

## GIOVANNI LIGUORI – CURRICULUM VITAE

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**CONTACT INFORMATION** Dept. of Biological, Geological and Environmental Sciences  
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**RESEARCH INTERESTS** Climate dynamics, global climate modeling, climate extremes, large multi-model ensembles of climate simulations, seasonal-interannual to decadal climate variability, ENSO variability and precursors.

**CURRENT POSITIONS** University of Bologna, Bologna, Italy 2021 –  
Dept. of Biological, Geological and Environmental Sciences  
*Assistant Professor*

Monash University, Melbourne, Australia 2021 –  
School of Earth, Atmosphere & Environment  
*Research Scientist (Affiliate)*

Euro-Mediterranean Center on Climate Change, Bologna, Italy 2021 –  
Division of Earth System modeling and Data Assimilation  
*Research Scientist (Affiliate)*

**PAST POSITIONS** Monash University, Clayton Campus (Melbourne), Australia 2018 – 2021  
School of Earth, Atmosphere and Environment  
*Research Fellow for National Centre of Excellence for Climate Extremes*

Georgia Institute of Technology, US 2016 – 2018  
School of Earth, Atmosphere and Atmospheric Sciences  
*Teaching and Research Assistant*

**EDUCATION** Georgia Institute of Technology, Atlanta, US 2013 – 2018  
Ph.D. in Climate Dynamics with minor in Applied Math.  
Advisor: Prof. Emanuele Di Lorenzo  
Thesis title: *The role of the Meridional mode in the Pacific decadal variability.* ([www.eas.gatech.edu/people/liguori-giovanni](http://www.eas.gatech.edu/people/liguori-giovanni))

Parthenope University of Naples, Naples, Italy 2007 – 2009  
M.Sc. in Environmental Sciences, summa cum laude  
Advisors: Prof. Stefano Pierini & Dr. Daniele Iudicone  
Thesis title: *Modeling the Gulf of Naples using ROMS*

Parthenope University of Naples, Naples, Italy 2003 – 2007  
B.A. in Environmental Sciences, summa cum laude

FELLOWSHIPS AND AWARDS	Best paper award by an Early Career Researcher, CLEX, AU	2020
	Domenica Rea D’Onofrio Scholarship, Georgia Tech, US	2016 – 2018
	Best Presentation Award at PICES 2017, Vladivostok, Russia	2017
	NCAR Travel Grant, ECS Conference, Busan, South Korea	2017
	CLIVAR International Symposium Travel Grant, Qingdao, China	2016
	Graduate Climate Conference travel grant, MIT/UW	2016
	Advanced Climate Dynamics Courses Scholarship, WHOI/Others	2016
	CESM Tutorial Travel Grant, NCAR, Boulder, CO, USA	2016
	ESF MedCLIVAR Programme Exchange Grant, EU	2012

#### LEADERSHIP AND SERVICE

Manuscript reviewer for *Nature Climate Change*, *Nature Communications*, *Climate and Atmospheric Science by Nature*, *Science of Total Environment*, *Bulletin of the American Meteorological Society*, *Geophysical Research Letters*, *Journal of Climate*, *Journal of Geophysical Research*, *Climate Dynamics*, *Scientific Reports by Nature*, *Weather and Climate Extremes*, *Asia-Pacific Journal of Atmospheric Sciences and Deep-See Research II*.

Co-convener at the EGU General Assembly, session on *Extremes in marine environment: analysis of multi-temporal and multi-scales dynamics using observations, models and machine learning techniques* Vienna, Austria, 2023 [\[link\]](#)

Convener at the AMOS Annual Meeting, session on *Decadal to Multidecadal Variability: mechanisms and opportunity for prediction*, Perth, Australia, 2019 [\[link\]](#)

Co-organizer of CLEX videoconference series *Tropical Variability Meetings*, 2019 [\[link\]](#)

Reviewer for CLEX undergraduate scholarship applications, 2019 [\[link\]](#)

Host for *Graduate in EAS (GEAS) Guest Speaker* (Georgia Tech): David Battisti, 2018; George Philander, 2016; Shang-Ping Xie, 2014.

