

Resumen

This proposal has two main objectives: (i) to evaluate new experimental CLS-CNES and traditional altimetry products in a very dynamic region, (ii) to improve our understanding of the dynamics of the Malvinas Current and its role in mixing or separating open ocean and continental shelf waters through the use of altimetry, in-situ and model output data.

Our proposal consists in a follow-up study of the CASSIS-Malvinas CNES-funded project (2012-2016, Southwestern Atlantic currents from in-situ and satellite altimetry, www.cima.fcen.uba.ar/malvinascorrent). Thanks to that project we were able to deploy sixteen moorings along two transects that covered the Patagonian shelf and shelf-break. Data obtained from the first transect provided, for the first time, year-long time series of currents over the Patagonian continental shelf which allowed the evaluation of altimetry data. Correlation with satellite altimetry data is statistically significant within all the moorings, being significantly larger over the shelf-break than over the continental shelf. Over the shelf-break results suggest that the largest differences are associated with intrusions of the Brazil Current. Over the continental shelf, the ageostrophic component imposed by the dominant NNW winds is likely to be responsible of the lowest correlation found between the meridional components.

The full exploitation of the dataset, including data to be collected end of 2016 from the second transect, will permit to address specific questions:

- To which extent can we use satellite altimetry in the Patagonian Shelf to study the ocean circulation?
- How has the Malvinas Current transport at 41°S changed over 24 years? Why?
- Is there a relationship between the Malvinas current transport variability and the currents in the Patagonian shelf?
- What is the Malvinas Current transport at 45°S? How does it vary? Why? What are the impacts of those variations? What are the relations between the transport at 45°S and 41°S?

The in-situ data from CASSIS-Malvinas offer an exceptional opportunity to evaluate at the same time new and traditional altimetry products, which is the first main objective of this proposal. The second main objective is motivated by recent studies that suggest that the MC can act as a barrier or as a blender between open ocean and shelf waters. The two roles have deep consequences on the primary productivity on both the continental shelf and shelf-break. The combination of altimetry, in-situ and model output data is proposed to investigate this problem.