Dr. Jagabandhu Panda

Designation: Professor
Department of Earth and Atmospheric Sciences
National Institute of Technology Rourkela
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Academic identity

Orcid profile: http://orcid.org/0000-0002-4238-1820
Scopus profile: https://www.scopus.com/authid/detail.uri?authorId=8543279200
Web of Science profile: https://www.webofscience.com/wos/author/record/Q-2109-2016
Google Scholar profile: https://scholar.google.co.in/citations?user=DIzghX8AAAAJ&hl=en

Research Interests:

- Extreme and high-impact weather, and associated climatology;
- Urbanization, meteorology, climatology, and associated socio-economic impacts;
- Aerosols, clouds, and climate;
- Vulnerability, risks and hazard assessment;
- Energy meteorology;
- Planetary atmospheres;
- Applications of modern techniques and technologies, viz., numerical/ lagrangian/ stochastic/ statistical modeling, data assimilation, remote sensing and GIS techniques, ML/DL in land and atmospheric studies

Education (Academic Qualification):

Degree	Subject	Class/Division	Year	University/ Board
PhD	Atmospheric Science **Thesis Title**: Atmospheric boundary layer characteristics over North India using WRF modeling system		2010	Indian Institute of Technology (IIT) Delhi, New Delhi, India
MSc	Physics	First	2001	Utkal University, Bhubaneswar, Odisha (previously Orissa), India
BSc	Physics	First	1999	Utkal University, Bhubaneswar, Odisha (previously Orissa), India

Administrative Experience:

Sl. No.	Position held	Organization	Period
1	Head of Department	Earth and Atmospheric Sciences, National Institute of Technology (NIT) Rourkela	July 01, 2021- June 30, 2024
2	Asst. Warden	S. D. Hall of Residence, NIT Rourkela	July 01, 2018- June 30, 2020

Research/ Teaching Experience:

Designation	Organization	Period
Professor	Dept. of Earth and Atmospheric Sciences, NIT Rourkela, India	July 01, 2024- Till date
Associate Professor	Dept. of Earth and Atmospheric Sciences, NIT Rourkela, India	February 14, 2020- June 30, 2024
Assistant Professor	Dept. of Earth and Atmospheric Sciences, NIT Rourkela, India	March 20, 2014 – February 13, 2020
Post-doctoral Research Fellow	Research Center for Environmental Changes, Academia Sinica, Taipei, Taiwan	July 09, 2013- March 11, 2014
Post-doctoral Research Fellow	School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore	September 30, 2010 - May 31, 2013
Project Scientist C	National Centre for Medium Range Weather Forecasting (NCMRWF), Ministry of Earth Sciences, Noida, India	May 31, 2010 - September 20, 2010
Research Associate	Satellite Meteorology Division, India Meteorological Department (IMD), New Delhi, India	November 10, 2009 – May 21, 2010
Senior Consultant-Academics	TransWeb Educational Services Pvt. Ltd.	May 01, 2009- October 31, 2009

Supervision of Research/ Project

Sl. No,	UG / PG Level	No. Completed	No. in progress
1	PhD	07	06
2	Exec. PhD	-	02
3	M. Tech. (2 years)	14	01
4	M. Sc. (2 years)	22	03

Editorial/Reviewer Tasks:

- Guest Editor in Meteorological Applications
- Reviewed several PhD Thesis from foreign and Indian organizations as an external examiner.
- Reviewer/referee for many project proposals submitted to DST/SERB/BRNS.
- Referee/reviewer for several national and international journals

Past/ Present Collaborating Organizations:

- University of South Florida (USA)
- Florida Atlantic University (USA)
- North Carolina State University (USA)
- University of Houston, Texas (USA)
- University of California, Davis (USA)
- University of Illinois, Urbana Champaign (USA)
- Massachusetts Institute of Technology (MIT), United States
- University of Wisconsin, Maddison (USA)
- Aeolis Research (USA)
- Environmental Defense Fund, Washington (USA)
- Audecia Ventures (Canada)
- Reims Champagne-Ardenne University (France)
- University of Exeter (United Kingdom)
- Ulster University (United Kingdom)
- UAE University (United Arab Emirates)
- Singapore University of Social Sciences (Singapore)
- Academia Sinica (Taiwan)
- National Central University (Taiwan)
- Pusan National University (South Korea)
- Sun Yat-sen University (China)
- Chinese Academy of Sciences (China)
- Indian Institute of Technology (IIT) Delhi, New Delhi (India)
- Indian Institute of Technology (IIT) Madras, Chennai (India)
- Space Applications Centre (SAC), ISRO, Ahmedabad (India)
- Physical Research Laboratory (PRL), Ahmedabad (India)
- National Atmospheric Research Laboratory (NARL), ISRO (India)
- India Meteorological Department (IMD), New Delhi (India)
- Indian Institute of Tropical Meteorology (IITM), Pune (India)
- National Centre for Medium Range Weather Forecasting (NCMRWF), Noida (India)
- Central University of Rajasthan, Ajmer (India)
- Cochin University of Science and Technology, Kerala (India)
- Gautam Buddha University, Greater Noida (India)
- Amity University, Gurgaon (India)

PhD Thesis Supervision (6 completed + 1 submitted+ 8 ongoing):

1) **Ankan Sarkar** (2025). Aerosol Interactions with Radiation, Clouds, and Precipitation During Distinct Meteorological Scenarios over the Indian Subcontinent
2) **Debashis Paul** (2024). Ocean and Atmospheric Characteristics Concerning Distinct Intensification Scenarios of North Indian Ocean Cyclonic Disturbances

3) **Subodh Kumar** (2023). A Study on the Structural Characteristics of North Indian Ocean Tropical Cyclones during 2001-2020

