Maria Gehne

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Education

Ph.D. Mathematics and Atmosphere Ocean Science, New York University
Received May 15, 2012.

Dissertation topic: Simple Stochastic Models Based on Analyses of Tropical Phenomena in Observational Data.

M.A. Mathematics (minor in Meteorology), Freie Universität Berlin
Received August 21, 2007

Thesis: Mathematical Structure of the LPJ Dynamic Global Vegetation Model

Employment

Cooperative Institute for Research in Environmental Sciences

Research Associate (Research Scientist II), December 2013 - current

Forecast skill in the NCEP Global Forecast System associated with tropical forecast skill improvements
Multiscale interactions of convection associated with the MJO
Improving near surface spread in the NCEP Global Ensemble Forecast System using surface parameter perturbations.

National Center for Atmospheric Research

Postdoctoral Fellow, Kevin Trenberth, July 2012 - November 2013

Global energy and water cycles

World Food Programme

Internship, Joanna Syroka, April - September 2010

Data analysis for Africa Drought Insurance project

Fields of Research Interest

Weather and Climate Variability, Convectively Coupled Equatorial Waves, Stochastic Models, Scale Interactions, Predictability.

Graduate Coursework

Geophysical Fluid Dynamics, broad range of classes on applied PDE's and Numerical Analysis in Climate and Atmospheric Dynamics, Stochastic Calculus, Dynamical Systems, Numerical Methods, Mathematical Models in Climate Research

Teaching

New York University

    Calculus I, Teaching Assistant, Fall 2011.
    Calculus I, Teaching Assistant, Spring 2009.
    Transformations and Geometries, Teaching Assistant, Fall 2008.
    Quantitative Reasoning, Teaching Assistant, Spring 2008.

Conference and Seminar Presentations

    22nd Conference on Atmospheric and Oceanic Fluid Dynamics, Portland, ME, June 2019.
    97th AMS Annual Meeting, Austin, TX January 2018.
    21th Conference on Atmospheric and Oceanic Fluid Dynamics, Portland, OR, June 2017.
    96th AMS Annual Meeting, New Orleans, LA, January 2016.
    20th Conference on Atmospheric and Oceanic Fluid Dynamics, Minneapolis, MN, June 2015.
    95th AMS Annual Meeting, Phoenix, AZ, January 2015.
    19th Conference on Atmospheric and Oceanic Fluid Dynamics, Newport, RI, June 2013.
    30th Conference on Hurricanes and Tropical Meteorology, Ponte Vedra Beach, FL, 15-20 April 2012
    SEAS Colloquium in Climate Science, Columbia University, New York, March 1, 2012.

Honors, Awards, & Fellowships

    MacCracken Fellowship, New York University, 2007 to 2012.
    Grant to attend the summer school on Godunov Methods in Computational Engineering and Technology, Selwyn College, Cambridge University, UK, 2006.

Miscellaneous

    Languages: Fluent in German and English.
    Activities: Piano accompanist for chamber music ensembles and vocalists, reading, climbing, hiking and running.

Publications

    Bengtsson, L., and Coauthors, 2019: Convectively Coupled Equatorial Wave Simulations Using the ECMWF IFS and the NOAA GFS Cumulus Convection Schemes in the NOAA GFS Model. *Mon. Wea. Rev.*, 147, 4005-4025, https://doi.org/10.1175/MWR-D-19-0195.1.

    Gehne, M., T. M. Hamill, G. T. Bates, P. Pegion, and W. Kolczynski, 2019: Land Surface Parameter and State Perturbations in the Global Ensemble Forecast System. *Mon. Wea. Rev.*, 147, 1319-1340, https://doi.org/10.1175/MWR-D-18-0057.1.

    Dias, J., M. Gehne, G. N. Kiladis, N. Sakaeda, P. Bechtold, and T. Haiden, 2018: Equatorial Waves and the Skill of NCEP and ECMWF Numerical Weather Prediction Systems. *Mon. Wea. Rev.*, 146, 1763-1784, https://doi.org/10.1175/MWR-D-17-0362.1.

    Dole, R. M., and Coauthors, 2018: Advancing Science and Services during the 2015/16 El Nio: The NOAA El Nio Rapid Response Field Campaign. *Bull. Amer. Meteor. Soc.*, 99, 975-1001, https://doi.org/10.1175/BAMS-D-16-0219.1.

Trenberth, K.E., Y. Zhang, and M. Gehne, (2017): Intermittency in Precipitation: Duration, Frequency, Intensity, and Amounts Using Hourly Data. *J. Hydrometeor.*, 18, pp. 1393-1412. DOI: 10.1175/JHM-D-16-0263.1

Gehne, M., T. M. Hamill, G. N. Kiladis, and K. E. Trenberth (2016): Comparison of Global Precipitation Estimates across a Range of Temporal and Spatial Scales. *Journal of Climate*, Volume 29, Issue 21, pp. 7773-7795. DOI: 10.1175/JCLI-D-15-0618.1

Kiladis, G. N., J. Dias, and M. Gehne (2016): The Relationship between Mixed Rossby-Gravity and Eastward Inertio-Gravity Waves. Part I. *Journal of the Atmospheric Sciences*, Volume 73, pp. 2123-2145, DOI: 10.1175/JAS-D-15-0230.1

Gehne, M., R. Kleeman and K. E. Trenberth (2014): Irregularity and decadal variation in ENSO: A simplified model based on Principal Oscillation Patterns. *Climate Dynamics* DOI: 10.1007/s00382-014-2108-6

Dias, J., P. L. Silva Dias, G. N. Kiladis, M. Gehne (2013): Modulation of shallow water equatorial waves due to a varying equivalent height background. *Journal of the Atmospheric Sciences*, Volume 70, pp. 2726-2750. DOI: 10.1175/JAS-D-13-04.1

Gehne, M. and R. Kleeman, (2012): Spectral analysis of tropical atmospheric dynamical variables using a linear shallow water modal decomposition. *Journal of the Atmospheric Sciences*, Volume 69, Issue 7, pp. 2300-2316. DOI: 10.1175/JAS-D-10-05008.1