

Figure 1. The routes that the research vessels followed during EPIC 2001 (solid), Stratus 2003 (dashed) and Stratus 2004 (dashed-dotted). The respective squares indicate the beginning point and the respective circles the ending point of each cruise. The arrow points to the location of the Stratus ORS buoy (20°S, 85°W).

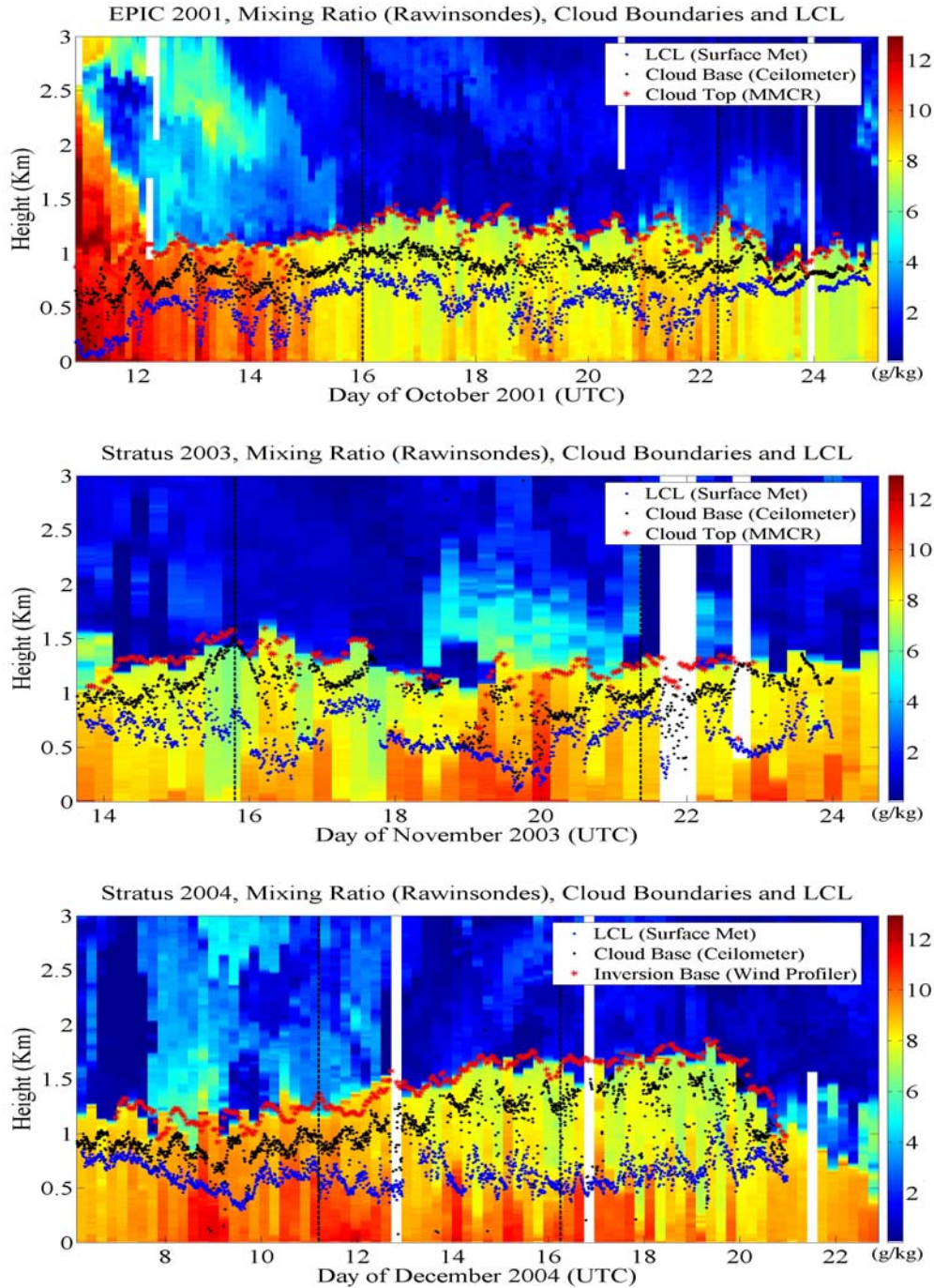


Figure 2. Time-height section of mixing ratio  $r$  ( $\text{g kg}^{-1}$ ) from the soundings launched during EPIC 2001 (upper panel), Stratus 2003 (middle panel) and Stratus 2004 (lower panel). The cloud boundaries and the LCL are also displayed. The cloud top (red) is retrieved from the MMCR for EPIC and Stratus 2003, while for Stratus 2004, it is approximated by the inversion base height derived from the wind-profiler reflectivity. The cloud base (black) is derived from the ceilometer and the LCL (blue) from surface met data. All estimates are 10-min averaged or linearly interpolated from a higher resolution, with the exception of the hourly averaged inversion base height. The periods when the vessels were stationed at the WHOI buoy ( $20^{\circ}\text{S}$ ,  $85^{\circ}\text{W}$ ) are bounded by black vertical lines, while white segments indicate missing or bad sounding values.

