

PhD in OCEAN, ATMOSPHERE, HYDROLOGY

Skills

Computing Skills

- Fortran
- MPI
- Bash
- Open Foam (C++)
- Matlab
- Simulink
- Python
- NetCDF (NCO+CDO)
- Paraview
- L^AT_EX
- UNIX & Mac
- Windows

Models

Ocean & waves

- CROCO
- WaveWatch3 (WW3)
- OASIS-MCT
- COAWST:
(SWAN+ROMS)
- NEMO

Languages

French	Mother tongue
English	B2
Spanish	C1
Italian	B1

Work Experience

2020-present
CMCC (Italy)

Junior researcher.

- Implement ocean and wave numerical code developments
- Perform numerical experiments in the Mediterranean Sea using NEMO and WW3 in standalone and coupled configurations
- Analyze and validate model results including comparison with available observations
- NEMO system team member / NEMO officer
- Wave climate in the Adriatic sea

2016-2020
CICESE
(Mexico)

Post-doctoral position in hydrodynamic modeling.

Numerical assessment of the impact of the wave-current interaction on the hydrodynamics of the Gulf of Mexico

- Instalation and implementation of wave-current coupled models (CROCO-WW3 and COAWST)
- Modification of the implementation of the Stokes drift calculation
- Study of the wave-current interaction
- Analysis of the impact of waves and turbulence on the surface drift

2012-2015
LEGI/UGA
(France)

Ph.d in geophysical fluid dynamics.

Air-sea interaction at the synoptic and the meso-scale

- Writing of a bi-layer SW model (FORTRAN/Open Foam).
- Study of barotropic instabilities,
- Analysis of energy transfer between the ocean and the atmosphere
- Study of the atmospheric and oceanic dynamics around an island.
- Collaboration with ISAC laboratory (Lecce, IT)

2013-2020
UGA/INPG
CICESE

Teaching at University and Ingeneer school.

- Mathematics applied to geosciences
- Scilab introduction and numerical analysis
- Numerical project on natural system with Simulink
- Introduction to wave modelling

2014
once a week

Teaching of science at elementary school.

Education

2014 **European Research Course on Atmosphere.**

2010-2012 **Master's degree in water, climate, and environment.**
Joseph Fourier University

2007-2010 **Licence's degree in geophysics and mechanics.**
Joseph Fourier University

Publications

- Article **Non-negligible impact of Stokes drift and wave-driven Eulerian currents on simulated surface particle dispersal in the Mediterranean Sea**, S. Rühls, T. van den Bremer, E. Clementi, M. C. Denes, A. Moulin, and E. van Sebille, 2024, *EGUsphere*, <https://doi.org/10.5194/egusphere-2024-1002>.
- Article **Projections of the Adriatic wave conditions under climate changes**, A. Moulin, L. Mentaschi, E. Clementi, G. Verri, and P. Mercogliano, 2024, *Front. Clim., Sec. Predictions and Projections Volume 6*, 10.3389/fclim.2024.1409237 .
- Article **An assessment of the GlobCurrent database under strong gap–wind conditions**, M. Larrañaga, B. Esquivel–Trava, P. Osuna, F.J. Ocampo–Torres, N. Rascle, H. García–Nava, A. Moulin, 2023, *Meteorology and Atmospheric Physics, Volume 135*, DOI: 10.1007/s00703-023-00967-0.
- Article **Momentum transfer between an atmospheric and an oceanic layer at the synoptic and the mesoscale: an idealized numerical study**, A.Moulin, A.Wirth, *Boundary-Layer Meteorology*, 2016, Vol. 160, pp 551-568.
- Article **A drag induced barotropic instability in air-sea interaction**, A.Moulin, A.Wirth, 2014, *Journal of Physical Oceanography*, Vol. 44, No. 2, p733-741.
- Book Chapter **SUBTOMO OLEAJE del ATLAS DE LÍNEA BASE AMBIENTAL DEL GOLFO DE MÉXICO: Tomo II Circulación oceánica y oleaje**, J. P. Osuna Cañedo, F.J. Ocampo–Torres, A. Moulin, M. J. Larrañaga Fu, R. G. Navarro Labastida, N. Rascle, Edited by Consorcio de Investigación del Golfo de México (CIGoM), 2020, pp 115-180.