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Education

California State Polytechnic University at San Luis Obispo	Mathematics	B.S.	1974
University of California at Berkeley	Mathematics	M.S.	1975
Massachusetts Institute of Technology	Meteorology	Ph.D.	1981

Appointments

1996–present	Professor, Department of Atmospheric Sciences, University of Washington, Seattle, Washington
2017–2019 2007–2012	Chairman, Department of Atmospheric Sciences, University of Washington, Seattle, Washington
1990–1996	Associate Professor, Department of Atmospheric Sciences, University of Washington, Seattle, Washington
1987–1990	Assistant Professor, Department of Atmospheric Sciences, University of Washington, Seattle, Washington
1983–1987	Assistant Professor, Department of Meteorology, University of Utah, Salt Lake City, Utah
1981–1983	Post-Doctoral Fellow, National Center for Atmospheric Research, Boulder, Colorado
1976–1977	Staff Scientist, Systems Applications Inc., San Rafael, California (Numerical modeling of air pollution)

Honors

Fellow of the American Meteorological Society (AMS)
AMS Mountain Meteorology Committee's Mountain Meteorology Award, 2014
Naval Research Laboratory's Alan Berman Research Publication Award 2007
Naval Research Laboratory's Alan Berman Research Publication Award 2002
UW Dept. of Atmospheric Sciences Annual Teaching Award 2016
UW Dept. of Atmospheric Sciences Annual Teaching Award 2013

Professional Service

Editor *Monthly Weather Review*, 2012–2014
Associate Editor *Monthly Weather Review*, 2001–2004
Chair: American Meteorological Society (AMS) Committee on Mountain Meteorology
2004–2006, 2015–2017
Co-Chair 12th AMS Conference on Mountain Meteorology, Santa Fe, NM, 2006.
Co-Chair 5th AMS Conference on Mesoscale Processes, Atlanta, GA, 1992.

Students Supervised (highest degree and current affiliation)

J. Brent Bower	M.S.	NOAA	Seattle, WA
Peter Miller	M.S.	RETEC Group	Fort Collins, CO
Daniel Weber	M.S.	Weather Decision Technologies	Norman, OK
Stephen Ascher	M.S.	unknown	—
Simon Ward	M.S.	unknown	—
Marie Ammerman	M.S.	PPM Energy	Portland, OR
Mark Gingrich	M.S.	Amazon	Denver, CO
Louisa Nance	Ph.D	NCAR	Boulder, CO
Rajul Pandya	Ph.D	AGU: Thriving Earth Exchange	—
Craig Epifanio	Ph.D	Texas A&M	College Station, TX
Claudio Piani	Ph.D	American University	Paris, France
Gretchen Mullendore	Ph.D	NCAR	Boulder, CO
Saša Gaberšek,	Ph.D	Naval Research Laboratory	Monterey, CA
Daniel Kirshbaum	Ph.D	McGill U.	Montréal, Canada
Chih-Chieh Chen	Ph.D	NCAR	Boulder, CO
Tomislav Marič	Ph.D	Vestas	Denmark
P. Alex Reinecke	Ph.D	Naval Research Laboratory	Monterey, CA
Lucas Harris	Ph.D	GFDL	Princeton, NJ
Justin Minder	Ph.D	U. Albany	Albany, NY
Phuong-Tra Dinh	Ph.D	University of Auckland	New Zealand
Matt Hills	Ph.D	Weathernews	Netherlands
Nicholas Siler	Ph.D	Oregon State Univ.	Corvallis, OR
Xiaoming Shi	Ph.D	Hong Kong U of Sci. & Tech	Hong Kong, China
Maximo Menchaca	Ph.D	Food Revolution Network	Portland, OR
Jonathan Weyn	Ph.D	Microsoft	Kirkland WA

Textbook

- Durran, D.R., 2010: *Numerical Methods for Fluid Dynamics: with Applications to Geophysics (2nd ed)*. New York: Springer, ISBN 978-1-4419-6411-3, 516 p.
- Durran, D.R., 1999: *Numerical Methods for Wave Equations in Geophysical Fluid Dynamics*. New York: Springer-Verlag, ISBN 0-387-98376-7, 465 p.

