

Rui Mei

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EDUCATION

Ph.D. in Environmental Engineering, University of Connecticut 2012
M.S. in Environmental Engineering, University of Connecticut 2008
B.E. in Environmental Engineering, Tsinghua University 2006

RESEARCH INTERESTS

Land Surface and Earth System Modeling, Land-Atmosphere Interactions;
Climate Predictions and Downscaling, Climate Changes and Variability;
Hydrological Cycle, Surface and Subsurface Hydrology;
Statistical Methods Applications, Remote Sensing Applications, Data Assimilation.

RESEARCH EXPERIENCES

Postdoctoral Research Associate Mar 2012~present
Computer Sciences and Mathematics Division, Oak Ridge National Lab

- *Conduct regional dynamical downscaling of CMIP5 data with regional climate models RegCM4 and WRF focusing on U.S. and South Asia domains at 18km to help develop the capacity of regional hydro-climate modeling and predictions for climate change impact assessment*
- *Compare different-resolution CAM4 simulations (with spectral dynamical core) against observations (or reanalysis data) based on either a statistical technique of cluster analysis or a precipitation recycling ratio analysis to explore the added value of high resolution in climate modeling*

Research Assistant Aug 2006~Feb 2012
University of Connecticut

- *Investigated the land-atmosphere coupling strength and its contribution to summer climate predictability and prediction over the U.S. based on a regional climate model RegCM4-CLM3.5 using the GLACE approaches*
- *Compared the land-atmosphere coupling strength during summer over the U.S. among observations (CPC-VIC), reanalysis data (NARR, CFSR) and numerical models (CAM3-CLM3, CAM4-CLM4) based on a conditioned correlation approach*
- *Analyzed the impact of sea surface temperature and soil moisture on summer precipitation in the U.S. based on observational data*
- *Examined the impact of different logging scenarios on precipitation in the Amazon Basin using a global climate model CAM3-CLM3*

TEACHING EXPERIENCES

Teaching Assistant for Hydro-climatology (Graduate course) 2012
Giving guest lectures on atmospheric thermodynamics
Teaching Assistant for Fluid Mechanics (Undergraduate course) 2009 and 2010
Holding office hours, giving online quiz and guest lectures, and grading

AWARDS

Doctoral Dissertation Fellowship at University of Connecticut 2011
Second Prize in Beijing Associated Universities Contest in Physics 2003
First Prize in China National High School Math League Contest 2001

PROFESSIONAL MEMBERSHIP

American Geophysical Union
American Meteorological Society

PROFESSIONAL SERVICES

Manuscript reviewer for *Climate Dynamics*, *Journal of Hydrometeorology*

JOURNAL PUBLICATIONS

1. **Mei R**, Wang GL, Gu HH, 2012: Land-atmosphere coupling strength over the U.S.: Results from the regional climate model RegCM4-CLM3.5. *Journal of Hydrometeorology*, conditionally accepted.
2. Gu HH, Wang GL, Yu ZB, **Mei R**, 2012: Assessing future climate changes and extreme indicators in East and South Asia using the RegCM4 regional climate model. *Climate Change*, 114, 301-317, DOI:10.1007/s10584-012-0411-y
3. **Mei R**, Wang GL, 2012: Summer land-atmosphere coupling strength in the United States: Comparison among observations, re-analysis data, and numerical models. *Journal of Hydrometeorology*, 13, 1010–1022, DOI:10.1175/JHM-D-11-075.1
4. Wang GL, Sun SS, **Mei R**, 2011: Vegetation Dynamics Contributes to the Multi-Decadal Variability of Precipitation in the Amazon Region. *Geophys. Res. Lett.*, 38, L19703, DOI:10.1029/2011GL049017
5. **Mei R**, Wang GL, 2011: Impact of sea surface temperature and soil moisture on summer precipitation in the United States based on observational data. *Journal of Hydrometeorology*, 12, 1086-1099, DOI:10.1175/2011JHM1312.1
6. Wang GL, Alo C A, **Mei R**, Sun SS, 2011: Droughts, hydraulic redistribution, and their impact on plant composition in the Amazon forests. *Plant Ecology*, 212, 663-673, DOI:10.1007/s11258-010-9860-4
7. **Mei R**, Wang GL, 2010: Rain follows logging in the Amazon? Results from CAM3-CLM3. *Climate Dynamics*, 34, 983-996, DOI:10.1007/s00382-009-0592-x

CONFERENCE PRESENTATIONS

1. Wang GL, Sun SS, and **Mei R**, 2012: Role of vegetation dynamics in precipitation variability in the Amazon Region. New Orleans, LA, AMS Annual Meeting, 22-26 January 2012

2. Wang GL, **Mei R**, and Gu HH, 2012: Soil moisture-precipitation relationship over the U.S.: Results From observations, reanalysis data, and numerical models. New Orleans, LA, AMS Annual Meeting, 22-26 January 2012
3. Wang GL, **Mei R**, 2011: Summer land-atmosphere coupling strength in the United States: Comparison among observations, re-analysis data, and numerical models. AGU Fall Meeting, San Francisco, CA, 5-9 December 2011
4. **Mei R**, Wang GL, 2011: Land-atmosphere coupling strength over the U.S.: Results from the regional climate model RegCM4-CLM3.5. AGU Fall Meeting, San Francisco, CA, 5-9 December 2011
5. **Mei R**, Wang GL, 2011: Investigation of summer land-atmosphere feedback over the U.S. with observations, reanalysis data and models. WCRP Conference, Denver, CO, 24-28 October 2011
6. **Mei R**, Wang GL, 2008: Precipitation follows logging in the Amazon Basin: Interpretation of the CAM3-CLM3 Results. AGU Fall Meeting, San Francisco, CA, 15-19 December 2008

TECHNICAL SKILLS

Models: CLM, CAM-CLM, CCSM, CESM, RegCM and WRF

Programming Languages: FORTRAN and C

Parallel Programming Libraries: MPI and OpenMP

Tools: NCL, R, Ferret, MATLAB, Grads, ArcGIS, SAS

GRADUATE ADVISOR

Guiling Wang at University of Connecticut

POSTDOCTORAL MENTOR

Moetasim Ashfaq at Oak Ridge National Lab