4) **Bijay Kumar Guha** (2021). Martian atmospheric characteristics associated with dust storms and clouds realized through satellite observations and MarsWRF

5) **Sudhansu Sekhar Rath** (2021). Response of local weather to urban induced land-use change: A study over eastern and southern Indian cities

6) **Kasturi Singh** (2020). Impact of changing climate on North Indian Ocean cyclonic disturbances and associated meteorological features

7) **Sunny Kant** (2020). A study on clouds, precipitation and radiation response to aerosols over different parts of Indian region

MTech Dissertation Supervision (14 completed + 1 ongoing):

1) **Sudeshna Das (2025):** Spatio-temporal rainfall prediction using deep learning across twenty-five Indian cities

2) **Debashish Bhola (2024):** Country to city level study on the lightning variability over the Indian region

3) **Gourav Kumar (2024):** Developing a DL-based Modeling Framework for the Prediction of PM2.5 Concentration over Five Mega Cities

4) **Sanjeev Singh (2023)**: Analysis and prediction of temporal rainfall variability over hundred Indian cities through deep learning approach

5) **Pratik Suhas Patil (2023)**: Analysis of rapidly intensified North Indian Ocean tropical cyclones during 1980-2021

6) **Ramanjot Singh (2022):** A long-term study on the variability of aerosol, cloud and meteorological characteristics over North East India during pre-monsoon season

7) **Nistha Nagar (2022):** City-based Rainfall Analysis and Forecasting over Monsoon Homogenous Regions using Deep Learning Approach

8) **Abhishek Kumar (2022):** A climatological study of North Indian Ocean cyclonic disturbances using AI/ML approach: Occurrences and landfalling activity

9) **Amal K. K. (2021)**: Signature of COVID-19 lockdown in the variability of air pollutants, meteorology and in the intensification of tropical cyclone Amphan

10) **Tanmoy Sen (2021)**: A study on wind variability over the low latitude region of Venus

11) **Anushree P. C. (2020)**: A study of atmospheric aerosol characteristics over the Rourkela smart city using sun-photometer observations

12) **Madhuri Angel Baxla (2020)**: A comprehensive study on heatwaves over the Indian region during 1951-2018

13) **Subhojit Ghoshal Chowdhury (2020)**: A study on aerosol, cloud and precipitation

interaction during some selected deep convective events over Eastern India

14) **Umesh Kumar (2020)**: A Study on Re-curving Tropical Cyclones of North Indian Ocean Region

MSc Dissertation Supervision (22 completed + 3 ongoing):

1) **Subham Priyadarshi Behera (2025)**: A long-term study on the interaction of aerosols with radiation, clouds, and precipitation over Northeast India during the pre-monsoon season

2) **Pramit Majumder (2025)**: Cyclonic Disturbances and Hydro- meteorological Scenarios in the Mahanadi River Basin

3) **Deb Deep Mandal (2025)**: A study on the geological characteristics of the Arkhangelsky crater on Mars

4) **Gagan Bihari Bidika (2024)**: A climatological study on the variability of heatwave characteristics over the Indian region

5) **Arpita Behera (2024)**: A comprehensive study based on the lifespan of North Indian Ocean tropical cyclones

6) **Satyaki Banerjee (2024)**: A study on the geological characteristics of Herschel Crater and its ejecta blanket on Mars

7) **Sreyasi Biswas (2023)**: Spatio-temporal Variation of Land Surface Temperature Over Eight Major Cities in India

8) **Nihas A K (2023)**: The role of MY-34 global dust storm in altering the Martian atmospheric characteristics: A study using MRO-MCS and MCD Data sets

9) **Arunkumar K L (2023)**: A study on liquid water clouds over Bay of Bengal using statistical and machine learning approaches

10) **Anurag Sahu (2023)**: A study on bedform migration over three tropical craters of Mars

11) **Debjyoti Roy (2022):** Study on different characteristic features of the Venusian atmosphere during 2016-2020 with a special focus on thermal tides

12) **Nirvan Abhilash (2022)**: Martian cold spot regions and associated properties during a global dust storm year using MRO/MCS DDR observations

13) **Surender Pal (2022)**: Variability of CO_2 and H_2O Ice in the Martian Polar Caps

14) **Pramod Kumar (2021)**: A long-term study of rapidly intensified North Indian Ocean tropical cyclones during 1982-2020

15) **Smita Rani Panda (2020)**: Aerosol-cloud interaction over two distinct regions of India during pre-monsoon season of 2003-2018

16) **Deependra Kumar Gupta (2020)**: A study on tropical cyclone landfall activity and

associated impact assessment over NIO region

17) **Saurabh Verma (2019**): Numerical modelling of Atmospheric Boundary Layer characteristics over Mumbai during heavy rainfall scenarios using WRF

18) **Soumya Ranjan Mahapatra (2019**): Rainfall contribution by North Indian Ocean cyclonic disturbances over India during 1901-2016

19) **Aman Kumar Thakur (2018):** A satellite–based study on Aerosol-cloud interaction over south Asia during strong ENSO years

20) **Bijayalaxmi Sahoo (2018)**: Urban response to anthropogenic heating and some land-surface and near-surface atmospheric parameters over Chennai and Bengaluru

21) **Monalisa Sahoo (2017)**: A Study on Vulnerability Associated With Tropical Cyclones Over Bay of Bengal

22) **Amit Kumar Patel (2017)**: Urban induced land use land cover changes over Ahmedabad & possible implications

Academic achievements/honors/awards:

- *Associate Fellow award 2024* from Indian Meteorological Society
- *Best paper publication 2016 award in atmospheric sciences* from Indian Society of Remote Sensing
- Recipient of *Senior Research Fellowship* from *Council of Scientific and Industrial Research* (**CSIR;** New Delhi, India), at *Indian Institute of Technology* (**IIT**) **Delhi**, India (*January 2006-August 2007*).
- **Qualified** *Graduate Aptitude Test in Engineering* (**GATE**) **conducted by IIT** in 2001.

