# Geomagnetic Disturbance Parameters and Variable Trends in Solar Activity

B. D. KADAM, S. MUKHERJEE and S. ALEX
*Indian Institute of Geomagnetism,*
*Plot 5, Sector 18, New Panvel (W), Navi Mumbai – 410218, India,*
*Tel: 022 27484005, Fax: 022 2748 0762, e_mail : salex@iigs.iigm.res.in.*

Energetic solar emissions originating from the highly tenuous environment of the sun form the major energy source of geomagnetic disturbances induced in the ground magnetic records. Measurements of the geomagnetic field variations at low latitude form a highly reliable database to understand the processes of energy influx into the earth's magnetosphere by the sun-earth interaction through magnetic reconnection. Long term trend with 11-year cycle is a well known dominant periodicity in the sunspots and tend to influence the geomagnetic activity to a greater extent. However, cycle to cycle variability in solar conditions has been a distinct feature associated with the unpredictable dynamic conditions of the solar environment. Understanding the sun-earth interaction processes is becoming crucial for space weather studies. Long term changes in the occurrence pattern of geomagnetic storms are studied using the ground magnetic data available for almost a century from the low latitude station, Alibag. Results are discussed in reference to the geomagnetic indices available for the same period.