Elodie Laffitte
Engineer with PhD in Physical Oceanography

Contact

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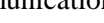📞 06.84.13.33.56, France

in Elodie Laffitte, PhD

Special skills

Coastal Hydrodynamics
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Marine Engineering
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Marine renewable energies
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Fluid Mechanics
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Code development
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Written / oral communication
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Code

Fortran   ●●●●●●
Matlab   ●●●●●○
Python   ●●●○○○
Latex   ●●●●○○

Numerical tools

Refdif, Roms ●●●●○○

Xbeach ●●●●●○

Ariane ●●●●●○

Rhinoceros ●●●○○○

StarCCM+, Eole
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Modelling

Numerical analysis,
algorithmics ●●●●○○
F.E., F.D., F.V. Methods
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Languages

English : 985/990 TOEIC
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Spanish
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💼 Working Experience

- **Engineer in Offshore Hydrodynamics:** 01/2019 – 07/2019 (France)

Seakeeping of floating structures, sizing of mooring systems, naval architecture, fluid-structures interactions, sizing of coastal defense structures.

- **PhD in Physical Oceanography :** 2015: 2018 - MIO (France)

Modelling the propagation of water waves in the presence of vertically sheared currents over variable bathymetry (MORHOC'H project)

Numerical approach: Two models, based on hyperbolic equations and both extended to consider vorticity, were implemented in an original code in Fortran. In a Bragg resonance configuration, the influence of the vorticity has been compared to the influence of the surface current velocity, in a parametric study.

Experimental approach: in a wave flume, reflection of regular waves propagating above sinusoïdal bathymetry and horizontally varying sheared current (first experiment with detailed sheared current profiles).

Theoretical approach: Thanks to a strong questioning of the theory, a new modelling arised, with an original decomposition of the velocity potential taking into account the asymmetry between the incident and reflected wavenumbers.

- **Engineer in Coastal Morphodynamics :** 2015 - CNRS (France)

Dynamics of North Mediterranéan micro-tidal beach: modelling (Xbeach) the evolution of the swash zone dynamics during decadal storms – comparison with data field.

- **Engineer in Offshore Modelling :** 2015 - RS2N (France)

Numerical simulations for rocks destruction in deep water. Development of an original code to propagate chock waves in a compressible media through a water/gazes interface.

🎓 Education

- **Training - Marine Renewable Energies:** 2019 - CNRS

Sizing and behaviour modelling of marine structures, France.

- **PhD in Coastal Oecanography:** 2015 : 2018 - MIO

Physical and coastal oceanography, France.

- **Engineering degree :** 2011 : 2014 - ISITV

Marine engineering and numerical modelling, France, First class Honours.

- **Reseach Master's Degree :** 2013 : 2014 - MINES PARISTECH

Physics of Materials, Mechanics and Modelling with parallel computing, France, First class Honours.

Personnality : Vibrant - curious - resilient - pedagogue - rigorous
Interest : Environment - Travelling - Postcrossing - Geocaching - Literature

International Conferences - speaker	Scientific Publication
EGU (Austria, 2016, 2018), IMAM (Portugal 2017), Fadex-O (France, 2017) 16ᵉ JH (France, 2018). WIF (Czech Republic, 2018).	Belibassakis, Touboul, Laffitte, Rey, A Mild-slope system for Bragg scattering, JMSE DOI: 2019 – 10.3390/jmse7010009 Laffitte, My PhD in two-pages, L'Eléphant.

Teaching: Vibratory mechanics, Hydrodynamics, L3/M1, SeaTech, 120 hours
Tutoring in Mathematics, English, Physics, Philosophy, 2 years