**BOHAR SINGH**

(571) 422-9194 • 223 Monell Building • Palisades, 10964• [bohar@iri.columbia.edu](mailto:bohar@iri.columbia.edu)

**EDUCATION**

**Ph.D. in Climate Dynamics ­­** *Aug, 2011 – Oct,2017*

Dept. of Atmospheric, Oceanic, and Earth Sciences (AOES)

George Mason University, Fairfax, VA

**Master of Technology in Climate Science** *August, 2009 – May, 2011*

Centre for Atmospheric and Oceanic Sciences (CAOS)

Indian Institute of Science, Bangalore, India

**Master of Science (Physics Hons. Sc.)** *August, 2006 – May, 2009*

Department of Physics

Panjab University, Chandigarh

**AREAS OF INTEREST**

* Intra seasonal variability (20-100 days) of tropical climate
* Northward propagation of summer intra seasonal oscillation and its mechanisms
* Machine learning, Data Mining, and its applications in Climate Science
* Seasonal and interannual variability of intraseasonal variability
* Climate services at sub-seasonal time scale

**RESEARCH EXPERIENCE**

**Associate Research Scientist**

Nov 2019 – Present, IRI, Columbia University, New York

**Postdoctoral Associate Advisor:** Prof. Eric D. Maloney

Nov 2017 – Oct 2019, CSU, Fort Collins

**Ph.D.: Graduate Research Assistant Advisor:** Prof. James Kinte**r**

Aug 2011 – Oct, 2017, GMU, Fairfax

**M.Tech.: Research Associate Advisor:** Prof. Arindam ChakrabortyAug 2009 – June, 2011, IISC, Bangalore

**SCHOLARSHIPS AND AWARDS**

* NRC Research Associateship program (RAP): Oct 2017
* Dissertation Completion Grant Jan 2017 – May 2017
* 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

**RELEVANT COURSEWORK**

* **Climate Science Majors:** Introduction to the Physical Climate System, Introduction to Atmospheric Dynamics, Physical and Dynamical Oceanography, Atmosphere-Ocean Interactions, Land-Climate Interactions,Numerical Methods, Foundations of Computational Sciences, Numerical Methods for Climate Modelling, Geophysical Fluid Dynamics Predictability of Weather and Climate, Mathematical Methods in Climate Science, [Statistical Methods in Climate Research](http://mason.gmu.edu/%7Etdelsole/clim762/clim762_outline.pdf), Advanced Statistical Methods in Climate Research
* **Physics Major:** Mathematical physics, Computational physics, Numerical Analysis, Optimization techniques

**COMPUTATIONAL SKILLS**

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

**PUBLICATIONS**

1. Almazroui, M., Ehsan, M.A., Tippett, M.K., Ismail, M., Islam, M.N., Camargo, S.J., Abid, M.A., O’Brien, E., Kamil, S., Robertson, A.W. and **Singh, B**., 2022. Skill of the Saudi-KAU CGCM in Forecasting ENSO and its Comparison with NMME and C3S Models. *Earth Systems and Environment*, *6*(2), pp.327-341.
2. Grossi, A., Dinku, T., Faniriantsoa, R., Robertson, A. and **Singh, B**., (2021). Regional Training for East and Southern Africa.
3. Fahad, A.A., **Singh, B**., Kamal, M., Ahmed, T., Kibria, M. and Chowdhury, N.R., (2021). The role of local topography and sea surface temperature on summer monsoon precipitation over Bangladesh and northeast India. *International Journal of Climatology*.
4. Bui, H. X., Maloney, E. D., Riley Dellaripa, E. M., & **Singh, B.** (2020). Wind speed, surface flux, and intraseasonal convection coupling from CYGNSS data. *Geophysical Research Letters*, 47, e2020GL090376. <https://doi.org/10.1029/2020GL090376>
5. **Bohar Singh**, J. L. Kinter III, 2020: Tracking of Tropical Intraseasonal Convective Anomalies: 1. Seasonality of the Tropical Intraseasonal Oscillations, ***J. Geophys. Res.,*** DOI: 10.1029/2019JD030873
6. Maloney, E. D., A. Gettelman, Y. Ming, J. D. Neelin, D. Barrie, A. Mariotti, C.-C. Chen, Y.-H. Kuo, **Bohar Singh**, H. Annamalai, A. Berg, J. F. Booth, S. J. Camargo, A. Dai, A. Gonzalez, J. Hafner, X. Jiang, X. Jing, D. Kim, A. Kumar, Y. Moon, C. M. Naud, A. H. Sobel, K. Suzuki, F. Wang, J. Wang, A. A. Wing, X. Xu, and Ming Zhao, 2019: A framework for process-oriented evaluation of climate and weather forecasting models. *Bull. Amer. Meteor. Soc.*
7. **Bohar Singh**, Ben Cash, J. L. Kinter III, 2018: Indian Summer Monsoon Variability Forecasts in the North American Multimodel ensembles, Climate Dynamics, 1-14, DOI: 10.1007/s00382-018-4203-6
8. **Bohar Singh** and J. L. Kinter III, 2016: Tracking of Tropical Intraseasonal Convective Anomalies. In Proc. 6th Inter. Workshop on Climate Informatics (CI 2016), Banerjee et al. eds., NCAR Tech. Note, TN-529, 61-64 (http://dx.doi.org/10.5065/D6K072N6)
9. Rodrigo J. Bombardi, Edwin K Schneider, Lawrence Marx, Subhadeep Halder, **Bohar Singh**, Ahmed B Tawfik, Paul A Dirmeyer, James L Kinter III, 2014: Improvements in the representation of the Indian summer monsoon in the NCEP climate forecast system version 2. Climate Dynamics, 45, 2485-2498. DOI: 10.1007/s00382-015-2484-6
10. 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
11. Dirmeyer, Paul A., Yan Jin, **Bohar Singh**, Xiaoqin Yan, 2013: Trends in Land –Atmosphere Interactions from CMIP5 Simulations. J. Hydrometeor, 14, 829–849

