

CURRICULUM VITAE

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Education

B.S., Cornell University 1974
Major - Physics
Ph.D., University of Washington 1978
Atmospheric Sciences
Doctoral Thesis: "A Numerical and Observational Study of African Wave
Disturbances." J. R. Holton, adviser.

Professional Experience

Mid 1981 to present Assistant, Associate Professor, and Professor, Department of
Atmospheric Sciences, University of Washington.
1978 to mid 1981 Assistant Professor, Department of Meteorology, University of
Maryland.
1974 to 1978 Research Assistant at Department of Atmospheric Sciences,
University of Washington.

Books

The Weather of the Pacific Northwest, University of Washington Press
The Secrets of Weather Prediction, in preparation.

Refereed Publications

Weber, N. J. and C. F. Mass, 2017: Evaluating the subseasonal to seasonal CFSv2 forecast skill with an emphasis on tropical convection. Submitted to *Wea. and Forecasting*
Houze, R. A., Jr., L. A. McMurdie, W. A. Petersen, M. R. Schwaller, W. Baccus, J. Lundquist, C. Mass, B. Nijssen, S. A. Rutledge, D. Hudak, S. Tanelli, G. G. Mace, M. Poellot, D. Lettenmaier, J. Zagrodnik, A. Rowe, J. DeHart, L. Madaus, H. Barnes, 2017: The Olympic Mountains Experiment (OLYMPEX). *Bull. Amer. Meteor. Soc.*, Accepted, in press.
Picard, L. and C. F. Mass, 2017: The sensitivity of orographic precipitation to flow direction: an idealized modeling approach. *J. Hydromet.*, accepted, in press
Weber, N. and C. F. Mass, 2017: The origin of the bent-back frontal jet in marine cyclones. Submitted to *Wea. and Forecasting*.
Madaus, L., and C. Mass, 2017: Evaluating smartphone pressure observations for mesoscale analyses and forecasts. *Wea. Forecasting.*, 32, 511-531