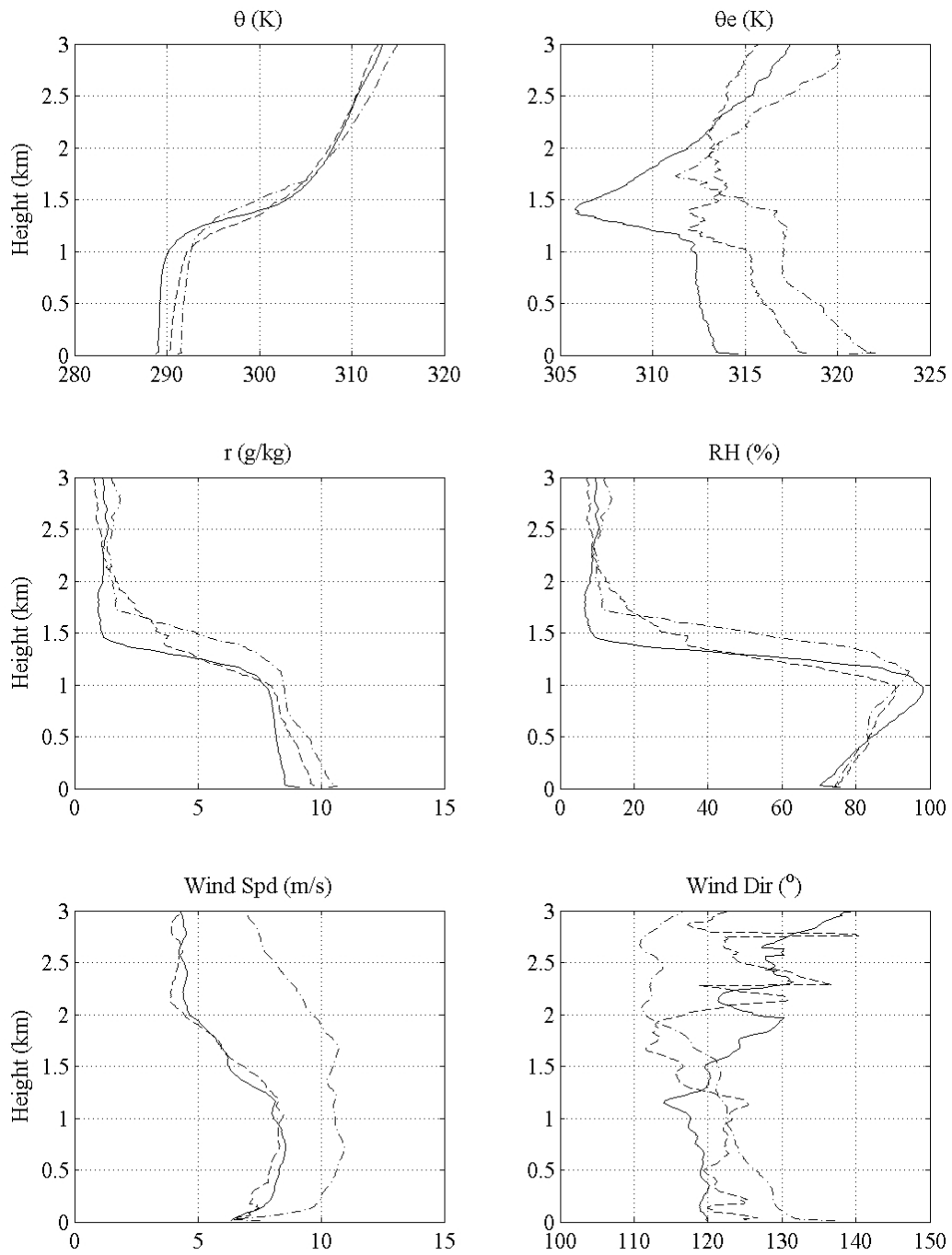


Figure 3. Mean profiles derived from the soundings launched during the 3 WHOI buoy periods: EPIC (solid) [6 days, 16-22 October 2001], Stratus 2003 (dashed) [5 days, 16-21 November 2003] and Stratus 2004 (dashed-dotted) [5 days, 11-16 December 2004]. Each variable is noted at the top of each subplot.

