



## **MEDICANES IN HADGEM3 N512 CLIMATE SIMULATIONS**

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Medicanes are exceptional cyclones that form over the Mediterranean sea with similar development (based on the thermodynamical disequilibrium between the cold air and the warm sea) and properties (intense vorticities with a warm core) to tropical cyclones. Despite medicane size and wind speed are lower than in tropical cyclones, the severity of the winds can inflict substantial damage on islands and coastal areas.

Recently, interest and concern about how climate change will affect extreme events are increasing, including what could happen with medicanes. Most global climate models do not have high enough spatial resolution to represent these small cyclones, and additional techniques, like downscaling, are necessary to build an adequate medicane risk assessment.

In this study, we apply a cyclone track algorithm on global climate model data at high-resolution (about 25 km, in the horizontal at mid-latitudes), which seems enough to properly represent medicane-type cyclones. After an initial validation of the method for the full Mediterranean cyclone climatology, a medicane risk assessment is derived using present and future climatic conditions: The magnitude of the expected winds and the frequency and location of storms are some of the aspects that are evaluated. The results are also compared with those obtained using alternative techniques.