Supplementary Material:

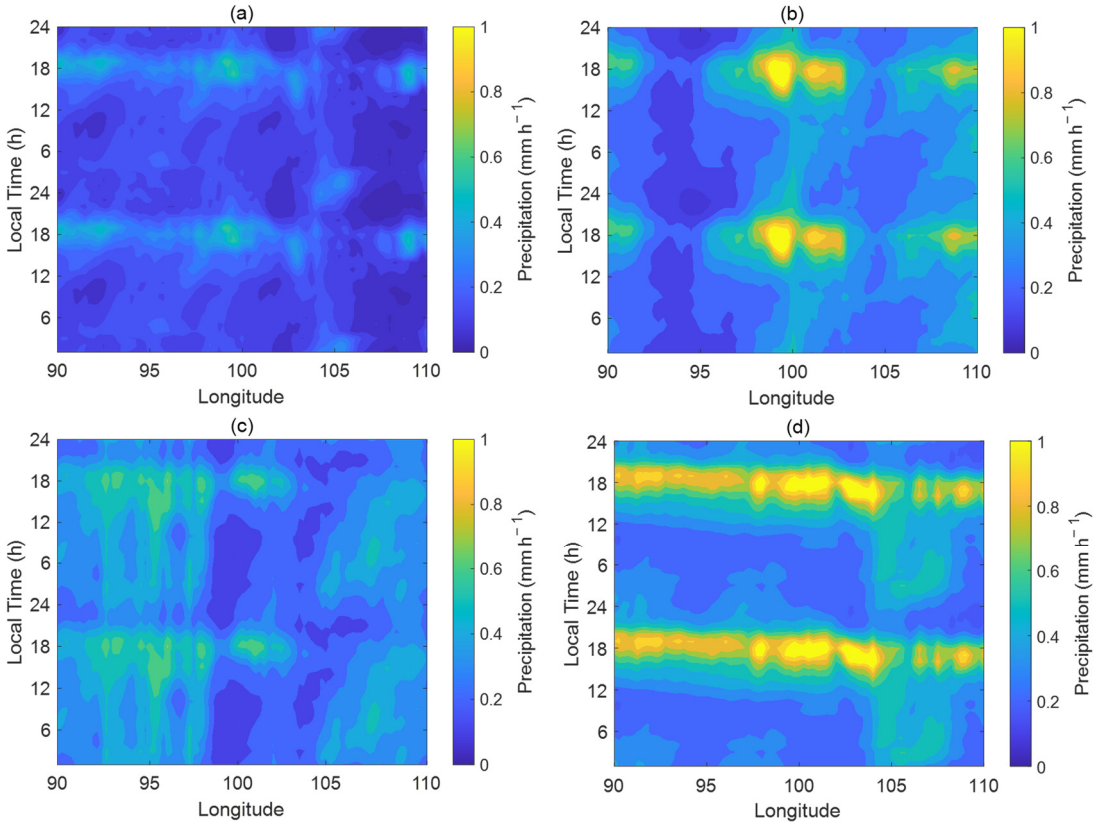


Figure S1: Diurnal variation in precipitation during the mei-yu (a: for Section A, c: for Section B) and midsummer periods (b: for Section A, d: for Section B) from the ERA5.

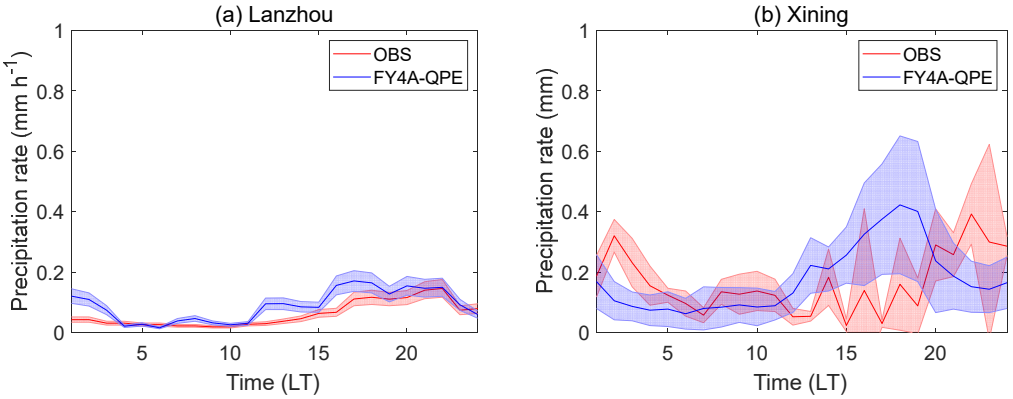


Figure S2: Precipitation from FY4A-QPE (blue line) and ground observations (red line) over the (a) Lanzhou and (b) Xining. Blue shaded area is the standard error of precipitation from FY4A-QPE satellite estimates, and red shaded area is the standard error of precipitation from ground observations.

