

EUROPEAN CURRICULUM VITAE



PERSONAL INFORMATION

Name **CELIA MARIE COLINE LAURENT**
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WORK EXPERIENCE

- Dates (from - to) March 2020 – today
 - Name and address of the employer OGS – National Institute of Oceanography and Applied Geophysics, Trieste, Italy
 - Type of business or sector Scientific institute
 - Occupation or position held **Technologist**
 - Main activities and responsibilities Software developer and modeller for physical oceanography, ecosystem and biogeochemistry models.
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- Dates (from - to) February 2014 – January 2020
 - Name and address of the employer OGS – National Institute of Oceanography and Applied Geophysics, Trieste, Italy
 - Type of business or sector Scientific institute
 - Occupation or position held **Post-doc researcher**
 - Main activities and responsibilities Software developer and modeller for oceanography and marine ecosystems

EDUCATION AND TRAINING

- Dates (from - to) 2019 – 2020
 - Name and type of organisation providing education and training SISSA – Scuola Internazionale Superiore di Studi Avanzati, Trieste, Italy and ICTP – International Center for Theoretical Physics, Trieste, Italy
 - Principal subjects/occupational skills covered High Performance Computing – HPC (multi-language programming for scientific softwares, parallel programming, accelerators, code optimization, installation and maintenance of parallel infrastructures based on Unix environments, numerical analysis, big data, machine learning...)
 - Title of qualification awarded **Master in High Performance Computing**
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- Dates (from - to) 2008 – 2012
 - Name and type of organisation providing education and training Employer (scientific institute): **ONERA** – Office National d'Etudes et Recherches Aéronautiques, Palaiseau, France
PhD school providing diploma: Ecole **Arts et Métiers ParisTech**, Paris, France
 - Principal subjects/occupational skills covered Computational Fluid Mechanics applied to aerodynamics: "Study of transitionnal and non-equilibrium flows through DNS and RANS approaches"
 - Title of qualification awarded **PhD in Engineering Sciences [physics]**

- Dates (from - to)
- Name and type of organisation providing education and training
- Principal subjects/occupational skills covered
- Title of qualification awarded

2006 – 2008

UVSQ – University of Versailles Saint Quentin en Yvelines, France

applied physics, applied mathematics, scientific programming

Master's degree "Modelling and Simulation" [Applied Mathematics]

- Dates (from - to)
- Name and type of organisation providing education and training
- Principal subjects/occupational skills covered
- Title of qualification awarded

May 2008 – September 2008

ONERA – Office National d'Etudes et Recherches Aéronautiques, the French Aerospace Lab, Palaiseau, France

Computational Fluid Dynamics applied to aerodynamics: Large Eddy Simulation of turbulent flows with curvilinear and cartesian grids

Master thesis

- Dates (from - to)
- Name and type of organisation providing education and training
- Main activities and responsibilities

May 2007 – July 2007

OGS – National Institute of Oceanography and Applied Geophysics, Trieste, Italy

Computational Fluid Dynamics applied to oceanography: numerical analysis of some oceanographic phenomena observed in the northern Adriatic Sea by means of a 3d hydrodynamic model

University 4th year thesis

- Title of qualification awarded

- Dates (from - to)
- Name and type of organisation providing education and training
- Principal subjects/occupational skills covered
- Title of qualification awarded

2003 – 2006

UPMC – University Pierre et Marie Curie – Paris VI, France

physics

Bachelor's degree in Physics

PERSONAL SKILLS AND COMPETENCES

MOTHER TONGUE
OTHER LANGUAGES

FRENCH
ITALIAN, ENGLISH

SCIENTIFIC SKILLS AND COMPETENCES

Living and working with other people, in multicultural environments, in positions where communication is important and situations where teamwork is essential (for example culture and sports), etc.

- Research interests (5 Key words): oceanography, ecosystems, biogeochemistry, modelling, High Performance Computing
- Author of 7 publications on Scientific Journals.
- Communication at national and international congresses
- Currently supervising 1 PhD student
- Previously supervisor of 1 university these (master) and
- Everyday assistance as HPC specialist and software developer

RELEVANT ROLES AND COMPETENCES

Coordination and administration of people, projects and budgets; at work, in voluntary work (for example culture and sports) and at home, etc.

- Involvement in numerous research projects:
 - 2023 – Now : NBFC (National Biodiversity Future Center) - ACTIVITY 1: Assess and mitigate impacts and threats to marine biodiversity Zero Pollution - ACTION 2: Zero pollution strategy for biodiversity protection Role: Modelling Emergent pollutants at sea for future climate change scenarios, providing hazard maps and connectivity datasets.
 - 2022 - Now : NBFC (National Biodiversity Future Center) - Spoke2 - Attività 4 (MSP4BIODIVERSITY) - Role : Modelling Emergent pollutants and oil spill at sea, providing hazard maps and connectivity datasets in the Northern Adriatic, Sicilian

straight and Tyrrhenian Sea.

