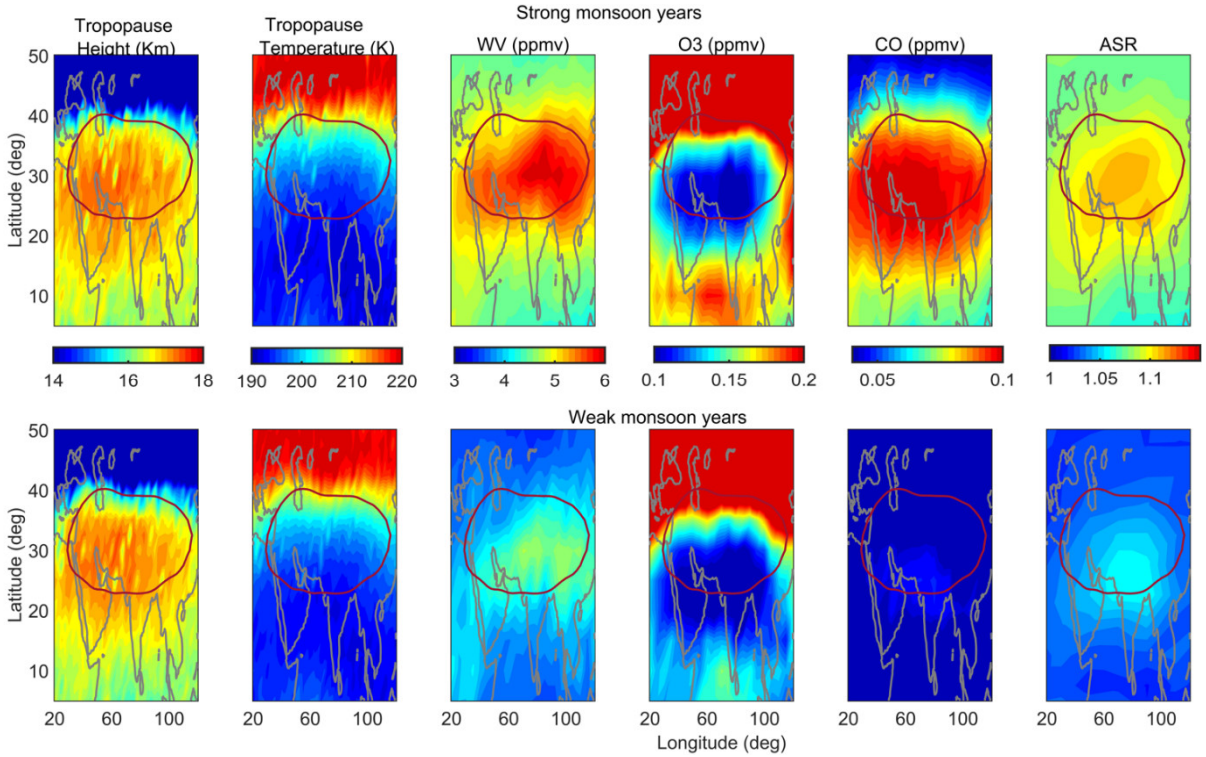


Figure S2. Composite mean spatial variability Tropopause height, Temperature, WV, O_3, CO and ASR during strong monsoon (top panel) and weak monsoon years (bottom panel) of Indian monsoon. Brown line denotes the GPH at 16.75 km which represents the core of the anticyclone.

