

## Weather Report (2010/03/01)

During the whole day the total cloud cover at Alcântara was between 4/8 and 5/8. However, the behavior at different levels showed some variations. The first layer of clouds, with base at about 570 meters, presented a cloud cover between 2/8 and 3/8 for the period from 03:00 to 15:00 UTC, decreasing gradually to 1/8 to the end of the day. Only cumulus clouds were observed during the whole period at the first layer. Cirrus clouds were observed at 9000 meters. During the morning and evening the cloud coverage was 3/8, while in the afternoon it was 4/8 to 5/8.

The wind direction was between E and NE throughout the day (Figure 1), following the trade winds. The mean wind speed was 1.44 m/s. Between 03:00 and 11:00 UTC the wind speed remained near zero (Figure 2). After 12:00 UTC, the wind speed began to increase, reaching its maximum (4.11 m/s) at about 18:00 UTC, gradually decreasing until 00:00 UTC. The temperature and mixing ratio variation was between 25.9-31.6 °C and 18.23-19.94 g/kg, respectively (Figures 3 and 4). The sea level pressure is presented in Figure 5.

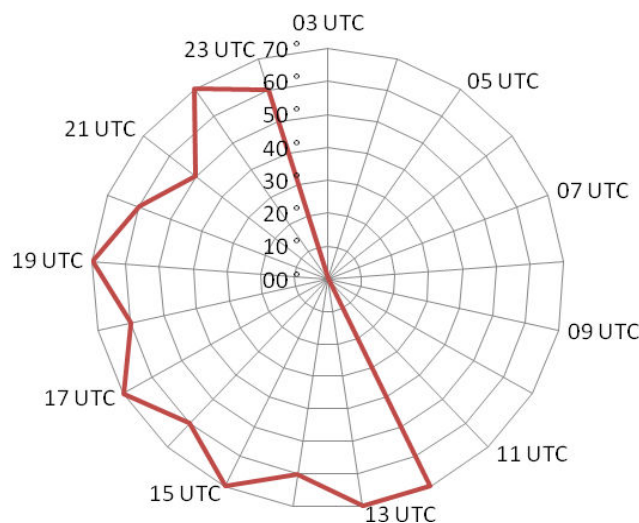


Figure 1 – Hourly wind direction for 2010/03/01.

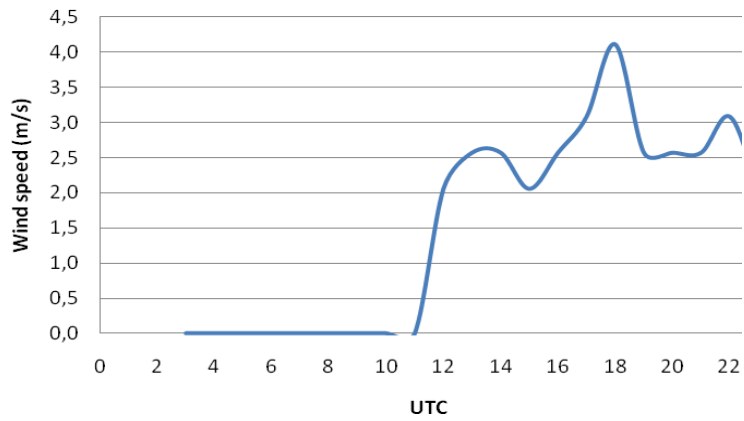


Figure 2 – Hourly wind speed for 2010/03/01.

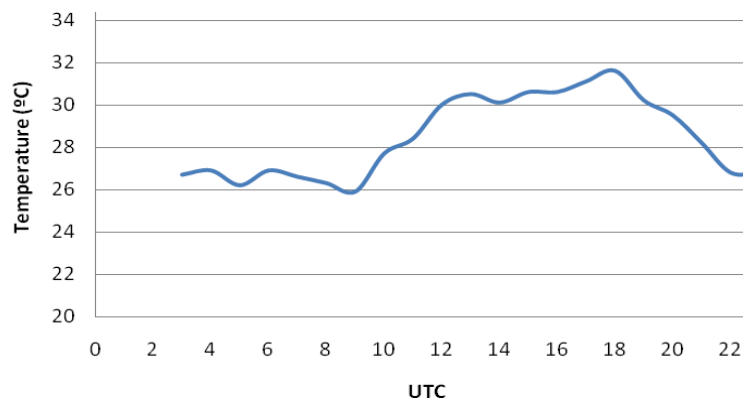


Figure 3 - Hourly temperature for 2010/03/01.

