

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

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

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 EarthData's 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

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), XML, AWS: EC2, S3

Data Analysis: MATLAB, Python (incl. Anaconda, NumPy, Keras, and the other usual suspects), NCL

Storage/DBs: netCDF, GRIB, HDF, binary, OPeNDAP, MySQL, JSON, 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

- 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

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, 12th 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

- **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

The Bernard Vonnegut Teaching Award 2012