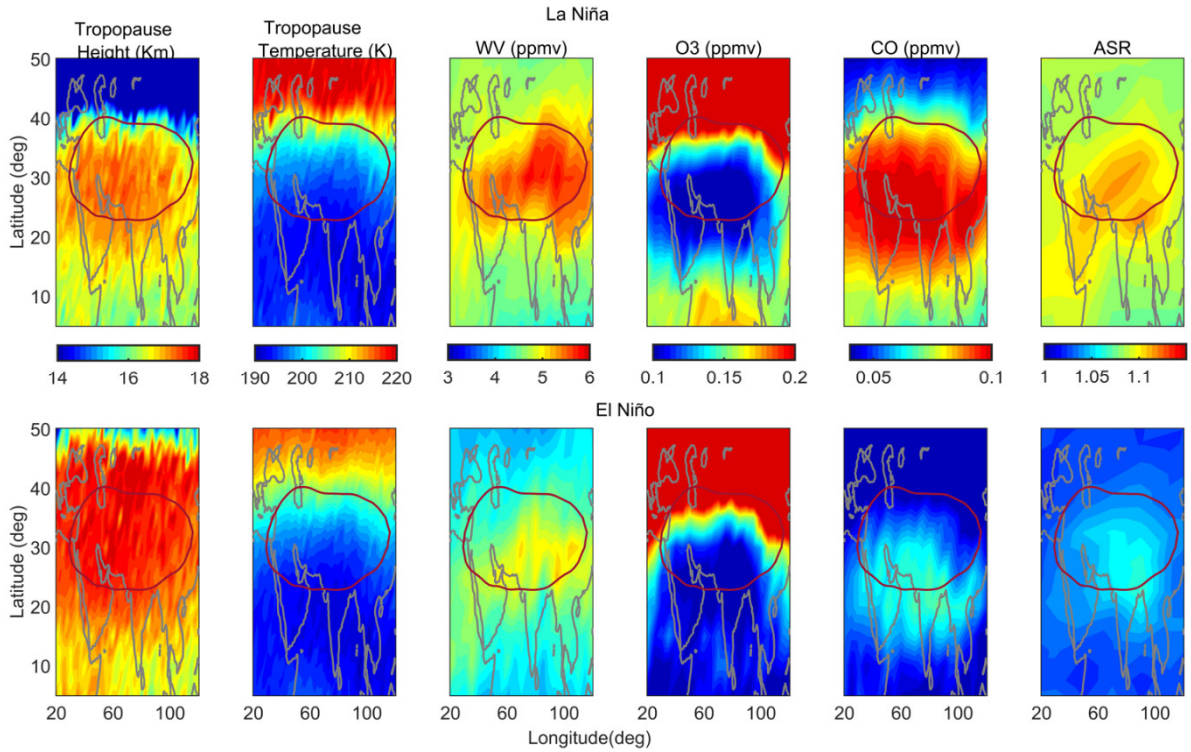


Figure S3. Composite mean spatial variability Tropopause height, Temperature, WV, O_3, CO and ASR during La Niña (top panel) and El Niño (bottom panel) of Indian monsoon. Brown line denotes the GPH at 16.75 km which represents the core of the anticyclone.

