

JOHN A. WHITEHEAD

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Date of Birth: April 21, 1941

B.S., Tufts University, 1963, M.S., Yale University, 1965, Ph.D., 1968

SCIENTIFIC INTERESTS:

Geophysical Fluid Dynamics: analytical and laboratory studies of fluid mechanics problems in oceans, atmospheres, and planetary interiors.

HONORS

American Society of Mechanical Engineers "Old Guard" Undergraduate Research Project Competition, Division I Winner (Northeast United States) 1963.

Senior Postdoctoral Fellowship, Advanced Study Program, National Center for Atmospheric Research, Boulder, Colorado, Dec. 1, 1977 - June 15, 1978.

John Simon Guggenheim Memorial Fellow, Department of Applied Mathematics and Theoretical Physics, University of Cambridge, England, 1982-83.

Fellow, American Physical Society, 1982.

Fellow, American Geophysical Union, 1997

Alumni Achievement Award, Department of Mechanical Engineering, Tufts University, 1999

Fellow, American Academy of Arts and Sciences, 2002

Fellow, American Meteorological Society, 2007

Henry M. Stommel Research Award, American Meteorological Society, 2007.

PUBLICATIONS (approx 5000 citations)

Many pdf copies are available in the publications section of my personal site
(<http://www.whoi.edu/hpb/Site.do?id=2553>)

Chen, Michael M. and John A. Whitehead, 1968. Evolution of two-dimensional periodic Rayleigh convection cells of arbitrary wave-numbers. *Journal of Fluid Mechanics*, 31(1), 1--15.

Schubert, G. and J. A. Whitehead, 1969. Moving flame experiment with liquid mercury: possible implications for the Venus atmosphere. *Science*, 163, 71--72.

Newell, A. C. and J. A. Whitehead, 1969. Finite bandwidth, finite amplitude convection. *Journal of Fluid Mechanics*, 38, 279--303.

Howard, L. N., W. V. R. Malkus and J. A. Whitehead, 1970. Self-convection of floating heat sources: a model for continental drift. *Geophysical Fluid Dynamics*, 1, 123--142.

Whitehead, J. A. and Michael M. Chen, 1970. Thermal instability and convection of a thin fluid layer bounded by a stably stratified region. *Journal of Fluid Mechanics*, 40, 549--576.

Busse, F. H. and J. A. Whitehead, 1971. Instabilities of convection rolls in a high Prandtl number fluid. *Journal of Fluid Mechanics*, 47, 305--320.

Whitehead, J. A., 1971. Upon boundary conditions imposed by a stratified fluid. *Geophysical Fluid Dynamics*, 2, 289-298.

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Newell, A. C. and J. A. Whitehead, 1971. Review of the finite bandwidth concept. In: *Instability of Continuous Systems*, H. Leipholz, editor, Springer-Verlag, New York; pp. 284--289.

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Whitehead, J. A., 1972. Moving heaters as a model of continental drift. *Physics of the Earth and Planetary Interiors*, 5, 199--212.

Whitehead, John A., Jr., 1973. Observations of the dynamics of Rayleigh-Benard convection. *Proceedings of the 13th International Congress of Theoretical and Applied Mechanics*, Izdatel'stvo 'Nauka', Moscow, U.S.S.R. (in Russian).

Whitehead, J. A., A. Leetmaa and R. A. Knox, 1974. Rotating hydraulics of strait and sill flows. *Geophysical Fluid Dynamics*, 6, 101--125.

Whitehead, J. A. and Roger F. Gans, 1974. A new, theoretically tractable earthquake model. *Geophysical Journal of the Royal Astronomical Society*, 39, 11--28.

Busse, F. H. and J. A. Whitehead, 1974. Oscillatory and collective instabilities in large Prandtl number convection. *Journal of Fluid Mechanics*, 66, 67--80.

Whitehead, John A., Jr., and Douglas S. Luther, 1975. Dynamics of laboratory diapir and plume models. *Journal of Geophysical Research*, 80, 705--717.

Whitehead, John A., Jr., 1975. Mean flow generated by circulation on a β -plane: An analogy with the moving flame experiment. *Tellus*, 27(4), 358--364.

Bye, John A. T. and John A. Whitehead, Jr., 1975. A theoretical model of the flow in the mouth of Spencer Gulf, South Australia. *Estuarine and Coastal Marine Science*, 3, 477--481.

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Whitehead, J. A., Jr., 1976. The propagation of dislocations in Rayleigh-Benard rolls and bimodal flow. *Journal of Fluid Mechanics*, 75, 715--720.

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Skilbeck, John N. and John A. Whitehead, Jr., 1978. Formation of discrete islands in linear island chains. *Nature*, 272(5653), 499--501.

Members of Committee on Geodesy, 1978. *Geodesy: Trends and Prospects*, National Research Council; author of Chapters 3.3, Ocean Dynamics, pp. 25--27 and 5.2, Ocean Instrumentation, pp. 62--65; National Academy of Sciences, Washington, D.C., 86 pp.

Whitehead, J. A., Jr., 1978. Problems in determining sea surface topography. *Proceedings of the Ninth GEOP (Geodesy/Solid-Earth and Ocean Physics) Research Conference, An International Symposium on the Applications of Geodesy to Geodynamics*, Oct. 2--5, 1978, Dept. of Geodetic Science Report No. 280, The Ohio State University, Columbus, OH; pp. 233--236.

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Stern, Melvin E., John A. Whitehead and Bach-Lien Hua, 1982. The intrusion of a density current along the coast of a rotating fluid. *Journal of Fluid Mechanics*, 123, 237--265.

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- Grimshaw, R.H.J., Karl R. Helfrich and J.A. Whitehead, 1992. Conduit solitary waves in a visco-elastic medium. *Geophysical and Astrophysical Fluid Dynamics* 65, 127-147.
- Hart, S. R., E. H. Hauri, L. A. Oschmann, and J. A. Whitehead, 1992. Mantle plumes and entrainment: Isotopic Evidence. *Science* 256, 517-520.
- Hunkins, Kenneth, and J. A. Whitehead, 1992. Laboratory simulation of exchange through Fram Strait. *Journal of Geophysical Research*, 97, 11299-11321.

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