



Instituto de Geociências - UFBA



## ***Applications of Radioisotopes in Marine Sciences***

**Prof Pere Masque**  
**Edith Cowan University (Australia)**

This course is aimed to provide the fundamental concepts of the radioisotopes and its application in studies of environmental processes, with a strong component on their use as geochronological tracers. The course will be held at the Geoscience Institute of Federal University of Bahia, from 25<sup>th</sup> to 29<sup>th</sup> June 2019, attending around 30 undergraduate, graduate students and scientists of Earth Sciences, specially of Geochemistry, Oceanography, Geology and Petroleum Engineer.

### **About the Lecturer:**

Dr Pere Masque is a professor at the School of Natural Sciences at Edith Cowan University, Australia, and at the Physics Department at Universitat Autònoma de Barcelona, Spain. He is also Adjunct Professor at the Oceans Institute and at the School of Physics of the University of Western Australia. His research focuses on the use of both natural and artificial radioactive isotopes as tracers of environmental processes, mostly in the oceans, such as the impact of submarine groundwater discharge (SGD) on coastal and open ocean regimes; the ocean's role in global climate change; the capacity of coastal ecosystems (i.e. seagrass meadows, mangroves and saltmarshes) for storing carbon and their significance to mitigate anthropogenic CO<sub>2</sub> emissions (Blue Carbon); reconstruction of the historical patterns of climate, pollution and other natural and anthropogenically-driven processes, and radiological impacts of radioactive materials in the environment. Current working areas include the Mediterranean Sea, the Atlantic, the Antarctic and the Arctic Oceans, and coastal ecosystems worldwide. He has been involved in teaching and mentoring at university level since 1994, being in charge of courses such as: *Radiation physics, Environmental radioactivity and Applications of radiotracers in oceanography*. Dr Masque is a scientific expert for the Technical Cooperation Department of the International Atomic Energy Agency (United Nations), lecturing at several international courses and on training missions (i.e. Germany, Pakistan, Australia), and has relevant scientific publications in his area.



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### Course Schedule:

#### June 25<sup>th</sup>

- 08:00 to 09:30 – Basic concepts of radioactivity
- 09:30 to 10:00 – Coffee break
- 10:00 to 12:00 – Natural radioactivity and applications in the study of marine processes
- 14:00 to 16:00 – Cosmogenic and artificial radionuclides and applications in the study of marine processes

#### June 26<sup>th</sup>

- 08:00 to 09:30 – Basic analytical techniques in studies using radiotracers
- 09:30 to 10:00 – Coffee break
- 10:00 to 12:00 – Geochronology in sediments:  $^{210}\text{Pb}$  and  $^{14}\text{C}$
- 14:00 to 17:00 – Sampling and pre-processing of a sediment core in the lab

#### June 27<sup>th</sup>

- 08:00 to 09:30 – Models for dating sediment cores
- 09:30 to 10:00 – Coffee break
- 10:00 to 12:00 – Models for dating sediment cores II
- 14:00 to 17:00 – Gamma spectrometry in the laboratory

#### June 28<sup>th</sup>

- 08:00 to 09:30 – Reconstruction of contamination history recorded in aquatic sediments: heavy metals and organic contaminants
- 09:30 to 10:00 – Coffee break
- 10:00 to 12:00 – Sequestration of carbon in coastal ecosystems: Blue Carbon
- 14:00 to 17:00 – Workshop: Use of real data to obtain age models of sediment cores

#### June 29<sup>th</sup>

- 08:00 to 09:30 – Marine radioecology
- 09:30 to 10:00 – Coffee break
- 10:00 to 12:00 – NORM: Naturally Occurring Radioactive Materials: oil industry
- 14:00 to 17:00 – Workshop: Application of models to real case studies

Observation: This course will be held in English.



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### **Application:**

To apply, send an e-mail to [introceano.ufba@gmail.com](mailto:introceano.ufba@gmail.com) with name, position and recent institution of the applicant, as well as the statement of interest letter. Deadline to Apply: June 08<sup>th</sup>, 2019.

### **Any question?**

Please, contact Profa. Ana Cecília Rizzatti de Albergaria Barbosa (Federal University of Bahia) through the number +55-71-32838581, or by e-mail ([introceano.ufba@gmail.com](mailto:introceano.ufba@gmail.com); [cecilia.albergaria@ufba.br](mailto:cecilia.albergaria@ufba.br)).