

BAPTISTE ALGLAVE

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https://balglave.github.io/b_alglave/

RESEARCH INTEREST

I am an applied statistician with a specific interest in spatio-temporal modeling for environmental and ecological applications. I am currently assistant professor in statistics at University Bretagne Sud and Lab-STICC (UMR 6285 - DECIDE team).

I develop statistical methods for environmental and ecological applications that (1) combine heterogeneous and massive spatio-temporal data sources (*hierarchical integrated modelling*), (2) account for non-homogeneous sampling of the datasets (*preferential sampling*), (3) integrate differences in spatial resolution between these distinct data sources (*change of scale/support*), and (4) synthesize the spatio-temporal information available from these data sources (*spatio-temporal dimension reduction*).

Since my PhD, I have developed statistical methods to investigate the spatio-temporal dynamics of ecological species in order to identify hotspots or functional areas for these species and assess the impact of climate change on species spatio-temporal dynamics.

As part of the geography group of the Lab-STICC, I am now working on the interaction of urban landscapes and climate. Our goal is to develop operational tools to assist managers in planning urban areas in the context of land pressure, threats to ecosystems, and climate change.

CURSUS

Associate professor in statistics (CNU 26)

Since September 2023

Research laboratory in information and communication science and technology (Lab-STICC, CNRS UMR 6285), team DECIDE.

Université Bretagne Sud (UBS), IUT Vannes, Data Science department.

Postdoc

January - June 2023

University of Washington / NOAA

Subjects:

1/ Dimension reduction methods for spatio-temporal ecological data.

2/ Spatio-temporal population dynamics modeling under climate change.

Supervisors: Jim Thorson, André Punt, Cody Szuwalski.

PhD: Ifremer Nantes and Institut Agro (Rennes) - UMR DECOD

2019 - 2022

Subject: Inferring fish spatio-temporal distribution and identifying essential habitats: tackling the challenge of preferential sampling and change of support to integrate heterogeneous data sources. [link](#)

Supervisors: Marie-Pierre Etienne, Youen Vermard, Mathieu Woillez, Etienne Rivot.

SCIENTIFIC PUBLICATIONS

Peer-reviewed

Alglave Baptiste, Olmos, M., Casemajor, J., Etienne, M. P., Rivot, E., Woillez, M., Vermard, Y. (2024). **Investigating fish reproduction phenology and essential habitats by identifying the main spatio-seasonal patterns of fish distribution.** ICES Journal of Marine Science. <https://doi.org/10.1093/icesjms/fsae099>

Rovellini A., Punt A.E., Bryan M.D., Kaplan I.C., Dorn M.W., Aydin K., Fulton E.A., Alglave B., Baker M.R., Carroll G., Ferriss B.E., Haltuch M.A., Hayes A.L., Hermann A.J., Hernvann P.Y., Holsman K.K., Liu O.R., McHuron E., Morzaria-Luna H.N., Moss J., Surma S., Weise M.T. (2024). **Linking climate stressors to ecological processes in ecosystem models, with a case study from the Gulf of Alaska.** ICES Journal of Marine Science. <https://doi.org/10.1093/icesjms/fsae002>

Olmos M., Cao J., Thorson J.T., Punt A.E., Monnahan C.C., Alglave B., Szuwalski C. (2023). **A step towards the integration of spatial dynamics in population dynamics models: Eastern Bering Sea snow crab as a case study.** Ecological Modeling. <https://doi.org/10.1016/j.ecolmodel.2023.110484>

Alglave B., Vermard Y., Rivot E., Etienne M.P., Woillez M. (2023). **Identifying mature fish aggregation areas during spawning season by combining catch declarations and scientific survey data.** Canadian Journal of Fisheries and Aquatic Sciences. <http://dx.doi.org/10.1139/cjfas-2022-0110>

Alglave B., Rivot E., Etienne M.P., Woillez M., Thorson J.T., Vermard Y. (2022). **Combining scientific survey and commercial catch data to map fish distribution.** ICES Journal of Marine Science. <https://doi.org/10.1093/icesjms/fsac032>

Under review

Alglave B., Mourguiart B., Vermard Y., Rivot E., Woillez M., Kristensen K., Etienne M.P. (*under review*). **Change of support for heavy-tailed zero inflated data: application to spatially aggregated ecological data for fine-scale species distribution inference.** *Under review for 'Journal of the Royal Statistical Society Series C: Applied Statistics'.* [link](#)

Alglave B., Dufée B., Obakrim S., Thorson J. T. (*under review*). **Empirical Orthogonal Functions for ecology.** *Under review for 'Methods in Ecology and Evolution'.* [link](#)

