

## Seminar



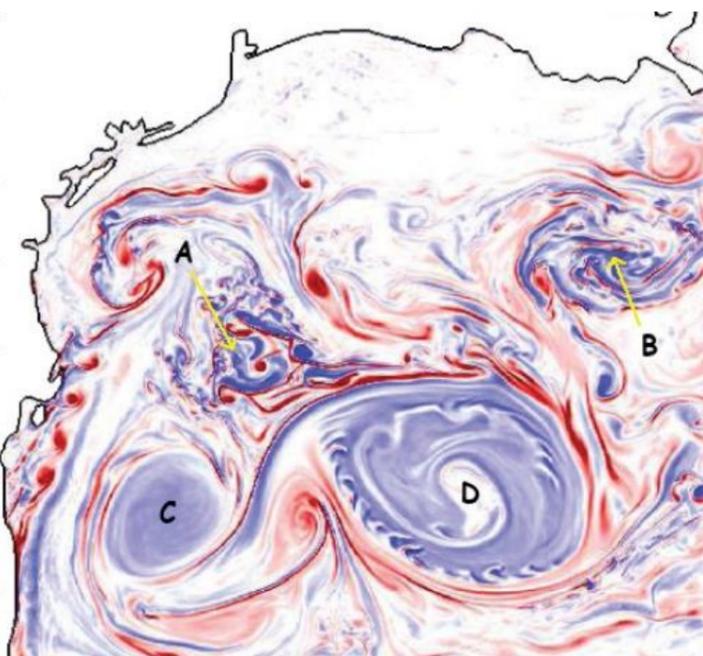
POLITECNICO  
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Dipartimento di Ingegneria  
dell'Ambiente, del Territorio  
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# Multiscale flows in the Gulf of Mexico: from the dispersion of oil to climate implications

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In the ocean, forcing acts at planetary scales and dissipation at microscales. In between there are the **mesoscales**, with characteristics akin to nearly two-dimensional, quasi-geostrophically, balanced turbulence, and a dynamical expression represented by eddies and fronts. They extend from few tens to hundred of kilometers, and act as weather systems of the ocean. At the ocean boundary layers, near the surface and at the bottom, unbalanced, submesoscale flow structures may appear in the form of vorticity filaments, density fronts or coherent vortices, with typical scales of hundreds of meters to few kilometers and a lifespan of several hours to few days. Here I present an **overview of recent studies of physical and biogeochemical interactions across mesoscale and submesoscale flows focusing on the Gulf of Mexico**. I will describe the **physical mechanisms** responsible for the patterns of **oil dispersion** at the ocean surface and along the continental shelf using models and observations from the aftermath of the **2010 Deepwater Horizon oil spill**, and will provide examples of how mesoscale and submesoscale circulations impact the dispersion of biologically and climatically relevant tracers, from *sargassum* algae to carbon.



**MAY 16<sup>TH</sup> 2018**

**H. 10:30**

**DIATI MEETING ROOM**

**DOOR 3, FLOOR 1**

