

Curriculum Vitae

Ashok Kumar Gupta

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Space Physics Laboratory (SPL)
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EDUCATION **Ph.D in Physics** : Faculty of Science, Cochin University of Science and Technology
Research Centre : Space Physics Laboratory, VSSC, ISRO, India-695022
Ph.D. in Physics: Thesis submitted on 07 May 2018.
Supervisor: Dr. K. Rajeev
Thesis: ‘Temporal Variations of the Horizontal and Vertical Distributions of Clouds over the Tropics and their Radiative Effects’

M.Sc (Physics) (2010)
University of Delhi

B.Sc. (Physics) (2008)
University of Allahabad

RESEARCH EXPERIENCE **Postdoctoral Fellow** : Space Physics Laboratory, VSSC, (May 2018 - Present)
Doctoral Research at the Space Physics Laboratory, VSSC (December 2011- May 2018)

Research Accomplishments

- Brought out the day-night changes in the altitude distribution, physical properties and radiative impact of low-altitude clouds over the stratocumulus-dominated subtropical oceans and further identified the physical mechanism for their break up during the daytime based on observations (first of its kind) (<https://doi.org/10.1016/j.jastp.2017.06.021>).
- Derived the altitude distribution of deep convective clouds, probability distribution of cloud thickness and cloud radiative heating in driving the vertical development of clouds in the upper troposphere during daytime. **Proposed and provided experimental evidence for the daytime enhancement in upper tropospheric convective clouds above 12 km** (first of its kind) (<https://doi.org/10.1016/j.atmosres.2017.10.018>).

- Space-borne observations of the diurnal variation of shortwave aerosol direct radiative effect at Top-of -Atmosphere over the Dust-dominated Arabian Sea and Atlantic Ocean and their comparison with the observed fluxes from CERES, <https://doi.org/10.1109/TGRS.2017.2730758>.
- Derived the 3-D distribution of clouds and their seasonal variations over the tropics and characterised their relationship with Walker and Hadley cells (manuscript under preparation for submission in ACP).
- Seasonal mean diurnal variation of the radiative impact of tropical clouds and their interannual variations, including the effect of ElNino (manuscript under preparation for submission in JGR).
- Investigated the 3-D cloud distribution and its radiative properties using space-borne radar (CloudSat), space-borne lidar (CALIPSO), space-borne radiation experiment sensors (MT-ScaRaB and CERES), and visible/NIR/Thermal IR Imagers (e.g., MODIS, INSAT-3D and ISCCP).
- Radiative transfer model simulation of the effect of cirrus clouds with different physical and microphysical properties under different geographical conditions, which showed remarkable changes in cirrus radiative effects with respect to their physical and optical properties.

Master's Research at the Department of Physics and Astrophysics, University of Delhi, Delhi (2010).

- **M.Sc. Dissertation work on “Rainich Misner Wheeler Theory and Kerr Metric”.**

Peer-Reviewed Publications

- **Ashok Kumar Gupta**, K. Rajeev, S. Sijikumar, Day-night changes in the altitude distribution, physical properties and radiative impact of low-altitude clouds over the stratocumulus-dominated subtropical oceans, (<https://doi.org/10.1016/j.jastp.2017.06.021>), Journal of Atmospheric and Solar-Terrestrial Physics (2017).
- **Ashok Kumar Gupta**, K. Rajeev, S. Sijikumar, Anish Kumar M Nair, Enhanced Daytime Occurrence of Clouds in the Tropical Upper Troposphere over land and ocean, (<https://doi.org/10.1016/j.atmosres.2017.10.018>), Atmospheric Research (2017).
- Manoj Kumar Mishra, **Ashok Kumar Gupta**, K. Rajeev, Space-borne Observations of the Diurnal Variation of Shortwave Aerosol Direct Radiative Effect at Top-of -Atmosphere over the Dust-dominated Arabian Sea and Atlantic Ocean, (doi: 10.1109/TGRS.2017.2730758), IEEE Transactions on Geoscience and Remote sensing (2017).

- **Ashok Kumar Gupta**, K. Rajeev, Anish Kumar M Nair, and Manoj Kumar Mishra, Space-borne Megha Tropiques-ScaRaB observations of the seasonal mean diurnal variation of cloud radiative forcing over the tropics, 2018 (Manuscript under preparation for submission in Journal of Geophysical Research: Atmospheres (2018)).

