

Classical study of characteristics of the rainstorm that devastated Abuja Stadium velodrome through in-situ and remotely sensed observations

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Classical Study of Characteristics of the Rainstorm that Devastated Abuja Stadium Velodrome through In-situ and Remotely-Sensed Observations

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Abstract

This study attempts to use a full spectrum of in-situ and remotely-sensed observations to examine the characteristics of the rainstorm that devastated the Abuja Stadium Velodrome on Saturday, October, 2003 and socio-economic implication of such damage. Descriptive and statistical analyses were used to illuminate the features involved in the study. With the aid of satellite imagery obtained from the Nigerian Meteorological office, it was observed that the storm cold clouds started as small in-situ cells of cumulonimbus clouds in the early hours of afternoon over the rocky high ground areas of the central part of Nigeria. Synoptically, features observed also from the NWP products(i.e. chart) showed that the storm was initiated due to large thermal forcing over the area, down stream convergence of winds from the ocean both at 10m and 900m. Also the evidence of positive vorticity values due to cyclonic turning created around Abuja at 850Hpa chart may have influenced the storm. The storm was not a well-defined organized and propagating type due to absence of African Easterly Jets (AEJ) during the period. ITD or ITCZ was already dropping southward. The main source of energy was from insolation, high reflective surfaces provided by the rocky hills that outcrops most of the region. The presence of these hills energizes the system. The stadium is located at the windward or valley of two prominent hills (Zuma and Aso), hence the storm may have become more violent as it descends these hills. The maximum gustiness of the storm over the stadium was much greater than 60 knots. The absence of outlets at the velodrome coupled with this gustiness may have been responsible for its destruction; as vortex was likely to have been created inside the

velodrome.