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The ionospheric response to HILDCAA events over the African mid-latitude sector

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The response of the ionosphere to High-intensity, long-duration, continuous AE activity (HILDCAA) events that occurred during the solar cycle 23 and 24 will be presented. HILDCAA are magnetospheric/ionospheric events that occur during high-speed solar wind streams. During solar minimum, the corotating interaction regions (CIRs) are followed by lengthy (days to weeks) periods of HILDCAA intervals characterised by low Disturbance storm time (Dst) index. The HILDCAA events were selected based on the high intensity, long duration, continuous Auroral electrojet (AE) activity where AE peak values exceed 1000 nT, the duration were greater than 2 days and the AE values never drop to 200 nT for more than two hours at a time. The HILDCAA must occur outside the main phases of the geomagnetic storms. The critical frequency of F2 layer (foF2) and Global Navigation Satellite System (GNSS) Total electron Content (TEC) over the African mid-latitude region will be used to analyse the ionospheric responses. Some physical processes responsible for the ionospheric responses will be discussed.

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