Abhinav Dengri

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RESEARCH INTEREST

Land-Atmosphere Interaction, Vegetation Dynamics, Anthropogenic Impact on regional climate, Climate Change Impacts on Extreme events, Environmental Fluid Dynamics, Hydrometeorology.

EDUCATION

Hokkaido University Sapporo, Japan
Doctoral course in field engineering for the environment Oct. 2021 - Present

- **Research Interest:** Land-atmosphere interaction, vegetation dynamics and non-linear interaction

Hokkaido University Sapporo, Japan
Master of engineering in field engineering for the environment Oct. 2019 – Sep. 2021

- **Thesis Title:** Simple Soil-Vegetation-Atmosphere model to study soil moisture bimodality and Global Soil moisture bimodality detection.
- **CGPA:** 3.0/3.0
- **Supervisor:** Dr. Tomohito Yamada

Gautam Buddha University National Capital Region, India
Bachelor of engineering in civil engineering Aug. 2011 – July. 2016

- **CGPA:** 3.7/4.0
- **Courses:** Engineering Mathematics (Linear Algebra, Calculus, Vector Calculus, Partial and Ordinary Differential equations, Numerical Methods), Fluid Mechanics, Numerical Methods for Analysis, Engineering Hydrology, Irrigation Engineering, Remote Sensing and GIS and Environmental Engineering.

EMPLOYMENT: TEACHING AND RESEARCH EXPERIENCE

Oct. 2021 – present

Internship Engineer, Docon Co. Ltd., (Consulting Engineers), River Planning Department., Sapporo Hokkaido.

- Uncertainty analysis of extreme precipitation over thirteen Hokkaido river basins using Database for Policy Decision making for Future climate change (d4PDF) ensemble data.
- Spatial clustering of extreme precipitation over Hokkaido to identify flood-prone regions using the Database for Policy Decision making for Future climate change (d4PDF) ensemble data.
- Developing an application for extreme rainfall uncertainty analysis.

Apr. 2023 – Sep. 2023

Teaching Fellow, Fluid Mechanics, River and Watershed Laboratory, Hokkaido University.

- Assisting in tutorial preparation, helping students with tutorial problem-solving, and maintaining the attendance record.

Oct. 2021 – Feb. 2022	**Teaching Assistant,** Nitobe Graduate School, Hokkaido University • Manage running online classes., Facilitate, guide, and motivate discussions among students, Maintain the attendance record and student contribution record., Publish the class activity on the Nitobe Graduate School Facebook.
Apr. 2022 – Sep. 2022 Apr. 2021 – Sep. 2021 Apr. 2020 – Sep. 2020	**Teaching Assistant,** Fluid Mechanics Laboratory, River and Watershed Laboratory, Hokkaido University • Explain and help in conducting fluid mechanics experiments., Maintain the attendance record and student contribution record.
Aug. 2022 – Sep. 2022 Aug. 2021 – Sep. 2021 Mar. 2021 – Apr. 2021	**Teaching Assistant,** Short-Term Overseas Study Special Program, Hokkaido University • Facilitate, guide, and motivate discussions among students, Manage running online classes.
Oct. 2020 – Sep. 2021	**Research Assistant,** River and Watershed Laboratory, Hokkaido University • Rainfall analysis over Kushiro wetlands with the aim of understanding the drying of wetland using Database for Policy Decision making for Future climate change (d4PDF)
Dec. 2017 – Jul. 2019	**Junior Research Fellow,** Central Pollution Control Board, Ministry of Environment and Forest and Climate Change (MOEFCC), Government of India • Pollution Inventorization, Assessment, and Surveillance of River Ganga.

RESEARCH PUBLICATIONS AND PRESENTATIONS

Journal Articles (Peer Reviewed)

1. **A. Dengri**, 2023: Exploring the Frontiers of Fluid Dynamics: An Inside Look at 10th Fluid Dynamics of Sustainability and the Environment Summer School, Journal of Japan Society of Hydrology and Water Resources, 36(2), pp. 157 − 164. Available at: https://doi.org/10.3178/jjshwr.36.157.
2. **A. Dengri**, T. J. Yamada, 2022: Analysis of Planetary Boundary Layer Feedbacks on the Multiple Equilibria of Continental Water Cycle, IOP Conference Series: Earth and Environmental Science, 1136(1), p. 012012. Available at: https://doi.org/10.1088/1755-1315/1136/1/012012.
3. **A. Dengri**, T. J. Yamada, 2021: Analytical Land-vegetation-atmosphere Model to Study Soil Moisture Bimodality, Journal of Japan Society of Civil Engineers, Ser. B1 (Hydraulic Engineering), Volume 77, Issue 2, Pages I_235-I_240, https://doi.org/10.2208/jscejhe.77.2_I_235

Journal Articles (In Review)

1. **A. Dengri**, Y. Mao, T. J. Yamada, 2023: Bimode in Boreal Summer Soil Moisture Distribution over Major Land Atmosphere Hotspots, submitted to Atmospheric Science Letters.

