

INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE

Ministry of Earth Sciences, Govt. of India



THE FIFTH GOLDEN JUBILEE AWARD 2020

To commemorate the Golden Jubilee of the Institute, the Governing Council established in 2011 a biennial Golden Jubilee Award for the outstanding contribution in the field of Atmosphere, Weather and Climate Science.

The award presently carries a cash reward of Rs.1,00,000/-, a Gold Medal and a Citation.



Dr. Parthasarathi Mukhopadhyay has made outstanding contributions in the development of modelling framework for global seasonal prediction system and convective parameterization in high-resolution forecast models; high quality publications in SCI journals and persistently contributing to institution development and capacity building. He has provided excellent leadership in providing new insights to understand cloud and convection processes during monsoon and representation of the observation based hypothesis in to dynamical model to improve the model skill for seasonal monsoon forecast. Under his leadership and meticulous planning, the global highest resolution (at 12 km) ensemble forecast system for medium range (up to 10 days) weather forecast was established in India and being operationalized. His excellent leadership in the high resolution ensemble prediction system has made a paradigm shift in India in enhancing the skill of prediction of high impact weather systems e. g. tropical cyclones, heavy rainfall events and thunderstorms. Through his able leadership, high resolution ensemble prediction system has been utilized for developing suites of application for the benefits of society such as providing accurate forecast for wind and solar energy sectors, probability of forest fire monitoring and forecasting, flood forecasting over Indian river basin etc. Dr. Mukhopadhyay has constantly strived to make advances new concepts and methodologies of cloud and convective parameterization namely superparameterization, stochastic cloud modelling etc. in numerical models for improving model fidelity of Indian summer monsoon. Dr. Mukhopadhyay is currently instrumental in further advancing the numerical model development and its parameterization for seamless prediction in India. Dr. Mukhopadhyay is a member of International CLIVAR Asian-Australian monsoon working group.

IITM, Pune
November 17, 2020

R. S. Nanjundiah
Prof. Ravi S. Nanjundiah
Director, IITM

INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE



THE THIRTY-SECOND SILVER JUBILEE PAPER AWARD FOR THE YEAR 2019

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 Rs. 25,000/- and a citation.

The Thirty-Second Silver Jubilee Paper Award for the year 2019 is awarded for the paper entitled

"The Tropical Indian Ocean decadal sea level response to the Pacific Decadal Oscillation forcing"

Published in the Journal 'Climate Dynamics', 52, April 2019,

DOI: 10.1007/S00382-018-4431-9

by

J. S. Deepa, C. Gnanaseelan, Sandeep Mohapatra, J. S. Chowdary, A. Karmakar, Rashmi Kakatkar and Anant Parekh

Abstract

The sea level rise in the Tropical Indian Ocean (TIO) is a cause of concern, especially for the coastal population. The sea level variability in the decadal time scale is relatively an unexplored area. This study establishes the relationship between the decadal sea level variability in the TIO and the Pacific Decadal Oscillation (PDO) using reanalysis data sets and Ocean General Circulation Model (OGCM) simulations. The Walker circulation changes over the TIO as a response to PDO and the associated variations in the surface winds and wind stress curl are found to be primarily responsible for the observed decadal sea level variability in the TIO. The model sensitivity experiments are carried out to quantify the contribution of atmospheric and oceanic pathways in the decadal sea level variability. The remote forcing from the Pacific via Indonesian through flow (ITF) is found not significantly contributing to the decadal sea level variability in the TIO north of 20°S, whereas the region south of it is modulated by decadal ITF. The study further highlights the need for taking into account of natural sea level variations in the TIO in the context of the observed significant regional sea level trends.

This citation is presented to

J. S. Deepa

in recognition of her contribution to the above research paper.

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This citation is presented to

C. Gnanaseelan

in recognition of his contribution to the above research paper.

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This citation is presented to

Sandeep Mohapatra

in recognition of his contribution to the above research paper.

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This citation is presented to

Jasti S. Chowdary

in recognition of his contribution to the above research paper.

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This citation is presented to

Rashmi Kakatkar

in recognition of her contribution to the above research paper.

