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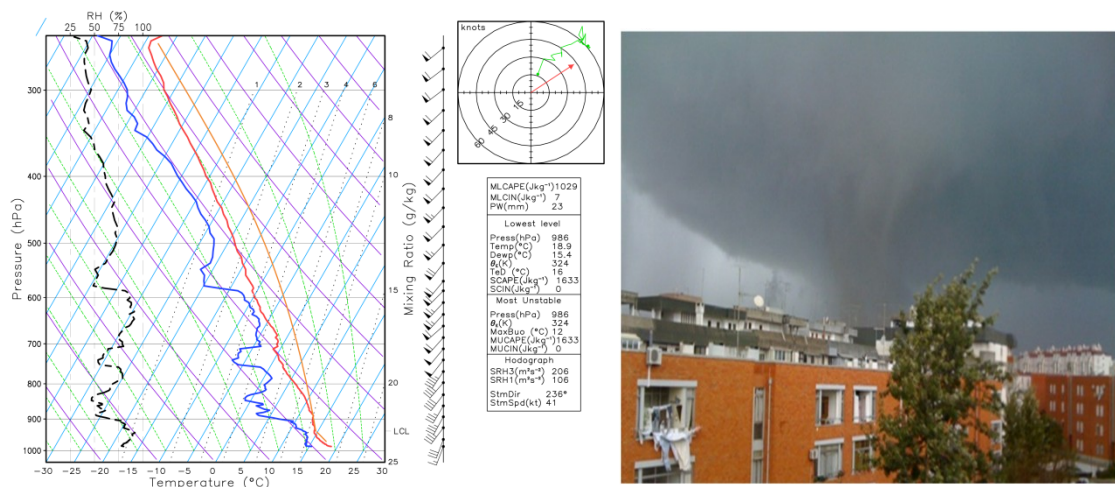
# SEMINÁRIOS MOC

Meteorologia, Oceanografia e Clima

## A Long-lived tornado in Mainland Portugal

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On 7 December 2010 a long lived convective storm formed southwest of Lisbon in an instability line that developed in a very moist and unstable environment, in the circulation of an extra-tropical cyclone propagating north-eastwards. This storm crossed the Lisbon district and spawned an F3 tornado a few dozens of kilometers to the northeast. This tornado produced an exceptionally long damage path of around 54 km, according to the damage survey, during about 45 minutes. It caused about 18 million Euros damage, more than 40 injured people, but no fatalities. The mother storm had a very long lifetime of at least 5 hours, intensified inland, sustained strong updrafts during, at least, 1 hour and hold large hail cores as observed on radar. Several parameters evaluating buoyancy, available moisture and vertical wind shear, were derived from Lisbon rawinsonde and ECMWF analyses, highlighting an environment that is favorable for tornadic development.



14 Dez - 4<sup>a</sup> feira - 12h – sala 1.1.37