Szuwalski C., Alglave B., Olmos M., Punt A., Veron M. (*under review*). **Integrating climate effects in multiple population processes for fisheries projections.**

CONFERENCE PRESENTATIONS

International conferences

Alglave B., Obakrim S., Dufée B., Thorson J. T. **How best to ordinate spatio-temporal data?** International Statistical Ecology Conference. Swansea, United Kingdom, July 15-19 2024. [link](#)

Alglave B., Etienne M.P., Vermard Y., Woillez M., Rivot E. (2024). **Integrating massive and heterogeneous spatio-temporal data in environmental science and ecology. Fisheries as case of application.** Fifteenth International Conference on Geostatistics for Environmental Applications. Chania, Greece, June 19-21, 2024. [link](#)

Alglave B., Dufée B., Obakrim S., Thorson J.T. (2024). **Empirical Orthogonal Functions and their latest developments. Dealing with orthogonality and sparse data.** Fifteenth International Meeting on Statistical Climatology (IMSC). Centre National de Recherche Météorologique, Toulouse, France, June 24-28, 2024. [link](#)

Bocher E., Gousseff M., Bernard J., Le Saux E., Alglave B., and Kerjouan E. (2024). **Comparison of different methods to produce local climate zone maps using the LczExplore tool.** EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-15984. [link](#)

Szuwalski C., Alglave B., Olmos M., Punt A.E., Veron M. **Population feedback can modulate climate change impacts.** PICES-2023 Annual Meeting. November 2023, Seattle, USA.

Alglave Baptiste, Vermard Youen, Etienne Marie-Pierre, Woillez Mathieu, Rivot Etienne (2022). **Can we use catch declarations data to map fish spatial distribution?** International Statistical Ecology Conference (ISEC). June 2022, Cape Town, South Africa. [link](#)

Alglave Baptiste, Vermard Youen, Etienne Marie-Pierre, Woillez Mathieu, Rivot Etienne (2021). **Can we trust commercial landings data to identify essential habitats of harvested fish? Application to several demersal species in the Bay of Biscay.** ISOBAY 17 - XVII International Symposium on Oceanography of the Bay of Biscay. June 2021, virtual event. [link](#)

National conferences

Alglave B., Thorson J. T., Obakrim S., Dufée B. (2024). **How to best represent spatio-temporal data?** Annual meeting of the GdR 'Ecology and statistics'. April 2024, Montpellier, France. [link](#)

Alglave B., Punt A.E., Rivot E., Szuwalski C., Etienne M.-P. (2023). **Integrating massive and heterogeneous spatiotemporal data to infer spatial processes. Marine ecology as a field of application.** French Society of Statistics. July 2023, Brussel, Belgium.

Alglave B., Kristensen K., Vermard Y., Rivot E., Woillez M., Etienne M.P. (2022). **Downscaling coarse observations to predict continuous species spatio-temporal distribution.** Meeting of the RESSTE network ‘Spatio-temporal statistics for remote sensing data’. May 2022, Paris, France. [link](#)

Alglave B., Kristensen K., Vermard Y., Rivot E., Woillez M., Etienne M.-P. (2022). **Going from coarse landings data to fine scale species distribution.** Annual meeting of the GdR ‘Ecology and statistics’. April 2022, Montpellier, France. [link](#)

Seminars

Alglave B. **EOFs and derived methods.** Séminaire ‘Statistiques au sommet’ ([website](#)) à Rochebrune 2024. [link](#)

Alglave B. **Integrating massive and heterogeneous spatio-temporal data in environmental science. Marine ecology as field of application.** Seminar of the Mathematics Laboratory of Bretagne Atlantique (LMBA). February 2024. [link](#).

Alglave B. **Statistics, fisheries management and spatial modelling: towards spatio-temporal stock assessment methods.** Eighth meeting of statistics. Data science for sea and coastal systems ([website](#)). Université Bretagne Sud. November 2023. [link](#)

Alglave B. **Integrating heterogeneous and massive spatio-temporal data to infer spatial processes. Fisheries science as field of application.** Quantitative seminars, School of Fisheries and Aquatic Science, University of Washington, Seattle. March 2023.

Alglave B. **Integrating heterogeneous and massive spatio-temporal data to infer spatial processes. Fisheries science as field of application.** MIA, AgroParisTech, Paris Saclay. April, 2023.

Alglave B. **Inferring fish spatio-temporal distribution and identifying essential habitats: tackling the challenge of preferential sampling and change of support to integrate heterogeneous data sources.** [Ecodep seminars](#), Cergy University. January 2023.

