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Impacts of atmospheric circulation patterns and cloud inhibition on aerosol radiative effect and boundary layer structure during winter air pollution in Sichuan Basin, China

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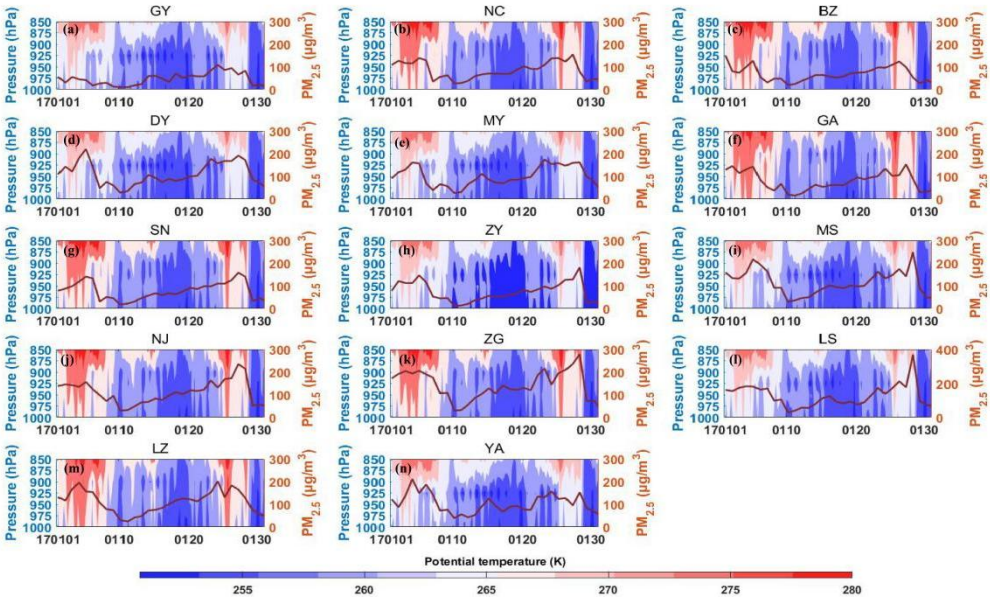

Figure S1. Time series of daily mean $PM_{2.5}$ and potential temperature derived from the ERA5 data of January 2017 for other fourteen cities in SCB

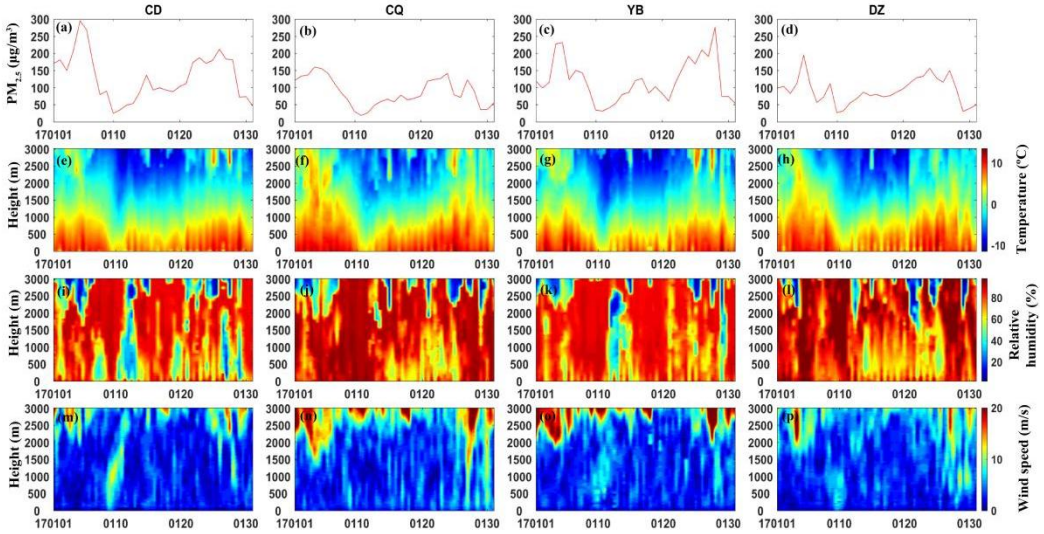

Figure S2. Time series of (a)-(d) daily mean $PM_{2.5}$ concentrations, and corresponding vertical meteorological data from the sounding data, including (e)-(h) vertical temperature, (i)-(l) vertical humidity and (m)-(p) vertical wind speed, taking January 2017 as an example to illustration.

