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VERSION January 30, 2021

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PROFESSIONAL HISTORY

1991- Professor, Aerospace Engineering Sciences, University of Colorado, Boulder, Colorado (Tenured 1995).
1993- Affiliate Faculty, Atmospheric and Oceanic Sciences, University of Colorado, Boulder, Colorado.
2020 Visiting Professor, Kyoto University, Japan (January 15th to June 15^h)
2011-16 Associate Scientist, Istituto di Scienze Marine (Institute for Marine Research), Consiglio Nazionale della Recerche (National Research Council), Venice, Italy.
2013 Visiting Professor, Kyoto University, Japan (September 15th to December 15th)
2013 Visiting Scientist, Japan Agency for Marine Science and Technology, Japan (June 25th to September 11th)
1999-00 Visiting Research Scientist, NATO SACLANT Undersea Research Center, La Spezia, Italy.
1991-99 IPA Appointment, Naval Oceanographic Office, Stennis Space Center, Mississippi.
1991-97 Expert Consultant, Naval Research Laboratory, Stennis Space Center, Mississippi.
1990-91 Oceanographer, Navy Oceanographic and Atmospheric Research Laboratory, Stennis Space Center, Mississippi.
1988-90 Scientist III, Institute for Naval Oceanography, Stennis Space Center, Mississippi.
1986-88 Senior Visiting Scientist, Atmospheric and Oceanic Sciences Program, Princeton University, Princeton, New Jersey.
1980-86 Research Scientist, Dynalysis of Princeton, Princeton, New Jersey.
1979-80 Research Scientist, Department of Earth and Planetary Sciences, The Johns Hopkins University, Baltimore, Maryland
1975-79 Associate Research Scientist, Department of Earth and Planetary Sciences, The Johns Hopkins University, Baltimore, Maryland
1974-75 Post-doctoral Research Fellow, Department of Earth and Planetary Sciences, The Johns Hopkins University, Baltimore, Maryland
1969-73 Research Assistant, The Department of Aeronautics and Astronautics, Massachusetts Institute of Technology, Cambridge, Massachusetts
1968-69 Junior Research Fellow, National Aeronautical Laboratory, Bangalore, India

EDUCATION

Nov 1973 Doctor of Philosophy in Fluid Mechanics, Aeronautics and Astronautics, Massachusetts Institute of Technology, Cambridge, Massachusetts
Aug 1969 Master of Engineering (with distinction) in Aerodynamics, Aeronautical Engineering, Indian Institute of Science, Bangalore, India
Apr 1967 Bachelor of Engineering (with distinction) in Mechanical Engineering, Bangalore University, Bangalore, India

HONORS

- 2013 Visiting Professor, Kyoto University, Japan
- 2012 Elected Associate Fellow of American Institute of Aeronautics and Astronautics (AIAA)
- 2000 North Atlantic Treaty Organization SACLANT Undersea Research Centre Certificate of Service
- 1996 Naval Oceanographic Office and Naval Research Laboratory Special Act Award for Transitions
- 1991 Naval Oceanographic and Atmospheric Research Laboratory Commendation for Outstanding Performance during Desert Storm
- 1991 Institute for Naval Oceanography Incentive Award for assistance to U. S. Navy during Desert Storm.
- 1968-69 Junior Research fellowship, National Aeronautical Laboratory, Council of Scientific and Industrial Research, India
- 1967-68 Fellowship, Indian Institute of Science, Bangalore, India
- 1966-67 Institute of Engineers (India) Centenary Merit Scholarship
- 1962-66 Government of India National Merit Scholarship

PROFESSIONAL SERVICE/ACTIVITIES

Associate Editor, Ocean Modelling, Elsevier, 2018-
 American Institute of Aeronautics and Astronautics, Senior Member, 1991 -
 American Geophysical Union, Member, 1983 -
 American Meteorological Society, Member, 1983 -
 Associate Editor, International Journal of Oceanography, 2010-2015
 Member, National Science Foundation Review Panel, 2004
 Member, National Science Foundation Review Panel, 2001
 Member, Editorial Board, Journal of the Korean Society of Oceanography, 1996
 Member, National Academy of Sciences, Naval Studies Board Shallow Water Committee, 1993
 Member, Navy CIMREP panel on Navy operational ocean modeling, 1991-1994
 Member, International Working Group on Crater Lakes, 1994- 1996
 Oceanography Society, Member, 1988 - 1991
 Korean Society of Oceanography, Member 1994- 1996
 Guest Co-Editor, J. Geophysical research Special MIZEX issue, 1990.
 AGU Chapman Conference Committee on the Gulf of Mexico, Member, 1989.