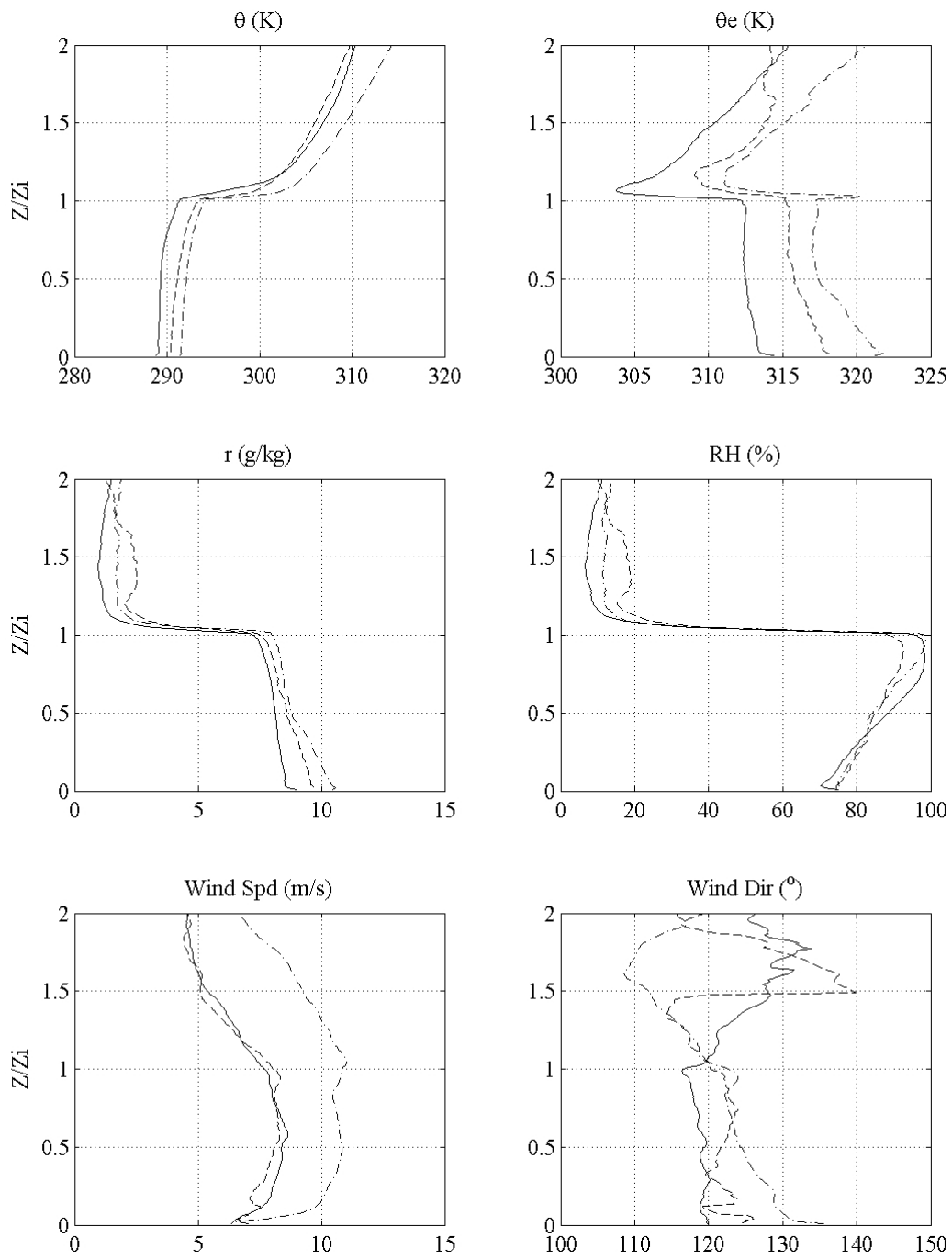


Figure 4. As in Fig. 12, but using height scales normalized by the height of the inversion  $z_i$ .