Refereed Publications

- [1] Lamb, R., and D.R. Durran, 1978: Eddy diffusivities derived from a numerical model of the convective planetary boundary layer. *Il Nuovo Cimento*, **1**, 1-17.
- [2] Durran, D.R., M. Meldgin and M.K. Liu, 1979: A study of long-range air pollution problems related to coal development in the Northern Great Plains. *Atmospheric Environment*, **13**, 1021-1037.
- [3] Durran, D.R., and J.B. Klemp, 1982: The effects of moisture on trapped mountain lee waves. *J. Atmos. Sci.*, **39**, 2490-2506.
- [4] Durran, D.R., and J.B. Klemp, 1982: On the effects of moisture on the Brunt-Väisälä frequency. *J. Atmos. Sci.*, **39**, 2152-2158.
- [5] Klemp, J.B., and D.R. Durran, 1983: An upper boundary condition permitting internal gravity wave radiation in numerical mesoscale models. *Mon. Wea. Rev.*, **111**, 430-444.
- [6] Durran, D.R., and J.B. Klemp, 1983: A compressible model for the simulation of moist mountain waves. *Mon. Wea. Rev.*, **111**, 2341-2361.

- [7] Grossman, R.L., and D.R. Durran, 1984: Interaction of low level flow with the Western Ghat mountains and off-shore convection in the summer monsoon. *Mon. Wea. Rev.*, **112**, 652-672.
- [8] Durran, D.R., and R.L. Grossman, 1985: Reply. *Mon. Wea. Rev.*, **113**, 2178-2181.
- [9] Durran, D.R., 1986: Mountain waves. *Mesoscale Meteorology and Forecasting*, P. Ray Ed., American Meteorological Society, Boston, 472-492.
- [10] Bower, J.B., and D.R. Durran, 1986: A study of wind profiler data collected upstream during windstorms in Boulder, Colorado. *Mon. Wea. Rev.*, **114**, 1491-1500.
- [11] Durran, D.R., 1986: Another look at downslope windstorms. Part I: On the development of analogs to supercritical flow in an infinitely deep continuously stratified fluid. *J. Atmos. Sci.*, **93**, 2527-2543.
- [12] Klemp, J.B., and D.R. Durran, 1987: Numerical modelling of bora winds. *Meteorol. Atmos. Phys.*, **36**, 215-227.
- [13] Durran, D.R., and L.W. Snellman, 1987: On the diagnosis of synoptic-scale vertical motion in an operational environment. *Weather and Forecasting*, **2**, 17-31.
- [14] Durran, D.R., and J.B. Klemp, 1987: Another look at downslope winds. Part II: Non-linear amplification beneath wave-overturning layers. *J. Atmos. Sci.*, **44**, 3402-3412.
- [15] Durran, D.R., and D.B. Weber, 1988: An investigation of the poleward edges of cirrus clouds associated with mid-latitude jet streams. *Mon. Wea. Rev.*, **116**, 702-714.
- [16] Durran, D.R., 1988: A note on the physical mechanism for Rossby wave propagation. *J. Atmos. Sci.*, **45**, 4020-4022.
- [17] Durran, D.R., and L.W. Snellman, 1988: Reply. *Weather and Forecasting*, **3**, 348.
- [18] Durran, D.R., 1989: Improving the anelastic approximation. *J. Atmos. Sci.*, **46**, 1453-1461.
- [19] Durran, D.R., 1990: Mountain waves and downslope winds. *Atmospheric Processes over Complex Terrain*, B. Blumen Ed., American Meteorological Society, Boston, 59-81.
- [20] Durran, D.R., 1990: Reply. *J. Atmos. Sci.*, **47**, 1819-1820.
- [21] Durran, D.R., 1991: The third-order Adams-Bashforth method: an attractive alternative to leapfrog time differencing. *Mon. Wea. Rev.*, **119**, 702-720.
- [22] Miller, P.P., and D.R. Durran, 1991: On the sensitivity of downslope windstorms to the asymmetry of the mountain profile. *J. Atmos. Sci.*, **48**, 1457-1473.
- [23] Durran, D.R., 1992: Two-layer solutions to Long's equation for vertically propagating mountain waves: How good is linear theory? *Quart. J. Roy. Meteor. Soc.*, **118**, 415-433.
- [24] Fovell, R., D. Durran and J.R. Holton, 1992: Numerical simulations of convectively generated waves in the stratosphere. *J. Atmos. Sci.*, **49**, 1427-1442.
- [25] Durran, D.R., M.J. Yang, D.N. Slinn and R.G. Brown, 1993: Towards more accurate wave-permeable boundary conditions. *Mon. Wea. Rev.*, **121**, 604-620.
- [26] Durran, D.R., 1993: Comments on "On the Richardson number dependence of nonlinear critical-layer flow over localized topography." *J. Atmos. Sci.*, **50**, 3029-3033.
- [27] Pandya, R., D.R. Durran and C. Bretherton, 1993: Comments on "Thermally forced gravity waves in an atmosphere at rest". *J. Atmos. Sci.*, **50**, 4097-4101.

