

# Raymond T. Pierrehumbert,FRS

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Atmospheric, Oceanic and Planetary Physics  
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RESEARCH INTERESTS      Physics of climate, especially regarding the long term evolution of the climates of solar system and extrasolar planets. Earth climate physics: paleoclimate and global change. Hydrodynamic stability. Hamiltonian chaos and fluid mixing.

EDUCATION      ◇ **Massachusetts Institute of Technology**, Cambridge, MA  
Ph.D. March, 1980 (Dept. of Aeronautics and Astronautics)  
◇ **University of Cambridge** Cambridge, England  
Knox Fellow, 1976-1977 (Dept. of Applied Mathematics and Theoretical Physics)  
◇ **Harvard College**, Cambridge, MA  
A.B. Magna cum Laude in Physics June, 1975

POSITIONS AND FELLOWSHIPS      ◇ **Halley Professor of Physics** University of Oxford, 2015-present  
◇ **Professorial Fellow** Jesus College, Oxford, 2015-present  
◇ **Kung Karl XVI Gustaf Professorship** (sabbatical appointment), Stockholm 2014-2015  
◇ **Louis Block Professor** University of Chicago, 2005-2015  
◇ **Professor in Geophysical Sciences** University of Chicago, 1989-2015  
◇ **Directeur de Recherche** Ecole Polytechnique, France (2003-2004, sabbatical appointment)  
◇ **John Simon Guggenheim Fellow** Laboratoire de Meteorologie Dynamique, Ecole Normale Supérieure, Paris. 1996/1997 (sabbatical visit)  
◇ **Professor of Geology and Geophysics** Princeton University 1988-1989  
◇ **Guest Investigator** Stockholms Universitet, Meteorologiska Institutionen 1987/1988 (sabbatical appointment)  
◇ **Research Scientist** Geophysical Fluid Dynamics Laboratory/NOAA. 1982-1988.  
Concurrent appointments at Princeton University: Visiting Lecturer with Rank of Associate Professor (Atmospheric & Oceanic Sciences Program), Affiliated Faculty Member, Applied & Computational Mathematics Program.  
◇ **Assistant Professor of Meteorology** Massachusetts Institute of Technology, 1980-1982

HONORS      ◇ **John Simon Guggenheim Fellowship**  
◇ **Fellow, American Geophysical Union**  
◇ **Chevalier de l'Ordre des Palmes Academiques**  
◇ **Kung Karl XVI Gustaf Professorship**  
◇ **Fellow, American Academy of Arts and Sciences**

- ◇ **PhD. *honoris causa*, Stockholms University**
- ◇ **Fellow, Royal Society of London**
- ◇ **Royal Society Rumford Medal 2022**

SELECTED  
PROFES-  
SIONAL  
ACTIVITIES

- ◇ Scientific Advisory Board, Bolin Center for Climate Research, Stockholm; 2015-2020
- ◇ Science and Security Board, *Bulletin of the Atomic Scientists*
- ◇ Editorial board, *Annual Reviews of Earth and Planetary Science* 2012-2017
- ◇ Lead organizer *UK Exoplanets Community Meeting 2018*, Oxford
- ◇ Lead organizer *Exoclimes 2019*, Oxford; Co-organizer *Exoclimes 2012*, Aspen, CO, *Exoclimes 2014*, Davos, CH and *Exoclimes 2016*, Vancouver, BC.
- ◇ Co-author National Research Council Report on Climate Intervention
- ◇ Co-author National Research Council Report on Climate Stabilization Targets
- ◇ Member, National Research Council Board on Atmospheric Science and Climate, 2009-2014
- ◇ Member, City of Chicago Mayor's Task Force on Climate Change, 2007-2008
- ◇ Co-organizer, 2008 Kavli Institute of Theoretical Physics Program on Physics of Climate.
- ◇ Lead Author, Intergovernmental Panel on Climate Change (IPCC) Third Assessment Report (1997-2001)
- ◇ Member, National Research Council Panel on Abrupt Climate Change and its Societal Impacts (2000-2001).
- ◇ Editor, *Journal of the Atmospheric Sciences* (1988-1991)

PHD  
STUDENTS

- ◇ **B. Reinhold** (PhD, MIT 1981) Dynamics of Weather Regimes: Quasi-Stationary Waves & Blocking
- ◇ **D. Dritschel** (PhD, Princeton 1984) The Stability of Certain two dimensional and three dimensional Vortical Motions
- ◇ **J. Bacmeister** (Princeton GFD program, PhD 1987) Nonlinearity in Transient two dimensional flow over topography.
- ◇ **B. Carissimo** (Princeton GFD program, PhD Aug. 1987) Observation and modelling of drag during transient airflow over mountains
- ◇ **F. Parham** (Princeton Appl. Math. PhD. June 1988) Rossby wave critical levels in a baroclinic atmosphere.
- ◇ **S. Lin** (Princeton GFD program, PhD. July 1988) The instability mechanism of synoptic scale eddies
- ◇ **K. Lamb** (Princeton Appl. Math, PhD. July 1988) Nonlinear gravity wave critical levels
- ◇ **M. Dahleh** (Princeton Appl. Math 1989) Subject: Discrete vortex methods on the beta plane
- ◇ **J. Anderson** (Princeton GFD program 1989, jointly advised with Isaac Held) Subject: Numerical methods for large non Hermitian eigenvalue problems
- ◇ **Kyle Swanson** (U. of C. Geophysical Sciences, Ph.D 1995) Subject: Storm tracks and low frequency variability
- ◇ **Stefanella Boatto** (U. of C. Physics, Ph.D 1995) Subject: Chaotic mixing by aperiodic flows.
- ◇ **Yongyun Hu** (U. of C. Geophysical Sciences PhD 2001) Subject: Atmospheric stirring and mixing.
- ◇ **Hui Zhang** (U. of C. Geophysical Sciences PhD 2002) Tropical upper tropospheric water vapor distribution.