Sponsored Projects (4 as a PI +2 as Co-PI):

SL No.	Name of the Project	Sponsoring Agency	Duration / Time Frame	Sanctioned Amount (lakh rupees)	Role / Remarks
1	Analysing Martian atmospheric characteristics pertaining to dust storms, dust devils and clouds using MOM observations and a numerical model	ISRO, Department of Space, Government of India	Three years: 2016-19	18.332	**Principal Investigator**; Project executed at NIT Rourkela (Completed)
2	Interaction of urban boundary layer with mesoscale weather in coastal and continental city environment	SERB, Ministry of Science and Technology, Government	2016-20 (40 months)	34.232	**Principal Investigator**; Project executed at NIT Rourkela (Completed)

		of India			
3	Quantification of impact of global/local warming on changes in precipitation pattern over India	Ministry of Earth Sciences, Government of India	Three years: 2015-18	16.6122	Co-Investigator; Project executed at Satyabhama University, Chennai (Completed)
4	Preparing a size based database of North Indian Ocean cyclones and studying their meteorological characteristics using scatterometer products and two numerical models during warming climate scenario	Space Applications Centre, ISRO, Ahmedabad	Three years: 2017-20	21.132	**Principal Investigator**; Project executed at NIT Rourkela (Completed)
5	Land-atmosphere interaction during thunderstorms over major urban areas of India using high resolution mesoscale modeling framework and climatological data sets	Ministry of Earth Sciences, Government of India	42 months: 2021-25	45.4648	**Principal Investigator**; Project executed at NIT Rourkela
6	Study of extreme rain events and cloud bursts over the north Indian region emphasizing multi-scale interaction, atmospheric circulations, mechanisms, and precursors	SERB, Ministry of Science and Technology, Government of India	Three years: 2023-26	27.2826	Co-Investigator; Project executed at Gautam Buddha University, Uttar Pradesh
7	Developing a location specific forecasting system (LSFS) by integrating numerical modeling and machine learning techniques for monsoon-induced extremes	IITM Pune (Ministry of Earth Sciences)	Three Years: May 23, 2025-May 22, 2028	42.658	**Principal Investigator** Project executed at NIT Rourkela

Membership of Professional Bodies (6):

1) Life Member (LM-594), Ocean Society of India (OSI)

2) Life Member (SAMA-LM-IND-112), South Asian Meteorological Association (SAMA)

3) Life member (LM-3197) of 'Indian Meteorological Society (IMS)'

4) Life member (l-4109) of 'Indian Society of Remote Sensing (ISRS)'

5) Life member (IASTA-LM-642) of 'Indian Aerosol Science and Technology Association (IASTA)'

6) Member (17A764) of 'Asia Oceania Geosciences Society (AOGS)'

7) Associate Member (0409301) of 'American Meteorological Society (AMS)'

8) Patron Member (237) of 'Orissa Physical Society (OPS)'

9) Life Member, International Association for Urban Climate (IAUC)

Research Publications:

A. SCI/SCIE journal publications

1) Paul, D., **Panda, J.**, Bhasi, I., & Routray, A. (2025). A numerical modeling study on highly intensified tropical cyclones of North Indian Ocean using MPAS-A. *Natural Hazards*. (Accepted/ In press)

2) **Panda, J.**, Sarkar, A., Pandey, V., & Mukherjee, A. (2025). Aerosol characteristics over an eastern Indian city using sun photometer observations and Machine Learning frameworks. *Aerosol Science and Engineering*. (Accepted/ In press)

3) Kant, S., **Panda, J.**, & Rath, S. S. (2024). Observational evidence of aerosol-warm cloud interaction over two urban locations in eastern India. *Frontiers of Earth Science*, pp. 1-16. https://doi.org/10.1007/s11707-024-1124-z (In press)

4) **Panda, J.**, Guha, B. K., Mandal, A., Gebhardt, C., & Wu, Z. (2025). Isolating Martian dust devils, dust storms, and water ice clouds through multi-satellite observations. *New Astronomy Reviews*, 100, Article 101723, pp. 1-23. https://doi.org/10.1016/j.newar.2025.101723

5) Sahu, A., Mandal, A., Banerjee, S., & **Panda, J.** (2024). Insights into Martian bedform migration: Results from Gale, Jezero and Pasteur craters. *Earth Surface Processes and Landforms*, 49(15), 5069-5085. https://doi.org/10.1002/esp.6013

6) Kumar, S., **Panda, J.**, Paul, D., & Bhasi, I. (2024). A study on radial characteristics of North Indian Ocean tropical cyclones and associated energy indices through numerical modeling. *Atmospheric Research*, 309, Article 107587, pp. 1-20. https://doi.org/10.1016/j.atmosres.2024.107587

7) Sarkar, A., & **Panda, J.** (2024). Significance of anthropogenic black carbon in modulating atmospheric and cloud properties through aerosol-radiation interaction during a winter-time fog-haze. *Atmospheric Environment*, 334, Article 120720, pp. 1-20. https://doi.org/10.1016/j.atmosenv.2024.120720

8) Mukherjee, A., **Panda, J.**, Choudhury, A., Singh, S., & Bhattacharyya, S. (2024). Analyzing urban footprints over four coastal cities of India and the association with rainfall and temperature using deep learning models. *Urban Climate*, 57, Article 102123, pp. 1-20. https://doi.org/10.1016/j.uclim.2024.102123

