Pramod Adhikari

Postdoctoral Researcher
Department of Atmospheric Science, University of Wyoming
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EDUCATION

Ph.D. (Atmospheric Science) University of Nevada, Reno, USA *2018-2022*

- Dissertation: "*Aerosol-cloud-precipitation interaction based on remote sensing and cloud-resolving modeling over the Central Himalayas*"
- *Advisor:* Dr. John F. Mejia, Associate Research Professor

MS (Atmospheric Science) University of Nevada, Reno, USA *2015-2017*

- MS Thesis*: "Assessment of wind regime and sediment transport activity at Oceano Dunes, California"*

MSc. (Physics) Central Department of Physics, Tribhuvan University, Nepal *2011-2015*

- MSc. Thesis: *"Numerical reconstruction of early monsoon weather situation over Arun valley of eastern Nepal Himalaya"*

BSc. (Physics) St. Xavier's College, Tribhuvan University, Nepal *2007-2010*

KEY SKILLS

1. Regional numerical modeling (WRF and WRF-Chem) at cloud-resolving scale
2. Weather and Climate data analysis
3. Large spatial and temporal gridded data analysis and visualization (observational, reanalysis, and model output)
4. Working on high-performance computing environment (Cheyenne high performance computer by NCAR-CISL)
5. Scientific programming (Python, R, and FORTRAN)
6. Unix/Linux environments
7. Global Climate model (CESM)

PUBLICATIONS

PUBLISHED

1. **Adhikari, P.,** Geerts, B., Rahimi-Esfarjani, S., Smith, K., Shuman, B. N., & Schneider, T. L. (2024). Evaluation of the mountain hydroclimate across the western United States in dynamically downscaled climate models. *Journal of Hydrometeorology*, *25*(12), 1877-1894. https://doi.org/10.1175/JHM-D-24-0063.1

2. **Adhikari, P**., Mejia, J. F. (2023). Aerosol–precipitation elevation dependence over the central Himalayas using cloud-resolving WRF-Chem numerical modeling. *Atmospheric Chemistry and Physics,* 23**,** 1019-1042. https://doi.org/10.5194/acp-23-1019-2023
3. **Adhikari, P**., Mejia, J. F. (2021). Influence of aerosols on clouds, precipitation and freezing level height over the foothills of the Himalayas during the Indian summer monsoon. *Climate Dynamics* 57**,** 395–413. https://doi.org/10.1007/s00382-021-05710-2
4. **Adhikari, P.**, & Mejia, J. F. (2022). Impact of transported dust aerosols on precipitation over the Nepal Himalayas using convection-permitting WRF-Chem simulation. *Atmospheric Environment: X*, 100179. https://doi.org/10.1016/j.aeaoa.2022.100179

UNDER REVIEW AND IN PREPARATION

1. **Adhikari, P.,** Geerts, B., Tessendorf S., Xue, L., and Schneider, T. L. (2025). Climatology of cold-season supercooled liquid water and glaciogenic cloud seeding potential in the western United States, according to a 4 km resolution climate reconstruction. *Journal of Applied Meteorology and Climatology* (under review)
2. Chang, C., Mejia J. F., Henao J. J., and **Adhikari P.,** (2025) Impacts of Wildfire Smoke on Stratocumulus Clouds and Their Diurnal Cycle Using WRF-Chem Modeling, *Journal of Geophysical Research: Atmospheres* (under review)
3. **Adhikari, P.,** Geerts, B., Rahimi-Esfarjani, S., Shuman, B. N., Albeke S., (2025) Changes in precipitation extremes over the Western United States under global warming levels of 2°C and 3°C (in preparation)
4. Smith K., Geerts, B., **Adhikari, P.,** Day K., Rahimi S., Shuman B., and Schneider T. (2025) Evaluation of CONUS404 cold-season precipitation and snowpack over the mountainous western United States (in preparation)

PROFESSIONAL EXPERIENCE

1. **Postdoctoral Researcher,** University of Wyoming *January 2023- present*
    - Project: Wyoming Anticipating Climate Transitions (WyACT)
    - Dynamically downscale regional climate model to improve the predictive understanding of the coupled human-environment impacts of climate change on water availability.
    - Analyze the global climate models
    - Conducted dynamic downscaling and validation of retrospective climate simulations and high-resolution future climate projections for the Interior Western US
    - Collaborated with the visualization and dissemination team and scientists at NCAR for simulation execution and data processing.
    - Contributed to the development of a public-facing web portal for communicating region-specific climate change information to stakeholders, addressing challenges like precipitation shifts, water availability, and extreme events across the western US, using dynamically downscaled CMIP6 GCM outputs at 9 km resolution.
    - Mentored undergraduate and graduate students

2. **Postdoctoral Researcher,** New Mexico State University *August 2022 -December 2022*

- NASA's Planetary Data System: The Planetary Atmospheres Node at the Department of Astronomy
- Work as part of a team of scientists developing a planetary data system-equivalent archive of atmospheric modeling output through a new Atmospheric Modeling Annex.

