JOHN CINTINEO
United States citizen

University of Wisconsin – Madison, 1225 W. Dayton Street, Madison, WI 53706

cintineo@wisc.edu   cimss.ssec.wisc.edu/~jcintineo   https://orcid.org/0000-0002-4347-5386   (608) 890-0619

PROFESSIONAL EXPERIENCE

Research Meteorologist (40 hours/week)   **University of Wisconsin—Madison**   **Oct. 2011 – present**

Space Science and Engineering Center (SSEC) / Cooperative Institute for Meteorological Satellite Studies (CIMSS).

- **Project portfolio:** NOAA/CIMSS ProbSevere
  - Primary developer on a team that created, trained, and implemented machine-learning models to predict the probabilities of hail, wind, and tornadoes in severe storms using radar, satellite, lightning, and NWP data.
  - Plan and coordinate the completion of research tasks, leading teams of 2 to 3 others, on development of ProbSevere v3.
  - Led transition of ProbSevere v2 to NCEP Central Operations. ProbSevere is currently used routinely by the NOAA/NWS.
  - Developed and implemented a short-term lightning forecast model, LightningCast, using artificial intelligence and satellite data.
    - Now planning transition to operations after several successful NOAA testbeds.
  - Developed and implemented an intense-convection detection model, using artificial intelligence and satellite data.
    - Used in the experimental ProbSevere version 3
- **Project portfolio:** Volcanic ash and SO_2 detection and diagnosis using multi-sensor, multi-channel satellite observations.
  - Evaluated state-of-the-art volcanic ash products.
  - Aided in development of novel approach to detect volcanic convection (i.e., explosive eruptions).
  - Products used routinely by airlines and Volcanic Ash Advisory Centers (VAACs) around the world.

NOAA Hazardous Weather Testbed Spring Experiment   **National Severe Storms Laboratory**   **2014-2023**

- Lead the deployment, training, forecaster interaction, and feedback collection for ProbSevere products in the HWT. Interacted with forecasters for 1-3 weeks each year (40 hours/week).

NOAA Hollings Scholar Research Assistant (40 hours/week)   **National Severe Storms Laboratory**   **May – Aug. 2008**

- **Project:** Analyzing temporal trends of Multi-Radar Multi-Sensor variables for severe and non-severe thunderstorms

EDUCATION

M.S. – Meteorology, 2011   **University of Oklahoma**   **Norman, Oklahoma**

- Thesis: An objective radar-derived hail climatology for the contiguous United States

