CFA 1.2: Ocean Modelling and Observation Systems

Modality: Advance Training Course

Dates: 24-27/06/2019

Timetable: 10:30-13:30 / 15:00-17:00 (Portuguese time)

Duration: 20 h

Location: Universidade de Aveiro (Portugal), local to be defined.

Language: English

Academic coordinators:

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Jesús Dubert	Universidade de Aveiro (Pt)	jdubert@ua.pt
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Lecturers:

Name	Institution	e-mail
Jesús Dubert	Universidade de Aveiro (Pt)	jdubert@ua.pt
Julio Martín Herrero	Universidade de Vigo (Es)	julio@gts.uvigo.es
Paulo Nogueira Brás de Oliveira	IPMA (Pt)	pboliveira@ipma.pt

General description:

The course is centered in the study of the modelling and observation systems of the ocean. The main modelling systems will be addressed, together with the modelling techniques. Complementarily, the course also addresses the study of the local and global observation systems, the theoretical foundations and state of the art, practical applications, limitations and future opportunities of ocean remote sensing.

Contents:

Unit 1. Introduction:
Brief introduction of the main aims and contents, methods and lecturers.

Unit 2. Remote sensing:
Fundamental principles and relevant aspects of ocean remote sensing, with major emphasis in optical remote sensing and an introduction to microwave techniques.

Unit 3. Ocean modelling systems:
Principles of ocean modelling, with an introduction to the main type of systems currently in use for different spatial scales from coastal to large oceanic scale.

Unit 4. Ocean observation systems:
Main systems and techniques of in situ observation used in physical oceanography, and their necessity in the study of the ocean.

Unit 5. Applications to the study of oceanic systems:
Specific case studies integrating remote sensing, modelling and in situ observation techniques, where the combination of different techniques can be used for a better understanding of the oceanic systems. These applications will be presented from a practical point of view, using databases and tools useful for the PhD training of the students.

Teaching methodologies:

The course combines theoretical sessions (Units 1 to 3, during the first day) with practical sessions using computers (Units 4 and 5, during days 2, 3 and 4). In this way, the course will be onsite at the Aveiro University, in order to be able to interact with the instructor, and with the other students.

Evaluation system:

The students will deliver individual work in relation to the contents of the course, and there is a final exam at the end of the course.

Brief CV of the lecturers:

Dr. Paulo Nogueira Brás de Oliveira: Researcher at IPMA/IPIMAR of Lisbon. His primary specialty is remote sensing and its applications to the understanding of the physical phenomena affecting the ecosystems. In addition to remote sensing, he uses in situ observations and the integration with numerical models.

Prof. Dr. Julio Martín Herrero: Lecturer at the School of Telecom Engineering of the University of Vigo, he is an specialist in remote sensing, image processing and spatial analysis.

Prof. Dr. Jesús Dubert: Lecturer at the University of Aveiro, at the Center of Advanced Studies of the Environment and the Sea. His main specialty is the use of numerical modelling for the understanding of oceanic physical processes and their interaction with biological processes (such as larval dispersion) and biogeochemical (oceanic productivity).

Relevant references:

The material of the course will consist of power point /pdf presentations, that will be provided to the student through elearning site.