RESEARCH INTERESTS

Primary interest is turbulent mixing in the oceans and the atmosphere, and ocean models. Application of radiosondes and GPS radio occultation soundings to extracting turbulence locations and intensities in the free atmosphere is the current focus. Interested in the use of ST/MST radars in the study of turbulence in the atmosphere. Study of oceanic processes through assimilation of remotely sensed data (including altimetry) into numerical ocean models, nowcasting, hindcasting and short-term forecasting of the ocean state has also been a long-term interest.

BOOKS

- Kantha, L. H., and C.A. Clayson, 2000a. *Small Scale Processes in Geophysical Flows*. Academic Press, San Diego, pp 888 (Foreword by Dr. Walter H. Munk).
- Kantha, L. H., and C.A. Clayson, 2000b. *Numerical Models of Oceans and Oceanic Processes*. Academic Press, San Diego, pp 940 (Foreword by Dr. Kirk Bryan).
- Kantha, L., 2012. *Migration on Wings: Energetics and Aerodynamics*. Springer, pp 91.
- Kantha, L. and K. Kantha, 2021. *Airbus and Boeing, Clash of the Aviation Titans: Why they build what they build*. Springer (in press, delayed since 2019 because of figure permission issues).

PUBLICATIONS (OVER 120 - REFEREED)

Google Scholar: h-index 35, i10-index 91, pubs 243, citations 7,147 (as of 1/30/2021)

Web of Science: h-index 25, pubs 119, citations 3,564 (as of 1/30/2021)

