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Recent advances in measuring rainfall by commercial microwave communication networks

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Rainfall measurements have been investigated worldwide because of their important applications in meteorology, hydrology and weather forecasting. Recently, we have presented a new tool for measuring rainfall based on commercial microwave radio networks.

Here, we present the recent advances in microwave rainfall measurements. The microwave rainfall mapping over central Israel, using up to 90 links, demonstrates correlation with rain gauges of up to 0.90. This method has been applied to numerous rainfall events since the last winter (2006/2007).

We also present a novel technique for reconstruction of rainfall spatial-temporal dynamics from a microwave network, by employing a stochastic space-time model based on a rainfall advection model. The technique aggregates the data in time and space along the direction of motion of the rainfall field, recovered from the multitude of microwave links.

Also, a new algorithm to monitor air-moisture from microwave links was recently applied successfully; first results will be shown.