



The GO Project

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The purpose of the Geophysical Oceanography project (www.dur.ac.uk/eu.go) is to quantitatively determine what parameters can be reliably extracted from seismic images of ocean structure and how those parameters inform understanding in physical oceanography. The project is working on three datasets:

- 1) legacy data; oceanographic data and seismic data, acquired by both academic groups and industry, but the two data-types are not acquired at the same time;
- 2) calibrated data; the GO project undertook a combined cruise in April/May 2007 with comprehensive oceanographic and seismic systems ensuring simultaneous collection of both data-types, including high-resolution seismic reflection data and the first ocean vertical seismic profile;
- 3) modelled data; computation of synthetic data from constrained dynamic models of ocean mixing which can then be used to develop and test joint inversion and interpretation strategies.

The target area for the project is the Gulf of Cadiz where the Mediterranean Outflow Water (MOW) flows along the southern margin of Iberia and mixes with the North Atlantic Water. At depths between 500-1500 m the warm saline MOW flow becomes neutrally buoyant and forms a distinct layer in the water column, which can be mapped over much of the North Atlantic. A characteristic of this flow as it nears Cape St Vincent is the generation of large-scale anti-cyclonic eddy currents 'Meddies' which become detached from the main MOW flow. During the GO cruise we were fortunate to locate a possible Meddy. This provided an excellent target to examine mixing processes using seismic methods and hence the causes of the observed reflectivity.