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## **Seismic imaging of water mixing around a large eddy current in the Gulf of Cadiz**

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As a part of an EU-funded project "Geophysical Oceanography" (GO [www.dur.ac.uk/eu.go](http://www.dur.ac.uk/eu.go)), experiments have been made in Mediterranean Outflow water in the Gulf of Cadiz (South coast of Portugal, April-May 2007). The GO project aims to assess the potential of seismic imaging of water column to address issues in oceanography, such as lateral continuity of interfaces, internal waves and mixing. Experiments included seismic profiling and underway temperature logging (XBT/XCTD).

Compared to the traditional seismic imaging, here we have an additional issues related to the non-stationarity of the object of investigation. In our case, mapping a large eddy current of Mediterranean water (Meddy) which is both rotating and drifting out of the Gulf into the North Atlantic. So to understand how the boundaries of the Meddy are evolving with time first requires the removal of distortions created by its own motion. We have developed a novel 3D visualization tool that allows us to interact with the data and map the seismic images in the Meddy frame of reference. The technique allows us to see the actual form and positions of seismic slices on the Meddy's body and hence map its boundaries in 3D and time.

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