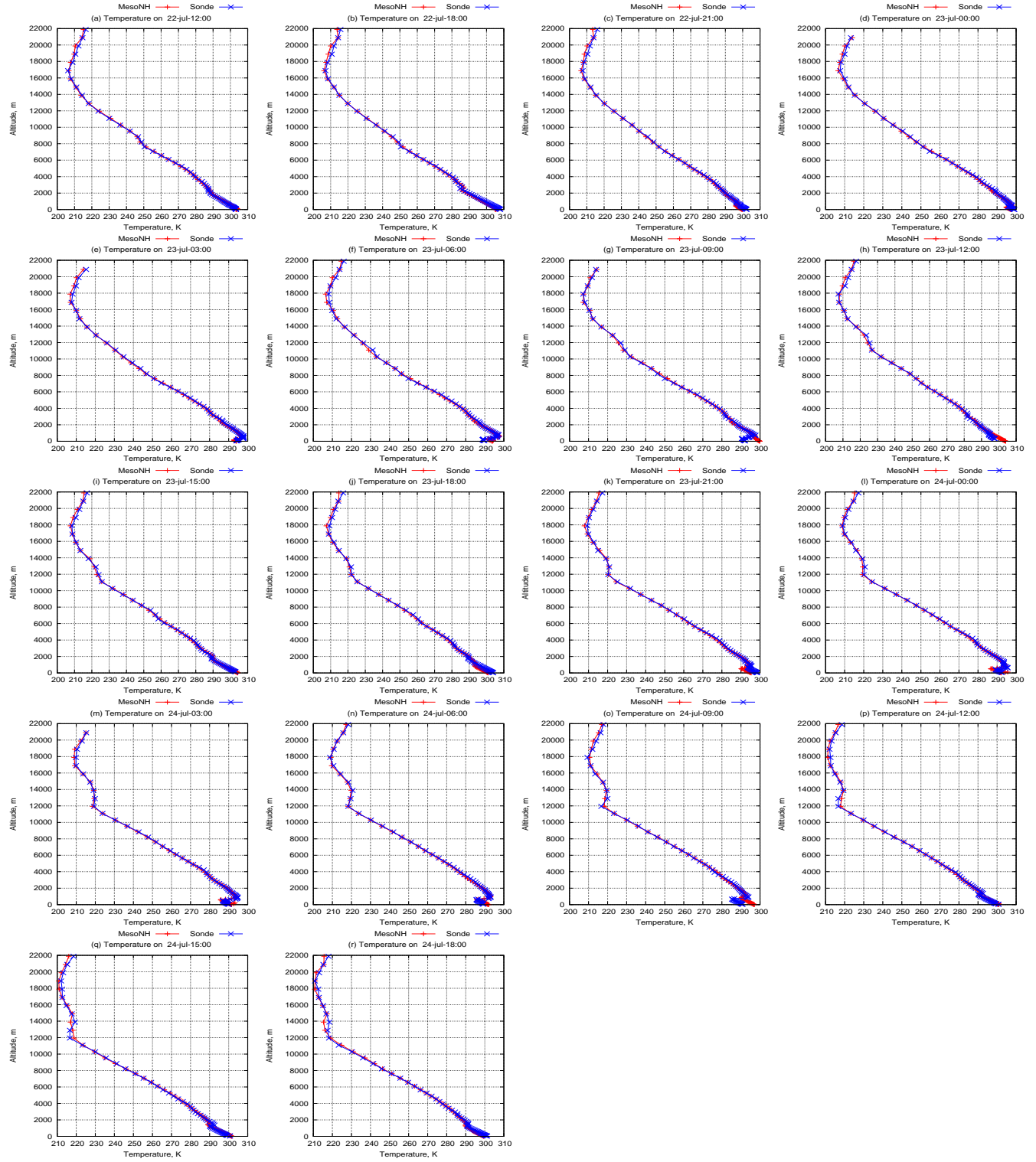
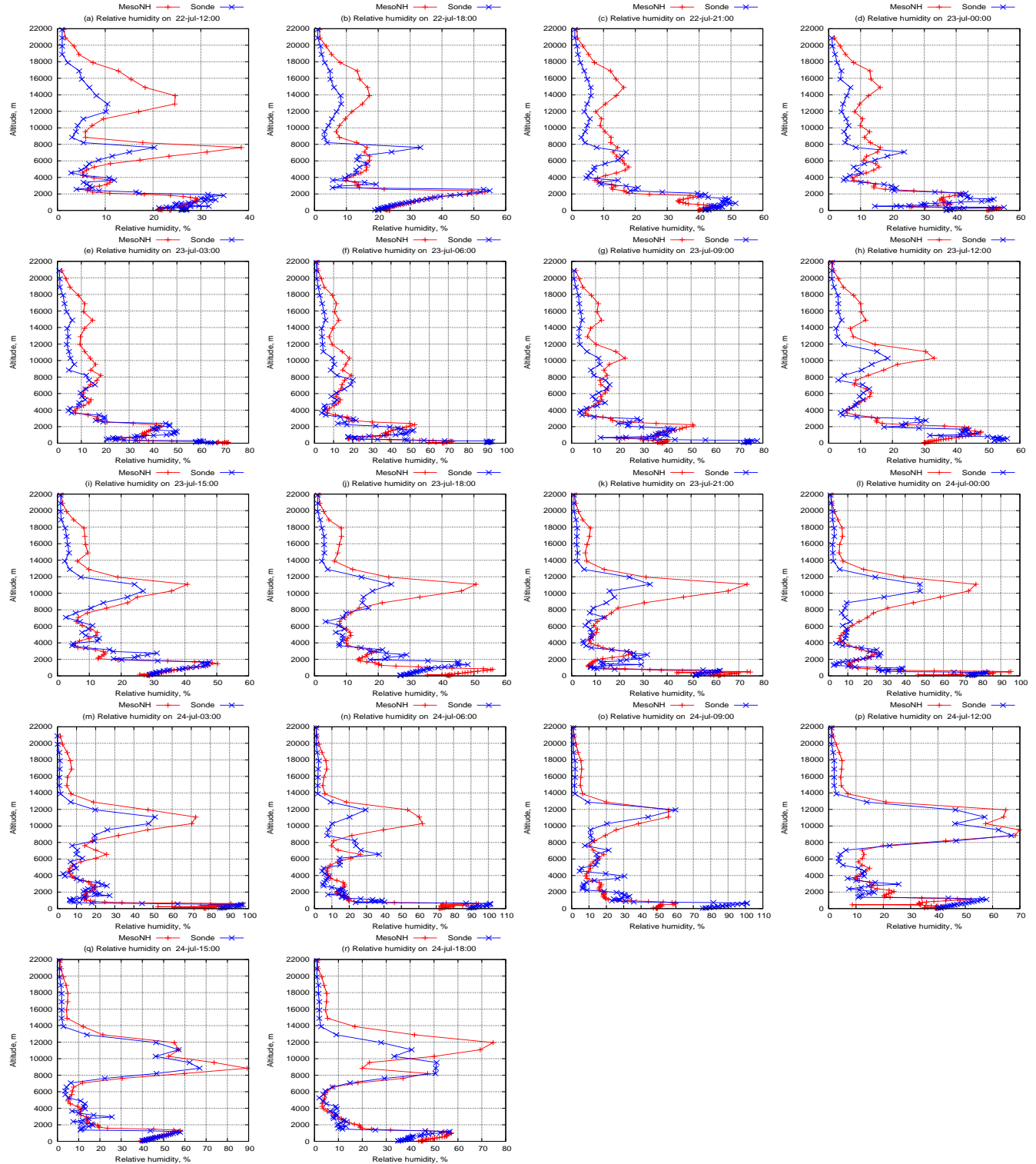


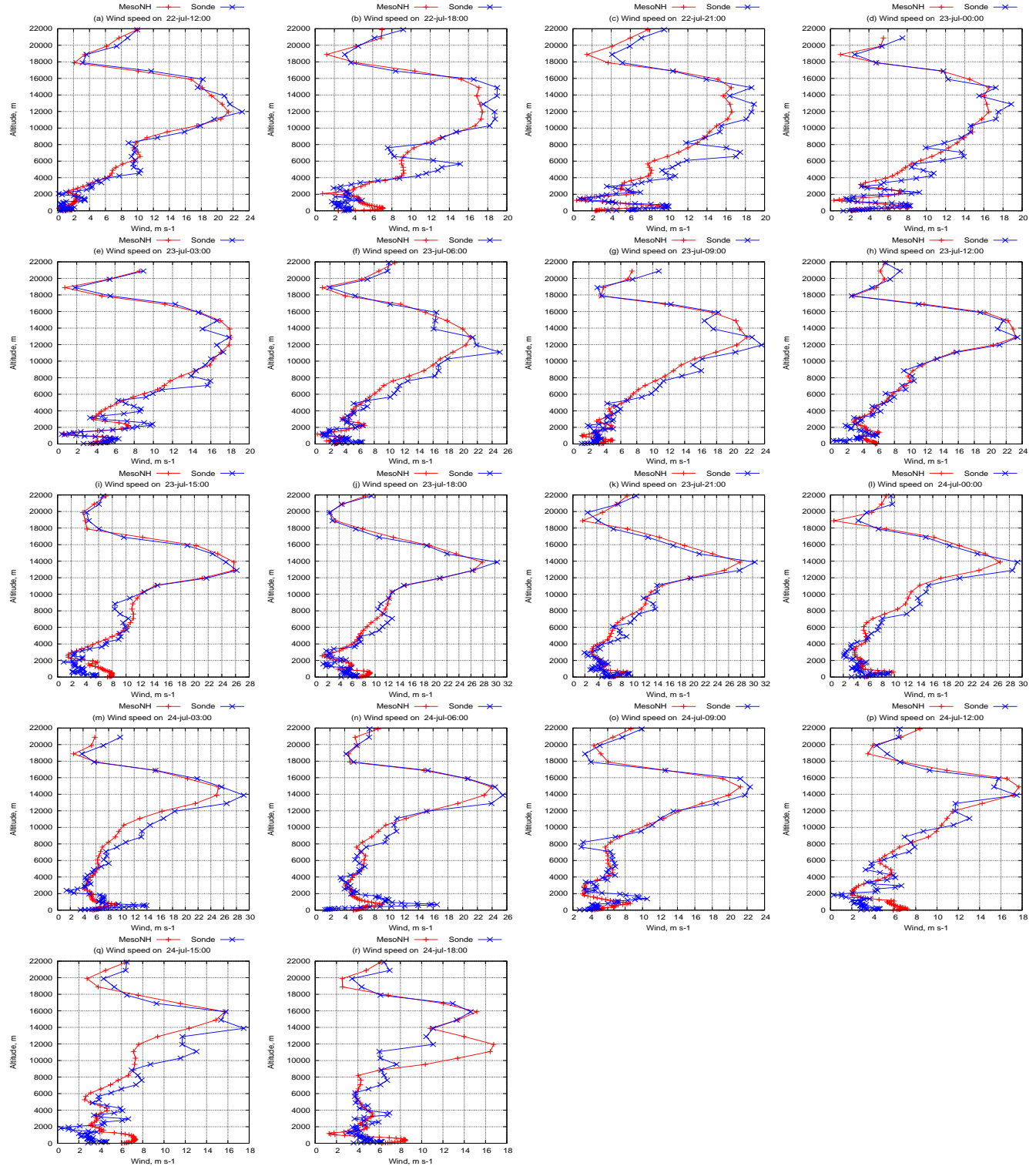
**Figure S1.** Comparison of Meso-NH and radiosonde air temperature profiles. Each plot represents corresponding balloon launch.



**Figure S2.** Comparison of Meso-NH and radiosonde air temperature profiles. Each plot represents corresponding balloon launch.

