SARTHAK MOHANTY
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Languages: English, Hindi, Odia, Bengali, Sanskrit
Nationality : Indian

Summary:

Experienced academic specialising in atmospheric dynamics, with two published papers and three ongoing research projects. Currently a climate data scientist at the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australian Government. Recently submitted a thesis in atmospheric science at Monash University and holds a BS-MS dual degree in geoscience from the Indian Institute of Science Education and Research (IISER), Kolkata.

Research Interest:

• Monsoon Dynamics. •. Air-Sea Interaction. • Atmospheric dynamics. • Statistical Climatology. • Climate Modeling.

Skills & Abilities:

- **Programming Language :** Python, MATLAB, NCL, FERRET, Basics of Fortran
- **Application Software:** CDO, NCO, Basics of ArcGIS, Basics of ERDAS IMAGINE, Origin, GnuPlot, Grapher, Corel, SigmaPlot, GIMP, DataGraph, Basics of QGIS
- **Technical skills :** High-Performance Computing, Machine Learning, Parallel Computing

Publications:

- **Mohanty, S., Jakob, C., & Singh, M. S. (2024).** Australian summer monsoon bursts: A moist static energy budget perspective. ***Journal of Geophysical Research: Atmospheres, 129(1), e2023JD039048.***
- **Basu, S., Mohanty, S., & Sanyal, P. (2020).** Possible role of warming on Indian summer monsoon precipitation over the north-central Indian subcontinent. ***Hydrological Sciences Journal, 65(4), 660-670.***
- **Mohanty, S., Singh, M. S. & Jakob, C. (2024).** Australian Summer Monsoon : Reanalyses vs. Climate Models in Moist Static Energy Budget Evolution. ***Journal of Geophysical Research: Atmospheres (revision submitted)***
- **Mohanty, S., Jakob, C., & Singh, M. S. (2024). T**he Moist Static Energy budget of Australian Summer Monsoon Bursts in Climate Models: Insights from Present and Warming Climate Scenarios. ***(In preparation to submit in JGR Atmosphere)***
- **Mohanty, S. & Ramesh, N. (2024).** Evaluating Fiji's Historical and Future Climate Using CMIP6 Models: Insights from Moisture and Moist Static Energy Budget. ***(In preparation to submit in Journal of Climate)***

Research Experience:

- ***PhD Thesis (January 2020 - October 2023)*** : Australian Summer Monsoon : A Moist Static Energy Budget Perspective.(Thesis submitted). ***Guide: Prof. Christian Jakob, Dr. Martin Singh (Monash University, Melbourne)***

- ***MS Thesis (July 2018-May 2019)*** **:** Indian Monsoon Precipitation Variation; Role of Northern Indian Ocean Warming and increase in inter-ocean thermal gradient. ***Guide: Prof. Prasanta Sanyal , Dr. C. Gnanaseelan (IISER Kolkata, India)***
- ***Project Assistant (July 2019 - December 2019) :*** Indian Monsoon Precipitation variation; Role of surface and upper tropospheric temperature. ***Guide: Prof. S.K.Mishra, Prof. S. Sahany (Indian Institute of Technology, Delhi, India)***
- ***Summer Project (June 2017 - August 2017)*** **:** Long term analysis of Mixed Layer Heat Content in Northern Indian Ocean and its effect on Indian summer and Winter monsoon. ***Guide: Ms. Divya David (National Centre for Antarctic and ocean Research (NCAOR) , Ministry of Earth Science, Govt. Of India)***
- ***Summer Project (June 2016 - July 2016) :*** An extensive analysis of heat content and salinity on the upper Arabian Sea and its effect on Indian Summer Monsoon Rainfall. ***Guide: Dr. C. Gnanaseelan (ESSO-Indian Institute of Tropical Meteorology (IITM) , Ministry of Earth Science, Govt. Of India)***

Employment:

