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Simulation of Monsoon trough and low pressure systems in CMIP6 models

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Monsoon low pressure systems (LPS) contributes to more than half of the Indian monsoon rainfall. However most climate models fail to capture the characteristics of low pressure systems realistically. This aspect is scrutinized in a wide range of available CMIP6 model simulations using an objective LPS tracking algorithm. Broader features such as monsoon trough over which these systems forms are also analyzed. It has been found that, majority of the models fail to realistically represent these two important features. However few models that were able to capture these events in CMIP5 are able to simulate them in CMIP6 as well. We examine the dynamical features that lead to realistic simulation of LPS in these set of models. Selected good models are then used to study the characteristics of LPS in a future warming scenario. This study will help in judging the performance of models and for any future improvements.