



Microwave emission polarization of a precipitating atmosphere with respect to remote sensing of precipitation from space by means of microwave radiometry

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The deformation of drops during the fall in the air must lead to the polarization effect of brightness temperature at the observation under inclined angles. Results of modeling calculation and measurements of Stokes vector microwave emission for a precipitating atmosphere obtained by author and his colleagues are presented. Polarimetric ground-based measurements of rain signatures have been carried out simultaneously at several frequencies from 13 GHz to 90 GHz. Computer simulation of the microwave upwelling emission of a system "atmosphere with rain-surface" measured by space microwave radiometers was conducted. Decrease of microwave atmosphere radiation at millimeter waves with the increase of rain intensity is caused by the increase of atmospheric layer albedo. The second component of brightness temperature Stokes vector caused by albedo variation may be 2 - 4K at the frequency of 90GHz in the process of space observation at the angles of 50 - 60 with regard to nadir.