

Renju R

Scientist/Engineer – SE

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Research Area: Ground-based microwave measurements of atmosphere and clouds; GPS application for tropical water vapour & atmosphere studies; Microwave propagation studies: Ka-band / GSAT-14 satellite attenuation studies; Surface and subsurface exploration of planetary bodies using microwave remote sensing; Thermophysical studies of the lunar surface; Radiative Transfer model-based analysis for simulation studies; Satellite based microwave data utility for water vapour and convective studies.

Academic Qualification

Degree	Year	Details
• Ph.D.	2016	Physics, Thesis Title: “Tropical atmosphere studies using Multifrequency Ground Based Microwave Radiometer Profiler and ancillary sensors over a coastal station Trivandrum”, University of Kerala, India. Thesis advisor: Dr. K. Krishnamoorthy.
• M. Sc.	2009	Physics, University of Kerala, Karyavattom Campus, India.

Professional Background

Designation	Duration	Institution
• Scientist	March 2018 – Present	Space Physics Laboratory, VSSC, ISRO, India
• Research Associate	June 2016-March 2018	Space Physics Laboratory, VSSC, ISRO, India
• Research Scholar	April 2010-April 2016	Space Physics Laboratory, VSSC, ISRO, India

Awards/Honors/Recognitions/Aclamations

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- International URSI Young Scientist Award - 2018 by Atlantic Radio Science (AT- RASC), Gran Canaria, Spain
 - Best paper award: 33rd Kerala Science Congress, 2021.
 - Best poster presentation award: National Climate Science Conference, Divecha Centre for Climate Change, Indian Institute of Science, Bengaluru, 02-03 July, 2015.
 - Best paper award: Tropical Meteorology (TROPMET-2011), 14-16 December 2011, Hyderabad.
 - Best paper award: National Space Science Symposium (NSSS) 2016, VSSC, Trivandrum, Kerala.
 - Best paper award: International Tropical Meteorology (INTROMET-2014), 20-24 February, 2014, Chennai
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Publications

1. **R. Renju**, C. Suresh Raju, N. Mathew, T. Antony, and K. Krishna Moorthy (2015), "Microwave radiometer observations of inter-annual water vapor variability and vertical structure over a tropical station", *J. Geophys. Res. Atmos.*, 120, 4585-4599. doi. 10.1002/2014JD022838.
2. **R. Renju**, C. Suresh Raju, N. Mathew, N.V.P. Kiran Kumar, and K. Krishna Moorthy (2016), "Tropical Convective Cloud Characterization Using Ground-Based Microwave Radiometric Observations", *IEEE Trans. Geoscience and Remote Sensing (TGRS)*, Vol. 54, No. 7, 3774-3779, doi.10.1109/TGRS.2016.2527099.
3. **R. Renju**, M. K. Mishra, C. Suresh Raju, K. Rajeev and K. Krishna Moorthy (2017), "Atmospheric boundary layer characterization using ground-based microwave radiometric observations over a tropical coastal station", *IEEE Trans. Geoscience and Remote Sensing (TGRS)*, Vol.55, No.12, 68778682, doi.10.1109/TGRS.2017.2735626.
4. **R. Renju**, C. Suresh Raju, Manoj Kumar Mishra, N. V. P. Kiran Kumar and Nizy Mathew (2021), "Attenuation characteristics of Ka-band signals over the tropical coastal station", *IEEE, Trans. Antennas and Propagation*, <https://doi.org/10.1109/TAP.2021.3076506>.
5. **R. Renju**, C. Suresh Raju, R. Swathi, Milan V. G. (2023), "Retrieval of atmospheric temperature and humidity profiles over a tropical coastal station from ground-based Microwave Radiometer using deep learning technique", *Journal of Atmospheric and Terrestrial Physics (JASTP)*, <https://doi.org/10.1016/j.jastp.2023.106094>, 2023.
6. **R. Renju** and C. Suresh Raju (2023), "Simulation analysis of microwave emission from lunar subsurface for SAR radiometric mode dual frequency (L/S Bands) observations onboard Chandrayaan-2", *Advances in Space Research (ASR)*, <https://doi.org/10.1016/j.asr.2023.06.040>, 2023.
7. Suresh Raju C., **R. Renju**, Tinu Antony, Nizy Mathew and K. Krishna Moorthy (2013), "Microwave radiometric observation of an intense convective system that formed waterspout over the coastal Arabian Sea", *IEEE Geoscience and Remote Sensing Letter (GRSL)*, No.10, 1075-1079, doi: 10.1109/LGRS.2012.2229960.
8. N. Mathew, S. Sahoo, **R. Renju** and C. S. Raju (2019), "Millimetre-Wave Radiometric Information Content Analysis for Venus Atmospheric Constituents Studies", *Radio Science*, doi:10.1029/2019RS006913.
9. M. K. Mishra, **R. Renju**, N. Mathew, C. Suresh Raju, M. R. Sujimol and K. Shahana (2020), "Characterization of GSAT-14 satellite Ka-band microwave signal attenuation due to precipitation over a Tropical Coastal station over the southern peninsular region of the Indian subcontinent", *Radio Science*, 55, e2019RS006910. <https://doi.org/10.1029/2019RS006910>.
10. Nizy Mathew, C. Suresh Raju, **R. Renju** and Tinu Antony (2016), "Distribution of Tropical Deep Convective Clouds from Megha-Tropiques SAPHIR Data", *IEEE Trans. Geoscience and Remote Sensing (TGRS)*, Vol. 54, No. 11, 6409-6414 doi.10.1109/TGRS.2016.2584540.
11. Yan Feng, M. Cadeddu, V. R. Kotamarthi, **R. Renju** and C. Suresh Raju (2016) "Humidity bias and effect on simulated aerosol optical properties during the Ganges Valley Experiment", *Current Science*, Vol. 111, No. 1, 93-100.
12. Tinu Antony, Suresh Raju C., **R. Renju**, Nizy Mathew and K. Krishna Moorthy (2018), "Microwave emissivity over arid regions at 10 GHz- Potential for subsurface studies", *International Journal of Rem. Sens.*, Volume 39, Issue 19.

