

CURRICULUM VITAE

GERALD S. JANOWITZ

ADDRESS: Business: Department of Marine, Earth and Atmospheric Science, North Carolina State University, Box 8208
Raleigh, North Carolina 27695
Home: 208 Hogan Farm Road , Apex, North Carolina 27502
PHONE: Business: (919) 515-7837; Home: (919) 387-8486
EMAIL: janowitz@ncsu.edu

EDUCATION:

1963 - B.S.Aerospace.Engr. Polytechnic Institute of Brooklyn(now PolytechnicUniversity of NY)
1965 - M.S. Engr. Johns Hopkins University
1967 - Ph.D.(Mechanics) Johns Hopkins University

PROFESSIONAL EXPERIENCE:

1963 - 1966 NASA Graduate Fellow, Johns Hopkins University
1966 - 1967 Research Assistant, Johns Hopkins University
1967 - 1968 Postdoctoral Fellow, Teaching Fellow, Johns Hopkins University
1968 - 1975 Assistant Professor, Department of Fluid, Thermal and Aerospace Sciences Case Western Reserve University
1975 - 1978 Associate Professor, Department of Geosciences, NCSU
1978 - 1980 Associate Professor, Department of Marine Science & Engineering, NCSU, and department Director of Graduate Programs
1980 - 1981 Professor, Department of Marine Science & Engineering, NCSU, and department Director of Graduate Programs
1981 - present Professor, Department of Marine, Earth & Atmospheric Sciences, NCSU and department Director of Graduate Programs

COURSES TAUGHT:

Environmental Fluid Mechanics (Graduate)

Compressible Flow (Graduate)
Physical Limnology (Graduate)
Geophysical Fluid Mechanics (Graduate)
Introduction to Physical Oceanography (Graduate)
Perturbation Methods (Graduate)

GRADUATE STUDENTS WITH COMPLETED DEGREES (Chaired or Co-Chaired)

MS : 10 . PhD: 11

RESEARCH INTERESTS:

Geophysical fluid mechanics including the motion of bodies through stratified fluids, coastal flow in lakes, the effects of stratification, topography, and bottom friction on flow in the beta plane, shelf and basin circulation, mixed layer dynamics, estuarine dynamics and biophysical interactions.

PROFESSIONAL SOCIETIES:

Member of Sigma Xi, Tau Beta Pi, the American Geophysical Union, and the American Society of Limnology and Oceanography

RESEARCH FUNDING: (Co-Pis in parentheses)

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| 1970 - 1971 | NSF "The coastal boundary layers in a large lake." |
| 1972 - 1976 | NSF "The flow of stably stratified fluids." |
| 1976 - 1978 | NSF "The flow of stably stratified fluids." |
| 1978 - 1980 | NOAA-Sea Grant "Physical Studies of Pamlico Sound." (L. Pietrafesa and R. Weisberg) |
| 1980 - 1982 | NSF "Stratified flows over obstacles." |
| 1983- 1986 | NSF "Numerical Calculations of stratified flow over obstacles." (V. Lamb) |
| 1988-1990 | EPA Albermarle-Pamlico Sounds Coupling Study. (L., Pietrafesa) |
| 1990-1994 | NSF "On the dynamics of the Columbia River Plume." (L. Pietrafesa) |
| 1992-1994 | NSF "The application of a real-time biophysical model of phytoplankton photoacclimation in the upper ocean sea." (D. Kamykowski) |
| 1993-1994 | NOAA-SeaGrant "Oceanographic processes affecting larval transport in coastal plain estuaries."(L.Pietrafesa) |
| 1993-1998 | NASA "The influence of vertical mixing on SeaWIFS |

- algorithms."(D.Kamykowski and J. Morrison)
- 1999-2001 Florida Department of Environmental Protection. (Routed from EPA)ECO HAB: Florida - Behavior and small-scale biophysical. Modeling.(D.Kamykowski)
- 2000-2002 NCSU Botany Dept (Routed from EPA and NC Appropriation ECO HAB:Pfiesteria - Pfiesteria Chemotaxis.(D.Kamykowski)
- 2001-2005 NOAA. Laboratory numerical modeling of Gymnodinium Breve behaviour to aid in predicting natural bloom events. (D.Kamykowski)
- 2006-2007 EPA. Behaving drifters as Gymnodinium Kamykowski and T. Wolcott)
- 2007-2010 NSF Benthic Dinoflagellate Migration(D.Kamykowski,J.Morrison C. Thomas)
- 2008-2009 Santee Cooper. Scopal Coastal Renewable Energy Sources(Pietrafesa)

JOURNAL ARTICLES:

