

## Commercial Microwave Link research at the Climate and Earth Lab (Ghent University)

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This poster presents an overview of our ongoing and future research at the Climate and Earth Lab (CLEAR) of Ghent University, where we leverage commercial microwave links (CML) to enhance precipitation monitoring. In Belgium, our efforts focus on the hilly terrain of southern regions, where we aim to improve existing radar-rain gauge merged products by integrating CML data. Using disdrometers, we are recalibrating the relationship between signal attenuation and rainfall intensity through detailed analyses of summer case studies. In the upcoming year, we will extend our investigations to winter conditions, exploring the synergistic use of CML and radar to identify surface frozen precipitation, in line with the approach proposed by Oydvin et al. (2024).

Additionally, our research extends to Equatorial Africa, with a particular emphasis on Rwanda. This region is characterized by large spatiotemporal variability in rainfall and a lack of radar observations, factors that complicate early-warning systems for flash floods and landslides and complicate the evaluation of high-resolution weather and climate models. Through the recently started Sensor<sup>2</sup> project (Supporting Early-warning systems and Nature-based Solutions using Opportunistic Rainfall monitoring in Rwanda), we will seek to enhance rainfall monitoring by integrating data from microwave links, automatic rain gauges, and satellite observations. Complementing this effort, the installation of three disdrometers in Rwanda will enable more accurate calibration of rainfall intensities, with a focus on tropical precipitation regimes.

Overall, our research demonstrates the potential of commercial microwave links as a complementary observational tool, promising advancements in precipitation estimation and early-warning capabilities across diverse climatic regions.

### Are you an Early Career Scientist ?

No

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