Pratiman Patel | PhD Scholar
Climate Studies | IIT Bombay
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ACADEMIC DETAILS

Examination	University	Year	CPI/%
Doctor of Philosophy	Indian Institute of Technology, Bombay, India	2020 (Expected)	-
Master of Technology: *Remote Sensing & GIS (Water Resources)*	Indian Institute of Remote Sensing, Dehradun, India	2015	8.00/10.0
Bachelor of Technology: *Agricultural Engineering*	College of Agricultural Engineering, Jabalpur, India	2013	8.10/10.0

FIELDS OF INTEREST

- Numerical weather prediction, Extreme precipitation forecast, Local Climate Zones, Land surface feedback, Remote sensing, Geographic information system

TECHNICAL SKILLS

- **Languages:** Python, R, NCL
- **Models:** Weather Research & Forecasting (WRF) Model, HEC-HMS, HEC-RAS, MIKE11
- **Softwares:** ArcGIS, QGIS, ERDAS, SAGA-GIS
- **Extra:** High Performance Computing, Bash, LaTeX, MS Office

FELLOWSHIP

- Overseas Visiting Doctoral Fellow (OVDF) at Purdue University, USA (2019-2020)

RESEARCH PROJECTS

- **Rainfall Forecasting through Regional Weather Modelling: A Precursor to Near Real-Time Flood Forecasting** (Ph.D. Research Project)
  (Supervisor:Prof. Subhankar Karmakar , Co-Supervisor: Prof. Subimal Ghosh , July'15 - till date)
  - Selection of physics schemes of **WRF model** for flood forecasts in a coastal urban environment
  - Generation and evaluation of **Local Climate Zones** in WRF model for rainfall events
  - Effect of **green roofs** in the simulation of rainfall.
- **Flood Simulation using Weather Forecast and Hydrological Models** (M.Tech Research Project)
  (Supervisor: Dr. Praveen K. Thakur , Co-Supervisor: Dr. S.P. Aggarwal , July'14 - July'15)
  - An experimental setup for **early flood warning system** in North Western Himalaya.
  - Selection of suitable parameterization of WRF model for precipitation forecasting.
  - Set-up and **calibrated hydrological model (HEC-HMS**) for generating the initial and lateral boundary conditions for the estimation of water levels **hydrodynamic model (MIKE11)**.
- **Selection of potential sites for water harvesting structure in Jabalpur district using Remote Sensing & GIS** (B.Tech Major Project)
  (Supervisor: Dr. Bhaskar R. Nikam , Co-Supervisor: Dr. S.P. Aggarwal , January'13 - May'13)
  - Identification of suitable sites for water harvesting structure (check dams) using remote sensing and geographic information system.
  - Multi-criterion decision based on Integrated Mission for Sustainable Development guidelines.
- **Land use/ Land Cover change detection of Jabalpur block using Remote Sensing and GIS technique**(B.Tech Major Project)
  (Supervisor: Dr. S.K. Sharma , July'12 - December'12)
  - Unsupervised classification applied to classify IRS-P6 (LISS-3) imagery. Change detection of thematic layers was performed to quantify the changes in the LULC.

PUBLICATIONS

- **Patel, P.**, Karmakar, S., Ghosh, S., and Niyogi, D. (2020). Improved Simulation of Very Heavy Rainfall Events by Incorporating WUDAPT Urban Land Use/ Land Cover in WRF. *Urban Climate*, 32, p.100616. (Q1)
- Chakravarty, K., Mohmmad, J., Hosalikar, KS., Pandithurai, G., **Patel P.**, Niyogi D. (2020, January). Cloud Morphology and Microphysics of Precipitation Events during Interseasonal Phases of Monsoon over Mumbai, India. In *100th American Meteorological Society Annual Meeting*, AMS.
- **Patel, P.**, Aliaga, D., Karmakar, S., Ghosh, S. and Niyogi, D. (2019, December). Green Roofs to mitigate the urban extreme precipitation events? An experimental study over Mumbai, India. In *AGU Fall Meeting 2019*, AGU.
- Tiwari, A., Busireddy, N.K.R., **Patel, P.**, Merwade, V., Jamshidi, S., Marks, F., Safaee, S. and Niyogi, D. (2019, December). Assessing Variability in Multi-sensor Tropical Cyclone Rainfall Estimates and the Impact on Urban Flood Simulation for Hurricane Florence (2018). In *AGU Fall Meeting 2019*, AGU.
- **Patel, P.**, Ghosh, S., Kaginalkar, A., Islam, S., and Karmakar, S. (2019). Performance evaluation of WRF for extreme flood forecasts in a coastal urban environment. *Atmospheric Research* , 223, 39-48. (IF-4.1, Q1)
- **Patel, P.**, and Karmakar, S. (2018, July). Analysis of Vulnerability to Water Stress at a Nationwide Scale. In IGARSS 2018 *IEEE International Geoscience and Remote Sensing Symposium* (pp. 2910-2913). IEEE.
- **Patel P.**, Karmakar S., Ghosh S., and Niyogi D., (2018), Performance evaluation of WRF for extreme precipitation events by integrating WUDAPT, during *European Geosciences Union General Assembly*, 8-13 April 2018 held at Vienna, Austria
- Gusain A., **Patel P.**, Ghosh S., and Karmakar S.,(2018), Hydrologic impacts of reservoir operation on flood inundation pattern in a highly flood-prone deltaic region of Mahanadi River Basin, India, during *European Geosciences Union General Assembly*, 8-13 April 2018 held at Vienna, Austria
- Sharma, G., Gupta, K., Kumar, P., Thakur, P.K., **Patel, P.** and Aggarwal, S.P. (2015),Wind Flow simulation in urban area using open source software, during *OSGEO-India: FOSS4G 2015* - Second National Conference on Open source geospatial tools in climate change research and natural resources management, 8-10th June 2015 held at IIRS Dehradun
- Kumari, S., Thakur, P.K., **Patel, P.**, and Aggarwal, S.P. (2015), Hydrometeorological data assimilation in weather forecasting model using open source tools, during *OSGEO-India: FOSS4G 2015* - Second National Conference on Open source geospatial tools in climate change research and natural resources management, 8-10th June 2015 held at IIRS Dehradun

SPOKEN LANGUAGES

- Hindi (Mother Tongue)
- English

MEMBERSHIP

- American Geophysical Union
- IEEE Geoscience and Remote Sensing Society
- European Geosciences Union
- Associate Member of Institution of Engineers (A.M.I.E.)

REFERENCES

- Prof. Subhankar Karmakar, Professor, Centre for Environmental Science and Engineering, Indian Institute of Technology Bombay, Powai, Mumbai-400076, India E-mail : subhankar.karmakar@gmail.com, skarmakar@iitb.ac.in
- Prof. Subimal Ghosh, Professor, Department of Civil Engineering, Indian Institute of Technology Bombay, Powai, Mumbai-400076, India E-mail : subimal.ghosh@gmail.com, subimal@civil.iitb.ac.in
- Prof. Dev Niyogi, Professor, Department of Agronomy- Crops, Soils, Air and Water Sciences, and Department of Earth, Atmospheric, and Planetary Sciences, Purdue University, West Lafayette, Indiana-47907, USA E-mail : climate@purdue.edu, niyogi@gmail.com