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Solar wind turbulence at kinetic scales inside 1 AU: HELIOS revisited

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We use Search Coil Magnetometer data on Helios 1 in 1975 to study the radial evolution of solar wind magnetic field turbulence in the kinetic range, at scales smaller than the ion characteristic scales. Helios being a closest mission to Sun till date offers a unique opportunity to study turbulence in different regions of the inner Heliosphere. The magnetic spectra from 7Hz and up to $\sim$680 Hz has been studied. We see the signatures of quasi-parallel whistlers waves in the magnetic spectra at a fraction of the local electron cyclotron frequency. We relate the presence of whistlers and their evolution with radial distance to different physical parameters such as solar wind type, plasma beta and features of the electron distribution functions.