Dr. V SATHIYAMOORTHY
Scientist – 'G' and Head
Microwave and Boundary Layer Physics Branch
Space Physics Laboratory, VSSC (ISRO),
Thiruvananthapuram.

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Research Area: Atmospheric Science, Boundary Layer Physics, Clouds, Radiative forcing of Clouds, Remote Sensing of Atmosphere, Indian monsoon and Lunar studies.

Academic Qualification

Degree	Year	Details
• Ph.D.	2002	Stratosphere-Troposphere interactions associated with dynamical processes in the atmosphere, CUSAT, Cochin, India.
• M. Tech.	1995	Atmospheric Sciences, Cochin University of Science & Technology, Cochin, India.
• M. Sc.	1992	Physics, Bharathidasan University, Tiruchirappalli, India

Professional Background

Designation	Duration	Institution
• Scientist	Apr 2021 Onwards	Space Physics Laboratory, VSSC, ISRO, Trivandrum
• Scientist	Mar 2001 - Mar 2021	Space Applications Centre, ISRO, Ahmedabad
• Visiting Scientist	Apr 2006 - Mar 2007	Laboratoire de Meteorologie Dynamique, Paris, France
• Research Scholar	1997 - 2001	Cochin University of Science & Technology, Cochin

Awards/Honors/Recognitions/Acclamations

- CSIR Research Fellowship - 1993
- ISRO Team Excellence Award - 2011 (Megha-Tropiques Satellite Data Product Generation & Application)

Major additional responsibilities

- Chairman – Inter-ISRO centre weather expert team for rocket launches from SHAR
- Team Leader – Megha-Tropiques Satellite – TOA Flux Retrieval from ScaRaB & Quality Evaluation
- Focal Person – Conceptualized & set-up of ISRO's Capacity building & Outreach initiative 'SMART'

Membership in professional bodies

- Life Member – Indian Meteorological Society
- Life Member – Indian Society of Geomatics
- Life Member – Indian Society of Remote Sensing
- Secretary – Indian Meteorological Society (Ahmedabad Chapter) – 2009-2011

Organization of Conferences/Symposia/workshop

- Convener – Workshop on Satellite Meteorology: 50-year Journey, Ahmedabad (2010)

Research Guidance

- Supervised the Doctoral works of Ms. Jinya John and Ms. Pooja Rana, ISRO JRFs (Department of Physics, Gujarat University, Ahmedabad)
- M. Sc/M. Tech projects supervised - 18 (including SMART, CSSTE-AP SATMET Programmes)

Specific Scientific/Technical/Outreach contributions

- Development and Operationalization of ScaRaB/Megha-Tropiques TOA Flux Retrieval Algorithm and monitoring the data quality.
- More than 1200 participants were trained as part of SMART outreach programme of ISRO on Advanced Topics of Satellite Meteorology and Oceanography.

Publications

1. **Sathiyamoorthy V**., and K. Mohankumar (2000) Characteristics of tropospheric biennial oscillation and its possible association with the stratospheric QBO. Geophysical Research Letters, 27, 669-672.
2. **Sathiyamoorthy V**., K. Mohankumar and P. V. Joseph (2002) Interannual variability of total ozone and its relation with the Asia Pacific Wave. Tellus, 54B, 269-277.
3. **Sathiyamoorthy** V., B. Simon and P. C. Joshi (2003) Application of microwave remote sensing data for Indian summer monsoon studies. Mausam,54, 197-204.
4. Simon B., S. H. Rahman and V. Sathiyamoorthy (2003) Intraseasonal oscillations over tropical Indian ocean in relation to monsoon onset and rainfall event over Peninsular India. Mausam, 54, 189-196.
5. **Sathiyamoorthy V**., P. K. Pal and P. C. Joshi (2004) Influence of the Upper Tropospheric Wind Shear upon Cloud Radiative Forcing in the Asian Monsoon Region. Journal of Climate, 17, 2725-2735.
6. **Sathiyamoorthy V**.,(2005) Large Scale Reduction in the size of the Tropical Easterly Jet. Geophysical Research Letters, 32, L14802, DOI: 10.1029/2005GL022956.
7. **Sathiyamoorthy V**., P. K. Pal and P. C. Joshi (2007) Intraseasonal variability of the tropical easterly jet. Meteorology and Atmospheric Physics, 96,193-316.
8. Shukla B. P., **V. Sathiyamoorthy**, P. K. Pal and P. C. Joshi (2009) Effects of cloud types on cloud-radiation interaction over the Asian monsoon region. Theoretical and Applied Climatology. 97, 287-295, DOI: 10.1007/s00704-008-0064-y.
9. Shukla B. P., **V. Sathiyamoorthy** and P. K. Pal (2009) Determination of Angular Distribution Models for Indian desert scene: Comparison with other desert models. Advances in Space Research, 43, 1931–1939.
10. **Sathiyamoorthy V**., and P. C. Joshi (2009) Impact of increased CO_2 on rainfall over Indian monsoon region in IPCC-AR4 CGCM simulations. Proceedings of the ISPRS Workshop: Impact of Climate Change on Agriculture, Ahmedabad.
11. **Sathiyamoorthy V**., B. P. Shukla and P. K. Pal (2010) Increase in the pre-monsoon rainfall over

