

2.1. Adaptation of the RainGaugeQC system to CML-based precipitation data

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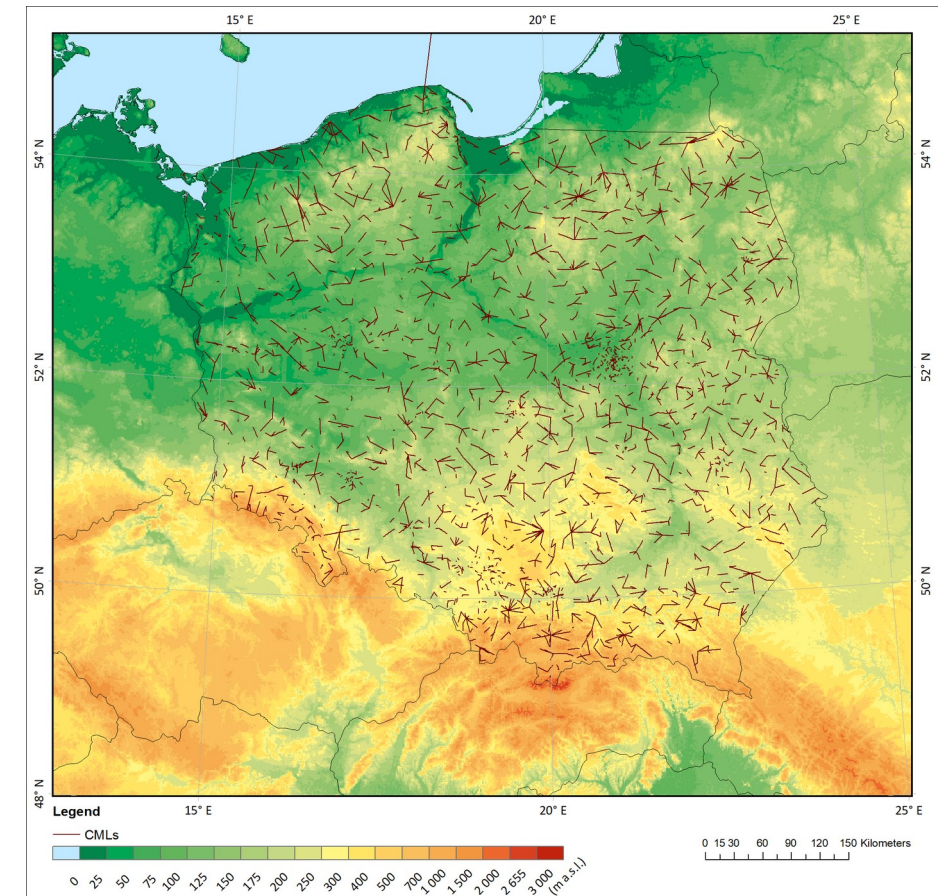
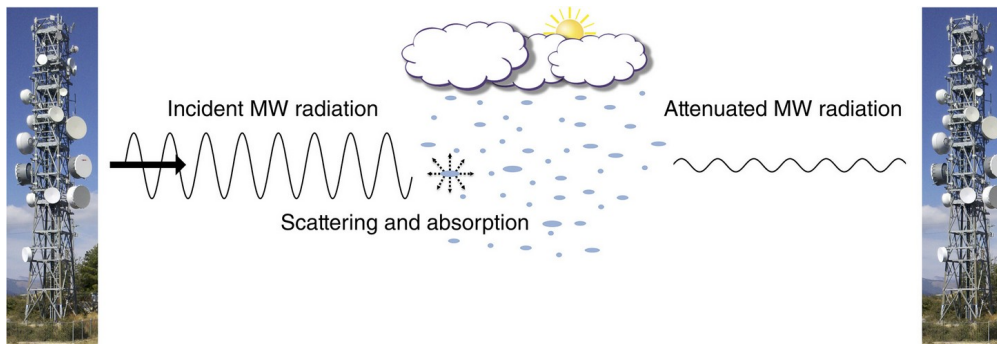
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SubTask 2.1: Adaptation of the RainGaugeQC system to CML-based precipitation data

