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## **GEOMAGNETIC STORMS AND THEIR RESPONSE IN IONOSPHERE**

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### **ABSTRACT:**

Geomagnetic Storms are highly disturbed conditions in the Earth's Magnetic Field induced by the energetic particle circulation around the Earth. This particle circulation forms a current circulation which in result induces a magnetic field which superimposes on the Earth's magnetic field and produce disturbance in its magnetic field. In this paper the response of the ionosphere to such disturbed geomagnetic conditions has been explored. As ionosphere is highly ionized conducting medium it gets affected by the Earth's magnetic field. An attempt has been made to see the nature of the disturbance in ionospheric parameters over the different latitudes all over the globe. Equatorial, Mid and High latitude ionospheric parameters have been taken and studied in time scale to see the effects of disturbed Earth's magnetic fields under geomagnetic storms.

### **INTRODUCTION:**

The Coronal Mass Ejections (CMEs) are the clouds of plasma being thrown out from solar atmosphere into the interplanetary space. When these gigantic amount of solar plasma threaded by the solar magnetic field interacts with the earth's magnetosphere it results into intense disturbances in the geomagnetic field and referred as Geomagnetic Storms [1, 2]. Such geomagnetic storms, which last for some tens of hours to days, are a result of interaction of solar wind with the magnetosphere and are used to be characterized by depression in H component of the geomagnetic fields. This happens mainly due to the ring current encircling the Earth in westward direction [3, 4]. So the main cause of such storms is the significant development of ring current encircling the earth in westward direction which leads to depression in horizontal component of earth's magnetic field.