- [28] Durran, D.R., 1993: Is the Coriolis force really responsible for the inertial oscillation? *Bull. Amer. Meteo. Soc.*, **74**, 2179-2184.
- [29] Nance, L.B., and D.R. Durran, 1994: A comparison of three anelastic systems and the pseudo-incompressible system. *J. Atmos. Sci.*, **51**, 3549-3565.
- [30] Alexander, J.M., J.R. Holton and D.R. Durran, 1995: The gravity wave response above deep convection in a squall line simulation. *J. Atmos. Sci.*, **52**, 2212-2226.
- [31] Durran, D.R., 1995: Pseudomomentum Diagnostics for Two-Dimensional Stratified Compressible Flow. *J. Atmos. Sci.*, **52**, 3997-4009.
- [32] Durran, D.R., 1995: Do Breaking Mountain Waves Decelerate the Local Mean Flow? *J. Atmos. Sci.*, **52**, 4010-4032.
- [33] Durran, D.R., and S.K. Domonkos, 1996: An Apparatus for Demonstrating the Inertial Oscillation. *Bull. Amer. Meteo. Soc.*, **77**, 557-559.
- [34] Pandya, R.E., and D.R. Durran, 1996: The influence of convectively generated thermal forcing on the mesoscale circulation around squall lines. *J. Atmos. Sci.*, **53**, 2924-2951.
- [35] Schär, C., and D.R. Durran, 1997: Vortex formation and vortex shedding in continuously stratified flows past isolated topography. *J. Atmos. Sci.*, **54**, 534-554.
- [36] Nance, L.B., and D.R. Durran, 1997: A modeling study of nonstationary trapped mountain lee waves. Part I: Mean flow variability. *J. Atmos. Sci.*, **54**, 2275-2291.
- [37] Smith, R., J. Paegle, T. Clark, W. Cotton, D. Durran, G. Forbes, J. Marwitz, C. Mass, J. McGinley, H.-L. Pan and M. Ralph, 1997: Local and remote effects of mountains on weather: research needs and opportunities. *Bull. Amer. Meteo. Soc.*, **78**, 877-892.
- [38] Nance, L.B., and D.R. Durran, 1998: A modeling study of nonstationary trapped mountain lee waves. Part II: Nonlinearity. *J. Atmos. Sci.*, **55**, 1429-1445.
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- [40] Doyle, J.D., D.R. Durran, C. Chen, M. Georgelin, V. Grubisic, W.R. Hsu, C.Y. Huang, D. Landau, Y.L. Lin, G.S. Poulos, W.Y. Sun, D.B. Weber, M.G. Wurtele, and M. Xue, 2000: An intercomparison of model predicted wave breaking for the 11 January 1972 Boulder windstorm. *Mon. Wea. Rev.*, **128**, 901-914.
- [41] Durran, D.R., 2000: Wave Propagation in Quadratic-Finite-Element Approximations to Hyperbolic Equations. *J. Comput. Phys.*, **159**, 448-455.
- [42] Piani, C., D. Durran, M.J. Alexander and J.R. Holton, 2000: A numerical study of three dimensional gravity waves triggered by deep tropical convection. *J. Atmos. Sci.*, **57**, 3689-3702.
- [43] Durran, D.R., 2000: Small-amplitude coastally trapped disturbances and the reduced-gravity shallow-water approximation. *Q. J. R. Meteorol. Soc.*, **126**, 2671-2689.
- [44] Durran, D.R., 2000: Comments on "The differentiation between grid spacing and resolution and their application to numerical modeling." *Bull. Amer. Meteo. Soc.*, **81**, 2478.
- [45] Epifanio, C.C., and D.R. Durran, 2001: Three-dimensional effects in high-drag-state flows over long ridges. *J. Atmos. Sci.*, **58**, 1051-1065.

