

PHO-1 Physical Oceanography - Oceanic circulation

Pascale Bouruet-Aubertot & Francis Codron

3 ECTS

This course is shared with other OACOS specialities

Chapter I- Introduction

background state of the ocean, brief overview of wind-driven and meridional overturning circulations, measurements techniques

Chapter II- Fundamentals of Ocean Dynamics

equations of motion, thermodynamic equation, primitive equations, recall on geostrophic equilibrium and boundary layers, planetary geostrophic equilibrium, quasi-geostrophic approximation, equation for potential vorticity, Rossby waves

Chapter IIIa - Wind-driven circulation I (gyres etc, based on vorticity equation)

homogeneous models, influence of stratification, spin-up, topographic effects

Chapter IIIb – Wind driven circulation II (focus on Southern Ocean, zonal momentum balance)

Interaction with topography, role of eddies

Pascale Bouruet-Aubertot & Francis Codron are Professor at the University Pierre et Marie Curie, Paris, researcher at LOCEAN. Research Interest: Oceanic dynamics at sub-meso scales and turbulence; development of laboratory experiments for geophysical fluid dynamics.

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