EMS Annual Meeting Abstracts
Vol. 13, EMS2016-583, 2016
16th EMS / 11th ECAC
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Real-time data acquisition of commercial microwave links: Implementation, Potential and Challenges

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During the last years different research groups have shown that data from commercial microwave link (CML) networks can provide very valuable precipitation information. Since these networks comprise the backbone of the cell phone network, they provide countrywide coverage. However, data acquisition and availability is still a crucial problem and limits research possibilities. Data is usually made available for researchers with a large time delay and often only at irregular basis. In some case the operators do not record the necessary data at all.

To overcome this, we have developed a custom software in joint cooperation with our industry partner Ericsson who is one of the major manufacturer and operator of CML networks. The software is installed on a dedicated server at Ericsson and is capable of acquiring data from Ericsson's CML network in Germany. In its current first operational phase, data from 450 CMLs in southern Germany is recorded with a temporal resolution of one minute. Data is available in near real-time, with a delay of less than one minute.

We will provide information about our data acquisition system and show its potential application for rainfall mapping. Furthermore, we will show first results from using the CML-derived rainfall for hydrological modeling in complex terrain and we will elaborate on the challenges of processing the CML data.