Piyush Garg
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EDUCATION

Institution	Country	Degree	Field
University of Illinois Urbana-Champaign	USA	Ph.D. (2016-)	Atmospheric Sciences
Savitribai Phule Pune University & Indian Institute of Tropical Meteorology, Pune	India	M.Sc. 2015	Atmospheric Sciences
Hansraj College, University of Delhi	India	B.Sc. 2013	Physical Sciences

WORK EXPERIENCE

Position	Institution	Department	Years
Research Assistant	University of Illinois Urbana-Champaign	Dept. of Atmospheric Sciences	2016 - Present
Junior Research Fellow	Indian Institute of Tropical Meteorology (IITM), Pune	Center for Advanced Training	August 2015 – January 2016
Trainee Meteorologist	Skymet Weather Services, Noida, India	Forecasting and Research Division	June - July 2015

RESEARCH EXPERIENCE

- Ph.D. research on "Identifying and Characterizing Tropical Mesoscale Cold Pools using Spaceborne Scatterometer, Precipitation, In-Situ Sampling and High-Resolution Regional and Global Model" (Expected to Finish in 2021).
- M.Sc. thesis on "Simulation of Large-Scale Characteristics corresponding to Heavy Rainfall Events over Indian Subcontinent". Tuned Betts-Miller-Janjić (BMJ) scheme in WRF to get an improved hindcast of deep convective events over India.

SKILLS AND PROFESSIONAL PROFILE

- Demonstrated achiever in coursework on synoptic and mesoscale meteorology, climate sciences, mathematical and numerical modeling, statistical data analysis, oceanography, satellite and radar remote sensing and tropical meteorology.
- Co-Principal Investigator of National Science Foundation's Extreme Science and Engineering Discovery Experiment (XSEDE) STAMPEDE-2 supercomputing proposal titled as 'High-Resolution WRF simulations of Tropical Convection and associated Cold Pools in the Indian Ocean'. Co-Investigators: Prof. Deanna A. Hence (UIUC), Prof. Stephen W. Nesbitt (UIUC), Jeffrey D. Thayer (UIUC).
- Collaborating with University of Utah on understanding cold pools properties using a global cloud-resolving model (DYAMOND) using our newly developed cold pool identification algorithm.

- Working on validating NASA P-3 observed cold pools over Maritime continent during Clouds, Aerosol, and Monsoon Processes-Philippines Experiment (CAMP^{2}Ex) with scatterometer-identified cold pools.
- Peer-reviewer for Journal of Geophysical Research-Atmospheres, International Journal of Climatology and Geophysical Research Letters.
- Well-versed with Python-based machine learning with deep learning algorithms (including persistence check).
  Programming: Python, IPyParallel, Dask Parallel, Parallel netCDF, FORTRAN 77/90, C++
  Visualization and Statistics: GrADS, Ferret, Climate Data Operators (CDO)
  Supercomputing Clusters: DKRZ's Mistral, XSEDE's Stampede-2, UIUC Keeling cluster, IITM's *Prithvi* and *Aditya*.
- First-hand experience with:
  Satellite Observations: ASCAT, RapidScat, QuikScat, OSCAT, CMORPH, TRMM, GPM-IMERG, CYGNSS, GOES, MODIS
  Airborne Observations: NASA P-3 and Learjet cloud probes, wind measurements, APR-3, AMPR
  Reanalysis: ERA-Interim, ERA-5, MERRA
  Models: WRF, CM1, ICON, MPAS

FIELD CAMPAIGNS

- Lead Tropical meteorological forecaster for CAMP^{2}Ex during August-October 2019.
- Designed the scorecard for the cold pool observations, science and validation with satellites during CAMP^{2}Ex during August-October 2019.
- Operated mobile mesonets and Doppler On Wheels (DOW) X-band radar during RELAMPAGO (Remote sensing of Electrification, Lightning, and Mesoscale/microscale Processes with Adaptive Ground Observations) in Córdoba and Mendoza province of Argentina from November – December 2018.
- Operated Doppler on Wheels (DOW) X-band radar during the Great Plains Irrigation Experiment (GRAINEX) in Lincoln, Nebraska from June-July 2018.

HONORS/AWARDS

- First rank (Gold medal) awarded by the Savitribai Phule Pune University (Formerly University of Pune), India in M.Sc. Atmospheric Sciences in year 2015 for scoring a GPA of 5.6 on 6.
- Indian Council of Scientific and Industrial Research (CSIR) fellowship in Earth, Atmospheric, Oceanic and Planetary Sciences for 2014-2016 (highly selective fellowship by Indian govt.)

PUBLICATIONS

Garg, P., Nesbitt, S. W., Lang, T. J., Priftis, G., Chronis, T., Thayer, J. D., & Hence, D. A. (2020). Identifying and characterizing tropical oceanic mesoscale cold pools using spaceborne scatterometer winds. Journal of Geophysical Research: Atmospheres, 125, e2019JD031812. https://doi.org/10.1029/2019JD031812

Flynn, W. J., Nesbitt, S. W., Anders, A. M. and **Garg, P.** (2017), Mesoscale precipitation characteristics near the Western Ghats during the Indian Summer Monsoon as simulated by a high-resolution regional model. Q.J.R. Meteorol. Soc., 143: 3070–3084. doi:10.1002/qj.3163

Garg, P., Deshpande, M.S., Bhawar, R.P., 2015, Understanding Large Scale Characteristics corresponding to Heavy Rainfall events over India. Vayu Mandal (41), Bull. of India Met. Soc. 62-68.