

**CONSIGLIO NAZIONALE DELLE RICERCHE  
ISTITUTO DI SCIENZE MARINE**



## **CICLO DI SEMINARI**

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### **Evaluation and application of a kilometer-scale climate model in the Adriatic Sea.**

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The Adriatic region is characterized by very complex geomorphology and atmospheric and oceanic processes occurring at various temporal and spatial scales. Due to the relatively coarse horizontal resolution, regional climate models struggle to reproduce the processes that occur on smaller scales. High-resolution climate modeling can be used to overcome these challenges and improve our understanding of the processes that drive the Adriatic atmospheric and oceanic circulation. Hence, a kilometer-scale atmosphere-ocean climate model, the Adriatic Sea and Coast (AdriSC), has been developed for the Adriatic and northern Ionian seas. In order to describe the climate properties of the Adriatic, a 31-year-long (1987–2017) simulation was carried out. In this study, the performance of the AdriSC ocean simulation was evaluated by comparing the model results with a comprehensive collection of remote sensing and in situ observational data. Further, the results of the AdriSC simulation, the latest reanalysis product for the Mediterranean Sea and an Adriatic Sea atmosphere-ocean forecast model used in both hindcast and data assimilation modes, were compared in their ability to reproduce the Adriatic dense-water dynamics during the 2014–2015 period. Lastly, a climatology of the Adriatic dense-water dynamics was derived from the AdriSC results by analyzing the thermohaline properties of the Adriatic Sea during the 1987–2017 period.