SUCHETA PRADHAN

Research Scholar | Hydrologist | Data Analyst

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PROFESSIONAL SUMMARY

PhD researcher in **Environmental Hydrology** at the University of Melbourne, specialising in extreme rainfall and flood risk associated with **atmospheric rivers**. I contribute to high-quality research and publications, with experience in hydrological and climate big data analysis, flood risk assessment, and advanced statistical methods. My work aims to generate robust, policy-relevant insights to support sustainable water management and climate-resilient infrastructure planning.

RESEARCH INTERESTS

Hydro-climatology: Atmospheric Rivers, Extreme Precipitation, Streamflow.
Flood Dynamics: Compound events, Global flood risk, Catchment hydrology.
Data Science: Machine Learning in Hydrology, Big Data (NetCDF), Time series, PCA.
Advance statistics: Statistics of hydro-climatic extremes.

PUBLICATIONS & CONFERENCES

1. **Atmospheric rivers increase global flood risk.**
   Pradhan, S., Wasko, C., & Peel, M. (2026). *Environmental Research Letters*. (Published).
   DOI: 10.1088/1748-9326/ae362a
2. **Atmospheric Rivers intensify extreme precipitation and flooding across Australia.**
   Pradhan, S., Wasko, C., & Peel, M. (2025). *Weather and Climate Extremes*. (Published).
   DOI: 10.1016/j.wace.2025.100812
3. **Atmospheric rivers and Australian precipitation: Impact of detection algorithm choice.**
   Pradhan, S., Wasko, C., & Peel, M. (2025). *Journal of Hydrology*. (Published).
   DOI: 10.1016/j.jhydrol.2024.132586
4. **Global trends in Atmospheric River-induced precipitation.**
   Pradhan, S., Wasko, C., & Peel, M. (Under review). *npj Natural Hazards*.
5. **The future scenario of AR-induced extreme precipitation on a global scale.**
   Pradhan, S., Wasko, C., & Peel, M. (Under Analysis and Writing).
6. **Atmospheric Rivers as Drivers of Precipitation Variability and Flood Extremes.**
   Pradhan, S., Wasko, C., & Peel, M. (2026). *EGU General Assembly*, DOI: 10.5194/egusphere-egu26-3710
7. **Quantifying the Global Impact of Atmospheric Rivers on the Recurrence of Flood Events.**
   Pradhan, S., Wasko, C., & Peel, M. (2025). *MODSIM2025*.
8. **Global scale impact of atmospheric rivers on the severity of flooding.**
   Pradhan, S., Wasko, C., & Peel, M. (2025). *EGU General Assembly*, DOI: 10.5194/egusphere-egu25-2964
9. **Multivariate Approach Reveals a Higher Likelihood of Compound Heat Stress-Pluvial Floods in Urban India.**
   Ganguli, P., & Pradhan, S. (2022). *Authorea Preprints*. DOI: 10.1002/essoar.10510858.1
10. **Multivariate Approach Reveals a Higher Likelihood of Compound Warm-wet Spells in Urban India.**
    Pradhan, S., Ganguli, P. (2022). *EGU General Assembly*. DOI: 10.5194/egusphere-egu22-2647
11. **Compounding Risk of Heat Stress-Rain Induced Floods in Urban India.**
    Ganguli, P., Pradhan, S. (2021). *AGU Fall Meeting*. DOI: 10.1002/essoar.10509455.1

EDUCATION

Doctor of Philosophy (PhD) - Engineering & IT *The University of Melbourne | Australia* **Dec 2022 – Present**
Thesis: An investigation into Atmospheric Rivers and their potential impact on extreme rainfall and flooding in Australia.

Supervisors: Dr. Conrad Wasko , Dr. Murray Peel.

M.Tech - Agricultural and Food Engineering (Land & Water Resources)
Indian Institute of Technology Kharagpur | IIT Kgp | India **2020 – 2022**
CGPA: 9.34 / 10.0 (Stipend Recipient).
Thesis: Compound Risk of Heat Stress-Rain Induced Floods in Urban India.

B.Tech - Agricultural Engineering *CAET OUAT | Odisha India* **2016 – 2020**
CGPA: 8.76 / 10.0. **University Gold Medalist** (Rank 1). Merit Scholarship Recipient.

RESEARCH & PROFESSIONAL EXPERIENCE

PhD Researcher *The University of Melbourne | Melbourne, VIC* **Dec 2022 – Present**

Academic Tutor/ Instructor *The University of Melbourne | Melbourne, VIC* **Feb 2024 – Dec 2025**

- **Earth Processes for Engineering (ENEN20002):** Tutoring 26 Feb 2024 – 30 Jun 2024 & 22 Jul 2024 – 31 Dec 2024.
- **Environmental Analysis Tools (ENEN90032):** Appointed to teach commencing 1 Aug 2025.

Masters Thesis *IIT Kharagpur | India* **2021 – 2022**
Compound Risk of Heat Stress-Rain Induced Floods in Urban India.

Bachelor Thesis *OUAT | India* **2019 – 2020**
Development and Performance evaluation of Little Millet Thresher operated by bullock power in rotary mode.

Engineering Intern *KLEAN SOLAR | India* **Aug 2019 – Oct 2019**
Managed solar system implementation and maintenance projects (Developed Solar Panel Tracker).

Industrial Trainee *Northern Region Farm Machinery Training & Testing Institute (Govt. of India)* **May 2019**
Completed intensive training on farm machinery testing and standardization.

AWARDS & SCHOLARSHIPS

- **Best Journal Paper Award**, IEGRC 2025 Conference (Environmental Hydrology).
- **Graduate Research Scholarship**, University of Melbourne.
- **University Gold Medal**, OUAT (Rank 1 in University: recipient of 5 Gold Medals).
- **Graduate Aptitude Test in Engineering (GATE, 2020) Rank 106**.
- **M.Tech Stipend**, IIT Kharagpur (2020-2022).
- **Scholarships:** OUAT Merit (2016-20), Prerana (2014-15), National Rural Talent Scholarships (NRTS), Odisha Bruti Exam, Science Project Scholarship.

SKILLS & TRAINING

Python
R Programming
ArcGIS / QGIS
MATLAB
Technical Writing
LaTeX
Microsoft Office
C Programming
Advance Statistics
Public Speaking

Training:
- Data Analytics with Python (NPTEL, IIT Roorkee).
- Skill & Entrepreneurship: National Agricultural Higher Education Project (NAHEP)
  - Remote Sensing and GIS in Agriculture
  - Food Packaging and Technology
  - Establishment of SSI unit for Production of Small Farm Implements
- Rainwater Harvesting (Experiential Learning, OUAT).

VOLUNTEERING

- **Secretary:** Indian Graduate Researchers Society (IGRS), UniMelb.
- **Volunteer:** St Vincent de Paul Society.
- **NSS Volunteer:** National Service Scheme.

REFEREES

Dr. Murray Peel
Senior Lecturer
Department of Infrastructure Engineering
The University of Melbourne, Australia
mpeel@unimelb.edu.au
University Profile

Dr. Conrad Wasko
Sydney Horizon Fellow (Senior Lecturer)
Civil Engineering, Faculty of Engineering
The University of Sydney, Australia
conrad.wasko@sydney.edu.au
University Profile