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Comprehensive review of rainfall products over Africa

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Many precipitation estimates are available over Africa. They can be based on observations, from gauges or satellite, and/or on data from numerical model or reanalysis. They differ by the type of data they use, but also by their algorithm and their spatial and temporal resolutions. It may be difficult to choose from the various rainfall products which one is the most suitable for a specific region of interest and application. It is difficult to compare rainfall products. Their performance varies according to the domain, the resolution and the rainfall regime. Moreover, quantitative evaluations depend on the reference dataset and the statistics used.

Several evaluation studies of rainfall products have been done over various parts of Africa. We use them to assess the qualitative and relative performance of the rainfall products over Africa. Since the performance of a rainfall product is linked to its algorithm, we also look at the different algorithms. The algorithms allow to understand how reliable a product is and to what are its limits. Using the evaluation studies and the algorithm's description, we identify their strengths, their limitations and the factors influencing their performances.