- Kantha, L., 2021. A note on rain-formed fresh water lenses in tropical and subtropical oceans (To be submitted to *J. Phys. Oceanogr.*)
- Kantha, L., 2021. Convective Boundary Layers – Unresolved Issues (invited). *Geophys. Res. Lett.* (ready for submission)
- Shroyer, E., L. Kantha et al., 2021. Bay of Bengal intraseasonal oscillations and the 2018 monsoon onset. *Bull. Amer. Meteorol. Soc.* (under review).
- Luce, H., L. Kantha, H. Hashiguchi, A. Doddi, D. Lawrence and M. Yabuki, 2020. On the relationship between TKE dissipation rate and the temperature structure function parameter in the convective boundary layer. *J. Atmos. Sci.*, 77, 2311-2326. DOI: 10.1175/JAS-D-19-0274.1
- Kantha, L., R. A. Weller, J. T. Farrar, H. Rahaman and V. Jampana, 2019. A note on modeling mixing in the upper layers of the Bay of Bengal: Importance of water type, water column structure and precipitation. *Deep-Sea Res. II*, 168. <https://doi.org/10.1016/j.dsr2.2019.104643>.
- Jampana, V., M. Ravichandran, L. Kantha and H. Rahaman, 2019. Modeling slippery layers in the northern Bay of Bengal. *Deep-Sea Res. II*, 168. <https://doi.org/10.1016/j.dsr2.2019.07.004>.
- Mixa, T., D. Fritts, T. Lund, B. Laughman, L. Wang and L. Kantha, 2019. Numerical simulations of high frequency gravity wave propagation through fine structures in the mesosphere. *J. Geophys. Res. Atmos.* 124, 9372–9390. <https://doi.org/10.1029/2018JD029746>.
- Luce, H., D. Lawrence, H. Hashiguchi and L. Kantha, 2019. Estimation of turbulence parameters in the lower troposphere from ShUREX (2016-2017) UAV data. *Atmosphere*, 10, 384. doi:10.3390/atmos10070384
- Kantha, L., H. Luce, H. Hashiguchi and A. Doddi, 2019. Atmospheric structures in the troposphere as revealed by high resolution backscatter images from MU radar operating in range-imaging mode. *Prog. Earth Planet. Sci.* 6:32, <https://doi.org/10.1186/s40645-019-0274-1>
- Kantha, L., H. Luce and H. Hashiguchi, 2019. Mid-level cloud-base turbulence: radar observations and models. *J. Geophys. Res. Atmos.* 124. <https://doi.org/10.1029/2018JD029479>.
- Luce, H., L. Kantha, H. Hashiguchi, D. Lawrence and A. Doddi, 2018. Turbulence kinetic energy dissipation rates estimated from concurrent UAV and MU radar measurements. *Earth Planets Space*, 70-207 (MST Radar Special Issue). DOI:10.1186/s40623-018-0979-1
- Kantha, L., H. Luce and H. Hashiguchi, 2018. On a numerical model for extracting TKE dissipation rate from VHF radar spectral width. *Earth Planets Space*, 70-205 (MST Radar Special Issue). DOI:10.1186/s40623-018-0957-7
- Kantha, L. and H. Luce, 2018. Mixing coefficient in stably stratified fluids. *J. Phys. Oceanogr.*, 48, 2649-2665. DOI: 10.1175/JPO-D-18-0139.1
- Luce, H., L. Kantha, M. Yabuki, and H. Hashiguchi, 2018. Atmospheric Kelvin-Helmholtz billows captured by the MU radar, lidars and a fish-eye camera, *Earth Planets Space*, 70:162. <https://doi.org/10.1186/s40623-018-0935-0>
- Luce, H., L. Kantha, H. Hashiguchi, D. Lawrence, T. Mixa, M. Yabuki, and T. Tsuda, 2018. Vertical structure of the lower atmosphere derived from MU radar, unmanned aerial vehicle and balloon measurements during ShUREX 2015, *Prog. Earth Planet. Sci.*, 5:29, DOI 10.1186/s40645-018-0187-4
- Luce, H., H. Hashiguchi, L. Kantha, D. Lawrence, T. Tsuda, T. Mixa and M. Yabuki, 2018. On the performance of the range imaging technique estimated using unmanned aerial vehicles during the ShUREX 2015 campaign. *IEEE Trans. Geosci. Remote Sensing*, 56, 2033-2042, DOI 10.1109/TGRS.2017.2772351.
- Kantha, L., D. Lawrence, H. Luce, H. Hashiguchi, T. Tsuda, R. Wilson, T. Mixa and M. Yabuki, 2017. Shigaraki UAV-Radar Experiment (ShUREX): Overview of the campaign with some preliminary results. *Prog. Earth Planet. Sci.*, 4:19, DOI 10.1186/s40645-017-0133-x
Correction: <https://doi.org/10.1186/s40645-018-0210-9>
- Luce, H., L. Kantha, H. Hashiguchi, D. Lawrence, M. Yabuki, T. Tsuda and T. Mixa, 2017. Comparisons between high-resolution profiles of squared refractive index gradient M^2 measured

