

## BOHAR SINGH

571.699.7372 • 9335 Lee Hwy Apt #1013 • Fairfax VA 22031 • [bsingh5@gmu.edu](mailto:bsingh5@gmu.edu) • [www.linkedin.com/in/bohrbrar](http://www.linkedin.com/in/bohrbrar)

### EDUCATION

#### Ph.D. in Climate Dynamics (Candidate)

Dept. of Atmospheric, Oceanic, and Earth Sciences (AOES)  
George Mason University, Fairfax, VA

Aug, 2011 – Present  
CGPA: 3.64/4.0

#### Master of Technology in Climate Science

Centre for Atmospheric and Oceanic Sciences (CAOS)  
Indian Institute of Science, Bangalore, India

2009 – 2011  
CGPA: 6.9/8.0

#### Master of Science (Physics Hons. Sc.)

Department of Physics  
Panjab University, Chandigarh

2006 – 2009

### AREAS OF INTEREST

- Intraseasonal variability (20-100 days) of the tropical climate
- Northward propagation of summer intraseasonal oscillation and its mechanisms
- Machine learning, data mining, and their applications in climate science
- Climate prediction on intraseasonal time scale and beyond

### RESEARCH EXPERIENCE

#### Ph.D.: Graduate Research Assistant

Aug 2011 – Present, GMU, Fairfax

**Advisor:** Prof. Jim Kinter

#### M.Tech.: Research Associate

Aug 2009 – June, 2011, IISC, Bangalore

**Advisor:** Dr. Arindam Chakraborty

### PROJECTS

#### Title: Seasonal variation of Tropical Intraseasonal Oscillation

May, 2014 – Present

Advisor: Prof. Jim kinter

- **Data:** Daily ERA-I (wind and other variables), NOAA-OLR and TRMM 3B42 (precipitation)
- **Method:** Space-time variability filtering, Multiple cloud system classification and tracking, composite analysis, experiments with super-parametrized climate model (SP-CCSM4)
- **Results:** Developed multiple cloud system tracking algorithm, found that mean state of SST is an important factor for selective propagation, climate model experiment in progress

#### Title: Role of Extratropical Intraseasonal Oscillation in Initiation of MJO

Aug, 2013 – Dec, 2013

Advisors: Prof. David Straus, Dr. V. Krishnamurthy

- **Data:** Daily ERA-I (wind and other variables) and TRMM 3B42 (precipitation)
- **Method:** Analyzed the interaction between intraseasonal component of NAO and MJO
- **Results:** Established existence of extratropical influence on MJO initiation

#### Title: Trends in Land Climate interactions from CMIP5 Models

Jan, 2012 – May, 2012

Advisor: Prof. Paul Dirmeyer

- **Description:** Analysed data of 15 CMIP5 models as a class project in a team of three graduate students
- **Data:** Monthly data of variables relevant to land climate interactions from all 15 CMIP5 models
- **Method:** Consensus based analysis of historical and future projection by equally weighting all models
- **Results:** Consensus changes in soil moisture and latent heat fluxes for past-to-present and present-to-future periods showing a general drying trend over land (less soil moisture, less evaporation) over most of the globe

## RELEVANT COURSEWORK

- **Climate Science Majors:** Numerical Methods, Foundations of Computational Sciences, Numerical Methods for Climate Modelling, Predictability of Weather and Climate, Mathematical Methods in Climate Science, Statistical Methods in Climate Research
- **Physics Major:** Mathematical physics I & II, Computational physics I & II, Numerical Analysis, Optimization techniques

## COMPUTATIONAL SKILLS

- **Programming Languages:** FORTRAN, MATLAB, R, NCL, Python
- **Graphical Tools:** Grads, Ferret

## TRAININGS AND WORKSHOPS

- 2013 Community Earth System Modelling Tutorial, NCAR, Boulder CO, Aug, 2013
- COLA Workshop on Nature of MJO, George Mason University, Fairfax, VA, June, 2013
- Targeted Training Activity: ENSO Monsoon in Current & Future Climate, ICTP, Trieste, Italy, Aug, 2012
- Lecture Series on cloud physics by Prof. Robert Houze, IITM, Pune India, Oct, 2010
- Summer School on Predictability of Weather and Climate, IISC, Bangalore, India, May, 2010
- ISRO-NASA-IISC Workshop on Data Products and Application, IISC Bangalore, India, Feb, 2010

## SCHOLARSHIPS AND AWARDS

- Grantham Fellowship (Awarded by Divecha Centre for Climate Change, IISc.) Jan, 2010 – Jul, 2011
- Ministry of Human Resources and Development, India, Scholarship Aug, 2009 – Aug, 2011
- Winner of Campus Climate Change Championship Competition 2010 Jan, 2010

## PUBLICATIONS

- Bombardi RJ, Schneider EK, Marx L, Halder S, Singh B, Tawfik AB, Dirmeyer PA, Kinter JL (2014) Improvements in the representation of the Indian Summer Monsoon in the NCEP Climate Forecast System version 2 (Submitted to Climate Dynamics)
- Dirmeyer, Paul A., Yan Jin, Bohar Singh, Xiaoqin Yan, 2013: Evolving Land –Atmosphere Interactions over North America from CMIP5 Simulations. *J. Climate*, **26**, 7313–7327
- Dirmeyer, Paul A., Yan Jin, Bohar Singh, Xiaoqin Yan, 2013: Trends in Land –Atmosphere Interactions from CMIP5 Simulations. *J. Hydrometeor*, **14**, 829–849

## PRESENTATIONS

- Bohar Singh and James L. Kinter, Seasonality of Tropical intraseasonal oscillations, AMS Annual Meeting, New Orleans, LA, 10-14 January 2016
- Bohar Singh and James L. Kinter, Seasonality of Tropical intraseasonal oscillations, AGU Fall Meeting, San Francisco, CA, 14-18 December 2015.
- Sensitivity of Indian Summer Monsoon Rainfall Simulation to Convection Parametrizations and Convective trigger Functions. Rodrigo J Bombardi, Edwin K Schneider, Lawrence Marx, Subhadeep Halder, Bohar Singh, Ahmed B Tawfik, Paul A Dirmeyer, James L Kinter III, Annual Workshop on Monsoon-2014 and National Symposium of IMSP, Indian Institute of Tropical Meteorology, Pune, India, Mar 2-3 2015
- Invited talk (Paul A. Dirmeyer): Historical and future trends in land atmosphere interactions from CMIP5, Gordon Conf. on Radiation and Climate – 9 July 2013
- Dirmeyer, P. A., Y. Jin, B. Singh, and X. Yan, 2012: Land-atmosphere coupling trends in a changing climate. 1st GEWEX Pan-Global Atmospheric System Study (GASS) Conference, Boulder, Colorado, USA, 10-14 September 2012, PM41