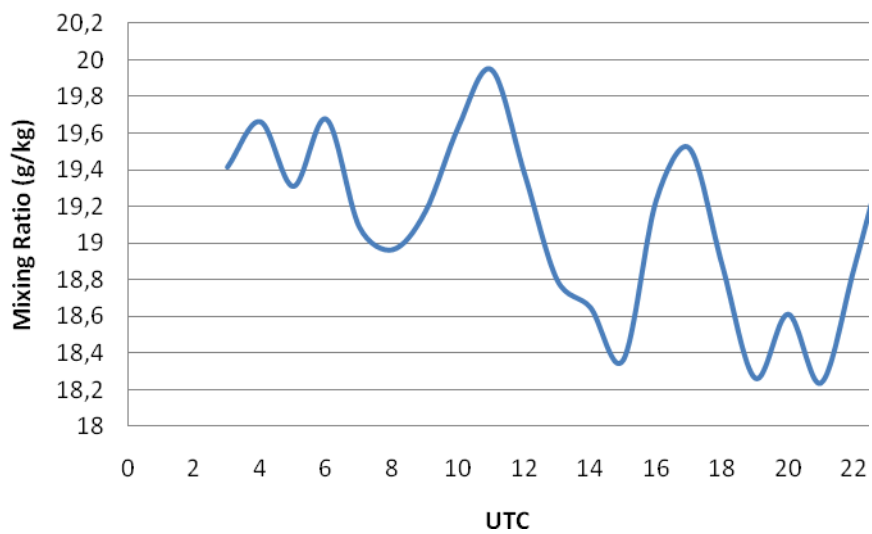


Figure 4 – Hourly mixing ratio for 2010/03/01.

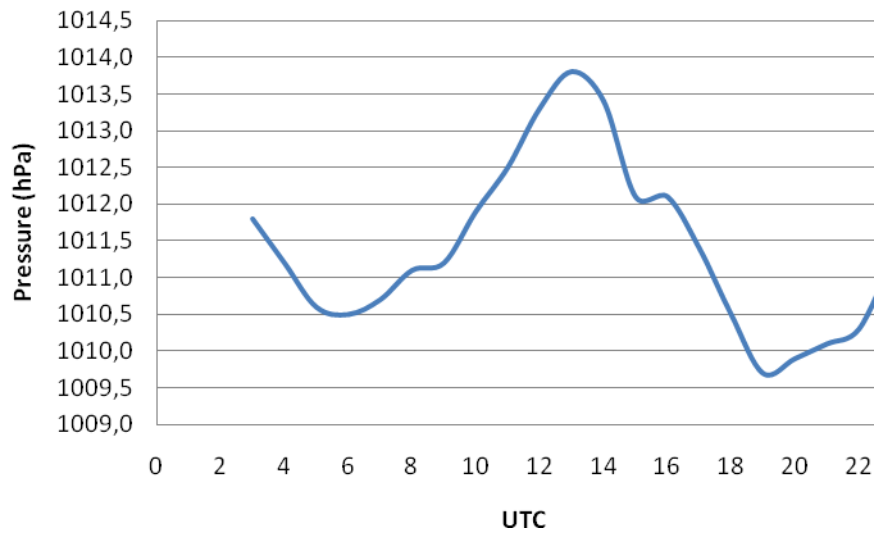


Figure 5 – Hourly sea level pressure 2010/03/01.

There were no records of significant events during the day, with no rain episodes. However, the CLA RADAR recorded a convective activity at a distance exceeding 30 km (Figure 6). This behavior is an indication that some isolated points overcame the dynamic inhibition of convection (subsidence) at the area. Figure 7 shows this behavior, where we can note that at São Luiz airport station (near Alcântara) the atmosphere was really unstable, but with at least four layers of subsidence.