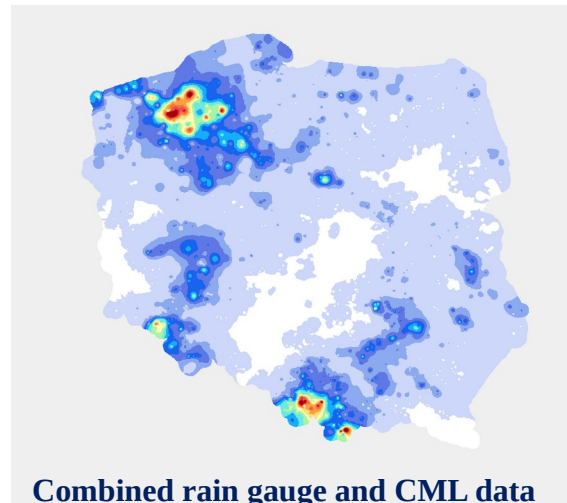
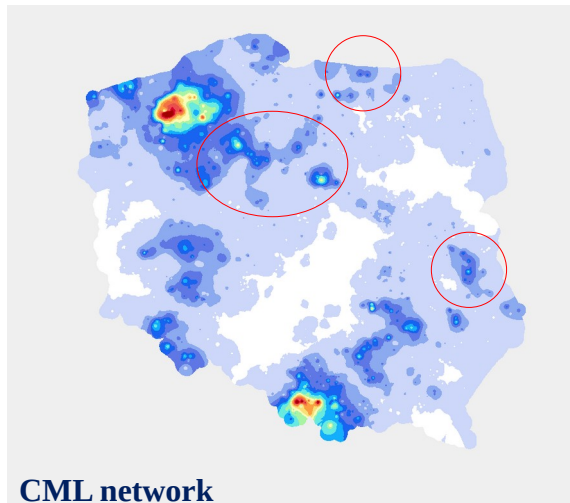
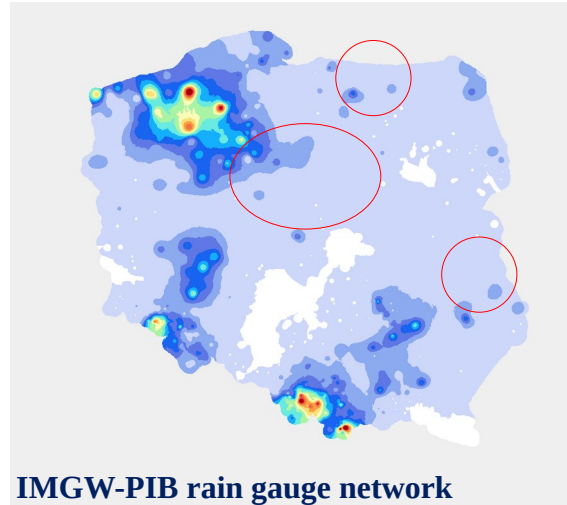
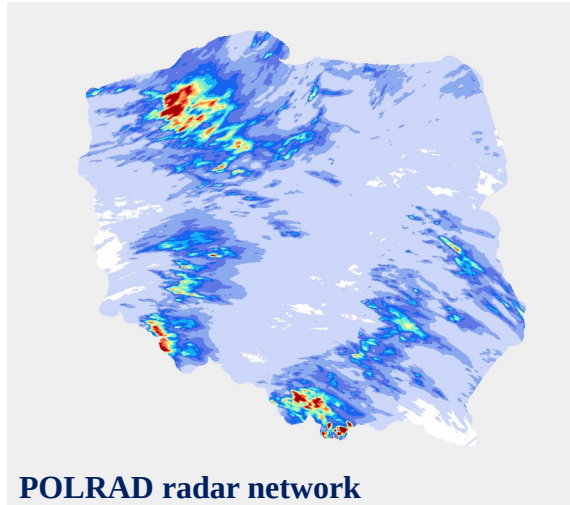
CML-based precipitation is characterised by a spatial distribution and error structure very different from point rain gauge or spatial radar data.

