
ANNALISA BRACCO, CV**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

Professor	2014-
Associate Professor	2010-2014
Assistant Professor	2007-2010
Earth and Atmospheric Sciences, Georgia Institute of Technology, Atlanta, GA	
Assistant Scientist (Tenure Track position)	2005-2006
Woods Hole Oceanographic Institution, Woods Hole, MA	
Junior UNESCO Scientist	2002-2005
International Center for Theoretical Physics, Trieste, ITALY	
Postdoctoral Scholar	2000-2002
Woods Hole Oceanographic Institution, Woods Hole, MA	

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
- 2001 NSF Student and Young Scientist Travel Award Grant.
- 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

(Names of students or supervised employees who are co-authors are in boldface).

PUBLISHED BOOKS, BOOK CHAPTERS, AND EDITED VOLUMES**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. Uijttewaald, 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.

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.

REFEREED PUBLICATIONS AND SUBMITTED ARTICLES

Published and Accepted Journal Articles

1. 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*, Accepted, In Press (issue scheduled for Jan 2018)
2. Barkan, R., McWilliams, J.C., Shchepetkin, A.F., Molemaker, J., Renault, L., Bracco, A., **J. 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
3. 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
4. **Choi, J.**, Bracco, A., Barkan, R., Shchepetkin, A.F., McWilliams, J.C., Molemaker, J. (2017) Submesoscale dynamics in the northern Gulf of Mexico. Part III: Lagrangian implications *J. Phys. Ocean.*, 47, 2361-2376
5. **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*, In Press

6. **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
7. Zhong, Y., Bracco A., Tian J., Dong J., Zhao W., Zhang Z. (2017) Observed and simulated vertical pump of an anticyclonic eddy in the South China Sea. *Scientific Reports* 7, Article #: 44011, doi:10.1038/srep44011
8. Stammer, D., Bracco A., Detemmerman (2017) Climate and ocean science builds for the future. *EOS*, 98, doi:10.1029/2017EO073225
9. 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>
10. **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
11. **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.
12. 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 Geosc.*, doi:10.1038/NGEO2708
13. 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
14. **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
15. **Cardona Y.**, Bracco A. (2016) Predictability of mesoscale circulation throughout the water column in the Gulf of Mexico *Deep Sea Res. II*, <http://dx.doi.org/10.1016/j.dsr2.2014.01.008>
16. 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
17. 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
18. 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>.
19. **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
20. **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>
21. 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)
22. **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
 23. 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.
 24. **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.
 25. 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>
 26. **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.
 27. **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
 28. **Zhong Y.**, Bracco A., Villareal T. (2012) Pattern formation at the ocean surface: Sargassum distribution and the role of the eddy field *L&O Fluid and Environments*, 2, 12-27, doi:10.1215/21573689-1573372
 29. **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
 30. **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, 1147-1166, DOI: 10.1007/s00382-011-1082-5
 31. **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.
 32. 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.
 33. 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/NCEO984
 34. 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
 35. Bracco A., McWilliams, J.C (2010) Reynolds number dependency in equilibrium two-dimensional turbulence. *J. Fluid Mechanics*, 646, 517-526.
 36. **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.
 37. **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.
 38. 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.
39. 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.
 40. Wang C., Kucharski F., **Barimalala R.**, Bracco A. (2009) Teleconnections of the Tropical Atlantic to the Tropical Indian and Pacific Oceans: A Review of Recent Findings. Special Issue of *Meteorologische Zeitschrift*, 18, 445-454, doi 10.1127/0941.
 41. Bracco A, **Clayton S.**, Pasquero C. (2009) Horizontal advection, diffusion and plankton spectra at the sea surface. *J. Geophysical Research – Ocean*, 114, C02001, doi:10.1029/2007JC004671
 42. Furtado J. C., Di Lorenzo E., Cobb K., Bracco A. (2009) Paleoclimate reconstructions of tropical seas surface temperatures from precipitation proxies: Methods, uncertainties and nonstationarity. *J. Climate*. 22(5),1104-1123, doi: 10.1175/2008JCLI2415.1
 43. Bracco, A., Pedlosky J., Pickart R. S. (2008) Eddy formation near the West coast of Greenland. *J. Physical Oceanography*, 38(9), 1992-2002
 44. Kucharski F., Bracco A., Yoo J.H., Molteni F. (2008) The Atlantic forced component of the Indian Monsoon interannual variability *Geophysical Research Letters*, vol. 35 L04706, DOI:10129/2007GL033037. Also American Geophysical Union Editor Highlights, March 19 2008, EOS Highlights (89(16), April 15 2008, pg. 154 and Global Change collection Highlights)
 45. **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
 46. 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
 47. Bracco A., Kucharski F., Molteni F., Hazeleger W., Severijns C., (2007) A recipe for simulating the interannual variability of the Asian summer monsoon and its relation with ENSO. *Climate dynamics*, doi: 10.1007/s000382-006-0190-0.
 48. Kucharski F., Molteni F., Bracco A. (2006) Decadal interactions between the Western tropical Pacific and the North Atlantic Oscillation *Climate Dynamics*, 26(1), 79-91, doi:10.1007/s000382-005-0085-5
 49. Bracco A., Kucharski F., Molteni F., Hazeleger W., Severijns C., (2005) Internal and forced modes of variability in the Indian Ocean. *Geophysical Research Letters*, 32, L12707, doi: 10.1029/2005GL023154.
 50. Pasquero C., Bracco A., Provenzale A. (2005) Impact of the spatio-temporal variability of the nutrient flux on primary productivity in the ocean. *J. Geophysical Research - Oceans*, 110, C07005, doi:10.129/2004JC002738.
 51. Kucharski, F. Molteni F., Bracco A. (2005). A western tropical Pacific relation to the NAO. *Bulletin of the American Meteorological Society*, 86(10), 1418-1419
 52. Bracco A., Kucharski F., Kallummal R., Molteni F. (2004) Internal variability, external forcing and climate trends in multi-decadal AGCM ensembles *Climate Dynamics*, 23(6), 659-678, doi: 10.1007/s00382-004-0465-2
 53. Bracco A., von Hardenberg J., Provenzale A., Weiss J., McWilliams J.C. (2004) Dispersion and mixing in quasigeostrophic turbulence. *Physical Review Letters*, 92 (8), 084501-1-4
 54. Bracco A., Chassignet E. P., Garraffo Z., Provenzale A. (2003) Lagrangian velocity distributions in a high resolution numerical simulation of the North Atlantic. *J. Atmospheric and Oceanic Technology*, 8, 1212-1220