Chair of the *Graduate in EAS (GEAS) Social Committee*, Georgia Tech, 2017

Co-organizer and webmaster of the *EAS Oceanography Seminar* series, Georgia Tech, 2016 & 2017 [\[link\]](#)

Organizer of the *EAS Math Club*, Georgia Tech, 2016

Co-organizer of the *EAS Graduate Student Symposium*, Georgia Tech, 2016

#### PUBLICATIONS

Di Lorenzo, E., T. Xu, Y. Zhao, M. Newman, A. Capotondi, S. Stevenson, D. Amaya, B. Anderson, R. Ding, J. Furtado, Y. Joh, G. **Liguori**, J. Lou, A. J. Miller, G. Navarra, N. Schneider, D. Vimont, S. Wu, H. Zhang (2023), Modes and Mechanisms of Pacific Decadal-Scale Variability, *Annual Reviews of Marine Science*, doi:10.1146/annurev-marine-040422-084555

Bonshoms, M., Ubeda, J., **Liguori**, G., Körner, P., Cruz, R., Navarro-Frutos, A., (2022), A validation of ERA5-Land reanalysis temperature and relative humidity with data from on-glacier automatic weather stations in the Peruvian Andes. *Journal of Mountain Science*. doi: 10.1007/s11629-022-7388-4

- Liguori, G.,** McGregor S., M. S. Singh, J. Arblaster, and E. Di Lorenzo, 2021: Revisiting the impact of ENSO and IOD variability on Australian precipitation. *Geophysical Research Letters*, doi: [10.1029/2021GL094295](https://doi.org/10.1029/2021GL094295)
- Purich, A., Boschat, G. & **Liguori, G.**, 2021: Assessing the impact of suppressing Southern Ocean SST variability in a coupled climate model. *Scientific Report* 11, 22069. doi: [10.1038/s41598-021-01306-2](https://doi.org/10.1038/s41598-021-01306-2)
- Liguori, G.**, McGregor S., Arblaster J., Singh M. and Meehl G.: Disentangling the drivers of global and Pacific decadal variability using ESM large ensembles, 2020. *Nature Communications*, doi: [10.1038/s41467-020-17683-7](https://doi.org/10.1038/s41467-020-17683-7).
- Bonshoms, M., F. J. Alvarez-Garcia, J. Ubeda, W. Cabos, K. Quispe, **G. Liguori**, 2020: Dry season circulation type classification applied to precipitation and temperature in the Peruvian Andes. *International Journal of Climatology*, doi: [10.1002/joc.6593](https://doi.org/10.1002/joc.6593).
- Fosu, B., He J. and **Liguori G.**, 2020,: Understanding the remote influences of the structure of sea surface temperature changes from external radiative forcing. *Journal of Climate*, doi: [10.1029/2020GL088231](https://doi.org/10.1029/2020GL088231).
- Grothe, P. R., K. M. Cobb, **G. Liguori**, and et al., 2019: Central Pacific El Niño Southern Oscillation stronger in last decades than pre-industrial period. *Geophysical Research Letters*, doi: [10.1029/2019GL083906](https://doi.org/10.1029/2019GL083906)
- Liguori, G.**, and Di Lorenzo E., 2019: Separating the North and South Pacific Meridional Modes contributions to ENSO and tropical decadal variability. *Geophysical Research Letters*, [10.1029/2018GL080320](https://doi.org/10.1029/2018GL080320).
- Liguori, G.**, and Di Lorenzo E., 2018: Meridional Modes and Increasing Pacific decadal variability under greenhouse forcing. *Geophysical Research Letters*, doi:[10.1002/2017GL076548](https://doi.org/10.1002/2017GL076548).
- Cabos, W., S. Dmitry, J., W. D. Cabos, A. Durán-Quesada, **G. Liguori**, N. V. Koldunov, B. Martínez-López, F Alvarez, K Sieck, N. Limareva, J. G. Pinto, 2018: Dynamical downscaling of historical climate over CORDEX Central America domain with a regionally coupled atmosphere–ocean model. *Climate Dynamics*, doi: [10.1007/s00382-018-4381-2](https://doi.org/10.1007/s00382-018-4381-2).
- Fernandez, C., M. D. Frias, J., W. D. Cabos, A. S. Cofino, M. Dominguez, L. Fita, M. A. Gaertner, M. Garcia-Diez, J. M. Gutierrez, Jimenez-Guerrero P., **Liguori G.**, J. P. Montavez, R. Romera, E. Sanchez, 2018: Consistency of climate change projections from multiple global and regional model intercomparison projects. *Climate Dynamics*, doi: [10.1007/s00382-018-4181-8](https://doi.org/10.1007/s00382-018-4181-8).
- Liguori, G.**, Di Lorenzo E., Cabos W., 2017: A multi-model ensemble view of winter heat flux dynamics and the dipole mode in the Mediterranean Sea. *Climate Dynamics*, 48(3-4) 1089-1108. doi: [10.1007/s00382-016-3129-0](https://doi.org/10.1007/s00382-016-3129-0).
- Ruti, P., Somot S., Dubois C., ..., **Liguori G.**, ..., Sannino G., 2016: MED-CORDEX Initiative for Mediterranean Climate Studies. *Bulletin of the American Meteorological Society*, doi: [10.1175/BAMS-D-14-00176.1](https://doi.org/10.1175/BAMS-D-14-00176.1).
- Di Lorenzo, E., **Liguori G.**, Schneider N., Furtado J. C., Anderson B. T., Alexander M. A., 2015: ENSO and Meridional Modes: a null hypothesis for Pacific climate variability. *Geophysical Research Letters*, doi: [10.1002/2015GL066281](https://doi.org/10.1002/2015GL066281).
- Gomez, G., Cabos W., **Liguori G.**, and et al., 2014: Characterization of the wind speed variability and future change in the Iberian Peninsula and the Balearic Islands. *Wind Energy*, doi: [10.1002/we.1893](https://doi.org/10.1002/we.1893).

