**Regional Optimization of Global Climate Models for Maximum and Minimum Temperature**

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**Abstract**

This study optimizes the Global climate models based on observed data for monthly maximum and minimum temperatures in Telangana state. Thirty-six Global Climate Models (GCMs) simulation datasets of Coupled Model Intercomparison Project 5 (CMIP5) are compared with observed dataset of Indian Meteorological Department over Telangana state during the period 1970-2005. The GCMs are measured according to the relative error of statistical metrics (Correlation Coefficient, Skill Score, Nash Sutcliffe Efficiency, Normalized Root Mean Square Error) considered. Weights are assigned to each statistical metric using entropy method. GCMs are optimized for maximum and minimum temperature based on combination of statistical metrics using compromise programming Technique. Group Decision approach is employed for combined ranking at each grid point in the study area. Results of this study concludes, BCC-CSM1.1(m), MIROC5, CanESM2, CNRM-CM5 and BCC-CSM1.1 for maximum Temperature and CanESM2, ACCESS1.0, BCC-CSM1.1, MRI-CGCM3 and BNU-ESM for minimum temperature were the optimized models of thirty-six GCMs.