Contribution ID: **9** Type: **Poster**

Rain Rate Retrieval Test from Millimeter-wave Measurement in Beijing

Tuesday, June 25, 2019 2:50 PM (1 hour)

Accurate rainfall monitoring is important, and Rain Rate Retrieval Test from 25 GHz, 28 GHz, and 38 GHz Millimeter-wave Link Measurement in Beijing Congzheng Han, Yongheng Bi, Shu Duan, and Gaopeng Lupreviously it has been shown that microwave backhaul link between adjacent base station towers can be used for rainfall estimation. However, with deployment of 5G using millimeter technology, there is opportunity for dense rainfall monitoring network using both backhaul and data transmission links. This paper presents our millimeter-wave measurement results during rainy days in Beijing, China. Our measurement design is an exemplary Line-of-sight (LOS) transmission link. We show that it is possible to retrieve path averaged rain rate from the measurement and to use both millimeter-wave transmission link and backhaul link to assist rainfall monitoring. Compared to the local rain measurement from rain gauge and disdrometer, we show that the correlation value of millimeter-wave link retrieved average rain rate varies between 0.6 and 0.9 for different rainfall events. There is room for improvement, and we find that if we can monitor the received signal for a sufficient long period of time, we can quantify the bias due to fading and work out a better estimate of the rain retrieval model's reference level.

Authors: Dr HAN, Congzheng (Institute of Atmospheric Physics, Chinese Academy of Sciences); Prof. DUAN, Shu (Institute of Atmospheric Physics, Chinese Academy of Sciences)

Presenter: Dr HAN, Congzheng (Institute of Atmospheric Physics, Chinese Academy of Sciences)

Session Classification: Posters with coffee and cake

Track Classification: HyMet CML overview presentations and posters (Day1)