

Weather Report (2010/03/09)

In March 9th, the observations made at Meteorological Facilities of CLA showed few clouds above Alcântara during the day, approximately 3/8. Four types of clouds were observed during this day, but the stratocumulus presented the most frequency. The stratocumulus, cumulus, altocumulus, and cirrus base height was about 420, 570, 2700, and 9000 m, respectively. The wind direction was predominantly from Northeast – NE (Fig. 1). Fig. 2 shows that the afternoon was the part of the day that presented the greatest wind speed values, and during the morning the wind was near to zero. Hourly variations of the air temperature and mixing ratio are presented in Fig. 3. A minimum and a maximum of air temperature were observed, computing 5 °C difference between each one, with minimum along the morning and maximum in the afternoon. It can be noted in Fig. 3 that the mixing ratio showed an increase tendency in large part of the day, mainly after 12 UTC. The sea level pressure variation is shown in Fig. 4.

The Thies disdrometers registered rain in the end of the day. This precipitation occurred at all sites at about 22 UTC. The rain gauges did not measure any precipitation. This could be explained by evaporative processes as the accumulated rain was pretty small. The global circulation to relate to El Niño does not change, and these observed precipitations were associated to local effects like breeze. The CLA RADAR also registered the 22:24 UTC precipitation (Fig. 5). The RHI echoes shows that the precipitating cloud top to reached to a height of 2. km and the rain duration was 20 minutes. However, the CLA RADAR observed a precipitating system in the main line of the measurements with a distance of 20 km at the same instant (Fig. 5). The thermodynamical conditions at São Luis airport station can be seen at Figure 6. The atmosphere presented reasonable values of instability, approximately 1430 J/kg. The Skew T – log P diagram obtained by the radiosondes at the Meteorological Facilities of CLA can be seen at Fig. 7.

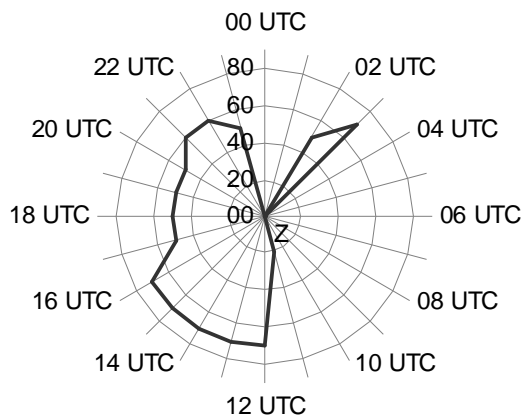


Figure 1 – Hourly wind direction for 2010/03/09.

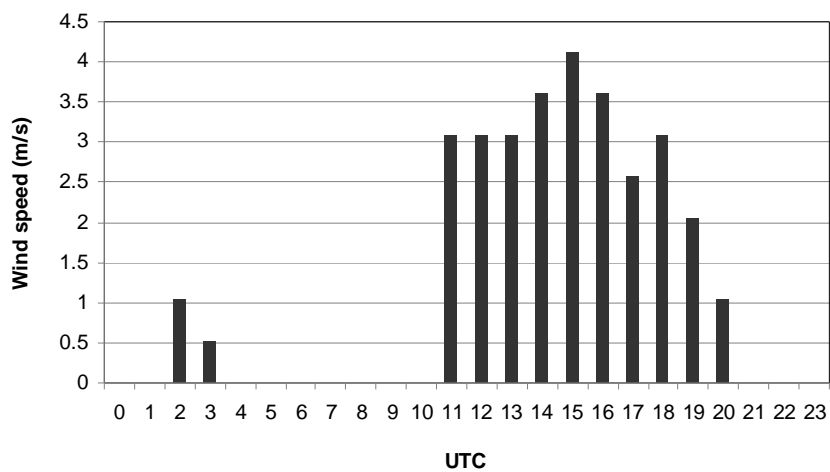


Figure 2 – Hourly wind speed for 2010/03/09.

