



## **Path-averaged rainfall estimation using optical extinction: potential of large-aperture scintillometers**

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We employ a Scintec BLS900 near infrared (880 nm) large-aperture boundary layer scintillometer as path-average rain gauge. The instrument was installed over a path of 2.4 km in Benin as part of the AMMA-CATCH (African Monsoon Multidisciplinary Analysis) intensive observation period during 2006 and 2007. Measurements of the 1-minute average received intensity from two transmitter disks of 462 LEDs each, operating at a pulse repetition rate of 5 Hz (i.e. 300 samples per minute), were collected for 3 rainfall events that occurred during the dry season and 7 events during the wet season. Using estimates of the signal base level just before the start of the rain events, the optical extinction coefficient was estimated from the path-integrated signal attenuation for each minute. The corresponding 1-minute path-average rain rates were computed using a power-law relation between the optical extinction coefficient and rain rate obtained from measurements of raindrop size spectra with an optical spectro-pluviometer. The estimated rain rates are compared to measurements from nearby rain gauges.