Micrometeorological measurements in Nigeria during the total solar eclipse of 29 March, 2006

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ABSTRACT The total solar eclipse of 29 March, 2006 which was visible at Ibadan (7.55°N, 4.56°E), south-western Nigeria was utilized to document atmospheric surface-layer effects of the eclipse for the first time in Nigeria. The meteorological parameters measured are global radiation, net radiation, wind speed (at different heights), atmospheric pressure and soil temperature (5, 10 and 30 cm), moisture and heat flux and rainfall. The results revealed remarkable dynamic atmospheric effects. The observations showed that the incoming solar radiation, net radiation and air temperature were significantly affected.There was an upsurge of wind speed just before the first contact of the eclipse followed by a very sharp decrease in wind speed due to the cooling and stabilization of the atmospheric boundary layer. The atmospheric pressure lags the eclipse maximum by 1 h 30 min, while the soil temperature at 5 and 10 cm remain constant during the maximum phase of the eclipse.