

# Luke Madaus

Curriculum Vitae – March 2018

Boulder, Colorado  
www.midlatitude.com/lukemadaus  
☎ 815-980-5000  
✉ luke.madaus@jupiterintel.com



## Education

- 2016 **Ph.D.**, *Atmospheric Sciences*, University of Washington.  
Thesis: “Constraining storm-scale forecasts of deep convective initiation with surface weather observations”
- 2013 **M.S.**, *Atmospheric Sciences*, University of Washington.  
Thesis: “Contributions of dense pressure observations to mesoscale analyses and forecasts”
- 2010 **B.S.**, *Meteorology*, University of Oklahoma.
- 2010 **B.A.**, *Mathematics*, University of Oklahoma.

## Professional Appointments

- 2017- **Staff Scientist and Geophysical Solutions Engineer**, *Jupiter*, Boulder, CO.  
– Principle developer of cloud-based weather/climate models and analytics to construct Jupiter’s ClimateScore Intelligence Platform
- 2016-2017 **ASP Postdoctoral Fellow**, *National Center for Atmospheric Research*, MMM/DAReS, Boulder, CO.

## Publications

### Refereed Journal Articles

- 2017 **The Olympic Mountains Experiment (OLYMPEX)**, *Bull. Amer. Meteor. Soc.*, R. A. Houze et al., Vol. 98, pp. 2167-2188, doi:10.1175/BAMS-D-16-0182.1.
- 2017 **Constraining ensemble forecasts of convective initiation with surface observations**, *Mon. Wea. Rev.*, L. Madaus and G. Hakim, Vol. 145, pp. 2597–2610, doi:10.1175/MWR-D-16-0395.1.
- 2017 **Evaluating smartphone pressure observations for mesoscale analyses and forecasts**, *Wea. Forecasting*, L. Madaus and C. Mass, Vol. 32, pp. 511-531, doi:10.1175/WAF-D-16-0135.1.
- 2016 **Observable surface anomalies preceding simulated isolated convective initiation**, *Mon. Wea. Rev.*, L. Madaus and G. Hakim, Vol. 144, pp. 2265-2284, doi:10.1175/MWR-D-15-0332.1.
- 2015 **Rapid, short-term ensemble forecast adjustment through offline data assimilation**, *Quart. J. Roy. Meteor. Soc.*, L. Madaus and G. Hakim, Vol. 141, pp. 2630-2642, doi:10.1002/qj.2549.
- 2014 **Utility of dense pressure observations for improving mesoscale analyses and forecasts**, *Mon. Wea. Rev.*, L. Madaus, G. Hakim and C. Mass, Vol. 142, pp. 2398-2413, doi:10.1175/MWR-D-13-00269.1.
- 2014 **Surface pressure observations from smartphones: a potential revolution for high-resolution weather prediction?**, *Bull. Amer. Meteor. Soc.*, C. Mass and L. Madaus, Vol. 95, pp. 1343-1349, doi:10.1175/BAMS-D-13-00188.1.

### Upcoming Publications

- 2018 **Challenges and Opportunities for Data Assimilation in Mountainous Environments**, *Atmosphere*, J. Hacker and C. Draper and L. Madaus, Accepted.

---

## Honors and Awards

- 2018 Inaugural Jupiter Award winner for services to the company
- 2015 UW Dept. of Atmospheric Sciences Forecasting Contest Winner
- 2013 Outstanding Student Oral Presentation, 26th WAF/22nd NWP Conference, Atlanta, GA
- 2012 First Place Student Poster, 15th Conf. on Mesoscale Processes, Portland, OR
- 2012 NCAR ASP Graduate Visitor Program Recipient
- 2008-10 NOAA Hollings Scholar
- 2009 Guillermo Salazar Rodriguez Scholarship, American Meteorological Society
- 2009 Forrest Johns Award, OU School of Meteorology

---

## Invited Talks

- 2018 **Cloud-enabled NWP at Scale with the Jupiter Platform**, *Unidata Users Workshop, Boulder, CO*, 18 Jun.
- 2017 **Better Weather with Crowdsourced Weather Observations**, *Workshop on Data Science for High-Impact Weather and Flood Prediction, Reading, UK*, 22 Nov.
- 2015 **YOU can be a walking METAR: smartphone pressure observations for improved mesoscale forecasts**, *17th Cyclone Workshop, Monterrey, CA*, 27 Oct.
- 2011 **Dual-pol and you: what to make of this new radar technology**, *Meeting of the Puget Sound Chapter of the AMS, Seattle, WA*, 12 Nov.

