

# Manoj Kumar Mishra

SCIENTIST

Space Physics Laboratory (SPL)  
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## Research Interests

1. Surface and Subsurface exploration of planetary bodies using microwave remote sensing.
2. Thermophysical studies of the Moon and planets using In-situ measurements.
3. Characterization of microwave propagation (Ku and Ka bands) in the atmosphere using satellite based link experiment.
4. Atmospheric Science (Aerosols, Clouds, Radiation, Earth's Radiation Budget, Climate Change, Tropospheric and Boundary Layer processes).
5. Remote Sensing (SAR, Ground and Space based Lidar and Radiometers, Inversion Techniques)
6. Gamma ray Astronomy, Infrared and Visible detectors.

## Important Responsibilities

1. **Project Manager**, (Payload Characterization, Sensor Calibration & Co-ordination), ChaSTE (Chandra's Surface Thermophysical Experiment) payload onboard Lander of Chandrayaan-2 Mission.
2. **Member, Expert Team and Task Team**, Development of Integrated Rayleigh Lidar System
3. **Co-Investigator**, Megha-Tropiques Utilization Project (MTUP): MT-ScaRaB for aerosol radiative forcing
4. Responsible for Ku and Ka bands propagation measurement setup at SPL, VSSC

## Academic Qualifications

**Ph.D. (2017)** Physics; SPL, VSSC (under University of Kerala, Thiruvananthapuram)

**M.Sc. (2001)** Physics; Dr. R. M. L. Avadh University, Faizabad, India

## Professional Background

**Scientist – SE** : Jan 2016 – present; SPL, VSSC, ISRO, India  
**Scientist – SD** : Jan 2011 – Dec 2015; SPL, VSSC, ISRO, India  
**Scientist – SC** : Mar 2006 – Dec 2010; SPL, VSSC, ISRO, India  
**Scientific Officer B** : May 2005 – Mar 2006; Tata Institute of Fundamental Research (TIFR), India. (posted at High Energy Gamma Ray Observatory, India.)  
**Junior Research Fellow** : July 2003 – May 2005; Sensor Focal Plane System Division, Electro Optical System Group, Space Applications Centre, ISRO, India

## Publications

Peer-reviewed International Journals : 11  
Proceedings and Abstracts : 14  
Conference/Symposium/Presentations : 35

## Membership in Professional Bodies

- COSPAR Associates (2012–)
- Indian Aerosol Science and Technology Association (IASTA)

## Courses Taught

1. CW Bistatic Lidar, Indian Institute of Space Science and Technology (IIST), Thiruvananthapuram
2. Scattering of Light, Space Physics Laboratory, VSSC, Thiruvananthapuram (as part of JRF course work)
3. M. Sc. Project Supervision: 10

## List of Publications in Peer-reviewed Journals

1. **Manoj Kumar Mishra**, Ashok Kumar Gupta and K. Rajeev, (2017), Spaceborne Observations of the Diurnal Variation of Shortwave Aerosol Direct Radiative Effect at Top of Atmosphere Over the Dust-Dominated Arabian Sea and the Atlantic Ocean, *IEEE Transactions on Geoscience and Remote Sensing (IEEE-TGRS)*, DOI 10.1109/TGRS.2017.2730758
2. **Manoj Kumar Mishra** and K. Rajeev, (2016), Direct observations of shortwave aerosol radiative forcing at surface and its diurnal variation during the Asian dry season at southwest Indian peninsula, *Meteorology and Atmospheric Physics*, DOI 10.1007/s00703-015-0427-8
3. **Manoj Kumar Mishra** , K. Rajeev, B. V. Thampi, A. K. M. Nair (2013), Annual variations of the altitude distribution of aerosols and effect of long-range transport over the southwest Indian Peninsula, *Atmospheric Environment*, 81, pp. 51-59, doi:10.1016/j.atmosenv.2013.08.066.
4. **Manoj Kumar Mishra** , K. Rajeev, A. K. M. Nair, K. K. Moorthy, K. Parameswaran (2012), Impact of a noon-time annular solar eclipse on the mixing layer height and vertical distribution of aerosols in the atmospheric boundary layer, *Journal of Atmospheric and Solar-Terrestrial Physics*, 74, pp. 232 – 237, DOI: 10.1016/j.jastp.2011.10.012.
5. **Manoj Kumar Mishra** , K. Rajeev, B. V. Thampi, K. Parameswaran, A. K. M. Nair (2010), Micro pulse lidar observations of mineral dust layer in the lower troposphere over the southwest coast of Peninsular India during the Asian summer monsoon season, *Journal of Atmospheric and Solar-Terrestrial Physics*, 72, 17, pp. 1251-1259, DOI: 10.1016/j.jastp.2010.08.012.
6. Renju R., Suresh Raju C., **Manoj Kumar Mishra** , Nizy Mathew, K. Rajeev , K. Krishnamoorthy (2017), Atmospheric Boundary Layer Characterization Using Multiyear Ground-Based Microwave Radiometric Observations Over a Tropical Coastal Station, *IEEE Transactions on Geoscience and Remote Sensing (IEEE-TGRS)*, 55, 12, pp. 6877-6882, DOI: 10.1109/TGRS.2017.2735626.
7. Venkat Ratnam, S.V. Sunilkumar, K. Parameswaran, B.V. Krishna Murthy, Geetha Ramkumar, K. Rajeev, Ghouse Basha, S. Ravindra Babu, M. Muhsin, **Manoj Kumar Mishra**, A. Hemanth Kumar, S.T. Akhil Raj, M. Pramitha (2014), Tropical tropopause dynamics (TTD) campaigns over Indian region: An overview, *Journal of Atmospheric and Solar-Terrestrial Physics*, ISSN 1364-6826, <http://dx.doi.org/10.1016/j.jastp.2014.05.007>.
8. A. K. M. Nair, K. Rajeev, **Manoj Kumar Mishra**, B. V. Thampi, K. Parameswaran (2012), Multiyear lidar observations of the descending nature of tropical cirrus clouds, *Journal of Geophysical Research D: Atmospheres*, 117, D17, DOI: 10.1029/2011JD017406.

