

## PERSONAL INFORMATION

**Filipe Bernardo da Costa Agostinho Rodrigues Lisboa**

Sex Male  
Date of birth 18/03/1985  
Nationality Portuguese

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## WORK EXPERIENCE

Mar 2016–Feb 2017

**PhD student**

FCT — Foundation for Science and Technology, Lisbon (Portugal)

Filipe finished a multi-disciplinary course on Climate Change and Sustainable Development Policies at a pre-Ph.D. level (equivalent to MPhil). This one-year long course is part of the PDACPDS (a 3 year PhD programme) programme. The objective is to apply a specific scientific subject to fields such as social sciences, governance or economics. As part of the evaluation, articles are prepared and submitted to scientific magazines. Filipe has focused on the area of Phytoplankton applications and impacts derived from Earth Observation satellite imagery and in-situ data.

Studies have included:

- Marine Strategy Framework Directive (MSFD) transposition study which outlined the value of marine monitoring for EU members. The study measured the degree of preparedness of two-member states (Finland and Portugal) for the entering into force of the Directive. It concluded that Portugal, with the biggest Exclusive Economic Zone, presents insufficient preparedness due to extreme difficulties in the monitoring of its marine habitats. Five out of the eleven MSFD descriptors made use of satellite observations: biological diversity, eutrophication, hydrographical conditions, contaminants and pollution effects and marine litter.
- How deriving phytoplankton functional types from space can help understand better the growth of different fishes and how this can better improve the cost-per-effort of fishery activities. The importance of primary production estimates for fisheries must be accompanied by an understanding of local economic activities and the impact of harmful algal blooms on aquaculture. Filipe established contact with specialists from Mariscope in Chile in order to understand algal blooms events with very high socio-economic impacts. This societal component will be incorporated into the thesis dissertation and a final article will be drafted together with those specialists. Tentative title (still in manuscript): "Changes in phytoplankton abundances and their contribution to local impacts."
- The research project is based at the Centro de Oceanografia (MARE) and focuses on the use of ocean colour products as signals for addressing key areas of climate variability thus combining ocean colour with data such as sea ice extent or wind patterns. Using information on the uptake of ocean colour data and SST from OC-CCI Filipe is assessing yearly variability in phenology of key areas. Both studies use a time series of all data from v3.0 and the 5-day merged product. The whole of the data set was incorporated into an original MATLAB code to cope with problems of data availability and the creation of specific masks. Filipe is using the Ocean Data View tool and AMT data in NW Africa upwelling system for in-situ validation. Includes the preparation of case-studies to better understand if phytoplankton blooms are occurring earlier (yearly) in the arctic due to warmer temperatures and earlier ice melt. Seasonal variability study in assessing primary production for the upwelling system in NW Africa and canary current system.

Filipe has gained additionally experience at the Centro de Oceanografia in using concepts such as OpenDAP, OceanColor.org and GEBCO.

Oct 2015–Feb 2016

**Response to Pollution at Sea — Oil Spill Assistance**

European Maritime Safety Agency

Author of a thorough study related to oil spill response exercises. The study addresses the operational performance of the European vessel network devoted to oil spill emergencies. This

large network is spread throughout European Union's coastal areas through contracted vessels. The study is a tool to evaluate the implementation and management of such contracts. This experience also provided the ability to understand and work within European Commission's agencies. Furthermore, it enhanced the knowledge about maritime safety and maritime surveillance systems.

Feb 2015–Oct 2015

### Natural Hazards Research — Oceanography

Portuguese Sea and Atmosphere Institute, I. P. (IPMA, IP), Lisbon (Portugal)

Head author of a tool (in MATLAB) for sea level monitoring routines and scientific analysis, both from ports' tide gauges and open-ocean buoys. Management (60%) and R&D (40%) for ASTARTE project, a European Union's FP7 project to foster tsunami resilience in Europe, through innovative research on scientific problems critical to enhancing forecast skills in terms of sources, propagation and impact.

- Developed the accompanying documentation for the Tsunami alert ASAT tool including installation guide, user guide and a theoretical explanation on wavelet analysis. Filipe consulted users in order to provide useful and clear documentation.
- Supported the creation of online video tutorials (in Portuguese) for the specified use of software: ASAT and BEAM (as support to SOPHIA project in Centro de Oceanografia). ASAT is a tool that uses de-tiding algorithms and wavelet analysis to compute the wave height and wave period of tsunami waves. The tutorials were on-line and face-to-face and directed at non-experts.

