

Peer Review

Review of: "Challenges and Prospects of Aerosol-Cloud-Precipitation Studies over Africa"

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The review article “Challenges and Prospects of Aerosol-Cloud-Precipitation Studies over Africa” provides a broad and informative synthesis of current knowledge regarding aerosol-cloud-precipitation interactions across African climatic regions, highlighting field campaigns, observational technologies, modeling strategies, and emerging opportunities such as machine learning integration and advanced satellite missions. The manuscript demonstrates strong literature coverage and successfully contextualizes the scientific importance of aerosol dynamics for regional climate, agriculture, and water security. However, the article shows several weaknesses, including an overly descriptive narrative style with limited critical appraisal of conflicting findings, insufficient synthesis or comparative evaluation between modeling approaches, and a lack of a structured review methodology explaining literature selection criteria. Additionally, quantitative summaries, meta-analysis, or conceptual diagrams summarizing mechanisms are absent, which reduces analytical depth. The manuscript would benefit from integrating recent observational validation data, strengthening the discussion of uncertainties in satellite retrievals and ML-based predictions, improving logical flow by reducing repetitive background information, and incorporating clearer future research frameworks or policy translation implications.

Declarations

Potential competing interests: No potential competing interests to declare.