

JHON FREDY MOJICA MONCADA

PhD. Physical Oceanography



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November 8th 1981 | ORCID: 0003-3317-0404

My current research work focuses on mesoscale ocean dynamics and understanding the drivers of water quality, and sea-level variation in the Atlantic Ocean, Florida's coasts, under the current scenario of climate change. I am working on the development of scientific and teaching research projects, searching for new strategies to develop knowledge, learning, and teaching. I am a person of integrity and dynamic in what it does. Proud dad of 1. High sense of belonging to contribute to the growth and development of projects that work. High experience in fieldwork. Responsible and dedicated, able to solve any situation, showing great interest in the work assigned to adapt easily.

PROFESSIONAL EXPERIENCE

08.2022 – Current. Senior Researcher Associate.

Atlantic Oceanographic and Meteorological Lab ([AOML](#)), National Oceanic and Atmospheric Administration ([NOAA](#)), University of Miami ([UM](#)). Website: <https://www.aoml.noaa.gov/>
Senior research associate at the Ocean Chemistry and Ecosystems Division (OCED). The aim of my research work is *to support the Port Everglades Adaptive Management Moorings, managing an array of data buoys and sensors deployed in the marine platform to understand the drivers of water quality, sea-level change* and to monitor turbidity during dredging operations in 2023.

04.2017 – 05.2022. Researcher Associate.

Center for global Sea Level Change ([CSLC](#)), New York University Abu Dhabi ([NYUAD](#)).
Research Associate on Ocean dynamics in Polar Regions and interactions with Ice Shelves. Ocean observations and model validation. | The aim of my research work is *to characterize the circulation in Polar areas at multiple scales, particularly characterizing the mixing and diffusion processes and their temporal and spatial variabilities* in the Arctic (Greenland Icefjords) and Antarctic (Amundsen, Weddell, and Peninsula)

SKILLS

Quick learning, Planning and organization, Flexibility and Change management, Team work, Conceptual thought, Empathy.

SCIENTIFIC SOFTWARE

ArcGIS PRO | Focus Paradigm's | GMT | Globe Claritas GNS science | IVS 3D's Fledermaus suite | Loggernet | MATLAB 2022 A | ODV 5.3 | QGIS | SBE | Python | Windows-Linux, among others.

LANGUAGE

*Spanish: Native
English: High level spoken, written, and read.
Catalan: Mean level spoken, written, and read.
Arabic: Mean level spoken, written, and read.*

CURRENT SIDE PROJECTS

*Collaboration (research and data analysis) in the Scientific Colombian expedition to Antartic, Gerlache's strait. | 2014 to [present](#).
Ocean fieldwork official for International Thwaites Glaciers Collaboration ([ITGC](#)) project. | 2018 to present*

10.2011 – 12.2015 PhD Researcher.

Institute of marine Science (ICM), Spanish Research Council (CSIC).

Funded by the project POSEIDON (Ref: CTM2010-25169 – Spanish Ministry of Economy and Competitiveness, MINECO).

Research in Physical Oceanography from multichannel seismic reflection data (Seismic Oceanography). | **Processing and analysis of seismic data to quantify the internal ocean energy, internal waves, instability shearing, and turbulence in the Alborán Sea.**

09.2010 – 07.2015 Scholarships of collaboration in technology area.

Department of Mathematics and Biology, University of Barcelona.

Maintaining of equipment's, installation and programming of software, logistics management, customer service.

01.2006 – 11.2008 Physics teacher at secondary level.

Divino Salvador School.

Teacher involved in several activities as principal, Intercourse and interschool's of math organizer; scholar farm, chairman. Develop of workshops, tasks and evaluations.

01.2003 – 12.2004 Assistant professor in physics.

University Distrital Francisco José de Caldas.

Quantification of assessments, elaboration and qualification of workshops, in areas as biophysics, electricity and magnetism, and quantum mechanics among others.

PARTICIPATIONS IN R&D PROJECTS

MELT: Melting at the Thwaites Grounding zone and its control on the sea Level. Part of the International Thwaites Glacier Collaboration (ITGC) 2018-2022. NSF-PLR 1738913. Position: Research associate, fieldwork, data analysis.