9. I. A. Girach, P. R. Nair, L. M. David, P. Hegde, **Manoj Kumar Mishra**, G. M. Kumar, S. M. Das, N. Ojha, M. Naja (2012), The changes in near-surface ozone and precursors at two nearby tropical sites during annular solar eclipse of 15 January 2010, *Journal of Geophysical Research*, *117*, D1, D01303, DOI: 10.1029/2011JD016521.
10. K. Rajeev, K. Parameswaran, B. V. Thampi, **Manoj Kumar Mishra**, A. K. M. Nair, S. Meenu, (2010), Altitude distribution of aerosols over Southeast Arabian Sea coast during pre-monsoon season: Elevated layers, long-range transport and atmospheric radiative heating, *Atmospheric Environment*, *44*, 21, pp. 2597-2604, DOI: 10.1016/j.atmosenv.2010.04.014
11. B. V. Thampi, K. Rajeev, K. Parameswaran, **Manoj Kumar Mishra**, (2009), Spatial distribution of the Southeast Asian smoke plume over the Indian Ocean and its radiative heating in the atmosphere during the major fire event of 2006, *Geophysical Research Letters*, *36*, 16, DOI: 10.1029/2009GL039316.
12. **Manoj Kumar Mishra**, K. Rajeev (2016), Spectral dependence of aerosol radiative forcing at surface over a tropical coastal station. *Proc. SPIE 9880, Multispectral, Hyperspectral, and Ultraspectral Remote Sensing Technology, Techniques and Applications VI*, 98800A (April 30, 2016); doi:10.1117/12.2228078.
13. K. Rajeev, **Manoj Kumar Mishra**, S. V. Sunilkumar, S. Sijikumar (2016), Dual polarization micropulse lidar observations of the diurnal evolution of atmospheric boundary layer over a tropical coastal station. *Proc. SPIE 9879, Lidar Remote Sensing for Environmental Monitoring XV*, 98790V (May 5, 2016); doi:10.1117/12.2228049.
14. A. K. M Nair, B. V. Thampi, **Manoj Kumar Mishra**, S. Meenu, K. Rajeev, K. Parmeswaran (2010), Lidar Observations of the descending nature of tropical cirrus clouds, *Proceedings of Conference of Indian Aerosol Science & Technology Association IASTA-2010, on Aerosols & Clouds: Climate change perspectives*, 264-267, Vol. 19, ISSN: 0971-4570.
15. **Manoj Kumar Mishra**, B. V. Thampi, A. K. M. Nair, K. Rajeev, K. Parameswaran (2010), Lidar Observations of contrasting Aerosol layers over Trivandrum (8:5N, 77E) during pre- monsoon and summer monsoon season, *Proceedings of Conference of Indian Aerosol Science & Technology Association IASTA-2010, on Aerosols & Clouds: Climate change perspectives*, 187-190, Vol. 19, ISSN: 0971-4570.