Contact

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Website: https://dlaetitia.github.io/

Languages

French, native language
English, fluent
Spanish, intermediate

Computing

- R
- Python
- Matlab
- Github
- Bash
- OS
- Windows, Unix

References

- Sakina-Dorothée Ayata
  Associate Professor, Sorbonne University
  sakina-dorothee.ayata@locean.ipsl.fr

- Jean-Olivier Irisson,
  Associate Professor, Sorbonne University
  jean-olivier.irisson@imev-mer.fr

- Lars Stemmann,
  Professor, Sorbonne Université,
  lars.stemmann@imev-mer.fr

Laetitia Drago

Research background

2024-26 — *Postdoctorate: Machine learning and marine data*
LOCEAN-IPSL UMR 7159, Paris, Sorbonne Université CNRS-IRD-MNHN
Supervision : Sakina-Dorothée Ayata
Funding : NECCTON Horizon Europe RIA under Grant Number 101081273

- Spatial distribution of zooplankton taxonomic and functional diversity in the Iroise Marine Natural Park (PNMI)
- Use of quantitative imaging data (UVP5, Zooscan), environmental data, and machine learning
- Link between functional diversity and environment

2020-23 — *PhD: Global Analysis of the Biological Carbon Pump Using Quantitative Imaging Data*
LOV UMR 7093, Villefranche sur mer, Sorbonne Université
Supervision : Lars Stemmann, Rainer Kiko,
Fundong : 50% H2020 TRIATLAS project and 50% Doctoral School ED129

- Spatial distribution of zooplankton biomass using quantitative imaging data (UVP5) and machine learning (niche models)
- Compilation of imaging and climatology data (WOA, Copernicus, NOAA)
- Export phenomenon in the North Atlantic during the EXPORTS campaign, 2021
- Field campaigns: Norwegian Fjords and North Atlantic

2020 — *Master 2 Internship: Global Distribution of Macrozooplankton Biomass Estimated by In Situ Imaging*
LOV UMR 7093, Villefranche sur mer, Sorbonne Université
Supervision : Jean-Olivier Irisson, Lars Stemmann, Thelma Panaïotis

- Spatial distribution of zooplankton using quantitative imaging data (UVP5) and machine learning (niche models)
- Analysis of a large database (25 oceanographic projects)

2019 — *Master 1 Internship: Numerical Simulations of Larval Dispersal of Paramuricea clavata*
LECOB UMR 8222, Banyuls sur mer, Sorbonne Université
Supervision : Katell Guizien

- Lagrangian models of larval dispersal and population connectivity

Formation

2022 — *FIDLE Introduction to Deep Learning* — 17h, CNRS
Convolutional neural networks, evaluation of regression and classification models, sequential and temporal data. Theory and practice (Python).

2022 — *Ocean Litteracy* — 3 weeks, Sorbonne University and IMBRSea
Communicating with different types of audiences (age, profession) using innovative learning methods.

2021 — *ML4Oceans* — 1 week, Sorbonne University
Summer school on the use of artificial intelligence and machine learning tools in oceanography. Theory and practice (Python).

2018-20 — *Master's in Marine Sciences* — Sorbonne University
Specialization: Functioning of Marine Ecosystems and Global Change, with high honours.
Functional ecology, oceanography, modeling, data processing.

2015-18 — *Multivariate Analysis for Marine Ecology* — 3 weeks, Sorbonne University
Methodologies for environmental data analysis. Theory and practice (R).

2015-18 — *Bachelor's Degree in Life Sciences and Health* — University of Nice
Specialization: Biology of Organisms and Ecosystems, with high honours
Ecology, organism and ecosystem diversity, statistics, genetics.

Publications

- Ceballos Romero E., Buesseler K., Fields E., Kiko R., Estapa M., Karp-Boss L., Clevenger S., **Drago L.**, Siegel D., 2025. On the assessment of sinking particle fluxes from in situ particle size distributions. EarthArXiv (in review). https://doi.org/10.31223/X5899D

- Sato M., Erickson Z.K., Drago L., Maas A.E., McMonagle H., Steinberg D.K., 2025. Temporal dynamics of mesopelagic fishes within a mesoscale eddy: a Lagrangian perspective. Limnology and Oceanography Letters (in review)