The uncertainty in the precipitation estimation depends on the length of the link, the signal frequency, interference from moisture in the atmosphere, among others.

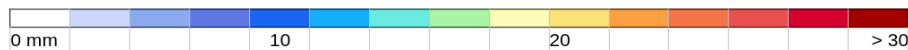
Many of these factors are impossible to quantify. It is therefore necessary to develop a QC methodology that takes these specifics into account.



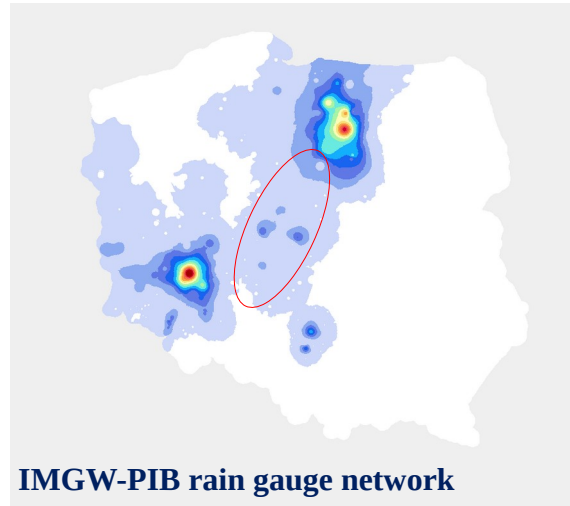
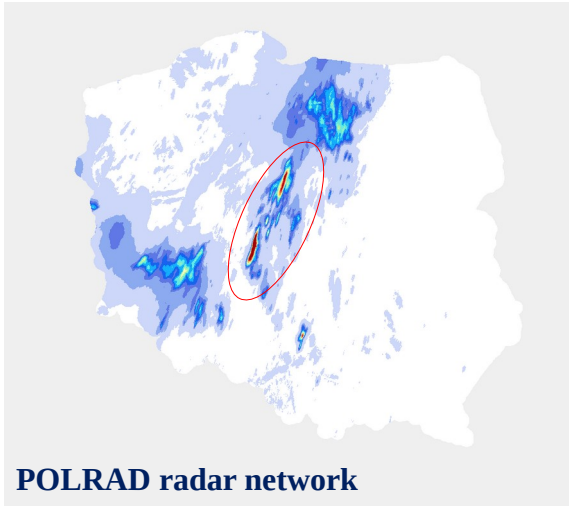
Results after QC (daily precipitation total as of July 23, 2024)



