Auroral kilometric radiation observed on Earth’s night-side by DEMETER satellite

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We report on auroral kilometric radiation (AKR) recorded by ICE Instrument onboard DEMETER satellite. This electric field experiment covers the frequency range between DC and 3.25 MHz. Specific AKR events have been observed in frequency bandwidth from 100 kHz to about 1 MHz. We have selected events occurring on the night-side of the Earth, mainly between 22 MLT and 02 MLT, when the satellite travels from the southern to the northern hemispheres. We study the AKR flux density variation versus the emitted frequency and the magnetic latitude. We show that AKR events exhibit bursty spectral emission at sub-auroral regions. The satellite orbit constraint does not allow observing the complete spectral emission but partially in magnetic latitude intervals, between $-65^\circ$ and $-55^\circ$, and between $+55^\circ$ and $+65^\circ$. We emphasize on the analysis of the opening angle of the hollow cone associated to the recorded AKR events at such low magnetic latitudes. We also consider the AKR conjugate source emissions, occurring in opposite hemispheres, and recorded along the same DEMETER orbit, first in the southern and then in the northern sub-auroral regions. Main outcomes are compared to the investigations of Parrot and Berthelier (\textit{J. Geophys. Res.}, 117, A10314, 2012), more recently those of Zhao et al. (\textit{Geophys. Res. Lett.}, 46, 7230–7236, 2019) using, respectively, DEMETER and Van Allen Probes observations.