Kathleen (Kathy) Verzone Pegion

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EMPLOYMENT

Assistant Professor **Aug 2014-Present**
Department of Atmospheric Oceanic and Earth Sciences, George Mason University, Fairfax, VA

Research Scientist II **Apr 2012- Present**
CIRES/University of Colorado & NOAA/ESRL/PSD, Boulder, CO

Research Scientist I **Feb 2009–Apr 2012**
CIRES/University of Colorado & NOAA/ESRL/PSD, Boulder, CO

Research Scientist **May 2007-Jan 2009**
Center for Ocean-Land-Atmosphere Studies, Calverton, MD

Graduate Research Assistant **Dec 2002–May 2007**
Climate Dynamics Department, George Mason University, Fairfax, VA

Meteorologist **Feb 2001 – Dec 2002**
NOAA/NWS/Meteorological Development Laboratory, Silver Spring, MD

Scientific Programmer/Analyst **Aug 1999 – Feb 2001**
General Sciences Corporation-Science Applications International Corporation in support of the NASA Seasonal to Interannual Prediction Project, Goddard Space Flight Center, Greenbelt, MD

Graduate Research Assistant **Aug 1998–Aug 1999**
Center for Ocean-Atmosphere Prediction Studies, Florida State University, Tallahassee, FL

Undergraduate Research Assistant **Aug 1996 –Aug 1998**
Center for Ocean Atmosphere Prediction Studies, Florida State University, Tallahassee, FL

EDUCATION

Ph.D. Climate Dynamics, George Mason University, Fairfax, VA (2007)
Advisors: Drs. J. Shukla and Ben Kirtman
Dissertation Title: The Impact of Air-Sea Coupling on Tropical Intraseasonal Variability: Simulation and Predictability

M.S. Meteorology, Florida State University, Tallahassee, FL (1999)
Advisor: Dr. James J. O'Brien

Dissertation Title: Double Ensemble Estimates of Precipitation in the Southeastern United States for Extreme ENSO Events

B.S. Meteorology, Florida State University, Tallahassee, FL (1998)

B.S. Computer Science, Florida State University, Tallahassee, FL (1998)

REFEREED PUBLICATIONS

1. Kirtman, B. P and Coauthors, 2013: The North American Multi-Model Ensemble (NMME): Phase-1 Seasonal to Interannual Prediction, Phase-2 Toward Developing Intra-Seasonal Prediction, *Bull. Amer. Met. Soc., in Press*.

2. **Pegion, K.** and M. Alexander, 2013: The Seasonal Footprinting Mechanism in CFSv2: Simulation and Impact on ENSO Prediction, *Climate Dynamics Special Issue on Evaluation of CFSv2, in Press.*

3. **Pegion, K.,** and A. Kumar, 2013: Does an ENSO-Conditional Skill Mask Improve Seasonal Predictions?, *Mon. Wea. Rev. in Press.*

4. **Pegion, K.** and P. Sardeshmukh, 2011: Prospects for Improving Subseasonal Predictions, *Mon. Wea. Rev.,* 139, 3648-3666.

5. Shin, S., P. D. Sardeshmukh, and **K. Pegion** 2010, Realism of local and remote feedbacks on tropical sea surface temperatures in climate models, *J. Geophys. Res*., 115, D21110, doi:10.1029/2010JD013927.

6. Wu, R., B. P. Kirtman, and **K. Pegion**, 2008: Local rainfall-SST relationship on subseasonal time scales in satellite observations and CFS. *Geophys Res Letters*, 34, L22706, doi:10.1029/2008GL035883

7. **Pegion, K.** and B. P. Kirtman, 2008: The Impact of Air-Sea Interactions on the Simulation of Tropical Intraseasonal Variability. *J. Climate*, 21, 6616-6635.

8. **Pegion, K.** and B. P. Kirtman, 2008: The Impact of Air-Sea Interactions on the Predictability of the Tropical Intraseasonal Oscillation. *J. Climate*, 21, 5870-5886.

