“ON-OFF” INTERMITTRNCY AS A DYNAMIC ANALOGY OF VLF CHORUS GENERATION

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We consider a new numerical model to explain the dynamics of the VLF/ULF chorus elements revealed in satellite and ground-based observation data. We suppose that generation mechanism of the chorus element is the same as in backward wave oscillator (BWO). However, now we assume that the BWO-like generator is driven by another dynamic system, which has a noise component. In such case the so-called “on-off” intermittency regime is possible to occur if the BWO-like generator is near the generation threshold. A power-law distribution of time intervals between bursts of generation is the manifestation of the intermittency regime. By this model it is possible to explain also such features of VLF/ULF emissions as: 1) transition from discrete choruses to the hiss then the magnetosphere disturbance is increasing; 2) modulation of the chorus groups by low frequency (<0.5 Hz) oscillations. The connection between the model dynamics and observations is discussed. Some conclusions about parameters of the generator are presented.
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