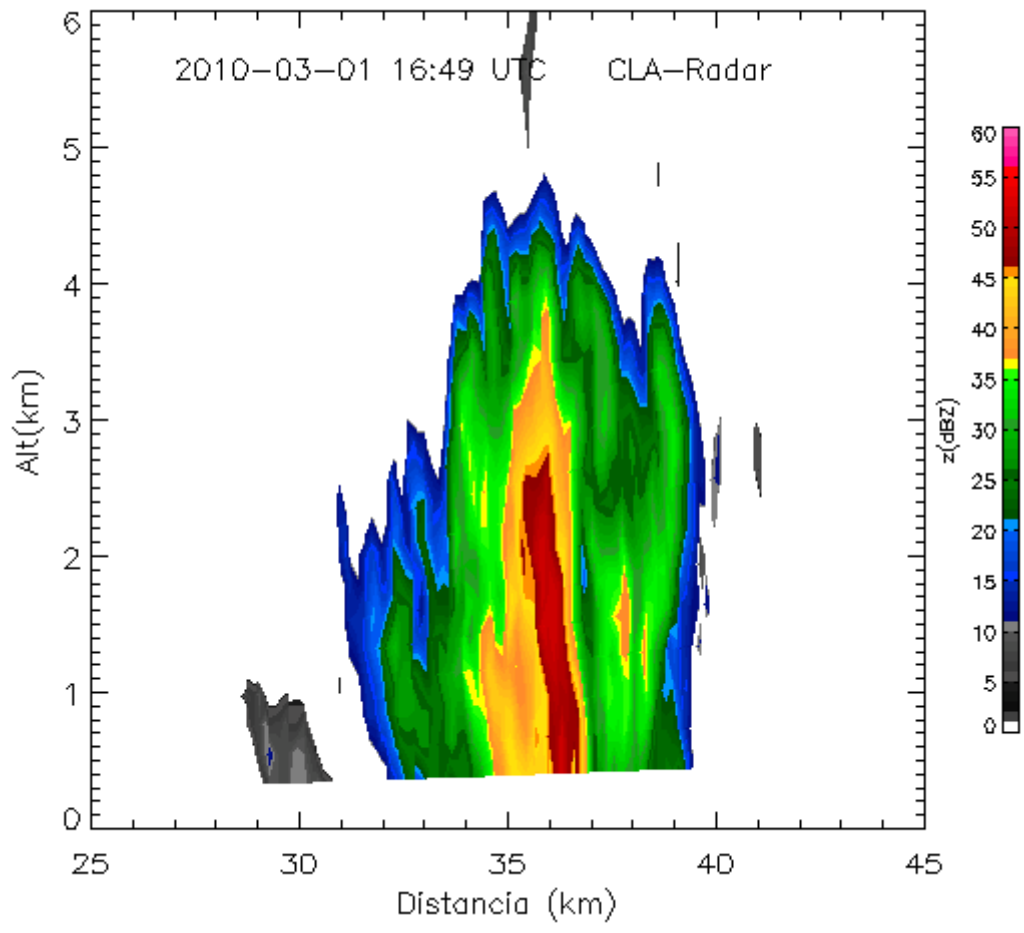


Figure 6 – RHI with 178° azimuth.

