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Research Interests

- Aerosol-cloud interactions and their climate feedbacks
- Role of dynamics in aerosol-cloud interaction
- Satellite remote sensing and process studies of clouds
- Aerosol direct and indirect effects
- Multiple satellite data analysis
- Vicarious calibration of optical satellite sensors

Professional Experience

- **NASA Postdoctoral Fellow** at Jet Propulsion Laboratory (JPL), Pasadena, CA, USA
- **Postdoctoral Research Fellow** at Physical Research Laboratory (PRL), Ahmedabad, India
- **Research Fellow** at Space Applications Centre (SAC), ISRO, Ahmedabad, India
- **Research Fellow** at Indian Institute of Remote Sensing (IIRS), ISRO, Dehradun, India

Education

- **PhD in Physics (Atmospheric Science)** **[Mar 2014 – Feb 2019]**
  Gujarat University / Space Applications Centre, ISRO, Ahmedabad, India
- **PG Diploma in Remote Sensing (Atmospheric Science)** **[Aug 2011 – Jun 2012]**
  Indian Institute of Remote Sensing, ISRO, Dehradun, India
- **MSc in Physics (Condensed Matter Physics)** **[Jul 2009 – Jun 2011]**
  Department of Physics, Sardar Patel University, Vallabh Vidyanagar, India
- **BSc in Physics** **[Jul 2006-May 2009]**
  Sir P. T. Sarvajanik College of Science, Veer Narmad South Gujarat University

Publications

1. **Patel, P.N.**, Gautam, R., Michibata, T., Gadhavi, H., Strengthened Indian summer monsoon precipitation susceptibility linked to dust-induced ice cloud modification, *Geophysical Research Letters, doi:10.1029/2018GL081634, in-press.*
2. Babu, K.N., Mathur, A., Thompson, D.R., Green, R.O., **Patel, P.N.**, Prajapati, R.P., Bue, B.D., Geier, S., Eastwood, M.L., Helmlinger, M.C. (2019). An empirical comparison of calibration and validation methodologies for airborne imaging spectroscopy, Curr. Sci. 116(7), 1101-1107.

3. **Patel, P.N.**, Babu, K.N., Prajapati, R.P., Sitapar, V., Mathur, A.K. (2018). Day-1 INSAT-3DR vicarious calibration using reflectance-based approach over Great Rann of Kutch, *J. Indian Soc. Remot.* doi: 10.1007/s12524-017-0729-z.
4. **Patel, P.N.**, Dumka, U.C., Babu, K.N., Mathur, A.K. (2017). Aerosol characterization and radiative properties over Kavaratti, a remote island in southern Arabian Sea from the period of observations, *Sci. Total. Environ.* doi:10.1016/j.scitotenv.2017.04.168.
5. **Patel, P.N.**, Quaas, J., Kumar, R. (2017). A new statistical approach to improve the satellite-based estimation of the radiative forcing by aerosol-cloud interactions, *Atmos. Chem. Phys.* doi:10.5194/acp-17-3687-2017.
6. **Patel, P.N.**, Dumka, U.C., Kaskaoutis, D.G., Babu, K.N., Mathur, A.K. (2016). Optical and radiative properties of aerosols over Desalpar, a remote site in western India: Source identification, modification processes and aerosol type discrimination, *Sci. Total. Environ.* doi:10.1016/j.scitotenv.2016.09.023.
7. **Patel, P.N.**, and Kumar, R. (2016). Dust Induced Changes in Ice Cloud and Cloud Radiative Forcing over a High Altitude Site, *Aerosol Air Qual. Res.* doi:10.4209/aaqr.2015.05.0325.
8. **Patel, P.N.**, Bhatt, H., Mathur, A.K., Prajapati, R.P., Tyagi, G. (2015). Reflectance-Based Vicarious Calibration of INSAT-3D using High-Reflectance Ground Target, *Remote Sensing Applications: Society and Environment* doi:10.1016/j.rsase.2015.12.001.
9. **Patel, P.N.**, and Kumar, R. (2015). Estimation of Aerosol characteristics and radiative forcing during Dust events over Dehradun, *Aerosol Air Qual. Res.* doi:10.4209/aaqr.2015.02.0077.
10. **Patel, P.N.**, and Shukla, A.K. (2015). Aerosol optical properties over marine and continental sites of India during pre-monsoon season: A comprehensive study, *Curr. Sci. India*, Vol. 108, No. 4.
11. Kant, Y., **Patel, P.N.**, Mishra, A. K., Dumka, U. C. and Dadhwal, V. K. (2012). Diurnal and seasonal aerosol optical depth and black carbon in the Shiwalik Hills of the northwestern Himalayas: A case study of the Doon valley, India, *Int. J. Geol. Earth Environ. Sci.*, 2(2), 173-192.

Under Review/Preparation

1. **Patel, P.N.,** Gautam, R., Reassessment of Crop Residue Burning in Northern India attributable to Aerosol Optical Depth and Its Radiative Implications, *under preparation*.
2. **Patel, P.N.**, Gadhavi, H., Ice cloud radiative effect during Indian summer monsoon, *under preparation*.

Invited Seminars/ Invited Speaker

- An invited seminar titled "*Strengthened Indian summer monsoon precipitation susceptibility linked to dust-induced ice cloud modifications*" in Jet Propulsion Laboratory (JPL-NASA), California Institute of Technology (Caltech), Pasadena, California, USA, (October 29-31, 2018)

Skills

Research skills

- Experience in working/handling/reprocessing various satellite data (CALIPSO, CloudSat, MODIS, TRMM, CERES etc) with HDF and NetCDF formats.
- Modelling experience [radiative transfer models (6S, SBDART), OPAC, HYSPLIT]
- In-situ observations (CIMEL sunphotometer, ASD hyperspectral radiometer, MICROTOPS-II sun photometer and Ozone monitor, Aethalometer, Multi-Wavelength Radiometer (MWR), Micro Rain Radar (MRR), Disdrometer, Rain Gauge, GPS radiosonde, Automatic Weather Station (AWS))
- Experience of several land-based and ocean-based field campaigns both independently and in collaboration with the team.

Technical skills

- **Operating Systems:** Windows and Linux
- **Programming & Software:** Fortran, Python, Generic Mapping Tool (GMT), CDO, Scripting (Shell & Batch), HDF and NetCDF libraries, OriginLab, LaTeX, MS Office tools
- Experience to work on supercomputing platform