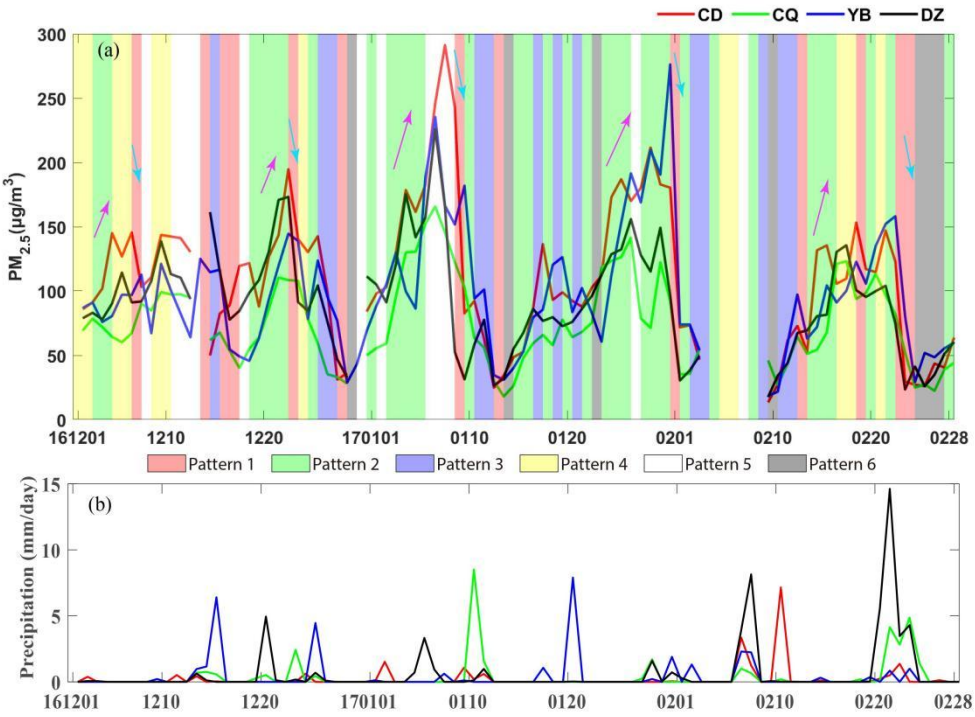

Figure S3. (a) Time series of daily mean $PM_{2.5}$ concentrations and the day to day 850 hPa synoptic patterns and (b) daily accumulated precipitation at four representative SCB cities, taking December 2016 to February 2017 as an example for illustration.