- 1964 Fox, H. Libby P,A., and G.S. Janowitz . Eigenvalues for the Equation of Species Conservation with Heterogeneous Reaction, AIAA Journal, Vol. 2, Number 10, October.
- 1965 Janowitz, G.S. and P.A. Libby . The Effect of Variable Transport Properties on a Dissociated Boundary Layer with Surface Reaction, International Journal of Heat and Mass Transfer, Vol. 8.
- 1968 Janowitz, G.S., On Wakes in Stratified Fluids, Journal Fluid Mechanics, Vol. 33, Part 3.
- 1970 Janowitz, G.S., The Coastal Boundary Layers of a Lake when Horizontal and Vertical Ekman Numbers are of Different Orders of Magnitude. Tellus, Vo. 22, Part 6.
- 1971 Janowitz, G.S., The Slow Transverse Motion of a Flat Plate through an Unbounded Stratified Fluid, Journal of Fluid Mechanics, Vol. 47, Part 1.
- 1972 Janowitz, G.S., The Effect of Finite Vertical Ekman Number on the Coastal Boundary Layers of a Lake, Tellus, Vol. 24, Part 5.
- 1973 Janowitz, G.S., Unbounded Stratified Flow over a Vertical Barrier, Journal of Fluid Mechanics, Vol. 58, Part 2.

- 1974 Janowitz, G.S., Blocking in Slow Stratified Flows, J. Geophys. R. Vol. 79, No. 9
- 1974 Janowitz, G.S., Line Singularities in Unbounded Stratified Flows, J. Fluid Mech., Vol. 66, Part 3.
- 1975 Janowitz, G.S., The Effect of Bottom Topography on a Stratified Flow in the Beta Plane, J. Geophys. R., Vol., 80, No. 30.
- 1977 Stevenson, J. W. and G.S. Janowitz, The Effect of Ekman Suction on a Flow over a Shallow Topography in the Beta Plane, Dyn. of Atm. and Oceans, Vol. 1, 2225-239.
- 1977 Chaturvedi, S. K., and G.S. Janowitz, Stratified Non-diffusive Flow over a Horizontal Flat Plate, J. Fluid Mech., Vol. 80, Part 3.
- 1977 Janowitz, G.S., The Barotropic Rossby Wave Drag Due to an Isolated Topography, J. Atmos. Sci., Vol. 34, No. 5.
- 1977 Janowitz, G.S., The Effects of Compressibility on the Stably Stratified Flow over a Shallow Topography in the Beta Plane; Journal of Atmospheric Science, Vol. 3, No. 11.
- 1978 Rooney, D. M. , G.S. Janowitz and L.J. Pietrafesa, A Simple Model of Deflection of the Gulf Stream by the Charleston Rise; Gulfstream, Vol. IV, No. 11.
- 1979 Rooney, D. M., and G.S. Janowitz Flow Over the Rockies and Andes Mountains, Journal of Atmospheric Science, Vol. 36, No. 4.
- 1979 Chao, S. Y. , L.J. Pietrafesa, and G.S. Janowitz, Scattering of Continental Shelf Waves by an Isolated Topographic Feature; Journal of Physical Oceanography, Vol. 9, No. 4.
- 1979 Pietrafesa, L. J., and G. S. Janowitz, On the Effects of Buoyancy Flux on Continental Shelf Circulation; Journal of Physical Oceanography, Vol. 9, No. 5, 1979.
- 1979 Chao, S. Y. , and G.S. Janowitz , The Effect of an Isolated Topographic Irregularity on the Flow along a Continental Margin, Journal of Physical Oceanography, Vol. 9 No. 5.

- 1980 Janowitz, G.S., and L.J. Pietrafesa, A Model and Observations of Time Dependent Upwelling, Journal of Physical Oceanography, Vol. 10, No. 10.
- 1980 Pietrafesa, L. J., and G.S. Janowitz, On the dynamic of the Gulf Stream front in the Carolina Capes. In Stratified Flows ppg. 184-1987, Tapin Publishing Co.
- 1981 Klinck, J. M., L.J. Pietrafesa, and G.S. Janowitz, Continental Shelf Circulation Induced by a Moving Localized Wind Stress. Journal of Physical Oceanography, Vol. 11, No. 6.
- 1981 Janowitz, G.S., Stratified Flow over a Bounded Obstacle in a Channel of Finite Height, Journal of Fluid Mechanics, Vol. 110, Part 1.
- 1982 Janowitz, G.S., and L. J. Pietrafesa, The Effects of Alongshore Variation in Bottom Topography on a Boundary Current, or, Topographically Induced Upwelling. Continental Shelf Research, Vol. 1, No. 2.
- 1984 Janowitz, G.S., Lee waves in three-dimensional stratified flow. Journal of Fluid Mechanics, Vol. 148, 97-108.
- 1985 Lamb, V., and G. S. Janowitz, Shallow rotating flow over an isolated obstacle. Journal of Fluid Mechanics, Vol. 158.
- 1985 Pietrafesa, L. J., G.S. Janowitz, and P. Wittman, Physical Processes in the Carolina Capes. Coastal and Engineering Sciences, Vol. 2, 23-32. AGU.
- 1986 Janowitz, G.S., A surface density and wind driven model of the thermocline. J. Geophysical Res., Vol. 91, No. C4, 5111-5118.
- 1986 Pietrafesa, L. J., G.S. Janowitz, J.M. Miller, E.B. Noble, S. W. Ross, and S.P. Epperly, Abiotic factors influencing the spatial and temporal variability of juvenile fish in Pamlico Sound, N.C. in Estuarine Variability, 341-353. Academic press.
- 1987 Zhang, Q. H., G. S. Janowitz, and L. J. Pietrafesa, The interaction of estuarine and shelf waters: a model and applications. J. Physical Oceanography. Vol. 17, 455-469.
- 1988 Pietrafesa, L.J., and G.S. Janowitz, Physical Oceanographic Processes Affecting Larval Transport Around and Through North Carolina Inlets. Transactions of the American Fisheries Society 3: 34-50.

