INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE

PROF. D.R. SIKKA BEST STUDENT AWARD FOR THE YEAR 2020

To encourage and inspire students, IITM has instituted,
Prof. D.R. Sikka Best Student Award for the 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 and a citation,
for the year 2020 the award is shared among two students.

Prof. D.R. Sikka Best Student Award for the year 2020 is given for the paper entitled

"Exploring the long-term changes in the Madden Julian Oscillation using machine learning"

Published in the Scientific Reports, 10: 18567, October 2020,
DOI:10.1038/s41598-020-75508-5, 1-13

by

Dasgupta P., Metya A., Naidu C.V., Singh M., Roxy M.K.,

Abstract

The Madden Julian Oscillation (MJO) is an important phenomenon in the tropics, characterized by eastward propagating intraseasonal bands of clouds and largescale winds. The MJO affects weather and climate across the globe through local interactions and remote teleconnections. Understanding and quantifying the characteristic change in the MJO due to the recorded ocean-atmospheric warming needs a long-term record of the MJO beyond the satellite period. The present study is a novel attempt to reconstruct the MJO data for the entire twentieth century using machine learning. The reconstructed MJO index has high fidelity, and can be used by the climate community for understanding the long-term climatic changes in the MJO. Using the reconstructed MJO data, the study further investigates the long-term trend and natural variability exhibited by the MJO.

This citation is presented to

Panini Dasgupta

in recognition of his contribution to the above research paper.

IITM, Pune
November 17, 2021

Dr. R. Krishnan
Director-In-Charge

INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE

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Prof. D.R. Sikka Best Student Award for the year 2020 is given for the paper entitled

"Role of convective and microphysical processes on the simulation of monsoon intraseasonal oscillation"

Published in the Climate Dynamics, 55, November 2020,
DOI:10.1007/s00382-020-05387-z, 2377–2403

by

Dutta U., Chaudhari H.S., Hazra A., Pokhrel S., Saha Subodh Kumar, Veeranjaneyulu C.

Abstract

The study explores the role of ice-phase microphysics and convection for the better simulation of Indian summer monsoon rainfall (ISMR) and monsoon intraseasonal oscillation (MISO). Sensitivity experiments have been performed with coupled climate model-CFSv2 using different microphysics (with and without ice phase processes) and convective [Simple Arakawa Schubert (SAS), new SAS (NSAS)] parameterization schemes. Results reveal that the ice phase microphysics parameterization scheme performs better in the simulation of active and break composites of the ISMR as compared to ice-free runs. The difference between ice (ICE) and ice-free run (NOICE) can be attributed to the availability of copious cloud condensate at the upper level. Better representation of upper-level cloud condensate in ICE run (i.e., with ice phase microphysics) leads to correct representation of specific humidity in active and break spells. Proper depiction of upper-level cloud condensate further leads to realistic modulation of atmospheric circulation and better simulation of convection (as represented by OLR) in active and break spells of ICE run. As a result, better simulation of active and break occurs in the ICE run. In contrast, NOICE run (i.e., with warm phase microphysics) fails to depict upper-level cloud condensate in the active phase. It leads to an improper representation of specific humidity. Circulation features are also unrealistic, and convection is suppressed in the active phase. As a result, the active phase is not adequately simulated in the NOICE run. NOICE run composites during active spells depict the overestimation of the ascending branch of Hadley circulation as compared to MERRA reanalysis, which is relatively better in ICE run. NOICE run composites during active spells depict the overestimation of the ascending branch of Walker circulation as compared to MERRA reanalysis, which is further improved in ICE runs. The north–south space–time spectra of daily rainfall anomaly are also better captured by ICE run as compared to NOICE run. Results indicate that ice-phase processes are more important for capturing the difference between active and break composites, while convection parameterization is relatively more important for the intraseasonal variance analyses. Further improvements in ice microphysics parameterization with better convection schemes in models will be helpful for the betterment of MISO and will lead to the improved simulation of monsoon.

This citation is presented to

Ushnanshu Dutta

in recognition of his contribution to the above research paper.

IITM, Pune
November 17, 2021

Dr. R. Krishnan
Director-In-Charge

भारतीय उष्णदेशीय मौसम विज्ञान संस्थान, पुणे - 411008

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17 नवंबर 2021

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प्रभारी निदेशक

भारतीय उष्णदेशीय मौसम विज्ञान संस्थान, पुणे - 411008

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भाउमौविसं, पुणे
17 नवंबर 2021

(डॉ. आर. कृष्णन)
प्रभारी निदेशक

INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE

Best Employee Award

To commemorate the Annual Foundation Day Celebrations, the Institute has established Best Employee Award for the Scientific / Technical Support and Administrative Staff categories of employees.

Smt. Swati Athale

Scientific Officer Grade - II

Receives this Award for her Excellent Performance in the year 2020 under the Scientific / Technical Support Staff Category.

IITM, Pune
November 17, 2021

Dr. R. Krishnan
Director-In-Charge

INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE

Best Employee Award

To commemorate the Annual Foundation Day Celebrations, the Institute has established Best Employee Award for the Scientific / Technical Support and Administrative Staff categories of employees.

Smt. Bhavana Naik

Senior Executive

Receives this Award for her Excellent Performance in the year 2020 under the Administrative Staff Category.

IITM, Pune
November 17, 2021

Dr. R. Krishnan
Director-In-Charge

INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE

Outstanding Performance Award

To commemorate the Annual Foundation Day Celebrations, the Institute has established an Outstanding Performance Award

Shri Padmakar Domutwar

Assistant Engineer (Audio Video)

Receives this Award for his Outstanding Performance in the year 2021.

IITM, Pune
November 17, 2021

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Director-In-Charge

INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE

Outstanding Performance Award

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Shri Suresh Nivalakar

Office Boy

Receives this Award for his Outstanding Performance in the year 2021.

IITM, Pune
November 17, 2021

Dr. R. Krishnan
Director-In-Charge

INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE

Outstanding Performance Award

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Shri Krishna Gote

Housekeeping Staff

Receives this Award for his Outstanding Performance in the year 2021.

IITM, Pune
November 17, 2021

Dr. R. Krishnan
Director-In-Charge