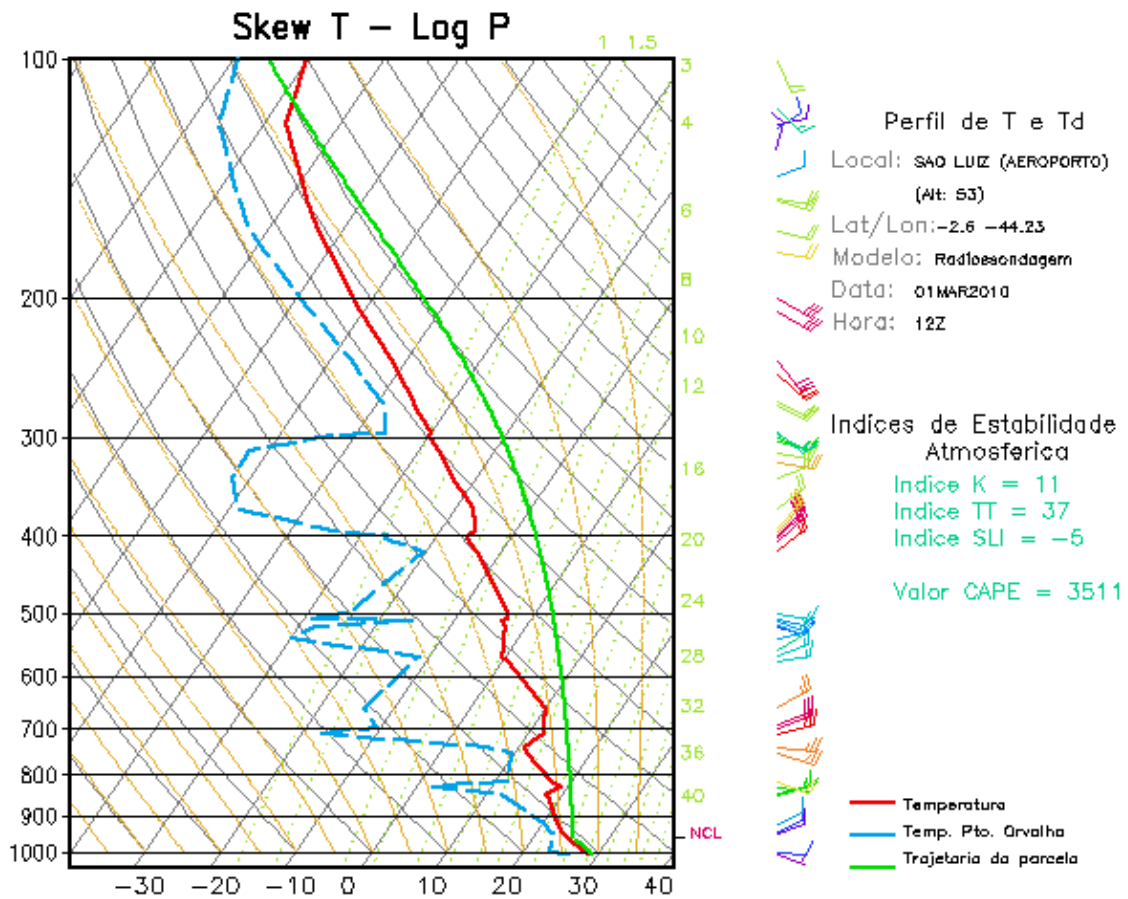


Figure 7 – Thermodynamic profile at São Luiz Airport Station.

The instability conditions obtained by the launching of radiosondes at the Meteorological Facilities of CLA can be seen at Figure 8.

