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- ensemble techniques
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Short Term Variations Of Total Electron Content (TEC) Fitting To A RegionaI GPS Network Over The Kingdom Of Saudi Arabia (KSA)

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The ionosphere is a dispersive medium for radio waves with the refractive index which is a function of frequency and total electron content (TEC). TEC has a strong diurnal variation in addition to monthly, seasonal and solar cycle variations and small and large scale irregularities. Dual frequency GPS observations can be utilized to obtain TEC and investigate its spatial and temporal variations. We here studied short term TEC variations over the Kingdom of Saudi Arabia (KSA). A regional GPS network is formed consisting of 16 sites in and around KSA. GPS observations, acquired between 1 and 11 February 2009, were processed on a daily basis by using the Bernese v5.0 software and IGS final products. The geometry-free zero difference smoothed code observables were used to obtain two hour interval snapshots of TEC and their RMS errors at 0.5 x 0.5 degree grid nodes and regional ionosphere models in a spherical harmonics expansion to degree and order six. The equatorial ionized anomaly (EIA) is recovered in the south of 200N from 08:00 to 12:00 UT. We found that day-by-day TEC variation is more stable than the night time variation.