**OBJECTIVES:** to enable the use of radionuclides (natural and artificial) in the oceanographic process: examples in marine pollution and sediment dynamics

**INTRODUCTION**

*Radionuclides in marine environmental studies*
- Sediment accumulation rates
- Transport of elements to oceans
- Gas exchange
- Water mass circulation

*Radionuclides origin*
- **Natural radionuclides**
  - Cosmic-rays: produced in the upper layers of the troposphere and the stratosphere: Be and ¹⁴C
  - Natural decay products: ²³⁵U, ²³⁸U and ²³²Th (decay chain, several radioisotopes)
- **Artificial radionuclides**: produced by nuclear tests and nuclear power plants:
  - Worldwide dispersion by radioactive fallout
  - ¹³⁷Cs, ⁹⁰Sr, ²³⁹⁺²⁴⁰Pu and others

**ACTIVITY 1:** in this activity we intend to use the dating from ²¹⁰Pb and ¹³⁷Cs to understand anthropic activities in an estuarine system

**ACTIVITY 2:** in this activity we intend to use the levels of ¹³⁷Cs and ⁴⁰K to understand sediment dynamics in a Continental Shelf
- Recognize depositional areas
- Current influences
- Grain size

**References**