

CURRICULUM VITAE

Virna Loana Meccia

1. Personal Data

Name: Meccia, Virna Loana

Nationality: Argentinean and Italian

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2. Research interests

- Regional ocean numerical modelling; Southern Ocean circulation and implications in global oceans; air-sea-ice interactions and coupled system response to climate change scenarios.
- Earth System Modelling; climate of the past and future projections.

3. Higher Education

April 2003 - March 2008: “Doctora en la Universidad de Buenos Aires - Area Ciencias de la Atmósfera y los Océanos” (PhD in Atmospheric and Oceanic Sciences).

Department of Atmospheric and Oceanic Sciences - School of Sciences - University of Buenos Aires. Buenos Aires, Argentina.

Grade: Excellent.

Thesis title: Studies of the wind forced circulation in the Río de la Plata estuary and its implication on stratification: results of the analysis of data and numerical simulations.

April 1997 - March 2003: “Licenciada en Ciencias Oceanográficas” (Bachelor’s/Master’s degree in Physical Oceanography).

Department of Atmospheric and Oceanic Sciences - School of Sciences - University of Buenos Aires. Buenos Aires, Argentina.

Grade point average: 8.58 over 10.

Thesis title: Evaluation of the effects of extreme events on the sandy coast at Pinamar, Buenos Aires Province.

4. Research Experience

January 2019 – ongoing: Junior Researcher.

Institute of Atmospheric Sciences and Climate (ISAC) - National Research Council (CNR). Bologna, Italy.

Member of the research group: Climate dynamics and variability: processes, reconstructions, scenarios and impacts.

Group leader: Susanna Corti.

June 2018 – December 2018: Research fellow.

Institute of Atmospheric Sciences and Climate (ISAC) - National Research Council (CNR). Bologna, Italy.

Research activities in the framework of the Horizon 2020 project: PROcess-based climate sIMulation: AdVances in high-resolution modelling and European climate Risk Assessment (PRIMAVERA).

Supervisor: Susanna Corti.

June 2016 – May 2018: Scientific Programmer.

Max Planck Institute for Meteorology (MPI-M). Hamburg, Germany.

Research activities in the framework of the BMBF project: From the Last Interglacial to the Anthropocene: Modelling a Complete Glacial Cycle (PalMod). My task was to implement an interactive bathymetry and land-sea mask in the ocean and atmosphere components of the Max Planck Institute Earth System Model (MPI-ESM) for paleoclimate simulations.

Supervisor: Uwe Mikolajewicz.

March 2014 – May 2016: Research fellow.

Institute of Marine Sciences (ISMAR) - National Research Council (CNR). Trieste, Italy.

Research activities in the area of physical experimental oceanography. The topic of my research was the circulation and water masses identification in the Mediterranean Sea. I have participated in several oceanographic campaigns to collect data and to maintain instruments for monitoring the Mediterranean Sea.

Supervisor: Stefania Sparnocchia.

January 2012 – February 2013: Research fellow.

Department of Environmental Sciences, Informatics and Statistics - Ca' Foscari University. Venice, Italy.

Research activities in aquaculture and ecological modelling. My task was to develop an advection-diffusion model to track particles released by aquaculture activities.

Supervisor: Roberto Pastres.

November 2009 – May 2011: Post-Doctoral Position.

Oceanographic Institute (IO) - University of São Paulo (USP). São Paulo, Brazil.

The title of my project was “The Weddell Sea circulation and its interaction with the Antarctic Sea-Ice: Implications to large scale ocean circulation and climate”. I worked with the Regional Ocean Model System (ROMS) coupled to a sea-ice model and a thermodynamically interactive ice-shelf cavity to study the Southern Ocean circulation.

Supervisor: Ilana Wainer.

September 2008 – August 2009: Post-Doctoral Position.

International Centre for Theoretical Physics (ICTP) and National Institute of Oceanography and Experimental Geophysics (OGS). Trieste, Italy.

Research activities in physical oceanography. I worked with numerical models to study the physics and biogeochemistry of the Mediterranean Sea.

Supervisor: Alessandro Crise.

