

VITAE Isaac M. Held

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Date of Birth: October 23, 1948

Education:

1969 B.S. University of Minnesota

1971 M.A. State University of New York at Stony Brook (Physics)

1976 Ph.D. Princeton University, Atmospheric and Oceanic Sciences Program (then called Geophysical Fluid Dynamics Program)

Employment:

1976-1978: Research Fellow in Climate, Harvard University

1978-2019: NOAA/GFDL

Research Scientist, Senior Research Scientist, then Senior Research Scientist for GFDL

Retired as of Jan 2019

Princeton University

- Lecturer AOS Program, 1978-2018, with rank of Professor 1986-2018, currently Senior Meteorologist in Atmospheric and Oceanic Sciences
- Associate Faculty, Princeton Environmental Institute, Princeton, since 1998.
- Associate Faculty, Program in Applied and Computational Mathematics, Princeton, since 1999

Most Significant Awards and Honors:

- Distinguished Authorship Awards, NOAA, 1984, 1994, 2001, 2008
- Meisinger Award, American Meteorological Society, 1987, *for outstanding contributions to the study of climate dynamics through studies of energy balances and wave dynamics*
- Fellow, American Meteorological Society, 1991
- Rosenstiel Award, University of Miami, 1994, *for breadth and incisiveness in attacking fundamental problems in geophysical fluid dynamics, the general circulation of the atmosphere, and climate dynamics*
- Fellow, American Geophysical Union, 1995, *for extraordinary research advances in fundamental geophysical fluid dynamics, in the general circulation of the atmosphere, and in the dynamics of climate.*
- Bernhard Haurwitz Memorial Lecturer, American Meteorological Society, 1999
- Department of Commerce Gold Medal, 1999, *for world leadership in studies of climate dynamics and climate change*
- National Academy of Sciences, 2003.
- NOAA Presidential Rank Award, 2005, *for his fundamental contribution to understanding and modeling the Earth's weather and climate*

- NOAA's Administrator's Award, 2008, *for outstanding dedication to developing the U.S. CCSP Synthesis and Assessment Products integrating climate research for decision support*
- Rossby Medal, American Meteorological Society, 2008, *for fundamental insights into the dynamics of the earth's climate through studies of idealized models and comprehensive climate simulations*
- NOAA Distinguished Presidential Rank Award for Senior Professionals, 2010. *His achievement, hard work, and dedication distinguish him as an extraordinary example of professionalism and achievement in government*
- Department of Commerce Gold Medal, 2011, *for excellence in research and data stewardship, leading to a more confident assessment of the influence of human-induced climate change on hurricanes.*
- BBVA Foundation Frontiers of Science Award for Climate Change Research, 2012, *for pioneering and fundamental contributions to our understanding of atmospheric circulation and the role of water in climate change*
- Bjerknes Lecturer, American Geophysical Union, 2016
- Revelle Medal, American Geophysical Union, 2018

Major Past Committees and Panels

- National Research Council, Board on Atmospheric Sciences and Climate, Climate Research Committee, Member, 1983-1986.
- Associate Editor, Journal of the Atmospheric Sciences, 1979 to 1987.
- Editor, Journal of the Atmospheric Sciences, 1987-1990.
- Committee on Waves and Stability of the American Meteorological Society; Member, 1986, Chairman, 1987-88.
- Chairman of Organizing Committee, Waves and Stability Conference of the American Meteorological Society, 1989.
- Member, Board on Atmospheric Sciences and Climate of the National Research Council, 1992-1993 and 2008-2009
- Member, NSF/NCAR CCSM Advisory Board, 2005-2010, Chair 2010-2013.
- Member, Advisory Board for Max Planck Institute for Meteorology, Hamburg, 2008-2011
- Member, NAS Advisory Committee for Koshland Science Museum Climate Exhibit, 2008-2010
- Lead Author, Regional Climate Projections, 4th Assessment Report of Intergovernmental Panel on Climate Change, 2004-2006.
- Co-author, USGCRP Synthesis and Assessment Product 3.1: Climate Models, an Assessment of Strengths and Limitations. 2008.
- Member, National Research Council Committee on Stabilization Targets for Greenhouse Gases, 2009-2010.
- Review Editor, 5th Assessment Report of the Intergovernmental Panel on Climate Change, 2011-2013

- Member, Advisory Board, Virtual Earth System Research Institute, Schmidt Futures, 2019-present
- Editor, Journal of Climate, 2019-present