---

## Selected Conference Presentations

- 2017 **Constraining Short-Term Storm-Scale Forecasts of Convective Initiation in OSSEs with Dense Surface Observations**, *28th WAF/24th NWP Conference, Seattle, WA*, 26 Jan.
- 2017 **The Potential of Smartphone Pressure Observations Evaluated in a Convective Case Study**, *28th WAF/24th NWP Conference, Seattle, WA*, 25 Jan.
- 2014 **On the scale and magnitude of precursors to simulated isolated convective initiation**, *27th Conference on Severe Local Storms, Madison, WI*, 4 Nov.
- 2014 **Rapid, short-term ensemble forecast adjustment through offline data assimilation**, *World Weather Open Science Conference, Montreal, QC*, 18 Aug.
- 2014 **Managing ensemble data assimilation systems with Python**, *4th Symposium on Advances in Modeling and Analysis using Python, Atlanta GA*, 4 Feb.
- 2013 **Contributions of dense pressure observations to mesoscale analyses and forecasts**, *15th Conference on Mesoscale Processes, Portland, OR*, 18 Aug.

---

## Invited Department or Campus Talks

- 2018 **What is Data Assimilation?**, *Guest Lecturer; University of Colorado ATOC, Boulder, CO*, 24 Apr.
- 2017 **Better Weather with Crowdsourced Observations**, *SparkFun Electronics, Niwot, CO*, 2 Mar.
- 2016 **Constraining Storm-Scale Ensemble Forecasts of Convective Initiation with Dense Surface Observations**, *NCAR/MMM Seminar Series, Boulder, CO*, 1 Dec.
- 2013 **Rapid, Short-Term Ensemble Forecast Adjustment Through Offline Data Assimilation**, *The Climate Corporation, Seattle, WA*, 14 Jan.

---

## Teaching Experience

- 2017- **Student Mentor**, *Significant Opportunities in Atmospheric Research and Science (SOARS) Program*, National Center for Atmospheric Research (NCAR), Boulder, CO.
- 2011-14 **Instructor/Lecturer**, Univ of Washington Department of Atmospheric Sciences, Seattle, WA.  
Instructor of Record: ATMS 490 (Weather Discussion), ATMS 290 (WxChallenge)  
Teaching Assistant: ATMS 101 (Weather), ATMS 444/544 (Ensemble Prediction Systems)

---

## Research Experience

- 2010-16 **Graduate Research Assistant**, University of Washington Dept of Atmospheric Sciences, Seattle, WA.

---

## Service to Profession

- 2017- Associate Editor, *Monthly Weather Review, Weather and Forecasting*
- 2016-2017 Research Reviews Committee, NCAR/ASP
- 2015 Lead Forecaster, OLYMPEX Field Campaign, University of Washington
- 2014- Reviewer for *Monthly Weather Review, Weather and Forecasting, J. Atmos. Oceanic Tech.*
- 2015-2017 Poster/Presentation Judge, AMS Student Conference

---

## Institutional Service

- 2017 Reviewer/Judge, GLOBE Regional Student Research Symposium, Denver, CO
- 2017 Judge, Longs Peak Science and Engineering Fair, Greeley, CO
- 2012-16 Volunteer, UW Atmos Outreach Program
- 2011-16 Technical Support, UW WxChallenge Team
- 2015 UW Atmos Department Building Renovations Committee

---

## Professional Memberships

- 2017- American Geophysical Union
- 2017- Citizen Science Association
- 2006- American Meteorological Society

---

## References

Josh Hacker, Earth and Ocean Systems, Jupiter, 1320 Pearl St. Suite 322, Boulder, CO.  
josh.hacker@jupiterintel.com

Gregory Hakim, Professor and Chair, UW Department of Atmospheric Sciences, Box 351640, Seattle, WA, 98195. (206) 685-2439. hakim@uw.edu

Clifford Mass, Professor, UW Department of Atmospheric Sciences, Box 351640, Seattle, WA, 98195. (206) 685-0910. cmass@uw.edu

Jeffrey Anderson, Section Head, NCAR/DAReS, 1850 Table Mesa Dr, Boulder, CO 80307. (303) 497-8991. jla@ucar.edu

Lynn McMurdie, Research Scientist & Sr. Lecturer, UW Department of Atmospheric Sciences, Box 351640, Seattle, WA, 98195. (206) 685-9405. mcmurdie@uw.edu