- [46] Piani, C., and D. Durran, 2001: A numerical study of stratospheric gravity waves triggered by squall lines observed during the TOGA-COARE and COPT-81 experiments. *J. Atmos. Sci.*, **58**, 3702-3721.
- [47] Doyle, J.D. and D.R. Durran, 2002: The dynamics of mountain-wave induced rotors. *J. Atmos. Sci.*, **59**, 186-201.
- [48] Epifanio, C.C., and D.R. Durran, 2002: Lee vortex formation in free-slip stratified flow over ridges. Part I: Comparison of weakly nonlinear inviscid theory and fully nonlinear viscous simulations. *J. Atmos. Sci.*, **59**, 1153-1165.
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- [50] Durran, D.R., 2003: Lee waves and mountain waves. In the *Encyclopedia of the Atmospheric Sciences*, J. Holton, J. Curry and J. Pyle, Eds., Academic Press, 1161-1169.
- [51] Durran, D.R., 2003: Downslope winds. In the *Encyclopedia of the Atmospheric Sciences*, J. Holton, J. Curry and J. Pyle, Eds., Academic Press, 644-650.
- [52] Durran, D.R., T. Maric, R.M. Banta, and L.S. Darby, 2003: A comparison of ground-based Doppler lidar and airborne in situ wind observations. *Q. J. R. Meteorol. Soc.*, **129**, 693-713.
- [53] Durran, D.R., and P.A. Reinecke, 2004: Instability in explicit two-time-level semi-Lagrangian schemes. *Q. J. R. Meteorol. Soc.*, **130**, 365-369.
- [54] Doyle, J.D. and D.R. Durran, 2004: Recent developments in the theory of atmospheric rotors. *Bull. Amer. Meteor. Soc.*, **85**, 337-342.
- [55] Kirshbaum, D.J. and D.R. Durran, 2004: Factors governing cellular convection in orographic precipitation. *J. Atmos. Sci.*, **61**, 682-698.
- [56] Mayr, G.J., L. Armi, S. Arnold, R.M. Banta, L.S. Darby, D.R. Durran, C. Flamant, S. Gaberšek, A. Gohm, R. Mayr, S. Mobbs, L.B. Nance, I. Vergeiner, J. Vergeiner, C.D. Whiteman, 2004: Gap flow measurements during the Mesoscale Alpine Programme. *Meteorol. Atmos. Phys.*, **86**, 99-119.
- [57] D.R. Durran and C. Bretherton, 2004: Comments on "The roles of the horizontal component of the Earth's angular velocity in nonhydrostatic linear models." *J. Atmos. Sci.*, **61**, 1982-1986.
- [58] Gaberšek, S.A., and D.R. Durran, 2004: The dynamics of gap flow over idealized topography: Part I: Forcing by large-scale winds in the nonrotating limit. *J. Atmos. Sci.*, **61**, 2846-2862.
- [59] Kirshbaum, D.J. and D.R. Durran, 2005: Observations and Modeling of Banded Orographic Convection. *J. Atmos. Sci.*, **62**, 1463-1479.
- [60] Mullendore, G.L., D.R. Durran and J.R. Holton, 2005: Cross-tropopause tracer transport in midlatitude convection. *J. Geophys. Res.*, 110, D06113, doi:10.1029/2004JD005059.
- [61] Chen, C.-C., D.R. Durran and G.J. Hakim, 2005: Mountain wave momentum flux in an evolving synoptic-scale flow. *J. Atmos. Sci.*, **62**, 3213-3231.
- [62] Kirshbaum, D.J. and D.R. Durran, 2005: Atmospheric factors governing banded orographic convection. *J. Atmos. Sci.*, **62**, 3758-3774.