Awards

- Selected to attend **SOLAS Summer School-2018** to be held at Cargese, Corsica, France during 23 July-04 August 2018
- ISRO - Senior Research Fellowship awarded on December 2013.
- ISRO - Junior Research Fellowship awarded on December 2011.
- Indian Institute of Technology (IIT)- Graduate Aptitude Test in Engineering (GATE) qualified in 2014.
- Selected at the Department of Physics, University of Rome, La Sapienza under ICRA Programme for Ph.D. during 2011.
- J.N.Tata-Endowment Scholarship Award for Higher Studies in 2011.
- M.Sc. (previous year) College Topper Award from Ramjas College, University of Delhi in 2009

Teaching Experience

- Teaching Assistant and Content Writer for Physics at Testbag Academy, Subash Nagar Delhi (Aug 2010-May 2011).
- Peer Tutor in Mathematics and Physics (2005-2006)

Computer Skills

- LINUX/UNIX, Window, IDL, Matlab, NCL, GRADS, and Python

Conferences/Proceedings: 13 (8-International; 5-National)

- **Ashok Kumar Gupta**, K. Rajeev, S Sijikumar and Anish Kumar M. Nair, Enhanced daytime occurrence of clouds in the tropical upper-troposphere and observational evidence for radiatively driven convection, COSPAR, Pasadena, California, USA, 14-22 July, 2018.
- **Ashok Kumar Gupta**, K. Rajeev, Anish Kumar M. Nair and Manoj Kumar Mishra, Megha-Tropiques ScaRaB observations of the seasonal mean diurnal variation of cloud radiative forcing over the tropics, COSPAR, Pasadena, California, USA, 14-22 July, 2018.
- **Ashok Kumar Gupta** and K. Rajeev, Distribution and radiative impact of tropical clouds: an integrated approach based on multi-year satellite observations, SPIE International Conference, New Delhi, India, 4-7 April, 2016.
- **Ashok Kumar Gupta** and K. Rajeev, Subtropical marine low-level clouds: day-night variations in the characteristics and radiative impact and responsible processes, National Space Science Symposium, Vikram Sarabhai Space Centre, Trivandrum, 9-12 April, 2016.

- **Ashok Kumar Gupta**, K. Rajeev, Anish Kumar M. Nair and Manoj Kumar Mishra, Vertical distribution of clouds and their radiative impact associated with the Hadley and Walker circulation cells, National Space Science Symposium, Vikram Sarabhai Space Centre, Trivandrum, 9-12 April, 2016.
- **Ashok Kumar Gupta** and K. Rajeev, Multi-Year seasonal mean diurnal variations of cloud radiative forcing (CRF) over tropics derived from Megha-Tropiques-ScaRaB, National Space Science Symposium, Vikram Sarabhai Space Centre, Trivandrum, 9-12 April, 2016.
- **Ashok Kumar Gupta**, K. Rajeev, Anish Kumar M. Nair and Manoj Kumar Mishra, 3-D Distribution and radiative impact of tropical clouds: an integrated approach based on multi-year satellite observations, 2nd URSI Regional Conference on Radio Science, Jawaharlal Nehru University, New Delhi, 16-19 November, 2015.
- **Ashok Kumar Gupta** and K. Rajeev, Multi-Year Megha-Tropiques-ScaRaB observations of the seasonal mean cloud radiative forcing over the tropics, National Climate Science Conference, Divecha Center for Climate Change, Indian Institute of Science, Bangalore, 1-3 July, 2015.
- **Ashok Kumar Gupta**, K. Rajeev and Anish Kumar M. Nair, Spatial distribution and radiative impact of tropical clouds an integrated approach based on multi-year satellite observations, International Conference on Climate Change and Disaster Management, Trivandrum, India, February 26-28, 2015.
- K. Rajeev, **Ashok Kumar Gupta**, Anish Kumar M. Nair and Manoj Kumar Mishra, Diurnal Variations of Cloud Radiative Forcing Over the Tropics: Observations Using Megha-Tropiques-ScaRaB, International Conference on Climate Change and Disaster Management, Trivandrum, India, February 26-28, 2015.
- Manoj Kumar Mishra, K. Rajeev, **Ashok Kumar Gupta**, Direct Observations of the Radiative Impact of Mineral Dust Over the Arabian Sea Using Megha-Tropiques ScaRaB, Abstract book, International Conference on Climate Change and Disaster Management (I3CDM), Trivandrum, India, February 26-28, 2015.
- **Ashok Kumar Gupta** and K. Rajeev, Global variations of cloud radiative forcing during northern hemispheric summer estimated from CERES data, IASTA Conference, Varanasi, India 11-13 Nov. 2014.
- Manoj Kumar Mishra, K. Rajeev and **Ashok Kumar Gupta**, Direct observations and modelling of clear-sky aerosol radiative forcing at surface over peninsular India, A1.1-0068-14, 40th COSPAR scientific assembly, Moscow, Russia, 07 August, 2014.

List of Referees

Research Supervisor:

Dr. K. Rajeev

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