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First considerations on the structure and development of the Iberian thermal low-pressure system ()

S. Alonso (1), A. Portela (2), C. Ramis (1)

(1) Geophysical Fluid Dynamics Group, Departament de Física, Universitat de les Illes Balears, E-07071 Palma de Mallorca, Spain
(2) Departamento de Geofísica y Meteorología, Facultad de Física, Universidad Complutense de Madrid, Ciudad Universitaria, E-28040 Madrid, Spain

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Abstract. During the summer a thermal low-pressure system is locked over the Iberian Peninsula. We present a first analysis of such a system using the potential vorticity approach. Our results show that its main characteristic is the existence of a negative potential vorticity (PV) dome and a funnel-like structure for potential temperature, both located at the centre of the low. The build-up and evolution of this PV dome can be understood in terms of the dot products of the absolute vorticity and the gradient of diabetic heating vectors and the curl of the friction forces and the gradient of potential temperature vectors. The inhibition of the Algerian Mediterranean cyclogenesis during the summer seems to bear some relation to the existence of this kind of low-pressure disturbance over the Iberian Peninsula.

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Correspondence to: S. Alonso