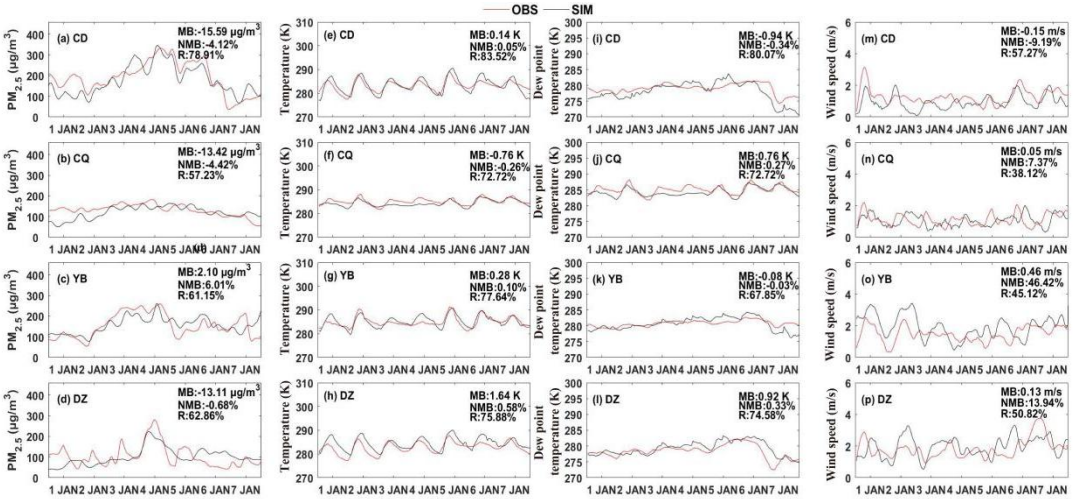

Figure S4. Time series of hourly simulated and observed (a)-(d) $PM_{2.5}$ concentration, (e)-(h) temperature at 2 m, (i)-(l) dew temperature at 2m and (m)-(p) wind speed at four representative SCB cities during 1-7 January 2017.

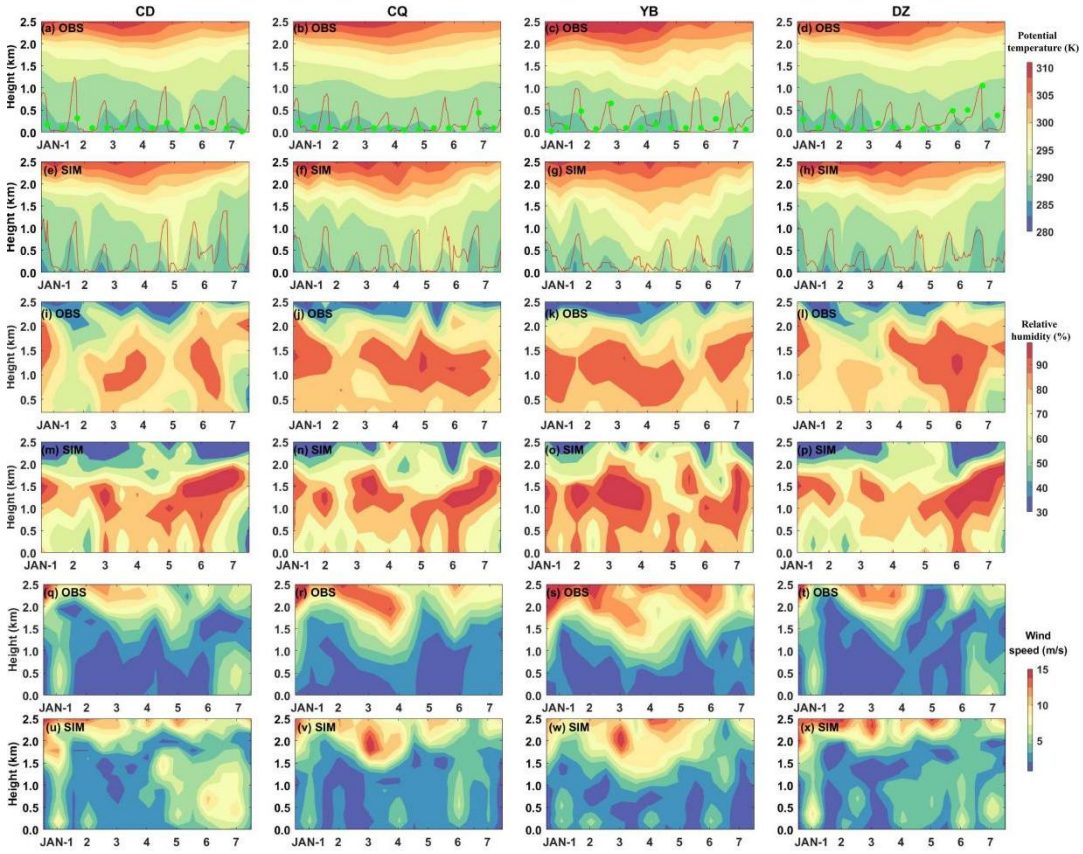

Figure S5. Simulated and observed time-height sections of (a)-(h) potential temperature, (i)-(p) relative humidity and (q)-(x) wind speed at 4 representative SCB cities during 1-7 January 2017. The red lines in (a)-(d) are hourly boundary layer heights(PBLHs) derived from ERA5, and green dots represent PBLHs calculated based on sounding data. The red lines in (e)-(h) are hourly PBLHs derived from simulation.