



CURRICULUM VITAE

I. EARNED DEGREES

Ph.D.	Geophysics and Oceanography	2000	Univ. of Genoa, Italy
B.A.	Theoretical Physics	1995	University of Torino, Italy

II. EMPLOYMENT HISTORY

Associate Chair for Research, EAS, Georgia Institute of Technology	2022-
Professor, EAS, Georgia Institute of Technology	2014-
Assistant/Associate Professor, Georgia Institute of Technology	2007-2014
Assistant Scientist, Woods Hole Oceanographic Institution	2005-2006
Junior UNESCO Tenure Track Scientist, ICTP, Trieste, ITALY	2002-2005
Postdoctoral Scholar, Woods Hole Oceanographic Institution	2000-2002

III. HONORS AND AWARDS

2011 American Meteorological Society, **Nicholas Fofonoff Award** for “contributions to understanding mesoscale ocean dynamics, geostrophic turbulence, and tropical dynamics, and their coupling with marine ecosystems”.

2006 Mary Sears Award, Woods Hole Oceanographic Institution

2000 Postdoctoral Scholar Award at the Woods Hole Oceanographic Institution (WHOI), MA.

1997 Geophysical Fluid Dynamics Summer School Fellowship Award, WHOI, MA.

IV. RESEARCH, SCHOLARSHIP, AND CREATIVE ACTIVITIES

A1. BOOKS. No Data

A2. REFEREED BOOK CHAPTERS

1. Bracco A., Archibald, R.K., Dovrolis, C., **Foundalis, I.**, Luo H., Neelin, J.D. (2015) The parameter optimization problem in state-of-the-art climate models and network analysis for systematic data mining in model intercomparison projects in “The Fluid Dynamics of Climate”, CISM Courses and Lectures Vol. 564, Edited by A. Provenzale, E. Palazzi and K. Fraedrich pp 121-141, Springer, doi 10.1007/978-3-7091-1893-1
2. Bracco A., Kucharski F., Rosenheim B. (2009) Commentary: Challenges in the Tropical Atlantic: Understanding its interannual to decadal variability. In "The Atlantic Ocean: New Oceanographic Research", Nova Science Publishers, Hauppauge, NY.
3. Provenzale A., Babiano A., Bracco A., Pasquero C. and Weiss J.B. (2008) Coherent vortices and tracer transport, in “Transport and Mixing in Geophysical Flows”, Series: Lecture Notes in Physics, Vol. 744, edited by J.B. Weiss and A. Provenzale, Springer, ISBN: 978-3-540-75214-1.
4. Pasquero C., Bracco A., Provenzale A., Weiss J. (2007) Particle motion in a sea of eddies, in Lagrangian Analysis and Prediction of Coastal and Ocean Dynamics, pg. 89-118, edited by A. Griffa, A. D. Kirwan, A. J. Mariano, T. Ozgokmen, and T. Rossby, Cambridge University Press, ISBN-13: 9780521870184.
5. Pasquero C., Bracco A., Provenzale A. (2004) Coherent vortices, Lagrangian particles and the marine ecosystem. In Shallow Flows, pag. 399-412, edited by G.H. Jirka and W.S.J. Uijttewaai, Balkema Publishers, Leiden, NL.
6. Hazeleger W., Molteni F., Severijns C., Haarsma R., Bracco A., Kucharski F. (2003) SPEEDO: A flexible coupled model for climate studies. Clivar Exchanges N. 28 - Coupled Modelling.
7. Bracco A., von Hardenberg J., Provenzale A., Weiss J. B. (2003) Modeling planetary turbulence at very high Reynolds number. In Science and Supercomputing at CINECA, 2003.
8. Bracco A., Provenzale A., Spiegel E. A., Jecko P. A. (1999) Spotted disks. In "Theory of Black Hole Accretion Disks", ed. M. Abramowicz, G. Bjornson, J. Pringle. Cambridge: Cambridge Univ. Press.

A3. EDITED VOLUMES

1. Understanding and predicting ocean carbon uptake using coupled climate models: Recent achievements and open challenges, U.S. CLIVAR Variations, Spring 2015, Vol. 13(2). Edited by A. Bracco, T. Ito and C. Deutsch.

B. REFEREED PUBLICATIONS AND SUBMITTED ARTICLES

B1. Published and Accepted Journal Articles

1. Ueno, H., A. Bracco, J. A. Barth; M. V. Budyansky; D. Hasegawa et al. (2022) Review: Oceanic mesoscale processes in the North Pacific: physical and biogeochemical impacts. *Progress in Oceanography*, [In Press, Available on-line](#)
2. **Novi, L.**, A. Bracco (2022) Machine Learning prediction of connectivity, biodiversity and resilience in the Coral Triangle. *Nature Communications Biology*, 5, 1359, <https://www.nature.com/articles/s42003-022-04330-8>.
3. **Sun, D.**, T. Ito, A. Bracco, C. A. Deutsch (2022) Control of the oxygen to ocean heat content ratio during deep convection events *Global Biogeochemical Cycles*, 36, e2021GB007063, <https://doi.org/10.1029/2021GB007063>
4. **Miller, S., L. Lopera**, A. Bracco (2021) Eastern Boundary Upwelling Systems. *Frontiers for Young Minds*, Collection: The Ocean, Vol. 10, doi:10.3389/frym.2022.704120
5. Mura, A., P. Scarica, D. Grassi, A. Adriani, A. Bracco, G. Piccioni et al. (2022) Stability of the Circumpolar Cyclones of Jupiter. *J. Geoph. Res. – Planets.*, 127 e2022JE007241, <https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2022JE007241>
6. **De Falco, C.**, F. Desbiolles, A. Bracco, C. Pasquero (2022) Island Mass Effect: physical processes and nutrient fluxes (A Review). *Frontiers in Marine Sciences*, 9:894860, <https://doi.org/10.3389/fmars.2022.894860>
7. **Falasca, F.**, A. Bracco (2022) Exploring the topology of the tropical Pacific manifold. *Physics Review X*, 12, 021054, <https://journals.aps.org/prx/abstract/10.1103/PhysRevX.12.021054>
8. **Sun, D.**, A. Bracco, **G. Liu** (2022) The role of freshwater forcing on surface predictability in the Gulf of Mexico *J. Geoph. Res. – Oceans*, <https://doi.org/10.1029/2021JC018098>
9. **Zeng, X.**, A. Bracco and **F. Tagklis** (2022) Dynamical impacts of the Mekong River plume in the South China Sea. *J. Geoph. Res. Oceans*, e2021JC017572.
10. **Liu, G.**, A. Bracco, **D. Sun** (2022) Resolution and river treatment impacts on freshwater pathways in the northern Gulf of Mexico *Frontiers in Marine Sciences*, doi:10.3389/fmars.2022.841900
11. **Beaudin, E.**, A. Bracco (2022) Marine Heat Waves *Frontiers for Young Minds*, 0:712528. doi: 10.3389/frym.2022.712528 (Endorsed live at the World Expo in Dubai, Jan 30, 2022)
12. **Falasca, F.**, J. Cretat, A. Bracco, P. Braconnot, O. Marti (2022) Evolution of the Indo-Pacific dynamical system from mid- to late Holocene, *Climate Dyn.*, [doi:10.1007/s00382-022-06153-z](https://doi.org/10.1007/s00382-022-06153-z)
13. Siegelman, L., P. Klein, A. Ingersoll, S. Ewald, W. Young, A. Bracco, A. Mura, A. Adriani, D. Grassi, C. Plainaki, G. Sindoni (2022) Moist convection drives an upscale energy transfer at Jovian high latitudes *Nature Physics* , <https://doi.org/10.1038/s41567-021-01458-y>
14. **Liu, G.**, **F. Falasca**, A. Bracco (2021) Dynamical Characterization of the Loop Current Attractor *Geoph. Res. Letters*, 48, e2021GL096731, <https://doi.org/10.1029/2021GL096731>
15. **Liu, G.**, A. Bracco, A. M Quattrini and S. Herrera (2021b) Kilometer-scale larval dispersal processes predict metapopulation connectivity pathways for *Paramuricea biscaya* in the northern Gulf of Mexico *Frontiers in Marine Science*, 8:790927. <https://doi.org/10.3389/fmars.2021.790927>
16. Galaska, M.P., **G. Liu**, D. West, K. Erickson, A. M Quattrini, A. Bracco, S. Herrera. Seascape genomics reveals metapopulation connectivity network of *Paramuricea biscaya* in the northern Gulf of Mexico. *Frontiers in Marine Science*, 8:790929. doi:10.3389/fmars.2021.790929
17. Justic, D., V. Kourafalou, G. Mariotti, S. He, R. Weisberg, Y. Androulidakis, C. Barker, A. Bracco et al. A review of transport processes in the Gulf of Mexico along the river-estuary-shelf-ocean continuum: a synthesis of research from the Gulf of Mexico Research Initiative *Estuaries and Coasts*, <https://doi.org/10.1007/s12237-021-01005-1>
18. Mura, A., A. Adriani, A. Bracco, M.L. Moriconi, D. Grassi, C. Plainaki et al. (2021) Oscillations and stability of the Jupiter polar cyclones, *Geoph. Res. Lett.* 48, e2021GL094235,
19. Boufadel, M., A. Bracco, E.P. Chassignet, S.S. Chen, E. D'Asaro, et al. (2021) Physical Transport Processes affecting the distribution of oil in the Gulf of Mexico: Observations and Modelling, *Oceanography*, 34(1):58–75, <https://doi.org/10.5670/oceanog.2021.117>