5. Publications

5.1. Peer-reviewed journals

2020. **Meccia V.L.**, Fabiano F., Davini P and Corti S. Stochastic parameterizations and the climate response to external forcing: An experiment with EC-Earth. *Geophysical Research Letters*, 47, e2019GL085951. <https://doi.org/10.1029/2019GL085951>
2018. **Meccia V.L.** and Mikolajewicz U. Interactive ocean bathymetry and coastlines to simulate the last deglaciation with the Max Planck Institute Earth System Model (MPI-ESM-v1.2). *Geoscientific Model Development*, 11, 4677-4692, <https://doi.org/10.5194/gmd-11-4677-2018>. Previously in *Geoscientific Model Development Discussions*.
2016. **Meccia V.L.**, Simoncelli S. and Sparnocchia S. Decadal variability of the Turner Angle in the Mediterranean Sea and its implications for double diffusion. *Deep-Sea Research I*, 114, 64-77, <https://doi.org/10.1016/j.dsr.2016.04.001>.
2016. Bensi M., Velaoras D., **Meccia V.L.** and Cardin V. Effects of the Eastern Mediterranean Sea circulation on the thermohaline properties as recorded by fixed deep-ocean observatories. *Deep Sea Research Part I*, 112, 1-13, <https://doi.org/10.1016/j.dsr.2016.02.015>.
2015. **Meccia V.L.**, Borghini M. and Sparnocchia S. Abyssal circulation and hydrographic conditions in the Western Ionian Sea during Spring-Summer 2007 and Autumn-Winter 2007-2008. *Deep-Sea Research I*, 104, 26-40, <https://doi.org/10.1016/j.dsr.2015.06.007>.

2014. Brigolin D., **Meccia V.L.**, Venier C., Tomassetti P., Porello S. and Pastres R. Modelling biogeochemical fluxes across a Mediterranean fish cage farm. *Aquaculture Environment Interactions*, 5, 71-88, <https://doi.org/10.3354/aei00093>.
2013. **Meccia V.L.**, Wainer I., Tonelli M. and Curchitser E. Coupling a thermodynamically active ice shelf to a regional simulation of the Weddell Sea. *Geoscientific Model Development*, 6, 1209-1219, <https://doi.org/10.5194/gmd-6-1209-2013>. Previously in *Geoscientific Model Development Discussions*.
2013. **Meccia V.L.**, Simionato C.G. and Guerrero R.A. The Río de la Plata estuary response to wind variability in synoptic timescale: salinity fields and salt wedge structure. *Journal of Coastal Research*, 29(1), 61-77, <http://dx.doi.org/10.2112/JCOASTRES-D-11-00063.1>.
2009. **Meccia V.L.**, Simionato C.G., Fiore M.E, D'Onofrio E.E. and Dragani W.C. Sea surface height variability in the Río de la Plata estuary from synoptic to inter-annual scales: Results of numerical simulations. *Estuarine, Coastal and Shelf Science*, 85(2), 327-343, <https://doi.org/10.1016/j.ecss.2009.08.024>.
2009. Simionato C.G., **Meccia V.L.** and Dragani W.C. On the path of plumes of the Río de la Plata estuary main tributaries and their mixing scales. *Geoacta*, 34(2), 87-116, ISSN 1852-7744.
2008. Simionato C.G., Berasategui A., **Meccia V.L.**, Acha M. and Mianzan H. Short time-scale wind forced variability in the Río de la Plata Estuary and its role on ichthyoplankton retention. *Estuarine, Coastal and Shelf Science*, 76(2), 211-226, <https://doi.org/10.1016/j.ecss.2007.07.031>.
2007. Simionato C.G., **Meccia V.L.**, Guerrero R.A., Dragani W.C. and Nuñez M.N. Río de la Plata estuary response to wind variability in synoptic to intraseasonal scales: 2. Currents' vertical structure and its implications for the salt wedge structure. *Journal of Geophysical Research*, 112, C07005, <https://doi.org/10.1029/2006JC003815>.
2006. Simionato C.G., **Meccia V.L.**, Dragani W.C. and Nuñez M.N. On the use of the NCEP/NCAR surface winds for modelling barotropic circulation in the Río de la Plata Estuary. *Estuarine, Coastal and Shelf Science*, 70(1-2), 195-206, <https://doi.org/10.1016/j.ecss.2006.05.047>.
2006. Simionato C.G., **Meccia V.L.**, Dragani W.C., Guerrero R.A. and Nuñez M.N. The Río de la Plata estuary response to wind variability in synoptic to intra-seasonal scales: Barotropic response. *Journal of Geophysical Research*, 111, C09031, <https://doi.org/10.1029/2005JC003297>.
2005. Simionato C.G., **Meccia V.L.**, Dragani W.C. and Nuñez M.N. Barotropic tide and baroclinic waves observations in the Río de la Plata Estuary. *Journal of Geophysical Research*, 110 C06008, <https://doi.org/10.1029/2004JC002842>.
2004. Simionato C.G., Dragani W.C., **Meccia V.L.** and Nuñez M.N. A numerical study of the barotropic circulation of the Río de la Plata Estuary: Sensitivity to bathymetry, the Earth's rotation and low frequency wind variability. *Estuarine, Coastal and Shelf Sciences*, 61(2), 261-173, <https://doi.org/10.1016/j.ecss.2004.05.005>.

