

REVIEWER'S REPORT

Manuscript No.: IJAR-55502

Title: Variability of Total Electron Content (TEC) during Four Major Geomagnetic Storms of 2012–2014: A Multisite Analysis at Fixed Longitudes

Recommendation:

Accept as it is

Accept after minor revision.....

Accept after major revision

Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality	x			
Techn. Quality	x			
Clarity		x		
Significance		x		

Reviewer Name: Dr. Hari Prashad Joshi

Detailed Reviewer's Report

This manuscript presents a detailed and valuable multi-station analysis of ionospheric VTEC responses to four significant geomagnetic storms along the Europe-Africa longitudinal sector. The study is well-conceived, employing a robust methodology that combines station-based time series, regional VTEC/ Δ VTEC maps, and thermospheric composition data. The work addresses an important regional gap and provides insightful interpretations linking observed complex perturbations to underlying physical drivers like PPEF, DDEF, TADs, and O/N₂ changes.

I recommend Minor Revisions prior to publication. The manuscript is scientifically sound but requires improvements in presentation and clarity. Key points include:

- **Figure and Table Submission:** All figures and tables referenced in the text (e.g., Figures 1, 2a-d, 3a-c, 4a-c, 5a-c, 6a-c, 7; Tables 1, 2) must be provided as clear, high-resolution graphical files with descriptive captions. The current text-based pseudo-tables are insufficient.
- **Manuscript Structure:** The section numbering is inconsistent (e.g., "Introduction:" followed by "1 Data and Methods," then "2. Results," and "2.4 Discussion"). Please adopt a standard, consecutive numbering scheme (e.g., 1. Introduction, 2. Materials and Methods, 3. Results, 4. Discussion, 5. Conclusion).
- **Methodological Elaboration:** The GNSS data processing section, particularly concerning DCB estimation and the VTEC derivation algorithm, should be expanded slightly or supported by a citation to a more detailed standard method to enhance reproducibility.
- **Discussion Flow:** The discussion is comprehensive but dense. Consider using sub-headings for each storm or key mechanism to improve readability and explicitly map specific observed features (e.g., EIA suppression on 17 March 2013) to the concluded primary causes.

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- Language Polish: Perform a thorough proofread to correct minor grammatical errors (e.g., "It was found out that..." on page 5) and improve phrasing for smoother reading.

These revisions are primarily organizational and presentational. The core scientific analysis and conclusions are strong and merit publication.