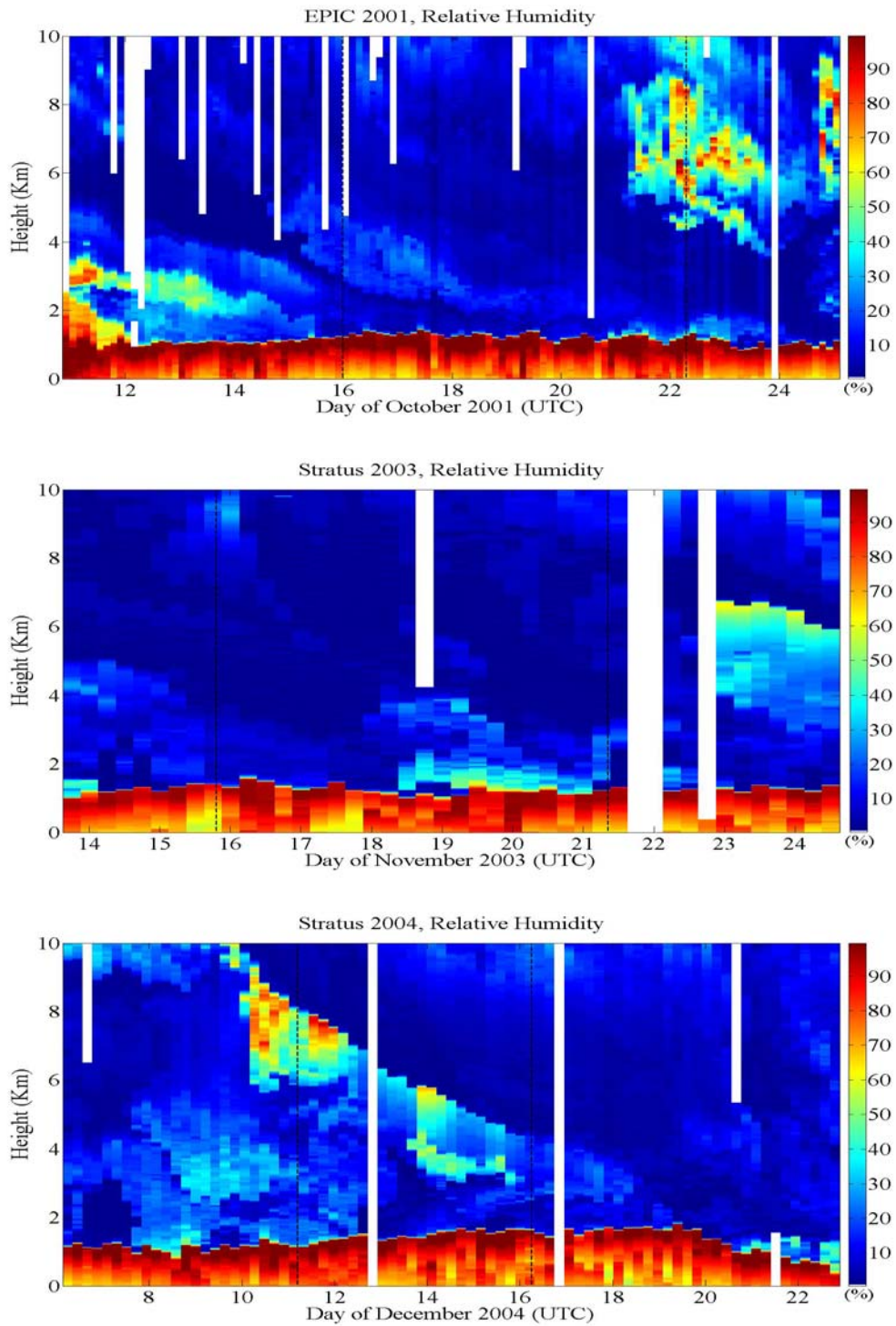


Figure 5. Time-height mapping of relative humidity RH (%) from the soundings launched during EPIC 2001 (upper panel), Stratus 2003 (middle panel) and Stratus 2004 (lower panel). Dashed lines indicate the period when the ship was stationed at the WHOI buoy; white segments indicate missing or bad sounding values.

