



## Abstract View

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## The Adriatic Sea General Circulation. Part II: Baroclinic Circulation Structure

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### ABSTRACT

In the second part of the paper dedicated to the Adriatic Sea general circulation, the horizontal structure of the hydrographic parameters and dissolved oxygen fields is described on a seasonal timescale.

Maps of temperature and salinity climatological fields reveal the enhanced seasonal variability of the Adriatic Sea, which at the surface is associated with the major dilution effects of river runoff.

The density and derived dynamic height fields show for the first time the baroclinic geostrophic structure of the general circulation. Winter is dominated by compensation effects between temperature and salinity fronts along the western coastline. The resulting baroclinic circulation is weak and suggests the presence of barotropic current components not accessible by the dataset. Spring and summer seasons have the smallest spatial scales in the temperature and salinity fields and stronger subbasin-scale gyres and current systems, which have been classified in a schematic representation of the circulation. The Adriatic Sea general circulation comprises boundary currents and jets that strengthen and change spatial scales in different seasons. Two separate cyclonic gyres clearly exist in the middle and southern Adriatic except during winter.

The rates of formation of the northern Adriatic deep waters and southern Adriatic deep waters are estimated to be 0.07 and 0.36 Sv ( $\text{Sv} \equiv 10^6 \text{ m}^3 \text{ s}^{-1}$ ), respectively. Likely driving mechanisms of the circulation are discussed.

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