

MASTER PHYSIQUE

PARCOURS PHYSIQUE OCÉAN ET CLIMAT

semestre 9 Physique POC

Observation circulation et masses d'eaux

Présentation

this course provides a global and descriptive view of physical oceanography
physical properties of the ocean, of mean currents, of forcings and of the main equilibria governing ocean circulation, are described
The main water masses are presented, as well as the role of turbulence in the ocean and of sea ice-ocean interactions

3 crédits ECTS

Volume horaire

Travaux Dirigés : 11h

Cours Magistral : 17h

Objectifs

ObjectivesL learn the following notions
potential density, neutral surfaces, passive tracers
forcing and physical properties of water masses ; main water masses, major ocean currents
analyzing water masses with T/S diagrams, analysing hydrological sections
mean and eddy components of the circulation

Pré-requis nécessaires

M1 in Physics or equivalent

Compétences visées

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Descriptif

Contents
physical properties and thermodynamics of seawater
spatial distribution of water masses
main ocean currents
passive tracers - mixing processes
the mixed layer
ocean turbulence - impact on biogeochemistry
introduction to sea ice

Bibliographie

Fioux, Michèle : L'Océan Planétaire, Presses de l'ENSTA, Paris, 421p, 2010
Open University Course Team, Ocean Circulation, Pergamon Press, 238p, 1989
Open University Course Team, SeaWater : Its composition, properties and behaviors, Pergamon Press, 168p, 1989
Talley, Lynne D., G. L. Pickard, W. J. Emery, J. H. Swift : Descriptive Physical Oceanography – an introduction, Elsevier, 6th edition, 555p, 2011

Modalités de contrôle des connaissances

Session 1 ou session unique - Contrôle de connaissances

Nature de l'enseignement	Modalité	Nature	Durée (min.)	Coefficient	Remarques
	CC	Autre nature		40%	
	CT	Ecrit - devoir surveillé	120	40%	
	CT	Oral - exposé	15	20%	

Session 2 : Contrôle de connaissances

Nature de l'enseignement	Modalité	Nature	Durée (min.)	Coefficient	Remarques
	Autre modalité	Autre nature			oral commun de 40 mn pour toutes les matières