

We analyze data from wave measurements performed by the DEMETER spacecraft in the frequency range up to 1250 Hz. We investigate the dependence of wave parameters on daytime, geomagnetic latitude, geomagnetic activity, and season, both globally and in the geomagnetic longitude range corresponding to America, where there is a substantial seasonal variation in lightning occurrence. We show that, during the day, there is generally a prevalence of waves propagating from larger radial distances, i.e. generated by plasma instabilities; during the night, the situation is opposite, indicating a prevalence of waves generated by lightning activity. The difference in wave vector directions detected above America is the largest between winter days during elevated geomagnetic activity and summer nights during low geomagnetic activity. We use the typical wave vector directions to trace back the tentative source region of the waves detected during the daytime half-orbits.