IPCC: Reviewer, and committee member of the Sixth Assessment Report, Climate Change. WGI, WGII. 2020-2021.

POSEIDON: Applications of Seismic Oceanography: Seismic data inversion and processing and spectral analysis strategies. 2010-2015. Ref: CTM2010-21569. Position: PhD Researcher. Data analysis. Institute of Marine Sciences, Spanish Research Council.

RELEVANT FIELWORK EXPEDITIONS

2022-2023 Fieldwork. AWAK, AT600, Eco-PAR, Sequoia LISST, Nexsens, LinkQuest Acoustic modem. Harbor expansion. Port Everglades, Miami, FL. USA

2022-2023 By-monthly fieldwork. EXO, Water samples-Niskin bottles. Secchi, Water quality. Biscayne Bay, Miami, FL. USA.

2018-2021 Monthly fieldwork. CTD, Irgason, Drone – Mavic pro2. Secchi, WS. Coral reefs state. UAE coast.

Dec 26th to Feb. 26rd 2020, and Dec 18th to Jan. 13rd 2018 Amundsen Sea. IBRV ARAON | Chief Scientist Wong Sang and Song Hoon, KOPRI. Tsunameters, ApRES, PBS video recording. Amundsen Sea.

Dec 16th to Jan. 19rd 2019. V Antarctic Colombian Expedition. R/V ARC 20 de Julio | Chief Scientist Julio Monroy, DIMAR. VMP-250, CTD. Gerlache Strait - Antarctic Peninsula

June – Sep. 2018, and 2019. Helheim and Sermilik Ice-fjord. Adolf Jensen | Chief Scientist David Holland, NYU. Tsunameters, IPS, CTD, AXCTD, Greenland.

June 28th to July 13rd 2017 Antarctic Winter AIMIZPP-106. R/V S.A. Agulhas II | Chief Scientist: Marcello Vichi, University of CapeTown, Buoy WIOS. Wave spectrum. Ice cores | Southern Sea – Antarctic Winter, South Africa.

June 7th to July 14th 2012. Juan de Fuca Ridge to Trench Survey. R/V Oceanus | Chief Scientist: Juan Pablo Canales, Woods Hole Oceanographic Institution, CTD, Two-Yo, Multi-Channel System (MCS) | NE Pacific Ocean Oregon Washington coast. USA.

RELEVANT PEER-REVIEWED PUBLICATIONS

Jhon F. Mojica, David M. Holland, Julio Monroy. (2021). Submesoscale mixing features in the Gerlache Strait Bays (Antarctica). *Invemar Bulletin. Antarctic special number*. <http://boletin.invemar.org.co:8085/ojs/index.php/boletin/article/view/934>

Diego F. Mojica-Moncada, Carlos Cárdenas, Cedomir Marangunic, **Jhon F. Mojica-Moncada**, David Holland, Fabian Brondi and Gino Casassa. (2021). Study of the Lange Glacier and its impact on climate change in the Admiralty Bay, Antarctica. *Invemar*. <http://boletin.invemar.org.co:8085/ojs/index.php/boletin/article/view/949>

Jhon F. Mojica, Georges Djoumna, David Holland, Denise Holland. (2020). Interannual summer mixing processes in the Ilulissat Icefjord, Greenland. *Journal of Marine Systems*, 214, 103476. <https://doi.org/10.1016/j.jmarsys.2020.103476>.

Jhon Mojica, Daiane Faller, Clare Eayrs, Diana Francis, David Holland. (2019). Characterization of Ocean Mixing and Dynamics during the 2017 Maud Rise Polynya event. *Ocean Sciences Discussion*. <http://doi.org/10.5194/os-2019-41>

Gremion G., Casado, M., Aho, K., Caccavo, J. A., Champollion, N., Choy, E., Connors, S. L., Dey, R., Fernandez, A., Fugmann, G., Höfer, J., Jawak, S., Lizotte, M., Maes, S., Mayers, K., Mintenbeck, K., **Mojica, J. F.**, Pandit, P., Poloczanska, E., Rosenbaum, P., Seyboth, E., Shakil, S., van Soest, M., (2019). What Peer-review Experiences Can Offer To Early Career Researchers And To The Scientific Community. *Proceeding of YESS conference*. <https://doi.org/10.5194/egusphere-egu2020-16812>

