On the Characteristics of Geomagnetic Storms observed during the years 1852-1869.

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Solar origin [1] and terrestrial effects [2] of geomagnetic disturbances are topics of contemporary interest. We have studied the nature and solar activity association of geomagnetic storms observed during the years 1852-1869 using relevant geomagnetic observations from equatorial (Trivandrum) low latitude (Bombay and Madras) and mid latitude stations (Helsinki, Greenwich etc) We could find that sunspot cycle 10 (1856-1865) is exceptional, at least four geomagnetic storms exceeding the magnitude of the most intense modern storm (March 14th 1989) are observed during this cycle which includes the super storm of September 1859. The inferred yearly mean geomagnetic storm intensity at Trivandrum and Bombay is found to show sunspot cycle variations during 1852-1869 with a distinct large peak during the year 1859. We could find heliographic north-south asymmetry in the occurrence of geomagnetic storms during this period of study which often occur in association with maxima in daily sunspot activity suggesting the possible role of solar transient phenomena.

References

[1] P. E. Eapen and T.E. Girish, "On the solar sources of some intense geomagnetic storms observed during the 19th century", *Paper presented in the Annual meeting of the Astronomical Society of India* , Trivandrum, India (2003).
[2] P. E. Eapen and T.E. Girish, "A study of sun-weather relationships near magnetic equator during the 19th century", Paper presented in the *14th National Space Science Symposium*,Andhra University, Visakhapatnam ,India (2006).