B.S. – Atmospheric Science, 2009   **Cornell University**   **Ithaca, New York**

PEER – REVIEWED PUBLICATIONS

- **Cintineo, J. L.**, M. J. Pavolonis, J. M. Sieglaff, 2022: ProbSevere LightningCast: A deep-learning model for satellite-based lightning nowcasting. *Wea. Forecasting*, **37**, 1239-1257.
- **Cintineo, J. L.**, M. J. Pavolonis, J. M. Sieglaff, A. Wimmers, and J. Brunner, 2020: A deep-learning model for automated detection of intense mid-latitude convection using geostationary satellite images. *Wea. Forecasting*, **35**, 2567-2588.
- **Cintineo, J. L.**, M. J. Pavolonis, J. M. Sieglaff, L. Cronce, and J. Brunner, 2020: NOAA ProbSevere v2.0 – ProbHail, ProbWind, and ProbTor. *Wea. Forecasting*, **35**, 1523–1543.
- M. J. Pavolonis, J. M. Sieglaff, and **J. L. Cintineo**, 2018: Automated Detection of Explosive Volcanic Eruptions Using Satellite-derived Cloud Vertical Growth Rates. *Earth and Space Science*, **5**, 12, 903-928.
- **Cintineo, J. L.**, M. J. Pavolonis, J. M. Sieglaff, D. T. Lindsey, L. Cronce, J. Gerth, B. Rodenkirch, J. Brunner, and C. Gravelle, 2018: The NOAA/CIMSS ProbSevere Model - incorporation of total lightning and validation. *Wea. Forecasting*, **33**, 331–345.
- Karstens, C. D., J. Correia Jr., D. S. LaDue, J. Wolf, T. C. Meyer, D. R. Harrison, **J. L. Cintineo**, K. M. Calhoun, T. M. Smith, A. E. Gerard, L. P. Rothfusz, 2018: Development of a human-machine mix for forecasting severe convective events. *Wea. Forecasting*, **33**, 715-737.
- Pavolonis, M. J., J. M. Sieglaff, and **J. L. Cintineo**, 2015: Spectrally Enhanced Cloud Objects (SECO): A Generalized Framework for Automated Detection of Volcanic Ash and Dust Clouds using Passive Satellite Measurements: 2. Cloud Object Analysis and Global Application, *J. Geophys. Res. – Atmospheres,* **120**, 15, (7842-7870)*.*
- Pavolonis, M. J., J. M. Sieglaff, and **J. L. Cintineo**, 2015: Spectrally Enhanced Cloud Objects (SECO): A Generalized Framework for Automated Detection of Volcanic Ash and Dust Clouds using Passive Satellite Measurements: 1. Multispectral Analysis, *J. Geophys. Res. – Atmospheres,* **120**, 15, (7813-7841).
- **Cintineo, J. L.**, M. J. Pavolonis, J. M. Sieglaff, and D. T. Lindsey, 2014: An empirical model for assessing the severe weather potential of developing convection. *Wea. Forecasting*, **29**, 639-653.

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• Schmit, T. J., S. J. Goodman, D. T. Lindsey, R. M. Rabin, K. M. Bedka, M. M. Gunshor, **J. L. Cintineo**, C. S. Velden, A. S. Bachmeier, S. S. Lindstrom, and C. C. Schmidt, 2013: GOES-14 super rapid scan operations to prepare for GOES-R. *J. Appl. Remote. Sens.*, **7**, 073462.
• **Cintineo, J. L.**, M. J. Pavolonis, J. M. Sieglaff, and A. K. Heidinger, 2013: Evolution of severe and non-severe convection inferred from GOES-derived cloud properties. *J. Appl. Meteorol. Climatol.*, **52**, 2009-2023.
• **Cintineo, J. L.**, T. M. Smith, V. Lakshmanan, H. E. Brooks, and K. L. Ortega, 2012: An objective high-resolution hail climatology of the contiguous United States. *Wea. Forecasting*, **27**, 1235-1248.

CONFERENCE PAPERS and INVITED PRESENTATIONS (selected)

