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# The influence of atmospheric dynamics on erosion hazard: A conceptual note

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Soil erosion research is an important component in the field of Physical Geography. The research has evolved since the inception of the Universal Soil Loss Equation (USLE) in the 1960s. The USLE was updated to the Revised Universal Soil Loss Equation (RUSLE); and the Soil Loss Estimation Model for Southern Africa (SLEMSA) was propounded in the late 1970s. The interest in soil erosion reveals that soil loss has always been a significant challenge to humanity. The challenge is phenomenal in the semi-arid tropical regions, where soil erosion is a common phenomenon either due to heavy and erratic rainfall patterns or due to erosion by wind during the dry periods [1].

All three soil loss models consider climate as one of the variables. The climatic component under focus is rainfall, which is a direct attribute of atmospheric dynamics. However, geomorphological studies have also revealed that in addition to water, wind is also an important erosion agent [2]. Most parts of the world experience long periods of dry months where winds will be strong, soils dry and vegetation foliage at its lowest. This paper conceptualises that atmospheric dynamics exert a significant influence on erosion and erosion hazard. Employing the Confirmatory Factor Analysis (CFA) in Structural Equation Modelling (SEM) and Conformal Cubic Atmospheric Model (CCAM), we revisit some of the soil loss models in an attempt to redefine the contribution of atmospheric dynamics to soil erosion.

*References:*

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