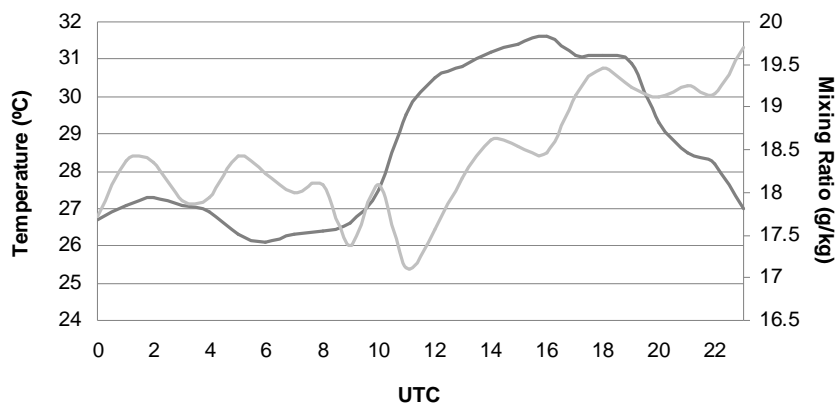


Figure 3 – Hourly temperature (black) and mixing ratio (gray) for 2010/03/09.

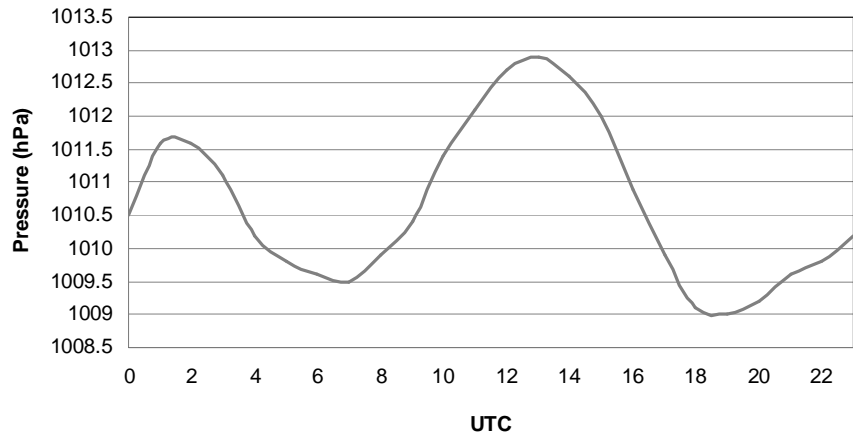


Figure 4 – Hourly sea level pressure for 2010/03/09.

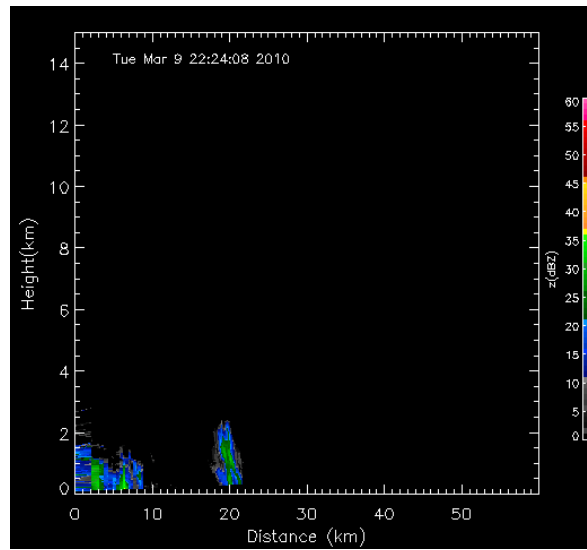


Figure 5 – RHI at 141.2 ° azimuth from CLA RADAR.