5.2. Datasets or software

2018. **Meccia V.L.** and Mikolajewicz U. Interactive Bathymetry and Coastlines Tool for MPIOM. Software: <http://doi.org/10.5281/zenodo.1249579>. Tool for changing ocean bathymetry and coastlines within the Max Planck Institute Earth System Model. Code to accompany the paper: "Interactive ocean bathymetry and coastlines for simulating the last deglaciation with the Max Planck Institute Earth System Model (MPI-ESM-v1.2)" by Meccia V.L. and Mikolajewicz U.

6. Participation in scientific projects

From January 2020: Tipping Points in the Earth System – TiPES. Funded by H2020 grant agreement 820970.

From June 2018: PProcess-based climate sIMulation: AdVances in high-resolution modelling and European climate Risk Assessment – PRIMAVERA. Funded by H2020-EU.3.5.1. grant agreement 641727.

June 2016 – May 2018: From the Last Interglacial to the Anthropocene: Modeling a Complete Glacial Cycle – PalMod. Funded by the Federal Ministry of Education and Science (BMBF).

September 2015 – May 2016: Joint European Research Infrastructure network for Coastal Observatory – NovelEuropean eXpertise for coastal observaTories - JERICO NEXT. Funded by H2020-EU.1.4.1.2., G.A. n. 654410.

March 2014 – April 2015: Towards a Joint European Research Infrastructure network for Coastal Observatories – JERICO. Funded by EU FP7-Infrastructures, G.A. n. 262584.

March 2014 – May 2016: Enhancement of multidisciplinary marine research infrastructures in Sicily, Campania and Puglia as a contribution to ESFRI EMSO – EMSO–Medit. Funded by PON R&C 2007-2013 - PAC Enhancement of public research infrastructures.

January 2012 – February 2013: Marine Ecosystem Dynamics and Indicators for North Africa - MEDINA. Funded by FP7 EU fund.

7. Participation in oceanographic cruises and training

2016: Participation in the research cruise: Mooring Maintenance, carried out on board *Minerva Uno*, from March 11th to 21st, Mediterranean Sea.

2015: Participation in the research cruise: EMSO-Medit_03, carried out on board *Minerva Uno*, from March 18th to 24th, Mediterranean Sea.

2014: Participation in the research cruise: EMSO-Medit_02, carried out on board *Urania*, from November 4th to 13th, Mediterranean Sea.

2014: Participation in the research cruise: EMSO-Medit_01, carried out on board *Urania*, from June 26th to July 4th, Mediterranean Sea.

2010: Pre-Antarctic Training (TPA) organized by the Marine Service of Brazil and held in Ilha Marambaia, Rio de Janeiro, Brazil, from August 8th to 14th.

2006: Participation in the research cruise: GEF-Patagonia II in the frame of the Project: “GEF – Patagonia: Proyecto Prevención de la Contaminación Costera y Gestión de la Diversidad Biológica Marina”, carried out on board *Puerto Deseado*, from March 10th to April 1st, Southwestern Atlantic.

8. Teaching

Marzo 2008 – Giugno 2008: Department of Atmospheric and Ocean Sciences - University of Buenos Aires, Argentina.

Teaching assistant in the course “Dynamics of the Atmosphere and the Ocean I”, 160 total hours.

August 2007 – November 2007: Department of Atmospheric and Ocean Sciences - University of Buenos Aires, Argentina.

Teaching assistant in the course “Theoretical Meteorology and Oceanography”, 160 total hours.

April 2005 – July 2008: Basic Common Cycle - University of Buenos Aires, Argentina.

Teaching assistant in the course “Mathematics”, 96 total hours, taught 7 times.

April 2004 – July 2004: Basic Common Cycle - University of Buenos Aires, Argentina.

Teaching assistant in the course “Calculus”, 96 total hours.

9. Revisions

Reviewer for the international journals *Climate Dynamics*, *Estuarine, Coastal and Shelf Science*, *Journal of Coastal Research* and the Argentinean journal *Meteorologica*.

Reviewer for a scientific proposal of the NERC Changing North Atlantic Ocean and its Impact on Climate grants call.