Note: Three publications of this work as peer-reviewed papers and a conference.

Dec 2012–Jan 2015

### Earth Observation — QC and Validation

European Space Agency - ESRIN, Frascati (Italy)

Filipe completed a two year trainee position concentrating on data processing at the ESA's centre for Earth Observation Programmes. Specifically, Filipe worked on data validation and quality control for ESA's Swarm mission. This space mission is a member of a family of satellites devoted to the study of the Earth and monitoring of its many natural processes. The tasks were divided into 50% of research and 50% of development and implementation of IT tools for products' validation. The PDGS (Payload Data Ground Segment) activities were carried out during the critical space mission phases of pre-launch, commissioning and operations.

Tasks included:

- Integration of the created tools into G-POD (processing on demand) systems provided by a third-party.
- Co-operate with and report on activities within the Sensors Performance, Products and Algorithms Section team.
- Participation on most of the EOP-GMQ meetings as well as calibration and validation meetings and science meetings.
- Creation of a Spherical Harmonics Tool that was also incorporated into G-POD. Supported this integration into the online platform at [gpod.eo.esa.int/services/SWARM-SHA/](http://gpod.eo.esa.int/services/SWARM-SHA/) Based on the algorithm fully developed as part of Filipes work in ESA, the user can order a processing of magnetic field (and anomaly) maps directly from daily level 1b data.
- As part of quality control activities, making clarifications on the data processing and how algorithms were designed was a routine task for Filipe in order to keep the users informed about the sensors' performances. The additional tools that were created in this context responded to some specific questions about quality control.
- Filipe developed the documentation which was divided into two parts. A first part to respond to the questions on the specific sensors' performance. And a second which was more technical, to be used guideline and support to the understanding of SHA analysis and processing.
- Supported the inter-calibration activities of Absolute Scalar and Vector Field Magnetometers, routinely reported on the early stages of the mission as conformity with the Characterization and Calibration Data Base. Routinely validated automatic screening reports that are generated by the inter-calibration machine.

Jun 2010–Nov 2012

### Aerospace Engineering — Research & Development

Fundação para a Ciência e Tecnologia, Ministério da Educação e Ciência (Education and Science), Lisbon (Portugal)

Studies, planning, simulation and development of satellite systems for Earth Observation in low-Earth orbits. Spaceborne radar and optical instruments have very specific 3D-attitude requirements; the conducted studies provide a throughout evaluation of the stability of the satellite systems to provide reliable data, especially imagery. Part of this work can be found in the MSc Thesis. Additional research on satellites connected by tethers. These subjects are applicable to Low Earth Orbit satellites like all of the Copernicus Programme. Scientific project management (40%).

Mar 2009–Mar 2010

**Research in Astrophysics**

Fundação para a Ciência e Tecnologia, Ministério da Educação e Ciência, Lisbon (Portugal)

Research Integration Grant. Study of the predicted time-corrections from General and Special Relativity to the GPS positioning system, under the supervision of Professor Paulo Crawford, PhD. Site: FCUL

**Teacher**

Filipe has been teaching for 12 years helping students achieve their best results before entering college. As an example, Filipe has helped many students to enter medical schools when they are required to have grades above 18 points (in a 0 to 20 scale).

**EDUCATION AND TRAINING**

2009–2012

**MSc in Physics Engineering – Space Eng**

Thesis: 17/20

Faculdade de Ciências da Universidade de Lisboa, Lisbon (Portugal)

Full Master of Science program with thesis: 1,5 year of courses on advanced engineering, physics, earth sciences and astronomy and one year of thesis.

2012

**Alpbach Summer School**

prizewinning

Aeronautics and Space Agency of FFG - Österreichische Forschungsförderungsgesellschaft (Austria)

Advanced lectures and a final project on a space mission design under the theme "Exploration of the giant planets and their systems".

2004–2008

**BSc in Physics – variant of Astronomy and Astrophysics**

Final: 17/20

Faculdade de Ciências da Universidade de Lisboa, Lisbon (Portugal)

Four years Bachelor degree with high-level Mathematics and Physics. An in-depth approach to the many modern physics domains in the last two years parallel with optional courses on its applications i.e., climate science, renewable energies and engineering.