20. **Ikuyajolu, O.J., F. Falasca**, A. Bracco (2021) Information entropy as quantifier of potential predictability in the tropical Indo-Pacific basin. *Frontiers in Climate* doi:10.3389/fclim.2021.675840
21. **Novi, L., A. Bracco, F. Falasca** (2021) Uncovering marine connectivity through sea surface temperature, *Scientific Reports*, 11:8839 <https://doi.org/10.1038/s41598-021-87711-z>
22. Rogener, KM.-K., K. S. Hunter, N.N. Rabalais, B. J. Roberts, A. Bracco, F. J. Stewart, and S. B. Joye (2021) Pelagic Denitrification and Methane Oxidation in Oxygen-Depleted Waters of the Louisiana Shelf. *Biogeochemistry*, doi: 10.1007/s10533-021-00778-8
23. **Liu, G., A. Bracco, A. Sitar** (2021) Submesoscale mixing across the mixed layer in the Gulf of Mexico *Frontiers in Marine Sciences*, 8:615066, doi: 10.3389/fmars.2021.615066
24. **Falasca, F. J. Crétat, P. Braconnot, A. Bracco** (2020) Spatiotemporal complexity and time-dependent networks in sea surface temperature from mid- to late Holocene *The European Physical Journal Plus*, 135:392 <https://doi.org/10.1140/epjp/s13360-020-00403-x>
25. Bracco, A., C.B. Paris, A. J. Esbaugh, K. Frasier, S.B. Joye, **G. Liu**, K.L. Polzin, A.C. Vaz (2020) Transport, Fate and Impacts of the Deep Plume of Petroleum Hydrocarbons Formed during the Macondo Blowout *Frontiers in Marine Sciences*, doi:10.3389/fmars.2020.542147
26. **De Falco, C., A. Bracco, C. Pasquero** (2020) Climatic and oceanographic controls on coral bleaching conditions in the Maldivian region. *Frontiers in Marine Sciences*, doi: 10.3389/fmars.2020.539869
27. **Tagklis, F., A. Bracco, T. Ito and R.M. Castelao** (2020) Submesoscale modulation of deep water formation in the Labrador Sea. *Scientific Reports*, 10, 17489, doi: 10.1038/s41598-020-74345-w.
28. **Sun, D., A. Bracco, R. Barkan, M. Berta, D. Dauhajre, J. Molemaker, J. Choi, G. Liu, A. Griffa, J.C. McWilliams** (2020) Diurnal Cycling of Submesoscale Dynamics: Lagrangian Implications in Drifter Observations and Model Simulations of the Northern Gulf of Mexico. *J. Phys. Ocean.*, 50 (6), 1605-1623, doi: 10.1175/JPO-D-19-0241.1
29. Adriani, A., A. Bracco, D. Grassi, M. Moriconi, A. Mura, G. Orton et al. (2020) Two-years observations of the Jupiter polar regions by Jiram on board of Juno *J. Geoph. Res. - Planets*, 125, e2019JE006098, <https://doi.org/10.1029/2019JE006098>
30. **Tagklis, F., T. Ito, A. Bracco** (2020) Modulation of the North Atlantic Deoxygenation by The Slowdown of the Nutrient Stream, *Biogeosciences*, 17, 231-244, doi: 10.519/bg-17-231-2020
31. Stammer, D., A. Bracco and co-authors (2019) Ocean climate observing requirements in support of Climate Research and Climate Information *In Oceanobs19: An Ocean of Opportunity. Frontiers in Marine Science*, 6, 444. doi: 10.3389/fmars.2019.00444
32. Bracco, A., **G. Liu**, M. Galaska, A. Quattrini, S. Herrera (2019) Integrating physical circulation models and genetic approaches to investigate population connectivity in deep-sea corals *J. Marine Systems*, 198, 103189, <https://doi.org/10.1016/j.jmarsys.2019.103189>
33. **Falasca, F., A. Bracco, A. Nenes, I. Fountalis** (2019) Dimensionality reduction and network inference for climate data using class-MAPS: application to the CESM Large Ensemble sea surface temperature. *JAMES*, 11, 1479-1515, DOI: 10.1029/2019MS001654
34. Castelao, R., H. **Luo**, H. Oliver, A. Rennermalm, M. Tedesco, A. Bracco, P. Yager, T. Mote, P. Medeiros (2019) Controls on the transport of meltwater from the southern Greenland ice sheet in the Labrador Sea *J. Geoph. Res. - Oceans*, 124, 3551–3560
35. Pearson, J., B. Fox-Kemper, R. Barkan, **J. Choi**, A. Bracco, J.C. McWilliams (2019) Impacts of convergence on Lagrangian statistics in the Gulf of Mexico *J. Phys. Ocean.*, 49(3):675-690
36. Bracco, A., **G. Liu, D. Sun** (2019) Mesoscale-submesoscale interactions in the Gulf of Mexico: From oil dispersion to climate, *Chaos, Solitons & Fractals*, 119, 63-72
37. Stammer, D., A. Bracco, P. Braconnot, G. Bresseur, S.M. Griffies, E. Hawkins (2018) Science in a world of transient climate change: enabling regional to local predictions in support of reliable climate information. *Earth's Future*, 6, 1498-1507
38. Rogener, M.K., A. Bracco, K.S. Hunter, M.A. Saxton, S.B. Joye, S.B. (2018) Impact of the Deepwater Horizon oil well blowout on methane oxidation dynamics in the Northern Gulf of Mexico. *Elementa: Science of the Anthropocene*, 6: 73. doi:10.1525/elementa.332
39. **Fountalis, I., C. Dovrolis, A. Bracco, B. Dilkina, S. Keilholz** (2018) δ -MAPS: From spatio-temporal data to a weighted and lagged network between functional domains *Applied Network Science*, doi:10.1007/s41109-018-0078-z