the Indian summer monsoon region. Atmospheric Science Letters, 11, 313-318, DOI: 10.1002/asl.302.

12. **Sathiyamoorthy V**., B. P. Shukla and P. K. Pal (2011) A study on radiative properties of Indian summer monsoon clouds. Meteorology and Atmospheric Physics. 113, 55-66, DOI: 10.1007/s00703-011-0140-1.
13. Chaurasia S., **V. Sathiyamoorthy**, B. P. Shukla, B. Simon, P. C. Joshi, P. K.Pal (2011) Night time fog detection using MODIS data over Northern India. Meteorological Applications. 18, 483-494, DOI: 10.1002/met.248.
14. Mahesh C., Satya Prakash, **V. Sathiyamoorthy**, and R.M. Gairola (2011) Artificial neural network-based microwave precipitation estimation using scattering index and polarization corrected temperature. Atmospheric Research, 102,358–364.
15. **Sathiyamoorthy V**., Rajesh Sikhakolli, B. S. Gohil and P. K. Pal (2012) Intraseasonal variability in Oceansat-2 scatterometer sea-surface winds over the Indian summer monsoon region. Meteorology and Atmospheric Physics, 117,145-152, DOI: 10.1007/s00703-012-0189-5.
16. Satya Prakash, Mahesh C., **V. Sathiyamoorthy** and R. M. Gairola (2012) Increasing trend of northeast monsoon rainfall over the equatorial Indian Ocean and peninsular India. Theoretical and Applied Climatology, 10.1007/s00704-012-0719-6.
17. **Sathiyamoorthy V**., et al. (2013) Characteristics of low clouds over the Arabian Sea. JGR - Atmospheres, Vol. 118, 13,489–13,503, doi: 10.1002/2013JD020553.
18. **Sathiyamoorthy V**., et al, (2013) Top of atmosphere flux from the Megha-TropiquesScaRaB. (Special section on Megha-Tropiques) - Current Science, Vol. 104, No.12, pages 1656-1661.
19. Satya Prakash, **V. Sathiyamoorthy**, C. Mahesh and R. M. Gairola (2013) Is summer monsoon rainfall over the west coast of India decreasing? Atmospheric Science Letters, 14, 160–163, DOI: 10.1002/asl2.433.
20. Satya Prakash, Mahesh C., V**. Sathiyamoorthy** and R. M. Gairola (2013) Increasing trend of northeast monsoon rainfall over the equatorial Indian Ocean and peninsular India, Theor. Appl. Climatol., 112, 185–191, DOI 10.1007/s00704-012-0719-6.
21. Satya Prakash, V**. Sathiyamoorthy**, C. Mahesh and R.M. Gairola (2014) An evaluation of high-resolution multi-satellite rainfall products over the Indian monsoon region. Int. J. Rem. Sensing, Vol. 35, 3018–3035.
22. Mahesh C., Satya Prakash, **V. Sathiyamoorthy**, R.M. Gairola (2014) An improved approach for rainfall estimation over Indian summer monsoon region using Kalpana-1 data. Adv. Space Res. 54, 685–693.
23. Satya Prakash, C. Mahesh, **V. Sathiyamoorthy**, R. M. Gairola& A. K. Mitra (2016) An investigation of long-term changes in rainfall over the equatorial Indian Ocean trough region during northern summer using multi-satellite data, Theor. Appl. Climatol., 124 (1-2), 129-139, DOI 10.1007/s00704-015-1406-1.
24. **Sathiyamoorthy V**., R. Arya & C. M. Kishtawal (2016) Radiative characteristics of fog over the Indo□Gangetic Plains during northern winter. Climate Dynamics, 47, 1793-1806. DOI 10.1007/s00382-015-2933-2.
25. Sanjeev Dwivedi, **V. Sathiyamoorthy**, M. S. Narayanan, and D. Narayana Rao (2016) A Study on the Lower Tropospheric Thermal Inversion Over the Arabian Sea Using Radiosonde and IASI Data. IEEE Journal of selected topics in Applied Earth Observations and Remote Sensing, Vol. 9, 490-495, DOI: 10.1109/JSTARS.2015.2506759.
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27. Bushair M. T., **V. Sathiyamoorthy**, C. Mahesh and R. M. Gairola (2018) The influence of near

