{rokbox title=|Eddy density maps computed on a 0.1 grid for the Mediterranean Sea :: Image: Authors|
thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-ocean-eddies-mediterranean-sea-satellite-altimetry-sensitivity-to-satellite-track-location-amores-et-al-2019-thumb.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-ocean-eddies-mediterranean-sea-satellite-altimetry-sensitivity-to-satellite-track-location-amores-et-al-2019.jpg{/rokbox}

Angel Amores, **Gabriel Jordà** and Sebastià Monserrat, 2019. **Ocean Eddies in the Mediterranean Sea From Satellite Altimetry: Sensitivity to Satellite Track Location.** Front. Mar. Sci. 6:703. doi: 10.3389/fmars.2019.00703

Abstract: Mesoscale eddies are a key oceanic feature relevant to the transport of water properties and biological material. These structures, through their surface signature, have been characterized and widely investigated using sea level anomaly (SLA) maps retrieved from satellite altimetry observations. Gridded SLA fields are routinely computed combining SLA data along satellite tracks with an optimal interpolation algorithm using a selected set of parameters. These are crucial because they define and constrain the temporal and spatial scales of the structures resolved. Here, we investigate the impact of the choice of the interpolation parameters in global and in the Mediterranean SLA products. Our findings demonstrate that the number of eddies detected in SLA maps over the Mediterranean Sea regional products is significantly larger along the satellite tracks than between the tracks, irrespective of the number of satellites used to produce the gridded maps, of the time period considered and of the eddy size. We also show that this is not the case of the global SLA product. We attribute the anomalously high number of eddies detected along the tracks in the regional products to the correlation scales of the optimal interpolation algorithm, which are different from those in the global product due to a smaller Rossby radius of the Mediterranean structures. Among these, we find that the time correlation scale is more restrictive than the spatial one.

Keywords: mesoscale eddies, satellite altimeter data, Mediterranean sea, satellite track, optimal interpolation (OI)