Journal Articles (Non-Peer Reviewed)

1. **A. Dengri**, T. J. Yamada, 2022: Analysis of soil moisture and precipitation bimodal distribution for boreal summer using satellite data over northern India, 水文・水資源学会／日本水文科学会 2022 年度研究発表会要旨集
2. **A. Dengri**, T. J. Yamada, 2021: One Dimensional Analytical Land-Vegetation--Atmosphere Coupled Model to Investigate Soil Moisture Bimodality, 細氷, 67.
3. **A. Dengri**, T. J. Yamada, 2021: Analytical Land -Vegetation-Atmosphere Coupled Model to Study Soil Moisture Bimodality, 水文・水資源学会／日本水文科学会 2021 年度研究発表会要旨集, PP-B-23

Oral Presentation

1. **A. Dengri**, T. J. Yamada: Bimodal Boreal Summer Soil Moisture: Satellite Observation and vegetation-atmosphere Model, Asia Oceania Geosciences Society (AOGS), Singapore, 30 July 2023 – 4 August 2023.
2. **A. Dengri**, T. J. Yamada: Analysis of Planetary Boundary Layer Feedbacks on the Multiple Equilibria of Continental Water Cycle, 14th International Conference on Hydroinformatics, University POLITEHNICA of Bucharest, Bucharest, Romania
3. **A. Dengri**, T. J. Yamada: Soil moisture bimodality over Land–Atmosphere hotspot regions at intraseasonal and interannual timescale., EGU General Assembly 2022, Vienna, Austria, 23–27 May 2022, EGU22-12122, https://doi.org/10.5194/egusphere-egu22-12122, 2022.
4. **A. Dengri**, T. J. Yamada: Analytical Land-vegetation-atmosphere Model to Study Soil Moisture Bimodality, 第 66 回水工学講演会, 2021 年 12 月 8 日-10 日.
5. **A. Dengri**, T. J. Yamada: One Dimensional Analytical Land-Vegetation-Atmosphere coupled model to investigate soil moisture bimodality, 第 1 回日本気象学会北海道支部オンライン研究発表会, 2, オンライン, 2021 年 07 月 15 日.

Poster Presentation

1. **A. Dengri**, T. J. Yamada: Detection and Analysis of Bi-modal distribution of essential variables over India during boreal summer, 水文水資源学会 2022 年度研究発表会, PP-2-14, オンライン, 2022 年 9 月 4 日-7 日.
2. **A. Dengri**, T. J. Yamada: Analytical Land -Vegetation-Atmosphere coupled model to study soil moisture bimodality, 水文水資源学会 2021 年度研究発表会, PP-B-23, オンライン, 2021 年 9 月 15 日-18 日.
3. **A. Dengri**, T. J. Yamada: Analytical Land-Vegetation-Atmosphere Coupled Model to Investigate Soil Moisture Bimodality, The Fifth Convection-Permitting Modeling Workshop 2021 (CPM2021), online, 7-10, September 14, 2021.

SKILLS

Languages	**Native:** Hindi, **Fluent:** English, **Beginner:** Japanese (JLPT-N4)
Programming	Python, R, MATLAB, Fortran 90/95, Bash, LaTeX
OS	Windows and Linux

MISCELLANEOUS

Awards and Achievements

2021	Hokkaido University DX Doctoral Fellowship
2020	Nitobe Graduate School Scholarship
2019	MEXT Honors Scholarship
	Junior Civil Engineer (Permanent Commission), Lucknow Metro Rail Corporation (LMRC), Government of India
	Top 5% student Certificate, Digital Land Surveying, and Mapping, IIT Roorkee, India
	Silver Medal Certificate, Descriptive Statistics with R, IIT Kanpur, India
2018	**Junior Research Fellowship (JRF)**, Ministry of Environment and Forest and Climate Change (MOEFCC), Government of India
	Gold Medal Certificate, Remote Sensing and Digital Image Processing, IIT Roorkee, India

Certification

2019	Graduate Record Exam (GRE): 321/340
2018	International English Language Test (IELTS): 7.0/9.0
2017	Graduate Aptitude Test in Engineering (GATE)

Summer Schools and Workshops

2022	Fluid Dynamics of Sustainability and the Environment Summer School, Ecole Polytechnique, France
2021	The Fifth Convection-Permitting Modeling Workshop (CPM2021), Japan.
2020	**Large-eddy-simulation model: PALM**, Institute for Meteorology and Climatology, Leibniz University, Germany
2019	**Geospatial summer school**, Jamia Millia Islamia University, India
2018	Remote sensing GPS and GIS in civil engineering, National Institute of Technical Teachers' Training and Research, India
	Integrated 1d and 2d river flood modeling, DHI, India

Industrial Internships

2014	**Internship Trainee**, National Buildings Construction Corporation Ltd. (NBCC), Government of India
2013	**Internship Trainee**, Indian Railways, Government of India

REFERENCES

Dr. Norihiro Izumi
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