



## **Initial results of ionospheric response to the G5 geomagnetic storm of May 2024 observed from the Indian low latitudes**

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One of the most intense geomagnetic storms in several decades struck Earth during May 10-11, 2024 causing widespread impact on technological infrastructure associated with aurora observations even from low latitude regions.

While the longitudes of impact corresponding to intense geomagnetic storms have been discussed earlier using the southward turning of IMF Bz [Ray *et al.*, *Radio Sci.*, 50, 2015] and the IMF clock perspective [Chakraborty *et al.*, *Radio Sci.*, 55, 2020] on a global scale, the Indian low-latitudes have been largely unaffected as far as severe degradation in performance of satellite-based communication and navigation systems are concerned.

The present paper reports some of the first results from the Indian longitudes to the intense geomagnetic storm of May 2024 using ionospheric reconstruction techniques by combining GNSS data from Bangalore (situated near the geomagnetic equator), Calcutta (near the northern crest of Equatorial Ionization Anomaly) and Siliguri (located beyond the northern crest).

For the reconstruction, measured vertical Total Electron Content (VTEC) have been used in the Simultaneous Iterative Reconstruction Techniques (SIRT) using TEC measured at Calcutta and Siliguri from Septentrio receivers and from the IGS station at Bangalore.

From VTEC plots of above mentioned 3 stations, it is clearly observed that the VTEC maximum value decreases at Calcutta and NBU on May 11th compared to May 10th and 12th. But VTEC maximum observed at Bangalore shows an increase above the same observed on May 10th and 12th. However, tomographic reconstruction does not appreciably reflect the changes observed in VTEC.