9. Hu, Z. -Z., B. Huang, and **K. Pegion,** 2008: Low Cloud Errors over the Southeastern Atlantic in the NCEP CFS and their Association with Lower-Tropospheric Stability and Air-Sea Interaction. *J. Geophys. Res.,* 113, D12114, doi: 10.1029/2007JD009514.

10. Hu, Z. -Z., B. Huang, and **K. Pegion**, 2008: Leading patterns of the tropical Atlantic variability in a coupled general circulation model. *Clim. Dyn,*, 30, 703-726.

11. Wu R., B. P. Kirtman, and **K. Pegion**, 2007: Surface latent heat flux and its relationship with sea surface temperature in the National Centers for Environmental Prediction Climate Forecast System simulations and retrospective forecasts, *Geophys. Res. Letters*, 34, L17712, doi:10.1029/2007GL030751.

12. Kirtman, B. P., **K. Pegion**, and S. Kinter, 2005: Internal atmospheric dynamics and Tropical Indo-Pacific Climate Variability. *J. Atmos. Sci*., 62, 2220-2233.

13. Wu, R., B. P. Kirtman, and **K. Pegion** 2005: Local Air-Sea Relationships in Observations and Model Simulations. *J. Climate*, 19, 4913-4932.

14. Smith, S.R., D. M. Legler, and **K.V. Verzone**, 2001: Quantifying Uncertainties in NCEP-Reanalysis Using High-Quality Research Vessel Observations. *J. Climate*, 14, 4062-4072.

OTHER PUBLICATIONS

1. **Pegion, K**. and R. Webb, 2013: *An Assessment of Skill and Reliability of the NOAA Climate Forecast System and National Multi-Model Ensemble Prediction of Meteorological Conditions over the Missouri River Basin*, Report to U.S. Army Corps of Engineers.

2. Hu, Z. –Z, B. Huang, and **K. Pegion**, 2009: *Biases and the Most Predictable Patterns in the NCEP CFS over the Tropical Atlantic Ocean. Atlantic and Indian Oceans: New Oceanographic Research*, E. S. Askew and J. P. Bromley, Eds., Nova Science Publishers, Inc., 1-14.

3. **Pegion, K**, P. Pegion, T. DelSole, and M. Sirbu, 2009: Subseasonal Variability of Hurricane Activity, NOAA Climate Testbed Joint Seminar Series Extended Abstracts. (http://www.nws.noaa.gov/ost/climate/STIP/FY09CTBSeminars/kpegion_121008.pdf)

4. **Pegion, K**., 2007: The Impact of Air-Sea Coupling on Tropical Intraseasonal Variability: Simulation and Predictability. PhD dissertation, George Mason University.

5. **Pegion, K**., and B. P. Kirtman, 2007: Sensitivity of the MJO to SST: A Simulation and Predictability Study of the MJO using the CFS and GFS, NOAA Climate Testbed Joint Seminar Series Extended Abstracts. (http://www.nws.noaa.gov/ost/climate/STIP/CTB-COLA/kpegion_111407.htm)

6. **Pegion, K.** and B. P. Kirtman, 2007: Internal Atmospheric Dynamics and Air-Sea Interactions in the Tropical Intraseasonal Oscillation, COLA Technical Report #247, 20 pp. (ftp://cola.gmu.edu/pub/ctr/ctr_247.pdf)

7. Oberfield, M. A. and **K. V. Pegion**, 2002: Generating Digital Forecast Matrices from Gridded Forecasts in the Interactive Forecast Preparation System. *Preprints Interactive Symposium on the Advanced Weather Interactive Processing System (AWIPS),* Orlando, Amer. Meteor. Soc., (https://ams.confex.com/ams/annual2002/techprogram/paper_28112.htm)

8. **Verzone, K. V**., 1999: Double Ensemble Estimates of Precipitation in the Southeastern United States for Extreme ENSO Events. M.S. Thesis, Meteorology Department, Florida State University.