40. **Liu, G.**, Bracco, A., Passow, U. (2018) The influence of mesoscale and submesoscale circulation on sinking particles in the northern Gulf of Mexico *Elementa: Science of the Anthropocene*, 6(1):36, doi: <http://doi.org/10.1525/elementa.292>
41. Bracco A., **Falasca, F.**, Nenes, A., **Fountalis, I.**, Dovrolis, C. (2018) Advancing climate science with Knowledge-Discovery through Data mining. *NPJ Climate and Atmosph. Science*, 4, doi:10.1038/s41612-017-0006-4 (GaTech and COS news item highlighted by DOE web site, Phys.org, Science Newslines, EurekAlert!, R&D Magazine)
42. Bracco, A., **Choi, J.**, Kurian, J., Chang, P. (2018) Vertical and horizontal resolution dependency in the model representation of tracer dispersion in the northern Gulf of Mexico *Ocean Modell.*, 122, 13-25
43. Barkan, R., McWilliams, J.C., Shchepetkin, A.F., Molemaker, J., Renault, L., Bracco, A., **Choi, J.** (2017) Submesoscale dynamics in the northern Gulf of Mexico. Part I: Regional and seasonal characterization, and the role of river outflow. *J. Phys. Ocean.*, 47, 2325-2346
44. Barkan, R., McWilliams, J.C., Molemaker, J., **Choi, J.**, Srinivasan, K., Shchepetkin, A.F., Bracco, A. (2017) Submesoscale dynamics in the northern Gulf of Mexico. Part II: Temperature-Salinity Relations and Cross Shelf Transport processes *J. Phys. Ocean.*, 47, 2347-2360
45. **Choi, J.**, Bracco, A., et al. (2017) Submesoscale dynamics in the northern Gulf of Mexico. Part III: Lagrangian implications *J. Phys. Ocean.*, 47, 2361-2376
46. **Sun, D.**, Ito, T., Bracco, A., (2017) Oceanic uptake of oxygen during deep convection events through diffusive and bubble mediated gas exchange. *Global Biogeochem. Cycles*, 31, <https://doi.org/10.1002/2017GB005716>
47. **Tagklis, F.**, Bracco, A., Ito, T. (2017) Physically driven patchy O₂ changes in the North Atlantic Ocean simulated by the CMIP5 Earth System Models. *Global Biogeochem. Cycles*, doi:10.1002/2016GB005617
48. **Zhong, Y.**, Bracco A., et al. (2017) Observed and simulated vertical pump of an anticyclonic eddy in the South China Sea. *Scientific Reports* 7, Article #: 44011, doi:10.1038/srep44011
49. Stammer, D., Bracco A., Detemmerman (2017) Climate and ocean science builds for the future. *EOS*, 98, doi:10.1029/2017EO073225
50. Joye, S.B., Bracco, A., Ozgokmen, T., Chanton, J.P., Grosell M., MacDonald I., Cordes E.E., Montoya, J.P., Passow U. (2016) The Gulf of Mexico ecosystem, six years after the Macondo oil well blowout *Deep Sea Res. II*, <http://dx.doi.org/10.1016/j.dsr2.2016.04.018>
51. **Cardona Y.**, Ruiz-Ramos, D.V., Baums I.B., Bracco A. (2016) Potential connectivity of coldwater black coral communities in the northern Gulf of Mexico *PLOS One*, 11(5): e0156257. doi:10.1371/journal.pone.0156257
52. **Cardona, Y.**, Bracco A., Villareal, T. A., Subramaniam, A., Weber, S., Montoya, J. P. (2016) Highly variable nutrient concentrations in the northern Gulf of Mexico, *Deep-Sea Research II*, doi:10.1016/j.dsr2.2016.04.010.
53. Luo, H., Castelao, R., Asa K. Rennermalm A. K., Marco Tedesco, M., Bracco A., Yager, P.L., Mote, T. L. (2016) Fate of Freshwater from Greenland Ice Sheet Melting in the Ocean, *Nature Geoscience*, doi:10.1038/NGEO2708
54. Bracco A., **Choi J.**, **Joshi K.**, Luo H., McWilliams J. (2016) Submesoscale currents in the northern Gulf of Mexico: Deep phenomena and dispersion over the continental slope. *Ocean Modelling*, 01, 43-58, doi:10.1016/j.ocemod.2016.03.002
55. **Luo, H.**, Bracco A., **Cardona Y.**, McWilliams, J.C., (2016) The submesoscale circulation in the Northern Gulf of Mexico: Surface processes and the impact of the freshwater river input. *Ocean Modelling*, 101, 68-82, doi:10.1016/j.ocemod.2016.03.003
56. Kleindienst, S., Grim, S., Sogin, M., Bracco, A., Crespo-Medina, M., JoyeS.B. (2015) Diverse, rare microbial taxa responded to the Deepwater Horizon deep-sea hydrocarbon plume *The ISME Journal*, doi:10.1038/ismej.2015.121
57. Ito, T., Bracco, A., Deutsch, C., Frenzel, H., Long, M., Takano, Y. (2015) Sustained growth of the Southern Ocean carbon storage in a warming climate, *Geoph. Res. Letters*, 42, 4516-4522
58. Bracco A., Long M. Levine N., Thomas Q., Deutsch C., McKinley G., (2015) The NCAR Advanced Study Program Summer Colloquium on Carbon-climate connections in the Earth system: Capacity Building in cross-disciplinary research, *Bull. Amer. Meteor. Soc.*, doi:<http://journals.ametsoc.org/doi/abs/10.1175/BAMS-D-13-00246.1>.

59. **Fountalis, I.**, Bracco, A., Dovrolis, C. (2015) ENSO in CMIP5 simulations: network connectivity from the recent past to the twenty-third century, *Climate Dynamics*, 45, 511-538, DOI 10.1007/s00382-014-2412-1
60. **Luo, H.**, Bracco A., **Zhang, F.** (2014), The seasonality of convective events in the Labrador Sea, *J. Climate*, 27, 6456–6471. doi: <http://dx.doi.org/10.1175/JCLI-D-14-00009.148>)
61. Crespo-Medina M., Meile C., Hunter K., Diercks A., Asper V., Chanton J., Orphan V., Shiller A., Joung D., Battles J., Amon R., Bracco A., Montoya J., Villareal T., Vossmeier A., Wood M., Joye S. (2014) The rise and fall of methanotrophy following a deepwater oil-well blowout. *Nature Geoscience*, 7, 423–427 (see also News and Views: Ocean biogeochemistry: Bacterial bloom and crash in *Nature Geoscience* 7, 394–395, 2014)
62. **Cardona, Y.**, Bracco A., (2014) Predictability and mesoscale circulation throughout the water column in the Gulf of Mexico, *Deep Sea Res. II - Topical studies in Oceanography*, Available online, Jan 2014, <http://dx.doi.org/10.1016/j.dsr2.2014.01.008>
63. **Foudalis I.**, Bracco A. Dovrolis C. (2014) Spatio-temporal network analysis for studying climate patterns *Climate Dyn.*, 42, 879-899, doi:10.1007/s00382-013-1729-5
64. Bracco A., Neelin J. D., **Luo, H.**, McWilliams, J., Meyerson, J. E. (2013) High dimensional decision dilemmas in climate models, *Geoscientific Model Development (GMD)* 6, 2731-2767, doi:10.5194/gmdd-6-2731-2013.
65. **Zhong, Y.**, Bracco A., (2013), Submesoscale impacts on horizontal and vertical transport in the Gulf of Mexico, *J. Geoph. Res. – Oceans*, 118, 5651–5668, doi:10.1002/jgrc.20402.
66. Di Lorenzo, E., Combes V., Keister J. E., Strub T. P., Thomas A. C., Franks P. J. S., Ohman M. D., Furtado J., Bracco A., Bograd S. J., Peterson W. T., Schwing F. B., Chiba S., Taguchi B., Hormazabal S., and Parada C. Synthesis of Pacific Ocean climate and ecosystem dynamics. *Oceanography* 26(4), 68–81, <http://dx.doi.org/10.5670/oceanog.2013.76>
67. **Barimalala R.**, Bracco A., Kucharski, F., McCreary J. P., Crise A. (2013) Arabian ecosystem response to the south tropical Atlantic teleconnection *J. Marine Systems*, 117-118, 14-30.
68. **Luo H.**, Bracco A., Yashayaev I., Di Lorenzo E. (2012) The interannual variability of potential temperature in the central Labrador Sea *J. Geoph. Research - Oceans*, 117, C10, DOI: 10.1029/2012JC007988
69. **Zhong Y.**, Bracco A., Villareal T. (2012) Pattern formation at the ocean surface: Sargassum distribution and the role of the eddy field *Limnology&Oceanography Fluid and Environments*, 2, 12-27, doi:10.1215/21573689-1573372
70. **Cardona Y**, Bracco A. (2012) Enhanced vertical mixing within mesoscale eddies due to high frequency winds in the South China Sea. *Ocean Modeling*, doi: 10.1016/j.ocemod.2011.11.004
71. **Barimalala R**, Bracco A, Kucharski F. The representation of the South Tropical Atlantic teleconnection to the Indian Ocean in the AR4 coupled models. *Climate Dynamics*, 38, Numbers 5-6, 1147-1166, DOI: 10.1007/s00382-011-1082-5
72. **Luo H.**, Bracco A., Di Lorenzo E., (2011) The interannual variability of the surface eddy kinetic energy in the Labrador Sea. *Progress in Oceanography*, doi:10.1016/j.pocean.2011.01.006.
73. Neelin, J. D. Bracco A., **Luo H.**, McWilliams J.C., Meyerson J. E. (2010) Consideration for parameter optimization and sensitivity in climate models, *PNAS*, 107, 21349-21354.
74. Di Lorenzo E., Cobb K. M. Furtado J. C., Schneider N., Anderson B. T., Bracco A., Alexander M. A., Vimont D. J. (2010) Central Pacific El Nino and decadal climatic change in the North Pacific Ocean, *Nature Geoscience*, 3 (11), 762-765, doi: 10.1038/NGEO984
75. Kuckarski F., Bracco A., **Barimalala R.**, Yoo J.-H. (2010) Contribution of the east-west thermal heating contrast to the South Asian Monsoon and consequences for its variability. *Climate Dynamics*, doi: 10.1007/s00382-010-0858-3
76. Bracco A., McWilliams, J.C (2010) Reynolds number dependency in equilibrium two-dimensional turbulence. *J. Fluid Mechanics*, 646, 517-526.
77. **Koszalka, I., Ceballos, L.**, Bracco A. Vertical mixing and coherent anticyclones in the ocean: The role of stratification. *Nonlinear Processes in Geophysics*, 17, 37-47.
78. **Koszalka I.**, Bracco A., McWilliams, J.C., Provenzale A. (2009) Dynamics of wind-forced coherent anticyclones in the open ocean. *J. Geophysical Research – Oceans*, doi:10.1029/2009JC005388, 114, C08011, doi:10.1029/2009JC005388.
79. Di Lorenzo, E., Fiechter J., Schneider N., Bracco A., Miller A. J., Franks P. J. S., Bograd S. J., Moore A. M., Thomas A., Crawford W., Pena A., Herman A., (2009) Nutrient and Salinity

