

Automatic detection of Langmuir Wave in the magnetosphere via a neural network

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GEOTAIL spacecraft was launched in 1992, and has been researching a variety of regions in the magnetosphere of the Earth. Among seven detectors on onboard GEOTAIL, the PWI(Plasma Wave Instruments) observes plasma waves in the magnetosphere. One of the plasma waves, Langmuir Wave, is known that the frequency of the wave corresponds to the plasma frequency in the vicinity of satellite. Thus we can estimate plasma densities using the plasma wave data. Herein we apply BackPropagation(BP) method, one of the Neural Network technique, to the graphic plot data of the plasma wave. The present BP method is specialized for the plasma wave data observed by satellite. We present our BP method and show the events when the Langmuir Wave is automatically detected.