surface atmospheric wind convergence on precipitation over Indian summer monsoon region: A statistical analysis, Academia Journal of Environmental Science, DOI: 10.15413/ajes.2018.0148.

28. Jinya John, I. Dey, A. Pushpakar, **V. Sathiyamoorthy** and B. P. Shukla (2019) INSAT-3D cloud microphysical product: retrieval and validation, Int. J. Rem. Sensing, 40: 1481-1491.
29. Sankhala D. K., S. K. Deb and **V. Sathiyamoorthy** (2019) INSAT-3D low level atmospheric motion vectors: capability to capture Indian summer monsoon intra-seasonal variability. Journal of Earth System Science, https://doi.org/10.1007/s12040-018-1060-y.
30. Jinya John, B. P. Shukla, P.N. Gajjar and **V. Sathiyamoorthy** (2019) Study of satellite-derived cloud microphysical parameters for tropical cyclones over the North Indian Ocean (2010–2013), Theoretical and Applied Climatology, DOI: https://doi.org/10.1007/s00704-019-03047-9.
31. Pooja Rana and **V. Sathiyamoorthy** (2020) Winter-time roll clouds over the Arabian sea using INSAT-3D satellite observations, Int. J. Emer. Tech., 11(1),181-187.
32. **Sathiyamoorthy V**., and Pooja Rana (2020) Cloud streets occurrence over the Arabian sea during summer monsoon season, Int. J. Emer. Tech., 11(1), 297-304.
33. Athira U. N., S. Abhilash and **V. Sathiyamoorthy** (2020) Distinct atmosphere-ocean coupling processes on the onset phase of Indian summer monsoon during 2017 and 2018 as revealed through ScatSat-1 and its comparison with DFSv2. Int. J. Remote Sensing., https://doi.org/10.1080/01431161.2020.1767827.
34. Sisma Samuel, Nizy Mathew and **V. Sathiyamoorthy** (2022) Association of the occurrence of deep convective cloud cores with sea surface temperatures over the equatorial Indian and the western Pacific oceans. Atmospheric Research, https://doi.org/10.1016/j.atmosres.2022.106034
35. **V. Sathiyamoorthy** (2022) A study on the anomalous TOA net radiative warming by clouds in a sub-region within the Indian summer monsoon region. Advances in Space Research. 70, 3638-3648. https://doi.org/10.1016/j.asr.2022.08.018
36. Sisma Samuel, Nizy Mathew and **V. Sathiyamoorthy** (2023) Characterization of intertropical convergence zone using SAPHIR/Megha-Tropiques satellite brightness temperature data, Climate Dynamics, https://doi.org/10.1007/s00382-022-06549-x
37. **V. Sathiyamoorthy**, B. Swathi and Sisma Samuel (2023) Characteristics of the strong winds on the exit region of the Palghat gap during the Indian summer monsoon season, Climate Dynamics, https://doi.org/10.1007/s00382-023-06915-3.
38. Kumawat N, K. N. Babu, M. R. Pandya, S. Tripathi and **V. Sathiyamoorthy** (2023) Towards Accurate Radiometric Calibration of INSAT-3D and INSAT-3DR Imager: Addressing Uncertainty and Error Sources, International Journal of Remote Sensing, https://doi.org/10.1080/01431161.2023.2265541.
39. Dwivedi S, Pandit AK, Jangid BP, Yesubabu V, Venkat Ratnam M, **V. Sathiyamoorthy**, Vinoj V, Narayana Rao D and Narayanan MS (2023) Formation and maintenance of monsoon inversion over the Arabian sea, Theoretical and Applied Climatology, https://doi.org/10.1007/s00704-023-04785-7.
40. Sisma Samuel, Nizy Mathew and **V. Sathiyamoorthy** (2024) Estimation of radiative effects of deep convective cloud cores using SAPHIR & ScaRaB onboard Megha-Tropiques satellite. Atmospheric Research. https://doi.org/10.1016/j.atmosres.2024.107803.
41. Nizy Mathew, K. Durga Prasad, Dinakar Prasad Vajja, V. Aasik, Fazil Mohammad, P.P. Pramod, M. Satheesh Chandran, Kiran John Antony, M. Ram Prabhu, M.B. Dhanya, Manu V. Unnithan, Shiju G. Thomas, Chandan Kumar, Dona Mathew, R. Suresh, K.P. Subhajayan, P.S. Ajeeshkumar, P. Kalyana Reddy, Samik Jash, K. Kannan, K. Sunitha, Sanjeev Mishra, Janmejay Kumar, **V. Sathiyamoorthy**, and Anil Bhardwaj (2025) Chandra's surface thermophysical experiment (ChaSTE) onboard Chandrayaan3 Lander. Advances in Space Research, https://doi.org/10.1016/j.asr.2025.01.022.
42. Nizy Mathew, K. Durga Prasad, Fazil Mohammad, V. Aasik, Dinakar Prasad Vajja, M. Ram Prabhu,