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This citation is presented to

Anant Parekh

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 (2019)

*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 Rs. 50,000/-, a gold medal and a citation.*

Prof. R. Ananthakrishnan Award for the year 2019 is awarded for the Ph.D. thesis entitled

“Impact of Pacific and Atlantic modes on Indian Summer Monsoon Variability and Indian Ocean Climate”

by

Srinivas Gangiredla

The thesis has addressed the important scientific challenges on understanding and modelling the impact of leading climate modes of the Pacific and Atlantic Oceans on Indian Summer Monsoon (ISM) variability and Indian Ocean climate. It is found that phases of decaying El Niño and changes in Western North Pacific (WNP) circulation have large impact on the variability and predictability of ISM rainfall. For the first time, the influence of the Pacific-Japan pattern (PJ) on ISM rainfall has been demonstrated and explained the different physical linkages through coupled (ocean-atmospheric) and uncoupled (atmospheric) pathways. It is shown that the northwestward propagating Rossby waves, in response to intensified convection over the Maritime Continent, reinforced by low-level convergence in the southern flank of westward extended tropical WNP anticyclone associated with PJ, increase rainfall over southern peninsular India. The coupled nature of inter-basin interaction between the PJ pattern and the North Indian Ocean is confirmed using coupled model sensitivity experiments. A new pathway through the Asian Jet is proposed and that explains the ISM rainfall variability associated with Atlantic Niño based on the analysis of the observations and model experiments. These climate modes influence the tropical Indian ocean temperature biases in the coupled models, limiting their ability to represent the ISM variability. The knowledge obtained from the research work is useful for better understanding of the variability and predictability of ISM rainfall.

This citation is presented to

Srinivas Gangiredla

in recognition of his contribution to the above thesis.

IITM, Pune
November 17, 2020

R. S. Nanjundiah
Prof. Ravi S. Nanjundiah
Director

INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE



THE BEST STUDENT PAPER AWARD FOR THE YEAR 2019

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 Rs. 10,000/- and a citation.

The Best Student Paper Award for the year 2019 is awarded for the paper entitled

"Effects of a multilayer snow scheme on the global teleconnections of the Indian summer monsoon."

*Published in the Quarterly Journal of Royal Meteorological Society. 2019,
DOI:145:1102-1117. <https://doi.org/10.1002/qj.3480>*

by

**K Sujith, Subodh Kumar Saha, Archana Rai, Samir Pokhrel, Hemantkumar S. Chaudhari,
Anupam Hazra, Raghu Murtugudde and B. N. Goswami**

Abstract

Eurasian snow is one of the slowly varying boundary forcings known to have significant influences on the mean and variability of the Indian summer monsoon rainfall (ISMR). A multilayer complex snow scheme, incorporated into the state-of-the-art coupled Climate Forecast System version 2 (CFSv2) showed significant improvements in the simulation of mean ISMR, snow, and Northern Hemisphere surface and tropospheric temperature. Here we show that a realistic simulation of high-latitude snow decreases the north-south temperature gradient, which in turn decreases the meridional transport of energy from the Equator to the Pole, consequently affecting the tropical sea surface temperature (SST) and air-sea interactions. The global teleconnections of the ISMR with SST and 2 m temperature over land are also improved considerably in association with improved simulation of the oceanic natural modes of variability. Our findings provide new insights for the relationship between the winter Eurasian snow and the following ISMR, namely that the same relationship may be understood through a framework of meridional atmospheric energy transport and its effects on the tropical air-sea interactions. The improvements in the global teleconnection in the modified version of CFSv2 may have implications in the ISMR predictability and prediction skill.

This citation is presented to

K Sujith

in recognition of his contribution to the above research paper.

INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE



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. S. R. Inamdar

Scientific Officer, Grade II

Receives this Award for her Excellent Performance in the year 2019 under the Scientific Support Staff Category.

IITM, Pune
November 17, 2020

K. S. Nanjundiah
Prof. Ravi S. Nanjundiah
Director

INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE



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. M. V. Deshpande

Junior Executive

Receives this Award for her Excellent Performance in the year 2019 under the Administrative Staff Category.

K. S. Nanjundiah
Prof. Ravi S. Nanjundiah
Director



Indian Institute of Tropical Meteorology

CERTIFICATE

This is to certify that **Mr. Sumit Kumar Mukherjee** has secured the first position in the two-semester Ph.D. course work conducted for the year 2019-20 by the Development of Skilled Manpower in Earth System Sciences (DESK), IITM, Pune.

IITM, Pune
November 17, 2020

k.s. Nanjundiah
Prof. Ravi S. Nanjundiah
Director



Indian Institute of Tropical Meteorology

CERTIFICATE

This is to certify that **Mr. Rakesh S** has secured the second position in the two-semester Ph.D. course work conducted for the year 2019-20 by the Development of Skilled Manpower in Earth System Sciences (DESK), IITM, Pune.

IITM, Pune
November 17, 2020

k.s. Nanjundiah
Prof. Ravi S. Nanjundiah
Director