- [63] Gabersšek, S.A., and D.R. Durran, 2006: The dynamics of gap flow over idealized topography: Part II. Effects of rotation and surface friction. *J. Atmos. Sci.*, **63**, 2720-2739.
- [64] Stiperski, I., I. Kavčič, B. Grisogono, and D.R. Durran, 2007: A modified Prandtl model of katabatic flow with Coriolis effect. *Q. J. R. Meteorol. Soc.*, **133**, 101-106.
- [65] Kirshbaum, D.J., G.H. Bryan, R. Rotunno and D.R. Durran, 2007: The triggering of orographic rainbands by small-scale topography. *J. Atmos. Sci.*, **64**, 1530-1549.
- [66] Anders, A.M., G.H. Roe, D.R. Durran and J.R. Minder, 2007: Small-scale spatial gradients in climatological precipitation on the Olympic Peninsula. *J. Hydrometeorology*, **8**, 1068-1081.
- [67] Chen, C.-C., G.J. Hakim, and D.R. Durran, 2007: Transient mountain waves and their interaction with large scales. *J. Atmos. Sci.*, **64**, 2378-2400.
- [68] Mayr, G.J., L. Armi, A. Gohm, G. Zängl, D.R. Durran, C. Flamant, S. Gabersšek, S. Mobbs, A. Ross and M. Weissmann, 2007: Gap flows: results from the Mesoscale Alpine Programme MAP. *Quart. J. Roy. Meteorol. Soc.*, **133**, 881-896.
- [69] Doyle, J.D. and D.R. Durran, 2007: Rotor and sub-rotor dynamics in the lee of three-dimensional terrain. *J. Atmos. Sci.*, **64**, 4202-4221.
- [70] Durran, D.R. and A. Arakawa, 2007: Generalizing the Boussinesq approximation to stratified compressible flow. *Comps Rendus Mecanique*, **355**, 655-664.
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- [72] Durran, D.R., 2008: A physically motivated approach for filtering acoustic waves from the equations governing compressible stratified flow. *J. Fluid Mech.*, **601**, 365-379.
- [73] Blossey, P.N. and D.R. Durran, 2008: Selective monotonicity preservation in scalar advection. *J. Comput. Phys.*, **227**, 5160-5183.
- [74] Minder, J.R., D.R. Durran, G.H. Roe and A.M. Anders, 2008: The climatology of small-scale precipitation over the Olympic mountains: Patterns and processes. *Quart. J. Roy. Meteorol. Soc.*, **134**, 817-839.
- [75] Polagye, B., P. Malte, M. Kawase and D. Durran, 2008: Effect of large-scale kinetic power extraction on time-dependent estuaries. *Proc. IMechE*, **222**, Part A: *J. Power and Energy*, 471-484. doi:10.1243/09576509JPE519
- [76] Maric, T. and D.R. Durran, 2009: Observations of gap flow in the Wipp Valley on 20 October 1999: Evidence for subsidence. *J. Atmos. Sci.*, **66**, 984-1001.
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- [78] Durran, D.R., 2009: Comment on: Gravity wave refraction by three-dimensionally varying winds and the global transport of angular momentum. *J. Atmos. Sci.*, **66**, 2150-2152.
- [79] Durran, D.R., P.-T. Dinh, M. Ammerman, and T. Ackerman, 2009: The mesoscale dynamics of thin tropical tropopause cirrus. *J. Atmos. Sci.*, **66**, 2859-2873, doi:10.1175/2009JAS3046.1.
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- layer cirrus. *J. Geophys. Res.*, **115**, D02104, doi:10.1029/2009JD012735.
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- [85] Dinh, T., and D.R. Durran, 2012: A hybrid bin scheme to solve the condensation/evaporation equation using a cubic distribution function. *Atmos. Chem. Phys.*, **12**, 1003-1011, doi:10.5194/acp-12-1003-2012.
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- [104] Light, D.K. and D.R. Durran, 2016: Preserving positivity in discontinuous Galerkin approximations to scalar transport via truncation and mass aware rescaling (TMAR), *Mon. Wea. Rev.*, **144**, 4771-4786.
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- [109] Weyn, J. A. and D. R. Durran, 2019: The scale dependence of initial-condition sensitivities in simulations of convective systems over the Southeastern US. *Q. J. R. Meteorol. Soc.*, **145** (Suppl. 1), 57-74. <https://doi.org/10.1002/qj.3367>.
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