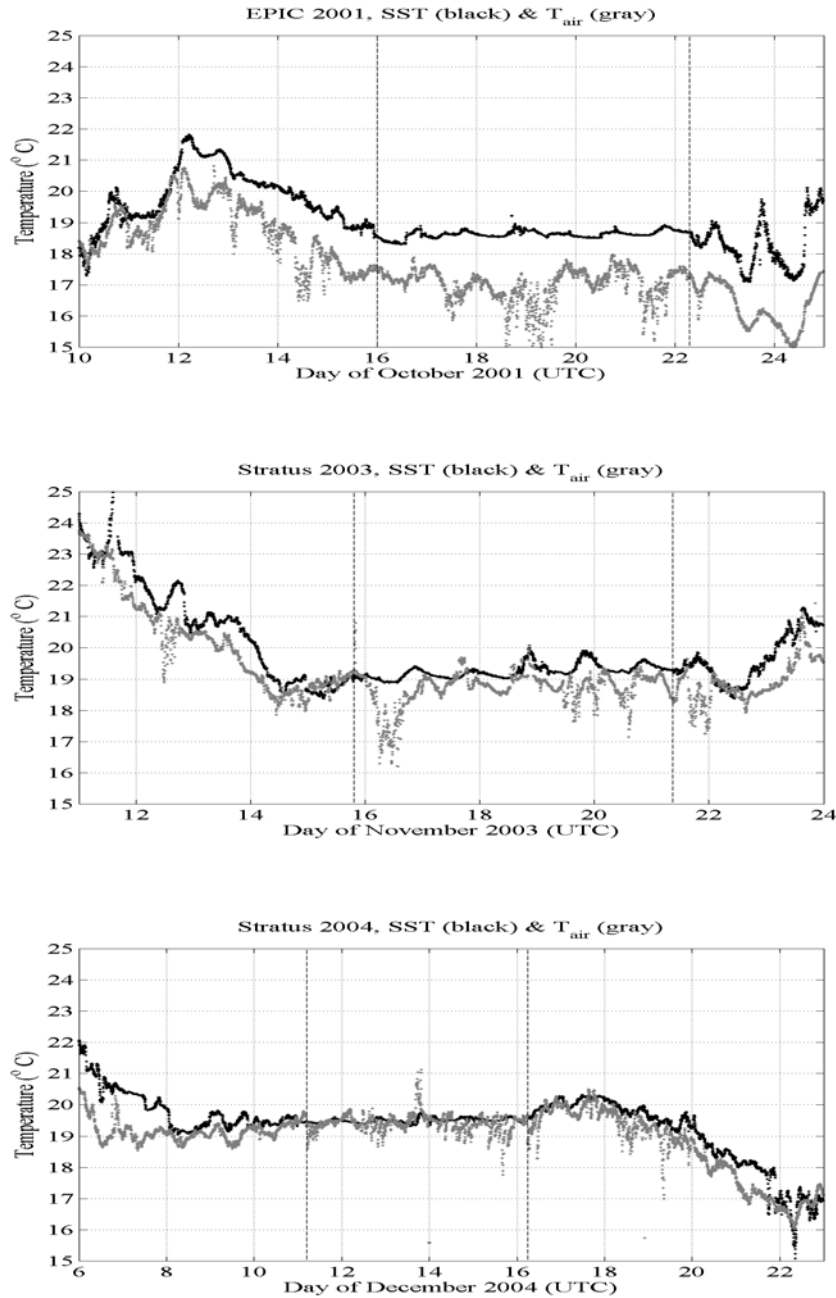


Figure 6. Evolution of SST (black) and Surface Air Temperature  $T_{air}$  (gray) during EPIC (upper panel), Stratus 2003 (middle panel) and Stratus 2004 (lower panel), as recorded from the NOAA/ETL air-sea flux system (5 min temporal resolution). Dashed lines indicate the period when the ship was stationed at the WHOI buoy.