9) Mukherjee A., and **Panda J.** (2024). A study on the urban growth and dynamics over sixteen major cities of India. *Journal of Earth System Science*, 133(2), Article 66, pp. 1-27. https://doi.org/10.1007/s12040-024-02280-9

10) **Panda, J.**, Koh, T. Y., Mukherjee, A., Li, X. X., & Norford, L. K. (2024). Numerical modeling of the distinct urbanization impact over Singapore during two contrasting weather scenarios. *Urban Climate*, 55, Article 101924, pp.1-24. https://doi.org/10.1016/j.uclim.2024.101924

11) Singh, S., Mukherjee, A., **Panda, J.**, Choudhury, A., & Bhattacharyya, S. (2024). Analysis and Forecasting of Temporal Rainfall Variability Over Hundred Indian Cities Using Deep Learning Approaches. *Earth Systems and Environment*, 08(3), 599-625. https://doi.org/10.1007/s41748-024-00396-y

12) Paul D., **Panda J.**, Sarkar A., Kumar S., Zhu Y. J., and Collins, J. (2024). Comparing the atmospheric and ocean characteristics associated with two distinctly intensified pre-monsoon tropical cyclones over the Bay of Bengal. *Quarterly Journal of the Royal Meteorological Society*, *150*(761), 1926-1952. https://doi.org/10.1002/qj.4682

13) **Panda J.**, Nagar N., Mukherjee A., Bhattacharyya S., and Singh S. (2024). Rainfall variability over multiple cities of India: analysis and forecasting using deep learning models. *Earth Science Informatics*, 17, 1105-1124. https://doi.org/10.1007/s12145-024-01238-1

14) **Panda J.**, Kant S., and Sarkar A. (2023). A satellite-observation based study on responses of clouds to aerosols over South Asia during IOD events of south-west monsoon season. *Atmospheric Pollution Research*, 14(9), Article 101861. https://doi.org/10.1016/j.apr.2023.101861

15) Kumar S., **Panda J.**, Paul D., and Guha B. K. (2023). Impact of environmental variables on the North Indian Ocean tropical cyclones radial parameters. *Climate Dynamics*, 60(3-4), 813-830. https://doi.org/10.1007/s00382-022-06316-y

16) Dalal P., Kundu B., **Panda J.**, and Jin, S. (2023). Atmospheric Lamb wave pulse and volcanic explosivity index following the 2022 Hunga Tonga (South Pacific) eruption. *Frontiers in Earth Science*, 10, Article 931545. https://doi.org/10.3389/feart.2022.931545

17) Guha B. K., and **Panda J.** (2022). Analyzing vertical dust distribution and associated meteorological characteristics over Acidalia Planitia during a regional and global dust event. *Icarus*, 388, Article 115230. https://doi.org/10.1016/j.icarus.2022.115230

18) Sarkar A., **Panda J.**, Kant S., and Mukherjee A. (2022). Influence of smoke aerosols on low-level clouds over the Indian region during winter. *Atmospheric Research*, 278, Article 106358. https://doi.org/10.1016/j.atmosres.2022.106358

19) Paul D., **Panda J.**, and Routray A. (2022). Ocean and atmospheric characteristics associated with the cyclogenesis and rapid intensification of NIO super cyclonic storms during 1981–2020. *Natural Hazards*, 114, 261-289. https://doi.org/10.1007/s11069-022-05389-6

20) **Panda J.**, and Rath S. S. (2022). Observed and simulated characteristics of 2015 Chennai heavy rain event: Impact of land-use change, SST, and high-resolution global analyses. *Pure and Applied Geophysics*, 179(9), 3391-3409. https://doi.org/10.1007/s00024-022-03113-w

21) Rath S. S., **Panda J.**, and Sarkar A. (2022). Distinct urban land cover response to meteorology in WRF simulated pre-monsoon thunderstorms over the tropical city of Kolkata. *Meteorology and Atmospheric Physics*, 134(4), Article 76. https://doi.org/10.1007/s00703-022-00916-3

22) Rath S. S., Mohanty S., and **Panda J.** (2022). Analyzing the Fragmentation of Urban Footprints in Eastern and Southern Indian Cities and Driving Factors. *Journal of the Indian Society of Remote Sensing*, 50(8), 1499-1517. https://doi.org/10.1007/s12524-022-01546-3

23) Sarkar A., Amal K. K., Sarkar T., **Panda J.**, and Paul D. (2021). Variability in air-pollutants, aerosols, and associated meteorology over peninsular India and neighboring ocean regions during COVID-19 lockdown to unlock phases. *Atmospheric Pollution Research*, 12(12), Article 101231. https://doi.org/10.1016/j.apr.2021.101231

24) Guha B. K., **Panda J.**, Newman C. E., and Richardson M. I. (2021). Dust and water ice variability and their interaction pattern during Martian low-dust and high-dust periods. *Planetary and Space Science*, 209, Article 105357. https://doi.org/10.1016/j.pss.2021.105357

25) Verma S., **Panda J.**, and Rath S. S. (2021). Role of PBL and microphysical parameterizations during WRF simulated monsoonal heavy rainfall episodes over Mumbai. *Pure and Applied Geophysics*, 178, 3673-3702. https://doi.org/10.1007/s00024-021-02813-z

26) Guha B. K., and **Panda J.** (2021). Mixing time scales of dustiness and some associated effects at middle atmosphere during the 2018 Global Dust Storm. *Advances in Space Research*, 68 (7), 3037-3051. DOI: 10.1016/j.asr.2021.05.030

27) Guha B. K., **Panda J.**, and Arya A. S. (2021). Characteristic features of water ice clouds over Olympus and Arsia Mons using MOM and MRO observations. *Planetary and Space Science*, 196, 105155. DOI: 10.1016/j.pss.2020.105155