Filipe is a PADI certified diver

**PERSONAL SKILLS**

Mother tongue(s)

Portuguese, French

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
Italian	C2	C2	C2	C2	C1
Finnish	A1	A1	A1	A1	A1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user  
Common European Framework of Reference for Languages

Communication skills

Filipe demonstrates good communication skills which he has acquired in international and multicultural environments working on international projects..

Organisational / managerial

Good organization skills utilised in recent years whilst participating in extensive projects

**skills** between universities, companies and government agencies;  
**Digital competence** Expertise and experience in any of the following:  
- OS: MacOS X, Linux (any distribution) and MS Windows  
- iWork, Open Office, MS Office  
- Programming: MATLAB, Python, C++, IDL and java.

## ADDITIONAL INFORMATION

### Peer Reviewed Articles

- [7] " Ocean Colour applications to address changes in the Canary Current upwelling region" (Submitted for peer-review)
- [6] "What to learn from ocean colour remote sensing as an ECV? — Lessons from Greenland's Ice loss" (Submitted for peer-review)
- [5] "On the Marine Strategy Framework Directive: an overview of Portuguese and Finnish spatial planning actions." (Submitted for peer-review)
- [4] "Tsunami Characteristics Along the Peru-Chile Trench: Analysis of the 2015 Mw8.3 Illapel, the 2014 Mw8.2 Iquique and the 2010 Mw8.8 Maule Tsunamis in the Near-field", Pure and Applied Geophysics, April 2016, Volume 173, Issue 4 pp 1063-1077  
<http://link.springer.com/article/10.1007/s00024-016-1277-0>
- [3] "New Study of the 1941 Gloria Fault Earthquake and Tsunami " Nat. Hazards Earth Syst. Sci., 16, 1967-1977, 2016  
<http://www.nat-hazards-earth-syst-sci.net/16/1967/2016/nhess-16-1967-2016-discussion.html>
- [2] "On The Source Of The 25 November 1941 - Atlantic Tsunami " ID#74681 : presented at AGU2015 conference, San Francisco, USA  
<https://agu.confex.com/agu/fm15/meetingapp.cgi/Paper/74681>
- [1] "The Uranus System Explorer (USE) – Unveiling the evolution and formation of icy giants", European Planetary Science Congress (EPSC), Madrid, Spain  
<http://orbi.ulg.ac.be/handle/2268/132579>

### Presentations

- [6] "The Earth as seen from space", speaker on Earth Observation, Lisbon, Portugal
- [5] Speaker at Observatório Astronómico de Lisboa: "A Pale Blue Dot", Lisbon, Portugal
- [4] Development of a Simulator for Low Earth Orbit Satellites, Faculty of Sciences of the University of Lisbon, Portugal (Física iLimitada workshop)
- [3] 3rd Swarm Science Meeting, IDA Conference Center, Copenhagen, Denmark, 19-20 June 2014
- [2] Presentations in the European Space Agency related to the on-going operative work
- [1] Alpbach Summer School: Exploring the Giant Planets of our Solar System, Alpbach, Tirol, Austria, June 2012

### Conferences & Workshops

- Colour and Light in the Ocean from Earth Observation (CLEO), ESA-ESRIN Frascati, 6–8 September 2016
- 4th Swarm Quality Workshop, Potsdam, Germany, 2-5 December 2014
- Astrophotography and Photography of the Night Sky, Osservatorio Astronomico F. Fuligni, Rocca di Papa, Italy, November 2014
- ESA Climate Change Initiative, ESA-ESRIN, Frascati, Italy, 3-6 February 2014
- 5th Intergovernmental Panel on Climate Change (Assessment Report, Working Group 1), ESA-ESRIN, Frascati, Italy, 3rd February 2014
- 6th International Workshop and Advanced School - DCVE, UBI Covilhã, 28-30 Mar 2013

### Honours and awards

Honours: One of 50 persons for 50 years of historical Portuguese high school "Liceu de Oeiras - Escola Secundária Sebastião e Silva"

Awards: Merit-based scholarship in college (2004/2005 and 2005/2006), and Física Lda Workshop (prizewinning)

### Volunteering

- Co-founder of "L.A.M.A. — Local Achievements, Mutual Actions" and website creator: [www.lama-ngo.o](http://www.lama-ngo.o)