Interplanetary Conditions During Solar Minimum 23/24 and Their Potential Geospace Consequences

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The most recent solar minimum has brought with it some unusual interplanetary conditions that can be understood given the prevailing photospheric magnetic fields. In particular, there have been periods of extraordinary solar wind streams with deep rarefaction regions accompanying some of the lowest solar wind densities and interplanetary fields in the space age records. At the time of writing, now low velocities combined with the still weak magnetic fields have continued to reduce the interplanetary convection electric fields. While there have been a number of interplanetary coronal mass ejections detected at L1 and STEREO locations, these have generally been slow and thus not very geoeffective from a Dst minimum perspective. We consider the standard interplanetary measures of geoeffectiveness including Bz, VBz and so← (Blar wind dynamic pressure including shocks in the period since STEREO launch in late 2006, and comment on how these, together with solar EUV intensities, have resulted in the extraordinary conditions observed in geospace these last 4 years.