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Chemical and physical properties of aerosols in the Sahel: New knowledge and remaining uncertainties as found in the framework of the AMMA programme

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The arid and semi-arid regions of Africa are the world's largest source of mineral dust. Their environmental and climatic impacts, relevant at the global scale, strongly depend on their physico-chemical properties, that is, composition, size distribution, and shape.
In this paper I will present a review of the new knowledge on the physical and chemical properties of African mineral dust which has been gathered by the ground-based and airborne observations conducted in the framework of the African Monsoon Multidisciplinary Analysis (AMMA). Emphasis will be given to the characterization of mineral dust emitted from Sahelian soil by mesoscale convective systems and to the discussion of the regional variability at the continental scale.
Sampling uncertainties and remaining investigation areas to be targeted will be highlighted.