Abstract

Impact of Indo-Pacific Climate Variability on Rice Productivity

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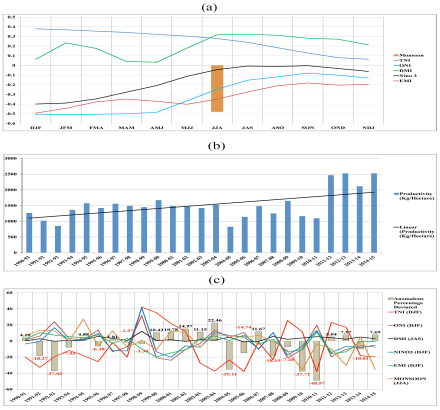
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I.Abstract Body (up to 250 words)

The impact of Indo-Pacific climate variability on the South Asian region is very pronounced and their impact on agriculture is particularly of prime importance in the Indian subcontinent. In this study, the rice productivity in Bihar (population approx.. to Philippines), one of the major rice producing states of India is investigated. The rice productivity in the state has fluctuated during 1990-2014. It is a great concern since Bihar one of the largest producer of rice in India. Rainfall, temperature and soil moisture trends together with several climate indices are analyzed to investigate the intensity of climate variability prevailing in different phase of rice productivity. Among the climate indices, Niño3 and Ocean Nino Index are found to be highly associated with more than 10% decline of anomalous percentage deviation in the productivity. Out of all the productivity decline events between 1990-2014, 8 events are found with more than -10% anomalous percentage deviation. The role of different climate phenomena is investigated by calculating PPMCC of rice productivity with different climate indices, i.e. ONI, Niño 3, EMI, DMI, TNI, and MI. Partial correlation in general (1990 to 2014) shows correlation value (-0.575 and -0.508) of ONI in DJF and JFM season while controlling DMI. But in particular for the productivity decline years, the Niño 3 in DJF, JFM and FMA seasons has values of partial correlation -0.648, -0.624, -0.564 (-0.608, -0.587, -0.554) after taking out the effects of TNI and DMI. Composite index also shows Indo-Pacific signals during the event years.

II. Image:



III. Reference:

1. Kumar, K. K., Kumar, K. R., Ashrit, R. G., Deshpande, N. R., & Hansen, J. W. Climate impacts on Indian agriculture. *International Journal of Climatology,* ***24*****(11)**, 1375-1393. doi:10.1002/joc.1081 (2004).

2. Savage, N. Modelling: Predictive yield. *Nature,* ***501*****(7468)**. doi:10.1038/501s10a. (2013).

3. Iizumi, T., Luo, J., Challinor, A. J., Sakurai, G., Yokozawa, M., Sakuma, H., . . . Yamagata, T. Impacts of El Niño Southern Oscillation on the global yields of major crops. *Nature Communications, 5*. doi:10.1038/ncomms471 (2014).

IV.Biography:

Dr Netrananda Sahu has completed his PhD in 2012 from Kyoto University and Internship from IRI, Columbia University, New York. He is Assistant Professor at Department of Geography, DSE, University of Delhi. He has published more than 15 papers in reputed International journals with high impact factor, 5 Book chapters, One Book and has reviewed papers from *Climate Dynamics, International Journal of climatology, Advances in Meteorology etc*. At present he is supervising three Ph.D Students and two M.Phill Students. Two M.Phill Thesis and 16 Masters Theses have been submitted under his guidance.

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