Dr. Jagabandhu Panda

Present Affiliation:
Department of Earth and Atmospheric Sciences
National Institute of Technology Rourkela
Sector 1 Rourkela, Dist: Sundargarh
Odisha - 769008, India
Ph: +91-661-2462933 (Off.) / +91-661-2464935 (Lab.)
+91-661-2463933 (Res.) / +91-7381042910 (Mobile)
Email: jagabandhu@gmail.com or pandaj@nitrkl.ac.in
Personal web Page: http://jagabandhupanda.wordpress.com

Academic identity

NIT Rourkela profile: https://www.nitrkl.ac.in/FProfile.aspx?e=pandaj
Orcid profile: http://orcid.org/0000-0002-4238-1820
Scopus profile: https://www.scopus.com/authid/detail.uri?authorId=8543279200
Researcher profile: https://publons.com/researcher/1750389/jagabandhu-panda/
Google Scholar profile: https://scholar.google.co.in/citations?user=DIzghX8AAAAJ&hl=en

Education:

- **Ph. D. Atmospheric Sciences (2010)**, Indian Institute of Technology (IIT) Delhi, New Delhi, India
- **M. Sc. Physics (2001)** from Utkal University, Bhubaneswar, Orissa (Odisha), India.
- **B. Sc. Physics (1999)** from Utkal University, Orissa (Odisha), India.
- **Higher Secondary (1996)** from N. C. College, Jajpur, Odisha (Council of Higher Secondary Education Orissa / Odisha Board), India
- **High School/Secondary/10th (1994)** from Braja Sundar High School, Sayedpur, Jajpur, Odisha (Orissa/ Odisha Board), India

Professional Experience:

- **Associate Professor**, Department of Earth and Atmospheric Sciences, National Institute of Technology Rourkela: February 14, 2020 - continuing
- **Assistant Professor (Grade-I)**, Department of Earth and Atmospheric Sciences, National Institute of Technology Rourkela: January 1, 2016 – February 13, 2020
- **Assistant Professor**, Department of Earth and Atmospheric Sciences, National Institute of Technology Rourkela: March 20, 2014 – December 31, 2015
- **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, Noida, Uttar Pradesh, India: May 31, 2010 - September 20, 2010
- **Research Associate**, Satellite Meteorology Division, India Meteorological Department, New Delhi, India: November 10, 2009 – May 21, 2010
- **Senior Research Fellow**, Centre for Atmospheric Sciences, IIT Delhi, India: June 02, 2008 – April 29, 2009 and October 04, 2007 – April 03, 2008
- **Junior / Senior Research Fellow** (Department of Science and Technology Assistantship), Centre for Atmospheric Sciences, IIT Delhi, India: July 23, 2002 – July 31, 2005
- Worked as an **educational consultant** (in part time basis for more than 2 years) and was responsible for online teaching and content development at TransWeb Educational Services, Noida, Uttar Pradesh, India.

Research Interests:

- Regional scale, mesoscale and localized weather and climate (tropical cyclones, thunderstorms, rain events, heatwave conditions, dust storms etc.) through observations and modeling;
- Remote sensing and GIS applications in atmospheric studies;
- Urban weather and climate;
- Using data assimilation techniques in numerical modeling;
- Aerosol–cloud interactions;
- Planetary atmospheres

PhD Thesis Supervision:

- **Sunny Kant** (2019): A study on clouds, precipitation and radiation response to aerosols over different parts of Indian region
- **Kasturi Singh** (2020): Impact of changing climate on North Indian Ocean cyclonic disturbances and associated meteorological features
- **Sudhansu Sekhar Rath** (2020): Response of local weather to urban induced land-use change: A study over eastern and southern Indian cities
- **Bijay Kumar Guha** (January 2017 - on going): Martian Atmospheric characteristics pertaining to dust storms, dust devils and clouds using satellite observations and a numerical model
- **Subodh Kumar Singh** (July 2017 - on going): Structural and Meteorological characteristics of North Indian Ocean tropical cyclones
- **Srutisudha Mohanty** (January 2018 - on going): Interaction of urbanization with weather and climate of some selected Indian cities
- **Debashis Paul** (July 2018 – on going): Role of ocean-atmosphere coupled feedback for highly intensified and re-curving tropical cyclones over North Indian Ocean basin in

warming climate scenario

- **Ankan Sarkar (**July 2019 – on going): Interaction of clouds, radiation and precipitation with atmospheric aerosols over eastern part of India
- **Arpan Kumar Mondal** (January 2020 – on going): Martian atmospheric characteristics