- ***Climate Data Scientist (November 2023 - present (full time))*** **:** Fidelity of CMIP6 models in assessing Fiji monsoon simulation through Analysis of Moisture, Moist static energy, and Circulation Budgets. ***Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australian Government.***
- ***Climate Data Scientist (April 2023 - October 2023 (part time))*** **:** Climate Model Selection for the Climate Services for Agriculture's Application Ready Data for Fiji using statistical downscaling applying machine learning approach, collaborating with the Fiji government. ***CSIRO, Australian Government.***

Education:

- **Ph.D.** - *Monash University, Australia* (**Thesis Submitted - October 15, 2023**)
- **BS-MS Dual Degree** - *IISER, Kolkata, India* - **8.88/10 CGPA**
- **12th** - *Upendranath Junior College, Soro, Odisha, India* - **81%**
- **10th** - *Balukeswar High School, Soso-Kanpur, Odisha, India* - **90.2%**

Workshop & Conference:

- Attended in General Assembly of European Geosciences Union (EGU) at Vienna, Austria, 2023
- Attended in Australian Meteorological and Oceanographic Society (AOGS) at Adelaide, Austria, 2022
- Attended in ARC Centre of Excellence for Climate Extremes workshop, 2023
- Attended in ARC Centre of Excellence for Climate Extremes Winter School, 2022
- Attended in ARC Centre of Excellence for Climate Extremes Winter School, 2020
- Attended in Australian Meteorological and Oceanographic Society (AOGS) at Adelaide, Austria, 2022
- Attended in General Assembly of European Geosciences Union (EGU) at Vienna, Austria, 2019

- Attended in international conference on Climate Change Impacts, Vulnerabilities, and Adaptation : Emphasis on India and Neighbourhood (**CCIVA**), IIT Kharagpur (February 26 - 2 March, 2019)
- Attended in international workshop on Land-Ocean-Atmosphere Interaction, Greenhouse Gases and Coastal processes organised by centre for climate and Environmental Studies, IISER Kolkata (July 25 - August 4,2018)

Research Presentation:

- **Oral Presentation in 2023 at EGU General Assembly :** Australian summer monsoon bursts: A moist static energy budget perspective.
- **Oral Presentation in 2022 at AMOS :** Australian Summer Monsoon : Reanalyses vs. Climate Models in Moist Static Energy Budget Evolution.
- **Poster Presentation in 2019 at EGU General Assembly :** Increase in north-east monsoon precipitation by rapid Indian Ocean warming and a strengthening inter-ocean thermal gradient.
- **Poster Presentation in 2018 at IISER-Kolkata :** A stable isotopic approach to estimate the evapotranspiration contribution to hydrological cycle over coastal region of eastern India.

Awards & Scholarships:

- Graduate Research Completion Award (**July 2023 - October 2023**)
- Co-funded Monash graduate scholarship (**January 2020 - July 2023**)
- Deans International Postgraduate Research Scholarship (**January 2020 - October 2023**)
- 2nd best MS thesis award in Department of Earth Sciences at IISER Kolkata (**June 11, 2019**)
- 2nd Prize in the oral presentation in technical session 1 (Ocean Dynamic and Processes) in CCIVA, 2019 (**2 March, 2019**)
- Selected for Innovation in Science Pursuit for Inspired Research (INSPIRE) fellowship by Department of Science Technology (DST), Government of India to pursue PhD. **(January 2020 - December 2024) (Not Availed)**
- Selected for Innovation in Science Pursuit for Inspired Research (INSPIRE) Scholarship by Department of Science Technology (DST), Government of India. **(July, 2014 - May, 2019)**
- Higher Education Scholarship (HE: MEDHABRUTI - JUNIOR) by Department of Higher Education(DHE), Odisha , India **(2011-2013)**
- Pathani Samanta Mathematics Scholarship by Department of Higher Education(DHE), Odisha, India **(2011-2013)**

References:

Prof. Christian Jakob
Professor, School of Earth Atmosphere and Environment, Monash University
Email : christian.jakob@monash.edu

Dr. Martin S. Singh
Senior Lecturer, School of Earth Atmosphere and Environment, Monash University
Email : martin.singh@monash.edu

I hereby declare all the details and documents cited above are true as per best of my knowledge.
Sarthak Mohanty