



# HENRY BAKER COLLEGE

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## PERSONAL DETAILS

NAME	Dr. Sneha Susan Mathew
DEPARTMENT	Physics
DESIGNATION	Assistant Professor
EDUCATIONAL QUALIFICATION	M. Sc., Ph. D
DATE OF JOINING	07/03/2022
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## AREA OF SPECIALIZATION/RESEARCH INTERESTS

- Atmospheric dynamics, Climate variability and Climate change
- Large scale circulations in the Earth atmosphere
- Tropical expansion
- Regional and seasonal signatures of tropical expansion in hydrological cycle parameters
- Analysis of climate model simulations and future projections
- Association of tropical atmospheric circulation changes to Indian Summer Monsoon and extreme precipitation events

## CAREER PROFILE

<i>Sl. No</i>	<i>Institution</i>	<i>Designation</i>	<i>Period</i>
1	Space Physics Laboratory, Vikram Sarabhai Space Centre(VSSC), Thiruvananthapuram	ISRO Research Fellow	Jan 2013-August 2018
2	St John's College, Anchal, Kollam	Assistant Professor on contract	Jan 2020-Mar 2020
3	Space Physics Laboratory, Vikram Sarabhai Space Centre (VSSC),	Research Associate	Sep 2020- Mar 2022

	Thiruvananthapuram		
4	Henry Baker College, Melukavu	Assistant Professor	Mar 2022- Present

## RESEARCH PUBLICATIONS

<i>Sl. No</i>	<i>Name of the Journal</i>	<i>Title of the Article</i>	<i>ISSN No</i>	<i>Month &amp; Year</i>
1.	<i>Climate Dynamics</i> , 47, 3917–3930 (2016) DOI: <a href="https://doi.org/10.1007/s00382-016-3051-5">https://doi.org/10.1007/s00382-016-3051-5</a>	Hadley cell dynamics in Japanese Reanalysis-55 dataset: evaluation using other reanalysis datasets and global radiosonde network observations.	1432-0894	February 2016
2.	<i>Climate Dynamics</i> , 51, 221–233 (2018) DOI: <a href="https://doi.org/10.1007/s00382-017-3916-2">https://doi.org/10.1007/s00382-017-3916-2</a>	Simultaneous observations of the quasi 2-day wave climatology over the low and equatorial latitudes in the mesosphere lower thermosphere.	1432-0894	September 2017
3.	<i>Journal of Atmospheric and Solar-Terrestrial Physics</i> , 167, 184-189 (2018) DOI: <a href="https://doi.org/10.1016/j.jastp.2017.12.004">https://doi.org/10.1016/j.jastp.2017.12.004</a>	Anomalous tropical planetary wave activity during 2015/2016 quasi biennial oscillation disruption.	1364-6826	January 2018
4.	<i>IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing</i> , 11(7), 2555-2561 (2018) DOI: <a href="https://doi.org/10.1109/JSTARS.2018.2828342">10.1109/JSTARS.2018.2828342</a>	Estimation of Zonally Resolved Edges of the Tropical Belt Using GPS-RO Measurements.	2151-1535	May 2018
5.	<i>Theoretical and Applied Climatology</i> , 136, 661–673 (2019) DOI: <a href="https://doi.org/10.1007/s00704-018-2515-4">https://doi.org/10.1007/s00704-018-2515-4</a>	On the role of precipitation latent heating in modulating the strength and width of the Hadley circulation.	1434-4483	May 2018
6.	<i>Journal of Hydrology</i> , 570, 366-377 (2019) DOI: <a href="https://doi.org/10.1016/j.jhydrol.2018.12.047">https://doi.org/10.1016/j.jhydrol.2018.12.047</a>	Characterization of the long-term changes in moisture, clouds and precipitation in the ascending and descending branches of the Hadley circulation.	0022-1694	January 2019

## DETAILS OF WORKSHOPS/CONFERENCES/SEMINARS/SYMPOSIA ATTENDED

Sl. No	Title of the seminar/workshop	Venue (UGC)	Date	Title of the paper	International/ National/Regional	Invited/ Contributed /Participation
1.	<i>AGU Chapman Conference on the Width of the Tropics: Climate Variations and Their Impact</i>	Organized by Atmospheric Geophysical Union (AGU) at Santa Fe, New Mexico, USA	27-31 July, 2015	Expansion of Hadley Cell in Climate Change Scenario: A Study using Reanalysis and Radiosonde Observations	International	Oral Presentation
2.	<i>International Symposium on Tropical Meteorology "Changing Climate: Consequences and Challenges (INTROMET-C4 2021)"</i>	Organized by Cochin University of Science and Technology, Kerala, India, Online	23-26 November, 2021	Hadley Cell Dynamics in IITM-Earth System model: Evaluation using ERA5 reanalysis	International	Poster Presentation
3.	<i>27<sup>th</sup> Kerala Science Congress (KSC 2015)</i>	Organized by Alappuzha, India,	27-29 January, 2015	Expansion of Hadley Cell in Climate Change Scenario: A Comparison between Reanalysis and Radiosonde Observations	National	Oral Presentation
4.	<i>National Symposium on "WEATHER AND CLIMATE EXTREMES" (TROPMET 2015)</i>	Organized by India Meteorological Society and held at Punjab University, Chandigarh, India	15-18 February, 2015	Expansion of Hadley Cell in Climate Change Scenario: A Comparison between Reanalysis and Radiosonde Observations	National	Poster presentation