- Decadal Variations in the central and eastern North Pacific. *Geophysical Research Letters*, doi:10.1029/2009GL038261.
80. Kucharski F., Bracco A., Yoo J.H., Tompkins A., Feudale L., Ruti P., dell'Aquila A. (2009) A Gill-Mastuno-type mechanism explains the Tropical Atlantic influence on African and Indian Monsoon rainfall. *Quart. J. Royal Meteor. Soc.*, 135, 569-579, doi:10.1002/qj.406.
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 86. **Koszalka I.**, Bracco A., Pasquero C., Provenzale A. (2007) Plankton cycles disguised by turbulent advection. *Theoretical Population Biology*. doi:10.1016/j.tpb.2007.03.007
 87. Kucharski F., Bracco A., Yoo J. H. and Molteni F. (2007) Low frequency variability of the Indian Monsoon – ENSO relation and the Tropical Atlantic. The ‘weakening’ of the ‘80s and ‘90s. *J. Climate*, 20(16), 4255-4266
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 96. Bracco A., Pedlosky J. (2003) Local baroclinic instabilities over variable topography in channel flows. *J. Physical Oceanography*, 33, 207-219
 97. Martin A., Richards J. K., Bracco A., Provenzale A. (2002) Patchy productivity in the open ocean. *Global Biogeochemical Cycles*, 16(2) 10.1029/2001GB001449 Also in Editor's Choice: Biogeosciences, July 2002.
 98. Berloff P., McWilliams J. C., Bracco A. (2002) Material Transport in Oceanic Gyres. Part I: Phenomenology. *J. Physical Oceanography*, 32, 764-796.
 99. Bracco A., McWilliams J. C., Murante G., Provenzale A., Weiss J. B. (2000) Revisiting 2D turbulence at millennial resolution. *Physics of Fluids*, 12(11), 2931-2941

100. Bracco A., LaCasce J., Pasquero C., Provenzale A. (2000) Velocity PDFs in barotropic turbulence, *Physics of Fluids*, 12, 2478-2488.
101. Bracco A., LaCasce J., Provenzale A. (2000) Velocity probability density functions for oceanic floats. *J. Physical Oceanography*, 30, 461-474.
102. Bracco A., Provenzale, I. Scheuring, (2000) Mesoscale vortices and the paradox of the plankton. *Proceedings of the Royal Society of London B*, 267 (1454), 1795-1800.
103. Bracco A. (2000) Boundary layer separation in the Surface Quasi-Geostrophic equations. *Nuovo Cimento C*, 23 (5), 487-506.
104. Bracco A. (2000) Transport of passive tracers by monopoles on the beta-plane. *Nuovo Cimento C*, 23 (6), 597-609.
105. Bracco A., Chavanis P., Provenzale A, Spiegel E. A (1999) Particle aggregation in a turbulent keplerian flow. *Physics of Fluids*, 11, 2280-2291.

B3. Other refereed material

1. CLIVAR Science Plan and Implementation Strategy, Bracco, A., and Stammer, D. (Lead Authors) (2018)
2. US-CLIVAR Science Plan, Goddard, L., et al. (2013), <http://www.usclivar.org/science-plan>

B4. Submitted Journal Articles (with date of submission)

1. Hernandez-Carrasco, I., V. Rossi, G. Navarro, A. Turiel, A. Bracco, A. Orfila (2022) Highly coherent flow structures promote diatom blooms in oligotrophic waters. Submitted, Nov 2022
2. Liu, G., A. Bracco, J. Brajard (2022) Systematic bias correction in ocean mesoscale forecasting using machine learning. JAMES. Submitted Sept 2022
3. Liu, G., R. Touret, A. Bracco, K. Sabra (2022) The role of vertical resolution in the representation of the ocean sound speed in mesoscale eddies. JASA Express Letters. Submitted, June 2022

C. OTHER PUBLICATIONS AND CREATIVE PRODUCTS

Software

Software for climate network analysis developed by graduate student Ilias Fountalis (<http://www.cc.gatech.edu/grads/i/ifountalis/software.htm>)

δ -MAPS, network inference method, modified version by graduate student Fabrizio Falasca (<https://github.com/FabriFalasca/delta-MAPS>)

Datasets

- GRIIDC dataset for Modeling study of particle trajectories in the Northern Gulf of Mexico at 500 m resolution DATASET (UDI): R4.x265.000:0025; DOI: 10.7266/N7CN720V
- GRIIDC dataset for Modeling study of the impact of resolution on representation of tracer dispersion along the continental slope in the northern Gulf of Mexico; DOI: 10.7266/N75D8Q9V
- GRIIDC dataset for Modeling study of sinking of DOC particles in the Gulf of Mexico; DOI: 10.7266/N7NP22XW
- GRIIDC dataset for Modeling study of the submesoscale transport properties of mesoscale anticyclones DATASET (UDI): R4.x268.000:0046; DOI: 10.7266/N7NV9G78
- GRIIDC dataset for modeling study of deep coral connectivity in the northern Gulf of Mexico over three years DATASET (UDI): R1.x132.141:0006; DOI: 10.7266/N7V9860S
- GRIIDC dataset for modeling study of submesoscale dynamics in the northern Gulf of Mexico and role of freshwater forcing, Jan 2010-Dec 2012, DATASET (UDI): R1.x132.141:0005, DOI:10.7266/N7028PF7
- GRIIDC dataset for modeling study of submesoscale impacts on horizontal and vertical transport in the Gulf of Mexico for April 1, 2005 to May 09 2005 , DATASET (UDI): R1.x132.141:0001
- GRIIDC dataset Modeling study of the predictability of mesoscale circulation throughout the water column in the Gulf of Mexico for January 1, 2000 to December 31, 2008 <https://data.gulfresearchinitiative.org/data/R1.x132.141:0003/>

Internet Publications

1. **Barimalala, R.**, Bracco A., Zhuo, L., (2017) Indian Ocean sea surface partial pressure CO₂ and air-sea CO₂ flux interannual variability in the CMIP5-ESM models; CLIVAR EXCHANGES (In Press, to appear in March 2017; Accepted Dec 2016).
2. Ito, T, Bracco A., Deutsch, C. (2015) The future of the Southern Ocean carbon storage in CMIP5 models, U.S. CLIVAR Variations, Spring 2015, vol. 13(2), 24-28
3. Bracco, A., Ito T. and Deutsch C., (2013) An Update from the Ocean Carbon Uptake Working Group, Ocean Carbon and Biogeochemistry Newsletter (OCB News), Winter 2013, Vol. 6(1)
4. Bracco A. and Johnson K., Ocean carbon biogeochemistry and U.S. CLIVAR joint meeting summary, U.S. CLIVAR Variations, Summer 2011, vol. 10
5. Bracco A., **Koszalka I.**, Pasquero C., Provenzale A. (2008) Produttività primaria dell'ecosistema marino, turbolenza oceanica e cicli biogeochimici globali. In "Modellistica del clima", Clima e cambiamenti climatici: le attività di ricerca del CNR. CNR Editore (in Italian). Also on-line at <http://www.dta.cnr.it/content/view/712/109/lang,en/>
6. Bracco A. Studiare e prevedere i cambiamenti climatici. (2004) Atti del II Convegno dell'Unione Meteorologica del Friuli-Venezia-Giulia (in Italian). Also on line at <http://ulisse.sissa.it/biblioteca/saggio/2003/Ubib031201s001>