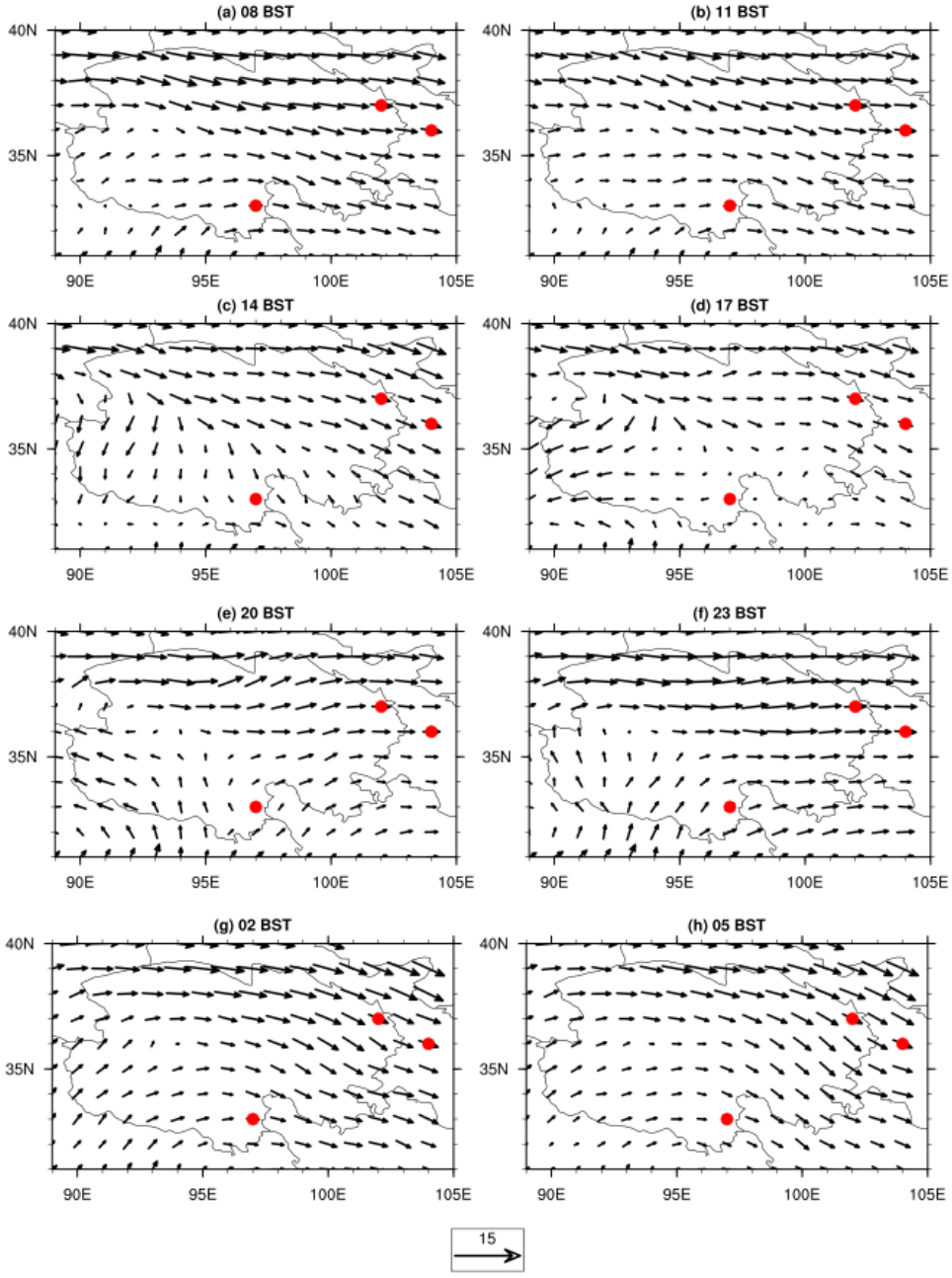


Figure S3. Horizontal wind fields at 500 hPa at (a) 0800, (b) 1100, (c) 1400, (d) 1700, (e) 2000, (f) 2300, (g) 0200, and (h) 0500 BT from ERA5 data. The red dot represents the location of Yushu, Xining, and Lanzhou.