55. Bracco A., Pedlosky J. (2003) Local baroclinic instabilities over variable topography in channel flows. *J Physical Oceanography*, 33, 207-219
56. 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.
57. Berloff P., McWilliams J. C., Bracco A. (2002) Material Transport in Oceanic Gyres. Part I: Phenomenology. *J. Physical Oceanography*, 32, 764-796.
58. 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
59. Bracco A., LaCasce J., Pasquero C., Provenzale A. (2000) Velocity PDFs in barotropic turbulence, *Physics of Fluids*, 12, 2478-2488.
60. Bracco A., LaCasce J., Provenzale A. (2000) Velocity probability density functions for oceanic floats. *J. Physical Oceanography*, 30, 461-474.
61. Bracco A., Provenzale, A., Scheuring, I. (2000) Mesoscale vortices and the paradox of the plankton. *Proceedings of the Royal Society of London B.*, 267 (1454), 1795-1800.
62. Bracco A. (2000) Boundary layer separation in the Surface Quasi-Geostrophic equations. *Nuovo Cimento C*, 23 (5), 487-506.
63. Bracco A. (2000) Transport of passive tracers by monopoles on the beta-plane. *Nuovo Cimento C*, 23 (6), 597-609.
64. Bracco A., Chavanis P., Provenzale A, Spiegel E. A (1999) Particle aggregation in a turbulent keplerian flow. *Physics of Fluids*, 11, 2280-2291.

Conference Presentation with Proceedings (Refereed)

1. Dovrolis, C., Bracco A., Dilkina B., **Fountalis I.**, (2016) From Climate Data to a Weighted Network Between Functional Domains (2016); in A. Banerjee, W. Ding, J. Dy, V. Lyubchich, A. Rhines (Eds.), I. Ebert-Uphoff, C. Monteleoni, D. Nychka (Series Eds.), *Proceedings of the 6th International Workshop on Climate Informatics: CI 2016*. NCAR Technical Note NCAR/TN-529+PROC, pp.85-88, doi: 10.5065/D6K072N6.

Other refereed material

1. US-CLIVAR Science Plan, Goddard, L., et al. (2013), <http://www.usclivar.org/science-plan>

Submitted Journal Articles (with date of submission)

1. **Liu, G.**, Bracco, A., Passow U. (2017) Mesoscale and submesoscale circulation influences sinking particles in the northern Gulf of Mexico *Elementa: Science of the Anthropocene*, Submitted July 2017
2. Bracco, A., **Choi, J.**, Kurian, J., Chang P. (2017) Vertical and horizontal resolution dependency in the model representation of tracer dispersion in the northern Gulf of Mexico *Ocean Modell.*, Submitted June 2017, Currently being revised

OTHER PUBLICATIONS AND CREATIVE PRODUCTS

Software

Software for climate network analysis available at <http://www.cc.gatech.edu/grads/i/ifountal/software.htm> and <https://github.com/FabriFalasca/delta-MAPS>

Datasets

- GRIIDC dataset for Modeling study of the submesoscale transport in the Northern Gulf of Mexico at the ocean surface DATASET DOI: 10.7266/N7CN720V
- 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
<https://data.gulfresearchinitiative.org/data/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>