28) Guha B. K., **Panda J.**, and Wu Z. (2021). Observation of aphelion cloud belt over Martian tropics, its evolution, and associated dust distribution from MCS data. *Advances in Space Research*, 67(4), 1392-1411. https://doi.org/10.1016/j.asr.2020.11.010

29) Jain S., Roy S. B., **Panda J.**, and Rath S. S. (2021). Modeling of land-use and land-cover change impact on summertime near-surface temperature variability over the Delhi–Mumbai Industrial Corridor. *Modeling Earth Systems and Environment*, 1-11. https://doi.org/10.1007/s40808-020-00959-8

30) Kumar S., **Panda J.**, Singh K., Guha B. K., and Kant S. (2021). Structural characteristics of North Indian Ocean tropical cyclones during 1999–2017: a scatterometer observation-based analysis. *Theoretical and Applied Climatology*, 143, 227-240. https://doi.org/10.1007/s00704-020-03431-w

31) Kant S., **Panda J.**, Rao P., Sarangi C., and Ghude S. D. (2021). Study of aerosol-cloud-precipitation-meteorology interaction during a distinct weather event over the Indian region using WRF-Chem. *Atmospheric Research*, 247, 105144. DOI: 10.1016/j.atmosres.2020.105144

32) Singh K., **Panda J.**, and Mohapatra M. (2020). Robustness of best track data and associated cyclone activity over the North Indian Ocean region during and prior to satellite era. *Journal of Earth System Science*, 129(1), 1-20. DOI: 10.1007/s12040-020-1344-x

33) Rath S. S., and **Panda, J.** (2020). Urban induced land-use change impact during pre-monsoon thunderstorms over Bhubaneswar-Cuttack urban complex. *Urban Climate*, 32, 100628. https://doi.org/10.1016/j.uclim.2020.100628

34) Singh K., **Panda J.**, and Kant S. (2020). A study on variability in rainfall over India contributed by cyclonic disturbances in warming climate scenario. *International Journal of Climatology*, 40(6), 3208-3221. https://doi.org/10.1002/joc.6392

35) Guha B. K., **Panda J.,** and Chauhan P. (2019). Analysing some Martian atmospheric characteristics associated with a dust storm over the Lunae Planum region during October 2014. *Icarus*, 319**,** 293-307. https://doi.org/10.1016/j.icarus.2018.09.018

36) Tiwari G., Kumar S., Routray A., **Panda J.**, and Jain I. (2019). A High-Resolution Mesoscale Model Approach to Reproduce Super Typhoon Maysak (2015) Over Northwestern Pacific Ocean. *Earth Systems and Environment*, 3(1), 101-112. https://doi.org/10.1007/s41748-019-00086-0

37) Kant S., **Panda J.**, and Gautam R. (2019). A seasonal analysis of aerosol-cloud-radiation interaction over Indian region during 2000–2017. *Atmospheric Environment*, vol. 201, 212-222. https://doi.org/10.1016/j.atmosenv.2018.12.044

38) Kant S., **Panda J.,** and Manoj M. G. (2019). A satellite observation-based analysis of aerosol-cloud-precipitation interaction during the February 2016 unseasonal heatwave episode over Indian region. *Aerosol and Air Quality Research*, vol. 19, 1508-1525.

39) Kant S., **Panda J.**, Pani S. K., and Wang P. K. (2019). Long-term study of aerosol–cloud–precipitation interaction over the eastern part of India using satellite observations during pre-monsoon season. *Theoretical and Applied Climatology*, vol.136, no.1-2, pp.605-626. https://doi.org/10.1007/s00704-018-2509-2

40) Rath S. S., and **Panda J.** (2019). A study of near-surface boundary layer characteristics during the 2015 Chennai flood in the context of urban-induced land use changes. *Pure and Applied Geophysics*, 176 (6), 2607-2629. https://doi.org/10.1007/s00024-018-2069-5

41) Singh K., **Panda J**., and Rath S. S. (2019). Variability in landfalling trends of cyclonic disturbances over North Indian Ocean region during current and pre-warming climate. *Theoretical and Applied Climatology*, vol.137, no.1-2, pp.417-439. https://doi.org/10.1007/s00704-018-2605-3

42) Singh K., **Panda J.**, Sahoo M., and Mohapatra M. (2019). Variability in Tropical Cyclone climatology over North Indian Ocean during the period 1891 to 2015. *Asia-Pacific Journal of Atmospheric Sciences*, vol.55, no.2, pp. 269-287. https://doi.org/10.1007/s13143-018-0069-0

43) Singh K., **Panda J.**, Sahoo M., and Mohapatra M. (2019). Correction to "Variability in Tropical Cyclone climatology over North Indian ocean during the period 1891 to 2015". *Asia-Pacific Journal of Atmospheric Sciences*, vol.55, no.2, pp.289-290. https://doi.org/10.1007/s13143-018-0098-8

44) Igri P. M., Tanessong R. S., Vondou D. A., **Panda J.**, Garba A., Mkankam F. K., and Kamga A. (2018). Assessing the performance of WRF model in predicting high-impact weather conditions over Central and Western Africa: an ensemble-based approach. *Natural Hazards*, 93(3), 1565-1587. https://doi.org/10.1007/s11069-018-3368-y

45) Rath S. S., **Panda J.**, Annadurai R., and Nanda S. (2018). A Study on Land Suitability for Rice Cultivation in Khordha District of Odisha (India) Using Remote Sensing and GIS. *Earth Systems and Environment*, 02, 119-132. https://doi.org/10.1007/s41748-018-0037-y