3. **Graduate Research Assistant**, Desert Research Institute, Reno *2018- 2022*
   - Handle and analyze long-term and large gridded datasets from satellite and reanalysis product
   - Lead the project and apply for the funding and computational resources
   - Design model experiments and run cloud-resolving WRF-Chem simulations in a high-performance computing environment
   - Analyze data from the simulation, compile results and prepare a manuscript for publications

4. **Graduate Teaching Assistant**, University of Nevada, Reno *2018-2022*
   - Teach physics laboratory and recitations for undergraduate students majoring in physical sciences, engineers, and non-physical sciences
   - Design syllabus, deliver lectures, conduct a discussion on physics problems, and run lab assignments
   - Ensure a positive learning environment as reflected in course evaluation

5. **Graduate Research Assistant**, Desert Research Institute, Reno *2015-2017*
   - Compiled, validated, and analyzed multi-year datasets to identify the sand transport events over the Oceano Dunes, California
   - Analyzed long-term wind speed data to infer the sand transport potential

CONFERENCE PROCEEDINGS

1. **Adhikari, P.,** et al., (2025) Predicting weather extremes and water resources in the climate transition: a focus on the Western United States American Meteorological Society Annual Meeting, 2025.
2. **Adhikari, P.,** et al., (2024) Changes in wet and dry extremes in a dynamically downscaled datasets, American Geophysical Union Fall Meeting, 2024.
3. **Adhikari, P.,** et al., (2023) Elevation-dependence evaluation of historical bias-corrected dynamically downscaled GCMs across the western U.S., American Geophysical Union Fall Meeting, 2023.
4. **Adhikari, P.**, Mejia, J. F. (2022). Impact of dust aerosols on the convective system using cloud-resolving WRF-Chem simulation over the Nepal Himalayas, American Meteorological Society Annual Meeting, 2022.
5. **Adhikari, P.**, Mejia, J. F. (2020). Impact of transported dust aerosols on precipitation over the central Himalayas using convection permitting WRF-Chem Simulation, American Geophysical Union Fall Meeting.

6. **Adhikari, P.**, Mejia, J. F. (2019). Influence of aerosols on precipitation and vertical temperature distribution over the foothills of Himalayas during the Indian summer monsoon, AGU Fall Meeting: San Francisco, CA, December 9-13, 2019.

MEDIA COVERAGE

1. The Kathmandu Post, **Kathmandu, Nepal**, May 10th, 2021: Air pollution not only impacts health, but can also trigger floods and landslides, study finds (https://kathmandupost.com/climate-environment/2021/05/09/air-pollution-not-only-impacts-health-but-can-also-trigger-floods-and-landslides-study-finds)
2. Air Quality News, **United Kingdom**, May 10th, 2021: Air pollution could trigger flooding, study suggests (https://airqualitynews.com/2021/05/10/air-pollution-could-trigger-flooding-study-suggests/)

HONORS AND AWARDS

1. *Graduate Student Association travel award*, University of Nevada, Reno 2022
2. *Colin Warden Memorial Endowment*, **Outstanding graduate student researcher**, Desert Research Institute, Reno, Nevada 2021
3. *Graduate Student Association travel award*, University of Nevada, Reno 2019
4. *Graduate Student Association travel award*, University of Nevada, Reno 2018
5. *Charles Francis Cutts scholarship award*, University of Nevada, Reno 2017-2018
6. *International graduate student scholarship award*, University of Nevada, Reno 2016-2017
7. *M.Sc. Fellowship*, Central Department of Physics, Tribhuvan University, Nepal 2011-2013

JOURNAL REVIEWER

- Urban Science- MDPI, Atmospheric Research – Science Direct (Elsevier)

FUNDING

- NCAR's Computational & Information Systems Laboratory (CISL-Cheyenne) supported by National Science Foundation
- Institute Project Assignment fund by Desert Research Institute

TRAINING AND WORKSHOPS

- Introduction to the Community WRF-Hydro Modeling System: Interactive Hands-on Tutorial (February 2022)
- Teaching with Technology Course (January-May 2019)
- NCAR Command Language (NCL) and Visualization and Analysis Platform (VAPOR) workshop, (July 2018)
- NASA ARSET applied remote sensing webinar training on "Overview of the Global Disaster

Alert and Coordination System" (February 2017)

Field Measurement

- Measurement of threshold shear stress and transport conditions at White Sand Dunes, New Mexico (March 6-11, 2017)
- Wind energy assessment around Kathmandu Valley, Nepal, using SODAR (April to June 2014)

PROFESSIONAL ASSOCIATIONS

- Member, American Geophysical Union
- Member, American Meteorological Society