PRESENTATIONS

Keynote addresses, Conferences and Symposia, Invited Seminars (past ten years):

1. CLIVAR – Where we are, where we are going. US CLIVAR 2017 Summit, Invited, Baltimore, MD, August, 2017
2. The Labrador Sea Basin: ongoing changes and future projections. GEOMAR, Kiel, Germany, Invited, April 2017
3. Lagrangian Properties at the ocean submesoscales in presence of riverine outflows. EGU Annual Meeting, Invited, Vienna, Austria, April 2017.
4. The Gulf of Mexico: anthropogenic impacts, pattern formation, oil, coral larvae and evolution. INdAM Workshop: Mathematical Approach to Climate Change Impacts - MAC21, Plenary Lecture, Invited, March 2017
5. Prioritizing and Coordinating Science at the International Level: WCRP, GCOS/GOOS mechanisms for evolving science plans and incorporating new technologies. Invited.

- National Academies' Sustaining Ocean Observations Workshop, Washington DC, November 2016
6. δ -MAPS: From spatio-temporal data to a weighted and lagged network between functional domains. A climate application. Invited. GFLD, Princeton, NJ, October 2016
 7. Transport and mixing in the Gulf of Mexico: turbulence, oil, coral, larvae and evolution. GT MAP: the first workshop; Invited, GaTech, Atlanta, August 2016
 8. Oceanographic context of BIỂN ĐÔNG, Institute of Oceanography, Nha Trang, Vietnam, June 2016.
 9. CLIVAR: Climate and Ocean, variability, predictability and change. 37th Session of the World Climate Research Program Joint Scientific Committee at WMO, Invited, Geneva, Switzerland, April 2016
 10. Plastic pollution in the ocean: choose your toothpaste, Public Lecture, School of Physics Inquiring Minds Series, GaTech Atlanta, GA, November 2015
 11. The role of submeso- and meso-scale dynamics on coastal upwelling, Invited, CLIVAR Workshop on Eastern Boundary Current Upwelling, Ankara, Turkey, October 2015
 12. Submesoscale circulations in the Gulf of Mexico, Invited, Shanghai Jiao Tong University, Shanghai, China, Sept. 2015
 13. Submesoscale Processes and Ocean Transport at Surface and Depth: The Case of the Gulf of Mexico, Invited, Gordon Research Conference in Coastal Ocean Modeling, Biddeford, Me, June 2015
 14. Mesoscale and Submesoscale Processes: Transport and Mixing in Eddy Dominated flows, Invited, FIO (First Institute of Oceanography) Workshop on ocean mixing, Qingdao, China, May 2015
 15. Submesoscale Processes in Presence of Large River Outflows. The Case of the Northern Gulf of Mexico, Invited, 2015 International Workshop on Mesoscale and Submesoscale Processes: Observations and Modeling, Qingdao, China, May 2015
 16. Tropical teleconnections in CMIP5 simulations: Network connectivity from the recent past to the twenty-third century, Invited, Complex Network and Climate Variability Conference, Vienna, Austria, April 2015
 17. Transport and mixing at the ocean submesoscales in the northern Gulf of Mexico, Invited, Workshop on Turbulent Transport and Mixing, Long Program Mathematics of Turbulence, Institute of Pure and Applied Mathematics, UCLA, LA, October 2014
 18. ENSO in CMIP5 simulations: Network connectivity from the recent past to the twenty-third century, Invited, Dept. of Atmospheric and Oceanic Sciences, UCLA, LA, October 2014
 19. Turbulence at the Ocean Submesoscales, Invited, Environmental Fluid Mechanics & Water Resources (EFMWR) Seminar Series, Georgia Tech, Atlanta, GA, September 2014
 20. Modeling surface and deep waters in the Gulf of Mexico, Invited, Tribute to Ray Highsmith, Gulf of Mexico Oil Spill and Ecosystem Science Conference, Mobile, AL, January 2014
 21. Submesoscale dynamics in the Gulf of Mexico, Invited, XXXIII Dynamics Days US, Atlanta, GA, January 2014
 22. Transport at the submesoscales in the western Gulf of Mexico, Invited, CARTHE consortium All-Hands meeting, Miami, FL, October 2013
 23. Submesoscale dynamics in the Gulf of Mexico, Invited, PICES International workshop on Regional Climate Models II, Busan, Korea, September 2013
 24. Carbon cycling representation in CMIP5 models: WG update, US CLIVAR summit, Annapolis, July 2013 (via teleconference)
 25. Modeling Activities within ECOGIG, Invited, ECOGIG annual meeting with GoMRI board members, New Orleans, January 2013