D. Presentations

Keynote addresses, Conferences and Symposia, Invited Seminars (2018-onward):

1. Dynamics Days Europe, 43th edition, Invited, Naples, Sept 2023
2. Machine Learning, climate knowledge and SST observations for ecosystem management, Second GCOS Climate Observation Conference, Oct 2022 (Invited)
3. Machine learning and the grand challenge of marine ecosystem sustainability. Symposium on Advances in Ocean Observation, Azores, Portugal, July 2022 (Invited)
4. Analyzing changes in the tropical Indo-Pacific in the last 6,000 years. One World Mathematics of Climate Series, May 2022 (Invited)
5. Exploring the Manifold of the Tropical Pacific in Observations and Models. Weather and Climate: From Fundamentals to Applications An ICTP/UniTN/UniAQ Joint International Seminar Series. May 2022 (Invited)
6. Exploring the climate attractor via manifold learning. MIT, Sack Lunch Seminar, March 2022 (invited)
7. Lionfish, corals, connectivity, SSTs and d-MAPS. UCSB, Kavli Institute for Theoretical Physics, Program in Machine Learning and the Physics of Climate, December 2021, available at <https://online.kitp.ucsb.edu/online/climate21/bracco/>
8. Manifold learning as a tool to link AI/ML and climate dynamics. UCSB, Kavli Institute for Theoretical Physics, Conference: Machine Learning for Climate, November 2021, available at <https://online.kitp.ucsb.edu/online/climate-c21/bracco/>
9. The Jupiter polar cyclones as seen by almost 4 years of Juno observations. Planetary Science and Astrobiology Seminar Series, March 2021 and UCSB, Kavli Institute for Theoretical Physics, November 2021 (Program: Probes of Transport in Stars).
10. Multiscale interactions in the Labrador Sea: submesoscale modulation of deep water formation, Oceanographic Society of Japan (OSJ), Invited, November 2020
11. Spatio-temporal complexity and time-dependent networks in mid- to late-Holocene simulations. Machine Learning Seminar Series, Invited, ECMWF, Reading, UK, July 2020
12. Deep-water formation in the Labrador Sea: Drivers and Impacts. Invited, CNR-Lerici Seminar Series, Italy, June 2020
13. Network analysis and climate science. Global and regional opportunities. 1st Artificial Intelligence for Copernicus Workshop, Invited, ECMWF, Reading, UK, November 2019 (delivered remotely)
14. Ocean carbon science within CLIVAR, a WCRP core project. 1st Integrated Ocean Carbon Research meeting, Invited, UNESCO, Paris, October 2019
15. Oil dispersion, carbon drawdown and Lagrangian transport in the Gulf of Mexico. Procesos Hidrodinamicos a Diversas Escalas, Universidad National De Colombia, Invited, Medellin (Colombia), August 2019
16. Coral Connectivity in the Gulf of Mexico. The CYCLE and RESTORE projects. Procesos Hidrodinamicos a Diversas Escalas, Universidad National De Colombia, Invited, Medellin (Colombia), August 2019

17. CYCLE: (Connectivity of Coral Ecosystems) in the northern Gulf of Mexico. Integrating field studies, modeling and state-of-the-art genetic approaches for informed decisions in marine protected areas. LifeWatch ERIC Scientific Community Meeting, Invited, Rome (Italy), May 2019.
18. ECOGIG: ECosystem impacts of Oil and Gas Inputs to the Gulf. A nearly 10 year old enterprise to understand the Gulf of Mexico ecosystem and its relationship with hydrocarbons. ECO-POTENTIAL IV General Meeting, Invited, Tenuta di Castelporziano (Italy), May 2019
19. Eddies, turbulence and ocean transport in the Gulf of Mexico and South China Sea. State Key Laboratory of Marine Environmental Science (MEL) of Xiamen University, Invited, Xiamen (China), April 2019
20. Ocean eddies, submesoscale turbulence and vertical transport. Mathematical Models and Methods in Earth and Space Sciences, Tor Vergata, Roma, Italy, Invited, March, 2019
21. Multiscale impacts of submesoscale flows. Biogeochemical implications in the coastal ocean. OMIx symposium, Kashiwanoha, Japan, Invited, November, 2018
22. Multiscale flows in the Gulf of Mexico: from oil dispersion to coldwater coral evolution and carbon drawdown. ACOMO 2018, Australian National Academy of Sciences, Keynote, Canberra, AU, October 2018
23. Biogeochemical impacts at the meso- and submeso-scales in the Gulf of Mexico. Purdue University, invited, August 2018
24. New network tools for a closer look at tropical teleconnections and model biases in the Community Earth System Model. 15th edition of the Experimental Chaos and Complexity Conference (ECC15), Madrid (Spain), June 2018
25. Multi-Scale Flows and Pathways in the Gulf of Mexico and South China Sea: implications of ocean submesoscale turbulence for oil dispersion, coral evolution and carbon uptake. Invited. American Physical Society (APS) Annual Meeting, Los Angeles, CA, March 2018

E. GRANTS AND CONTRACTS

E1. As PRINCIPAL INVESTIGATOR

1. High-resolution regional modeling to understand acoustic propagation in support of the NESM project. PI, ONR, \$325,734, 01/01/2023-12/31/2025, share 100%
2. Collaborative Proposal: The Internal Wave Spectrum and Boundary Mixing in the Sub-Tropical South Atlantic. NOPP-NSF (Co-PI, Lead: K. Polzin at WHOI), \$514,984, 08/2022-07/2025, share 100%
3. The Loop Current and the Mississippi-Atchafalaya River System: interactions, variability and modeling requirements. PI, Gulf Research Program, The National Academies of Sciences, Engineering and Medicine, \$240,729, 01/01/2020-06/30/2021, share 100%
4. Submesoscale dynamics in presence of freshwater forcing, PI, NSF – Physical Oceanogr., \$344,994, 04/01/17-03/31/21, share 100%
5. Understanding drivers and impacts of CGCM biases in representing the decadal variability of Labrador Sea convection, NOAA (with T. Ito, EAS, as Co-PI) \$354,500, 09/01/2016-08/31/2019, share 55%
6. CARTHE-2: Consortium for advanced research on transport of hydrocarbon in the environment-2, GoMRI through the University of Miami, \$275,169, 01/01/2015 – 12/31/2018, share: 100%
7. Validation and quantification of uncertainty in coupled climate models using network analysis. DOE - BER division. (with C. Dvorolis, College of Computing, as co-PI). Total Award amount: \$ 281,671, 09/21/11 – 06/30/15, share 50%
8. Collaborative Research Type 1. LOI L02170206: Robust Climate Projections, Stochastic Models and GCM-EaSM Optimization. NSF Division of Mathematical Science, Computational Foundations for Emerging Science Frontiers \$ 205,583, 04/01/11 – 03/31/15, share 100%
9. Vortex dynamics and interannual variability in the Labrador Sea. NSF-OCE, Physical Oceanography, (PI), 03/15/2008 – 03/14/2012, \$ 202,802, share 100%
10. Subcontract on Collaborative Research: Robust climate projections and stochastic stability of dynamical systems (PIs at UCLA M. Ghil, J. McWilliams, D. Neelin), DOE, 06/01/2008 – 05/31/2010, \$ 15,116 for year 2008-2009 and \$ 69,856 for year 2009-2010, share 100%.

