

# Kyle MacRitchie, Ph.D.

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*I learn quickly, think critically, work carefully, read often, and never stop questioning how the world works. I've been coding since I was 13, when computers were beige boxes with 56.6K modems and PHP 3 was in vogue.*

## EDUCATION – University at Albany/SUNY in Albany, NY

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**Ph.D. in Atmospheric Science** 2014  
 Concentration: Large-scale tropical variability, tropical/midlatitude interactions, statistical analysis & forecasting  
 Advisor: Paul Roundy

**B.S. in Atmospheric Science (Honors) and Mathematics** 2009

## RECENT JOBS

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**Atmospheric Scientist at Innovim, LLC working at Climate Prediction Center** 2016 - present

- Model verification & calibration using ensemble regression; statistical forecasting w/ neural networks for weeks 3+4.

**Consultant for Riskpulse (formerly EarthRisk Technologies)** 2013 - 2016

- Worked to improve predictions using intraseasonal and interannual atmospheric and oceanic variability.
- Spearheaded a number of projects to assess model skill and bias under different atmospheric regimes.
- Worked with team to refine ideas and incorporate into other projects as appropriate.

**Data Support Scientist at ADNET Systems, Inc. working at NASA Goddard** 2015 – 2016

- Managed transition of metadata for >1,000 products to new database.
- Created multiple Python programs to interface with RESTful API for myself and others to use.

**Lecturer at the College at Oneonta, Dept. of Earth and Atmospheric Science** 2013 – 2015

- Full-time, temporary position in which I created and taught Introduction to Meteorology, Tropical Meteorology, Physical Meteorology (Thermodynamics), Environmental Issues, and Senior Seminar.

## TECHNICAL EXPERTISE

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**Software:** Office; Linux, macOS, and Windows; I'm most at home with a terminal running bash.

**The Web & Related:** RESTful APIs, Google Maps API, HTML, CSS, PHP (moderately), JSON, XML, Plesk

**Data Analysis:** MATLAB, Python (incl. Anaconda), NCL

**Storage/DBs:** netCDF, GRIB, HDF, binary, OPeNDAP, MySQL, and all sorts of text-based files (e.g. csv)

**Statistical Analyses (a small sample):** artificial neural networks, regression, PC/EOF analysis, CCA, cluster analysis, significance testing, time-series analysis, Fourier transforms, etc.

**Datasets (a small sample):** ECMWF forecast and hindcast data, JMA forecast and hindcast data, NCEP/NCAR reanalysis, CFS reanalysis and reforecast, GFS Reforecast, ECMWF Interim and ERA-40 reanalyses, NOAA OLR datasets, NASA TRMM, GPM, and MERRA datasets

## WEBSITE – KyleMacRitchie.com

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- I created the website and I run the cloud server: Linux, Apache, and Plesk.
  - Developed unique hovmoller diagrams and latitude-longitude maps to display equatorial waves
  - Developed unique standardized ensemble spread maps to view ensemble spread relative to climatology
  - Site has hundreds of regular users from the academic, government, energy, agriculture, and enthusiast sectors.
  - Site incorporates data from NOAA's CFS reanalysis and forecast datasets.
  - Most maps are updated daily in near real-time.
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**PROFESSIONAL/ACADEMIC DEVELOPMENT**

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**Peer Reviewer** Ongoing**Head of Student Committee for Faculty Candidate Interviews** 2013

- Formed and led a committee of graduate students to interview faculty candidates applying for two positions in the department.
- Wrote detailed report that was submitted to the faculty after committee approval.

**Student Poster Judge, 12<sup>th</sup> Annual AMS Student Conference, Austin, TX** 2013

- Judged graduate student posters for the students' poster award.

**NCAR ASP Summer Colloquium: Weather-Climate Intersection, Boulder, CO** 2012

- Selected to participate in a 3-week summer colloquium where leading scientists discussed challenges associated with understanding the weather-climate intersection

**PEER-REVIEWED PUBLICATIONS**

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- **MacRitchie, K.**, and P.E. Roundy. 2016: The two-way relationship between the Madden Julian oscillation and anticyclonic wave breaking. *Quart. J. Royal Meteor. Society*. Accepted; in press.
- Roundy P.E., N. Sakaeda, L. Gloeckler, **K. MacRitchie**. 2015: Weather climate interactions and extreme events in the climate system. *Amer. Geophys. Union Books*. Accepted.
- **MacRitchie, K.**, and P. E. Roundy, 2012: Potential vorticity accumulation following atmospheric Kelvin waves in the active convective region of the MJO. *J. Atmos. Sci.*, **69**, 908-914.
- Roundy, P. E., **K. MacRitchie**, J. Asuma, T. Melino, 2010: Modulation of the global atmospheric circulation by combined activity in the Madden-Julian oscillation and the El Niño-Southern oscillation during boreal winter. *J. Climate*, **23**, 4045-4059.

I have given > 10 presentations at many conferences including talks at the AMS and AGU annual meetings.

**AWARDS**

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**The Bernard Vonnegut Teaching Award** 2012