- by the Middle and Upper Atmosphere Radar and unmanned aerial vehicles (UAVs) during the Shigaraki UAV-Radar Experiment 2015 campaign. *Ann. Geophys.*, 35, 423-441.
- Carniel, S., J. Wolf, V. E. Brando and L. Kantha, 2017. Preface: Oceanographic processes on the continental shelf: observations and modeling. *Ocean Sci.*, 13, 495-501.
- Kantha, L., D. Lawrence, H. Luce, H. Hashiguchi, T. Tsuda, R. Wilson, T. Mixa and M. Yabuki, 2015. Shigaraki UAV-Radar Experiment (ShUREX 2015): MUR-EAR Workshop, Kyoto University, Uji, Sep. 11-15, 2015.
- Mixa, T., L. Kantha, D. Fritts, A. Dornbrack and S. Gisinger, 2015. Incorporating vertical velocity and balloon trajectory data into radiosonde gravity wave analysis: Orographic sources in New Zealand during the DEEPWAVE campaign, 33rd International Conference on Alpine Meteorology (ICAM) 2015, Innsbruck, Austria, Aug. 31 – Sept. 4, 2015.
- Mixa, T., D. Fritts, B. Laughman, L. Wang and L. Kantha, 2015. Direct numerical simulations of small scale gravity wave instability dynamics in variable stratification and shear. Poster presented at AGU, San Francisco, Dec ??, 2015.
- Kantha, L., T. Mixa, T. Tsuda, H. Hashiguchi, M. V. Ratnam and A. Jayaraman (2016). Atmospheric gravity waves: MST radars and radiosondes. Japan Geoscience Union Meeting, May 15-18, 2015, Chiba City, Japan
- Kantha, L. 2017. Lake Nyos. Invited Chapter 7 in *Air Pollution Episodes*, ed. P. Brimblecombe, World Scientific, pp. 129-142.
- Falcieri, F. M., L. Kantha, A. Benetazzo, A. Bergamasco, D. Bonaldo, F. Barbariol, V. Malacic, M. S. Scavo, and S. Carniel, 2016. Turbulence observations in the Gulf of Trieste under moderate wind forcing and different water column stratification. *Ocean Science*, 12, 433-449.
- Kantha, L., H. Tamura and Y. Miyazawa, 2014a. Comment on "Wave-turbulence interaction and its induced mixing in the upper ocean" by Huang and Qiao. *J. Geophys. Res.*, doi: 10.1002/2013JC009318
- Kantha, L. and C. A. Clayson, 2014b. Ocean Mixed Layer. In *Encyclopedia of Atmospheric Sciences*, Second Edition, G. R. North, J. Pyle and F. Zhang (eds). Vol. 1, 290-308.
- Kantha, L., 2013b. Empirical models of the Loop Current Eddy detachment/separation time. *J. Waterway, Port, Coastal and Ocean Engineering*, 130627221538004-130627221538004 28 Jun 2013
- Kantha, L. 2013a. Classification of hurricanes: Lessons from Katrina, Ike, Irene and Isaac. *Ocean Engineering*, 70, 124-128.
- Kantha, L., 2012e. Addendum: What if the gravitational constant G is not a true constant? *Physics Essays*, 25, 471-472, DOI: 10.4006/0836-1398.25.3.471.
- Kantha, L., 2012d. What if the gravitational constant G is not a true constant? *Physics Essays*, 25, 282-289, DOI: 10.4006/0836-1398.25.2.282.
- Kantha, L. 2012c. Classification of hurricanes, typhoons and cyclones. Chapter 9 of "Eddies and Hurricanes: Formation, Triggers and Impact," ed. by A. Tarasov and M. Demidov, NOVA Science Publishers, 10 pp.
- Kantha, L., 2012b. Modeling turbulent mixing in the global ocean: second moment closure models. Chapter 1 of "Turbulence: Theory, Types and Simulation," ed. by R. J. Marcuso, Nova Publishers, 1-68.
- Kantha, L., 2012a. Turbulence dissipation rates in the free atmosphere from high-resolution radiosondes. Chapter 7 of "Turbulence: Theory, Types and Simulation," ed. by R. J. Marcuso, Nova Publishers, 239-264.
- Carniel, S., L. Kantha, J. W. Book, M. Scavo and H. Prandke, 2011. Turbulence variability in the upper layers of the Southern Adriatic Sea under a variety of atmospheric forcing conditions. *Continental Shelf Research*. doi:10.1016/j.csr.2011.01.003.
- Kantha, L., S. Carniel, C. A. Clayson, and M. Scavo, 2011. On the use of a simple primary productivity model to assess the skill of a physical ocean model. *International J. Oceanogr. Hydrobiology*, 40, 86-95. DoI:10.2478/s13545-011-0019-2.
- Kantha, L., and W. Hocking, 2011. Dissipation rates of turbulence kinetic energy in the free atmosphere: MST radar and radiosondes. *J. Atmos. Solar-Terrestrial Physics*, 73, 1043-1051, doi:10.1016/j.jastp.2010.11.024