PRESENTATIONS

Conference/Workshop

1. Pegion, K., 2013: A Preliminary Assessment of MJO Skill in the NMME, 38th Climate Diagnostics and Prediction Workshop, College Park, MD.

2. Pegion, K, and M. Alexander, 2013: The Seasonal Footprinting Mechanism in CFSv2: Simulation and Impact on ENSO Prediction, Clivar ENSO Diversity Working Group Workshop, Boulder, CO

3. Pegion, K, and M. Alexander, 2012: The Seasonal Footprinting Mechanism in CFSv2: Simulation and Impact on ENSO Prediction, AGU Fall Meeting, San Francisco, CA.

4. Pegion, K., and A. Kumar, 2012: A Conditional Skill Mask for Improved Seasonal Predictions, 37th Climate Diagnostics and Prediction Workshop, Ft. Collins, CO.

5. Pegion, K, and M. Alexander, 2012: The Seasonal Footprinting Mechanism in CFSv2: Simulation and Impact on ENSO Prediction, CFSv2 Evaluation Meeting, College Park, MD

6. Pegion, K., J. Perlwitz, and M. P. Hoerling, 2011: Understanding the Statistics of Climate Extremes, AGU Fall Meeting, San Francisco, CA

7. Pegion, K, J. Perlwitz, M. Hoerling, and X. Quan, 2011: Understanding the Statistics of Climate Extremes, World Climate Research Programme, Open Science Conference, Denver, CO

8. Pegion, K. and B. P. Kirtman, 2011: Multimodel Ensemble Prediction on Intraseasonal Timescales, World Climate Research Programme, Open Science Conference, Denver, CO

9. Pegion, K, J. Perlwitz, M. Hoerling, and X. Quan, 2011: Understanding the Statistics of Climate Extremes, NCAR/CCSM Workshop, Breckenridge, CO.

10. Pegion, K, J. Perlwitz, M. Hoerling, and X. Quan, 2011: Understanding the Statistics of Climate Extremes, 36th Climate Diagnostics and Prediction Workshop, Ft. Worth, TX.

11. Pegion, K and B. P. Kirtman, 2011: Multi-Model Ensemble Prediction on Intraseasonal Timescales, 36th Climate Diagnostics and Prediction Workshop, Ft. Worth, TX.

12. Pegion, K. and P. Sardeshmukh, 2010: Prospects for Improving Subseasonal Predictions. 35th Climate Diagnostics and Prediction Workshop, Raleigh, NC.

13. Pegion, K, P. Pegion, and M. Sirbu, 2008: Simulation and Forecast of Subseasonal Variability of Hurricane Activity, 33rd Annual Climate Diagnostics and Prediction Workshop, Lincoln NE.

14. Pegion, K, 2008: The Impact of Air-Sea Coupling on Predictability of Boreal Winter/Spring Precipitation in the Indo-Pacific, 88th Annual AMS Meeting, New Orleans, LA.

15. Pegion, K. and B. P. Kirtman, 2007: Sensitivity of MJO Predictability to SST, presentation, 32nd Climate Diagnostics Workshop, Tallahassee, FL.

16. Pegion, K. and B. P. Kirtman, 2007: Sensitivity of MJO Predictability to SST, poster, New Approaches to Understanding, Simulating, and Forecasting the Madden- Julian Oscillation, Irvine, CA.

17. Pegion, K., B. Kirtman, J. Shukla, 2006: The Impact of Air-Sea Coupling on Tropical Intraseasonal Variability in the CFS, poster, 31st Annual Climate Diagnostics and Prediction Workshop, Boulder, CO.

18. Pegion, K., and B. Kirtman, 2006: Interannual and Intraseasonal Variability in the CFS Interactive Ensemble, poster, 31st Annual Climate Diagnostics and Prediction Workshop, Boulder, CO.