26. Vortices and flux tubes: the cross over. Invited, AGU Fall Meeting, San Francisco, December 2012
27. Regional Ocean modeling at high latitudes. From submesoscale motions to interannual predictability, Invited, International workshop on the Ross Sea Joint Research, KOPRI, Incheon, Republic of Korea, May 2012
28. Network analysis, parameter dependence and optimization in climate models, Invited Oak Ridge National Lab, Oak Ridge, TN, May 2012
29. Meeting introduction, mutual goals, anticipated outcomes, Invited, OCB and US CLIVAR: A Joint Science Session, Woods Hole Oceanographic Institution, July 2011
30. Parameter optimization and sensitivity in climate models Invited, Florida State University, September 2011
31. Physical, sediment and ecosystem modeling, Invited, UGA, Athens, ECOGIG kick-off meeting, November 2011
32. Deepwater Horizon oil and pelagic foodwebs in the Northern Gulf of Mexico, Invited by J.P. Montoya, with A. Subramaniam, V. Asper, A. Diercks, U. Passow, M. Crepo-Medina, S.B. Joye, A. Bracco, and T.A. Villareal, CERF 2011, Daytona Beach, November 2011
33. Mesoscale eddies and vertical mixing in the ocean, 77th Annual Meeting of the Southeastern Section of the APS, Invited, Baton Rouge, LA, October 2010
34. Vertical velocities and the ocean mesoscales, GFD Summer School on "Swirling and Swimming in Turbulence", Invited Lecturer, Woods Hole, MA, July 2010
35. Interannual variability of the surface eddy kinetic energy in the Labrador Sea, Woods Hole Oceanographic Institute, Invited, Woods Hole, MA, July 2010
36. Horizontal and Vertical Mixing in Oceanic Anticyclonic Eddies, EuroMech colloquium on Mixing and Dispersion in Flows Dominated by Rotation and Buoyancy, Invited Lecturer, Kerkrade, The Netherlands, June 2010.
37. Antarctic bottom water formation in the Ross Sea and the role of eddy transport, Workshop Italy-USA "Terra Nova Bay", Invited, Ischia, Italy, June 2010.
38. Mesoscale vortices, ageostrophic motions and vertical mixing in the ocean, Invited, EGU Annual Meeting, Vienna, May 2010
39. Mesoscale dynamics and vertical mixing, Invited, University of Budapest, Budapest, HU, May 2010
40. Interannual to decadal variability in the Indian Ocean and the role of the Tropical Atlantic, Invited, Lamont-Doherty Earth Observatory/Columbia University, January 2010
41. Eddy variability in the Labrador Sea at interannual scales, Invited, UCLA, Atmospheric and Oceanic Sciences Seminar Series, October 2009
42. The role of the Tropical Atlantic in forcing the Indian Ocean monsoon. Annual European Geophysical Union meeting, Invited, Vienna, April 2009.
43. The Atlantic forced component of the Indian Monsoon Interannual Variability, Invited, Texas A&M Oceanography Seminar, April 2009.
44. Internal and forced eddy variability in the Labrador Sea, Florida State University Dept. Seminar, Invited, Tallahassee, FL, January 2009.
45. The interannual variability of the Indian Summer Monsoon: The role of the Atlantic Ocean, International Conference on Teleconnections in the Atmosphere and Oceans, Invited, International Center for Theoretical Physics, Trieste, Italy, November 2008 (participated via teleconference).
46. Dynamics of Inertial Particles: From Ocean and Atmosphere to Planets, International school and workshop, Invited, Max Plank Institute Dresden, Germany, September 2008.

47. Scaling two-dimensional turbulence towards the classical limit of infinite Reynolds number, Contributed, Conference on Mathematical Geophysics, Longyearbyen, Svalbard, Norway, June 2008.
48. Interannual to decadal variability in the Indian Ocean, Ocean and Climate forum, Yale University, Invited, New Haven, CT, April 2008
49. Geostrophic turbulence and the stability of global climate model, American Physical Society Meeting, Invited, New Orleans, LO, March 2008 (Press release available at <http://www.aps.org/publications/apsnews/200805/marchmeeting.cfm>)
50. Participant in the G8-UNESCO world Forum on 'Education, Research and Innovation: New Partnership for Sustainable Development', Trieste, Italy, by invitation only, May 2007.

GRANTS AND CONTRACTS

AS PRINCIPAL INVESTIGATOR WHILE AT GATECH

1. Submesoscale dynamics in presence of freshwater forcing, PI, NSF – Physical Oceanogr., \$344,994, 04/15/17-04/14/20, share 100%
2. 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%
3. 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 – 12/31/2017, share: 100%
4. Validation and quantification of uncertainty in coupled climate models using network analysis. DOE - BER division. (with C. Dovrolis, College of Computing, as co-PI). Total Award amount: \$ 281,671, 09/21/11 – 06/30/15, share 50%
5. 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%
6. Vortex dynamics and interannual variability in the Labrador Sea. NSF-OCE, Physical Oceanography, (PI), 03/15/2008 – 03/14/2012, \$ 202,802, share 100%
7. 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%.
8. 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%.
9. 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%
10. Funding for US CLIVAR – OCB (Ocean Carbon Biogeochemistry) Working Group on "Oceanic carbon uptake in the CMIP5 models" (prospectus funded 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
11. 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, Universite Joseph Fourier, Universita' Italo Francese, ISAC-CNR, Parco Nazionale del Gran Paradiso)