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- Kantha, L., 2010. Decay of aircraft wake vortices under daytime free convection conditions. *AIAA J. Aircraft*, 47, 2159-2164.
- Kantha, L., S. Carniel, and M. Sclavo, 2010. A note on modeling double diffusive mixing in the global ocean. *Ocean Modelling*, 36, 40-48. doi:10.1016/j.ocemod.2010.09.003.
- Kantha, L., 2010. Discussion of “A hydrodynamics-based surge scale for hurricanes”. *Ocean Engineering*, 37, 1081-1084. doi:10.1016/j.oceaneng.2010.04.003
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- Kantha, L. H., U. Lass, and H. Prandke, 2010. A note on Stokes production of turbulence kinetic energy in the oceanic mixed layer: Observations in the Baltic Sea, *Ocean Dynamics*, 60, 171-180. DOI: 10.1007/s10236-009-0257-7 (errata – DOI: 10.1007/s10236-010-0283-5)
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- Rojsiraphisal, T., L. Kantha and Y. Masumoto, 2009. Variability of currents at 90°E in the equatorial Indian Ocean, Chapter 9 in *The Atlantic and Indian Oceans*, eds. E. S. Askew and J. P. Bromley, Nova Science Publishers, 179-199.
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- Carniel, S., M. Sclavo, L. Kantha and H. Prandke, 2008. Double-diffusive layers in the Adriatic Sea. *Geophys. Res. Lett.* 35, L02605, doi:10.1029/2007GL032389.
- Kantha, L., T. Rojsiraphisal and J. Lopez, 2008. The North Indian Ocean circulation and its variability as seen in a numerical hindcast of the years 1993-2004. *Prog. Oceanogr.* 76, 111-147.
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- Kantha, L. H., and C. A. Clayson, 2007. On leakage of energy from turbulence to internal waves in the oceanic mixed layer, *Ocean Dynamics*, 57, 151-156 (DOI: 10.1007/s10236-006-0100-3).
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- Kantha, L., 2006. Time to replace the Saffir-Simpson hurricane scale? *EOS Transactions*, 87, 3&6.
- Kantha, L. H., 2006. A note on the decay rate of swell, *Ocean Modelling*, 11, 167-173.
- Carniel, S., M. Sclavo, L. H. Kantha and C. A. Clayson, 2005, Langmuir cells and mixing in the upper ocean, *Il Nuovo Cimento*, 28, 33-54.

- Kantha, L., 2005. Barotropic tides in the Gulf of Mexico, in *Circulation in the Gulf of Mexico: Observations and Models*, eds. W. Sturges and A. Lugo-Fernandez, American Geophysical Union, 159-164.
- Kantha, L. H., J.-K. Choi, K. J. Schaudt and C. K. Cooper, 2005. A regional data-assimilative model for operational use in the Gulf of Mexico, in *Circulation in the Gulf of Mexico: Observations and Models*, eds. W. Sturges and A. Lugo-Fernandez, American Geophysical Union, 165-180.
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- Kantha, L. H., and S. Piacsek, 1993-. Ocean Models. In Computational Science Education Project. Dept. of Energy Electronic Book, 273-361 (csep1.phy.ornl.gov/csep.html).

TEACHING EXPERIENCE

- Rocket and Spacecraft Propulsion, graduate level course, 2000 - (enrollment ~15-45)
- Aircraft Propulsion, graduate level course (biannual) , 2015 - (enrollment ~10-23)
- Gas Turbine Propulsion, graduate level course, 2004-2009 (enrollment 3-7)
- Foundations of Aerospace Propulsion, required undergraduate course, 2001- 2010, 2016, 2021 (enrollment ~50-84)
- Introduction to Thermodynamics and Aerodynamics, required undergraduate course, 2011-2012 (enrollment ~ 100-110)
- Computational Fluid Dynamics, undergraduate/graduate level course, 1991-1998 (enrollment 10 to 68)
- Fluid Mechanics, graduate level course, 1999-2003 (enrollment ~12)
- Ocean Modeling, graduate level course, 1992-1996 (enrollment 3-10)
- Small Scale Processes, graduate level course, 1992-1997 (enrollment 3-11)

REVIEWER (All Years)

Journal of Fluid Mechanics, Journal of Physical Oceanography, Journal of Geophysical Research (Oceans and Solid Earth), Journal of Geophysical Research (Atmosphere), Geophysical Research Letters, Deep Sea Research, Science, Nature, Journal of Atmospheric and Oceanic Technology, Journal of Oceanography, Frontiers in Marine Science, Tellus, Monthly Weather review, Ocean Modelling, Journal of Marine Research, Ocean Dynamics, Ocean Engineering, Geoscience Letters, Environmental Fluid Mechanics, Journal of Oceanography.