19. Pegion, K., B. Kirtman, D. Straus, and J. Shukla, 2006: Potential Predictability of Tropical Intraseasonal Variability in the NCEP Climate Forecast System, presentation, 2006 AGU Joint Assembly, Baltimore, MD.

20. Pegion, K., D. Straus, B. Kirtman, and J. Shukla, 2005: Simulation of Tropical Intraseasonal Variability in the CFS, poster, 30th Annual Climate Diagnostics and Prediction Workshop, State College, PA.

21. Pegion, K., B.P. Kirtman, J. Shukla, 2004: The Importance of Daily vs. Monthly SSTs in Seasonal Simulations, poster, 84th Annual AMS meeting, Seattle, WA.

Seminars and Other Presentations

1. Pegion, K. 2013: Forecasting Forecast Skill: Can an ENSO Conditional Skill Mask Improve Seasonal Predictions? NOAA Climate Program Office, Modeling Analysis Predictions and Projections Program Webinar on Intraseasonal to Interannual Prediction.

2. Pegion, K. and M. A. Alexander, 2013: The Seasonal Footprinting Mechanism in CFSv2: Simulation and Impact on ENSO Prediction, Joint Climate Testbed Seminar Series, National Centers for Environmental Prediction, College Park, MD.

3. Pegion, K. and M. A. Alexander, 2013: The Seasonal Footprinting Mechanism in CFSv2: Simulation and Impact on ENSO Prediction, COLA Seminar Series, Calverton, MD.

4. Pegion, K. and P. D. Sardeshmukh, 2011: Prospects for Improving Seasonal Predictions, COLA Seminar Series, Calverton, MD.

5. Pegion, K. and P. D. Sardeshmukh, 2011: Prospects for Improving Seasonal Predictions, National Centers for Environmental Prediction, Climate Prediction Center, Development Branch Seminar, Camp Springs, MD.

6. Pegion, K, P. Pegion, T. DelSole, and M. Sirbu, 2009: Subseasonal Variability of Hurricane Activity, NOAA Climate Testbed Joint Seminar Series, Calverton, MD

7. Pegion, K. and B.P. Kirtman, 2007: Sensitivity of the MJO to SST: A Simulation and Predictability Study of the MJO using the CFS and GFS, Joint Climate Test Bed Seminar Series, Calverton, MD

8. Pegion, K. and B. P. Kirtman, 2007: The Impact of Air-Sea Coupling on Tropical Intraseasonal Variability, Simulation and Predictability, Penn State University, Earth Science System Center Seminar Series, State College PA

9. Pegion, K. and B. P. Kirtman, 2007: The Impact of Air-Sea Coupling on Tropical Intraseasonal Variability, Simulation and Predictability, Global Modeling and Assimilation Office Subseasonal to Decadal Group Seminar, Goddard Space Flight Center, Greenbelt, MD

TEACHING, MENTORING & LEADERSHIP

- NOAA/Hollings Scholarship mentor for undergraduate student Zachary Brooks (summer 2014)
- NCAR/CESM 2013 Tutorial testing and updating of teaching materials in collaboration with S. Bates and the NCAR tutorial team.
- Co-coordinator for Student, Postdoc, and Early Career Scientist activities for the 2013 Climate Diagnostics and Prediction Workshop
- Mentor: Mihai Sirbu, Blair High School Magnet Program Summer Internship (Summer 2008).
- Host: Theodore Allen, PhD student, U. Miami/RSMAS to teach him about Linear Inverse Modeling (July 31-Aug 3, 2012)
- Co-founder/leader, George Mason University, Climate Dynamics Department, Graduate Student Organization and Journal Club

RESEARCH PROPOSALS

Funded

1. NOAA/Climate Program Office/Climate Test-bed, *"Multi-model Ensemble Prediction with CFS and CCSM"*, 2008-2011. PI: B. Kirtman, Co-PIs: K. Pegion, D. Paolino, *Total: $206K; K. Pegion: $90K*