- Warner, M. and C. Mass, 2017: Changes in the climatology of northeast Pacific atmospheric rivers in CMIP5 climate models under global warming. Submitted to *J. Geophys. Res.*
- Wayand, N. E., J. Stimberis, J. P. Zagrodnik, C. F. Mass, and J. D. Lundquist, 2016, Improving simulations of precipitation phase and snowpack at a site subject to cold air intrusions: Snoqualmie Pass, WA, *J. Geophys. Res. Atmos.*, **121**, doi:10.1002/2016JD025387.
- Brewer, M. and C. Mass, 2016: Projected changes in heat extremes and associated synoptic/mesoscale conditions over the northwest U.S. *J. Climate*, **9**, 6383-6400
- Brewer, M. and C. Mass, 2016: Projected changes in western U.S. large-scale summer synoptic circulations and variability in CMIP5 models. *J. Climate*, **29**, 5965-5978
- Dixon K., C. F. Mass, G. Hakim; R. Holzworth, 2016: The impact of lightning data assimilation on deterministic and ensemble forecasts of convective events. *J. Atmos. Ocean Tech.*, **33**, 1801-1823
- Mass, C., M. Warner, R. Vargas, and N. Johnson, 2015: Synoptic control of cross-barrier precipitation ratios for the Cascade Mountains. *J. Hydrometeorol*, **16**, 1014-1028
- Henn, B. Q. Cao; D. Lettenmaier; C. Magirl; C. Mass; J. Bower; M. Laurent; Y. Mao; S. Perica, 2015: Hydroclimatic conditions preceding the March 2014 Oso landslide., 2015: *J. Hydrometeorol*. **16**, 1243-1249
- Warner, M. D., C. F. Mass, and E. Salathé, Jr., 2015: Changes in wintertime atmospheric rivers along the North American west coast in CMIP5 climate models. *J. Hydro*, **16**, 118-128
- Mass, C. and L. E. Madaus, 2014: Surface pressure observations from smartphones: a potential revolution for high-resolution weather prediction? *Bull. Amer. Meteor. Soc.*, **95**, 1343–1349.
- Brewer, M. and C. Mass, 2014: Simulation of summer diurnal circulations over the Northwest United States. *Wea. Forecasting*, **29**, 1208–1228.
- Ancell B. C., C. F. Mass, K. Cook, and B. Colman, 2014: Comparison of surface wind and temperature analyses from an ensemble Kalman Filter and the NWS Real Time Mesoscale Analysis system. *Wea. Forecasting*, **29**, 1058–1075
- Madaus, I., G. J. Hakim and C. F. Mass, 2014: Utility of dense pressure observations for improving mesoscale analyses and forecasts. *Mon. Wea. Rev.*, **142**, 2398–2413.
- Mass, C., M. D. Warner, and R. Steed, 2014: Strong Westerly Wind Events in the Strait of Juan de Fuca. *Wea. Forecasting*, **29**, 445–465
- Salathé, E. P., A. F. Hamlet, M. Stumbaugh 'S.-Y. Lee, C. Mass, and R. Steed, 2014: Estimates of 21st Century Flood Risk in the Pacific Northwest Based on Regional Climate Model Simulations. *J. Hydrometeorol*, **15**, 1881–1899.
- Brewer, M., C. Mass, and B. Potter, 2013: The West Coast Thermal Trough: Mesoscale Evolution and Sensitivity to Terrain and Surface Fluxes. *Mon. Wea. Rev.*, **141**, 2869–2896.
- Wolff, J. K., B. S. Ferrier, C. F. Mass, 2012: Establishing Closer Collaboration to Improve Model Physics for Short-Range Forecasts. *Bull. Amer. Meteor. Soc.*, **93**, ES51–ES53.
- Brewer, Matthew C., Clifford F. Mass, Brian E. Potter, 2012: The West Coast Thermal Trough: Climatology and Synoptic Evolution. *Mon. Wea. Rev.*, **140**, 3820–3843.
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- Warner, Michael D., Clifford F. Mass, Eric P. Salathé, 2012: Wintertime extreme precipitation events along the Pacific Northwest coast: climatology and synoptic evolution. *Mon. Wea. Rev.*, **140**, 2021–2043
- Sharp, J. and C. Mass, 2012: The Structure and Dynamics of Gap Flow Through the Columbia Gorge. Submitted to *Mon. Wea. Rev.*
- Mass, C. F., A. Skaenakis, M. Warner, 2011: Extreme Precipitation over the West Coast of North America: Is There a Trend?, *J. of Hydromet.*, **12**, 310-318

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- Kleiber, William, Adrian E. Raftery, Jeffrey Baars, Tilmann Gneiting, Clifford F. Mass, Eric Gritmit, 2011: Locally Calibrated Probabilistic Temperature Forecasting Using Geostatistical Model Averaging and Local Bayesian Model Averaging. *Mon. Wea. Rev.*, **139**, 2630–2649.
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- C. F. Mass and B. Dotson, 2010: Major windstorms of the Pacific Northwest. *Mon. Wea. Rev.*, **138**, 2499-2527
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- Colle, B. A. and C. F. Mass, 2000: The 5-9 February 1996 flooding event over the Pacific Northwest: sensitivity studies and evaluation of the MM5 precipitation forecasts. *Mon. Wea. Rev.*, **128**, 593-617
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- Smith, R., H. 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. Meteor. Soc.*, **5**, 877-892
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Electronic Publications

National Meteorological Center Grid Point Data Set CD-ROM (Versions I and II).
GALE Experiment CD-ROM.
North American Observational Data for August-December 1987 CD-ROM.
World Weather Disc CD-ROM.
Climate Analysis Center Global Gridded Data

Offices and Honors

Fellow, American Meteorological Society
Max Eaton Award, American Meteorological Society
President, Puget Sound Chapter, American Meteorological Society.
Program Chairman, Puget Sound Chapter, AMS.
Treasurer, Puget Sound Chapter, AMS.
Chairman, UCAR (University Corporation for Atmospheric Research), UNIDATA Data Access Committee.
Associate Editor, Monthly Weather Review.
Consulting Editor, Encyclopedia of Climate and Weather.
Chairman, UCAR Committee on Meteorological Data Sets
Chairman, 15th AMS Conference on Weather Analysis and Forecastings
Chairman, Special Workshop on Real-Time Mesoscale NWP in the University Community
Chairman, AMS Mesoscale Meteorology Committee
Chairman, DTC Science Advisory Board
Co-chair, AMS Committee on Communication