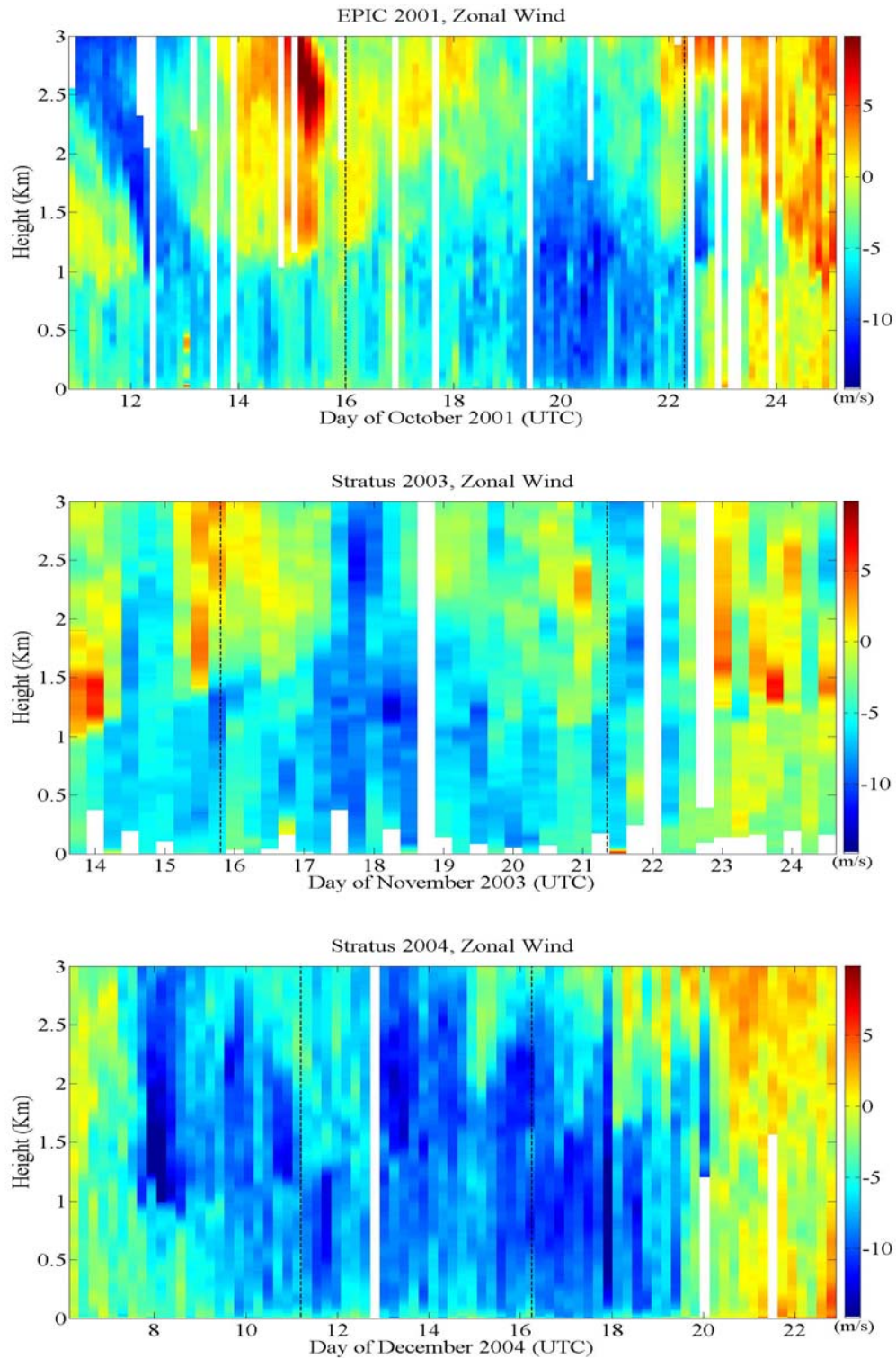


Figure 7. Time-height mapping of zonal wind speed from the soundings launched during EPIC 2001 (upper panel), Stratus 2003 (middle panel) and Stratus 2004 (lower panel). Positive winds are to the East. Dashed lines indicate the period when the ship was stationed at the WHOI buoy; white segments indicate missing or bad sounding values.