12. 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

AS CO-PRINCIPAL INVESTIGATOR

1. 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%
2. Interannual variability of oxygen and macro-nutrients in the Labrador Sea. Source NSF-Chem. Ocean., (Lead: Taka Ito, Georgia Tech), \$ 397,587, 04/01/2014-03/31/2017, share: 50%
3. 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
4. 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%
5. 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%.
6. 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%

OTHER SCHOLARLY AND CREATIVE ACCOMPLISHMENTS

1. AGU Blog profile and interview (<http://blogs.agu.org/geospace/2016/06/23/the-thrill-of-predictability/>)
2. AGU Blog on World Oceans Day (<http://blogs.agu.org/geospace/2016/06/15/5-reflections-beyond-world-oceans-day/>)
3. Contributed to entries for the page <https://schmidtocean.org/cruise/changing-river-measuring-nutrient-fluxes-south-china-sea/>
4. Contributed to development of two modules for 6-8 grades class activities on oil spill in the ocean in collaboration with CEISMC at GaTech
5. Contributed to the development of the new graduate program in Ocean Science and Technology at GaTech
6. Co-Editor, Spring Issue of CLIVAR Variations

SOCIETAL AND POLICY IMPACTS

- US CLIVAR and CLIVAR leadership including contribution to national and international science plans and assessment quantifying role of climate variability and change in society and policy consequences
- 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

Other Professional Activities

1. Research cruise on R/V Falkor (Schmidt Ocean Institute Foundation) in the South China Sea, May 30th-June 25th, 2016 and again September 3rd-21st.
2. Research cruise on R/V Endeavor July 20th – August 3rd 2016
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.
4. Selection committee for Associate Professor Position at the University of Oslo, Nov. 2014-March 2015
5. Research cruise on R/V Endeavor July 2012

V. TEACHING

COURSES TAUGHT (LAST 10 YEARS)

Semester/Year	Course Number	Course Title	Number of Students
Fall 2017	EAS-6000	Introd. Research and Respon. Conduct	22
Fall 2017	EAS-8001	Oceanography Seminar	18
Fall 2017	EAS-8801	Preparing Future Faculty	8
Fall 2016	EAS-6000	Introd. Research and Respon. Conduct	20
Fall 2016	EAS-8001	Oceanography Seminar	11
Spring 2016	EAS-8801	Preparing Future Faculty	13
Spring 2016	EAS-8001	Oceanography Seminar	8
Spring 2016	EAS-8803	Ocean Dynamics	5 (+1 auditing)
Fall 2015	EAS-6000	Introd. Research and Respon. Conduct	14
Fall 2015	EAS-8801	Oceanography Seminar	10
Spring 2015	EAS-8803	Mathematical Methods for GFD	7
Fall 2014	EAS-6000	Introd. Research and Respon. Conduct	18
Spring 2014	EAS-8801	Preparing Future Faculties	10 + 3 auditing
Spring 2014	EAS-8803	Ocean Dynamics	3
Fall 2013	EAS-6000	Introduc. Research and Respon. Conduct	14
Spring 2013	EAS-8803	Mathematical Methods for GFD	3 +1 auditing
Fall 2012	EAS-8001	Introduc. Research and Respon. Conduct	27
Summer 2012	PHIL-6000-B1	Responsible Conduct of Research	36
Summer 2012	PHIL-6000-B2	Responsible Conduct of Research	35
Summer 2012	PHIL-6000-B3	Responsible Conduct of Research	34
Spring 2012	EAS 8803/8802RC	Ocean Dynamics	6
Spring 2012	EAS 8801	Preparing Future Faculty	9 + 3 auditing
Spring 2011	EAS 8801	Preparing Future Faculty	18 + 6 auditing
Fall 2010	EAS 4300	Oceanography (with E. Di Lorenzo)	28
Fall 2010	EAS 4610	Earth System Mod. (with C. Cardelino)	16
Spring 2010	EAS 8802	Preparing Future Faculty	7
Spring 2010	EAS 8803	Marine Ecosystem Modeling	5
Fall 2009	EAS 8802/4802	Trop. Atlant. Ocean/Atmos. Interaction	11
Spring 2009	EAS 8803	Ocean Dynamics	7
Spring 2009	EAS 8802	Geostrophic Turbulence	6