13. Kavitha M, Prabha R. Nair, I. A. Girach, S. Aneesh, S. Sijikumar and **R. Renju** (2018), "Diurnal and seasonal variations in surface methane at a tropical coastal station: Role of boundary layer meteorology", *Science of Total Environment*, 631:1472-1485.
14. Kavitha M, Prabha R. Nair and **R. Renju** (2018), "Thunderstorm induced changes in near-surface O₃, NO_x and CH₄ and associated boundary layer meteorology over a tropical coastal station", *Journal of Atmospheric and Solar-Terrestrial Physics*, 179, 261-272.
15. Sisma Samuel, N. Mathew, M. K. Mishra and **R. Renju** (2021), Spatial and temporal variability of deep convective clouds over the tropics using multi-year Megha-Tropiques–Sondeur Atmosphérique du Profil d'Humidité Intertropicale par Radiométrie (SAPHIR) observations, Pages 5172-5189, <https://doi.org/10.1080/01431161.2021.1910368>.
16. Manoj Kumar Mishra, N. Mathew and **R. Renju** (2021), "SCATSAT-1 backscattering coefficient over distinct land surfaces and its dependence on soil moisture and vegetation dynamics", *International Journal of Rem. Sens.*, Pages 6481-6501, <https://doi.org/10.1080/01431161.2021.1939909>.

Proceedings/Books

1. **R. Renju**, C. Suresh Raju C., E. V. Davis, N. Mathew and K. K. Moorthy, "Validation of ground-based microwave radiometer measurements over a tropical coastal station," 2019 URSI Asia- Pacific Radio Science Conference (AP-RASC), New Delhi, India, 2019, pp. 1-5, doi:10.23919/URSIAPRASC.2019.8738615.
2. Mishra, M. K., **R. Renju**, N. Mathew, C. Suresh Raju, M. Sujimol and K. Shahana, "Rain attenuation of Ka-band signal over a Tropical station," 2019 URSI Asia-Pacific Radio Science Conference (AP-RASC), New Delhi, India, 2019, pp. 1-3. doi: 10.23919/URSIAP-RASC.2019.8738301.

