BIOGRAPHICAL SKETCH

Timothy J. Dunkerton
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PROFESSIONAL PREPARATION

- B.S., Physics, Iowa State University, 1976.
- Ph.D., Atmospheric Sciences, University of Washington, 1980.

EMPLOYMENT HISTORY

- Postdoctoral Research Associate, University of Washington,1980-1981.
- Postdoctoral Research Associate, National Center for Atmospheric Research,1981-1982.
- Research Scientist, Physical Dynamics ,1982-1986.
- Senior Research Scientist, NorthWest Research Associates, 1986-present.

RESEARCH TOPICS

- Arctic oscillation, stratosphere-troposphere coupling, sudden warmings
- Breaking planetary waves in the stratosphere and mesosphere
- Circulation of the tropical troposphere, stratosphere, and mesosphere
- Climate trends and decadal variability in the troposphere and middle atmosphere
- Divergent barotropic instability, equatorial inertial instability, tropical waves
- Excitation, transmission, and breakdown of inertia-gravity waves
- Hadley circulation, monsoon circulations, tropical intraseasonal oscillation
- Lagrangian mean theory, mean meridional circulations, mixing diagnostics
- Quasi-biennial oscillation, stratopause and mesopause semiannual oscillations
- Stratosphere-troposphere exchange, interhemispheric transport
- Transport and variability of ozone and long-lived trace constituents
- Tropical cyclogenesis, intensification processes and air-sea coupling
- Water vapor in the upper troposphere and lower stratosphere

RECENT PUBLICATIONS

- Sato, K. and T.J. Dunkerton, 2002: Layered structure associated with low potential vorticity near the tropopause seen in high-resolution radiosondes over Japan. *J. Atmos. Sci., 59*, 2782-2800.
- Baldwin, M.P. et al., 2003: Stratospheric memory and skill of extended-range weather forecasts. *Science, 301,* 636-640.
- Gettelman, A., D.E. Kinnison, T.J. Dunkerton and G.P. Brasseur, 2004: Impact of monsoon circulations on the upper troposphere and lower stratosphere. *J. Geophys. Res., 109*(D22), 101.
- Imamura, T., T. Horinouchi and T.J. Dunkerton, 2004: The lateral transport of zonal momentum due to Kelvin waves in a meridional circulation. *J. Atmos. Sci., 61*(15), 1966-1975.
- Mote, P.W. and T.J. Dunkerton, 2004: Kelvin wave signatures in stratospheric trace constituents. *J. Geophys. Res., 109*(D3), 101.
- Baldwin, M.P. and T.J. Dunkerton, 2005: The solar cycle and stratosphere-troposphere dynamical coupling. *J. Atmos. Solar-Terrestrial Phys., 67*, 71-82.

- Ortland, D.A. and T.J. Dunkerton, 2006: The nonlinear evolution and potential vorticity transport of symmetric equatorial inertial instability. *J. Atmos. Sci*., in preparation.
- Dunkerton, T.J., M.J. Alexander and D.C. Fritts, 2006: An estimate of supersaturation in internal gravity waves for the purpose of determining an effective turbulent Prandtl number for the mean state. *J. Atmos. Sci*., in preparation.
- Mote, P.W., T.J. Dunkerton and H.C. Pumphrey, 2006: Kelvin wave signatures in stratospheric water vapor. *J. Geophys. Res.*, in preparation.
- Ortland, D.A. and T.J. Dunkerton, 2006: Stratospheric vacillation and the dynamics of annular mode variability. *J. Atmos. Sci*., in preparation.
- Pendlebury, D. and T.J. Dunkerton, 2006: Two-day wave as a barotropic instability. J. *Atmos. Sci*., in preparation.
- Wirth, V. and T.J. Dunkerton, 2006: A unified perspective on the dynamics of axisymmetric hurricanes and monsoons. *J. Atmos. Sci*., submitted.

PROFESSIONAL & SYNERGISTIC ACTIVITIES

- American Association for the Advancement of *Science*
- American Geophysical Union
- AGU Associate Editor, JGR-Atmospheres
- American Meteorological Society
- AMS Associate Editor, JAS
- AMS Middle Atmosphere Committee
- Royal Meteorological Society Fellow

OTHER EXPERIENCE AND INTERESTS

- Computational finance
- Gardening & landscaping
- Graphical arts
- Large-format photography
- Musical composition
- Scientific writing

COLLABORATORS

- Alexander, M.J., NorthWest Research Associates, Boulder Division
- Baldwin, M.P., NorthWest Research Associates
- Chen, S., University of Miami
- Delisi, D.P., NorthWest Research Associates
- Dritschel, D.G., University of St. Andrews
- Fritts, D.C., NorthWest Research Associates, Boulder Division
- Fu, Q., University of Washington
- Fueglistaler, S., University of Washington
- Gettelman, A., National Center for Atmospheric Research
- Gray, L.J., University of Reading
- Griffiths, S.D., University of Washington
- Haynes, P.H., Cambridge University
- Lelong, M.-P., NorthWest Research Associates
- Magnusdottir, G., University of California, Irvine
- Montgomery, M.T., Colorado State University
- Mote, P.W., JISAO/SMA Climate Impacts Group
- Ortland, D., NorthWest Research Associates
- Rhines, P.B., University of Washington

- Ricciardulli, L., Remote Sensing Systems
- Sato, K., University of Tokyo
- Schubert, W.H., Colorado State University
- Scott, R.K., NorthWest Research Associates
- Shige, S., NASDA
- Wirth, V., University of Mainz

- Graduate Advisor: J.R. Holton
- Postdoctoral Research Associates: M.P. Baldwin, F.X. Crum, X. Cheng, M.-P. Lelong, P.W. Mote, Diane Pendlebury