



Characteristics of banded chorus-like emission measured by the TC-1 Double Star spacecraft

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We present a study of the spatio-temporal characteristics of banded whistler-mode emissions. It covers the full operational period of the TC-1 spacecraft, between January 2004 and the end of September 2007. The analyzed data set has been visually selected from the onboard-analyzed time-frequency spectrograms of magnetic field fluctuations below 4 kHz measured by the STAFF/DWP wave instrument situated onboard the TC-1 spacecraft with a low inclination elliptical equatorial orbit. This orbit covers magnetic latitudes between -39° and 39° . The entire data set has been collected between $L=2$ and $L=12$. Our results show that almost all intense emissions (above a threshold of $10^{-5} \text{ nT}^2 \text{ Hz}^{-1}$) occur at L-shells from 6 to 12 and in the MLT sector from 2 to 11 hours. This is in a good agreement with previous observations. We determine the bandwidth of the observed emission by an automatic procedure based on the measured spectra. This allows us to reliably calculate the integral amplitudes of the measured signals. The majority of the largest amplitudes of chorus-like emissions were found closer to the Earth. The other result is that the upper band chorus-like emissions (above one half of the electron cyclotron frequency) are much less intense than the lower band chorus-like emissions (below one half of the electron cyclotron frequency) and are usually observed closer to the Earth than the lower band. This work has received EU support through the FP7-Space grant agreement n 284520 for the MAARBLE collaborative research project.