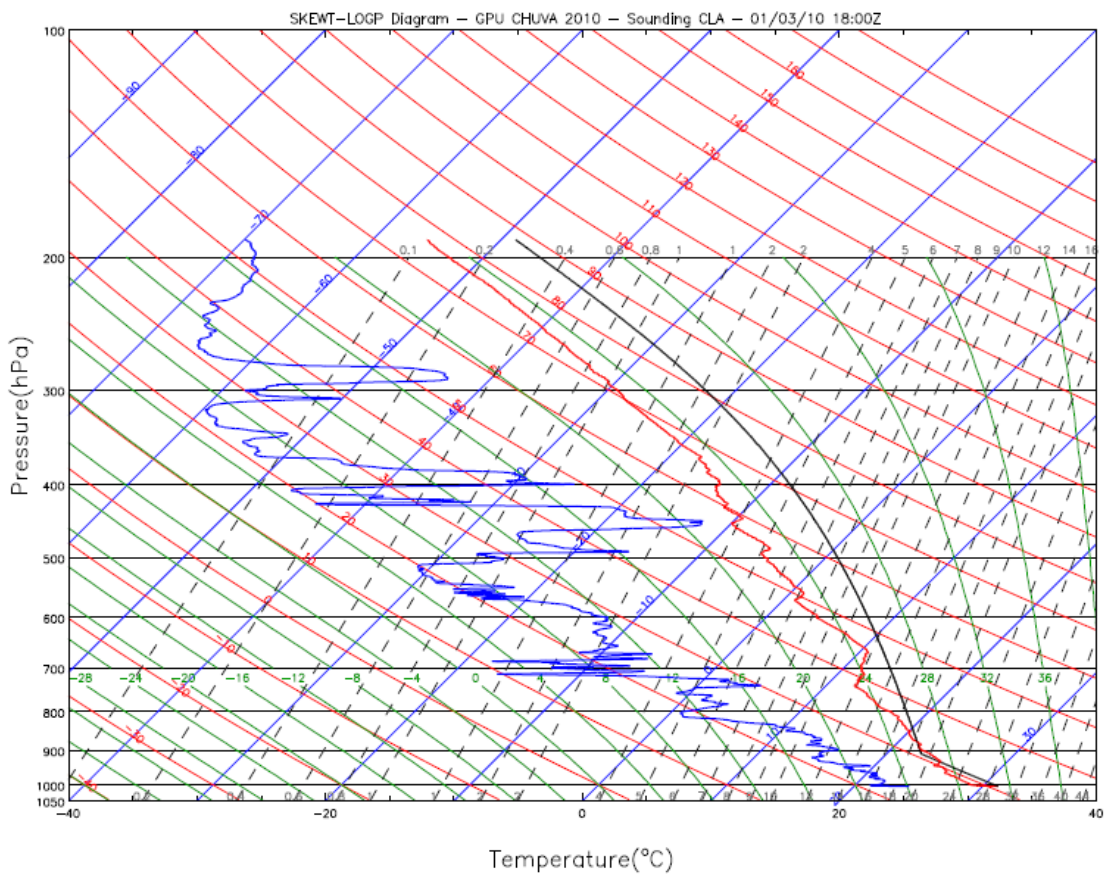
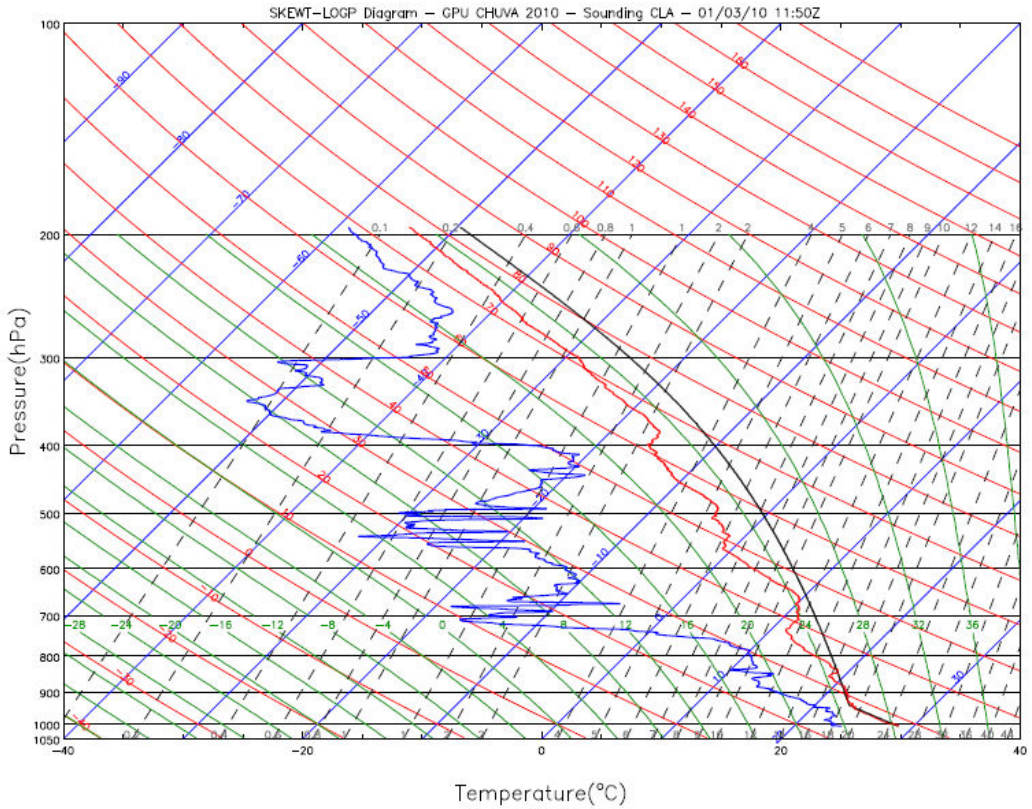


Figure 8– Sequence of SkewT LogP diagrams for March, 1.

