

## POPAT U. SALUNKE

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### Educational Information

**Ph. D.** Atmospheric Science (**Thesis Submitted**)  
Centre for Atmospheric Sciences,  
Indian Institute of Technology Delhi, India  
**Title:** Changing Climate of the Himalaya-Tibetan Highland and its Association with the Climate of India

**M. Tech.** Atmospheric Science (**June 2012**)  
University of Pune & Indian Institute of Tropical Meteorology, Pune, India

**M. Sc.** Physics (**June 2009**)  
University of Pune, India

**B. Sc.** Physics (**June 2007**)  
University of Pune, India

### Research Interest

Climate Modeling, Climate Data Analysis and Application, Climate Change and Climate Extreme, Atmospheric Dynamics, Dynamics of Indian Monsoon, Geoengineering, Statistical Analysis

### Research Experience

**Research Associate (Feb 2021 - present)**  
DST Centre of Excellence in Climate Modeling  
Centre for Atmospheric Sciences,  
Indian Institute of Technology Delhi, India  
**Advisor:** Dr. S. K. Mishra  
**Title:** Data Analysis and Climate Simulation

**Visiting Research Student (Jul 2019 - Sept 2019)**  
King Abdullah University of Science and Technology, Thuwal, Saudi Arabia  
**Advisor:** Prof. Ibrahim Hoteit  
**Title:** Projecting Future Climate of the Kingdom of Saudi Arabia and Adjoining Regions

**Senior Research Fellow (Feb 2014 - July 2014)**  
Centre for Atmospheric Sciences, Indian Institute of Technology Delhi, New Delhi, India  
**Advisor:** Dr. Sagnik Dey

**Title:** Impact of Air Quality and Heat Stress on Health: Future Projections for India

### **Project Assistant (Jul 2013 - Feb 2014)**

Centre for Atmospheric Sciences, Indian Institute of Technology Delhi, New Delhi, India

**Advisor:** Prof. S. K. Dash

**Title:** Asian Cities Adapt-Impacts of Climate Change in Target Cities in India and the Philippines and Local Adaptation Strategies

### **Junior Research Fellow (Jan 2013- Mar 2013)**

Department of Space and Atmospheric Sciences, University of Pune, Pune, India

**Advisor:** Dr. A. K. Karipot

**Title:** Calibration and Validation of Land Surface Model by using INSAT-3D Observations and In Situ Measurements

### **M. Tech. Dissertation (Jun 2011 - May 2012)**

Indian Institute of Tropical Meteorology, Pune,

**Advisor:** Dr. M. N. Patil (Scientist E)

**Title:** Variability of Fluxes in Atmospheric Boundary Layer by Using Micrometeorological Tower

### Computer Proficiency

**Operating systems:** Linux, Mac, Windows, HPC

**Software's:** NCAR command language (NCL), MATLAB, Origin, CDO, NCO, Python (Learning)

**Languages known:** Fortran90, Shell Scripting

**Numerical Modeling:** NCAR CESM1-CAM5, RegCM4

### Professional Awards and Honours

- Research Excellence Travel Award (RETA) from IRD (IIT Delhi) (**2019**)
- CSIR Travel Grant (*Not Availd*) (**2019**)
- Research Fellowship, Indian Institute of Technology Delhi (**Jul 2014 - Jul 2019**)
- Student Travel Grant and Scholarship AGU Fall Meeting 2017 (*Not Availd*) (**2017**)
- Research Fellowship, Indian Institute of Tropical Meteorology (**2010 - May 2012**)

## Professional Memberships

American Geophysical Union **2017- Present**

European Geosciences Union **2019- Present**

**Member** - Science Working Group, Young Earth System Scientists (YESS) Community

## Teaching Assistant

(**Responsibility:** Proctor of minors and major exam, Evaluation of answer sheets, ~~Grading exams~~, ~~Duties including~~ climate modeling lab, Conduct tutorials and labs )

- Climate Modeling (**Sep - Jan 2020**)
- The Earth's Atmosphere: Physical Principles (**Jul 2017 - Jul 2019**)
- Tropical Weather and Climate (**Jan 2016 - May 2017**)
- Numerical Modeling of the Atmospheric and Oceanic Phenomena (**Jul 2015 - Dec 2015**)