Vichi, M., Eayrs, C., Alberello, A., Bekker, A., Bennetts, L., Holland, D., **Mojica J.**, et al. (2019). Effects of an explosive polar cyclone crossing the Antarctic marginal ice zone. *Geophysical Research Letters*, 46. <https://doi.org/10.1029/2019GL082457>

Jhon F. Mojica; Valentí Sallarès; Berta Biescas (2018). High-resolution diapycnal mixing map of the Alboran Sea thermocline from seismic reflection images. *Ocean Sciences (EGU)*. (2018). <https://doi.org/10.5194/os-14-403-2018>

Valentí Sallarès; **Jhon F. Mojica**; Berta Biescas, Dirk Klaeschen, Eulalia Gràcia. (2016). Characterization of the sub-mesoscale energy cascade in the Alboran Sea thermocline from spectral analysis of high-resolution MCS data. *Geophysical Research Letters* 43. <https://doi.org/10.1002/2016GL069782>

COURSES TRAINING

Small PowerBoat & RIB Master International Certificate. Dec. 2019; and Motorboat Operator Certification Course January 2023. USA Dep. Of Interior.

QGIS, QAntarctica, and QGreenland course. May 2021.

Oceanography from space. UNEP/MAP-SPA/RAC. Sentinel Hub. EUMETSAT. Nov. 2020

Glider SLOCUM. Teledyne webb research, May 2019, Falmouth, MA, USA.

Vertical Measure Profiler (VMP) Rockland Scientific, Nov. 2018, Victoria Canada.

Ice Profiling Sonar (IPS) Environmental Sciences ASL, Nov. 2018, Victoria Canada.

Training: BOSIET – OPITO and STCW codes Approved. Code – 5700. ETSDC. October, 2018 Abu Dhabi, UAE.

Summer School on Sustainable Blue Growth in Mediterranean and Black Sea. (ICTP) July 2016. Trieste. Italy.

STAYS IN R&D CENTERS

Stay supervised by Dr. William Smith. Kelvin-Helmholtz instabilities and small-scale turbulence. June to August 2014 | Oregon State University – (CEOAS), Corvallis, Oregon, USA.

Stay supervised by Dr. Mladen Nedimovic, Dr. Barry Ruddick and Dra. Berta Biescas. Processing and analyzing multichannel seismic reflection data from the ocean. March to May 2013 | Dalhousie University – Physical Oceanographic Group. Halifax, Nova Scotia, CANADA.

GRANTS, FELLOWSHIPS, AND SCHOLARSHIPS

NSF. Postdoctoral Mentoring Plan – Supplemental Thwaites-MELT. Supervision of a Seismic Oceanography project, processing acoustic data Dr. Kiya Riverman to be hired by NYU. **September 2020- August 2021.** \$60000.

Blue Growth H2020. To participate in the Summer School on Sustainable Blue Growth in Mediterranean and Black Sea. Trieste. Italy. **July 2016.** Travel Grant of transport, accommodation. 3000€.

CNES. To participate in the 48th Colloquium of Submesoscale Processes. Liege. Belgium. **May 2016.** Travel Grant of 1000€.

InterRidge Cruise Bursaries, National Oceanography Centre, SouthHampton. Grant awarded to participate in the Juan the Fuca Ridge to Trench Survey, IP **Suzanne Carbotte's, Lamont-Doherty Earth Observatory, USA, June-July 2012.** Travel Grant of \$2000. USA.

PROFESSIONAL MEMBERSHIPS

Association of Early Career Scientist (**APECS**). Since 2017, currently council member and **President of APECS Colombia.** Activities: Chair on the IPCC working group. Reviewer of the SROCC and AR6.

Ocean Expert. A directory of marine and freshwater professionals. ID: 42908.

