New Research: Ocean Currents at BEC

Ocean currents are a key element for the understanding of many oceanic and climatic phenomena and their knowledge is crucial for navigation and operational applications. Following the official broadening of its scope, BEC has extended its research activity towards the diagnosis of ocean surface currents from satellite observations. This new research line, led by Dr. Jordi Isern-Fontanet, is being funded through the ComFuturo program (http://comfuturo.es/proyectos/) granted by the Fundación General del CSIC (http://www.fgcsic.es/) and through the GlobCurrent project (http://www.globcurrent.org/) funded by ESA.

The research developed at BEC is two fold. On one side, it is focused on the improvement of the diagnostics of surface velocities from existing altimeters. In particular, it focuses on the exploitation of the SAR mode of the new generation of altimeters, such as the radar altimeter onboard Sentinel-3, to derive surface currents at spatial resolutions not achievable with previous instruments and techniques. On the other side, it is also focused on the exploitation of Sea Surface Temperature (SST) observations in the infrared spectrum and its synergy with Sea Surface Heigh (SSH) provided by altimeters. Recent results reveal that, this approach has the potential to significantly increase the spatial resolution of current estimations of surface currents.

Surface currents derived from altimetric maps

Surface currents derived from SST using the approach described in Isern-Fontanet et al. 2014

References

J. Isern-Fontanet and M. Shinde and C. Gonzalez-Haro (2014). On the transfer function between surface fields and the geostrophic stream function in the Mediterranean sea. J. Phys. Ocean, 44, 1406-1423