



## The global CML data collection initiative GCDCl: The solution for scaling up CML rainfall estimation in developing countries?

**Christian Chwala**<sup>1</sup>, Remko Uijlenhoet<sup>2</sup>, Aart Overeem<sup>2,3</sup>, Tanja Winterrath<sup>4</sup>, and Nick van de Giesen<sup>2,5</sup>

<sup>1</sup>Institute of Meteorology and Climate Research, Karlsruhe Institute of Technology, Campus Alpin, Garmisch-Partenkirchen, Germany (christian.chwala@kit.edu)

<sup>2</sup>Department of Water Management, Faculty of Civil Engineering & Geosciences, Delft University of Technology, Netherlands

<sup>3</sup>R&D Observations and Data Technology, Royal Netherlands Meteorological Institute, Netherlands

<sup>4</sup>Department of Hydrometeorology, Deutscher Wetterdienst, Offenbach am Main, Germany

<sup>5</sup>Trans-African Hydro-Meteorological Observatory (TAHMO), Nairobi, Kenya

Rainfall estimation from commercial microwave link (CML) attenuation data has matured and is being implemented by several European meteorological services. Individual studies have also confirmed its applicability in developing countries. But data collection and data access remain cumbersome, requiring to start from scratch in each country and in each cooperation with a new mobile network operator (MNO). More often than not the precious CML attenuation data that is produced for monitoring purposes is not stored on a long-term basis and thus is lost forever if no cooperation with researchers or meteorological services incentivizes archiving.

To avoid further loss of data and to allow to better scale up CML data acquisition and data collection across different countries, we propose to start the global CML data collection initiative (GCDCl). The GCDCl will provide containerized templates for the required IT systems for CML data collection, archiving and monitoring, as well as template documents for the required legal agreements. Each MNO will get a separate cloud-based compute and storage infrastructure which they can use to do long-term monitoring and analysis of their network, providing an incentive for them to transfer their data to the GCDCl platform. Potentially, access for third parties, based on trilateral agreements with GCDCl and individual MNOs, could be implemented, e.g. to allow the development of derived products by the private sector. A central compute infrastructure, only accessible by GCDCl staff, will access data from the individual instances of the MNOs and do a centralized CML data processing. Potentially the centralized processing can be combined with real-time satellite data to both enhance the CML data processing as well as the generation of rainfall products from satellite data.

With our poster we want to spark a discussion about this approach and start forming a consortium to put it into operation as a not-for-profit organization with inspirations from initiatives like TAHMO and GPCC.