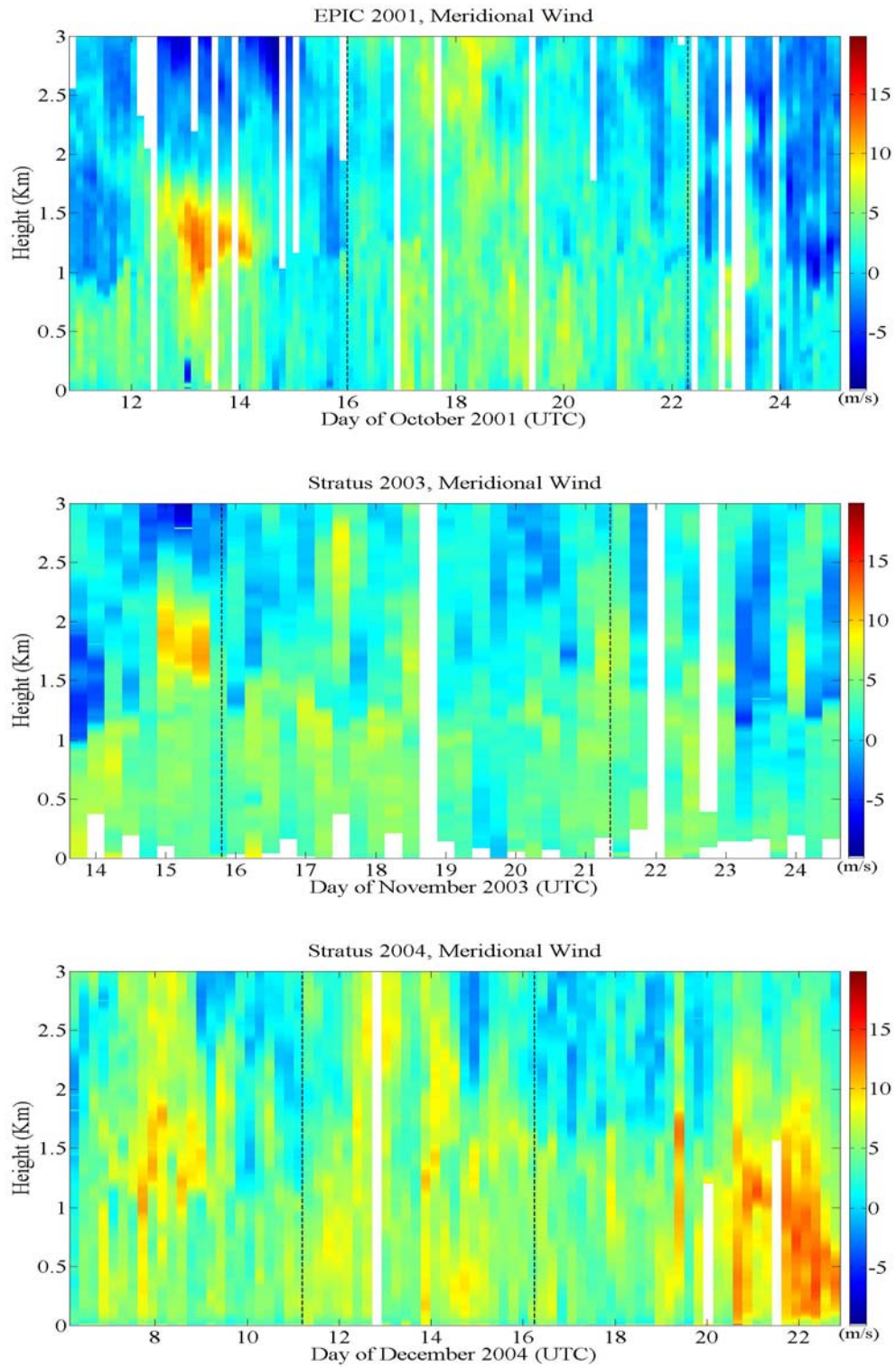


Figure 8. As in Fig. 8, but for the meridional wind speed. Positive winds are to the North.



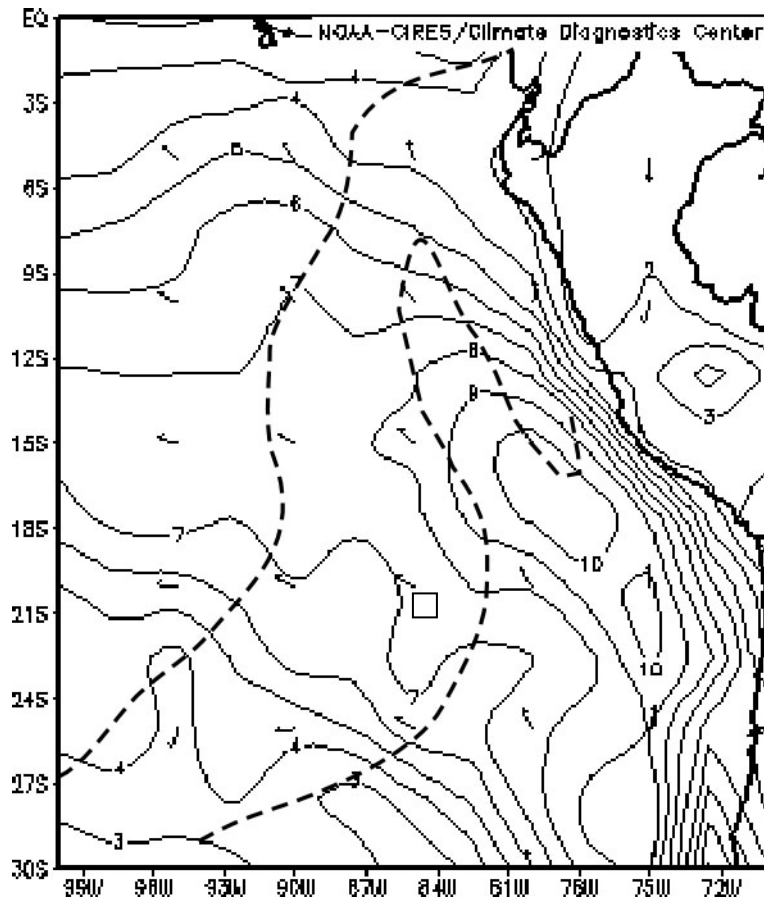


Figure 9a. Surface wind vector and wind speed (solid contours) from NCEP Reanalysis data for the 6-day EPIC buoy Period (16-22 October 2001). Broken lines are SST isotherms. Images provided by the NOAA-CIRES Climate Diagnostics Center (Boulder, CO) from their Web site at <http://www.cdc.noaa.gov>. The transparent square indicates the Stratus ORS location.