Publications: <http://scholar.google.com/citations?user=QR3vI5IAAAAJ&hl=en>

Research Topics:

- Atmospheric and Oceanic Fluid Dynamics
- Geophysical Turbulence
- Numerical Modeling of the Atmosphere and the Climate
- Climate change

More than 190 publications; More than 175 in peer-reviewed journals;

H index: Google Scholar H = 87; Web of Science H = 73;

Some key papers illustrative of spectrum of research;

IM Held, AY Hou, 1980: **Nonlinear axially symmetric circulations in a nearly inviscid atmosphere**, *Journal of the Atmospheric Sciences* 37 (3), 515-533, 1980

IM Held, 1983: **Stationary and quasi-stationary eddies in the extratropical troposphere: Theory**. *Large-scale dynamical processes in the atmosphere* (A 84-15488 04-47). London, Academic Press

IM Held, BJ Soden, 2006: **Robust responses of the hydrological cycle to global warming**. *Journal of Climate* 19 (21), 5686-5699.

IM Held, MJ Suarez, 1994: **A proposal for the intercomparison of the dynamical cores of atmospheric general circulation models**. *Bulletin of the American Meteorological Society* 75 (10), 1825-1830

J Neelin, IM Held, 1987: **Modeling tropical convergence based on the moist static energy budget**. *Monthly Weather Review* 115 (1), 3-12.

IM Held, VD Larichev, 1996: **A Scaling Theory for Horizontally Homogeneous, Baroclinically Unstable Flow on a Beta Plane**. *Journal of the Atmospheric Sciences* 53 (7) 946-952.

IM Held, RS Hemler, V Ramaswamy, 1993: **Radiative-convective equilibrium with explicit two-dimensional moist convection**. *Journal of the Atmospheric Sciences* 50 (23), 3909-3927.

M Zhao, IM Held, SJ Lin, GA Vecchi, 2009: **Simulations of global hurricane climatology, interannual variability, and response to global warming using a 50-km resolution GCM** *Journal of Climate* 22 (24), 6653-6678.

IM Held, TL Delworth, J Lu, KL Findell, TR Knutson, 2005: **Simulation of Sahel drought in the 20th and 21st centuries**. *Proceedings of the National Academy of Sciences*, 102 (50) 17891-17896

IM Held, RT Pierrehumbert, ST Garner, KL Swanson, 1995: **Surface quasi-geostrophic dynamics**. *Journal of Fluid Mechanics* 282, 1-20.

IM Held, M Winton, K Takahashi, T Delworth, F Zeng, GK Vallis, 2010: **Probing the fast and slow components of global warming by returning abruptly to preindustrial forcing**. *Journal of Climate* 23 (9), 2418-2427.

W Randel, IM Held, 1991: **Phase speed spectra of transient eddy fluxes and critical layer absorption**. *Journal of the Atmospheric Sciences* 48 (5), 688-697, 1991

S Lee, IM Held, 1993: **Baroclinic wave packets in models and observations.** *Journal of the Atmospheric Sciences* 50 (10), 1413-1428, 1993

IM Held, 1982: **On the height of the tropopause and the static stability of the troposphere** *Journal of the Atmospheric Sciences* 39 (2), 412-417.

O Pauluis, IM Held, 2002: **Entropy budget of an atmosphere in radiative–convective equilibrium. Part I: Maximum work and frictional dissipation** *Journal of the Atmospheric Sciences* 59 (2), 125-139.

IM Held, 2001: **The partitioning of the poleward energy transport between the tropical ocean and atmosphere.** *Journal of the Atmospheric Sciences* 58 (8), 943-948.

S Nigam, IM Held, SW Lyons, 1988: **Linear simulation of the stationary eddies in a GCM. Part II: The “mountain” model.** *Journal of the Atmospheric Sciences* 45 (9), 1433-1452.

IM Held, RL Panetta, RT Pierrehumbert, 1985: **Stationary external Rossby waves in vertical shear.** *Journal of the Atmospheric Sciences* 42 (9), 865-883, 1985

IM Held, KM Shell, 2012: **Using relative humidity as a state variable in climate feedback analysis.** *Journal of Climate* 25 (8), 2578-2582, 2012

G Chen, IM Held, 2007: **Phase speed spectra and the recent poleward shift of Southern Hemisphere surface westerlies.** *Geophysical Research Letters* 34 (21) L21805, doi:10.1029/2007GL031200, 2007