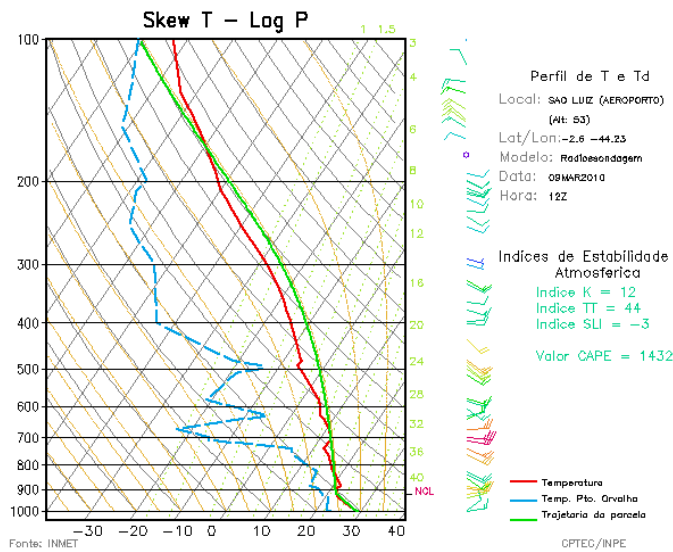


Figure 6 – SkewT LogP diagrams in São Luis airport (Near to Alcântara).

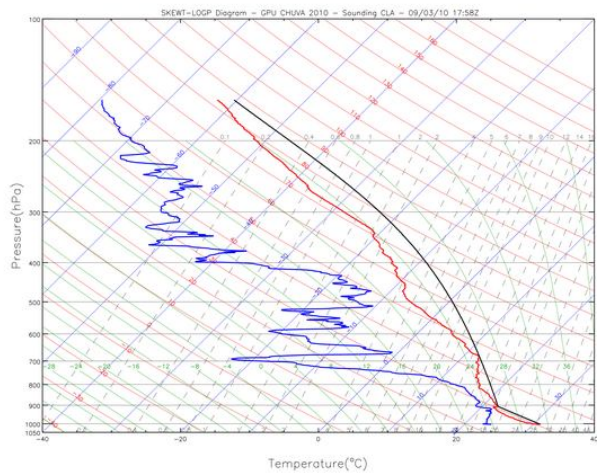
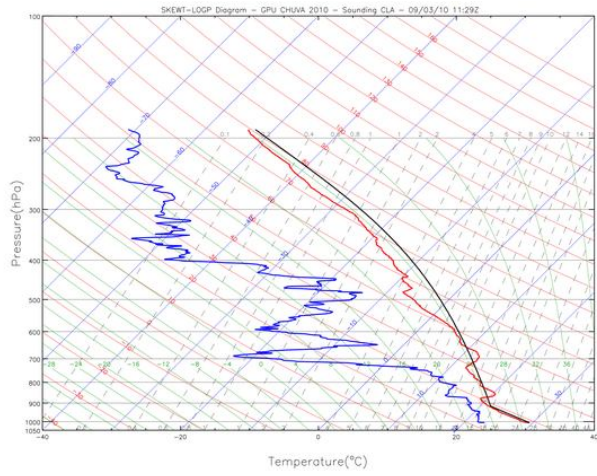
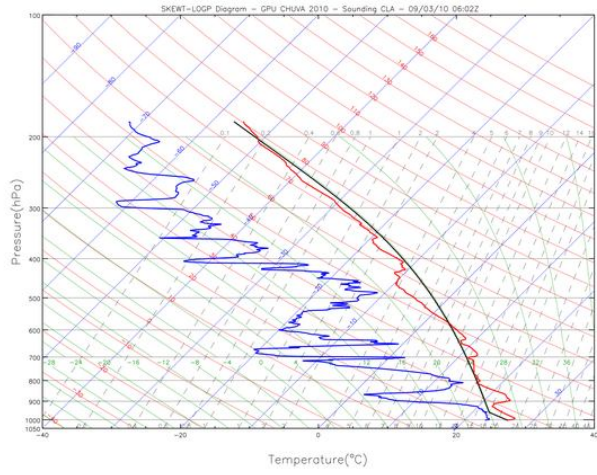


Figure 7 – Sequence of SkewT LogP diagrams.