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# Atlantic Iberian Margin currents and eddies on a 20 yr high resolution simulation

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We study the circulation and mesoscale dynamics along the Western and Northern Iberian Margins. As in other mid-latitude Eastern Boundary systems, this region has a strong seasonal variability with a dominant upwelling-type shelf circulation in summer (equatorward currents) changing to strong poleward upper slope currents in Winter. On deeper levels, the Mediterranean water also circulates poleward along the slope. Despite the existence of many observational and modeling studies a systematic study of the seasonal and inter-annual variability of the whole system was still missing, and in particular, the mechanisms forcing the poleward flows variability at seasonal and interannual scales are not yet fully understood.

We conduct a complete description of the seasonal cycle using a 20 years simulation of the Regional Ocean Modeling System at 2.3 km forced by 27 km WRF winds (downscaled from Era-Interim reanalysis) covering the whole Western Iberian Margin and with an explicit representation of the Inflow/outflow at the Strait of Gibraltar in a nested grid system.

The model results were compared with satellite altimetry and with a compilation of all currentmeter data available for the study region.
The seasonality of the upper slope poleward flows is stronger in the northern part of the region, the magnitude reaches a maximum around December, in May the flow is totally reversed and reemerges again in June, sooner than what is usually described. We also analyzed the statistics of the coherent eddies field and it's seasonal variability in space and time.