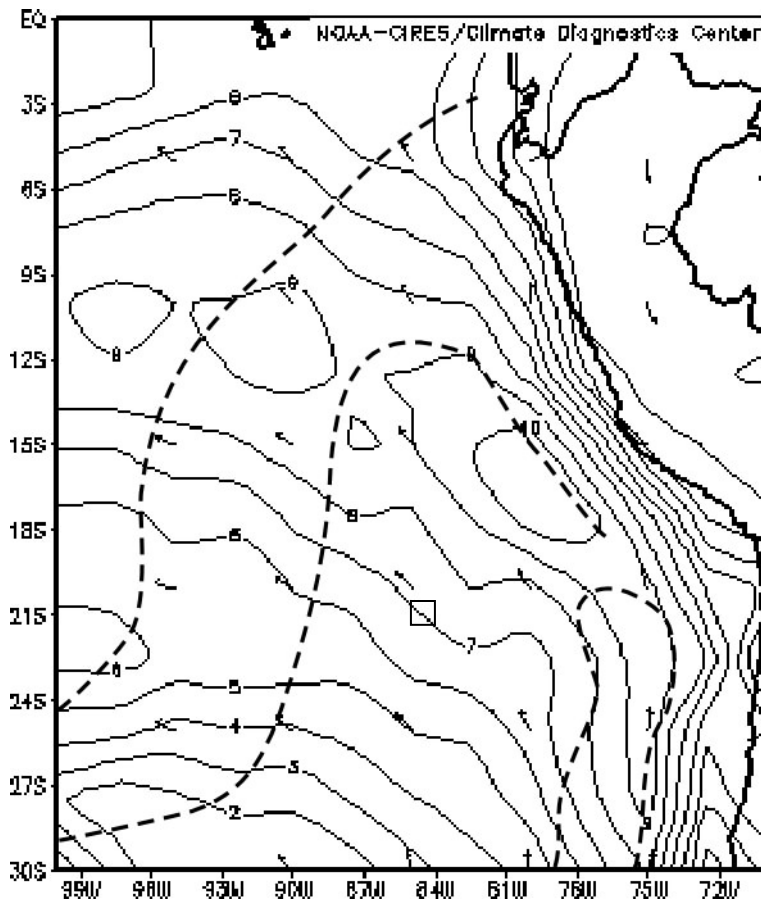


Figure 9b. As in Fig. 9a, but for the 5 days of the Stratus 2003 buoy period (16-21 November 2003). Images provided by the NOAA-CIRES Climate Diagnostics Center (Boulder, CO) from web site at <http://www.cdc.noaa.gov>.

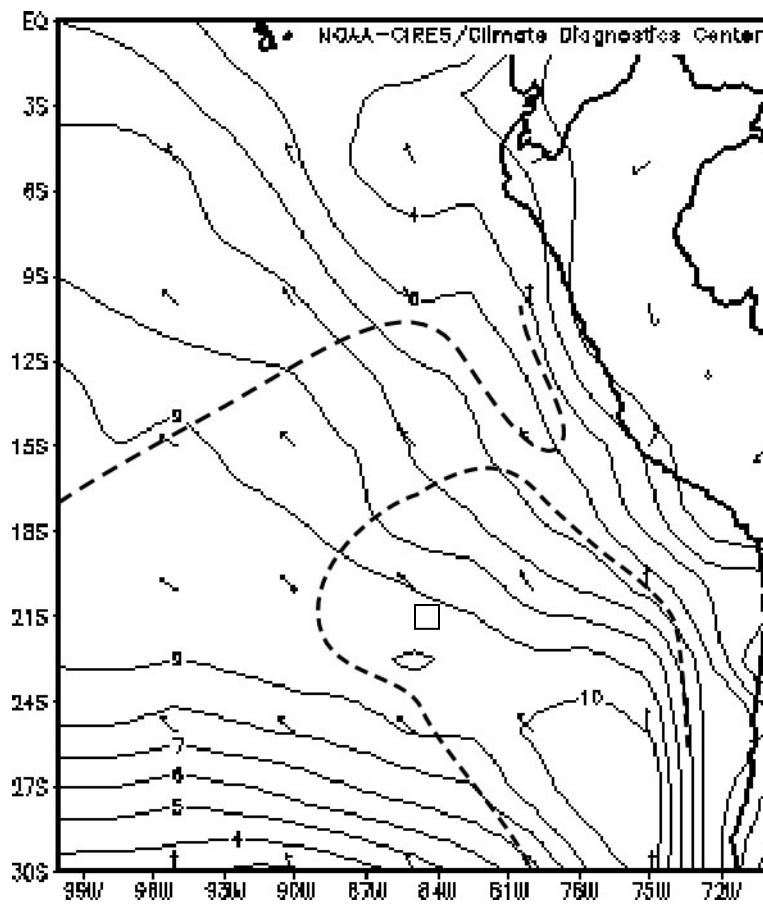


Figure 9c. As in Fig. 9a, but for the 5 days of the Stratus 2004 buoy period (11-16 December 2004). Images provided by the NOAA-CIRES Climate Diagnostics Center (Boulder, CO) from web site at <http://www.cdc.noaa.gov>.