M. Satheesh Chandran, K. P. Subhajayan, Kiran John Antony, P. P. Pramod, Chandan Kumar, Dona Mathew, R. Suresh, U. A. Subramanian, **V. Sathiyamoorthy**, Manu V. Unnithan, V. Preethakumari, Vinitha Ramdas, Ajay Salas, P. S. Ajeeshkumar, Neha Naik, Vinu Paul, P. Kalyana Reddy, G. Ambily, K. Kannan, M. B. Dhanya, Sanjeev Mishra, P. T. Lali, K. Sunitha, Samik Jash, Tanmay Singhal, Janmejay Kumar, Manoj Kumar Mishra, R. Renju, C. Suresh Raju & Anil Bhardwaj (2025) Thermal conductivity of high latitude lunar regolith measured by Chandra's Surface Thermophysical Experiment (ChaSTE) onboard Chandrayaan 3 lander. Nature Scientific Reports. https://doi.org/10.1038/s41598-025-91866-4.

43. Swathi, B and **V. Sathiyamoorthy** (2025) Unique roll clouds along the flow path of the Indian summer monsoon low-level jet over the Arabian Sea. Scientific Reports. https://doi.org/10.1038/s41598-025-97849-9.
44. Nizy Mathew, M. Ram Prabhu, V. Aasik, Fazil Mohammad, Dinakar Prasad Vajja,P.P. Pramod, Kiran John Antony, M. Satheesh Chandran, K.P. Subhajayan & **V. Sathiyamoorthy** (2025) Operational insights and measurements of ChaSTE on the Chandrayaan 3 Vikram Lander. Advances in Space Research, https://doi.org/10.1016/j.asr.2025.05.024.

Proceedings/Books /Reports - 8

1. Scientific/Technical Reports, Space Applications Centre (ISRO), Ahmedabad – (8)

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अनुसंधान क्षेत्र

वायुमंडलीय विज्ञान, सीमा परत भौतिकी, बादलों, बादलों का विकिरण बल, वातावरण का रिमोट सेंसिंग और भारतीय मानसून.

शैक्षणिक योग्यता

डिग्री	वर्ष	विवरण
· पी एचडी	२००२	थीसिस शीर्षक: वायुमंडल में गतिशील प्रक्रियाओं से जुड़े समताप मंडल-क्षोभमंडल बातचीत, कोचीन विज्ञान और प्रौद्योगिकी विश्वविद्यालय, कोचीन, भारत।
· एम टेक	१९९४	वायुमंडलीय विज्ञान, कोचीन विज्ञान और प्रौद्योगिकी विश्वविद्यालय, कोचीन, भारत।
· एम एससी	१९९२	भौतिकी, भारतीदासन विश्वविद्यालय, तिरुचिरापल्ली, भारत