46) Li X. -X., Koh T. -Y., **Panda J.**, and Norford L. K. (2016). Impact of urbanization patterns on the local climate of a tropical city Singapore: an ensemble study. *Journal of Geophysical Research Atmospheres*, 121, 4386–4403. https://doi.org/10.1002/2015JD024452

47) Giri R. K., **Panda J.**, Rath S. S., and Kumar R. (2016). Validating quantitative precipitation for the flood meteorological office Patna region during 2011-14. *Journal of Earth System Science*, 125, 709 – 723. https://doi.org/10.1007/s12040-016-0690-1

48) Igri P. M., Tanessong R. S., Vondou D. A., Mkankam F. K., and **Panda J.** (2015). Added-Value of 3DVAR Data Assimilation in the Simulation of Heavy Rainfall Events Over Western and Central Africa. *Pure and Applied Geophysics*, 172, 2751-2776. https://doi.org/10.1007/s00024-015-1052-7

49) **Panda J.**, Singh H., Giri R. K., and Routray A. (2015). A qualitative study of some of the meteorological features during tropical cyclone PHET using satellite observations and WRF modeling system. *Journal of Indian Society of Remote Sensing*, 43(01), 45-56. https://doi.org/10.1007/s12524-014-0386-4

50) Agnihotri G., and **Panda J.** (2014). Comparison of Rainfall from Ordinary and Automatic Rain Gauges in Karnataka. *MAUSAM (A Quarterly Journal of Meteorology, Hydrology and Geophysics)*, 65(04), 575-584. https://doi.org/10.54302/mausam.v65i4.1205

51) Song G., **Panda J.**, Zhang Y., Chen H., and Krishna K. M. (2014). A new algorithm to classify the homogeneity of ERS-2 wave mode SAR imagette. *Journal of Indian Society of Remote Sensing*, 42, 13-21. https://doi.org/10.1007/s12524-013-0302-3

52) Li X. –X., Koh T. –Y., Entekhabi D., Roth M., **Panda J.**, and Norford L. K. (2013). A multi-resolution ensemble study of a tropical urban environment and its interactions with the background regional atmosphere. *Journal of Geophysical Research*, 118(17), 1-15. https://doi.org/10.1002/jgrd.50795

53) **Panda J.** and Giri R. K. (2012). A comprehensive study of surface and upper air characteristics over two stations on the west coast of India during the occurrence of a cyclonic storm. *Natural Hazards*, 64, 1055-1078. https://doi.org/10.1007/s11069-012-0282-6

54) **Panda J.** and Sharan M. (2012). Influence of Land-Surface and Turbulent Parameterization Schemes on Regional-Scale Boundary Layer Characteristics and Associated Transport of Dust over Northern India. *Atmospheric Research*, 112**,** 89-111. https://doi.org/10.1016/j.atmosres.2012.04.001

55) **Panda J.,** Sharan M. and Gopalakrishnan S. G. (2009). Study of boundary layer characteristics over northern India with special reference to the role of Thar Desert in regional scale transport. *Journal of Applied Meteorology and Climatology*, 48, 2377–2402. https://doi.org/10.1175/2009JAMC1926.1

56) Sharan M., Ramakrishna T.V.B.P.S., and **Panda J.** (2005). Relations among stability parameters in the stable surface layer: Golder curves revisited, *Atmospheric Environment*, 39, 5619-5623. https://doi.org/10.1016/j.atmosenv.2005.05.034

B. Non-SCI journal publications

57) Mukherjee, A., **Panda, J.**, Choudhury, A., & Giri, R. K. (2023). Machine Learning and Deep Learning Applications in Weather and Climate Studies: A Systematic Review. *VayuMandal*, 49(2), 1-25. https://imetsociety.org/vayumandal/?id=2024492&num=13

58) **Panda J.**, Sarkar A., and Giri R. K. (2023). Atmospheric aerosols and their effects on radiation, clouds, and precipitation in different meteorological scenarios. *VayuMandal*, 49(1), 50-87. https://imetsociety.org/vayumandal/?id=2023491&num=13

59) **Panda J.**, Paul D., Routray A. and Giri R. K. (2023). Atmospheric and Ocean characteristics associated with NIO tropical cyclones: A comprehensive review vis-à-vis the intensity and movement. *VayuMandal*, 49(1), 112-137. https://imetsociety.org/vayumandal/?id=2023491&num=13

60) Semeena V. S., Payra S., Srivastava S. K., and **J. Panda** (2018). Air Pollution: Why does it matter? *International Journal of Earth and Atmospheric Science*, **05**, 1-12.

61) Mishra A. K., **J. Panda**, and M. Rafiq (2017). Increasing Risk of Droughts and Floods and Decline in Ground Water Level in Warming Environment. *International Journal of Earth and Atmospheric Science*, **04(02)**, 127-132.

62) Jain S., **J. Panda**, Sudhansu S. Rath, and P.C.S. Devara (2017). Evaluating Land Surface Models in WRF Simulations over DMIC Region. *Indian Journal of Science and Technology*, **10(18)**, 01–24. https://dx.doi.org/10.17485/ijst/2017/v10i18/103522

63) Kumar A, M.S. Shekhar, **J. Panda**, and A. Singh (2017). Improving Mesoscale Precipitation Forecast over Different Stations in Western Himalaya Using Model Output Statistics. *International Journal of Earth and Atmospheric Science*, **04(01)**, 34-43.

64) Shrivastava D., B. Nayak, S. Kant, and **J. Panda** (2017). A Review on Health Impacts of Air Pollutants with a Special Mention to Eastern Parts of India, a Growing Hub for Diseases. *International Journal of Earth and Atmospheric Science*, **04(01)**, 21-33.