11. Subcontract on Diagnosing and improving convective processes in large-scale ocean-atmosphere interaction (PI David Neelin, UCLA), funding NOAA-CVP, \$ 40,737, 06/01/2007 – 05/31/2008, share 100%.
12. SGER: ENSO and droughts over North America. The interdecadal variability of the SST forced signal. NSF – ATM CLIVAR, DRICOMP, \$28,449, 09/01/2007 – 08/31/2008, share 100%
13. Funding for US CLIVAR – OCB (Ocean Carbon Biogeochemistry) Working Group on "Oceanic carbon uptake in the CMIP5 models" (funding by interagency group –NOAA, NASA, NSF, DOE for \$50,000, 03/2012-03/2015; Co-chair and organizer with C. Deutsch, UCLA and T. Ito, GaTech)
14. Funding for summer school on Monsoon System, Course XVII of the International Alpine French-Italian Summer School. Amount awarded \$ 20,000 from NSF – ATM, through UCAR (University Corporation for Atmospheric Research), and Euros 25,000 through seven European Agencies (Centre National de la Recherche Scientifique, Institut français de recherche pour l'exploitation de la mer, Institut Pierre Simon Laplace, Université Joseph Fourier, Università Italo Francese, ISAC-CNR, Parco Nazionale del Gran Paradiso)
15. Funding for workshop and conference at the International Center for Theoretical Physics on Biogeochemical impacts of climate and land-use changes on marine ecosystems. Amount awarded Euros 35,000 by UNESCO and \$5,000 by NASA

E2. AS CO-PRINCIPAL INVESTIGATOR

1. Connectivity of Mesophotic and Deep-Sea Coral Populations in the Northeastern Gulf of Mexico. Part I. NOAA, Provisionally funded. (Lead: S. Herrera at Lehigh Un.), \$ 422,195 share to co-I Bracco, 2/1/2023-6/30/2025
2. Ocean physical-biogeochemical interactions in the CMIP6 and E3SM Earth System Models. DOE (Lead: T. Ito at GT), \$ 545,443, 10/1/2020-9/30/2023, share 50%
3. Connectivity of Coral Ecosystems in the Northwestern Gulf of Mexico. NOAA-Regional Ecosystem Prediction Program (REPP) Science Program (Lead: S. Herrera at Lehigh Un.), \$ 351,061 share to co-PI Bracco, 9/01/18 –8/31/23
4. Population connectivity of deepwater corals in the northern Gulf of Mexico. Source: NOAA-RESTORE Act Science Program (Lead: S. Herrera at Lehigh Un.), \$ 98,062 share to co-PI Bracco, 6/01/17 –5/31/21
5. Ecosystem impacts of oil and gas input to the Gulf -2 (ECOGIG-2). Source: Gulf of Mexico Research Initiative via UGA, 01/01/2015-12/31/2017 (Lead: J. Montoya at Gatech), \$ 1,041,443. Share: 35%; ~\$291,000 additional funding for 2018-2019 approved in Dec 2017, with ~40% share to co-PI Bracco
6. Interannual variability of oxygen and macro-nutrients in the Labrador Sea. Source NSF-Chem. Ocean., (Lead: T. Ito, Georgia Tech), \$ 397,587, 04/01/2014-03/31/2017, share: 50%
7. Biogeochemical Impacts of the Mekong River plume on nutrient dynamics and Plankton in the South China Sea, Source: Schmidt Ocean Institute and Marine Science & Technology Foundation (Co-PI, with J. Montoya, Lead, and F. Stewart at Georgia Tech, + EU and Vietnam collaborators). Total Award: 42 days of ship time in the South China Sea, scheduled for 2016
8. Ecosystem impacts of oil and gas input to the Gulf (ECOGIG). Source: Gulf of Mexico Research Initiative via Un. Of Mississippi, 01/01/2012-12/31/2015 (Lead: J. Montoya at Gatech), \$ 1,024,929. Share: 36%
9. Collaborative Research: Nitrogen fixation, nutrient supply and biological production in the Gulf of Mexico. NSF – OCE Biological Oceanography. (Co-PI, with J. Montoya, GaTech). 09/01/2009 – 08/31/2014, \$ 636,893, share: 35%.
10. GLOBEC Pan-regional Synthesis: Pacific Ocean Boundary Ecosystems: response to natural and anthropogenic climate forcing (Co-PI, with E. Di Lorenzo and 24 other PIs), NSF – Globec, 09/01/2008 – 08/31/2011, \$ 455,940. Share: 20%

F. OTHER SCHOLARLY AND CREATIVE ACCOMPLISHMENTS

1. Wreck radio, Inside the black box, 'Our Dynamic Ocean', November 1st 2017

2. Completed three week-long modules for 6 and 7 grade class activities on oil spill in the ocean with teachers' training in summer 2016 and 2017 as part of the AMP-IT-UP CEISM project
3. AGU Blog profile and interview (<http://blogs.agu.org/geospace/2016/06/23/the-thrill-of-predictability/>)
4. AGU Blog on World Oceans Day (<http://blogs.agu.org/geospace/2016/06/15/5-reflections-beyond-world-oceans-day/>)
5. Contributed to entries for the page <https://schmidtocean.org/cruise/changing-river-measuring-nutrient-fluxes-south-china-sea/>
6. Developed two quantitative intensive courses (Ocean Dynamics and Mathematical Methods for GFD) and two service courses (Preparing Future Faculties, with about 50% enrolment from other schools, and Introduction to Research and Responsible Conduct to cover the Ethics Training mandate for EAS students).
7. Contributed to the development and submission of the prospectus for a new graduate program in Ocean Science and Technology
8. Co-Editor, Spring Issue of CLIVAR Variations 2015

G. SOCIETAL AND POLICY IMPACTS

- Role of the ocean in climate, also through US CLIVAR and CLIVAR leadership and contribution to national and international science plans
- Study of transport pathways in the ocean across the water column and within the mixed layer to improve model predictive capabilities for fast response purposes
- Ranking and assessment of climate models using/developing novel techniques for large data mining

H. Other Professional Activities

1. Research cruise on R/V Falkor (Schmidt Ocean Institute Foundation) in the South China Sea, May 30th-June 25th, 2016.
2. Research cruise on R/V Endeavor July 20th – August 3rd 2016; June 4th-23rd 2012.
3. Temporary consultant for STRATUS Inc. for environmental consulting services to the National Ocean Service, Office of Response and Restoration, Damage assessment, remediation and restoration program (NOAA-DARRP), Natural Resource Damage Assessment (NRDA) effort, Feb. 2014-April 2015.

V. Teaching

A. Courses Taught (Last 5 Years)

Semester/Year	Course Number	Course Title
Fall 2022	EAS-8000	Climate and Oceanography Seminar
Fall 2022	EAS-6053	Preparing Future Faculty
Fall 2022	EAS-6000	Introd. Research and Respon. Conduct
Fall 2022	EAS-8001	Data-Science Seminar
Spring 2022	EAS-6155	Adv. Geoph. Fluid Dynamicis
Fall 2021	EAS-8000	Oceanography Seminar
Fall 2021	EAS-4801	Deep Ocean Exploration (mini-mester)
Fall 2021	EAS-6000	Introd. Research and Respon. Conduct
Fall 2021	EAS-8001	Data-Science Seminar
Spring 2021	EAS-6672	Ocean Dynamics
Fall 2020	EAS-4801	Deep Ocean Exploration (mini-mester)
Fall 2020	EAS-6000	Introd. Research and Respon. Conduct
Fall 2020	EAS-8000	Oceanography Seminar
Fall 2019	EAS-4801	Deep Ocean Exploration (mini-mester)
Fall 2019	EAS-6000	Introd. Research and Respon. Conduct
Fall 2019	EAS-6053	Preparing Future Faculty
Fall 2019	EAS-8000	Oceanography Seminar
Spring 2019	EAS-6672	Ocean Dynamics

Spring 2018	EAS-6155	Adv. Geoph. Fluid Dynamicis
Fall 2017	EAS-6000	Introd. Research and Respon. Conduct
Fall 2017	EAS-8801	Preparing Future Faculty
Fall 2017	EAS-8001	Oceanography Seminar