- 1989 Askari, F. , L.J. Pietrafesa, and G.S. Janowitz, Three dimensional circulation in a cusped bay. Continental Shelf Research, Vol. 9, 497-526.
- 1989 Janowitz , G.S., The role of surface density in subtropical gyre circulation. Journal of Fluid Mechanics, Vol. 209, 227-247.
- 1991 Janowitz , G.S., and D. Kamykowski, An Eulerian model of phytoplankton photosynthetic response in the upper mixed layer. J. Plankton Research, Vol. 13, No. 5, 983-1002.
- 1992 Janowitz , G.S., Geophysical Fluid Mechanics. In Encyclopedia of Earth System Sciences. Vol. 2, Academic Press, 319-327.
- 1994 Kamykowski, D. , H. Yamazaki, and G.S. Janowitz,. A Lagrangian model of phytoplankton photosynthetic response in the upper mixed layer. J. Plankton Research. Vol. 16, No. 8, 1059-1069.
- 1996 Janowitz , G.S., and L.J. Pietrafesa, Subtidal frequency fluctuations in coastal sea level in the mid and south Atlantic bight: A prognostic for coastal flooding. J. Coastal Research Vol.12,No.1, 79-89.
- 1996 Lin,T.A., Y.-L.Lin, F.M. Semazzi, and G.S. Janowitz, Response of a stably stratified atmosphere to large scale diabatic forcing with applications to wind patterns in Brazil and the Sahel. J. Geophysical Res.,101, 7049-7073.
- 1996 Kamykowski, D., G.S. Janowitz, G.J. Kirkpatrick, and R.E.Reed, A study of time-dependent primary productivity in a natural upper-ocean mixed layer using a biophysical model. J. Plankton Res., 18, 1295-1322.
- 1996 Liu,G., G.S. Janowitz, and D. Kamykowski. A model of the effects of horizontal density gradients on mixing processes in the oceanic surface layer J. Geophysical Res., 101, 12,193-12,208.
- 1997 Pietrafesa, L.J., L. Xie, J. Morrison, G.S. Janowitz, J. Pelissier, K. Keeter,. And R.A Neuherz. Numerical modelling and computer visualization of the Storm surge in and around the Croatan-Albemarle-Pamlico Estuary system Produced by Hurricane Emily of August 1993. Mausam, 4, 567-578.
- 1998 Driscoll, E.A., G.S.Janowitz, and L.J.Pietrafesa, Baroclinically driven estuarine flow: A perturbation approach. J. Geophysical Res., 103, 27893-27,903.

- 1999 Janowitz, G.S., and D. Kamykowski, An extended Eulerian model of phytoplankton environmental response. Ecological Modelling, 118, 237-247.
- 2001 Liu, G., G.S. Janowitz, and D. Kamykowski. A biophysical model population dynamics of the autotrophic dinoflagellate *Gymnodinium breve*. Marine Ecology Progress Series, 210, 101-124.
- 2001 Liu, G., G.S. Janowitz, and D. Kamykowski. Influence of environmental nutrient conditions on *Gymnodinium breve* (Dinophyceae) population dynamics: a numerical study. Marine Ecology Progress Series, 213, 13-37.
- 2002 Liu, G., G. S. Janowitz, D. Kamykowski: Influence of current shear on *Gymnodinium breve* (Dinophyceae) population dynamics: a numerical study. Marine Ecology Progress Series, 231, 47-66.
- 2004 Burkholder J., D. Eggleston, H. Glasgow, C. Brownie, R. Reed, G. Janowitz, M. Posey, G. Melia, C. Kinder, R. Corbett, D. Toms, T. Alphin, N. Deamer, and J. Springer. Comparative Impacts of Two Major Hurricane Seasons on the Neuse River and Western Pamlico Sound Ecosystems. Proceedings of the National Academy of Science. 101, 9291-9296,
- 2006 Janowitz, G.S. and D. Kamykowski Modeled *Karenia Brevis* accumulation in the vicinity of a coastal nutrient front. . Marine Ecology Progress Series, 314, 40-59.
- 2007 Stout, J. E. and G. S. Janowitz. Particle trajectories above sinusoidal terrain. Q. J. R. Meteorol. Soc. 123A, 1829-1840.
- 2007 Wu, T.S., G.S. Janowitz, W.R. Huang, S.C. McCutcheon. Test case 8: A three step procedure to check the non-linear effects in tidal circulation in harbors. Chapter 3.9 in Verification and Validation of 3 D Free-surface Models. ASCE monograph.
- 2008 Janowitz, G.S., D. Kamykowski, and G. Liu. A Three Dimensional Wind and Behaviorally Driven Population Dynamics Model for *Karenia brevis*. Continental Shelf Research, Volume 28,1, 177-188.

