

MEDIUM RANGE PREDICTION OF WINTER PRECIPITATION OVER NORTH-WEST INDIA FROM A GLOBAL CIRCULATION MODEL (T-80)

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The winter precipitation over NW India and the Himalayas under the influence of western disturbances (WD) is vital for the replenishment of water resources. Though the monsoon rainfall in the plains of Northern India may be less, they are very significant for *rabi* crops.

A critical evaluation of the performance of the Global Circulation Model, T-80 (L-18), operational at the National Centre for Medium Range Weather Forecasting (NCMRWF), New Delhi, in predicting the occurrence and passage of extra tropical systems in the westerlies over India, is carried out with a view to assess its skill in location-specific Medium Range Weather Forecasting (MRWF) over the region. Typical characteristics of the winter synoptic systems affecting the Indian subcontinent from December 1994 to February 1995 have been examined in detail.

During the winter (Dec-Feb) of 1994-95, there were ten epochs of precipitation over north-west India of which six were of moderate to active intensity. Day-to-day circulation features in the model analysis and 72 hours' forecast and associated precipitation were studied. The performance of the model in terms of prognostication for the beginning of the WD events, trend, pattern, and intensity of precipitation (both qualitatively and quantitatively), over space and time, over NW India were examined.

It has been observed that the model possesses reasonably good ability to predict the movement of the majority of winter disturbances at least three days

in advance. The average root mean square errors of positions of the low-pressure areas and troughs at 850hPa in the analysis and 72 hours' forecast were in the order of 2.0 and 3.4 degrees respectively. Though the distribution and trend of increase and decrease of the precipitation are well captured in the model's forecast, heavy to very heavy amounts of precipitation were generally underpredicted.