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Orientation: Ocean Observation and Global Change
Specialization Area: Ocean Observation
Research Area: 1.1 Physical Oceanography

PhD project: **Observations and modeling of the seasonal circulation and hydrology in NW Iberia**

Supervisors: Dr. Carlos Souto Torres (University of Vigo)
Dr. Jesus Dubert (University of Aveiro)
Dr. Des Barton (Marine Research institute-CSIC)

Summary: The intense investigations in the Ria de Vigo since 80's contributed for better understanding of hydrology and circulation pattern in this region. Nevertheless, studies still do not explain all mechanisms which may influence on physical and chemical properties of water in the Ria de Vigo.

The aim of this work is to fill knowledge gaps in terms of investigation of water masses exchange between a semi - enclosed bay Ria de Vigo and adjacent shelf for better understanding an internal circulation and hydrology in inner parts of the Ria.

The numerical simulations were carried out on a high resolution, three dimensional hydrodynamic model ROMS (Regional Ocean Modelling System) with implementation of four, two-way nested domains, to increase the spatial resolution (up to 120 m in last domain).

In result, sensitivity of the ROMS model was improved resulting e.g. a reasonable representation of typical barotropic bidirectional flow, including vertical and horizontal distribution of temperature and salinity in the Ria de Vigo. Furthermore, an integration of observational and modeled data, resulted in discovery a new modes of circulation in the Ria de Vigo.