MSc. Dissertation/Project Supervision:

- **Monalisa Sahoo (2016-17)**: A Study on Vulnerability Associated With Tropical Cyclones Over Bay of Bengal
- **Amit Kumar Patel (2016-17)**: Urban induced land use land cover changes over ahmedabad & possible implications
- **Bijayalaxmi Sahoo (2017-18)**: Urban response to anthropogenic heating and some land-surface and near-surface atmospheric parameters over Chennai and Bengaluru
- **Aman Kumar Thakur (2017-18):** A satellite–based study on Aerosol-cloud interaction over south Asia during strong ENSO years
- **Saurabh Verma (2018-**19): Numerical modelling of Atmospheric Boundary Layer characteristics over Mumbai during heavy rainfall scenarios using WRF
- **Soumya Ranjan Mahapatra (2018-19**): Rainfall contribution by North Indian Ocean cyclonic disturbances over India during 1901-2016
- **Smita Rani Panda (2019-20)**: Aerosol-cloud interaction over north-eastern India during pre-monsoon season (*tentative*)
- **Deependra Kumar Gupat (2019-20)**: Landfalling North Indian Ocean tropical cyclones and the associated impact assessment (*tentative*).

MTech Thesis/Dissertation Supervision:

- **Anushree P. C. (2019-20)**: Classification and characterization of aerosols over Rourkela city using sun-photometer observations (*tentative*)
- **Subhojit Ghoshal Chowdhury (2019-20)**: Aerosol-cloud-precipitation interaction during deep convective cloud scenario using WRF-Chem (*tentative*)
- **Madhuri Angel Baxla (2019-20)**: Analyzing summer-time heat wave scenarios over Indian region (*tentative*)
- **Umesh Kumar (2019-20):** Understanding re-curving North Indian Ocean tropical cyclone characteristics and associated meteorology (*tentative*)

Academic achievements/honors/awards:

- *Best paper publication 2016 award in atmospheric sciences* from Indian Society of Remote Sensing

- *Postdoctoral research fellowship* from **Singapore-MIT Alliance for Research and Technology** at **Nanyang Technological University**, **Singapore** (*September 30, 2010 – December 31, 2012*)
- 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*).
- *Research Assistantship* from **Department of Science and Technology** (DST; New Delhi, India) at *Indian Institute of Technology* (**IIT**) **Delhi**, India (*July 23, 2002 – July 31, 2005*).
- **Qualified** *Graduate Aptitude Test in Engineering* (**GATE**) **conducted by IIT** in 2001.

Sponsored Projects:

SL No.	Name of the Project	Sponsoring Agency	Duration / Time Frame	Sanctioned Amount (lakhs)	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-DST, Ministry of Science and Technology, Government of India	2016-20 (40 months)	34.232	**Principal Investigator** ; Project executed at NIT Rourkela (Completed)
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)

Membership of Professional Bodies:

- Life member of 'Indian Meteorological Society (IMS)'
- Life member of 'Indian Society of Remote Sensing (ISRS)'
- Life member of 'Indian Aerosol Science and Technology Association (IASTA)'
- Member of 'Asia Oceania Geosciences Society (AOGS)'
- Associate Member of 'American Meteorological Society (AMS)'

Editorial/Reviewer Tasks:

- Editor in Chief of International Journal of Earth and Atmospheric Science (http://jakraya.com/journal/ijeas)
- Edited four volumes (15 issues) of 'International Journal of Earth and Atmospheric Science'.
- Referee/reviewer for several national and international journals including 'Boundary Layer Meteorology', 'Natural Hazards', 'Meteorology and Atmospheric Physics', 'Atmospheric Environment', 'Remote Sensing Letters', 'Journal of Earth System Science', AAQR, Atmospheric Environment, Atmospheric Research, Meteorological Applications etc.
- Reviewed one foreign PhD Thesis from University of Brunei and one thesis from Satyabhama University, Chennai as an external examiner.