TECHNICAL REPORTS

Casemajor J., Alglave B., Woillez M. (2024). **Mapping the spawning grounds of fish species in Metropolitan France.** Ref. PDG/RBE/HALGO/LBH-2024-02. Ifremer. [link](#)

Alglave B., Vermard Y. (2022). **Ad-hoc contract for the preparation of STECF EWG 22-01 concerning closure areas to protect juveniles and spawners of all demersal stocks in western Mediterranean Sea.** *The report is not public, but key results are available on the* [link](#)

PROJECTS AND WORKING GROUPS

ACLIM: The Alaska Climate Integrated Modeling Project

January - June 2023

The Alaska Climate Integrated Modeling project (ACLIM) is an interdisciplinary collaboration to project and evaluate climate impacts on marine fisheries in the Bering Sea, Alaska. [link](#)

Head of the project: Kirstin Holsman (NOAA).

MACCO project

2019 - 2024

Identification of the target species and by-catch of the Bay of Biscay mixed fishery and evaluation of alternative management strategies. [link](#)

Head of the project: Stéphanie Mahévas (Ifremer Nantes).

EWG 22-01 - West Med closure areas

2022

Working group aiming at identifying and evaluating the potential closure areas for the demersal species of the Western Mediterranean Sea.

Ifremer working group ‘Science with and for society’

2021 - 2022

Working group aiming at evaluating the interactions between science and society within Ifremer. It led to several surveys among researchers, post-doctoral and doctoral students and to internal reports for the Ifremer scientific direction.

SMAC project - Sole of the Eastern English Channel

2019

Project aiming at investigating stock structure of the Eastern English Channel and adapting management to the available knowledge on stock structure.

Head of the project: Marie Savina-Rolland (Ifremer Lorient).

SUPERVISORY EXPERIENCE

Master student

May - November 2024

Subject: Mapping and profiling French cities based on local climate zones. [link](#)

Student: Pauline Besnard.

Co-supervision with: Erwan Bocher.

CDD Ifremer

January 2023 - June 2024

Subject: Packaging and applying spatio-temporal models to identify fish essential habitats for all French facades.

CDD employee: Juliette Casemajor.

Co-supervision with: Mathieu Woillez.

Master student

May - July 2022

Subject: Contributions of the lognormal Poisson model for multivariate analysis of ecological communities. [link](#)

Student: Théo Fabien.

Co-supervision with: Marie-Pierre Etienne, Thomas Outrequin and Jean-Louis Marchand.

Master student

February - August 2021

Subject: Combining commercial and scientific data to infer the space-time distribution of sardine in the Bay of Biscay. [link](#)

Student: Florian Quemper.

Co-supervision with: Etienne Rivot and Marie-Pierre Etienne.

TECHNICAL SKILLS AND PACKAGES

Inference methods

Maximum likelihood inference, Bayesian inference

Languages

R, C++, Java, Python, SQL

Tools

Git, LaTeX, TMB, R-INLA, JAGS, Nimble, PostgreSQL

Packages

[FishMap](#)

SCIENTIFIC ANIMATION

Workshop on spatio-temporal modelling for ecology

Since 2023

with Maxime Olmos (Ifremer). Biannual meeting bringing together ecologists and statisticians to learn spatio-temporal modeling and its application to ecological case studies.

Space-time seminars

January - June 2023

Organization of bimensual seminars with a focus on spatial and spatio-temporal statistics.

Amédée seminars

2020-2021

Organization of semestrial seminars with a focus on methodological development in fisheries science and marine ecology. [link](#)

WORKSHOP, COURSEWORK AND OTHERS

Finist'R workshop

2024,2022,2020

Bootcamp of State Of the R group, organized by the MIA. Roscoff. [link](#)

Stats aux sommets, MIA Paris, visio

2021, 2024

Member of the SFDS.

GRANT

Grant for the international mobility of doctoral students

2021

Grant obtained from Ifremer for the mobility in 2021 at the DTU (Danemark).

TEACHING

Maximum likelihood estimation (BSc)

2023 - 2024

Introduction to spatial and spatio-temporal statistics (BSc)

2023 - 2024

Linear model (BSc)

2023 - 2024

Descriptive statistics (BSc)

2023 - 2024

Introduction to spatio-temporal modeling for ecology (MSc)

2021 - 2022

Student project in data science (MSc)

2020 - 2021

Practical work in statistics for marine ecology (MSc)

2020 - 2021

Practical work in basics of probability theory (BSc)

2019 - 2020