



A locally adapted multi-sensor precipitation estimate derived from satellite and ground observations for Benin

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In order to provide a unified full-coverage rainfall product that is suitable for applications in hydrology, agriculture, climatology, and real-time rainfall monitoring, a multi-source precipitation estimate adapted to the situation in Benin has been developed in the framework of the interdisciplinary project IMPETUS.

A precipitation-index depending on time, place, and cloud stage is attributed to the METEOSAT infra-red images and calibrated using rain estimates from spaceborne passive microwave sensors as well as daily and hourly ground observations. This precipitation index will provide real-time rainfall monitoring, and an upgraded hourly 0.1 degree rainfall climatology when used in combination with ground observations. The calibration and validation dataset spreads over 23 years of ground observations and METEOSAT infrared images, and 4 years of spaceborne passive microwave scans. This vast time range also allows for an effective analysis of the ability to render rare precipitation extremes, anomalies, and spatiotemporal variability.