रेंजू आर

वैज्ञानिक/इंजीनियर एस इ

फ़ोन : +९१ ४७१ २५६३१२२

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शोध

क्षेत्र

वायुमंडल और बादलो ं के जमीन आधाररत माइक्रोवेव माप, उष्णकटिबंधीय जल वाष्प और वायुमंडल अध्ययन के टलए जीपीएस आवेदन, माइक्रोवेव प्रचार अध्ययन: Ka-बैंड/GSAT-14 उपग्रह क्षीणन अध्ययन, माइक्रोवेव ररमोि सेंटसंग का उपयोग करके ग्रहो ं के टनकायो ं की सतह और उपसतह अन्वेषण, चंद्रमा की सतह के थमोटिटजकल अध्ययन , टसमुलेशन अध्ययन के टलए रेटडएटिव िंांसिर मॉडल आधाररत टवश्लेषण, जल वाष्प और संवहनी अध्ययनो ं के टलए उपग्रह आधाररत माइक्रोवेव डेिा उपयोडगता/

शैक्षणिक योग्यता

णिग्री	वर्ष	णववरि
• पी एचडी	२०१६	भौतिक विज्ञान; शोधग्रंथ का शीर्कष : “उष्णकटिबंधीय वातावरण एक तीय स्िेशन त्रिवेंद्रम पर मल्िीफ्रीकेंसी ग्राउंड आधाररत माइक्रोवेव रेडडयोमीरि प्रोफाइलर और सहायक सेंसर का उपयोग कर अध्ययन”; केरल ववश्ववद्यालय , भारि; पी एचडी सलाहकार: डॉ. के कृष्णमर्थीू
• एम एससी	२००९	भौतिक विज्ञान, केरल विश्िविद्यालय, भारि

प्रोफे शनल

बैकग्राउंि

पड	समयांतराल	संस्थान
• वैज्ञानिक	माचच २०१८– वर्तमाि	अंररक्ष भौनर्की प्रयोगशाला, वीएसएससी, इसरो, भारर्
• ररसचत एसोटसएि	जून २०१६- माचच २०१८	अंररक्ष भौनर्की प्रयोगशाला, वीएसएससी, इसरो, भारर्
• ररसचच स्कॉलर	अप्रैल २०१० – अप्रैल २०१६	अंररक्ष भौनर्की प्रयोगशाला, वीएसएससी, इसरो, भारर्

पुरस्कार/सम्मान/स्वीकरण/अणिनंदन

- अंतराचष्ट्ीय उसी युवा वैज्ञाटनक पुरस्कार - अिलांटिक रेटडयो साइंस (एिी-आरएससी), ग्रैन कै नररया, स्पेन द्वारा २०१८ ।
- सवचश्रेष्ठ पेपर पुरस्कार: ३३वीं के रल साइंस कांग्रेस, २०२१।
- सवचश्रेष्ठ पोस्टर प्रस्तुटत पुरस्कार: राष्ट्ीय जलवायु टवज्ञान सम्मेलन, टदवेचा सेंरि िंॉर क्लाइमेि चेंज, इंटडयन इंस्टीट्यूिि ऑिसाइंस, बेंगलुरु, 0२-0३ जुलाई, २०१५ ।

- सवचश्रेष्ठ पेपर पुरस्कार: उषुणकटिबंधीय ढौसढ ढवज्ञान (िोपढेि-२0११), १ॡ-१6 ढदसंढर २0११, हैदराढाद।
 - सवचश्रेष्ठ पेपर पुरस्कार: राष्ट्रीय अंतररक्ष ढवज्ञान संगोष्ठी (एनएसएस) २0१ॢ, वीएसएससी, ढिवेंढ्रढ, के रल।
 - सवचश्रेष्ठ पेपर पुरस्कार: अंतराचष्ट्रीय उषुणकटिबंधीय ढौसढ ढवज्ञान (इनिढेि-२0१ॡ), २0-२ॡ िरवरी, २0१ॡ, चेन्नई।
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