INTERNATIONAL PRESENTATIONS, CONFERENCES

Study of the Lange Glacier King George Island, Antarctic Peninsula. **Jhon F. Mojica,** Diego Mojica, David Holland, Carlos Cardenas, Cedimir Marangunic, Fabian Brondi and Gino Casassa. **APECS Opening Doors 2020, Online. May 20, 2020.** | zoom | **Oral.**

Characterization of Ocean Mixing during the 2017 Weddell Polynya Event. **Jhon F. Mojica,** Daiane Faller, Diana Francis, Clare Eayrs, David Holland. **ISAES 2019, Incheon, South Korea.** From: 22/07/2019 to 26/07/2019. | Songdo Convensia | **Poster.**

Interannual sub-mesoscale mixing processes at the subsurface layer on a sill Fjord: Ilulissat Case. Greenland. **Jhon F. Mojica,** Georges Djoumna, Diana Francis, David Holland. EGU 2018, Vienna, Austria. April 2018. | Austria Center Vienna | **Porter.**

PROFESSIONAL SERVICE

Team leader and maintenance of the CSLC database and Laboratory. 2017 – 2022. NYUAD.

NYUAD Weather Station responsible. More than 12 devices (Ceilometer, Hygrometer, Radiometer, visibility, LIDAR, wind monitor, ...). Abu Dhabi 2019-2021.

TEACHING AND MENTORING

Dynamics and Physical Properties of Bransfield and Gerlache Peninsula Strait Waters. On line with Dra. Nancy Bonilla. International collaboration NYUAD and UN. June – Dec. 2020. Students National University Bogota, Colombia.

Congress organizer: 1st Iberoamerican Polar conference online APECS. Collaboration with Dr. Juan Hofer and Dra. Gabriela Roldan. Sep. 2019.

October 17th to 26th 2011. TOPOMED-GASSIZ | R/V Sarmiento de Gamboa. | Chief Scientist: Cesar Ranero. Institute of Marine Sciences (ICM) XBT's, MCS data. Alboran Sea, Strait of Gibraltar, Gulf of Cadiz. Spain, Morocco.

April 8th to 29th 2010. MEDOC-2. | R/V Urania, | Chief Scientist: Nevio Zitellini, Institute of Marine Science (ISMAR) Releases of OBH, for seismic refraction and reflection of great angle, SGA; and responsible for collecting and processing data of CTD. Tyrrhenean Sea, Italy

High-resolution diapycnal mixing map of the Alboran Sea thermocline from seismic reflection images. *Jhon Mojica*, Valentí Sallarès, Berta Biescas. EGU 2018, Vienna, Austria. From: 8/04/2018 to 13/04/2018. | Austria Center Vienna | **PICO**.

Characterization of the sub-mesoscale energy cascade in the Alboran Sea thermocline from spectral analysis of high-resolution MCS data. *Jhon Mojica*, Valentí Sallarès, Berta Biescas. 48th Colloquium Submesoscale Processes, Liege, Belgium. From: 23/05/2016 to 27/05/2016. | University of Liege | **Oral**.

Characterization of the energy cascade in the thermocline using high resolution multichannel seismic data. *Jhon Mojica*. Valentí Sallarès, Berta Biescas, Guillermo Bornstein. III Encuentro de la Oceanografía Física Española, La palma de Gran Canaria, Spain. From 11/06/2014 to 13/06/2014. | University las palmas de Gran Canaria | **Oral**.

Characterization of the energy cascade using high resolution multichannel seismic data. *Mojica, J.*; Sallarès, V.; Biescas, B., Klaeschen, D., Bornstein, G. International Congress, Ocean Sciences Meeting 2014, Honolulu, Hawaii, USA, From 23 to 28 February 2014. | American Geophysical Union | **Poster**.

Exploration of the California Current System with Seismic Oceanography. Berta Biescas Gorriz; *Jhon Fredy Mojica Moncada*; et. al., American Geophysical Union Fall Meeting 2012, San Francisco, United States of America, **Poster**.