National Committees

NCEP UCAM Modeling Committee
Exec. Committee AMS Forecast Interest Group
AMS Membership Committee
AMS Board on Enterprise Communication
DTC Science Advisory Board
WRF Research Applications Board
NRC Committee on Atmospheric Predictability
AMS Ad-Hoc Committee on Community Fora
Chairman and member, USWRP CONDUIT committee
USWRP Science Advisory Board
WRF Science Board
Chairman and member, AMS Mesoscale Committee
USWRP PDT#4 on Mountain Meteorology
USWRP PDT#9 on Hydrology
AMS Committee on Weather Analysis and Forecasting
MM5 Community Oversight Committee
AMS Information Systems Committee
UCAR/NWS Local Digital Library Committee

UNIDATA Steering and Data Access Committees
National Academy of Sciences Geophysical Data Committee
UCAR COMET Advisory Committee
Search Committee for New NWS Director
Executive Committee, Board of Oceans and Atmosphere, National Association of State Universities
and Land Grant Colleges
UCAR UCAM Committee

Regional Committees

Northwest Regional Modeling Consortium

University Committees and Organizations

Member and Chair: College Council, College of the Environment
Member, University Senate 1988-1990, 2004-2006
Department Computer Committee
Arts and Sciences Graduation Committee
Department Rules and Computer Committees

Past Graduate Students

Kucera, T., 1981: M.S. on mesoscale modeling in complex terrain.
Delman, A., 1981: M.S. on diurnal wind and temperature variations and air quality in Washington, D.C. area.
Dubofsky, D., 1981: M.S. on a diagnostic study of Hurricane David.
Dempsey, D., 1985: Ph.D. on mesoscale modeling in complex terrain.
Pam Speers, 1985: M.S. on precipitation diagnoses and modeling in complex terrain.
David Portman, 1988: M.S. Effects of major eruptions on surface temperature and pressure.
Daniel Brees, 1988: M.S. Onshore push of the Pacific Northwest.
Brian Ulrickson, 1989: Ph.D. 3D primitive equation modeling of flow in the LA basin.
Garth Ferber, 1991 M.S. Mesoscale pressure perturbations forced by the Olympic Mountains.
David Schultz, 1992, M.S. Structural analysis of a midlatitude cyclone over land.
Brian Colle, 1994, M.S. Northerly surges to the east of the Rocky Mountains.
Jim Steenburgh, 1995, Ph.D: Mesoscale modeling of synoptic/orographic interactions.
Brian Colle, 1997, Ph.D: Dynamics of windstorms in three dimensional terrain
Fang-Ching Chien, 1997, Ph.D: Interaction of fronts with coastal topography.
Ken Westrick, 1998, M.S.: Coupling of atmospheric and distributed hydrological models.
Richard Steed, 1999, M.S.: Initialization of mesoscale forecasting models.
Eric Gritmit, 2001, M.S.; A Short-Range Ensemble Prediction System
Justin Sharp, 2002: M.S.: A Study of the Meteorology of the Columbia River Gorge
Tony Eckel, 2004: Ph.D. Effective Short-Range Mesoscale Ensemble Prediction.
Eric Gritmit, 2004: Ph.D. Predicting Forecast Skill Using a Mesoscale Ensemble System
Justin Sharp, 2005, Ph.D. Modeling study of the flow in the Columbia River Gorge.
Brian Ancell, 2006, Ph.D. Adjoint and ensemble-based forecast sensitivity
Bri Dotson, 2007, M.S.. Structure and dynamics of major Pacific windstorms.
Garrett Wedam, 2008, M.S. Errors in numerical prediction models

Robert Hahn, 2008, M.S. Understanding of microphysical errors in numerical models.
Ken Dixon, 2013: M.S. Lightning Data Assimilation
Michael Warner, 2014. M.S. Ph.D Heavy precipitation events of the U.S. West Coast
Lee Picard, 2015. MS. An idealized model of orographic precipitation
Matt Brewer, 2017: Ph.d. Structure and dynamics of the thermal trough
Luke Madaus, 2016. Ph.D. Initiation of convection and smartphone data assimilation