



Comparison of Global Gridded Gauge Products over Complex Terrain in Africa

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Five gridded monthly rainfall products are evaluated using a gauge network over complex topography in Africa. The gridded products compared are those of the Global Precipitation Climatology Center (GPCC), NOAA Climate Prediction Center (NOAA-CPC), and the Climate Research Unit at the University of East Anglia (UEA-CRU). There are three different products from GPCC at multiple spatial resolutions (0.5° , 1° and 2.5°). The NOAA-CPC product has a spatial resolution of 2.5° while that of UEA-CRU is 0.5° . The GPCC and UEA-CRU products are compared at spatial resolutions of 0.5° , 1° and 2.5° , while NOAA-CPC is compared with the other products at 2.5° resolution. A satellite product, from the Global Precipitation Climatology Project (GPCP), has also been included in the comparisons. There is a very good agreement between the global products and the reference data. Correlation coefficients are between 0.94 and 0.96 at 2.5° resolution, while the mean absolute error (MAE) is between 15 and 21 mm. Multiplicative bias is between 1.0 and 1.04 for the gridded products and 0.96 for GPCP. At 1.0° resolution correlation coefficients vary from 0.91 to 0.92, MAE from 21 to 28 mm, and there is no difference in bias. Correlation coefficients are between 0.89 and 0.90 at 0.5° spatial resolution, while MAE ranges from 27 to 32 mm. Bias still remains very low. The performance of the products is highest during the wettest season (Jun to August), while it is relatively poor during the dry months (December, January, February). The seasonal differences are more prominent at high resolution and for the satellite product. These results are very encouraging, particularly considering the complex terrain of the validation site.