

# Effects of the Ring Current's Pressure Gradients on ULF Waves in the Magnetosphere

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A three-dimensional box model has been developed to study the MHD wave coupling in the magnetosphere. In this model, the effects of the ring current are included by the axisymmetric ring current may play an important role in producing spectral noises in compressional waves, while field line resonances have no such disturbances. Our numerical results suggest that any discrete spectral peaks such as the global cavity modes can hardly occur where the pressure distribution of the ring current becomes important. The continuous band of transverse waves are found to be unperturbed until the ring current becomes significantly asymmetric with respect to the dipole axis. In addition, our results in the absence of the pressure gradient are found to be consistent with the previous results from the box-like and dipole models.

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