

Josué Martínez Moreno

Climate & Fluid Physics

ARC Centre of Excellence for Climate Extremes,
Research School of Earth Sciences
Australian National University, Australia

✉ josue.martinezmorano@anu.edu.au
💻 <https://josuemtzmo.github.io>
🐙 [josuemtzmo](#) ▶ [josuena't](#)
🆔 0000-0002-8348-1588
📄 [arxiv.org](#)

Interests

Geophysical fluid dynamics, physical oceanography, climate dynamics, mesoscale and submesoscale energetics, oceanic tracer dynamics.

Education

- 2017 – **Ph.D. Geophysical Fluid Dynamics**
Research School of Earth Science at Australian National University.
Supervisor: Andy Hogg.
Project: Over recent decades, the circulation of the ocean has adjusted to our changing climate, therefore, our main objective is to explore the global temporal evolution of the flow and its coherent (coherent eddies) and non-coherent (jets and waves) components.
- 2012 – 2017 **B.Sc. Earth Sciences w/ Honors**
Aquatic Science major, Science School at National Autonomous University of Mexico.
Supervisor: Angel Ruiz-Angulo.
B.Sc. Thesis: “Pollution scenarios in the Gulf of Mexico by the river plume of the Coatzacoalcas river”. To understand the passive particle dispersion of the river plume of the Coatzacoalcas River it was implemented the numerical model MIT General Circulation Model.

Publications

In Press / Published

Martínez-Moreno, J., Hogg, A. M., Kiss, A. E., Constantinou, N. C., & Morrison, A. K. (2019). Kinetic energy of eddy-like features from sea surface altimetry. *Journal of Advances in Modeling Earth Systems*, 11, 3090– 3105. <https://doi.org/10.1029/2019MS001769>

Conference Proceedings (refereed)

Méndez-Fragoso, R., Villavicencio-Torres, M., & **Martínez-Moreno, J.** (2017): Design and use online platforms to learn mathematics and the use of them in simulations of problems in applied sciences, *IJTME*, 24 Issue 2, 89-94.

Software

Core developer for “TrackEddy”: A Python library to track and reconstruct the coherent eddy field from sea surface height; [TrackEddy](#) – [ReadTheDocs](#).

Conferences

Kinetic energy of coherent eddy features from sea surface altimetry: A trend perspective. *Ocean Sciences Meeting 2020*, San Diego, CA, USA, 16–21 Feb. 2020. (poster)

Tracing the dispersion of the Coatzacoalcos river plume in the Gulf of Mexico: a numerical experiment. *Ocean Sciences Meeting 2020*, San Diego, CA, USA, 16–21 Feb. 2020. (poster)

Climate Change Signal in Oceanic Eddies. *Sources and Sinks of Ocean Mesoscale Eddy Energy*, Tallahassee, Florida, USA, 12–14 March. 2019. (talk)

Kinetic Energy in Mesoscale Eddies. *ARC Centre of Excellence for Climate Extremes Annual Workshop 2018*, Wollongong, NSW, Australia, 18–21 Nov. 2018. (poster)

Southern Ocean Eddies and their interactions with Climate Change. *Ocean Sciences Meeting 2018*, Portland, Oregon, USA, 11–16 Feb. 2018. (poster)

Seasonal variation of Eddy Kinetic Energy *ARC Centre of Excellence for Climate System Science Annual Workshop 2017*, Canberra, ACT, Australia, Oct 19th – Nov 1st. 2017. (poster)

Design and use online platforms to learn mathematics and the use of them in simulations of problems in applied sciences. *Technology and Its Integration in Mathematics Education (TIME 2016)*, Mexico City, Mexico July. 2016 (talk)

Seminars

Response of oceanic eddies to climate change, Pint for science, CSIRO Discovery Centre, Canberra, Australia, May 22nd 2019.

What are we forgetting about Climate Change?, There's more to sea in the ACT at CSIRO Discovery Centre, Canberra, Australia, organized by Australian Marine Science Association (AMSA), Aug 15th 2018.

One work day in cruise UNAM's R/V Justo Sierra I, Tour with Science, UNAM, Mexico City, Mexico, organized by General Direction of Popularization of Science, 2015.

Workshops

2020 **Dynamical Systems and Bifurcation Theory**
20 – 28 January 2020, Canberra, ACT, Australia

2019 **Advanced Ocean Modelling School**
April 28th – May 3rd, Lake Pedder, Tasmania, Australia

2019 **Advanced Scientific Python Programming**
20 – 27 January 2019, Canberra, ACT, Australia

2018 **Climate Extremes and High Impact Weather**
25 – 29 June 2018, Canberra, ACT, Australia

2016 **Introduction to the dynamics of semienclosed bodies of water**
Academic Unit, Puerto Morelos of the Institute of Marine Sciences and Limnology, UNAM, Puerto Morelos, Quintana Roo, Mexico.

Teaching Experience

- 2019 Tutor of Classical Mechanics
Physics, ANU, Canberra, Australia
- 2018 Lab Demonstrator of Physics of Fluid Flows
Physics, ANU, Canberra, Australia
- 2017 Tutor of Python
Center of Atmospheric Sciences, UNAM, Mexico City, Mexico
- 2016 Tutor of \LaTeX and Python
School of Science, UNAM, Mexico City, Mexico
- 2016 Tutor of Geophysical Fluid Dynamics (Undergraduate)
School of Science, UNAM, Mexico City, Mexico

Research cruises

- **RV Justo Sierra**, August 1st, 2014 – August 4th, 2014
Chief Scientist: Elva Escobar Briones from Instituto de Ciencias del Mar y Limnología, UNAM
Activities: Assistant of seismic profiling, PDF and CTD profiling, and sediment samples collect.
Responsible of water sampling.
- **RV Investigator**, October 16th, 2018 – November 16th, 2018
Chief Scientist: Helen Phillips & Nathan Bindoff from Institute of Marine Sciences, UTAS
Activities: Assistant at CTD and VMP profiling.

Programming Languages

Proficient at Python, Matlab, HTML, CSS, PHP, JavaScript and \LaTeX , intermediate at Julia and Fortran.

References

Andy McC. Hogg (Ph.D. Advisor)
Research School of Earth Sciences
Australian National University
Canberra, ACT 2601, Australia
☎ +61 2 61259962
✉ andy.hogg@anu.edu.au
💻 [Andy's Website](#)

Angel Ruiz-Angulo (Undergraduate Advisor)
Icelandic Meteorological Office
Reykjavík, Iceland
✉ angel@atmosfera.unam.mx
💻 [Angel's Website](#)

Adele K. Morrison (Ph.D. Advisor)
Research School of Earth Sciences
Australian National University
Canberra, ACT 2601, Australia
☎ +61 2 61259957
✉ adele.morrison@anu.edu.au
💻 [Adele's Website](#)

Ricardo Méndez Fragoso
School of Sciences
National Autonomous University of Mexico
Mexico City, CDMX 04510, Mexico
☎ +52 55 56224964
✉ rich@ciencias.unam.mx
💻 [Rich's Website](#)