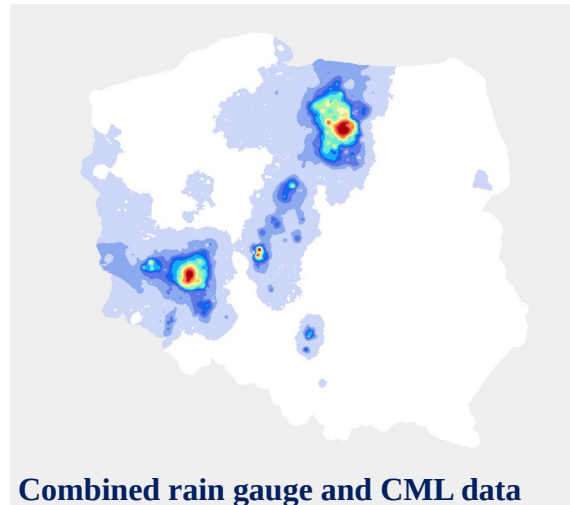
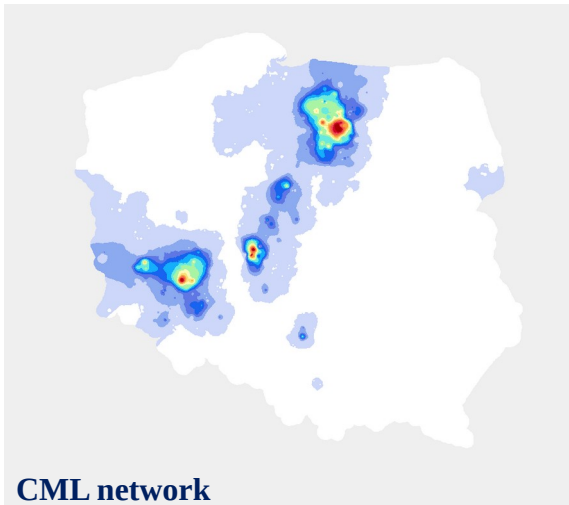
- Radar precipitation is highly variable across the region
- small, locally intense cells
- The distributions of rain gauge and CML data are similar, but they differ in several details
- The combination of rain gauge data and CML provides a rainfall distribution that is closer to that obtained from radar



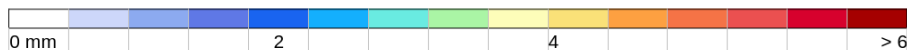
Results after QC (1-hour precipitation total from 7/10/2024, 7:00–8:00 PM)



- Precipitation cells not detected by rain gauges

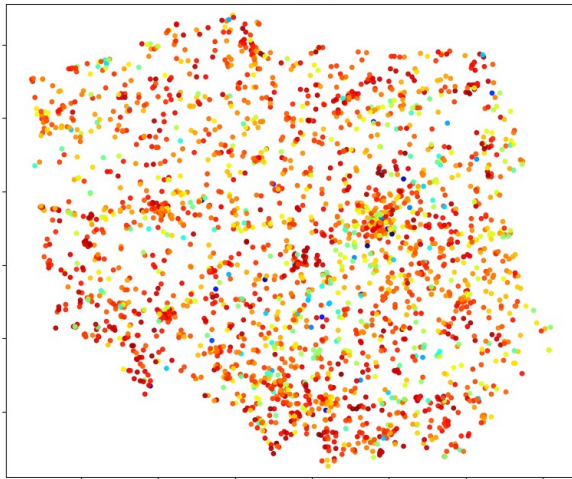


- Combining rain gauge data with CML data makes the precipitation distribution more similar to radar precipitation

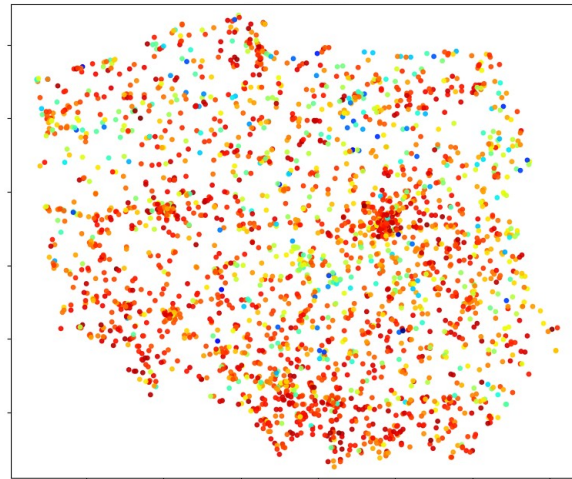


Average correlations between 30-minute sums of CML and RainGRS for different months