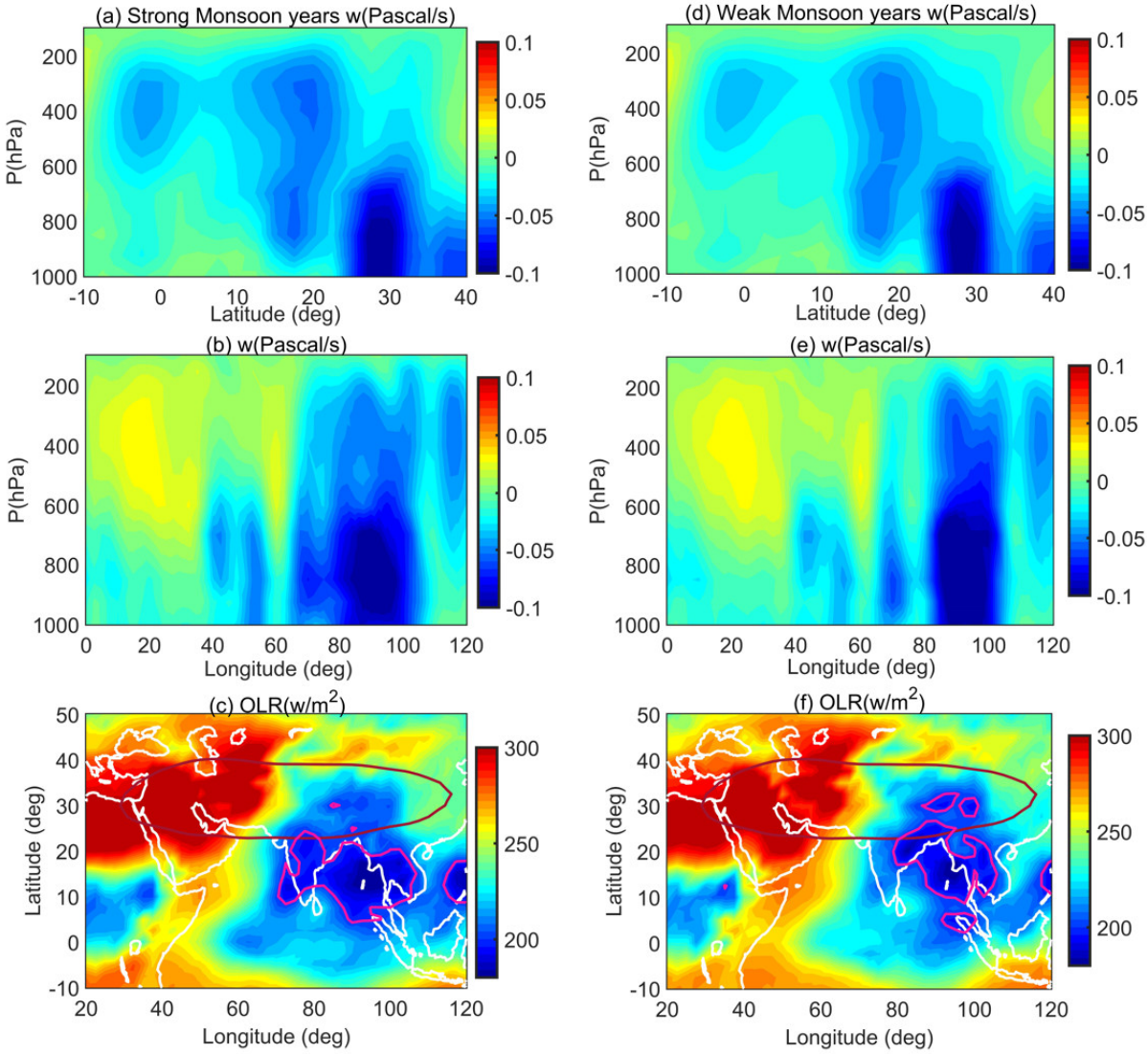


Figure S4. Variability of vertical wind and OLR during strong and weak monsoon years. (**a**) and (**d**) Latitude-pressure cross-section of vertical wind averaged in the longitude band of 60°–120°E. (**b**) and (**e**) Longitude-pressure cross-section of vertical wind averaged in the latitude band of 15°–35°N. (**c**) and (**f**) OLR variability during strong and weak monsoon years. Brown line denotes the GPH at 16.75 km which represents the core of the anticyclone. Magenta line indices the OLR values less than 200 W/m^2.