• University of North Dakota – Grand Forks, Seminar Series (2023) [invited]
• NWS SOO/DOH Conference, Denver, CO (2023): *Applying LightningCast to NWS Operations* [invited]
• **Cintineo, J. L.**, M. J. Pavolonis, and Chad Gravelle (2023): ProbSevere LightningCast for decision-support services. *103rd Annual Amer. Meteo. Soc. Meeting*, 8.4. [link]
• Webinar on Nowcasting Operations and Techniques: Perspectives to South America (2022) [link] [invited]
• NOAA Satellite Book Club – *ProbSevere LightningCast – user panel discussion* (2022) [link] [invited]
• NWS Southern Region Science Circle – ProbSevere v3 (2022) [link] [invited]
• NWS Southern Region Science Circle – ProbSevere LightningCast (2021) [link] [invited]
• **Cintineo, J. L.**, M. J. Pavolonis, and J. M. Sieglaff (2021): Using ABI and deep learning to nowcast lightning. *101st Annual Amer. Meteo. Soc. Meeting*, J2.5
• NOAA Satellite Book Club – *NOAA/CIMSS ProbSevere – Present and Future* (2020) [link] [invited]
• **Cintineo, J. L.**, M. J. Pavolonis, and J. M. Sieglaff, 2020: Lightning prediction in the Atlantic offshore region. *2nd NOAA Workshop for Leveraging AI in the Environmental Sciences*, College Park, MD. [link]
• Pavolonis, M. P., **J. L. Cintineo**, D. Hyman, J. M. Sieglaff, and C. Calvert, 2019: Transforming data to information: the ongoing evolution of satellite products. *100th Annual Amer. Geophy. Union Fall Meeting*, San Francisco, CA, IN53D-0771.
• **Cintineo, J. L.**, M. J. Pavolonis, J. M. Sieglaff, C. D. Karstens, and K. M. Calhoun, 2018: Automated severe thunderstorm guidance from the NOAA/CIMSS ProbSevere model within the Hazardous Weather Testbed. *98th Annual Amer. Meteo. Soc. Meeting*, Austin, TX, 13A.1.
• Pavolonis, M. J., J. M. Sieglaff, and **J. L. Cintineo**, 2018: Automated volcanic cloud identification, tracking, and characterization using JPSS and GOES-R. *98th Annual Amer. Meteo. Soc. Meeting*, Austin, TX, 2.2.
• **Cintineo, J. L.**, M. J. Pavolonis, J. M. Sieglaff, J. Brunner, and D. T. Lindsey, 2017: Next generation geostationary satellite observations in a multi-sensor severe weather nowcasting tool. *EUMETSAT Meteorological Satellite Conference*, Rome, Italy, 95
• Pavolonis, M. J., J. M. Sieglaff, and **J. L. Cintineo**, 2017: Automated volcanic cloud identification, tracking, and characterization using next generation meteorological satellites. *EUMETSAT Meteorological Satellite Conference*, Rome, Italy, 270
• Pavolonis, M. J., J. M. Sieglaff, and **J. L. Cintineo**, 2016: Automated Utilization of Weather Satellites for Global Mitigation of Aviation Related Volcanic Hazards. *32nd Conference on Environmental Information Processing Technologies*, New Orleans, LA, J3.2
• Karstens, C. D., G. J. Stumpf, C. Ling, D. M. Kingfield, J. Correia Jr., D. LaDue, K. M. Calhoun, T. C. Meyer, T. M. Smith, **J. L. Cintineo**, C. J. Melik, and L. P. Rothfusz, 2016: Forecaster Decision-Making with Automated Probabilistic Guidance in the 2015 Hazardous Weather Testbed Probabilistic Hazard Information Experiment. *96th Amer. Meteo. Soc. Meeting*, New Orleans, LA, 4.2.
• **Cintineo, J. L.**, M. J. Pavolonis, and J. M. Sieglaff, 2014: Preliminary evaluation of a fused algorithm for the prediction of severe storms. *22nd Conference on Probability and Statistics in the Atmospheric Sciences*, Atlanta, GA, 7.1.
• **Cintineo, J. L.**, T. M. Smith, V. Lakshmanan, and S. Ansari, 2011: An automated system for processing the Multi-Year Reanalysis Of Remotely Sensed Storms (MYRORSS). *27th Conference on Interactive Information Processing Systems*, Seattle, WA, J9.3.
• **Cintineo, J. L.**, V. Lakshmanan, and T. M. Smith, 2010: Performance of a probabilistic cloud-to-ground lightning prediction algorithm. *20th Conference on Probability and Statistics in the Atmospheric Sciences,* Atlanta, GA, P526.
• **Cintineo, J. L.**, T. M. Smith, V. Lakshmanan, and K. L. Ortega, 2009: A real-time automated method to determine forecast confidence associated with NWS tornado warnings. *25th Conference on Interactive Information Processing Systems*, Phoenix, AZ, 4B.1.

AWARDS & HONORS (selected)

• World Meteorological Organization – Artificial Intelligence Nowcasting Pilot Project, core member (2022-present)
• NOAA Technology Transfer Award – WDSS-II: On Demand team (2013)
• NOAA Hollings Scholar (2008-2009)
• AMS Loren Crow Memorial Scholarship (2009)