SCI COLLABORATIONS

Berta Biescas Gorriz; Barry Ruddick; Mladen Nedimovic; Valentí Sallarès Casas; Guillermo Bornstein Ortega; *Jhon Mojica Moncada*. (2014). Recovery of temperature, salinity, and potential density from ocean reflectivity. *Journal of Geophysical Research-Oceans*. 119 - 5, pp. 3171 - 3184. American Geophysical Union, (2014). ISSN 0148-0227. <https://doi.org/10.1002/2013JC009662>

Direct Temperature and Salinity Acoustic Full Waveform Inversion. Guillermo Bornstein; Berta Biescas; Valentí Sallarès; *Jhon Fredy Mojica*. *Geophysical Research Letters*. 40, pp. 1 – 5. American Geophysical Union, (2013). <https://doi.org/10.1002/grl.50844>

PROFESSIONAL DEVELOPMENT

Diver: Scientific Diver
Authorized by University of Miami 60'. **May 2023**.
Deploying and recovery oceanographic sensors.

Recreational level **Open Water Diver** number 0901039773, Certificate by **PADI. January 2009**.

Diving First Aid for Professional Divers (**DAN**) **Feb. 2023**.

Nitrox diver 22%-40%
Certification: 1386900 **TDI**
April, 2023.

Observing Earth Climate and Weather from Space. Training by The Emiraty Society of GIS and Remote Sensing (ESGRS) **March 2022**.

Observador de Hielo Marino y Tempanos. OTG@-UNESCO/IOC November, 2021.

Sea Bird University. Oct. 2020-2021

Mòdul el Marc general de la recerca i eines de support.
Formació per a joves investigadors de la **Universitat de Barcelona. Mercè Gracenea. November, 2013. Barcelona, Spain.**

Course: Modern mass transport and turbidite systems. Dr. Hans Nelson, May, 2011. University of Leeds, U.K

Member committee to the 1st Oceanography Spanish Physics Congress (EOF), Institute of Marine Sciences (ICM), Barcelona, Spain, 13rd to 15th October 2010.

EDUCATION

PhD: (2015) PhD degree in Marine Science, Oceanography.

Science Marine Institute (ICM-CSIC). University of Barcelona
Barcelona. Spain. Dissertation awarded *Cum Laude*.

Thesis on: Strategies of processing and spectral analysis of
seismic data, to study dynamic processes in physical
oceanography. Supervisors: Dr. Valentí Sallarès Casas, and Dra
Berta Biescas Gorriz.

Master: (2011) Master degree in Marine Sciences, Oceanography and management of the marine environment.

University of Barcelona. Barcelona. Spain.

Mean note: 8.6 (qualification from 0.0 to 10.0)

Thesis on: Water masses and geostrophic circulation patterns in
the southern Caribbean Sea. Director of the thesis: Dr. Josep Lluís
Pelegrí.

Bachelor: (2007) Degree in physics.

University Distrital Francisco José de Caldas. Bogotá. Colombia.

Mean note: 3.82 (qualification from 0.0 to 5.0)

Honours thesis on: Design and construction of a biodigester for
use in teaching. Director of the thesis: M.Sc. Néstor Navas
Granados.

Graduated: (2000) Communitarian and social Management.

Pontificia University Javeriana. Bogotá. Colombia.

Technique: (2000) Graphical Design.

Weaver of society. Mayor's office Bogotá D.C. Bogotá.
Colombia.



JHON FREDY MOJICA MONCADA

Senior Researcher Associate

**National Oceanic and Atmospheric Administration (NOAA),
University of Miami (UM).**

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COMPLEMENTARY FORMATION

*Lift Truck Safety Course
Required by OSHA 1910.178
Equipment SDCB Class VI &
V. December 2022.*

*NOAA. Certifications:
Records Management Nov.
2022 - SBP January 2023 –
Respirators Feb. 2023
Course: Marine Ecology by
Satellite. Dr. Antonio
Gonzalez Ramos. February,
2010. University of Las
Palmas de Gran Canaria,
Spain.*

*Delegate of Colombia in the
XVI World Festival of youth
and students. August, 2005.
Caracas. Venezuela*

*Volunteer park ranger
Parque Nacional Nevados
(December 2001 to January
2002) | Tayrona (June and
July of 2002) | Corales del
Rosario y San Bernardo
(June and July 2003). |
Guidance - footpaths of
environmental interpretation
(terrestrial and submarine),
management of marine turtles
nesting and Control lobster
fishing, carves minim.*