EFFECTS OF GEOMAGNETIC STORM ON EQUATORIAL IONIZATION DURING 27 FEBRUARY-1 MARCH, 2014

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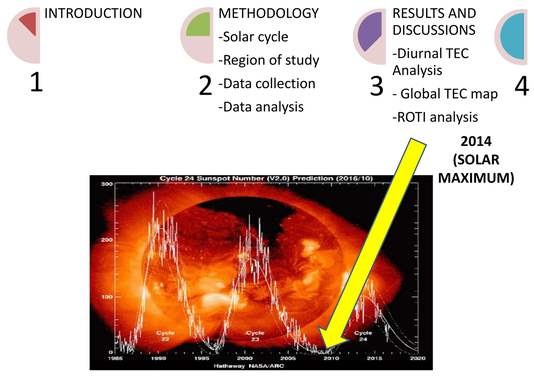
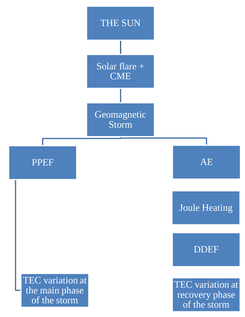
Outline

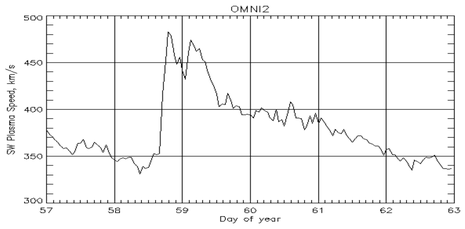




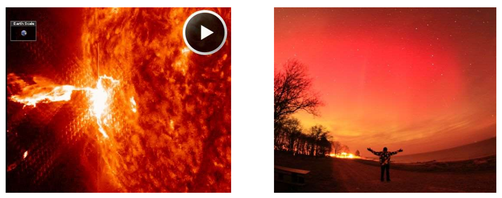
Methodology

Data	Resources
- MAGNETIC INDICES	https://omniweb.gsfc.nasa.gov http://isgi.unistra.fr/geomagnetic_indices.php http://magnetometers.bc.edu/index.php/78-magnetometers/78-home
- SOLAR INDICES	https://solarscience.msfc.nasa.gov/SunspotCycle.shtml https://omniweb.gsfc.nasa.gov
- TEC DATA	http://www.igs.org/about/data-centers ftp://cddis.gsfc.nasa.gov/gnss/data/daily/

Variation of solar wind speed during 26 Feb – 3 Mar 2014
Source: https://omniweb.gsfc.nasa.gov



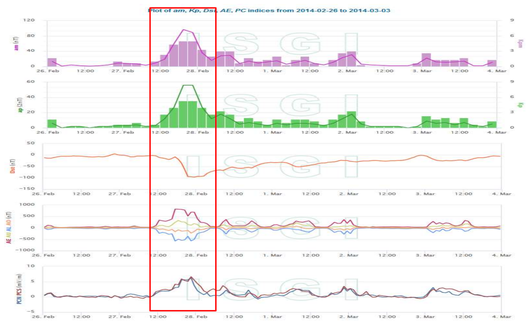
CME from sunspot ar1967 observed on 26 February 2014 and G2 class magnetic storm on 27 February 2014



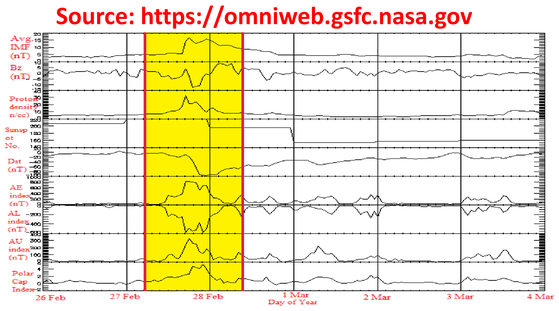
Source: www.spaceweather.com

Magnetic indices during 26 February – 3 March, 2014

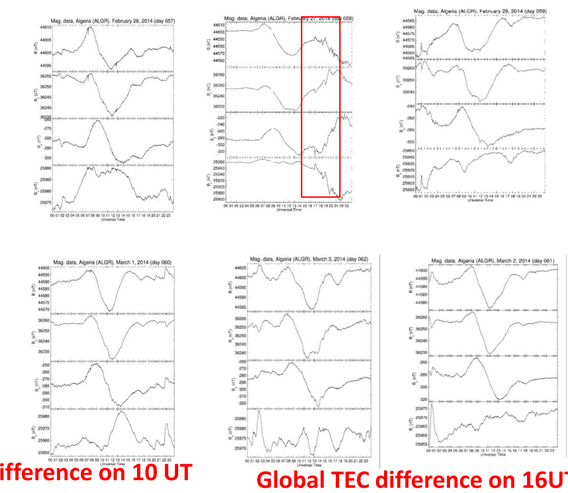
Source: http://isgi.unistra.fr/geomagnetic_indices.php



Solar and magnetic indices during 26 February – 3 March, 2014
Source: https://omniweb.gsfc.nasa.gov