## Publications

### Refereed Journals

1. Mishra S. K., S. Jain, A. Anand, **P. Salunke**, and J. T. Fasullo: Historical and Projected Low-Frequency Variability in the Somali Jet and Indian Summer Monsoon. *Climate Dynamics*, 56, 749-765, 2021. DOI:10.1007/s00382-020-05492-z (IF: 4.4)
2. Bal P. K., H. R. Dasari, N. Prasad, **P. Salunke**, and R. S. Parihar: Variations of Energy Fluxes with ENSO, IOD and ISV of Indian Summer Monsoon Rainfall over the Indian Monsoon Region. *Atmospheric Research*, Volume 258, 2021. DOI: 10.1016/j.atmosres.2021.105645 (IF: 5.4)
3. Bhowmick M., S. K. Mishra, B. Kravitz, S. Sahany, and **P. Salunke**: Response of the Indian Summer Monsoon to Global Warming, Solar Geoengineering and its Termination, *Scientific Reports*, 11, 9791, 2021. DOI: 10.1038/s41598-021-89249-6 (IF: 4.4)
4. **Salunke P.**, S. Jain, and S. K. Mishra: Performance of the CMIP5 models in the simulation of the Himalaya-Tibetan Plateau monsoon, *Theoretical and Applied Climatology*, 137, 909-928, 2019. DOI:10.1007/s00704-018-2644-9 (IF: 3.2)
5. Jain S., **P. Salunke**, S. K. Mishra, and S. Sahany: Advantage of NEX-GDDP over CMIP5 and CORDEX Data: Indian summer Monsoon, *Atmospheric Research*, Volume 228, 152-160, 2019. (IF: 5.4)
6. Mishra S. K., S. Jain, **P. Salunke**, and S. Sahany: Past and Future Climate Change over the Himalaya-Tibetan Highland-Inferences from APHRODITE and NEX-GDDP

DATA, *Climatic Change*, 156,315-322, 2019. DOI: 10.1007/s10584-019-02473-y (IF: 4.7)

7. Zebaze S., S. Jain, **P. Salunke**, S. Shafiq and S. K. Mishra: Assessment of CMIP5 multimodel mean for the historical climate of Africa, *Atmospheric Science Letters*, 20,1-12, 2019. DOI: 10.1002/asl.926 (IF: 2.4)

8. Parihar Singh R., P. K. Bal, V. Kumar, S. K. Mishra, S. Sahany, **P. Salunke**, S. K. Dash and R. Dhiman: Numerical Modeling of the Dynamics of Malaria Transmission in a Highly Endemic Region of India, *Scientific Reports* 9(1): 11903. 2019. DOI:10.1038/s41598-019-47212-6 (IF: 4.4)

9. Mishra, S. K., S. Sahany, **P. Salunke**, In-Sik Kang, and S. Jain: Fidelity of CMIP5 Multi Model Mean in Assessing Indian Monsoon Simulations. *npj Climate and Atmospheric Sciences*, 1, Article number 39, 2018. DOI: 10.1038/s41612-018-0049-1 (IF: 8.8)

10. Jain S., **P. Salunke**, S. K. Mishra, and S. Sahany: Performance of CMIP5 models in the simulation of Indian summer monsoon, *Theoretical and Applied Climatology*, 137,1429-1447, 2019. (IF: 3.2)

11. Jain S., S. K. Mishra, **P. Salunke**, and S. Sahany: Importance of the Resolution of Surface Topography Vis-à-Vis Atmospheric and Surface Processes in the Simulation of the Climate of Himalaya-Tibet Highland. *Climate Dynamics*, 52,4735-4748, 2019. DOI:10.1007/s00382-018-4411-0 (IF: 4.4)

12. Sahany S., S. K. Mishra, and **P. Salunke**: Historical Simulations and Climate Change Projections over India by NCAR CCSM4: CMIP5 vs. NEX-GDDP. *Theoretical and Applied Climatology*, 135,1423-1433, 2019. DOI:10.1007/s00704-018-2455-z (IF: 3.2)

13. Mishra S. K., S. Sahany, and **P. Salunke**: CMIP5 vs. CORDEX over the Indian region: how much do we benefit from dynamical downscaling? *Theoretical and Applied Climatology*, Volume 133, Issue 3-4, pp 1133-1141, 2017. DOI:10.1007/s00704-017-2237-z (IF: 3.2)

14. Mishra S. K., S. Sahany, and **P. Salunke**: Linkages between MJO and summer monsoon rainfall over India and surrounding region. *Meteorology and Atmospheric Physics*, Volume 129, pp 283-296, 2017. DOI:10.1007/s00703-016-0470-0 (IF: 2.1)

15. Dash S. K., S. Dey, **P. Salunke**, M. Dalal, V. Saraswat, S. Chowdhury, R. K. Choudhary: Comparative Study of Heat Indices in India Based on Observed and model Simulated Data. *Current World Environment*, 12(3), 2017. DOI:10.12944/CWE.12.3.06

### Manuscripts in Submitted

1. Tiwari K., S. K. Mishra, **P. Salunke**, Hisashi Ozawa and A. Dewan: Potential Effects of the Projected Antarctic

Sea-Ice Loss on the Climate System. *Climate Dynamics*, 2021.

2. Tiwari K., S. K. Mishra, **P. Salunke**, and A. Dewan: Future Projections of Temperature and Precipitation for Antarctica. *Environmental Research Letters*, 2021.

3. Parihar R. S., H. R. Dasari, V. Kumar, **P. Salunke**, S. Langodan, A. Anand, S. Sahany, S. K. Mishra, and I. Hoteit: Transmission Dynamics of Malaria in the Kingdom of Saudi Arabia using the VECTRI Model, *GeoHealth*, 2021.

