

APPEARANCE OF AURORAL ROAR AND MF BURST

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In order to understand generation mechanisms of auroral roar and MF burst, a new instrumentation was installed at Longyearbyen in Svalbard (CGM Lat.: 75.2 deg) in August 2008. It consists of two types of observation systems. One was designed for the continuous observation of spectrum in a frequency range below 6 MHz, and the other was designed to obtain waveform data in a frequency range below 4 MHz by an A/D converter with a sampling speed of 10MSPS. The observation show dependence of appearance of auroral roar and MF burst on auroral activity, ionospheric conditions, local time, and so on. For example, MF burst and auroral roar were detected on September 4 and 8, 2008. Comparison with other ground-based observation data showed that the MF burst was coincident with low latitude absorption event while the auroral roar was not associated with any absorption events. The results suggest that MF burst is generated by high energy (more than several keV) electrons in the low latitude region in association with auroral breakup, and auroral roar is generated by low energy (several hundred eV) electrons above the station.

MF burst, auroral roar, ionospheric absorption

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