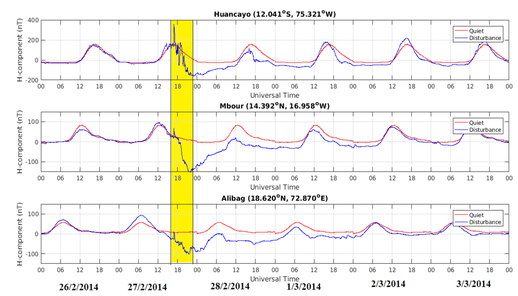


Variation of geomagnetic field during 26 February - 2 March, 2014

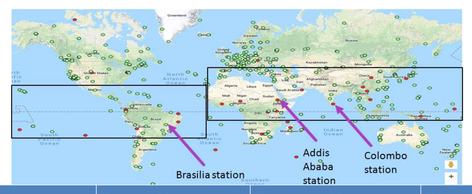


Samba-amber Magnetometers Data center Algeria (28°n 3°e geographic 15.23°n, 76.58°e Geomagnetic) Variation of b, bz, Bx, by indices with Universal time

Variation of H-component of earth's magnetic field during 26 February-3 March 2014

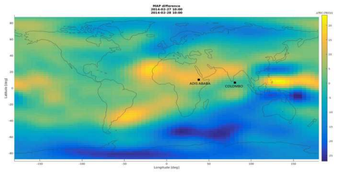


Region of Study

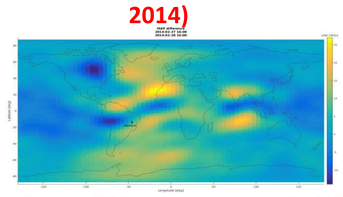


Station	Country	Lat_Geogr	Long_Geogr	Lat_Geomag	Long_Geomag
Braz	Ethiopia	-15,95	-47,88	9,40	21,13
Adis	Brazil	9,04	38,77	0,18	110.47
Sgoc	Sri Lanka	6,89	79,87	-1.57	151,57

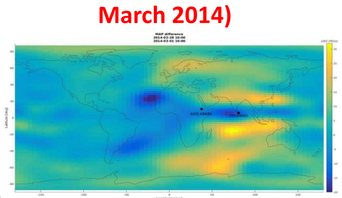
Global TEC difference on 10 UT (between 27 and 28 February, 2014)



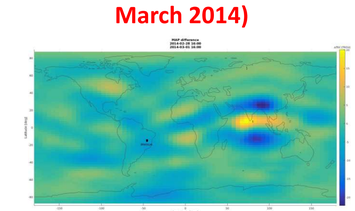
Global TEC difference on 16UT (between 27 and 28 February, 2014)



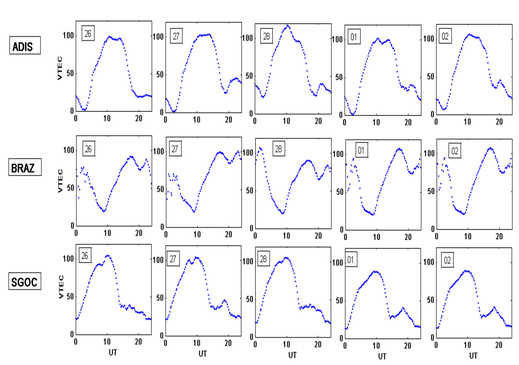
Global TEC difference on 10 UT (between 28 February, and 1 March 2014)



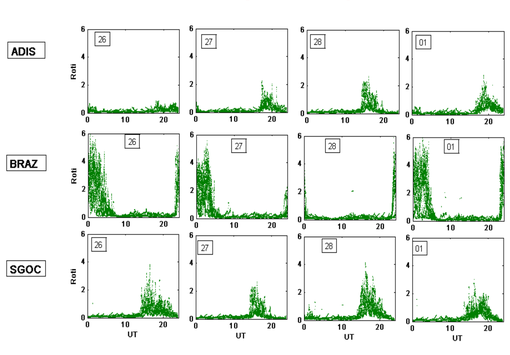
Global TEC difference on 16 UT (between 28 February, and 1 March 2014)



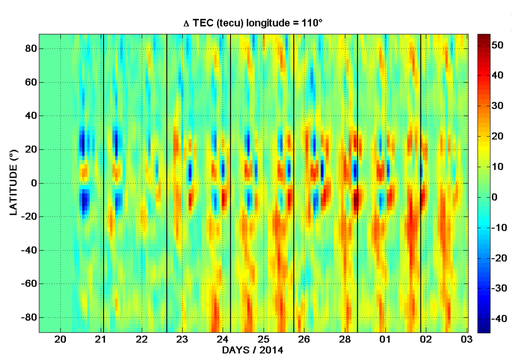
Comparison of diurnal VTEC over the duration of 26 February - 2 March, 2014 from 1) Adis Ababa (Ethiopia) 2) Brasilia (Brazil) 3) Colombo (Sri Lanka)



Comparison of diurnal ROTI Index over the duration of 26 February - 2 March, 2014 from 1) Adis Ababa (Ethiopia) 2) Brasilia (Brazil) 3) Colombo (Sri Lanka)



Latitudinal variation of δTEC (TECU) during 20 February – 3 March, 2014 along 110° longitude



Conclusion

A geomagnetic storm is observed (main phase is on 17-23 UT, 27 February, 2014).
TEC Enhancement is observed at the main phase of geomagnetic storm (starting 17 UT, 27 February, 2014).
Increment of diurnal peak TEC is observed on 28 February, 2014.
Diurnal TEC peak decreases on 1 March 2014, at the recovery phase of geomagnetic storm.

American Geophysical Union (AGU) Fall Meeting, December 10-14, 2018, Washington DC, United States