EGU23-6278, updated on 26 Apr 2024
https://doi.org/10.5194/egusphere-egu23-6278
EGU General Assembly 2023

Mediterranean cyclone dynamics and climatology: current knowledge and research perspectives

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A large number of intense cyclones occur every year in the Mediterranean basin, a relatively small and densely populated region, but also a worldwide climate-change hotspot. Given their importance for the variability of the regional climate and its extremes, Mediterranean cyclones have lately attracted much of attention, especially due to the broad range of severe socio-economic and environmental impacts that they produce.

This talk aims at summarizing the concentrated knowledge of the last decade on the dynamics, climatology and relevant impacts of Mediterranean cyclones. We will especially focus on the processes that take place in different spatiotemporal scales triggering cyclogenesis and turning Mediterranean cyclones into catastrophic storms. We will also discuss the role of the unique regional geographical features therein, along with the influence of the latitudinal location of the Mediterranean basin. Finally, we will discuss the different subtypes of Mediterranean cyclones that develop in the region, devoting special attention to medicanes, i.e. cyclones with tropical characteristics and subjects of numerous recent studies. Througout the talk, research perspectives that advance the field of Mediterranean cyclones as a whole will be highlighted, along with current trends in community efforts within the framework of MedCyclones COST Action that address relevant topics to the complex dynamics of Mediterranean cyclones and consequent severe socio-economic impacts.