

# INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE



## THE THIRTIETH SILVER JUBILEE AWARD FOR THE YEAR 2017

*To commemorate the Silver Jubilee of the Institute, the Governing Council instituted, an Annual Silver Jubilee Award for the best research contribution in the form of published paper in standard research journal by the Institute's scientist(s). The award presently carries a cash reward of ₹. 25,000/- and a citation.*

*The Thirtieth Silver Jubilee Award for the year 2017 is given for the paper entitled*

**“Recent trends and tele-connections among South and East Asian summer monsoons in a warming environment”**

*Published in the Journal Climate Dynamics, 48, April 2017*

*DOI:10.1007/s00382-016-3218-0, 2489-2505*

*by*

**B. Preethi, M. Mujumdar, R.H. Kripalani, A. Prabhu and R. Krishnan**

*Abstract*

*This study explores the recent trends, variations and teleconnections between two Asian monsoon sub-systems viz., the South Asian and the East Asian monsoons. Our findings based on century long precipitation records depict a dipole-type configuration with a north-deficit and south-excess pattern over both the sub-systems. The trends in the spatial distribution of mean sea level pressure and lower tropospheric winds during the post-1970s indicate a westward shift of summertime large-scale circulation features, such as the South Asian summer monsoon trough and the North Pacific Subtropical High, which are dynamically consistent with the recent trends in summer monsoon precipitation over the Asian monsoon sub-systems.*

*This citation is presented to*

**Preethi Bhaskar**

*in recognition of her contribution to the above research paper.*

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*This citation is presented to*

**Milind Mujumdar**

*in recognition of his contribution to the above research paper.*

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*This citation is presented to*

**R.H. Kripalani**

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*This citation is presented to*

**Amita Prabhu**

*in recognition of her contribution to the above research paper.*

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*This citation is presented to*

**Krishnan Raghavan**

*in recognition of his contribution to the above research paper.*

# INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE



## THE BEST STUDENT PAPER AWARD FOR THE YEAR 2017

*To encourage and inspire students, IITM has instituted, an Annual Best Student Paper Award for the best research contribution in the form of published paper in standard research journal by Ph.D. Students of this Institute. The award presently carries a cash reward of ₹. 10,000/- and a citation.*

*The Best Student Paper Award for the year 2017 is given for the paper entitled*

### **“Aerosol–Cloud Interaction in Deep Convective Clouds over the Indian Peninsula using Spectral (Bin) Microphysics”**

*Published in the Journal of Atmospheric Sciences, 74, October 2017  
DOI:10.1175/JAS-D-17-0034.1, 3145-3166*

*by*

**K. Gayatri, S. Patade and T.V. Prabha**

*Abstract*

*The Weather Research and Forecasting (WRF) Model coupled with a spectral bin microphysics (SBM) scheme is used to investigate aerosol effects on cloud microphysics and precipitation over the Indian peninsular region. For the first time the cloud droplet and particle spectra is compared with in situ aircraft observations from the Cloud Aerosol Interaction and Precipitation Enhancement Experiment (CAIPEEX). Results showed that clouds with high cloud condensation nuclei (CCN) concentrations have broader snow and graupel size distribution compared to clouds with low concentrations of CCN. The Hallett–Mossop ice multiplication process is illustrated to have a prominent impact on snow and graupel mass. The changes in CCN concentrations have a strong effect on cloud properties over the domain, amounts of cloud water, and the glaciation of the clouds, but the effects on surface precipitation are small when averaged over a large area.*

*This citation is presented to*

**Gayatri Kulkarni**

*in recognition of her contribution to the above research paper.*

# INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE



## THE BEST STUDENT PAPER AWARD FOR THE YEAR 2017

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*This citation is presented to*

**S.G. Patade**

*in recognition of his contribution to the above research paper.*

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*The Best Student Paper Award for the year 2017 is given for the paper entitled*

### **“Statistical Characteristics of Convective Clouds over the Western Ghats Derived from Weather Radar Observations”**

*Published in the Journal of Geophysical Research, 122, September 2017  
DOI:10.1002/2016JD026183, 1-27*

