



Interactions between ULF waves and cold plasmaspheric particles

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Ultra-Low-Frequency (ULF) waves play a fundamental role in mass transportation and particle acceleration during solar wind-magnetosphere coupling process. The physical processes of large-scale MHD waves are active topics in space physics research. Spacecraft observations have proved the ULF waves' effect on prompt acceleration of radiation belt electrons and ring current ions. Recent research progress on ULF waves' interaction with cold plasmaspheric particles becomes a hot topic. In this paper, we briefly review recent findings about how ULF waves are controlled by the evolution of plasmaspheric plume structure, how cold plasmaspheric particles are affected by ULF waves, and whether plasmaspheric density structures (e.g. plasmopause and plasmaspheric plumes) are associated with the generation of ULF electromagnetic ion-cyclotron (EMIC) waves.