### **Manuscripts in Preparation**

1. **Salunke P.** and S. K. Mishra: Numerical Simulations of Orographic Effects on Tropical Easterly Jet and Indian summer Monsoon (*In Process*)

2. **Salunke P.** and S. K. Mishra: Past and Future of Tropical Easterly Jet and its association with Indian Summer Monsoon (*to be submitted*)

3. **Salunke P.**, S. K. Mishra and C. P. Abdulla: Association of the Climate Change of Himalaya-Tibetan Highland and Indian Summer Monsoon (*to be submitted*)

4. **Salunke P.** and S. K. Mishra: Response of the Climate of Himalaya-Tibetan Highland to Geoengineering of Solar Radiation (*to be submitted*)

5. **Salunke P.**, S. K. Mishra, and A. Saini: Orographic effects of the Himalaya-Tibetan Highland on Somali Jet, Tropical Easterly Jet, summer monsoon Rainfall. (*to be submitted*)

6. **Salunke P.**, S. K. Mishra, and N. Prasad: Comparing of CMIP6 and CMIP5 precipitation in the Indian summer monsoon (*In Process*)

### **Workshop/Training Attended**

1. Workshop **2021**, Recent Advances in AI and ML for Climate Sciences organized by Technology Innovation Hub, Indian Statistical Institute (ISI), Kolkata, India. (*Virtual Mode*)

2. Global Initiative of Academic Network's (GIAN) **2019**, Tropical Meteorology Asian-Australian Monsoon Tropical Cyclones and Climate Change, short term course, IIT Delhi, New Delhi, India.

2. WILEY **2018**, Author Workshop on How to Publish a Technical Paper, IIT Delhi, New Delhi, India.

3. Workshop **2014**, Climate Modelling: Simulation and Analysis, Centre for Atmospheric Sciences, IIT Delhi, New Delhi, India

4. Workshop **2013**, Climate Change and Health, Sri Ramachandra University, Porur, Chennai, India.

5. Raman Memorial Conference **2013**, Department of Physics, University of Pune, Pune, India.

### **Contributed Presentations / Abstracts**

1. **Salunke P.**, S. K. Mishra, and A. Anand, "Impact of the Himalayan-Tibetan Highland Orography on Somali Jet Popat U. Salunke (Curriculum Vitae)

and Tropical Easterly Jet and the Indian Summer Monsoon"; Virtual Poster presentation at American Geophysical Union (AGU) Fall Meeting, 2020.

2. **Salunke P.**, and S. K. Mishra, "Past and Future of Tropical Easterly Jet and its association with Indian Summer Monsoon"; Poster presentation at European Geophysical Union (EGU) General Assembly 2019, Austria International Centre, Vienna, Austria, 2019.

3. **Salunke P.**, S. Jain, et al., "Evaluation of CMIP5 Models for Indian Summer-Monsoon Precipitation and Temperature"; Oral presentation at TROPMET 2018, Banaras Hindu University, Varanasi, Uttar Pradesh, India.

4. Singh R., **Salunke P.**, Bal P. K, et al., "Analysis of Potential Effects of Climate Change on Malaria Transmission Dynamics in Odisha, India"; Poster presentation at TROPMET 2018, Banaras Hindu University, Varanasi, Uttar Pradesh, India, 2018.

5. Singh R., **Salunke P.**, et al., "Response of Climatic Conditions and Human Health over India to Geo engineering (G3)"; Poster presentation at Eighth Annual GeoMIP Meeting, at ETH Zurich, Switzerland, 2018.

6. Jain S., S. K. Mishra, **Salunke P.**, and Sahany S., "Importance of the Resolution of Surface Topography Vis-à-Vis Atmospheric and Surface Processes in the Simulation of the Climate of Himalaya-Tibet Plateau"; Oral presentation at TROPMET 2018, Banaras Hindu University, Varanasi, Uttar Pradesh, India, 2018.

7. Bhowmick M., Mishra S. K., **Salunke P.**, Chakraborty M., "Indian Monsoon in the Geoengineered world (G2) and after its Termination"; Oral presentation at Eighth Annual GeoMIP Meeting, at ETH Zurich, Switzerland, 2018.

8. Mishra S. K., Sahany S., **Salunke P.**, "SRM Research in India: Future Prospects"; Oral presentation at SRMGI Global Forum at Berlin Germany, 2017.

9. Mishra S. K., Sahany S., **Salunke P.**, "SRM Research in India"; Oral presentation at SRMGI Global Forum at Berlin Germany, 2017.

10. Mishra S. K., Sahany S., Dash S. K., Anand A., Pathak R., and **Salunke P.**, "Need for Reliable Simulations of Indian Climate: Climate Projections to Climate Engineering"; Oral presentation at ICTP, Italy, 2017.

11. Pathak R., Sahany S., Mishra S. K., Gupta K., **Salunke P.**, Anand A., "CMIP5 vs CORDEX in the Context of Indian Monsoon"; Poster presentation at 13th Annual Meeting of the Asia Oceania Geosciences Society, Beijing, China, 2016.

12. Mishra S. K., **Salunke P.**, Sahany S., and Dash S. K., "Climate Change and Climate Variability in India: Reliability of Present-day Models"; Oral presentation at International Conference on Climate change and Adaptation: Empowering small holders and ensuring food security, Chennai, India, 2016.

## References

### 1. Dr. Saroj Kanta Mishra

(PhD Supervisor)

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