
Laura Dian Melling

NOAA Global Systems Laboratory (GSL)

Forecast Impact and Quality Assessment Services (FIQAS)

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EXPERIENCE

Cooperative Institute for Research in Environmental Sciences, Boulder, CO

Scientific Analyst, December 2016 - Present

Perform forecast assessments using operationally-relevant verification techniques. Investigate and implement new techniques, analyze results, prepare formal reports and presentations.

- 9 Projects (7 led)
- 9 Reports (7 first author)
- 3 Conference Presentations (3 first author)
- 1 Award

OPOWER, San Francisco, CA

Implementation Engineer, 2014 - 2016

Technical liaison for utility company clients using Opower's SaaS platform. Integrated utility data into relational databases, configured the platform, and defined requirements for new features.

Institute for Defense Analyses, Alexandria, VA

Research Associate, 2011 - 2013

Performed scientific modelling and data analysis at non-profit, federally-funded defense research organization. Synthesized results and prepared visualizations and summaries for formal reports.

US Department of Agriculture, Washington, DC

Staff Assistant, Office of the Secretary, 2009 - 2011

Coordinated implementation of sustainability agreement with the Innovation Center for US Dairy and joint USDA-EPA AgStar program to promote on-farm energy production and efficiency.

EDUCATION

Utrecht University, Utrecht, Netherlands

Certificate, Physics of the Climate System, 2007

Research: "Numerical solution of the Navier-Stokes equation for high Reynolds number flow."

University of California, Santa Barbara, CA

M.A., Physics, 2006

Thesis: "Using Gravitational Telescopes and OH-Suppressing Infrared Imaging Spectrograph (OSIRIS) with Laser Guide Star Adaptive Optics to Super-Resolve Distant Galaxies."

University of Oregon, Eugene, OR

B.A., Physics and Mathematics, 2003

Thesis: "Self-propelled motion of film boiling droplets on ratchet-like surfaces."

PUBLICATIONS & REPORTS (total: 12, peer-reviewed: 1, h-index: 2)

Melling, L.D., G.J. Layne, P. Hamer, and M.S. Wandishin, 2020: Timing Error Verification Methods. *Report to the Federal Aviation Administration*, 17 pp.

Melling, L.D., G.J. Layne, and M.S. Wandishin, 2020: Evaluation of High-Resolution Forecasts Against Point Observations. *Report to the Federal Aviation Administration*, 17 pp.

Melling, L.D., G.J. Layne, and M.S. Wandishin, 2020: Development of Distribution Approaches for Neighborhood Verification of Gridded Products. *Report to the Federal Aviation Administration*, 20 pp.

Mueller, D.M., **L.D. Melling**, J.E. Hart, and M.S. Wandishin, 2020: Rapid Refresh (RAP) Model Version 5 Upgrade Assessment. *Report to the Federal Aviation Administration*, 42 pp.

T. R. Peevey, D.M. Mueller, **L.D. Melling**, K.R. Fenton, M.S. Wandishin, and P. Hamer, 2020: Investigation of using GOES Water Vapor Gravity Waves for Turbulence Verification. *Report to the Federal Aviation Administration*, 17 pp.

Melling, L.D., G.J. Layne, T.R. Peevey, M.S. Wandishin, and J.E. Hart, 2019: Assessment of the Offshore Precipitation Capability (OPC). *Report to the Federal Aviation Administration*, 38 pp.

Melling, L.D., G.J. Layne, and M.S. Wandishin, 2019: Development of Neighborhood Approaches for Verification of Gridded Products. *Report to the Federal Aviation Administration*, 29 pp.

Melling, L.D., A.G. Laing, M.S. Wandishin, J.E. Hart, and M.A. Petty, 2019: Ensemble Prediction of Oceanic Convective Hazards (EPOCH) Assessment, Part II: Southern Hemisphere Convective Season. *Report to the Federal Aviation Administration*, 59 pp.

Melling, L.D., A.G. Laing, M.S. Wandishin, J.E. Hart, and M.A. Petty, 2018: Ensemble Prediction of Oceanic Convective Hazards (EPOCH) Assessment, Part I: Northern Hemisphere Convective Season. *Report to the Federal Aviation Administration*, 73 pp.

Grotte, J.H., Lloyd, D.A., Kerlin, E.P., **Melling, L.D.**, Freeman, W.D., Niles, M.F., Miller, D., Ganyard, S.T., 2012: Chemical and Biological Defense Planning Scenarios. IDA Paper P-4629.

Treu, T., **Melling, L.**, Marshall, P., 2008: Gravitational Lensing. In "Keck Next Generation Adaptive Optics Science Case Requirements Document," Keck Adaptive Optics Note 455, edited by C.E. Max and E. McGrath, 71-86.

Linke, H., Aleman, B.J., **Melling, L.D.**, Taormina, M.J., Francis, M.J, Dow-Hygelund, C.C., Narayanan, V., Taylor, R.P., Stout, A., 2006: Self-Propelled Leidenfrost Droplets. *Physical Review Letters* 96, 154502 (4).

CONFERENCE PRESENTATIONS

Melling, L.D., G.J. Layne, and M.S. Wandishin, 2020-1-13: Impacts of Neighborhood Approaches for Verification of Gridded Products. *100th American Meteorological Society Annual Meeting: 26th Conference on Probability and Statistics*, Boston, MA, USA.

Melling, L.D., K.M. Bedka, M.S. Wandishin, and M.A. Petty, 2019-1-7: The Use of Visible and IR-Based Probabilistic Overshooting Cloud Top Detection in the Verification of Global Forecasts of Convective Hazards. *99th American Meteorological Society Annual Meeting: 15th Annual Symposium on New Generation Operational Environmental Satellite Systems*, Phoenix, AZ, USA.

Melling, L.D., A.G. Laing, M.S. Wandishin, M.A. Petty, 2018-1-8: The Role of Observation Uncertainty in the Verification of Global Forecasts of Convective Hazards. *98th American Meteorological Society Annual Meeting: Sixth Aviation, Range, and Aerospace Meteorology Special Symposium*, Austin, TX, USA.

HONORS & AWARDS

Team Member of the Month, *NOAA Global Systems Laboratory*, Jun 2019.
For work that will help FIQAS provide customers with improved impact-based verification.

Spot Award, *US Department of Agriculture*, Feb 2011.
A cash award recognizing extra effort and excellence in service to USDA's mission, producing a work product of exceptionally high quality under tight deadlines.

Graduate Assistance in Areas of National Need, *US Department of Education*, 2006 & 2007.
To sustain and enhance the capacity for teaching and research in areas of national need.

Graduate Research Fellowship Honorable Mention, *National Science Foundation*, 2005.
Recognizes and supports outstanding graduate students in NSF-supported science, technology, engineering, and mathematics disciplines who are pursuing research-based master's and doctoral degrees at accredited US institutions.

Outstanding Teaching Assistant Award, *UC Santa Barbara, Dept. of Physics*, 2005.
For exceptional performance as a Teaching Assistant, exhibiting responsibility and leadership.

Summa Cum Laude, *University of Oregon*, 2003.

Ferrando-Fithian Fellowship, *UC Santa Barbara, Dept. of Physics*, 2003.
Awarded to women who show strong potential for development as scholars and research scientists in physics.

The Mildred Braaten Archibald Scholarship, *University of Oregon*, 2002.
Recognizes high achievement for undergraduates majoring in math, chemistry, biology, and physics.

TECHNICAL SKILLS

Scripting (Python, R, IDL) • Relational databases (MySQL) • Meteorological data (NetCDF, GRIB)