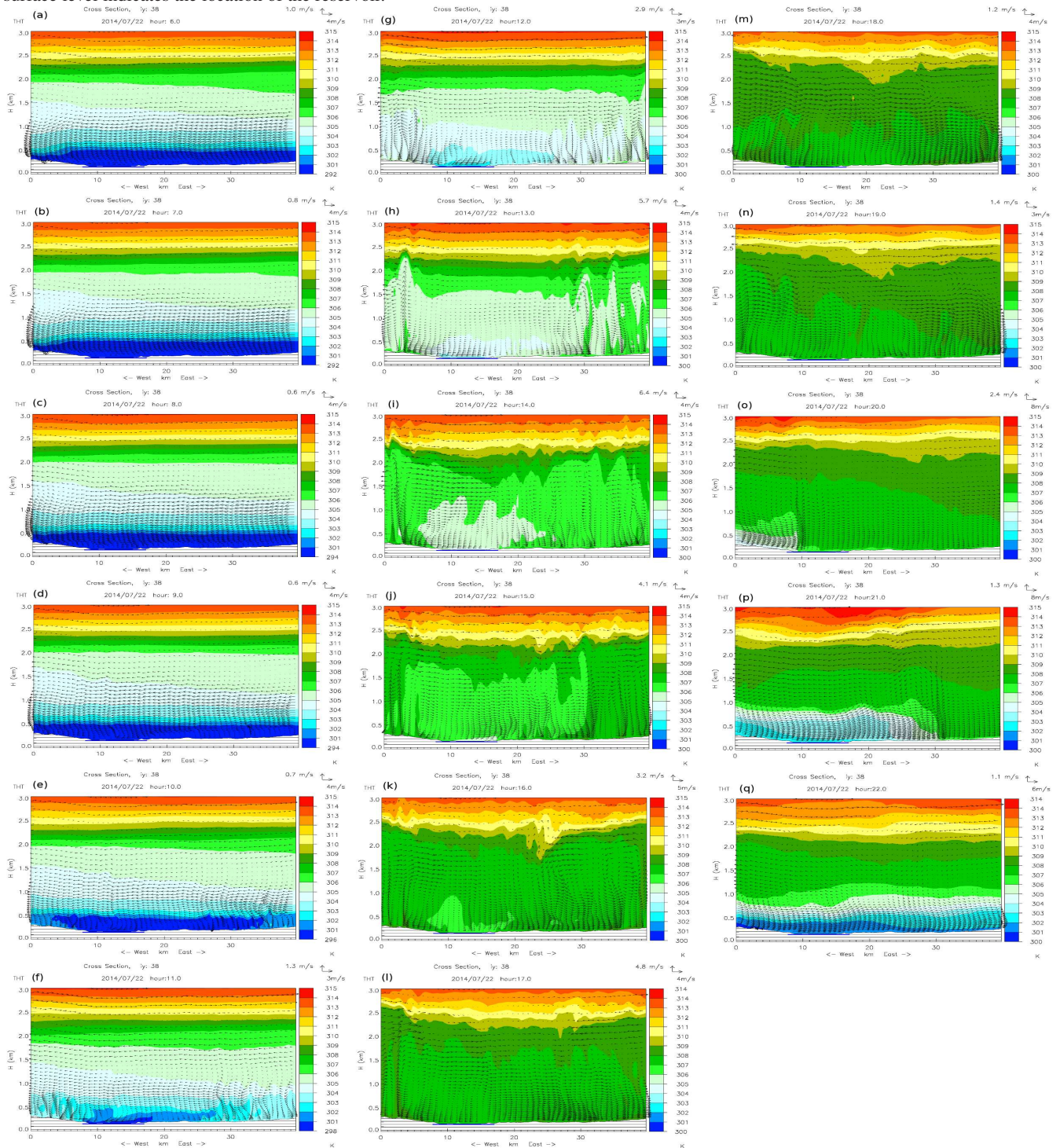


**Figure S3.** Comparison of Meso-NH and radiosonde air temperature profiles. Each plot represents corresponding balloon launch.



