# Joseph P. Zagrodnik

Postdoctoral Research Associate, Washington State University AgWeatherNet

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## Education

2019 **PhD** University of Washington Dept. of Atmospheric Sciences

2013 **MS** Florida International University Dept. of Earth & Environment

2009 **BS** University of Wisconsin-Madison Atmospheric & Oceanic Sciences

2009 **BS** University of Wisconsin-Madison History (US Concentration)

## Research Positions

2019 - **Postdoctoral Research Associate**, AgWeatherNet, Washington State University

2013 - 2019 **Research Assistant**, Mesoscale Group, University of Washington, Seattle, WA
Research Advisors: Dr. Lynn McMurdie & Dr. Robert A. Houze
Focus: Dynamic and Microphysical Modification of Precipitation in Midlatitude Cyclones Passing over a Coastal Mountain Range

2010 - 2013 **Research Assistant**, Florida International University, Miami, FL
Research Advisor: Dr. Haiyan Jiang
Focus: TC Rapid Intensification: Mechanisms and Forecasting, TRMM Precipitation Algorithms

2009 - 2010 **Research and Marketing Assistant**, MyWeather LLC, Madison, WI
Focus: Developing iPhone applications for weather forecasts and lightning detection

## Recent Refereed Publications (since 2018)

2020 **Zagrodnik, J.P.,** J. Weyn, and D. Brown, 2020: Site-Specific Temperature Forecasting using a Random Forest Postprocessing Model, *J. Geophys. Res.*, in prep.

2020 **Zagrodnik, J.P.,** L. McMurdie, and R. Conrick, 2020: Barrier and Sub-Barrier Scale Precipitation Processes in High-Resolution Simulations Over the Olympic Mountains. *Mon. Wea. Rev.*, *submitted*.

2019 Conrick, R., **J.P. Zagrodnik**, and C. Mass, 2019: Dual-polarization radar retrievals of coastal Pacific Northwest rain drop size distribution parameters using random forest regression. *J. Atmos. Oceanic Technol*., 37, 229–242.

2019 **Zagrodnik,** J. P., L. A. McMurdie, R. A. Houze, Jr., and S. Tanelli, 2019: Vertical Structure and Microphysical Characteristics of Frontal Clouds Passing over a Three-Dimensional Coastal Mountain Range. *J. Atmos. Sci*., *76,* 1521-1546.

2018 **Zagrodnik**, J. P., L. A. McMurdie, and R. A. Houze, Jr., 2018: Stratiform Precipitation Processes in Cyclones Passing over a Coastal Mountain Range. *J. Atmos. Sci.*, 75, 983-1004.

2018 Mass, C. F., R. Conrick, N. Weber, and J.P. **Zagrodnik**, 2018: The Quinault Blow Down: A Microscale Wind Event Driven by a Mountain-Wave Rotor. *Bull. Amer. Met. Soc.*, *in press*.

2018 Barnes, H. C., J. P. **Zagrodnik**, L. A. McMurdie, A. K. Rowe, and R. A. Houze, Jr., 2018: Kelvin-Helmholtz Waves in Precipitating Stratiform Clouds of Mid-Latitude Baroclinic Cyclones. *J. Atmos. Sci.*, 75, 2763-2785.

2018 Jiang, H., J. P. **Zagrodnik**, C. Tao, and E. J. Zipser: Classifying precipitation types in tropical cyclones using the NRL 37 GHz color product, *J. Geophys. Res.*, 123, 5509-5524.

## Recent Conference Proceedings (since 2017)

2019 Machine Learning for Hyper-Local Weather Forecasting, WSTFA Annual Meeting, Wenatchee, WA.

2019 Attribution of extreme weather events to climate change in agricultural regions of Washington State, Northwest Climate Conference, Portland, OR.

2019 The Importance of warm rain processes in orographic enhancement of precipitation during atmospheric rivers, 12th International Precipitation Conference, Irvine, CA.

2018 Vertical Structure and Microphysical Characteristics of Precipitation over a Three-Dimensional Coastal Mountain Range, AGU Fall Meeting, Washington, DC.

2018 Vertical Structure and Microphysical Characteristics of Precipitation on the High Terrain and Lee Side of the Olympic Mountains As Seen in OLYMPEX, 18th Conference on Mountain Meteorology, Santa Fe, NM.

2017 Down-valley flow during OLYMPEX: Effects on Precipitation Patterns and Microphysics, AGU Fall Meeting, New Orleans, LA.

2017 Stratiform Precipitation Processes in Cyclones Passing over the Olympic Mountains, PNW Weather Workshop, Seattle, WA.

2017 Synoptic and Orographic Control of Observed Drop Size Distributions during the OLYMPEX Field Campaign, AMS Annual Meeting, Seattle, WA.

## Relevant Honors and Fellowships

2020 First Place, Univ of Oklahoma Weather Forecasting (WxChallenge) spring tournament.

2018-19 Captain of national champion University of Washington WxChallenge forecasting team.

2018 First Place Oral Presentation, AMS 18th Conference on Mountain Meteorology

2011 - 2014 Recipient, NASA Earth and Space Science Graduate Fellowship (NESSF)

## Technical Skills

Proficient: **Software**: Linux, Python (Numpy, Pandas, Scipy, Scikit-Learn, Py-ART radar visualization toolkit), IDL, Version Control (Git), CIDD, MS Office
**Meteorological Data**: Dual-pol radar (NPOL, DOW, D3R), MRR radar, Airborne radar (APR-3), TRMM/GPM satellite data, NARR and ERA reanalysis, rain gauges, disdrometers (PARSIVEL, 2DVD, PIP)

Experience with: **Software**: Matlab, SQLite, Jupyter Notebooks, GEMPAK, GARP, LaTeX
**Meteorological Data**: WRF, BUFKIT, GOES satellite data