- ◇ **Jai Sukhatme** (U. of C. Geophysical Sciences PhD 2003) Subject: Multifractal and stochastic models in geophysics
- ◇ **Jude Sabado** (U.of C.Geophysical Sciences PhD 2006) Subject: Baroclinic instability on Early Mars
- ◇ **Jonathan Mitchell** (U. of C. Astrophysics PhD 2007) Subject: Climate Dynamics of Titan
- ◇ **Ian N. Williams** (U. of C. Geophysical Sciences PhD 2011) Subject: Tropical convection and Climate Sensitivity
- ◇ **Dawei Li** (U. of C. Geophysical Sciences PhD 2015) Subject: Sea glaciers and neoproterozoic climate
- ◇ **Feng Ding** (U. of C. Geophysical Sciences PhD 2017) Subject: GCM modeling of exoplanet climates
- ◇ **Andrew Malone** (co-supervised) (U. of C. Geophysical Sciences PhD 2017) Subject: Mountain glaciers as climate proxies
- ◇ **Jonah Bloch-Johnson** (co-supervised) (U. of C. Geophysical Sciences PhD 2018) Subject: Bifurcations and climate sensitivity
- ◇ **Mark Hammond** (Oxford DPhil 2019 ) Subject: Atmospheric dynamics of tide-locked exoplanets
- ◇ **Claudia Jones** (Oxford DPhil, Oxford DPhil 2020) Subject: Climate of the Devonian: implications for evolution of tetrapods
- ◇ **RJ Graham** (Oxford DPhil, in progress) Subject: Silicate weathering controls on the habitable zone
- ◇ **Ryan Boukrouche** (Oxford DPhil, in progress) Subject: Modeling the runaway greenhouse
- ◇ **Sarah Blumenthal, Hamish Innes, Namrah Habib, Richard Chatterjee** (Oxford DPhil, in progress) Subject: Exoplanet climate
- ◇ **Edward Derby** (Oxford DPhil, in progress) Subject: Seasonal cycle of Arctic sea ice
- ◇ **Harrison Nichols** (Oxford DPhil, in progress) Subject: Exoplanet atmospheric chemistry

POSTDOCS  
MENTORED

- ◇ **Huijun Yang, Keith Ngan, Chris Poulsen, Gilles DeLaygue, Jason Goodman, Rodrigo Caballero, Johnny Lin, Christian Dieterich, Yannick Donnadieu, Helene Brogniez, Dargan Frierson, David McInerney, Dorian Abbot, Jung-Eun Lee, Robin Wordsworth, Elspeth Lee, John Lynch, Tim Lichtenberg** (Simons Fellow), **Shami Tsai, Maxence LeFevre, Xianyu Tan, Sarah Rugheimer** (Glasstone Fellow)

SELECTED  
INVITED  
LECTURES

- ◇ Haldane Lecture, Wolfson College, University of Oxford (2017)
- ◇ Lobanov-Rostovsky Lecture, University of Oxford (2016)
- ◇ Distinguished Planetary Science Lecturer, Bern University (2014)
- ◇ Tyndall Lecture, American Geophysical Fall Meeting (2012)
- ◇ Distinguished Atmospheric Science Lecturer, Beijing University (2012)
- ◇ Invited lecturer, Swedish Royal Academy Bolin Symposium (2012)
- ◇ University Lecturer, Cornell University (2012)
- ◇ Niels Bohr Lecture, Copenhagen University (2011)
- ◇ Fairchild Lecture, University of Rochester (2010)
- ◇ Noble Lecturer, University of Toronto (Toronto, 2010)
- ◇ Invited lecturer, Vatican study group on astrobiology (Rome, 2009)
- ◇ Halley Lecture (Oxford University, 2009)
- ◇ Kibbe lecture (Bowdoin College, 2008)

*Raymond T. Pierrehumbert,FRS*

- ◇ **Berkeley Distinguished Atmospheric Science Lecture** (Berkeley, 2008)
- ◇ **Aggasiz Lectures** (Harvard, 2008)
- ◇ **Thompson Lectures** (National Center for Atmospheric Research, 2008)
- ◇ **"Low Order Models"** Invited lecture at The Lorenz Symposium (MIT, Dec. 1987)