- Nocera A.C., Stemmann L., Babin M., Biard T., Coustenoble J., Carlotti F., Coppola L., Courchet L., Drago L., Elineau A., Guidi L., Hauss H., Jalabert L., Karp-Boss L., Kiko R., Laget M., Lombard F., McDonnell A., Merland C., Motreuil S., Panaïotis T., Picheral M., Rogge A., Waite A., Irisson J.-O., 2025. A global consistent database of plankton and detritus from in situ imaging by the Underwater Vision Profiler 5. Earth Syst. Sci. Data Discuss. (in review) https://doi.org/10.5194/essd-2025-522

- Soviadan D., Beck M., Habib J., Baudena A., **Drago L.**, Accardo A., Laxenaire R., Speich S., Brandt P., Kiko R., Stemmann L., 2025. Marine snow morphology drives sinking and attenuation in the ocean interior. Biogeosciences, 22, 3485–3501 (in review). https://doi.org/10.5194/bg-22-3485-2025

- Siegel D., Estapa M., Burd A., Fields F., Johnson L., Romanelli E., Passow U., **Drago L.**, Kiko R., Durkin C., Omand M., Brzezinski M., Buesseler K., Cetinic I., "Particle dynamics, sinking carbon export and the demise of the North Atlantic spring bloom: Results from the EXPORTS-NA field campaign", PNAS (submitted), https://doi.org/10.31223/X58709

- **Drago L.**, Cailliau C., Pouline P., Beker B., Jalabert L., Romagnan J.-B., and Ayata S.-D., Long-term plankton and environmental monitoring dataset from the marine protected area of the Iroise Marine Natural Park (2010–2023) in the Iroise Sea, North Atlantic, Earth Syst. Sci. Data, 17, 6583–6600, https://doi.org/10.5194/essd-17-6583-2025, 2025.

- Soviadan D., Dugenne M., **Drago L.**, Biard T., Trudnowska E., Lombard F., Romagnan J.-B., Jamet J.-L., Kiko R., Gorsky G., Stemmann L., Combining in situ and ex situ plankton image data to reconstruct zooplankton (>1 mm) volume and mass distribution in the global ocean, Journal of Plankton Research, Volume 46, Issue 5, September/October 2024, Pages 461–474, https://doi.org/10.1093/plankt/fbae046

- Thepault A., Rodrigues A., **Drago L.**, Gremillet D., "Food chain without giants: Historical trophic modelling indicates 70% increase in little auk populations after bowhead whaling in the Atlantic Arctic", Proceedings of the Royal Society B, 2024, https://doi.org/10.1098/rspb.2024.1183

- Laget M., **Drago L.**, Panaïotis T., Kiko R., Stemmann L., Rogge A., Llopis-Monferrer N., Leynaert A., Irisson J.-O., and Biard T., "Global census of the significance of giant mesopelagic protists to the marine carbon and silicon cycles", Nature, 2024 https://doi.org/10.1038/s41467-024-47651-4

- Dugenne, M., Corrales-Ugalde, M., Luo, J., Kiko, R., O'Brien, T., Irisson, J.-O., Lombard, F., Stemmann, L., Stock, C., Anderson, C. R., Babin, M., Bhairy, N., Bonnet, S., Carlotti, F., Cornils, A., Crockford, E. T., Daniel, P., Desnos, C., **Drago, L.**, Elineau, A., Fischer, A., Grandrémy, N., Grondin, P.-L., Guidi, L., Guieu, C., Hauss, H., Hayashi, K., Huggett, J. A., Jalabert, L., Karp-Boss, L., Kenitz, K. M., Kudela, R. M., Lescot, M., Marec, C., McDonnell, A., Mériguet, Z., Niehoff, B., Noyon, M., Panaïotis, T., Peacock, E., Picheral, M., Riquier, E., Roesler, C., Romagnan, J.-B., Sosik, H. M., Spencer, G., Taucher, J., Tilliette, C., and Vilain, M.: First release of the Pelagic Size Structure database: Global datasets of marine size spectra obtained from plankton imaging devices, Earth Syst. Sci. Data Discuss., 2024, https://doi.org/10.5194/essd-2023-479

- **Drago L.**, Panaïotis T., Irisson J.-O., Babin M., Biard T., Carlotti F., Coppola L., Guidi L., Hauss H., Karp-Boss L., Lombard F., McDonnell A., Picheral M., Rogge A., Waite A., Stemmann L., Kiko R., 2022, Global Distribution of Zooplankton Biomass Estimated by In Situ Imaging and Machine Learning, Front. Mar. Sci, https://doi.org/10.3389/fmars.2022.894372

