

## CFT7 Course Title: Techniques for climate characterization and sea state

**Modality:** Transversal Training Course

**Dates:**

17/18/19 April 2018 (16:00 – 19:00 h)

**Duration:**

Lectures: 9 hours

**Location:** DOMAR Videoconference Room, Torre-CACTI building, Campus As Lagoas-Marcosende, Universidade de Vigo

**Language:** English

**Academic coordinators:**

Name	Institution	e-mail
Pedro Arias	University of Vigo	parias@uvigo.es

**Lecturers:**

Name	Institution	e-mail
Pedro Arias	University of Vigo	<a href="mailto:parias@uvigo.es">parias@uvigo.es</a>
Luis Miguel González	University of Vigo	<a href="mailto:luismgonzalez@uvigo.es">luismgonzalez@uvigo.es</a>

**General description:**

The objectives of the course will be to review the most important techniques and tools to characterize the water medium using satellites and unmanned aerial systems.

**Contents:**

- Unit 1. Geospatial sensors.
  - o Global Navigation Satellite Systems (GNSS).
  - o Inertial Measurement Units (IMU).
  - o LiDAR sensors.
  - o Image sensors and photogrammetry.
- Unit 2. Observation satellites
  - o Platforms. Copernicus Sentinel.
  - o Remote sensing techniques and software (SNAP).
  - o Integration in geographical information systems (GIS). QGIS Software.
- Unit 3. Unmanned aerial systems
  - o Platforms. Rotary and fixed wing aircrafts.
  - o Sensing payload.

- Data processing.
- Integration in geographical information systems (GIS). QGIS Software

**Teaching methodologies:**

- Theoretical class.
- Practical class. Use of open software for Remote Sensing and GIS data processing.

**Evaluation system:**

- Case studies proposed by the professors.

**Brief CV of the lecturers:**

Pedro Arias is Professor at the Department of Natural Resources & Environmental Engineering in the University of Vigo. He obtained a PhD in Mining Engineering in 2003. He has more than 20 years of professional experience as Engineer, researcher, lecturer and project manager. His teaching and research activities are focussed on Geomatic Techniques, Close Range Photogrammetry, LiDAR systems, Mobile systems, Mobile LiDAR Systems. Pedro has initiated and managed as principal investigator more than 50 projects, two one of them European research projects. He was a member of the International Society for Photogrammetry and Remote Sensing (secretary of LiDAR working group), and reviewer for National and International projects (Hong-Kong, Brazil, Chile). He has published more than 150 in prestigious journals (h-index 27, with more than 2550 citations).

Luis Miguel González is BSc in Electronics Engineering from the University of Vigo (2016) and MSc in Mechatronics (2017). Currently he is doing the PhD thesis in the Geotech Research Group. His thesis research topic is related with the developing of inspection methodologies using unmanned aerial systems.