5.	<i>19<sup>th</sup> National Space Science Symposium-2016 (NSSS-2016),</i>	Organized by ISRO and held at Vikram Sarabhai Space Centre, Thiruvananthapuram, India	9-12 February, 2016	Regional Features of the Hadley Circulation- A Tropopause Perspective	National	Oral presentation
6.	<i>19<sup>th</sup> National Space Science Symposium-2016 (NSSS-2016),</i>	Organized by ISRO and held at Vikram Sarabhai Space Centre, Thiruvananthapuram, India	9-12 February, 2016	New Insights into the Regional forcing of Tibetan Plateau Induced Dynamics on the Hadley Circulation	National	Poster presentation
7.	<i>21<sup>st</sup> National Space Science Symposium-2022 (NSSS-2022)</i>	Organized by Indian Institute of Science Education and Research, Kolkata, India, <i>Online</i>	31 January - 4 February, 2022.	Hadley Cell Dynamics in IITM-Earth System model: Evaluation using ERA5 reanalysis	National	Oral Presentation
8.	<i>10<sup>th</sup> Kerala Environment Congress (KEC)</i>	Organized by Centre for Environment and Development, Thiruvananthapuram and held at Kochi, India.	22-23 August, 2014	-	National	Participation only

### WORKSHOPS/CONFERENCES/SEMINARS/SYMPOSIA/WORKSHOP ORGANIZED

Sl. No	Title of the seminar/ workshop/ conference etc.	Venue/Agency	Date	International/National/Regional
1.	<i>Science Engineering Research Board (SERB) School on Fundamentals of Radars for Atmospheric Research- II (FORFAR II)</i>	Jointly held at CUSAT(Kochi), SPL, (Thiruvananthapuram) and NARL(Gadanki), India.	05-28 February, 2014	National
2.	<i>National Workshop on Space Applications for</i>	Organized by ISSE,	19-20 May 2017	National

	<i>Sustainable Growth and Advancement (SAGA)</i>	Trivandrum Chapter and held at Mascot Hotel, Thiruvananthapuram		
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## HONOURS AND AWARDS

<i>Sl. No</i>	<i>Award Name</i>	<i>Instituted by</i>
1.	ISRO Research Fellowship 2013-2018	Indian Space Research Organization
2.	Fellowship to attend and present a paper in the <i>AGU Chapman Conference on the Width of the Tropics: Climate Variations and Their Impacts</i> held at New Mexico, USA in July, 2015	National Science Foundation, USA
3.	Best Poster Award in National Symposium on Tropical Meteorology (TROPMET-2015)	India Meteorological Society, New Delhi
4.	Best Paper Award in National Space Science Symposium- 2016 (NSSS-2016)	Indian Space Research Organization
5.	Two works cited in IPCC Sixth Assessment Report 2021: a) Mathew, S.S., Kumar, K.K. &Subrahmanyam, K.V., <u>Hadley cell dynamics in Japanese Reanalysis-55 dataset: evaluation using other reanalysis datasets and global radiosonde network observations.</u> <i>Climate Dynamics</i> , 47, 3917–3930 (2016) b) Mathew, S.S., Kumar, K.K., <u>On the role of precipitation latent heating in modulating the strength and width of the Hadley circulation.</u> <i>Theoretical and Applied Climatology</i> , 136, 661–673 (2019)	Intergovernmental Panel for Climate Change (IPCC)

## RESEARCH PROJECT

<i>Sl. No</i>	<i>Title of the Project</i>	<i>Funding Agency</i>	<i>Amount</i>	<i>Period</i>	<i>Major/Minor</i>
1.	Poleward Expansion of Hadley Circulation and Associated Dynamics	ISRO		2013-2018	Major

2.	Climate model simulations of the dynamics of Hadley Circulation	ISRO		2020-2022	Major
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### MEMBERSHIP IN SCIENTIFIC/PROFESSIONAL SOCIETIES IF ANY

<i>Sl. No</i>	<i>Name of the Society</i>	<i>Nature of membership</i>	<i>Annual/Life time</i>
1.	India Meteorological Society	Lifetime	Life member

### COURSES ATTENDED FOR PROFESSIONAL DEVELOPMENT

<i>Sl. No</i>	<i>Name of the Course</i>	<i>Organizing Institute</i>	<i>Period</i>
1.	Best Practices for Online Teaching: Classrooms, Courseware and Tools	Kerala State Higher Education Council	11.05.2022 - 17.5.2022
2.	KSHEC Workshop on Outcome based Education	Henry Baker College	30.4.2022