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Identification of a Subtropical Cyclone in the proximity of the Canary Islands and its analysis by numerical modeling

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16	Abstract
17	Subtropical cyclones (STC) are low pressure systems that share tropical and extratropical
18	characteristics. Because the great economic and social damage, the study of these systems
19	has recently grown. This paper analyzes the cyclone formed in October 2014 near the
20	Canary Islands and diagnosis such a cyclone in order to identify its correspondence to a
21	STC category examining its dynamical and thermal evolution. Diverse fields have been
22	obtained from three different numerical models, and several diagnostic tools and cyclone
23	phase space diagrams have been used. An extratropical cyclone, in its early stage,
24	experimented a process of cut-off and isolation from the midlatitude flow. The incursion of
25	a trough in conjunction with a low-level baroclinic zone favoured the formation of the STC
26	northwestern of the Canary Islands. Streamers of high potential vorticity linked to the
27	cyclone favoured strong winds and precipitation in the study domain. Cyclone phase space

diagrams are used to complement the synoptic analysis and the satellite images of the

cyclone to categorize such system. The diagrams reveal the transition from extratropical

cyclone to STC remaining for several days with a subtropical structure with a quite broad

action radius. The study of the mesoscale environment parameters showed an enhanced

conditional instability through a deep troposphere layer. It is shown that moderate to strong

vertical wind shear together with relatively warm sea surface temperature determine

conditions enabling the development of long-lived convective structures.

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