Journal Publications:

1. Singh K., **Panda J.**, 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** (**In press**). https://doi.org/10.1007/s12040-020-1344-x
2. Singh K., **Panda J.**, Kant S. (2020): A study on variability in rainfall over India contributed by cyclonic disturbances in warming climate scenario. *International Journal of Climatology* (**In press**). https://doi.org/10.1002/joc.6392
3. Guha B. K., **Panda J.,** 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.
4. Igri P. M., Tanessong R. S., Vondou D. A., **Panda J.,** Garba A., Mkankam A. K., Kamga A. (2019): Assessing the performance of WRF model in predicting high-impact weather conditions over Central and Western Africa: an ensemble-based approach. *Natural Hazards*, **93**, 1565–1587.

5. Kant S., **Panda J.**, Gautam R. (2019): A seasonal analysis of aerosol-cloud-radiation interaction over Indian region during 2000–2017. *Atmospheric Environment*, vol.201, pp.212-222.
6. Kant S., **Panda J.,** 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, pp. 1508-1525.
7. Kant S., **Panda J.**, Pani S. K., 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.
8. Rath S. S., **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*, vol.176, no.6, pp.2607-2629.
9. Singh K., **Panda J**., 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.
10. Singh K., **Panda J.**, Sahoo M., 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.
11. Singh K., **Panda J.**, Sahoo M., 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.
12. 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.
13. Rath S. S., **J. Panda**, R. Annadurai and S. Nanda (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. DOI:10.1007/s41748-018-0037-y
14. 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.
15. 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.
16. 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.
17. 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.

18. 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.

19. Li X. -X., T. -Y. Koh, **J. Panda**, and L. K. Norford (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.

20. R. K. Giri, **J. Panda**, Sudhansu S. Rath and Ravindra Kumar (2016). Validating quantitative precipitation for the flood meteorological office Patna region during 2011-14. *Journal of Earth System Science*, **125**, 709 – 723.

21. **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.

22. **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.

23. Igri P. M., R. S. Tanessong, D. A. Vondou, F. K. Mkankam and **J. Panda** (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. DOI:10.1007/s00024-015-1052-7

24. 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.

25. **Panda J.**, H. Singh, R. K. Giri and A. Routray (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, DOI: 10.1007/s12524-014-0386-4.

26. 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, DOI: 10.2174/1874252101408010028.

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

28. Agnihotri G. and **J. Panda** (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.

29. 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

30. 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.

31. 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.
32. Song G., **J. Panda**, Y. Zhang, H. Chen and K. M. Krishna (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. *DOI 10.1007/s12524-013-0302-3*
33. Li X. –X., T. –Y. Koh, D. Entekhabi, M. Roth, **J. Panda** and L. K. Norford (2013): A multi-resolution ensemble study of a tropical urban environment and its interactions with the background regional atmosphere. *Journal of Geophysical Research*, **118**, 1-15, doi:10.1002/jgrd.50795.
34. **Panda J.** and R. K. Giri (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.
35. **Panda J.** and M. Sharan (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.
36. 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.
37. **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.
38. **Panda J.,** M. Sharan and S. G. Gopalakrishnan (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.
39. Sharan M., T.V.B.P.S. Ramakrishna, and **J. Panda** (2005), Relations among stability parameters in the stable surface layer: Golder curves revisited, *Atmospheric Environment*, **39**, 5619-5623.

Book chapters:

40. 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, DOI: 10.1007/978-3-319-77276-9, Publisher: Springer

41. 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. **Book chapter** for the book "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*

Books Published:

42. **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.