RELATIONSHIP OF VLF CHORUS CHARACTERISTICS AND ELF HISS INTENSITY VARIATIONS

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We selected an isolated event of VLF chorus occurred at the station Porojarvi (L=6) on January, 19, 1993 during the interval of moderate magnetic activity (Kp=2+). Simultaneously with the VLF chorus an ELF hiss was observed, and the lower frequencies of VLF chorus correlated with the ELF hiss frequency. While the frequencies of the ELF hiss changed from 1300 up to 1700 Гц the intensity of the ELF hiss changed by an order. The intensity of the ELF hiss was rapidly growing during 10 minutes, reaching its maximum and then decreased smoothly during 40 minutes. The analysis showed that both the repetition frequency of chorus elements and mean frequency sweep rate of chorus elements increased when the ELF hiss amplitude increased.

Short period variations of the ELF hiss amplitude and frequency were also observed, The main maximum in the ELF intensity spectrum was registered at frequency of 0.25 Hz (at period of 4 s). Simultaneously the geomagnetic pulsations with period of 4 s were observed at Porojarvi. Apparently, there was an external modulation of the ELF hiss by the ULF waves. The VLF chorus also tended to bunch with the period of about 4 sec. From time to time the second and third harmonics of dominated frequency (0.25 Hz) were observed in variations of amplitude of the ELF hiss and VLF chorus.

Various mechanisms providing the relation of VLF chorus characteristics with the ELF hiss intensity variations on different time scales are discussed.

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