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CHARACTERIZATION OF IONOSPHERIC TOTAL ELECTRON CONTENT ON RADIO
FREQUENCY IN GHANA EQUATORIAL REGION UNDER THE SKA PROJECT SITE**Abstract**

It has been realized that signals of the radio telescope at Kutunse, Ghana under the Square Kilometer Array systems (SKA) project, can be affected by natural processes occurring on the sun and in the space environment around earth. This paper reports a research on space weather events that can affect the radio signals of the radio telescope in Ghana. Consequently, the study of the characteristics of total electron content (TEC) in the ionosphere over the equatorial region of Ghana. The TEC characteristics is significant in determining the scintillation and phase delays of a radio wave through a medium. Ionospheric TEC will be characterized by observing carrier phase delays of received radio signals transmitted from satellites located above the ionosphere using Global Positioning System satellites. Further study on how the solar activities affect the TEC in the ionosphere over Ghana equatorial region is reported. The vertical TEC (VTEC) is determined by the integration of the electron density on a perpendicular to the ground standing route, and the slant TEC (STEC) is obtained by integrating over any straight path. The ionospheric radio effect is also proportional to TEC and inversely proportional to the radio frequency at the study site.