2. NOAA/Climate Program Office/Modeling Analysis, Predictions and Projections Program, *"A US National Multi-Model Ensemble ISI Prediction System",* funded for FY12-13. PI: B. Kirtman, Co-PIs: K. Pegion, M. Tippett, A. Barnston, J. Kinter, D. Paolino, A. Rosati, S. Schubert, M. Reinecker, M. Suarez, H. van den dool, M. Mendez, J. Huang, S. Weaver, J. Tribbia, E. Wood, D. DeWitt, *Total: $1.9M; K. Pegion: $140K*

3. NOAA/OAR/Special Early Stage Experimental or Developmental (SEED) Project, *"Seasonal to Decadal-Scale Climate Predictions for Marine Resource Management",* FY13-15, PI: Charles Stock, Co-PIs: M. Alexander, K. Pegion, Y. Xue, G. Vecchi. *Total: $420K; K. Pegion: $90K.*

4. NOAA/Climate Program Office/Modeling Analysis Predictions and Projections, *"Subseasonal NMME Forecasts: Skill, Predictability, and Multi-model Combinations"*, submitted for FY14, PI: T. DelSole, Co-PIs: M. Tippett, K. Pegion, *Total: $395K, K.Pegion: $84K*

HONORS & AWARDS

- NOAA/Meteorological Development Laboratory "cash in your account" bonuses
- Upsilon Pi Epsilon (Computer Science Honors Society)
- Chi Epsilon Pi (Meteorology Honors Society)
- Florida State University Liberal Studies Honors Program
- Florida State University Honors Scholarship
- Florida Academic Scholars Undergraduate Scholarship

SERVICE & PROFESSIONAL ACTIVITIES

Panels, Working Groups, Committees

- Member, Clivar, Predictability, Prediction, Applications Interface Panel (2013-present)
- Member, NOAA/Climate Program Office Climate Prediction Task Force (2012-present)
- Member, NCAR Climate Variability Working Group (2013-present)
- Member, Clivar MJO Working Group (2009-2010)
- George Mason University, Climate Dynamics Department, Recruitment Committee, Student Representative (Fall 2005-Spring 2007)

Reviewer

- Journals: Climate Dynamics, Journal of Climate, Journal of Geophysical Research, Geophysical Research Letters, Monthly Weather Review, Weather and Forecasting, EOS, Journal of Atmospheric Sciences
- Funding Agencies: National Science Foundation, NOAA/Climate Program Office, NASA

Workshops

- "Building Leadership and Management Skills for Success", Earth Science Women's Network, Providence, RI (2013)
- Earth System Prediction Capability Workshop, Boulder, CO (2012)
- "Communicating and Networking", Earth Science Women's Network, Madison, WI (2012)
- "Defining Your Research Identity", Earth Science Women's Network, Boulder, CO (2011)
- NOAA Climate Variability and Change, Science Challenge Workshop, Boulder CO (Sep 2011)
- Clivar MJO Working Group Workshop on the Organization and Maintenance of Tropical Convection and the Madden Julian Oscillation, Trieste, Italy (2006)
- NATO Advanced Study Institute on Seasonal to Interannual Climate Variability: its Prediction and Impact on Society, Gallipoli, Italy, (2005)
- IMAGe Theme-of-the-Year Workshop on Multi-Scale Interactions in the Tropics to

Midlatitudes: Mathematical Theory, Observations, and Numerical Models, Boulder, CO (2005)

TECHNICAL SKILLS

Climate Models: NCEP CFSv1/v2, NCAR/CESM, NASA/GEOS5
Programming: Fortran 77/90, C/C++, shell-scripting
Data Analysis: GrADS, IDL, Matlab, NCL
Operating Systems: Unix/Linux, Mac OSX, MS Windows
Supercomputing Systems: NCAR, NOAA, NASA, University of Colorado
Other software: GoToMeeting, Papers, Asana, Scrivener