

National Conference

ON Advancement in Frontier Physics : from 20th Century to the Present



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P31

Title : Study of the atmosphere by ground based radiometric technique

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The earth atmosphere is covered by a huge amount of nitrogen, a decent fraction of oxygen and water vapour mostly in the lower part. In spite of the fact that there are other particles like aerosol, dust particles etc. Microwave and millimeter waves considerably interact with the constituents of the atmosphere as they propagated spatially in the upper atmosphere. Analyzing the attenuations or the delays it encounter on its passage through the atmosphere the study of the atmosphere or the prediction of the rainfall is now the topic of interests in different spectral region of the microwave band extended from 3 GHz to 300 GHz. Till date Radiosonde observations (air lofted balloons) are the fundamental method for atmospheric temperature, wind and water vapour measurements, in spite of their inaccuracies, cost, sparse temporal sampling and logistic difficulties. So, a better accurate continuous all weather technology has been sought for decades. Ground based radiometric technique and remote sensing deploying highly stable multichannel radiometer (MP3000A), is nowadays widely used to monitor the atmospheric parameters continuously in an unmanned manner within an admissible accuracies. The advancement of the spectrum in the microwave band made it easy to study the earth atmosphere. From the stand point of distortion less communication this technique is also encouraging.

Keywords : Radiometric; Microwave and millimeter wave.