

Dr. Leonard Joseph Pietrafesa (PhD)

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Areas of Interest: Observations of and Numerical Modeling of Atmospheric, Oceanic, Estuary, Land and Hydraulic Inter-Actively Coupled Systems; Relationships between Climate and Weather Coupled Systems; Wind-Wave-Current Coupled Interactions; Precipitation and River Discharge; Climate Conditions and Weather Events; Climate, Weather and Human Health; Science and Public Policy; Developing Non-Linear, Non-Stationary Data Adaptive Data Decomposition Methodologies for Data Analyses; Sea Level Variability and Rise; Physical Weather and Climate Factors Affecting Biotic Systems, especially fish distributions; Sunspot Variability; Western Boundary Current Dynamics; Mid-Latitude Atmospheric Storm Formations; Oceanic Heat and Climate; Tropical Cyclone Frequencies of Occurrence and Intensification; Building the Essential Integrated Ocean-Atmospheric Observing System; building industry-government-academia enterprise partnerships.

Education:

1965 BS, Fairfield University (Fairfield, CT) Physics & Mathematics

1967 MS, Boston College/University of Chicago (Boston, MA/ Chicago, IL)
Geophysical Fluid Dynamics (MS awarded from BC with concurrence from UC)

1973 PhD, University of Washington (Seattle, WA) Geophysical Fluid Dynamics
(Advisors: Drs. Maurice Rattray, J.Dungan Smith, James Michael Wallace, James Holton, Robert Fleagle, Pierre Welander, Carl Pearson). Dissertation: Baroclinic Circulation and Air-Sea Interaction on a Continental Margin

Industry Employment:

1965, 1966, 1968 Weston Geophysical Engineers, Boston, MA (Projects: US Nuclear Test Ban Treaty Verification; New England Power Blackout; Panama Canal Expansion Assessment; West Australia Harbor deepening; Preservation of Old Man on the Mountain in New Hampshire). Consultant for a variety of Environmental Technology companies, eg, Environmental Research & Technology, Science Applications International, Information Systems Lab.

Security Clearance: Active

Academic Experience:

07/2005- 07/2008 Associate Dean, External Affairs, PAMS/NCSU
12/2000- 07/2008 Director, External Affairs, PAMS/NCSU
06/1989-12/2000 Head, Dept. of Marine, Earth and Atmospheric Sciences/NCSU
05/1988-08/1989 Associate Dean, Research, PAMS/NCSU
06/1989-07/1989 Acting Dean, PAMS/NCSU
07/1988-07/1989 Director, University Honors Council/NCSU
07/1992-12/1996 Director, Southeast University Consortium for Severe Storms
05/1981- 06/2008 Full Professor, Department of Marine, Earth & Atmospheric Sciences
07/1976 – 05/1981 Associate Professor with Tenure, Department of Geosciences and Department of Marine, Earth & Atmospheric Sciences
07/1973 –05/1976 Assistant Professor, Dept. of Geosciences

Recent and Selected National Committee Service (10 year window):

11/2008 – 12/2009 Chair of University Corporation for Atmospheric Research Task Team Panel to Evaluate the National Hurricane Center and Tropical Prediction Center; part of the National Oceanic and Atmospheric Administration – National Weather Service- National Centers for Environmental Prediction

11/2008 – 12/2009 Chair of University Corporation for Atmospheric Research Task Team Panel to Evaluate the Ocean Prediction Center; part of the National Oceanic and Atmospheric Administration – National Weather Service- National Centers for Environmental Prediction

1/2009 – 12/2012 Council Member of the American Meteorology Society

11/08 -11/2011 Chair Elect and then Chair of the Association of Public & Land Grant Universities and National Association of State Universities and Land Grant Colleges Board on Oceans and Atmosphere

11/08 – 12/2012 Chair of American Geophysical Society Societal Impacts and Policy Committee (1st chair of new committee)

8/2008 – 1/2014 Commissioner Elect, then Commissioner and then Past Commissioner of the American Meteorological Society’s Commission on the Weather & Climate Enterprise (CWCE)

6/2008 – 8/2009 Member of National Committee to design a National Climate Service

10/2007 – 9/2008 Member of the national committee convened to develop a atmosphere-ocean-hydrology science transition document for the “next administration”

08/07 - Member, National Center for Atmospheric Research Societal Impacts

Program Advisory Board

06/2006 - 03/2009 Member, National Oceanic and Atmospheric Administration Science Advisory Board Social Science Working Group (was the physical science representative)

08/2005 – 08/2011 Member, National Oceanic and Atmospheric Administration Science Advisory Board Climate Working Group

06/2005- 12/2007 Member, Oklahoma Mesonet & Climate Advisory Committee

01/2004-02/2006 American Meteorological Society, Chair, Education Advisory Comm.