INDIVIDUAL STUDENT GUIDANCE

Ph.D. Students

1. Xiyuan Zeng, 08/17-present (sole adviser)
2. Fabrizio Falasca, 01/16-present (main adviser, co-adviser Dr Athanasios Nenes)
3. Guangpeng Liu, 08/15-present, (sole adviser)
4. Filippus Tagklis, 08/14-present (main adviser, co-adviser Dr. Taka Ito)
5. Daoxun Sun, 08/14-present (co- adviser, main adviser Dr. Taka Ito)
6. Ilias Foudalis, 08/2010 – 2016, [Graduated in 2016](#), College of Computing (co- adviser, main adviser Dr. C. Dovrolis); Currently working for an IT company in Atlanta
7. Yuley Cardona, 01/2008 – 2013, graduated June 2013, (sole adviser). Currently Assistant Professor at Un. Of Colombia, Medellin.
8. Yisen Zhong, 08/2008 – 2013, graduated in November 2013 (sole adviser). Currently Assistant Professor at Shanghai Jiao Tong University
9. 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 Research Scientist at COLA.
10. Inga Koszalka, 2004-2008 Program in Environmental Engineering, Politecnico di Torino, Italy. Currently Assistant Professor at GEOMAR, Kiel, Germany

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

1. Keshav Joshi, Master Student, School of Physics, Jan 2014-August 2015, Non-Thesis option
2. Fan Zhang, Master student, 08/12 – 06/14, Thesis option
3. Virgilio Maisonet, 08/10-06/12, Non-Thesis options
4. Yuley Cardona, 01/08-09/10, Thesis Option

Undergraduate Students

1. Riannon Colton, EAS, Summer 2016
2. Harikumar Venkatesan, College of Computing, Spring 2015, Fall 2015
3. Catherine Achukwu, CEE, Spring 2013
4. Sophie Clayton (at WHOI), Summer 2006

Service on thesis or dissertation committees

PhD Candidacy Examination Committee, Member, Guangpeng Liu, (EAS), 09/17
PhD Candidacy Examination Committee, Member, Fabrizio Falasca, (EAS), 09/17
PhD Candidacy Examination Committee, Member, Lucas Liuzzo, (EAS), 04/16
PhD Candidacy Examination Committee, Member, Daoxun Sun, (EAS), 04/16
PhD Candidacy Examination Committee, Member, Filippus Tagklis, (EAS), 04/16
PhD Examination Committee, Member, Ilias Fountalis, (CoC), 03/16
PhD Examination Committee, Member, Yohei Takano, (EAS) 11/15
PhD Examination Committee, Member, Sebastian Ortega, (EAS) 11/15
PhD Examination Committee, Member, Brittany Bruder (CEE), 05/15
PhD Candidacy Examination Committee, Member, Shannon Owings, (EAS), 04/15
PhD Candidacy Examination Committee, Member, Giovanni Liguori, (EAS), 04/15
PhD Examination Committee, Member, Andrew Davis (EAS), 05/14
PhD Candidacy Examination Committee, John Hale, (EAS), 03/14
PhD Candidacy Examination Committee, Xin Cao (EAS), 03/14
PhD Examination Committee, Advisor, Yisen Zhong, (EAS), 11/13
PhD Examination Committee, Advisor, Yuley Cardona, (EAS) 06/13
PhD Candidacy Examination Committee, Member, Sebastian Ortega, (EAS) 03/13

PhD Candidacy Examination Committee, Chair, Rebecca Westby (EAS) 04/12
 PhD Candidacy Examination Committee, Chair, Ashok Rajendar (EAS) 04/12
 PhD Candidacy Examination Committee, Member, Wei-Ching Hsu, (EAS) 04/12
 Undergraduate Honors Research Thesis, Reader, Sarah Weber, (Biology) 12/12
 PhD Candidacy Examination Committee, Eric Parker (EAS) 04/11
 PhD Candidacy Examination Committee, Jessica Moerman (EAS) 04/11
 MS Examination Committee, Carina Young (EAS) 01/10
 PhD Candidacy Examination Committee, Yuley Cardona (EAS) 04/10
 PhD Candidacy Examination Committee, Fernando Hirata (EAS) 04/10
 PhD Candidacy Examination Committee, Andrew Davis (EAS) 04/10
 PhD Candidacy Examination Committee, Yisen Zhong (EAS) 04/10
 PhD Examination Committee, Intan Nurati (EAS) 06/10
 PhD Examination Committee, Vincent Combes (EAS) 06/10
 PhD Examination Committee, Sara Viera (EAS) 07/10
 PhD Candidacy Examination Committee, Lina Ceballos (EAS) 04/08 and 04/09
 PhD Candidacy Examination Committee, Peter (Jack) Leech (EAS) 04/09
 PhD Candidacy Examination Committee, Laura Zaunbrecher (EAS) 04/08
 PhD Examination Committee, Jonathan Halcrow (CNS-Physics) 05/08
 PhD Candidacy Examination Committee, Vincent Combes (EAS) 04/07
 PhD Candidacy Examination Committee, Jason Furtado (EAS) 04/07
 PhD Candidacy Examination Committee, Asuka Suzuki (EAS) 04/07
 PhD Candidacy Examination Committee, Intan Nurhati (EAS) 04/07
 PhD Candidacy Examination Committee, Jones Morris (EAS) 04/07
 PhD Examination Committee, Paula Agudelo (EAS) 08/07