*by*

**Utsav B., Deshpande S.M., Das Subrata K. and Pandithurai G.**

#### *Abstract*

*Convection studies over the Western Ghats region have been mostly confined to the use of satellite and reanalysis datasets, but they have limitations in capturing the temporal evolution of convection. This study fills this noticeable gap by utilizing time-continuous, high resolution X-band radar observations at Mandhardev to provide gridded statistics of convective cloud population for the first time. A Lagrangian tracking algorithm was applied to radar datasets to identify convective cells (storms) and generate their morphology. Observed cells are characterized by shallow depths, sub-MCS scales, short duration, and slow speeds. Convective cells are found to form and maintain frequently along the windward slopes of mountain compared to coastal and lee regions, highlighting orographic response to south-westerly flow. The cell properties follow lognormal distribution and exhibit major mid-afternoon, and minor early-morning peaks. Radar derived statistics of convective clouds provide a useful source for the validation of cloud-resolving models.*

*This citation is presented to*

**Utsav Bhowmik**

*in recognition of his contribution to the above research paper.*



# INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE



## PROF. R. ANANTHAKRISHNAN AWARD FOR THE BEST PH.D. THESIS (2017)

*To encourage and inspire Ph.D. students IITM has instituted,  
Prof. R. Ananthakrishnan Award for the best Ph.D. thesis by a Ph.D. student of this Institute.  
The award presently carries a cash reward of ₹. 50,000/-, a gold medal and a citation.*

*Prof. R. Ananthakrishnan Award for the year 2017 is given for the Ph.D. thesis entitled*

**“New Parameterization for Ice Nucleation in Indian Monsoon Clouds  
based on CAIPEEX Observation”**

*by*

**S.G. Patade**

*The thesis gives deep insight into ice nucleation, ice particle size distribution properties, role of different ice particle growth processes in monsoon clouds using laboratory, airborne observations and model simulations. These types of observations have been conducted for the first time for monsoon clouds over Indian continent. The concentrations of ice nuclei particles were measured by a diffusion chamber to develop a parameterization equation for primary ice nucleation. The ice particle size distribution was studied in a comprehensive manner using in situ observations and several parameterizations are formulated for describing the ice water content, ice number concentration and the ice particle growth and precipitation. Model simulations of mixed phase clouds observed during CAIPEEX were conducted to investigate the ice and rain formation processes in such clouds. From modeling studies and aircraft observations it was observed that the warm microphysics plays an important role in the development of ice phase in mixed phase monsoon clouds.*

*This citation is presented to*

**Dr. S.G. Patade**

*in recognition of his contribution to the above thesis.*



# Indian Institute of Tropical Meteorology

## CERTIFICATE

This is to certify that *Ms. Lekshmi Mudra B.* has secured the second position in the two-semester Ph.D. course work conducted for the year 2017-18 by the Development of Skilled Manpower in Earth System Sciences (DESK), IITM, Pune.

IITM, Pune  
November 17, 2018

Prof. Ravi S. Nanjundiah  
Director



# Indian Institute of Tropical Meteorology

## CERTIFICATE

This is to certify that *Ms. Nimya S.S.* has secured the first position in the two-semester Ph.D. course work conducted for the year 2017-18 by the Development of Skilled Manpower in Earth System Sciences (DESK), IITM, Pune.

IITM, Pune  
November 17, 2018

Prof. Ravi S. Nanjundiah  
Director

INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE



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## The Excellent Performance Award

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To commemorate the Annual Foundation Day Celebrations, the Institute has established an Excellent Performance Award for each of the Scientific Support, Technical Support, Administrative and Multi Tasking Staff categories of employees.

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**Shri R.S.K. Singh**  
Scientific Assistant Grade - C

**Shri Raju P. Dhanak**  
Senior Executive

Receives this Award for his Excellent Performance in the year 2017 under the Scientific Support Staff Category.

Receives this Award for his Excellent Performance in the year 2017 under the Administrative Staff Category.

IITM, Pune  
November 17, 2018

**Prof. Ravi S. Nanjundiah**  
Director

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## The Excellent Performance Award

To commemorate the Annual Foundation Day Celebrations, the Institute has established an Excellent Performance Award for each of the Scientific Support, Technical Support, Administrative and Multi Tasking Staff categories of employees.

**Smt. Bhavana N. Naik**

Senior Executive

Receives this Award for her Excellent Performance in the year 2017 under the Administrative Staff Category.

IITM, Pune  
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Director

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**Shri I.R. Mhetre**

Multi Tasking Staff

Receives this Award for his Excellent Performance in the year 2017 under the Multi Tasking Staff Category.

IITM, Pune  
November 17, 2018

**Prof. Ravi S. Nanjundiah**  
Director