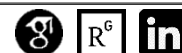


SIDHA SANKALPA MOHARANA, SRF (CSIR)

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RESEARCH INTERESTS

- Atmosphere-Ocean Interaction, Tropical Cyclones, Remote Sensing, Upper Atmospheric Physics.

PUBLICATIONS

- Journals: 2
- Preprints: 1
- Conferences: 7

AWARDS & ACCOLADES

- Qualified CSIR-JRF NET – 2019 and GATE GG – 2025
- DST-SERB International Travel Grant to attend AOGS 2024 in South Korea.
- INSPIRE Scholarship for Higher Education (2015- 20) - DST, Govt. Of India.
- Pathani Samanta Mathematics Scholarship (2012-15) & Medhabruti Scholarship (2015) - Govt. of Odisha.
- Teaching Assistant for the course “Introduction to Computer Sciences CS1101” for 1st Year undergraduate students at IISER Kolkata.

EDUCATION

- Indian Institute of Technology, Bhubaneswar 2020-2025
 Ph.D. in Atmosphere and Ocean Sciences, 9.53 CGPA
 Courses – Scientific and Technical Writing, Research Methodology and Data Analysis, Physics of Atmosphere and Ocean, Satellite Oceanography and Meteorology, Weather Analysis and Forecasting.
- Indian Institute of Science Education and Research, Kolkata 2015-2020
 5 Years BS – MS Dual Degree in Geological Sciences, 8.52 CGPA
 Courses – Biogeochemical Cycles, Groundwater Hydrology, Earth System Processes, Remote Sensing and GIS, Atmospheric Sciences, Inverse Theory, Seismology, Mineralogy, Petrology, Palaeontology, Geochemistry.
- Banki Junior College, Banki, Cuttack 2013-2015
 12th, Council of Higher Secondary Education, Odisha, 81.83%
- Sri Aurobindo Centre of Integral Education, Banki, Cuttack 2013
 10th, Board of Secondary Education, Odisha, 93%

SKILL HIGHLIGHTS

- Skilled in Python, MATLAB, Shell scripting, R, Ferret, HTML, CSS, Web Designing.
- Proficient in remote sensing data analysis, satellite observation datasets, ground-based atmospheric observations, and GLD360, WWLLN lightning datasets.

EXPERIENCE

- Atmosphere – Ocean Interaction (Ongoing)
 Ph.D. - IIT Bhubaneswar 24th August 2020 - ongoing
 I am currently pursuing a Ph.D. degree under the supervision of Dr. Debadatta Swain at the School of Earth, Ocean and Climate Sciences, Indian Institute of Technology Bhubaneswar. The broad area of my research work is tropical cyclones. My current work is based on the recent increases in tropical cyclone activity in the North Atlantic and Indian Oceans.
- ESCS Fani: A Study of its Meteorological & Electrical Properties and its Role in Coupling of the Lower and Upper Atmosphere (Completed)
 Master's Thesis - KSKGRL Prayagraj August 2019 - April 2020
 I studied the electric coupling that exists between the lower atmosphere and the upper atmosphere. This is a case study of Cyclone Fani, an Extremely Severe Cyclonic Storm and the most intense of the

2019 Indian Ocean Cyclone Season. I was studying its unique meteorological properties which enabled it to survive for a long 30 hours after landfall, as well as its intense electrical discharges which disturbed the Ionosphere via atmospheric gravity waves. The Ionospheric Perturbation was studied with the help of VLF waves and GPS-TEC datasets and the lightning activity was studied with the help of GLD360 and WWLLN datasets.

- Properties of Mesoscale Convective System (MCS), producing TLEs in India (Completed)
Summer Project – KSKGRL Prayagraj May 2018 - July, 2018

I was interested in the occurrences of electrical discharges over the cloud systems and sometimes reaching the base of Ionosphere, known as Transient Luminous Events or TLEs. I characterized and studied 10 such TLEs (9 Sprites and 1 Gigantic Jet) over the central Indian region along with their parent thunderstorm properties. The findings of this study are anticipated to be published in a scientific journal. I carried out this study under the guidance of Prof. Rajesh Singh at K S Krishnan Geomagnetic Research Laboratory, Indian Institute of Geomagnetism, Prayagraj, IN.

- Atmospheric Electrical Discharges (Completed)
Summer Project – KSKGRL Prayagraj May, 2017 - July, 2017

I studied 3 TLEs (Sprites) and tried to study the relationship between such high-altitude electrical phenomena with low-level thunderstorms. I carried out this study under the guidance of Prof. Rajesh Singh at K S Krishnan Geomagnetic Research Laboratory, Indian Institute of Geomagnetism, Prayagraj, IN.

PUBLICATIONS (Journals)

1. Patil, OM, **Moharana, SS**, Maurya, AK, Parihar, N, Singh, R, & Dimri, AP. (2024). Role of lightning activity in deciphering atmospheric gravity waves (AGWs) induced D-region ionospheric perturbations during extremely severe cyclonic storm (ESCS) Fani. *J Geophys Res: Space Phys*, 129, e2023JA032187. <https://doi.org/10.1029/2023JA032187>
2. **Moharana, SS**, & Swain, D. (2023). On the recent increase in Atlantic Ocean hurricane activity and influencing factors. *Nat Hazards*, 118, 1387-1399. <https://doi.org/10.1007/s11069-023-06061-3>
3. Ray, S, **Moharana, SS**, & Swain, D. (2022). Ocean response to Tropical Cyclone “Asani”: Surface cooling restricted by Coastal Downwelling. [Preprint] <https://doi.org/10.21203/rs.3.rs-2001209/v1>

CONFERENCES

1. Moharana, S. S. & Swain, D. (2024). Tropical Cyclone Response to Recent Warming in Arabian Sea. Abstract ID: AS11-A001. In the *21st Annual Meeting of the Asia Oceania Geosciences Society 2024 (AOGS2024)*, Pyeongchang, Gangwon-do, South Korea. 23-28 June 2024.
2. Moharana, SS & Swain, D. (2024). Impact of Geophysical Parameters on Tropical Cyclogenesis Locations in the Bay of Bengal. *WOSC 2024*, 27-29 February 2024.
3. Moharana, S. S. & Swain, D. (2023). Cluster Analysis of Tropical Cyclogenesis Locations in the Bay of Bengal. Abstract ID: ABS-05-0004. In the *8th National Conference of Ocean Society of India 2023 (OSICON-23)*, INCOIS, Hyderabad, India. 23-25 August 2023.
4. Moharana, SS & Swain, D. (2022). Investigation of the Impact of Geophysical Parameters Modulating the Recent Rise in Hurricane Activity in the Atlantic Ocean. In *Fall Meeting 2022. AGU*, 1106035.
5. Moharana, SS & Swain, D. (2022). Recent changes in the trends of Atlantic Hurricanes and the factors influencing them. *AOGS 2022*, Virtual, AS11/A022.
6. Moharana, SS & Swain, D. (2021). Atlantic hurricanes of 2020 and the factors influencing them. *OSICON-21*, Online, 12-14 August 2021, OSICON2021/155.
7. Moharana, SS & Singh, R. (2020). Probing a post monsoon Mesoscale Convective System (MCS) and the generated Transient Luminous Events (TLEs) over Indian region. *EGU General Assembly 2020*, Online, 4–8 May 2020, EGU2020-19407. <https://doi.org/10.5194/egusphere-egu2020-19407>.

PERSONAL INFO

- Date of Birth : 20th March, 1998
- Languages Spoken : Odia, English, Hindi, Bengali



Place: Jatani, India
Date: 27th May, 2025
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