



The climate in the Venetian and North Adriatic region: variability, trends and change

workshop

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TOPIC T5. Regional Climate Change

Adriatic General Circulation and Climate Forcing

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Short abstract:

The long term general circulation of the Adriatic Sea is mainly driven by two mechanisms. One is the buoyancy loss in the open sea induced by cooling and evaporation processes, the second is due to fresh water river discharged along the coasts. The first control the dense water formation, spreading and exchange between the Adriatic and the Eastern Mediterranean sea; the second one is crucial for the fresh water budget inside the basin; the interplay between these two processes regulate the estuarine – anti-estuarine circulation originating a two layer – three layer behaviour of the basin interior.

The above mentioned processes not only are clearly linked with the dominant wind regimes insisting on the basin (e.g. Bora and Scirocco), but are linked to the short -term sea currents variability and to small scale processes as well.

The contribution deals with the Adriatic long term general circulation, with a focus on a sensitivity analysis of the heat fluxes generated thermohaline circulation and the meso-Adriatic depression turnover time. Work in progress and some results from the state of the art coupled-model ROMS-SWAN will be also presented, with the aim of exploring the differences in the circulation patterns resulting from climate forcing scenarios in the 20th-21st century period.