Conferences and posters

2026
Ocean Science Meeting, Glasgow (February) — 3 posters:
- Bringing Ocean Science to Kindergarten Children: A Co-constructed Plankton Education Project (Drago L., Ayata S.D.)
- Spatio-temporal patterns in zooplankton functional traits: long-term imaging insights from the Iroise Marine Natural Park (Drago L., Caillau C., Pouline P., Ayata S.D.)
- Predicting plankton diversity from Copernicus model outputs using machine learning (Ayata S.D., Drago L., et al.)

2025
Ecostat, Metz — Spatial distribution of zooplankton diversity in the PNMI (presentation)

2024
SAMA, Paris — Global distribution of zooplankton biomass estimated by in situ imaging and machine learning (presentation)
Marine Life 2030 Seminar — Monitoring plankton diversity and dynamics in the Iroise Marine Natural Park (presentation)
PNMI Seminar — Monitoring plankton diversity and dynamics (presentation)

2023
ASLO, Spain — North Atlantic biological pump dynamics in an eddy revealed via in situ imaging (presentation)

2022-2021
TRIATLAS General Assembly — Global distribution of zooplankton biomass (2022, presentation; 2021, poster)
ASLO — Global distribution of macroplankton biomass estimated by in situ imaging (2021, presentation)

Awards and Grants

December 2023: Laureate of the "Scientific Publication Prize for Thesis" from Fondation de la Mer and the Ocean Institute of the Sorbonne University Alliance

Septembrer 2022 : 2nd place for best poster at the LOV seminar

September 2021 : 2nd place for best poster at the General Assembly of the European TRIATLAS H2020 project

2020-2023 : Half-tuition scholarship from the Doctoral School ED129 of Sorbonne University

University Services

2020-23 Co-organizer of "LOV Student Seminars"

Welcoming new PhD students and interns, practice sessions for thesis defenses, themed seminars

2020-23 Representative of PhD students in several committees

OSU-STAMAR, Villefranche Oceanography Laboratory, Institute of the Sea of Villefranche

2018-20 Co-organizer of the "Green Lunch"

Weekly discussions in english on environmental protection and sustainable development

Teaching and Supervision

2024 *Tara Ocean Winter School QLife* — 3.5h, ENS

Zooplankton distribution and in situ imaging data

Green Ocean — 6h, ENSTA

Marine plankton diversity and biological invasions

2022-23 *Teaching Assistantship Contract* — 128h, Sorbonne Université

Courses and practical work with undergraduate and master's students.
Modeling, taxonomy, and plankton diversity.

2021-24 *Co-supervision of Internships*

- Bachelor's 2: "Impact of the Iroise coastal front on phytoplankton and zooplankton dynamics in the Iroise Marine Natural Park", Sofia Mastouri (2 weeks)
- Master's 2: "Impacts of zooplankton on the carbon cycle of the equatorial Atlantic", Hélène Thibault (6 months)
- Master's 1: "Study of zooplankton communities along the equatorial Atlantic", Hannah Haines (2 months)

Outreach and Scientific communication

2024-26 *Project "Shapes and Colors of Plankton"*

Co-creation with Sakina-Dorothée Ayata of workshops for a kindergarten in partnership with the Aquarium of the Porte Dorée.
Development of worksheets on shapes, counting, and colors with my plankton illustrations.
Co-creation of a board game on the plankton food web.

21-26 *Scientific Instagram Account "Marine Life Tales"*

Presentation of my research and teaching activities on the marine world

2024 *Science festival « Fête de la Science »*

- Introduction to marine plankton through games (kindergarten, 1st grade)
- Speed meetings with high school students on science career guidance

2023 *Pint of Science*, "Plankton study"

Science outreach on zooplankton research

21-23 *Animatrice scientifique, Petits débrouillards*

Organisation d'activités auprès de publics divers notamment sur les mers et littoraux.

2021-22 *Participation in EXPORTS Campaign Communication*

Campaign postcard, interviews with the communication team and "Imaging the Ocean", blog post for NASA Earth Expeditions

2020 *PlanktonID Website Translation (anglais-français)*