RONAN MCADAM, PHD

JUNIOR SCIENTIST
CMCC FOUNDATION –
EURO–MEDITERRANEAN CENTRE ON
CLIMATE CHANGE

CONTACT

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EDUCATION

IMPERIAL COLLEGE LONDON

2015 - 2019

- PhD in Physical Oceanography, Dept. of Physics / Grantham Institute of Climate Change

2011 - 2015

- MSci in Geophysics, Dept. of Earth Science and Engineering

SKILLS

- Ocean & Climate Data Analysis
- Coding (Python, CDO etc)
- High Performance Computing
- Project design & management
- Advanced statistical analysis
- Supervision & Collaboration
- Scientific Writing
- Public Speaking

LANGUAGES

- English (First language)
- French (Fluent)
- Italian (C1)

WORK EXPERIENCE

Junior Scientist (Permanent),   2023 -
Climate Variability and Predictions Division,
CMCC, Italy

- Development of machine learning-based seasonal forecasting methods
- Performing and coordinating analysis of extreme climate events in several European projects
- Responsible for national and international collaborations, and supervision of students
- Task leader roles in international consortiums

Post-Doctoral Researcher,   2019 - 2023
Ocean Data Assimilation & Modelling Division,
CMCC, Italy

- Validation and applications of ocean models, reanalyses and short-term and seasonal forecasting systems
- Developed expertise on terrestrial and marine heatwaves: drivers, predictability and development of user-relevant indices

Teaching Assistant,   2019
Turves Green Secondary School, UK

- Led targeted classes and revision sessions in an improving secondary school (11-16 years old)

Policy Researcher & Magazine Correspondent,
Royal Statistical Society, UK   2018

- Prepared briefing documents on local government data and science education funding

Technical Skills

Computing

- Highly proficient in Python, CDO, nco & Shell
- Trained in C++ and Matlab
- LaTeX/Overleaf
- Inkscape & GIMP image processing software
- Windows/Mac/Linux
- Office 365
- GitHub version control
- HPC and Parallel computing

Model and Dataset experience

- Copernicus Marine Service
- Copernicus Climate Change Service
- Global ocean reanalyses
- ECMWF ERA5/ERA20C
- NEMO configurations (from 1 deg to 1/16 deg)
- OceanParcels Lagrangian toolkit
- GlobCurrent products
- AVISO ADT Sea Surface Height
- ESA CCI Sea Surface Temperature
- NOAA Global Drifter Program

Projects

2019 - 2023

EUROSEA: Improving and Integrating the European Ocean Observing and Forecasting System

- Quality assessment of ocean variables from C3S seasonal forecasts
- Demonstrate societal benefit of physical Ocean Monitoring and Forecasting Systems: design of user driven products

2022 - Present

AtlantECO

- Analyse environmental drivers and stressors

2023 - Present

CLINT: Climate Intelligence (Task leader)

- Detection of heatwaves and warm nights
- Development of ML algorithms for climate applications
- Development and operationalisation of Climate Information Systems

2024 - Present

ObsSea4Clim (Task leader)

- Deliver new ocean indicators for sustainable development, provide improved EOV/ECVs and evolve European ocean observing
- Extreme events in the marine environments: provide review of observation requirements and needs for ESM validation

Summer Schools

- ICTP-CLIVAR Summer School on Marine Heatwaves: Global Phenomena with Regional Impacts ICTP,Trieste, Italy, 2023
- Mastering the Development of a Climate Service from Start to End, organised by the SECLI-FIRM Project, online, 2021
- Effective HPC for Climate and Weather, organised by ESiWACE, online, 2021Deutsche Physikalische Gesellschaft (DOG): Physics of the Ocean, Bad Honnef, 2017

Presentations (selection from last 3 years)

2024

- CLINT - Climate Intelligence Summer School, Italy: Invited Speaker "Understanding extreme events: Heatwaves"
- EGU 2024, Austria: Solicited talk "Optimization-based driver detection and prediction of seasonal heat extremes"
- Ocean Sciences 2024, U.S.A: "Seasonal forecasting of subsurface marine heatwaves"

2023

- Ocean Data Week Workshop public presentation: "Towards a user-focused, interdisciplinary, and responsive European ocean observing and forecasting system - EuroSea".
- EGU 2023, Austria: Solicited talk "Seasonal forecasting of subsurface marine heatwaves"
- 9th International MetMed Conference, Genova, Italy

2022

- CMCC public Webinar: "Monitoring and forecasting marine heatwaves"
- Aquaculture Europe, Italy: Poster: "Monitoring and forecasting marine heatwaves in the Mediterranean Sea"

Publications

- Balmaseda, M.A., McAdam, R., Masina, S., Mayer, M., Senan, R., De Boisseson, E., Gualdi, S. (2024). **Skill Assessment of Seasonal Forecasts of Ocean Variables**. Frontiers in Marine Science.

- Yang et al., (2024). **Gathering users and developers to shape together the next-generation ocean reanalyses: Ocean reanalyses workshop of the European Copernicus Marine Service**. Bulletin of the American Meteorological Society.

- Bonino, G., Galimberti, G., Masina, S., McAdam, R., Clementi, E. (2024)**. Machine learning methods to predict sea surface temperature and marine heatwave occurrence: a case study of the Mediterranean Sea**. Ocean Science.

- Torralba, V., Materia, S., Cavicchia, L., Álvarez-Castro, M.C., Prodhomme, C., McAdam, R., Scoccimarro, E., Gualdi, S. (2024). **Nighttime heat waves in the Euro-Mediterranean region: definition, characterisation, and seasonal prediction**. Environmental Research Letters.

- McAdam, R., Bonino, G., Masina, S., & Clementi, E. (2024). **Forecasting the Mediterranean Sea Marine Heatwave of summer 2022.** In: Copernicus Ocean State Report, Issue 8.

- McAdam, R., Masina, S., & Gualdi, S. (2023). **Seasonal forecasting of subsurface marine heatwaves.** Communications Earth & Environment.

- Dayan, H., McAdam, R., Juza, M., Masina, S., & Speich, S. (2023). **Marine heat waves in the Mediterranean Sea: An assessment from the surface to the subsurface to meet national needs.** Frontiers in Marine Science.

- Dayan, H., McAdam, R., Masina, S., & Speich, S. (2022). **Diversity of marine heatwave trends across the Mediterranean Sea over the last decade**. In: Copernicus Ocean State Report, Issue 6. Journal of Operational Oceanography.

- McAdam, R., Masina, S., Balmaseda, M., Gualdi, S., Senan, R., & Mayer, M. (2022). **Seasonal forecast skill of upper-ocean heat content in coupled high-resolution systems.** Climate Dynamics.

- Solomon, A., Heuzé, C., Rabe, B., Bacon, S., Bertino, L., Heimbach, P., … & Tang, H. (2021). **Freshwater in the arctic ocean 2010–2019**. Ocean Science.

Publications continued

- McAdam, R., & van Sebille, E. (2018). **Surface connectivity and interocean exchanges from drifter-based transition matrices.** Journal of Geophysical Research: Oceans.

- Van Sebille, E., Griffies, S. M., Abernathey, R., Adams, T. P., Berloff, P., Biastoch, A., ... & Zika, J. D. (2018). **Lagrangian ocean analysis: Fundamentals and practices.** Ocean modelling.

- McAdam, R. (2017). **Plastic in the ocean: How much is out there?** Significance.

- Collins, G. S., Lynch, E., McAdam, R., & Davison, T. M. (2017). **A numerical assessment of simple airblast models of impact airbursts.** Meteoritics & Planetary Science.