65) Kant S., **J. Panda**, R. Gautam, P. K. Wang and S. P. Singh (2017). Significance of Aerosols Influencing Weather and Climate over Indian Region. *International Journal of Earth and Atmospheric Science*, **04(01)**, 01-20.

66) **Panda J.** and K. Singh (2016). Tropical Cyclone Activity and Predictability over North Indian Ocean Region in the Context of Changing Climate. *Geography and You*, **15** (94), 11-13.

67) **Panda J.** and Sunny Kant (2016). Atmospheric aerosols, their distribution and impact on weather and climate over Indian region. *Geography and You*, **15**(95), 48-51.

68) Pradhan P. K., S. Dasamsetti, S. S. V. S Ramakrishna, Bhaskar Rao V. Dodla and **J. Panda** (2015): Mesoscale Simulation of Off-Shore Trough and Mid-Tropospheric Cyclone associated with Heavy Rainfall along the West Coast of India using ARMEX Reanalysis. *International Journal of Earth and Atmospheric Science*, **02**, 01-15.

69) Song G., M.V. Subrahmanyam, B. Guo, and **J. Panda** (2015): A Case Study of Polar Low Detection Using ERS-2 Wave Mode Image. *The Open Oceanography Journal*, **08**, 28-32. https://doi.org/10.2174/1874252101408010028

70) **Panda J.** (2014): EDITORIAL (In Issue 03 of Volume 1). *International Journal of Earth and Atmospheric Science*.

71) Jain S., **J. Panda** and Sunny Kant (2014): Possible socio-scientific issues of land-use and land-cover change impact and associated tools of study with a special reference to

Delhi-Mumbai industrial corridor region. *International Journal of Earth and Atmospheric Science* **01 (02)**, 58-70

72) Sushil Kumar, R. Chauhan, A. Routray and **J. Panda** (2014): Impact of Parameterization Schemes and 3DVAR Data Assimilation for Simulation of Heavy Rainfall Events along West Coast of India with WRF Modeling System. *International Journal of Earth and Atmospheric Science* **01(01)**, 18-34.

73) Zhou Yanfang, Guiting Song, Haoliang Chen and **J. Panda** (2014): A Review on Ocean Surface Wind field Retrieved from SAR Image. *International Journal of Earth and Atmospheric Science* **01(01)**, 11-17.

74) R. K. Giri, S. Prakash, R. Kumar and **J. Panda** (2012): Significance of scatterometer winds data in weak vortices diagnosis in Indian seas. *International Journal of Physics and Mathematical Sciences*, **02**(1), 19-26.

75) **Panda J.,** R. K. Giri, K. H. Patel, A. K. Sharma and R. K. Sharma (2011): Impact of satellite derived winds and cumulus physics during the occurrence of the tropical cyclone Phyan. *Indian Journal of Science and Technology*, **04**, 859-875. https://dx.doi.org/10.17485/ijst/2011/v4i8.4

C. Book chapters:

76) **Panda J.**, Paul D., Sarkar A., Mukherjee A., Bhasi I., Tom G., Das S. Lohan N., Roy D., and Kumar S. (2025). Severe storms in changing climate scenario with a distinctive emphasis on South Asia and India. Chapter 22, pp. 563-606. In Das S. and Tao W.-K. (eds) Severe Storms: Anatomy, Early Warning Systems and Aftermath in Changing Climate Scenarios. Springer Nature. https://doi.org/10.1007/978-981-97-7075-5_22

77) **Panda J.**, Singh K., Tom G., Mahapatra S. R., and Paul, D. (2024). Rainfall Contribution by Cyclonic Disturbances Over India in Two Epochs During 1901–2021 and Risk Assessment. Chapter 3, pp. 43-75. In Collins J., Done J., Zhu Y.J., Wilson P. (eds) *Advances in Hurricane Risk in a Changing Climate* (pp. 43-75). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-63186-3_3

78) **Panda J.**, Mukherjee A., Choudhury A., and Biswas S. (2024). Urban Heat: UHI and Heat Stress Threat to Megacities. Chapter 22, pp 425-445. In Chatterjee U., Shaw R., Kumar S., Raj A.D., and Das S. (eds) Climate Crisis: Adaptive Approaches and Sustainability. Sustainable Development Goals Series. ISBN (online): 978-3-031-44397-8; ISBN (print): 978-3-031-44396-1. Springer. https://doi.org/10.1007/978-3-031-44397-8_22

79) **Panda J.**, Mukherjee A., and Rath S. S. (2022). Urban Heat Island and Mitigation Strategies: International Studies and Current Status in India. Chapter 2, pp. 23-56. In Satyaprakash and Anne W. M. Ng. (eds) *Urban Heat Islands Reexamined*, ISBN: 979-8-88697-215-3. NOVA science publishers. https://doi.org/10.52305/RKFG7202

80) **Panda J.**, Paul D., and Kumar S. (2022). Characteristics of tropical cyclones through remote sensing-based observational platforms. Chapter 18, pp. 325-354. In Singh A. K. and Tiwari S. (eds) *Atmospheric Remote Sensing* (Principles and Applications, Earth Observation), ISBN: 978-0-323-99262-6. Elsevier. https://doi.org/10.1016/B978-0-323-99262-6.00001-8

81) **Panda J.** and S. Kant (2021). Impact of urban and semi-urban aerosols on the cloud microphysical properties and precipitation. In Tiwari S., Saxena P. (eds) *Air Pollution and Its Complications*. Springer Atmospheric Sciences. Springer, eBook ISBN: 978-3-030-70509-1, Hardcover ISBN: 978-3-030-70508-4, Series ISSN: 2194-5217. https://doi.org/10.1007/978-3-030-70509-1_3

