David A. Schecter

NorthWest Research Associates
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Education

Doctor of Philosophy, Physics, University of California, San Diego, Fall 1999
Master of Science, Physics, University of California, San Diego, Fall 1995
Bachelor of Arts, Physics, with honors, University of Chicago, Spring 1994

Graduate Study at the University of California, San Diego

Major: Physics
Specialization: Theoretical/Computational Plasma Physics and Fluid Dynamics
Dissertation: On the Dynamics of Inviscid Relaxation in 2D Fluids and Nonneutral Plasmas
Dissertation Advisor: Prof. Daniel H. E. Dubin

Professional Experience

Research Scientist, NorthWest Research Associates (NWRA), Redmond, WA and Boulder, CO, October 2006–present. Description: principal investigator of government-funded research projects on atmospheric dynamics.

Research Scientist, Department of Atmospheric Science, Colorado State University, Fort Collins, CO, September 2003 – June 2006.

Reginald Daly Postdoctoral Fellow, Department of Earth and Planetary Sciences, Harvard University, Cambridge, MA, August 2002 – August 2003.

Postdoctoral Fellow, Advanced Study Program, National Center for Atmospheric Research, Boulder, CO, July 2000 – July 2002.

Recent Research Topics

Tropical cyclone formation and dynamics; Infrasound of tornadoes and convective storms; Fundamental geophysical fluid dynamics.

Computer Skills

Programming languages: C; Python; Fortran; MPI; IDL; Mathematica; etc.
Fluid/plasma modeling: Particle-in-cell; grid; spectral; hybrid.
Advanced weather modeling: RAMS; WRF; CM1.

Notable Awards/Grants

National Science Foundation (NSF) Research Grant AGS-2208205, “Modeling Studies of Transitons from Slow to Fast Tropical Cyclone Intensification,” PI David A. Schecter, 2022-present.

NSF Research Grant AGS-1743854, “Mesoscale Vortex Dynamics in Tropical Weather Systems,” PI David A. Schecter, 2018-2022.

NSF Research Grant AGS-1250533, "Mesoscale Vortex Interactions in Tropical Systems," PI David A. Schecter, 2013-2017.

NSF Research Grant AGS-1101713, "Fundamental Studies of Disturbed Tropical Cyclones: A Deeper Look into the Causes and Consequences of Asymmetric Structure under Various Environmental Conditions," PI David A. Schecter, 2011-2015.

NSF Research Grant ATM-0832320, "Progressively Complex Numerical Studies of Infrasound Generated by Atmospheric Convection," PI David A. Schecter, 2008-2011.

NSF Research Grant ATM-0750660, "Diabatic Ekman Turbulence," PI David A. Schecter, Co-PI Timothy J. Dunkerton, 2008-2012.

Current Professional Associations

Member of the American Meteorological Society
Member of the American Geophysical Union

Past and Present Service

Referee for Journal of the Atmospheric Sciences, Monthly Weather Review, Weather and Forecasting, Geophysical Research Letters, Atmospheric Science Letters, Journal of the Meteorological Society of Japan, Dynamics of Atmospheres and Oceans, Journal of Atmospheric Chemistry and Physics, Journal of the Acoustical Society of America, Physical Review, Physics of Fluids, National Science Foundation.

Selected Publications

D.A. Schecter, 2022: Intensification of tilted tropical cyclones over relatively cool and warm oceans in idealized numerical simulations. *J. Atmos. Sci.*, **79**, 485-512.

D.A. Schecter, 2020: Distinct intensification pathways for a shallow-water vortex subjected to asymmetric "diabatic" forcing. *Dyn. Atmos. Oceans*, **91**, 101156:1-25.

D.A. Schecter, 2018: On the instabilities of tropical cyclones generated by cloud resolving models. *Tellus A*, **70**, 1-30.

D.A. Schecter, 2016: Development and nondevelopment of binary mesoscale vortices into tropical cyclones in idealized numerical experiments. *J. Atmos. Sci.*, **73**, 1223-1254.

D.A. Schecter, 2011: A method for diagnosing the sources of infrasound in convective storm simulations. *J. App. Meteor. Clim.*, **50**, 2526-2542.

D.A. Schecter and T.J. Dunkerton, 2009: Hurricane formation in Diabatic Ekman Turbulence. *Q. J. Roy. Meteor. Soc.*, **135**, 823-838.

D.A. Schecter and M.T. Montgomery, 2004: Damping and pumping of a vortex Rossby wave in a monotonic cyclone: critical layer stirring versus inertia-buoyancy wave emission. *Phys. Fluids*, **16**, 1334-1348.

D.A. Schecter, 2003: Maximum entropy theory and the rapid relaxation of three-dimensional quasi-geostrophic turbulence. *Phys. Rev. E*, **68**, 066309 1-8.

D.A. Schecter and D.H.E. Dubin, 1999: Vortex motion driven by a background vorticity gradient. *Phys. Rev. Lett.*, **83**, 2191-2194.

D.A. Schecter, D.H.E. Dubin, K.S. Fine and C.F. Driscoll, 1999: Vortex crystals from 2D Euler flow: Experiment and simulation. *Phys. Fluids*, **11**, 905-914.

Complete list at http://www.cora.nwra.com/~schecter/publications.php