- 2022 - Now : RETURN Foundation - Multi-Risk science for resilient commUnities undeR a changiNg climate – Role : Modelling Pathogens and Emergent pollutants at sea from sources such as river and sewage implants in the Northern Adriatic, providing hazard maps and connectivity datasets.
 - 2024 – Now : ITINERIS - Italian Integrated Environmental Research Infrastructures System - Role : Participation to the development of a procedure for Data assimilation of buoy measurements of the biogeochemical variables within the SHYFEM.-BFM software applied to the Marano-Grado Lagoon.
 - 2022-2024 : NAMIRS project - North Adriatic Maritime Incident Response System – Role : Modelling oil spill incidents and providing hazard maps
 - 2021 – 2023: SHAREMED project – Sharing and enhancing capabilities to address environmental threats in Mediterranean sea. Interreg Euro-MED Programme 2021-2027. Role: Oil spill modelling and oceanographical connectivity in the northern Adriatic Sea
 - 11/2018 – now : Venezia 2021 –Research program for a "regulated" lagoon, Provveditorato alle OO. PP. of Triveneto through the Consortium "Venezia Nuova". Role: Oceanographical and biogeochemical modeling of the Venice lagoon
 - 01/2018 – 03/2020 : HARMONIA – Harmonization and Networking for contaminant assessment in the Ionian and Adriatic Seas, Interreg Adrion Program, Priority Axis 2: Sustainable Region. Role: Oil spill modelling and hazard estimations in the Adriatic Sea
 - 02/2016 – 02/2018 : MANTIS – Marine protected Areas Network Towards Sustainable fisheries in the Central Mediterranean, DG MARE/2014/41. Role: Modelling the connectivity of subpopulations of species of commercial interest in the Adriatic Sea.
- 2022 : Responsible of OGS-JRC collaboration contract for the development and application of the LTRANS_Zlev model to the specific case of floating litter in the Black Sea basin to fulfil the obligations of JRC in Deliverable 6.1 of BLUE2.2.

PUBLICATION INDEXES (SCOPUS)

- NUMBER OF PUBLICATIONS: 6
- TOTAL NUMBER OF CITATIONS: 76
- H-INDEX: 4

MOST RELEVANT PUBLICATIONS

In the last 10 years.

1. Ginevra Rosati, Cosimo Solidoro, Célia Laurent, Leslie Aveytua Alcázar, Georg Umgiesser, Donata Canu, Mercury cycling in contaminated coastal environments: modeling the benthic-pelagic coupling and microbial resistance in the Venice Lagoon. *Water Research*, Volume 261, 2024, <https://doi.org/10.1016/j.watres.2024.121965>.
2. Donata Melaku Canu, Celia Laurent, Elisabetta B Morello, Stefano Querin, Giuseppe Scarcella, Nedo Vrgoc, Carlo Frogia, Silvia Angelini, Cosimo Solidoro – *Nephrops norvegicus* in the Adriatic Sea: Connectivity modeling, essential fish habitats, and management area network – 2021, *Fisheries Oceanography* 30 (4), 349-365
3. Stefano Querin, Simone Cosoli, Riccardo Gerin, Célia Laurent, Vlado Malačič, Neva Pristov, Pierre-Marie Poulain – Multi-Platform, High-Resolution Study of a Complex Coastal System: The TOSCA Experiment in the Gulf of Trieste – 2021, *Journal of Marine Science and Engineering* 9 (5), 469
4. Célia Laurent, Stefano Querin, Cosimo Solidoro, Donata Melaku Canu – Modelling marine particle dynamics with LTRANS-Zlev: implementation and validation – 2020, *Environmental Modelling & Software* 125, 104621
5. Vinko Bandelj, Cosimo Solidoro, Célia Laurent, Stefano Querin, Sara Kaleb, Fabrizio Gianni, Annalisa Falace – Cross-scale connectivity of macrobenthic communities in a patchy network of habitats: The Mesophotic Biogenic Habitats of the Northern Adriatic Sea – 2020, *Estuarine, Coastal and Shelf Science* 245, 106978
6. Célia LAURENT, Simone Bnà, Eric Pascolo, Alberto Sartori, Georg Umgiesser, HPC implementations in the SHYFEM hydrodynamic model using the PETSc library and application to modern architectures (2020 Dec 18). Master thesis, SISSA
7. Donata Melaku Canu, Leslie Aveytua-Alcazar, Celia Laurent, Ginevra Rosati, Cosimo Solidoro, Is the future given? Cumulative impact of Climate change and MOSE closures on Venice and its lagoon. *Physical Sciences* (preprint - 2023) <https://doi.org/10.21203/rs.3.rs-3731067/v1>

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV

Trieste, 19/12/2024

Signature