82) Rath S. S., **J. Panda**, and S. Mohanty (2021). Urban transitions and its impact on mesoscale weather: A review. Accepted for publication in the book entitled "*Methods and Applications of Geospatial Technology in Sustainable Urbanism*". SBN13: 9781799822493, ISBN10: 1799822494, EISBN13: 9781799822516, ISBN13 Softcover: 9781799822509. https://doi.org/10.4018/978-1-7998-2249-3

83) Mohanty S., **J. Panda**, and S. S. Rath (2021). Geospatial Technology in Urban Sprawl Assessment: A Review. Accepted for publication in the book entitled "*Methods and Applications of Geospatial Technology in Sustainable Urbanism*". SBN13: 9781799822493, ISBN10: 1799822494, EISBN13: 9781799822516, ISBN13 Softcover: 9781799822509. https://doi.org/10.4018/978-1-7998-2249-3

84) Rafiq M., A. K. Mishra, **J. Panda** and S. K. Sharma (2018). Monitoring convective clouds over India and nearby regions using multi-spectral satellite observations. Chapter 6 (51 – 60) of the book entitled "*Proceedings of International Conference on Remote Sensing for Disaster Management*". Rao P. J., K. N. Rao, S. Kubo (Eds.). 873pp, ISBN 978-3-319-77275-2, eBook ISBN 978-3-319-77276-9. Springer. https://doi.org/10.1007/978-3-319-77276-9

85) Singh K., **J. Panda**, K. K. Osuri and N. K. Vissa (2016). Progress in tropical cyclone predictability and present status in the North Indian Ocean region. In "*Recent Developments in Tropical Cyclone Dynamics, Prediction, and Detection* (256pp)", 24pp, *Edited by Anthony R. Lupo, ISBN 978-953-51-2703-1, Print ISBN 978-953-51-2702-4, Publisher: InTech*. https://doi.org/10.5772/64333

D. <u>Books published:</u>

86) **Panda J.** and M. Sharan (2012): Some Atmospheric Boundary Layer Characteristics over north India (ISBN 978-3-659-18878-7), LAP LAMBERT Academic Publishing GmbH & Co. KG, Saarbrücken, Germany; 270pp.

E. Selected Conference publications:

87) Singh, H., Rana, B., Kumar, S., Baghel, A. S., **Panda, J.**, & Singh, N. (2025, January). Machine Learning-Based Prediction of Heavy Rainfall Days in the Northern Himalayas: A Case Study of Shimla, Srinagar and Kargil. In *2025 International Conference on Cognitive Computing in Engineering, Communications, Sciences and Biomedical Health Informatics (IC3ECSBHI)* (pp. 1286-1291). IEEE. https://doi.org/10.1109/IC3ECSBHI63591.2025.10990912

88) Kumar, S., Kumar, A., Singh, A., Bhaskar, A. P., Baghel, A. S., & **Panda, J.** (2025, January). Analysis of Extreme Rainfall Trends Over 75 Locations (District Wise) of Uttar Pradesh, India using Daily Gridded Rainfall Data (1973-2023). In *2025 International Conference on Cognitive Computing in Engineering, Communications, Sciences and Biomedical Health Informatics (IC3ECSBHI)* (pp. 1002-1006). IEEE. https://doi.org/10.1109/IC3ECSBHI63591.2025.10990961

89) Choudhury, A., & **Panda, J.** (2024, December). A Step Towards Building Medium-Range Data-Driven Weather Forecasting System Over India. In *2024 IEEE India Geoscience and Remote Sensing Symposium (InGARSS)* (pp. 1-4). IEEE. https://doi.org/10.1109/InGARSS61818.2024.10984239

90) Mandal, A., Sahu, A., **Panda, J.**, & Banerjee, S. (2024, January). An insight into the bedform migration on Mars: results from three tropical craters. In *42nd meeting of the Astronomical Society of India (ASI* (p. P202). https://ui.adsabs.harvard.edu/abs/2024asi..confP.202M/abstract

91) Guha, B. K., **Panda, J.**, Gebhardt, C., Wu, Z., & Arya, A. S. (2022, June). Tropical and orographic clouds and their association with dust aerosols. In *Seventh International Workshop on the Mars Atmosphere: Modelling and Observations* (p. 3512). https://www-mars.lmd.jussieu.fr/paris2022/abstracts/poster_Guha_Bijay_clouds.pdf

92) Singh, K., & **Panda, J.** (2022, May). The variability of landfalling cyclonic disturbances over North Indian Ocean and consequent rainfall contribution to India in warming climate scenario. In *EGU General Assembly Conference Abstracts* (pp. EGU22-2727). https://ui.adsabs.harvard.edu/abs/2022EGUGA..24.2727S/abstract

93) Guha, B. K., & **Panda, J.** (2021, August). MRO-MCS observed polar warming and clouds during 2018 Martian global dust storm. In *2021 XXXIVth General Assembly and Scientific Symposium of the International Union of Radio Science (URSI GASS)* (pp. 1-4). IEEE. https://doi.org/10.23919/URSIGASS51995.2021.9560342

94) Rath, S. S., & **Panda, J.** (2018, August). Sensitivity to Micro-Physics and Land-Use Change for WRF Simulated Rainfall over a Continuously Urbanizing Twin City of Odisha, India. In *10th International Conference on Urban Climate/14th Symposium on the Urban Environment*. AMS. https://ams.confex.com/ams/ICUC10/meetingapp.cgi/Paper/343195

95) Koh, T. Y., & Panda, J. (2014, February). Interaction between urban surface boundary and mesoscale weather. In *American Meteorological Society Meeting Abstracts* (Vol. 94, pp. 10-3). https://ui.adsabs.harvard.edu/abs/2014AMS....9432705K/abstract