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Aside from the influence of forcing from above on the ionosphere during space weather, forcing from below also have significant influence on the ionosphere. This study investigates the responses of the Equatorial Ionization Anomaly (EIA) in the African and American longitudinal sectors to the combined effects of 2014 Sudden Stratospheric Warming (SSW) events and the geomagnetic storms that co-existed with them. The study locations cover ±40º geomagnetic latitudes in both sectors. A multi-instrument approach with models was adopted. During the SSW events, a hemispherical asymmetry in TEC distribution was observed, with higher plasma ionization in the Northern Hemisphere (NH). Generally, in both sectors, EIA crests locations shifted to higher latitudes during peak phases of SSW, except in the Southern Hemisphere (SH) in the African sector, where crest's locations shifted to lower latitudes. Reversal of stratospheric zonal mean wind direction supported reversed fountain effect. TEC responded positively to the SSW peak phases and daytime or nighttime orientation of Prompt Penetration Electric Field (PPEF) and PPEF strength played major role on TEC responses to storms. PPEF values were generally weak, but comparatively higher in the American sector. TEC were predominantly higher in the American sector than the African sector due to their comparative higher electrodynamics. EIA crests were generally located at higher latitudes on the days of SSW peaks than on the days of geomagnetic storms except NH of American sector. In both sectors, geomagnetic storms modified ionospheric irregularities by weakening or enhancing them, while the major SSW event weakened irregularities.
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