**CONFERENCE PRESENTATIONS**

* **Singh, B**., Ehsan, M.A. and Robertson, A.W., 2021, December. Skill Assessment of state-of-the-art seasonal forecasting models in simulating summer monsoon rainfall over Bangladesh. In *AGU Fall Meeting 2021*. AGU.
* Trzaska, S., **Singh, B**. and Robertson, A.W., 2021, December. Characteristics of African Easterly Waves in the SubX forecasting systems. In *AGU Fall Meeting 2021*. AGU.
* **Singh, B**., Robertson, A.W., Tippett, M. and Acharya, N., 2021, December. Probabilistic multi-model sub-seasonal climate forecasts of precipitation and temperature using skill-based model weighting. In *AGU Fall Meeting 2021*. AGU.
* Ehsan, M.A.A. and **Singh, B**., 2021, December. Variability and potential predictability of summer monsoon rainfall over Bangladesh. In *AGU Fall Meeting 2021*. AGU.
* E Maloney, H Bui, E Riley Dellaripa, **Bohar Singh**, Wind Speed, Surface Flux, and Convection Coupling from CYGNSS Data, EGU General Assembly Conference Abstracts, EGU21-12855
* **Bohar Singh**, ED Maloney, Wind Speed and Surface Fluxes from CYGNSS and Their Role in MJO Dynamics, 100th American Meteorological Society Annual Meeting
* Andrew W. Robertson, **Bohar Singh**, Andre Kamga Foamouhoue, Seydou B Traore, Toward Development of Multi-model Subseasonal Probabilistic Forecasts of Precipitation for West Africa: AGU Fall Meeting, Online, CA, 1-17 December 2020
* **Bohar Singh**, Andrew Robertson, Sylwia Trzaska,Ousmane Ndiaye and Oumar Konté, Boreal summer sub-seasonal predictability of rainfall and monsoon onset over Senegal: AGU Fall Meeting, Online, CA, 1-17 December 2020
* **Bohar Singh**, Andrew Robertson, Michael Tippett and Nachiketa Acharya,Probabilistic multi-model sub-seasonal climate forecasts using skill-based model weighting : Climate Diagnostics & Prediction Workshop, 20–22 October 2020
* **Bohar Singh**, Eric D Maloney, Wind Speed and Surface Fluxes from CYGNSS and Their Role in MJO Dynamics: 100th American Meteorological Society Annual Meeting: Boston, 12-16 January
* Emily Fletcher, Michael Natoli, **Bohar Singh**, Eric Maloney: Changes in North American Monsoon precipitation in a warmer climate: 99th American Meteorological Society Annual Meeting, Phoenix, 6-10 January
* **Bohar Singh** and Eric D. Maloney: MJO Pacific Teleconnection: Interaction between MJO and QBO, AGU Fall Meeting, Washington DC, 10-14 December 2018
* **Bohar Singh** and James L. Kinter: Similarities and Differences in BSISO over the Indian Ocean and the West Pacific Ocean, 33rd Conference on Hurricanes and Tropical Meteorology Ponte Vedra FL, 16-20 Apr. 2018
* **Bohar Singh** and James L. Kinter: Seasonality of the Tropical Intraseasonal Oscillations: Sensitivity to Mean Background State, AGU Fall Meeting, San Francisco, CA, 12-16 December 2016
* **Bohar Singh** and James L. Kinter: Intraseasonal variability in SpCCSM4: Impact of Ocean dynamics and Mean state, Modeling Hierarchies Workshop - World Climate Research Programme, Princeton University, New Jersey, USA, 2-4 November 2016
* **Bohar Singh** and James L. Kinter: Tracking of Tropical Intraseasonal Convective Anomalies, 6th International Workshop on Climate Informatics, NCAR Boulder, CO, 22-23 September 2016
* **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
* Rodrigo J Bombardi, Edwin K Schneider, Lawrence Marx, Subhadeep Halder, **Bohar Singh (Presenter)**, Ahmed B Tawfik, Paul A Dirmeyer, James L Kinter III, Sensitivity of Indian Summer Monsoon Rainfall Simulation to Convaction Parametrizations and Convective trigger Functions., 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, **Bohar 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

**PEER REVIEWS**

* Peer reviewing in following journals:
  + Climate Dynamics
  + Journal of Atmosphere
  + Journal of Geophysical Research-Atmosphere
  + Theoretical and applied Climatology
  + Journal of Climate
  + Weather and Forecasting
  + International Journal of Climatology

**IN PRINT MEDIA**

* Voosen, Paul (2019, June 12). NASA overcomes military’s GPS tweaks to peer inside hurricanes. Science. doi:10.1126/science.aay3678

**PROFESSIONAL MEMBERSHIPS**

* American Geophysical Union
* American Meteorological Society