Name: K C Gouda
kcgouda@cmmacs.ernet.in
CSIR Centre for mathematical Modelling and Computer Simulation
Wind Tunnel Road^M
Bangalore-37^M
India
Country: India
Title: Long-range Forecasting of Monsoon Rainfall using Multi-Lead Ensemble
Additional authors: P Goswani
Additional Affiliations: CSIR Centre for mathematical Modelling and Computer Simulation
Abstract:
  Long-range prediction of a complex system like Indian summer monsoon is very challenging. In the present work a new ensemble forecast methodology is presented to increase the lead and realizable skill in the long-range forecasting of monsoon, although conventional formalism generally implies a loss of skill with increasing lead. In long-range forecasting generally the ensemble averaging of simulations from different initial conditions provides an efficient way of assessing and handling uncertainties in the forecasts due to inherent uncertainties in the initial conditions. However, the procedure for generating the ensemble of forecasts for the long-range prediction needs to be based on careful consideration. Although ensemble forecasting has been applied extensively in short-range forecasting, its application in long-range forecasting has been less explored. For long-range forecasting of monsoon, the ensemble is generated by sampling states over a period of time based on dynamical considerations in terms of intraseasonal oscillations (ISO), whose phases and amplitudes can significantly affect the monsoon. We adopt an optimized and validated variable resolution general circulation model, which provides higher resolution over a selected area. We then compare different ensembles forecasts with 5-member lead ensemble average forecasts for 24 (1980-2003) hindcasts; it is shown that the skill of the proposed ensemble has realizable skill in long-range forecasting of monsoon rainfall over India.
End