

THE 10-12 NOVEMBER 2001 BALEARIC SUPERSTORM: AN ASSESSMENT OF BAROCLINIC AND DIABATIC CONTRIBUTIONS THROUGH PV DIAGNOSIS

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From 10 to 12 November 2001 the western Mediterranean zone was affected by a hazardous cyclone. In the Balearic Islands the storm was particularly strong: wind gusts exceeded 140 km/h, heavy precipitation up to 400 mm in two days was recorded and sea waves up to 12 m reached the shoreline. Four casualties occurred, more than 100.000 trees were uprooted, many boats and coastal infrastructures were severely damaged and some crop fields were flooded. Surface and upper level weather maps suggest that the cyclone was consequence of an initial baroclinic development over north Africa and a further deepening over the western Mediterranean. Quasi-geostrophic diagnosis has been performed to study the baroclinic contribution to the cyclogenesis. A Potential Vorticity (PV) inversion technique has been applied to determine the role of three prominent PV positive anomalies over the region (associated with an upper level trough, a low level warm air intrusion over the Mediterranean from Africa and the latent heat release) to the cyclone intensity.