01/2004-01/2005 American Meteorological Society, Co-Chair 2005 AMS Annual Conference on Living in the Coastal Zone (with M. Davidson and T. Karl)

02/2004-08/2007 Member, American Geophysical Union Council on Public Affairs

07/2003-04/2005 Chair, National Centers for Environmental Prediction Ocean Modeling Review Panel; sanctioned by FACA via the NOAA Science Advisory Board

10/2002-2/2009 Board of Trustees (BoT) of University Corporation for Atmospheric Research (Elected twice on the 1st ballot by the general membership)

06/2002- 11/2006 Chair, National Oceanographic and Atmospheric Administration (NOAA) Science Advisory Board (FACA approved)

10/02-02/09 UCAR BoT representative to UCAR University Relations Committee which then became the UCAR President's Advisory Committee on University Relations

06/2001-11/2002 Chair, NOAA/ National Geodetic Research Program Review Team

05/2002- 11/2003 Member, NOAA/ Climate Monitoring & Diagnostics Laboratory Review Team

06/1998-08/2007 Member (then Chair), NOAA) Science Advisory Board (FACA approved)

03/1997-11/2007 Member, National Water Initiative Task Force of National Association of State Universities and Land Grant Colleges (NASULGC)

11/1999 - 11/2006 Member, then Secretary of NASULGC Executive Committee on Food, Environment and Natural Resources

Professional Organizations:

- 1) American Meteorological Society –Elected Fellow and Council and Commissioner
- 2) Sigma Xi (past local chapter president)

- 3) Phi Kappa Phi
- 4) American Association for the Advancement of Science
- 5) Society for Non-Linear Mathematics
- 6) American Geophysical Union
- 7) Oceanography Society (Charter- Lifetime member)

Publications: 10 recent, selected of 188 peer reviewed

- 1) Bohm, E., L.J. Pietrafesa, L., J. Churchill, T.S. Hopkins, 2007, Continental Margin Slope Sea Level and Flow Field Variability Induced by Lateral Movements of the Gulf Stream in the Southern Middle Atlantic Bight, *Journal of Deep Sea Research*
- 2) T. Yan, L. Xie, L.J. Pietrafesa, and T. Karl, 2006: The climatology and inter-annual variability of North Atlantic hurricane tracks. *Journal of Climate*
- 3) T. Yan, L. Xie, L.J. Pietrafesa, 2006: The effect of the Atlantic sea surface temperature dipole mode on hurricanes, *Geophysical Research Letters*
- 4) Pietrafesa, L.J., D. Dickey, T. Karl, 2006, The Variability of Sea Level Level in Solutions to Coastal Disasters, *Amer. Assoc. of Civil Engineers*;
- 5) T. Yan, L. Pietrafesa, G. Bell, T. Karl, D.A. Dickey, 2009. Relationships between North America Snow Cover and North Atlantic Tropical Cyclone Activity, *Journal of Climate* (in press)
- 6) Peng, M and J. Pietrafesa., 2006, Tropical Cyclone Induced Asymmetry of Sea Level Surge and Fall in a Storm Surge Model with Parametric Wind Fields. *Journal of Ocean Modeling*
- 7) Bao, S, L.J. Pietrafesa. and M. Peng, 2007 Numerical simulation of effects of hurricane's asymmetric structure on storm surge and inundation, *Monthly Weather Review*
- 8) Peng, M., L.J. Pietrafesa., S. Bao and D. Porter 2007, On Lidar vs Other Digital elevation data and hurricane induced inundation forecast, *Ocean Modeling*;
- 9) Pietrafesa, L.J., M. Peng, and S. Bao, 2009, The drag coefficient and its variability as a function of seasonal variability in the atmosphere and ocean, *Journal of Climate* (submitted)
- 10) Taylor, C., J.M. Miller, L.J. Pietrafesa, D.A. Dickey, S. Ross, 2009, Winter winds and river discharge determine juvenile southern flounder (*Paralichthys lethostigma*) recruitment and distribution in North Carolina estuaries, *Journal of the American Fisheries Society*

Professional and Public (Invited Only) Presentations: Total of 188

Student Committees Supervised: Chair or Co-Chair PhD (25) & MS (25)

Post Docs and Technicians Supervised: 40 Total.

Grants and Contracts as PI: 96 individual awards and \$ 25, 033, 109 of Total Funding (to date).

Proposal pending: \$804,900 to DOE (PI).