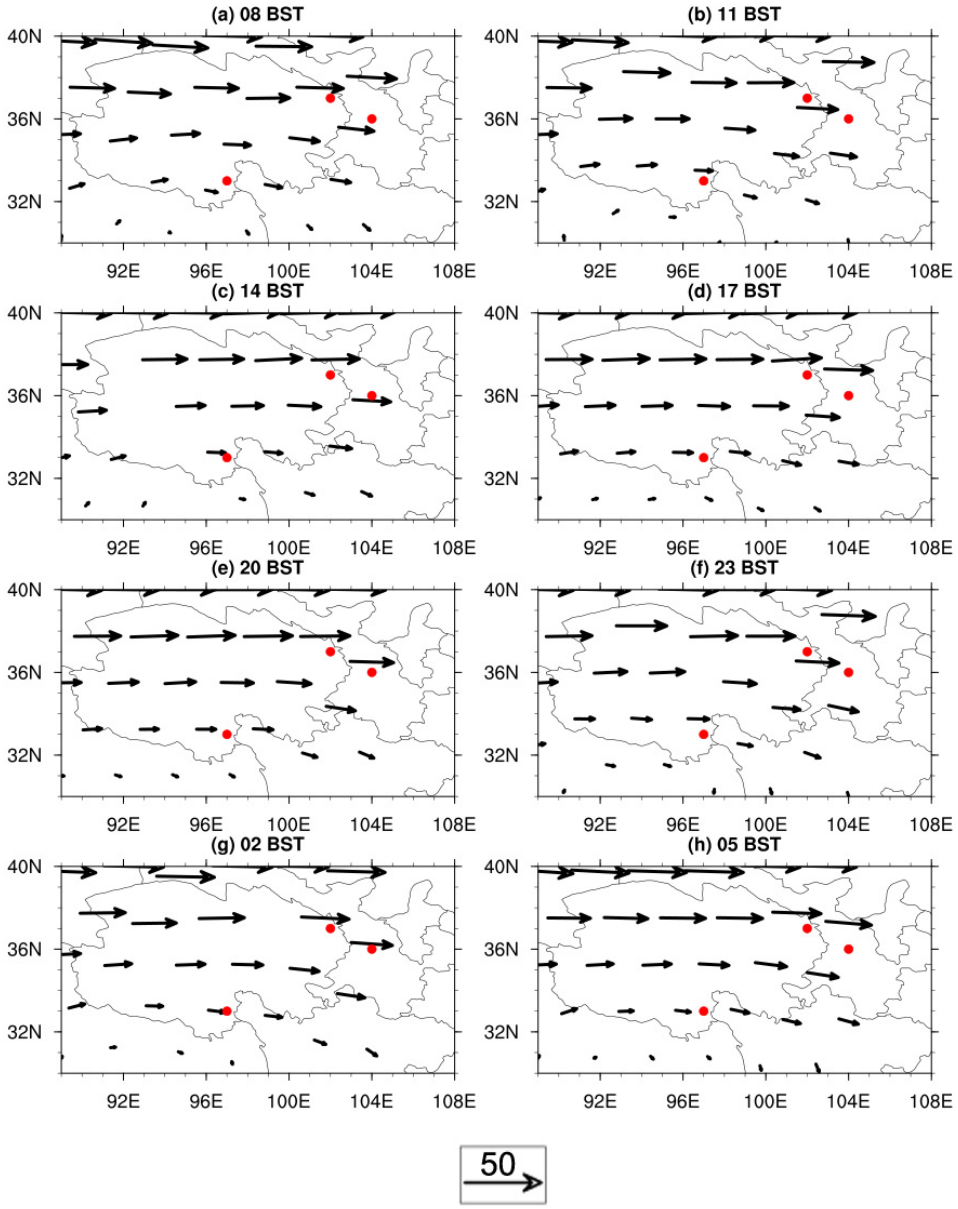


Figure S4. Horizontal wind fields at 200 hPa at (a) 0800, (b) 1100, (c) 1400, (d) 1700, (e) 2000, (f) 2300, (g) 0200, and (h) 0500 BT from ERA5 data. The red dot represents the location of Yushu, Xining, and Lanzhou.