

Predictability of South Asian Monsoon Variability in NCEP Climate Forecast System

SHAILENDRA RAI^{1, 2, *} and V. KRISHNAMURTHY^{2,3}

¹*Department of Atmospheric and Ocean Science, University of Allahabad, Allahabad-211002, INDIA.*

²*Center for Ocean-Land-Atmosphere Studies, Institute of Global Environment and Society, Calverton, MD, USA*

³*Department of Atmospheric, Oceanic and Earth Sciences, George Mason University, Fairfax, VA, USA.*

*Email: raishail77@gmail.com

The predictability of the Climate Forecast System (CFS) of National Centers for Environmental Predictions (NCEP) in simulating the Indian monsoon has been assessed on daily and intraseasonal timescales. Daily retrospective forecasts of CFS with 15 individual ensemble members during the time period 1981-2004 have been used in the present analysis. Multi-channel singular spectral analysis (MSSA) has been applied to identify the space-time structures of the daily monsoon modes. The dominant modes are found to consist of intraseasonal oscillatory modes and seasonally persistent modes related to El Niño-Southern Oscillation (ENSO). The error growths of the total rainfall and low level winds as well as the error growths of the individual MSSA modes have been evaluated. The predictability of CFS has been assessed in terms of the relative error growths of intraseasonal and persisting modes. The role of the persisting ENSO mode in determining the seasonal predictability is discussed. The relative predictability of active and break phases in the CFS is also discussed.