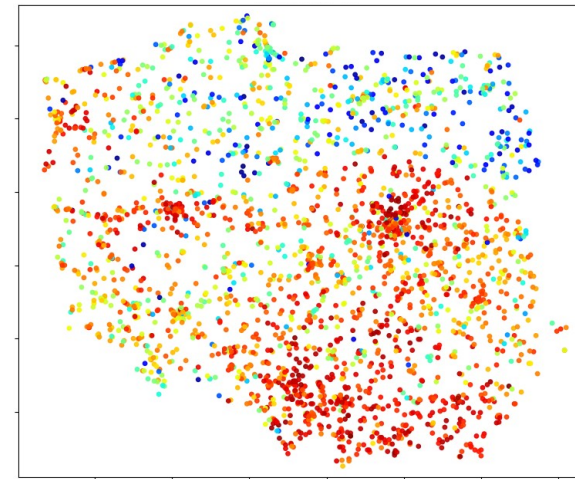
2024-07



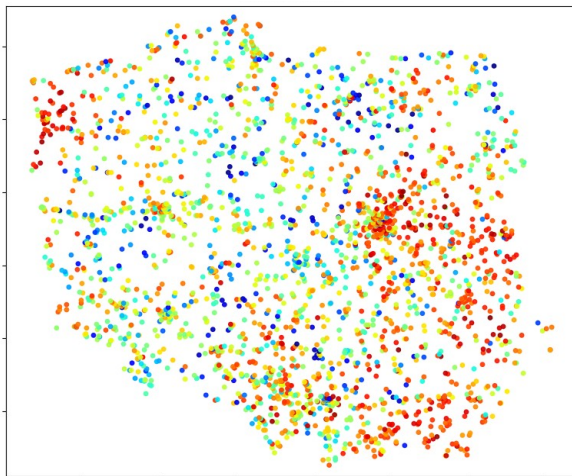
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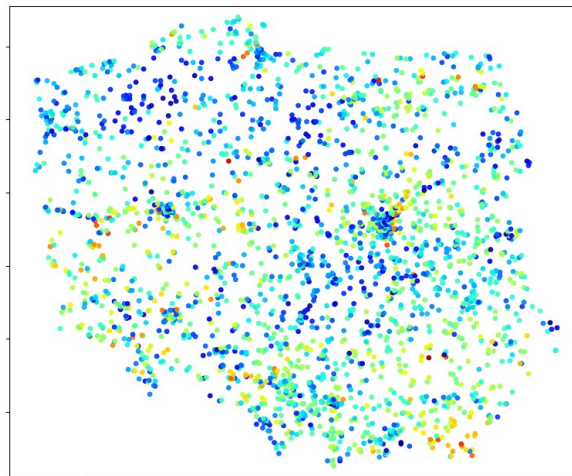
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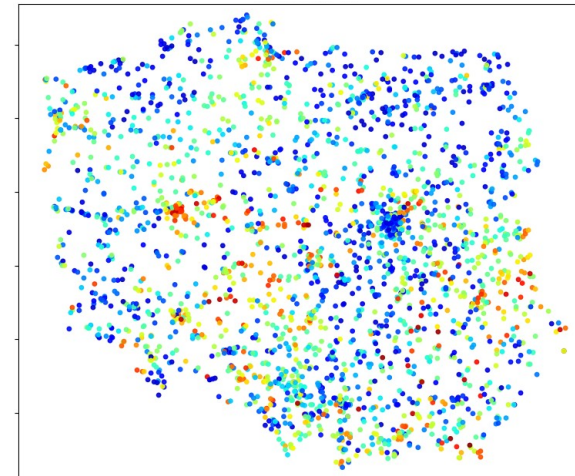
2024-10



2025-01



2025-02



Status of the work

- CML data format has been successfully aligned with telemetric gauge data, and the RainGaugeQC system has been refined to handle both data types simultaneously.
- Quality control of the CML data has been performed, and the results are currently being compared with 10-minute RainGRS (multi-source estimation) precipitation fields to evaluate whether further adjustments to the quality control procedure are needed. Additional testing is ongoing, with individual cases being analyzed in detail.
- The Institute of Meteorology and Water Management is currently negotiating the purchase of operational data. This will enable the initiation of data integration into the operational RainGRS.