B1. Ph.D. Students

1. Skylar Lama, 08/2022 – ongoing (sole adviser)
2. Anna Wong, 08/2022 – ongoing (sole Adviser)
3. Luisa Lopera, 01/2021-ongoing (sole adviser)
4. Qi Zhang, 08/2021-ongoing (co-Advisor, main adviser: Dr Taka Ito)
5. Fabrizio Falasca, 01/16-05/21 (sole adviser, now postdoc at Courant, NYU)
6. Guangpeng Liu, 08/15-05/21, (sole adviser, now postdoc at U. Hawaii)
7. Chiara De Falco, 01/18-04/21 (co-Advisor, University of Milano Bicocca, now postdoc at NORCE, Norwegian Research Centre, Bergen, Norway)
8. Filippos Tagklis, 08/14-12/2020 (main adviser, co-adviser Dr. Taka Ito), now at the International Monetary Fund
9. Daoxun Sun, 08/14-02/2020 (co- adviser, main adviser Dr. Taka Ito), currently Assistant Professor at QNML, China
10. Ilias Foudalis, 08/2010 – 05/2016, College of Computing (co- adviser, main adviser Dr. C. Dovrolis); Currently working at Relational-AI in Atlanta
11. Yuley Cardona, 01/2008 – 06/2013, (sole adviser). Currently Associate Professor at Un. Of Colombia, Medellin.
12. Yisen Zhong, 08/2008 – 11/2013, (sole adviser). Currently Associate Professor at Shanghai Jiao Tong University
13. Rondrotiana Barimalala, 01/2008 – 05/2011, graduated May 2011, ICTP/Unesco and EAS-Georgia Tech (main adviser, co-advised with Dr. F. Kucharski at ICTP). Currently Tenured Scientist at NORCE in Norway.
14. Inga Koszalka, 2004-2008 Program in Environmental Engineering, Politecnico di Torino, Italy. Currently Associate Professor at Stockholm University, Sweden

B2. M.S. Students (Indicate thesis option for each student)

1. Leah Hornsey, EAS, Spring 2023 (research semester)
2. Xiyuan Zeng, Master Student, EAS, 08/17-04/21, Thesis option
3. Keshav Joshi, Master Student, School of Physics, Thesis option
4. Fan Zhang, Master student, 08/12 – 06/14, Thesis option
5. Virgilio Maisonet, 08/10-06/12, Non-Thesis options
6. Yuley Cardona, 01/08-09/10, Thesis Option

B3. Undergraduate Students

1. Madeline Laesser, EAS, Spring 2023
2. Alexandra Sitar, Civil and Environmental Engineering, Summer-Fall 2018
3. Riannon Colton, EAS, Summer 2016
4. Harikumar Venkatesan, College of Computing, Spring 2015, Fall 2015
5. Catherine Achukwu, CEE, Spring 2013

B4. Mentorship of postdoctoral fellows or visiting scholars

1. Xing Zhou, Postdoctoral Fellow, Starting May 2023
2. Luwei Yang, Postdoctoral Fellow, Starting February 2023
3. Ljuba Novi, Visiting Scholar, August-October 2019, Postdoctoral Fellow Jan 2022-ongoing
4. Jun Choi, Postdoctoral Fellow, 06/2015-05/2017
5. Hao Luo, Postdoctoral Fellow, 05/2008 – 2010, Research Scientist II, 2010-03/2014
6. Rondrotiana Barimalala, Postdoctoral Fellow, Faculty for the Future and IPCC fellowships, 03/2012 – 08/2013 – Georgia Tech (now tenured scientist at NORCE in Norway)
7. Yuley Cardona, Postdoctoral Fellow, 08/2013-07/2014

C. OTHER TEACHING ACTIVITIES (while at GaTech)

1. Invited lecturer, summer school on Eastern Boundary Upwelling Systems, ICTP, Trieste, IT, July 2019
2. Invited Lecturer, training course on climate change, UNESCO/IOC Regional Training and Research Center on Ocean Dynamics and Climate, Qingdao, China, September 7-18, 2015
3. Invited Lecturer, School on Ocean Climate Modelling, Ankara, Turkey. 28 September - 1 October, 2015
4. Invited Lecturer, Advanced School on "The Fluid Dynamics of Climate", International Center for Mechanical Sciences, Udine, IT, August 26-30, 2013
5. Lecturer, ASP Summer Colloquium on Carbon – Climate connections in the Earth System, NCAR, Boulder, CO, July 29-August 16, 2013
6. Lecturer, GFD Summer School on "Swirling and Swimming in Turbulence", Woods Hole, MA, July 2010
7. Lecturer, Honor Program in Environmental Engineering, University of Savona, Italy, 06/07
Course taught: Ocean biophysical interactions

VI. SERVICE

A. PROFESSIONAL CONTRIBUTIONS

Membership in professional organizations and advisory committees

1. Scientific Board of CIMA Research Foundation, Italy
2. UCAR Representative for Georgia Tech, Jan 2021-ongoing
3. PICES (North Pacific Marine Science) Working Group 50 Submesoscale processes and the marine ecosystem, March 2022 – ongoing, Member, US representative
4. NEMO Scientific Advisory Committee,
<https://forge.ipsl.jussieu.fr/nemo/wiki/ScientificAdvisoryCommittee>, June 2021-ongoing
5. CESM Advisory Board (CAB), <https://www.cesm.ucar.edu/management/CAB/>, 2020 - ongoing
6. CLIVAR (International) Chair of the Scientific Steering Group, Jan 2016 – Dec 2020
7. PICES (North Pacific Marine Science) Working Group 38 on Mesoscale and submesoscale processes, Nov 2016 – 2021, Co-Chair
8. CLIVAR (International) Member, Scientific Steering Group, Jan 2013 - Dec 2015
9. PPAI (Predictability, Prediction & Applications Interface) Panel of the U.S. Climate Variability and Predictability Research Program (US-CLIVAR) 02/2009 – 01/2014.
10. Co-Chair of the PPAI panel and member of the Scientific Steering Committee, 2010 – 2013
11. Co-Chair, US CLIVAR Working Group on 'Ocean Carbon Uptake', 2012 –2015

Editorial work

Associate Editor, AGU Journal of Advances in Modeling Earth Systems, 2017 – extended to 2023

Conference Organizer and Director (while at Georgia Tech):

1. Scientific Committee member, Liège Colloquium 2023 on "Machine learning and data analysis in oceanography"
2. Coordinator and Main Organizer, KITP Program and conference, Machine Learning and the Physics of Climate, Santa Barbara, CA, November-December 2021.
3. Co-Director, summer school on Eastern Boundary Upwelling Systems, Trieste, IT, July 2019
4. Co-Chair, PICES (North Pacific Marine Science) POC Workshop (W8): Mesoscale and submesoscale processes in the North Pacific: history and new challenges. San Diego, Oct. 2016
5. Co-Chair and Co-Organizer, CLIVAR Open Science Conference "Charting the course for climate and ocean research", Qingdao, China, 09/2016
6. Co-Organizer, CLIVAR Early Career Scientists (ECS) Symposium, First Institute of Oceanography (FIO), Qingdao, China, 09/ 2016
7. Co-Chair, Scientific Session on "Oceanographic Controls of Oil Transport and Microbial Hydrocarbon Biodegradation in the Water Column: from the Surface to the Deep-sea", Gulf of Mexico Oil Spill & Ecosystem Science Conference, Tampa, FL, 02/2016
8. Co-Organizer, US-CLIVAR and OCB Joint Workshop "Ocean's Carbon and Heat Uptake: Uncertainties and Metrics, San Francisco, CA, December 12-14, 2014