Mentorship of postdoctoral fellows or visiting scholars

1. Jun Choi, Postdoctoral Fellow, 06/2015-05/2017
2. Hao Luo, Postdoctoral Fellow, 05/2008 – 2010, Research Scientist II, 2010-03/2014, Part-time Research Scientist, June 2017 - ongoing
3. Rondrotiana Barimalala, Postdoctoral Fellow, Faculty for the Future and IPCC fellowships, 03/2012 – 08/2013
4. Yuley Cardona, Postdoctoral Fellow, 08/2013-07/2014

OTHER TEACHING ACTIVITIES

1. Lecturer, training course on climate change, UNESCO/IOC Regional Training and Research Center on Ocean Dynamics and Climate, Qingdao, China, September 7-18, 2015
2. Lecturer, School on Ocean Climate Modelling, Ankara, Turkey. 28 September - 1 October, 2015
3. Lecturer, Advanced School on "The Fluid Dynamics of Climate", International Center for Mechanical Sciences, Udine, IT, August 26-30, 2013 (<http://www.cism.it/courses/C1309/>)
4. Lecturer, ASP Summer Colloquium on Carbon – Climate connections in the Earth System, NCAR, Boulder, CO, July 29-August 16, 2013 (<https://www2.cgd.ucar.edu/events/asp-colloquium-2013>)
5. Lecturer, GFD Summer School on "Swirling and Swimming in Turbulence", Woods Hole, MA, July 2010
6. Lecturer, Honor Program in Environmental Engineering, University of Savona, Italy, 06/07 and 06/05. Course taught: 'Interazioni Biofisiche in Oceano' (Ocean biophysical interactions)

7. June 2007/ June 2005 Honor Course in Ocean biophysical interactions (15 hours) Un. Savona (Italy) ~ 14 undergraduate students per course (no teaching evaluation available at this university)
8. Key-lecturer, NATO "Advanced Study School on Nonlinear Processes in Marine Science", Hageri, Estonia. 11/2003

VI. SERVICE

PROFESSIONAL CONTRIBUTIONS

Membership in professional organizations

1. CLIVAR (International) Chair of the Scientific Steering Group, Jan 2016 – ongoing
2. Co-Chair, PICES (North Pacific Marine Science) Working Group on Mesoscale and submesoscale processes, Nov 2016 - ongoing
3. CLIVAR (International) Member, Scientific Steering Group, Jan 2013 - Dec 2015 (Selected by Joint Scientific Committee of the World Climate Research Programme, WCRP)
4. PPAI (Predictability, Prediction & Applications Interface) Panel of the U.S. Climate Variability and Predictability Research Program (US-CLIVAR) 02/2009 – 01/2014.
5. Co-Chair of the PPAI panel and member of the Scientific Steering Committee with the task of writing the US CLIVAR science plan for the next decade, Jan 2010 – Jan 2013
6. Co-Chair, US CLIVAR Working Group on 'Ocean Carbon Uptake', April 2012 – March 2015
7. AGU, Member since 2000

Conference Chair, Organizer and Director:

1. 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
2. Co-Chair and Co-Organizer, CLIVAR Open Science Conference "Charting the course for climate and ocean research", Qingdao, China, 19-23 Sept. 2016
3. Co-Organizer, CLIVAR Early Career Scientists (ECS) Symposium, First Institute of Oceanography (FIO), Qingdao, China, Sept 18, 24, 25, 2016
4. 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, February 2016
5. Co-Organizer, US-Clivar and OCB Joint Workshop "Ocean's Carbon and Heat Uptake: Uncertainties and Metrics, San Francisco, CA, December 12-14, 2014
6. 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 October and December 2014
7. Co-Organizer and Lecturer, Advanced Study Program Summer Colloquium on Carbon – Climate connections in the Earth System, NCAR, Boulder, CO, July 29-August 16, 2013
8. Co-Organizer, Researcher Workshop – Key uncertainties in the global carbon cycle: Perspectives across terrestrial and ocean ecosystems, NCAR, Boulder, CO, August 6th-10th, 2013
9. 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)
10. 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

