Geophysical Research Abstracts
Vol. 17, EGU2015-13927, 2015
EGU General Assembly 2015

Effect of dust on the iNdian summer monsoon

Pyarimohan Maharana and Ashok Priyadarshan Dimri
LMD/IPSL, UPMC, France

Effect of dust on the Indian summer monsoon
P. Maharana1* and A. P. Dimri2

Abstract
The atmospheric dust plays a major role in deciding the radiation balance over the earth. The dust scatters the light, acts as cloud condensation nuclei, and hence helps in the formation of different types of clouds. This property of the dust has a long term effect on the Indian summer monsoon and its spatial distribution. India receives around 80% of its annual rainfall during summer monsoon and around 50% of the Indian population depends upon the monsoonal rain for the agricultural activities. The rain also has an important contribution to the industry, water resource management, ground water recharge, provide relief from the heat and also play a major role in deciding the socio-economic condition of a major part of the population. Two sets of simulations (control and dust chemistry simulation) are made to analyze the effect of dust on the Indian summer monsoon. Both the simulations nicely represent the spatial structure of different meteorological parameters. The magnitude of the pressure gradient, circulation and the precipitation is more during the JJAS for the dust chemistry simulation except for the temperature climatology. The analysis of the pre-monsoon and May temperature climatology reflects that the heating of the land mass is more in the dust chemistry simulation as compared to the control simulation, which is providing the strength to the monsoon flow during JJAS. The dust simulation shows that it increases the hydrological cycle over the Indian land mass.

*corresponding author: Pyarimohan Maharana, LMD/IPSL, UPMC, France.
Email: maharanapyarimohan@gmail.com, pmaharana@lmd.jussieu.fr
Second author: A.P. Dimri, School of Environmental Sciences, Jawaharlal Nehru University,
New Delhi, 110067, India