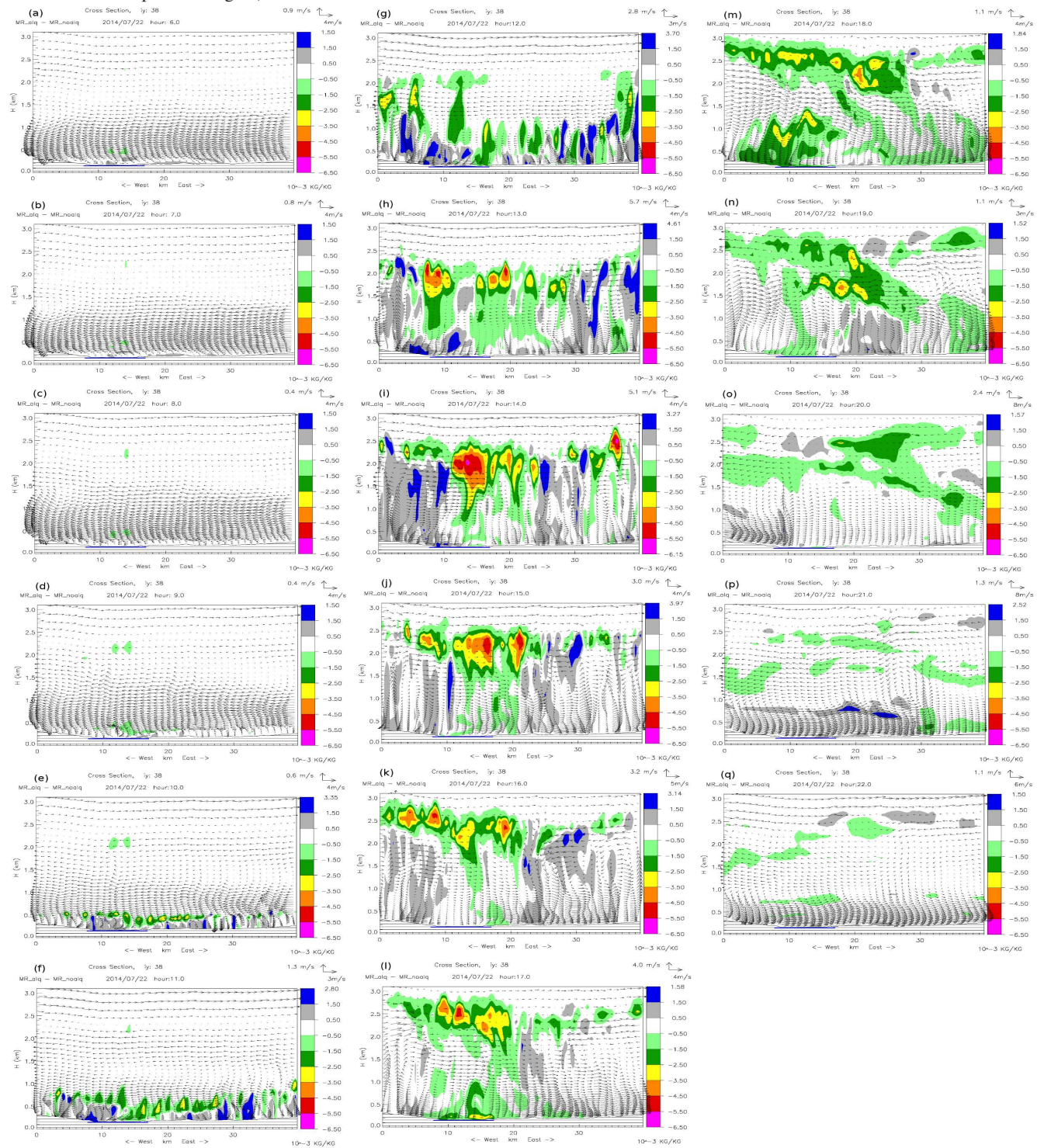


**Figure S4.** East-West direction cross-sections along 38.215 °N (crosses the lake near Montante platform) of potential temperature (filled contours) and projection of wind (arrays), at different time (06:00 – 22:00 UTC, indicated in the top of each figure) in LAKE1 experiment at 250 m horizontal resolution. The wind vertical and horizontal scales are indicated in the upper right corner of each figure. Blue line on the surface level indicates the location of the reservoir.





**Figure S5.** East-West direction cross-sections along  $38.215^\circ\text{N}$  with the difference (LAKE1 and LAKE0 simulations) of water mixing ratio (filled contours), and projection of wind (arrays) in LAKE1 experiment at 250 m horizontal resolution at different time (06:00 – 22:00 UTC, indicated in the top of each figure). Blue line on the surface level indicates the location of the reservoir.





**Figure S6.** East-West direction cross-sections along 38.274 °N with the difference (LAKE1 and LAKE0 simulations) of water mixing ratio (filled contours), and projection of wind (arrays) in LAKE1 experiment at 250 m horizontal resolution at different time (06:00 – 22:00 UTC, indicated in the top of each figure). Blue line on the surface level indicates the location of the reservoir.

