

SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)  
Fixed and Broadcast Services (1)

Author: Dr. Rajasri Sen Jaiswal  
Sona College of Technology, India, research\_sona@yahoo.co.in

Mr. Mohammed Rasheed  
Sona College of Technology, India, research\_sona@yahoo.co.in

STUDY OF RAINFALL IN RELATION TO LATENT HEAT RELEASED, LIQUID WATER CONTENT  
AND SURFACE TEMPERATURE

**Abstract**

Study of rainfall is of immense importance in communication. Above 10 GHz it causes attenuation of the signal. Moreover, in dual polarization satellites orthogonal polarizations are used. Because of the oblate shape of rain drops cross talk occurs between the orthogonal polarizations which is unwanted. In addition to this knowledge of rain is also important in various other fields like agriculture, climatology, aviation, weather monitoring, weather forecasting and defense. In fact rain is one of the most crucial basic parameters that controls human life on earth. Hence study of rainfall has remained and will continue to be of major concern to researchers covering wide spectrum of fields. Though quanta of knowledge has been acquired in this topic still the exact mechanism causing rain, the contribution of different parameters, like latitude and longitude of a station, the surface and upper air meteorological elements like temperature, pressure, dew point temperature, latent heat released etc. to cause rain is really not known. In this paper rainfall has been studied over Salem, India in relation to cloud liquid water (CLW) content and latent heat (LH) released at various levels of the atmosphere and also daily surface temperature. Daily rainfall and surface temperature data have been obtained from India Meteorological Department. CLW and LH data are obtained from TRMM satellite. Functional relationship between rainfall and CLW, surface temperature and LH have been found out in rainy and non rainy condition.