

SUBTROPICAL CYCLONES PROJECTIONS IN FUTURE CLIMATE CONDITIONS OVER THE NORTHEASTERN ATLANTIC

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Since nearly a decade ago, hybrid cyclones called subtropical cyclones (STCs) have attracted the attention of scientific and forecasting community due to their identification as damaging weather systems. Research about them has been so far focused on present climate data. A study of STCs under future climate scenarios has not been performed yet. For the first time, in this work we analyse the capability of regional climate models (RCMs) to simulate STCs in addition to searching for possible alterations in their frequency and intensity due to anthropogenic climate change over the subtropical northeastern Atlantic basin.

By using an ensemble of three RCMs nested in four different global climate models (GCMs), we find that RCMs acceptably reproduce STCs (except for certain model combinations) for the historical climate period (1951–2000), giving support for the analysis of future climate results. In pure GCM simulations, no STCs are identified. For future climate conditions under A1B, A2 and B1 scenarios (2001–2050), more simulations indicate a decrease in the frequency of STCs than those which find an increase. This decrease is showed to be partially due to a reduced presence of extratropical cyclones, from which they tend to form, within that region. However, no strong agreement between simulations has been obtained, and other factors like the changes in the conversion rate could affect STCs in the future. With respect to intensity, no clear tendency is found.