प्रोफ़ेशनल बैकग्राउंड

पद	समयांतराल	संस्थान
· वैज्ञानिक	अप्रैल २०२१– वर्तमान	अंतरिक्ष भौतिकी प्रयोगशाला, वीएसएससी, इसरो, भारत
· वैज्ञानिक	मार्च २००१– मार्च २०२१	अंतरिक्ष उपयोग केंद्र, इसरो, अहमदाबाद, भारत
· विजिटिंग वैज्ञानिक	अप्रैल २००६ – मार्च २००७	लेबोरेटोइरे डी मेटियोरोलॉजी डायनेमिक, पेरिस, फ्रांस
· रिसर्च स्कॉलर	१९९७ - २००१	कोचीन विज्ञान और प्रौद्योगिकी विश्वविद्यालय, कोचीन
· रिसर्च स्कॉलर	१९९५ - १९९६	भारतीय उष्णदेशीय मौसम विज्ञान संस्थान, पुणे

पुरस्कार/सम्मान/स्वीकरन/अभिनंदन

· सीएसआईआर रिसर्च फेलोशिप, १९९३
· इसरो टीम उत्कृष्टता पुरस्कार - २०११ (मेघा-ट्रॉपिक्स डेटा उत्पाद निर्माण और अनुप्रयोग)

प्रमुख अतिरिक्त जिम्मेदारियां

· टीम लीडर - मेघा-ट्रॉपिक्स मिशन - स्कैराब से टीओए फ्लक्स पुनर्प्राप्ति और गुणवत्ता मूल्यांकन
· फोकल पर्सन - स्मार्ट क्षमता निर्माण और आउटरीच पहल की संकल्पना और स्थापना
· अध्यक्ष – भारतीय मिशनों के लिए अंतर-इसरो केंद्र मौसम विशेषज्ञ टीम

प्रोफ़ेशनल बोडिज़ में अध्येतावृत्ति

· आजीवन सदस्य - भारतीय मौसम विज्ञान सोसायटी
· आजीवन सदस्य - इंडियन सोसाइटी ऑफ जियोमैटिक्स

सम्मेलनों/संगोष्ठियों/कार्यशालाओं का आयोजन

· संयोजक - सैटेलाइट मौसम विज्ञान पर स्वर्ण जयंती कार्यशाला, अहमदाबाद (२०१०)

अनुसंधान मार्गदर्शन

· सुश्री जिन्या जॉन और सुश्री पूजा राणा, सैक जेआरएफ के डॉक्टरेट कार्यों का पर्यवेक्षण किया (गुजरात विश्वविद्यालय, अहमदाबाद).
एम एससी/एम टेक परियोजनाओं पर्यवेक्षित - 18 (स्मार्ट, सीएसएसटीई-एपी सैटमेट कार्यक्रमों सहित)

विशिष्ट वैज्ञानिक/तकनीकी योगदान

· ScaRaB / Megha-Tropiques TOA फ्लक्स रिट्रीवल अलोगिरिथम का संचालन और डेटा गुणवत्ता की निगरानी। यह ScaRaB सेंसर के जीवन काल के दौरान अच्छी गुणवत्ता वाला फ्लक्स डेटा प्रदान करता है।
· स्मार्ट कार्यक्रम के तहत 1200 से अधिक छात्रों को उपग्रह मौसम विज्ञान और समुद्र विज्ञान के उन्नत विषयों पर प्रशिक्षित किया गया।

प्रकाशन – ३४

1. **Sathiyamoorthy V**., and K. Mohankumar (2000) Characteristics of tropospheric biennial oscillation and its possible association with the stratospheric QBO. Geophysical Research Letters, 27, 669-672.
2. **Sathiyamoorthy V**., K. Mohankumar and P. V. Joseph (2002) Interannual variability of total ozone and its relation with the Asia Pacific Wave. Tellus, 54B, 269-277.
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13. Chaurasia S., **V. Sathiyamoorthy**, B. P. Shukla, B. Simon, P. C. Joshi, P. K.Pal (2011). Night time fog detection using MODIS data over Northern India. Meteorological Applications. 18, 483-494, DOI: 10.1002/met.248.

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कार्यवाही/पुस्तक

1. सैक वैज्ञानिक/तकनीकी रिपोर्ट – (8)