9. Co-Organizer, IPAM workshop on “Turbulent Transport and Mixing”, Oct. 13-17, 2014, Institute for Pure and Applied Mathematics, UCLA, CA. The workshop is part of a 14-week long IPAM program on "Mathematics of Turbulence". Also Core Long Term Visitor (by invitation) of the program for two months (10-12/2014)
10. Co-Organizer and Lecturer, Advanced Study Program Summer Colloquium on Carbon – Climate connections in the Earth System, NCAR, Boulder, CO, 07-08/13
11. Co-Organizer, Researcher Workshop – Key uncertainties in the global carbon cycle: Perspectives across terrestrial and ocean ecosystems, NCAR, Boulder, CO, 08/13
12. Executive Committee member of the ECOGIG (ECosystem impacts of Oil and Gas Input to the Gulf) consortium, part of the Gulf of Mexico Research Initiative (GoMRI)
13. Co-Chair, Scientific Session on “Models and observations working together to understand the Deepwater Horizon oil spill”, Gulf of Mexico Oil Spill & Ecosystem Science Conference, New Orleans, January 2013
14. Co-Chair, Scientific Session on “The submesoscale route to transport and mixing”, Gulf of Mexico Oil Spill & Ecosystem Science Conference, New Orleans, January 2013
15. Co-Chair, Joint US CLIVAR – OCB (Ocean Carbon Biogeochemistry) Working Group on "Oceanic carbon uptake in the CMIP5 models" (funding by interagency group –Noaa, NASA, NSF, DOE for 50k\$ in Feb. 2012; Co-chair and organizer with C. Deutsch and T. Ito)
16. Session Co-Convener, EGU annual meeting, session on “The global monsoon system: variability and dynamics”, Vienna, April 2012
17. Session Co-Chair and Convener, AGU Annual Meeting 2011, session on “Turbulent Fluid Dynamics”, San Francisco, December 2011
18. Co-Chair, Organizing Panel of US-CLIVAR and Ocean Carbon Biogeochemistry First Joint Meeting, Woods Hole Oceanographic Institution, Woods Hole, MA, July 2011
19. Session Co-Convener, EGU annual meeting, session on “The global monsoon system: variability and dynamics”, Vienna, April 2011
20. Session Co-Chair and Convener, AGU Annual Meeting 2010, session on “Turbulent Fluid Dynamics”, San Francisco, December 2010
21. Session Convener, EGU annual meeting, session on “The global monsoon system: variability and dynamics”, Vienna, May 2010
22. Co-Chair, PPAI (Predictability, Prediction & Applications Interface) Panel of the U.S. Climate Variability and Predictability Research Program (US-CLIVAR) since Jan 2010
23. Session Co-Chair, AGU Ocean Science Meeting 2010, session on Submesoscales: From Space to the Ocean Interior IV, 02/2010
24. Director, Workshop and Conference on “Biogeochemical impacts of climate and land-use changes on marine ecosystems” be held at the International Center for Theoretical Physics - UNESCO, Trieste, (Italy) 2-10 November, 2009
25. Session Chair, IAMAS-IAPSO-IACS-Assembly-2009 (MOCA-09), session on “Monsoon Observations, Modelling and Prediction”, Montreal, 07/2009
26. Director, International Summer School on “Monsoon Systems”, Valsavaranche, Italy 8-14 June 2009
27. Session Chair and Convener, AGU Fall meeting of Global Change session on “Understanding tropical climate variability: Combining observations, models and paleoclimate records”, San Francisco, 12/2007
28. Co-Director and lecturer, “Conference on Milankovitch cycles over the past 5 million years”, Trieste, IT 03/2007

Journal Reviewer

Atmosphere-Ocean, Atmospheric Chemistry and Physics, Chaos, Climate Dynamics, Climate Change, Climate and Atmospheric Science (NPJ), Continental Shelf Research, Deep-Sea Research I and II, Dynamics of Atmosphere and Oceans, Ecological Complexity, Environmental Science and Technology, Geophysical Research Letters, J. Climate, J. Fluid Mechanics, J. Geophysical Research-Atmosphere, J. Geophysical Research-Oceans, J. Physical Oceanography, J. Plankton Res., J. Marine Research, J. Marine Systems, Limnology and Oceanography, Nature, Nature Communications, Nature Computational Sciences, Nature Geosciences, Nature Physics,

Ocean Modelling, Ocean Dynamics, Physics of Fluid, Nonlinear Processes in Geophysics, Physica D, PLOS One, Physics Letters A, PNAS, Scientific Reports

Panelist for Federal Organizations:

CISL' HPC allocation panel, NCAR, (spring 2015-2018)

National Science Foundation:

1. Division of Ocean Sciences, Physical Oceanography Program, Reviewer and Panelist (2008, 2019)
2. Division of Atmospheric Science, Climate and Large Scale Dynamics Program, Reviewer
3. Collaboration in Mathematical Geosciences, Reviewer and Panelist
4. NSF Graduate Fellowship, Geosciences Program, Panelist (2009, 2010, 2014)
5. Division of Marine Geology and Geophysics Program
6. The Coastlines and People (CoPe) program, Panelist (2022)

National Oceanic and Atmospheric Administration:

1. Climate Prediction Program for the Americas, Reviewer
2. MAPP Program, Panelist, 2012, 2018

DOE – BER

1. 2018 HiLAT-RASM Panel, Panelist
2. 2018 Regional and Global Model Analysis Panel, Panelist
3. 2014 Climate Variability and Change, Panelist.
4. 2012 Early Career, Panelist

FORD FOUNDATION FELLOWSHIP PROGRAM, Panelist (2022)

Qatar National Research Fund, Reviewer (2018, 2022)

European Science Foundation, Reviewer

Peer Reviewer for the Italian National Agency for the Evaluation of Universities and Research Institutes to assess the quality of research performed in the time frame 2004-2010 by researchers of all Italian universities and research institutes

Scientific Advisor for the Italian Project NextData (A national system for the retrieval, storage, access and diffusion of environmental and climate data from mountain and marine areas).

Reviewer for PRACE (Partnership for advance computing in Europe)

Reviewer for the South Africa National Research Foundation (NRF), Antarctic Programme (SANAP)

B. Public and Community Service

1. ASF EXPLORE and Earth Day presentations, various elementary school classes, Atlanta area
2. 2022 Atlanta Science Festival Exploration Expo
3. 2019 Atlanta Science Festival Exploration Expo: Ocean Discovery Zone (1,200 people)
4. Open day on campus for 5th graders at Centennial Academy Charter School, May 2019
5. ASF EXPLORE Presentations about ocean circulation and pollution at Centennial Academy Charter School, March 2019
6. Presentations about ocean circulation and plastic pollution at Morningside Elementary School (6 classes) and at Canterbury School (2 classes), Fall 2017
7. 2017 Atlanta Science Festival Exploration Expo: Ocean Discovery Zone (~1,000 ROV licenses distributed)
8. Outreach presentation at the Italian National Research Council in Pisa about plastic pollution in the ocean (~100 participants), Pisa, Italy, March 2017

9. Ocean Discovery Zone exhibit to 7th grade students at Cowan Road Middle School, in Griffin, GA, October 20th, 2016 (<https://ampitup.gatech.edu/news-events/ocean-discovery-zone-visits-cowan-road-middle-school>)
10. Springdale Elementary School, Pre-K class, presentation and shrinkage of cups during a deep cast with a conductivity, temperature, and depth (CTD) instrument.
11. 2016 Atlanta Science Festival Exploration Expo: Ocean Discovery Zone (1,500 people; 1,000 ROV licenses delivered)
12. 2016 Atlanta Science Festival presentations at Frederick Douglass High School (2 classes) and Oak Meadow Montessori School as part of the program Imagining the Future
13. 2015 Atlanta Science Festival presentations at EAS Open House, Coretta King Middle School and Frederick Douglass High School
14. Skype conversations with K6 students at Woodward Academy about oceanography and ocean pollution, 2013
15. Judge at the Siemens Competition in Math, Science and Technology, Regional Final, Region 6, Atlanta, in 2008, 2011, 2013, 2014, 2015, 2016, 2017.
16. Grand Awards Judge for the 2008 Intel International Science and Engineering Fair, Atlanta, May 2008, Atlanta
17. Judge at the Georgia Tech Graduate Research and Innovation Conference, 2010, 2011.
18. Judge at the EAS Annual Graduate Symposium, April 2011, 2012, 2014, 2015
19. Science Café' presentations in Decatur and Atlanta, 2010, 2011
20. Guest Panelist, "Career Options panel on Academic Faculty Jobs", CETL, Georgia Tech, (~ 130 students from Georgia Tech) 02/2010

C. INSTITUTE CONTRIBUTIONS

1. Associate Chair for Research, EAS, June 2022 - ongoing
2. EAS Faculty Search Committee, Chair, 2022
3. PACE Advisory Committee, Spring 2021 - ongoing
4. Q-BioS, Graduate Studies and Admission Committee, August 2019 – 2022
5. OSE, Graduate Studies Committee, November 2016 - ongoing
6. College of Science Reappointment, Promotion and Tenure Committee, Fall 2017 – 2020
7. Co-Founder and Co-Director, Ocean Science and Engineering, Ph.D. Program, November 2016-January 2018
8. Georgia Tech Research Administration Committee (GTRAC), August 2015 – 2018
9. EAS Chair Search – Fall 2012 – Fall 2013
10. Chair, EAS Graduate Studies Committee – June 2010 to August 2015
11. EAS Faculty Search Committee –2007, 2008, 2009, 2011, 2012, 2017
12. EAS Graduate Admission Committee – 2007, 2008, 2009
13. EAS Graduate Studies Committee – 2010, 2016-ongoing
14. EAS Reappointment, Promotion and Tenure Committee, Fall 2017 – Fall 2020
15. Associate Member of the Center for Nonlinear Science