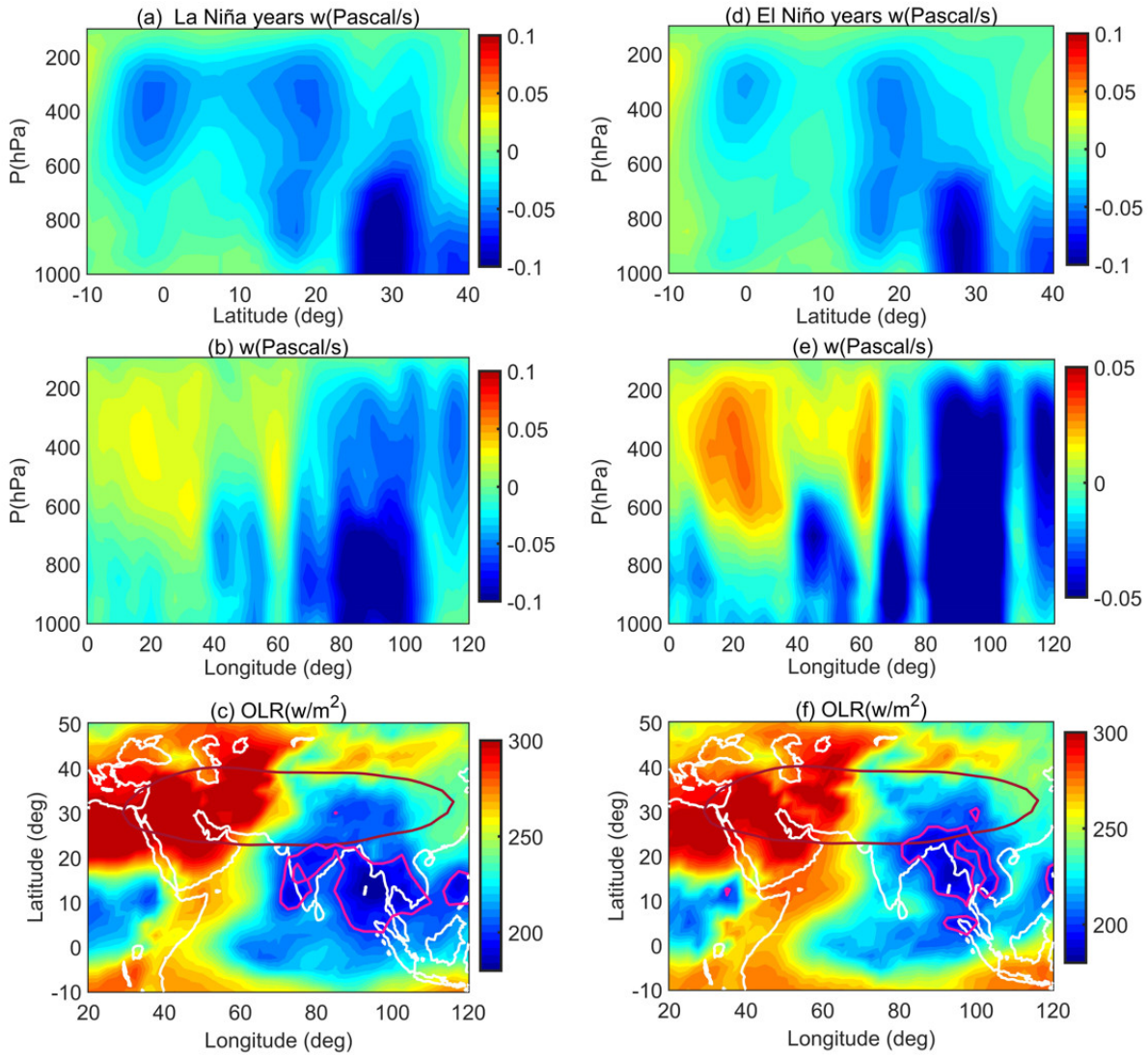


Figure S5. Variability of vertical wind and OLR during La Niña and El Niño years. (**a**) and (**d**) Latitude-pressure cross-section of vertical wind averaged in the longitude band of 60°–120°E. (**b**) and (**e**) Longitude-pressure cross-section of vertical wind averaged in the latitude band of 15°–35°N. (**c**) and (**f**) OLR variability during strong La Niña and El Niño years. Brown line denotes the GPH at 16.75 km which represents the core of the anticyclone. Magenta line indices the OLR values less than 200 W/m^2.