Jimenez-Guerrero, P., J.P.Montalvo, M.Dominguez, R.Romera, L.Fita, J.Fernandez, W.D.Cabos, **G. Liguori**, M.A.Gaertner, 2013: Description of mean fields and interannual variability in an ensemble of RCM evaluation simulations over Spain: Results from the ESCENA project. *Climate Research*, doi: [10.3354/cr01165](https://doi.org/10.3354/cr01165).

Dominguez, M., R. Romera, E. Sanchez, L. Fita, J. Fernandez, P. Jimenez-Guerrero, J.P. Montalvo, W.D. Cabos, **G. Liguori**, M.A. Gaertner, 2013: Precipitation and temperature extremes under present climate over Spain from a set of high resolution RCMs. *Climate Research*, doi: [10.3354/cr01186](https://doi.org/10.3354/cr01186).

Iermano I., **Liguori G.**, D. Iudicone, B. Buongiorno, S. Colella, A. Zingone, V. Saggiomo, M. Ribera d'Alcalá, 2012: Filament formation and evolution in buoyant coastal waters: observation and modelling. *Progress in Oceanography*, doi: [10.1016/j.pocean.2012.08.003](https://doi.org/10.1016/j.pocean.2012.08.003).

Ortiz Beviá, M.J., Álvarez García F.J., Ruiz de Elvira A., **Liguori, G.**, Hernández-Carretero J., 2012: The Western Mediterranean Summer Variability and its Feedbacks. *Climate Dynamics*, doi: [10.1007/S00382-012-1409-X](https://doi.org/10.1007/S00382-012-1409-X).

OTHER  
PUBLICATIONS

Di Lorenzo E., **Liguori G.**, Mantua N., 2016: Climate interpretation of the North Pacific marine heatwave of 2013-2015. *U.S. CLIVAR VARIATIONS*, Vol. 14, No .2, 13-18.  

Power, S., R. Saurral, C. Chung, R. Colman, V. Kharin, G. Boer, J. Gergis, B. Henley, Shayne McGregor, J. Arblaster, N. Holbrook, **G. Liguori**, 2017: Towards the prediction of multi-year to decadal climate variability in the Southern Hemisphere.

*PAGES/CLIVAR EXCHANGES*, Vol. 25, No.1, 32-40, doi: [10.22498/pages.25.1.32](https://doi.org/10.22498/pages.25.1.32). 

