

---

# NASA/ADS

## Interplanetary shocks and geomagnetic activity in solar maximum (2000) and solar minimum (1995-1996)

Show affiliations

**Echer, E.; Gonzalez, W.; dal Lago, A.; Vieira, L.; Guarnieri, F.; Prestes, A.; Gonzalez, A.; Schuch, N.**

Plasma and magnetic field parameters variation through fast forward interplanetary shocks were correlated with the peak geomagnetic activity index Dst in a period from 0 to 3 days after the shock, in solar maximum (2000) and solar minimum (1995-1996). Solar wind speed (V) and total magnetic field (Bt) were the parameters with higher correlations with peak Dst index. The correlation coefficients were higher in solar minimum ( $r = 0.73$  for V and  $0.62$  for Bt) than in solar maximum ( $r = 0.40$  for V and  $0.35$  for Bt). A statistical distribution of geomagnetic activity levels following interplanetary shocks was obtained, by taking the Dst peak after the shock. It was observed that in solar maximum 36% and 28% of interplanetary shocks were followed by intense ( $Dst \leq -100$  nT) and moderate ( $-50 \leq Dst < -100$  nT) geomagnetic activity, whereas in solar minimum 13% and 33% of the shocks were followed by intense and moderate geomagnetic activity. We conclude that the upstream/downstream variations of V and Bt through the shocks were the parameters better correlated with geomagnetic activity level, and that in solar maximum a higher relative number of interplanetary shocks can be followed by intense geomagnetic activity than in solar minimum.

### **Publication:**

34th COSPAR Scientific Assembly, The Second World Space Congress, held 10-19 October, 2002 in Houston, TX, USA., meeting abstract, id.397

### **Pub Date:**

2002

### **Bibcode:**

2002cosp...34E.397E

