BAPTISTE ALGLAVE

(+33) 6 52 92 33 00 ◇ 8, rue Montaigne BP 561, 56017 Vannes
baptiste.alglave@univ-ubs.fr ◇ baptiste.alglave@orange.fr
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 and assess the impact of climate change on species spatio-temporal dynamics. As part of the geography group of the Lab-STICC, I work also 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 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 (HDR).

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. (*minor revisions*). *Change of support for heavy-tailed zero inflated data: application to spatially aggregated ecological data for fine-scale species distribution inference.* Under review in 'Journal of the Royal Statistical Society Series C: Applied Statistics'. link

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

Michel M., Alglave B., Olmos M., Torterotot M., Virgili A., Martin-Marin S., Royer J.Y., Samaran F. (*under review*). *Modelling the influence of environmental factors on the acoustic presence of blue whale populations in the Southern Indian Ocean.* Under review in 'Scientific Reports' (Nature).

In preparation

Alglave B., Dufée B., Obakrim S., Thorson J. T. (*in prep*). *Empirical Orthogonal Functions for ecology.* link

Alglave B., Husson F. (*in prep*). *A framework based on variance analysis and dimension reduction methods to analyse spatio-temporal data.*

CONFERENCE PRESENTATIONS

International conferences

Alglave B., Obakrim S., Dufée B., Thorson J. T. (2024). *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. (2023). *Population feedback can modulate climate change impacts.* PICES-2023 Annual Meeting. November 2023, Seattle, USA.

Alglave B., Vermard Y., Etienne M.P., Woillez M., Rivot E. (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 B., Vermard Y., Etienne M.P., Woillez M., Rivot E. (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 (Risks, extremes and spatio-temporal statistics). 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. (2025). *Statistical integration for spatio-temporal modeling of species distribution in ecology.* Journées de STAtistique de Rennes (JSTAR) 2025.

Alglave B. *EOFs and derived methods.* 'Statistiques au sommet' (website), Rochebrune. Organizer: MIA Paris Saclay. March 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

MOUSE project (ANR JCJC / Submitted) Submitted in October 2024

The MOUSE project (Joint MOdelling of Urban overheating factors acrosS European cities) is a project aiming at developing integrated statistical methods to identify city profiles regarding urban overheating factors to classify European cities regarding their sensitivity to urban overheating.
Heads of the project: Baptiste Alglave (Lab-STICC).
Collaborators: Francois Leconte (Lermab), Erwan Bocher (Lab-STICC), Lise Bellanger (Lab-STICC), Julien Chiquet (MIA Paris-Saclay).

MOBYDIC project 2025 - 2030

The MOBIDYC (Promoting active and sustainable MOBIlity through InterDisciplinarY Co-construction) project aims to investigate the key human and environmental factors of active and sustainable mobility (here cycling) based on an interdisciplinary approach combining machine learning, sport science and geography.
Heads of the project: Léa Gottsmann (ENS Rennes), Marie-Pierre Etienne (ENSAI/CREST).

ACLIM: The Alaska Climate Integrated Modeling Project 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).

Working group for the West Med closure areas (EWG 22-01) 2022
Working group aiming at identifying and evaluating the potential closure areas for the demersal species of the Western Mediterranean Sea.
Head of the working group: Cecilia Pinto (University of Genova).

ProbyFish project 2019-2021
European project to identify measures to protect by-catch species in mixed-fisheries management plans.
It provided half of the funds for the PhD.
Head of the project: Anna Rindorf (DTU-Aqua).

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).

SUPERVISORY EXPERIENCE

PhD Since February 2025
Subject: Modeling spatio-temporal distribution and population dynamics of Holothuria in Newfoundland.
Student: Aurèle Hebert Burggraeve.
Co-supervision with: Nicolas Bez (HDR), Laurent Dubroca.

PhD Since November 2024
Subject: Analyzing and predicting overheating phenomena on urban territories in the context of climate change.
Student: Lenaig Le Grognec.
Co-supervision with: Erwan Bocher (HDR), Jeremy Bernard.

Master student May - November 2024
Subject: A typology of French cities based on urban overheating indicators. link
Student: Pauline Besnard.
Co-supervision with: Erwan Bocher.

CDD January 2023 - June 2024
Subject: Packaging and applying spatio-temporal models to identify fish essential habitats for all French facades. Ifremer.
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 work on spatio-temporal modeling based on ecological applications.
Host institution: UMR DECOD.

Space-time seminars January - June 2023
Organization of bimensual seminars with a focus on spatial and spatio-temporal statistics.
Host institution: University of Washington.

Amédée seminars 2020-2021
Organization of semestrial seminars with a focus on methodological development in fisheries science and marine ecology. link
Host institution: UMR DECOD.

WORKSHOP, COURSEWORK AND OTHERS

Finist'R workshop 2020,2022,2024
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.

TEACHING

Introduction to spatio-temporal modeling for ecology 2021, 2022, 2024
Institut Agro (Rennes), M2.

Student project in data science 2021, 2024
Institut Agro (Rennes), M2.

Sampling and experimental design 2024
IUT Vannes, Data Science department, L2.

Maximum likelihood estimation 2023, 2024
IUT Vannes, Data Science department, L3.

Introduction to spatial and spatio-temporal statistics 2023, 2024
IUT Vannes, Data Science department, L3.

Descriptive statistics 2023, 2024
IUT Vannes, Data Science department, L1.

Linear model 2023
IUT Vannes, Data Science department, L2.

Practical work in statistics for marine ecology 2020, 2021
Institut Agro (Rennes), M2.

Practical work in basics of probability theory 2019
Nantes University, L2.