Geomagnetic Storms associated with Isolated Halo CME's during the period 1996-2014.

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We have studied 21 isolated geomagnetic storms (GMS) with an intensity of Dst< -50nT, that are associated with isolated front sided Halo Coronal Mass ejections (CME) which occurred during the period 1996–2014. All these GMS's are associated with a Storm Sudden Commencement. The effect of the interplanetary magnetic field as well as the various solar wind plasma parameters on each of these events is analyzed.

The disturbances in the parameters, Plasma temperature, the Z component of the interplanetary magnetic field (Bz), Solar wind speed and the Proton density have been found to play a crucial role in producing the GMS and also in the resultant storm strength. However, even though all the storms are associated with isolated Halo CME's of varied initial speeds, the strength of the storm does not necessarily correlate with the CME speed and thus it appears to indicate that these events do not fit into the general statistical trends that relate the CME speed and the corresponding geoeffectivity. We also notice that the strength of the storm cannot be generalized as attributed to the behavior of any single parameter.