Ionospheric scintillation study over Indian Antarctic station Maitri using GPS data as part of IPY 2008

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We have studied the occurrence characteristics of high latitude L-band scintillations during the low solar activity period of 2008 at Indian Antarctic station Maitri. To study the L-band scintillations and the associated irregularities at high latitudes, about one year observations were carried out at high latitude Indian Antarctic Station Maitri by using Novatel's dual frequency GPS receiver GISTM 4004A. The scintillation morphology is described in terms of percentage occurrence in specified threshold level according to intensity and differential phase of S4 Index. On the basis of S4 Index, we divided scintillation into three groups as weak (S4<0.1) moderated (S4<0.3) and strong (S4<0.5). From our analysis we found that the high latitude L-band scintillations are observed only during night time. Since the observational period was low solar activity period, hence the observed scintillations were generally weak type (S4 index less than 0.5). The weak scintillations (S4>0.1) are observed all the 24 hour of the day in almost all the seasons whereas during morning and afternoon hours, slightly higher magnitude scintillations (S4 < 0.5) are also observed during the solar minimum period of 2008. Similarly maximum occurrence of scintillation is noted during summer season whereas in winter and equinox seasons, scintillations are observed mostly in early morning hours as well as during night hours. The maximum occurrences of scintillations are observed between June and December months of the year 2008.

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