Chapter 34

RAINFALL

Measuring Rain

34.1 Rain gauges are used to measure rain and they are usually placed at places where eddies of air will not interfere with the normal fall of the raindrops. They are used for measuring the levels of rainfall. Rain gauge gives relatively accurate point measurement of rainfall but observations are not available over most remote land areas and over oceanic areas. Land rain gauge observations give sampling error if the network is not adequately dense.

34.2 Rainfall data are used for a variety of purposes and are required at a range of timescales. Real time rainfall data are required for flood forecasting and hydropower and reservoir operation. Summaries of storm rainfall event data are required for assessment of the severity of events at weekly or monthly time scales. Rainfall bulletins for agricultural and irrigation operations are needed at different time scales. The frequency of occurrence of rainfall of various magnitudes is also important in the application of mathematical models for synthesizing hydrological data.

34.3 When the rainfall for the monsoon season of June to September for the country as a whole is within 100% of its long period average, it is categorized as a "Normal" monsoon. It is categorized as "Excess" monsoon, if it is above 110 % of long period average and "Deficient", if it is below 90% of long period average. The performance of monsoon rainfall over smaller areas of the country is monitored by evaluating the departures from the normal for each meteorological sub-division and district. The rainfall is classified as excess, normal deficient or scanty as per the following criteria. Excess: +20% of normal or more, 'Normal: + 19% to -19% of normal, Deficient -20% to -59% of normal, Scanty: -60 % of normal or less.

Sources of Rainfall Data

34.4 In India, two time series data on rainfall are available and popularly used. The All-India area-weighted mean summer monsoon rainfall, based on a homogeneous rainfalldata set of 306 rain gauges in India, developed by the Indian Institute of Tropical Meteorology (IITM),Pune (www.tropmet.res.in) is widely considered as a reliable index of summer monsoon activity over the Indian region. Long time series of this index since 1871 have revealed several interesting aspects of the interannual and decadal-scale variations in the monsoon as well as its regional and global teleconnections.

34.5 Rainfall time series of 36 meteorological sub Divisions of India using 1476 rain gauge stations has also been constructed by India Meteorological Department, IMD Pune since 1901. This series includes hilly regions also.

List of Tables in the Chapter		
Sr. No.	No. of Table	Name of Table
1	34.1 (A)	Monthly (Actual) Rainfall, 2009-2015
2	34.1 (B)	Monthly (Actual and Normal) Rainfall, 2010 to 2015
3	34.2	Annual Rainfall

Sources & References: Indian Meteorological Department and website of Indian Institute of Tropical Meteorology.