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## Simulation of a subtropical cyclone using the HARMONIE-AROME model

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According to their thermal structure and dynamics, different types of tropospheric cyclones can be defined. Subtropical cyclones (STC) are low pressure systems that share tropical and extratropical characteristics, having a hybrid thermal structure. The impacts of this kind of cyclones are typically like the ones due to tropical storms or even hurricanes, leading to widespread social damage and significant economic losses. Moreover, because of its complex dynamics and rapid intensification, these systems remain a phenomenon of interest, as well as a challenge in terms of prediction. Consequently, effective numerical model simulations become the key tool in order to reliably forecast these extreme events. In this study, a STC event, which occurred in October 2014 nearby the Canary Islands, is assessed by means of the high-resolution numerical weather prediction model HARMONIE-AROME, which is currently operated at 2.5 km grid resolution. This model was developed in the framework of the collaboration of the ten European National Meteorological Services that belong to the HIRLAM international research consortium, together with the sixteen countries that comprise the ALADIN consortium. To evaluate the performance of the simulation, airport observations and sounding data in the vicinity of the STC are considered for local analyses, and satellite images are used to assess the global cloudiness arrangement.