11. Co-Chair, Scientific Session on “The submesoscale route to transport and mixing”, Gulf of Mexico Oil Spill & Ecosystem Science Conference, New Orleans, January 2013
12. Co-Chair, Joint US CLIVAR – OCB (Ocean Carbon Biogeochemistry) Working Group on "Oceanic carbon uptake in the CMIP5 models" (prospectus funded by interagency group – NOAA, NASA, NSF, DOE for 50k\$ in Feb. 2012; Co-chair and organizer with C. Deutsch and T. Ito)
13. Session Co-Convener, EGU annual meeting, session on “The global monsoon system: variability and dynamics”, Vienna, April 2012
14. Session Co-Chair and Convener, AGU Annual Meeting 2011, session on “Turbulent Fluid Dynamics”, San Francisco, December 2011
15. Co-Chair, Organizing Panel of US-CLIVAR and Ocean Carbon Biogeochemistry First Joint Meeting, Woods Hole Oceanographic Institution, Woods Hole, MA, July 2011
16. Session Co-Convener, EGU annual meeting, session on “The global monsoon system: variability and dynamics”, Vienna, April 2011
17. Session Co-Chair and Convener, AGU Annual Meeting 2010, session on “Turbulent Fluid Dynamics”, San Francisco, December 2010
18. Session Convener, EGU annual meeting, session on “The global monsoon system: variability and dynamics”, Vienna, May 2010
19. Co-Chair, PPAI (Predictability, Prediction & Applications Interface) Panel of the U.S. Climate Variability and Predictability Research Program (US-CLIVAR) since Jan 2010
20. Session Co-Chair, AGU Ocean Science Meeting 2010, session on Submesoscales: From Space to the Ocean Interior IV, 02/2010
21. 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
22. Session Chair, IAMAS-IAPSO-IACS-Assembly-2009 (MOCA-09), session on “Monsoon Observations, Modelling and Prediction”, Montreal, 07/2009
23. Director, International Summer School on “Monsoon Systems”, Valsavaranche, Italy 8-14 June 2009 (information at <http://www.to.isac.cnr.it/aosta/>. Media coverage for the school: Italian National TV – Rai 3, and Italian newspaper La Stampa)
24. 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
25. Co-Director and lecturer, “Conference on Milankovitch cycles over the past 5 million years”, Trieste, IT 03/2007
26. Organizer and lecturer, “First ICTP workshop on Climate variability over Africa” Alexandria, Egypt, 03/2005
27. Co-Director and lecturer, “Workshop on Climate Variability in the XX century”, Trieste, IT, 06/2004
28. Organizer, “ICTP workshops on Climate variability studies in the ocean”, Trieste IT, 05/2003

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

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

Proposal Reviewer and Panelist:

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

National Science Foundation:

1. Division of Ocean Sciences, Physical Oceanography Program, Reviewer and Panelist
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

National Oceanic and Atmospheric Administration:

1. Climate Prediction Program for the Americas, Reviewer
2. MAPP Program, Panelist, 2012-03-27

DOE – BER

1. 2014 Climate Variability and Change, Panelist.
2. 2012 Early Career, Panelist

Qatar National Research Fund, 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).

PUBLIC AND COMMUNITY SERVICE

1. 2017 Atlanta Science Festival Exploration Expo: Ocean Discovery Zone (1,700 people)
2. 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>)
3. Contributed to the development of two week-long STEM modules for grade 6 and 7 in collaboration with the CEISM office of Georgia Tech on oil spill impacts in the ocean
4. Springdale Elementary School, Pre-K class, presentation and shrinkage of cups during a deep cast with a conductivity, temperature, and depth (CTD) instrument.
5. 2016 Atlanta Science Festival Exploration Expo: Ocean Discovery Zone (1,500 people; 1,000 ROV licenses delivered)
6. 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
7. 2015 Atlanta Science Festival presentations at EAS Open House, Coretta King Middle School and Frederick Douglass High School
8. Skype conversations with K6 students at Woodward Academy about oceanography and ocean pollution, 2013

9. Judge at the Siemens Competition in Math, Science and Technology, Regional Final, Region 6, Atlanta, in 2008, 2011, 2013, 2014, 2015, 2016.
10. Grand Awards Judge for the 2008 Intel International Science and Engineering Fair, Atlanta, May 2008, Atlanta
11. Judge at the Georgia Tech Graduate Research and Innovation Conference, 2010, 2011.
12. Judge at the EAS Annual Graduate Symposium, April 2011, 2012, 2014, 2015, 2016
13. Science Café' presentations in Decatur and Atlanta, 2010, 2011
14. Guest Panelist, "Career Options panel on Academic Faculty Jobs", CETL, Georgia Tech, (~ 130 students from Georgia Tech) 02/2010

INSTITUTE CONTRIBUTIONS

Co-Director, Co-Founder, Ocean Science and Engineering, Ph.D. Program
OSE, Graduate Studies Committee, November 2016 - ongoing
Georgia Tech Research Administration Committee (GTRAC), August 2015 – ongoing
Georgia Tech College of Science, Reappointment, Promotion and tenure Committee, August 2017 – ongoing
EAS, Reappointment, Promotion and tenure Committee, August 2016 – August 2017
EAS Chair Search, Fall 2012 – Fall 2013
Chair, EAS Graduate Studies Committee – June 2010 – August 2015
EAS Faculty Search Committee –2007, 2008, 2009, 2011, 2012, 2017
EAS Graduate Admission Committee – 2007, 2008, 2009
EAS Graduate Studies Committee – 2010-2015 (chair 2012-2015), 2017 - ongoing
EAS Social Activity Committee – 2008, 2009
Associate Member of the Center for Nonlinear Science