TEACHING  
EXPERIENCE

**Teaching Certificate**, *Tech to Teaching*, Georgia Tech Dec. 2017  
Completed coursework on higher education teaching and learning

**Instructor**

- [Tropical Air-Sea Interaction](#) 2023
- [Earth Climate System and Climate Change](#) 2023
- [Climate Variability](#) 2023
- [The Climate System: Components](#) 2022
- Climate Data Analysis, SENHAMI, Lima, Peru 2016
- Laboratory of Meteorology, University of Alcalá, Spain 2012
- Physics, University of Alcalá, Spain 2012
- Atmospheric Dynamics and Meteorological Models, University of Alcalá, Spain 2010-2012

**Co-Instructor** 2018

- Ocean Modelling, Georgia Tech, US

**Teaching Assistant** 2016

- Introduction to Environmental Sciences, Georgia Tech, US 2016
- Advanced Environmental Data Analysis, Georgia Tech, US 2017
- Chemistry and Physics of the Ocean, Georgia Tech, US 2020

- Climate change: From science to society, Monash Uni, AU

INVITED TALKS	<p>SMILES Community webinar series 2021, Online with worldwide participants. <i>The relative roles of anthropogenic forcing and internal-variability on decadal variability of global SSTs.</i></p> <p>AGU Fall Meeting 2019, San Francisco, US Session: Drivers of tropical Pacific decadal variability <i>Disentangling the drivers of global and Pacific decadal variability using ESM large ensembles.</i></p> <p>University of New South Wales, Sydney, Australia Climate Change Research Centre <i>The Role of Meridional Modes in Pacific Climate Variability and Change</i></p> <p>University of Alcalá, Madrid, Spain Climate physics group seminar <i>Modal Decomposition and Climate Variability</i></p> <p>University of Texas, Austin, US Di Nezio/Okomura's group Seminar <i>The Pacific Decadal Variability and the Meridional Mode</i></p> <p>University of Miami, RSMAS, Miami, US Clement/Kirtman's group seminar <i>Increasing Pacific decadal variability under greenhouse forcing</i></p> <p>National Center of Meteorology and Hydrology, Lima, Peru Workshop CRYOPERU <i>The role of the Meridional Mode in ENSO dynamics under anthropogenic forcing</i></p>	<p>Feb. 2021</p> <p>Feb. 2019</p> <p>Dec. 2017</p> <p>Sep. 2017</p> <p>Apr. 2017</p> <p>Jul. 2016</p>
SELECTED CONFERENCE PRESENTATIONS	<p>Ocean Science Meeting 2016, New Orleans, USA: <i>The role of the Meridional Mode in ENSO diversity under greenhouse forcing.</i> Feb. 2016. [Oral]</p> <p>CLIVAR Open Science Conference, Qingdao, China: <i>The role of the Meridional Mode in ENSO under greenhouse forcing.</i> Sep. 2016. [Poster]</p> <p>AMOS/MSNZ Conference, Canberra, Australia: <i>Increasing Pacific decadal variability under greenhouse forcing.</i> Feb. 2017. [Oral]</p> <p>PICES/ICES 3rd Early Career Scientist Conference, Busan, South Korea: <i>The Pacific decadal variability in the CESM Large Ensemble.</i> Jun. 2017. [Oral]</p> <p>PICES Annual Meeting, Vladivostok, Russia: <i>Increasing Pacific decadal variability under anthropogenic forcing.</i> Oct. 2017. [Oral]</p> <p>Ocean Science Meeting 2018, Portland, USA: <i>Pacific Meridional Modes and Tropical Decadal Variability: Past and Future.</i> Feb. 2018. [Poster]</p> <p>ENSO Science Symposium 2019, Hobart, Tasmania, Australia: <i>Pacific Meridional Modes, ENSO, and Tropical Decadal Variability.</i> Jan. 2019. [Oral]</p>	

AMOS Conference, Darwin, Australia: *Role of Meridional Modes in Pacific decadal variability*. Jun. 2019. [Oral]

AMOS/ICTMOS Conference, Perth, Australia: *Disentangling the drivers of global and Pacific decadal variability using large ensembles*. Jun. 2020. [Oral]

WCRP-CLIVAR Workshop Conference on Climate Interactions among the Tropical Basins, Online, Asian/US/Europe timezones: *Using SST-pacemaker experiments to explore the impact of Tropical Atlantic SST variability on Pacific decadal variability since the 1960*. 2021. [Oral]

AMOS Conference, Canberra, Australia: *Revisiting the impact of ENSO and IOD variability on Australian precipitation*. March. 2021. [Oral]

#### LANGUAGES

- Italian - Native
- English - Fluent
- Spanish - Fluent

#### TUTORIALS AND TOOLS

Author of the YouTube series on the Climate Data Operator: [CDO Tutorial](#) 

Author of the MATLAB Toolbox for climate analyses: [CliMat](#) 