

Analysis of Langmuir waves caused by Chorus observed by the Arase satellite

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Langmuir waves caused by Chorus have been reported in the magnetosphere. In this event, a periodic Langmuir wave burst is observed with the $E_{//}$ component of the Chorus. In Li et al. (2017), the events observed by WFR, waveform receiver onboard Van Allen Probes, are analyzed. Since the Langmuir wave burst is observed in the phase where the $E_{//}$ component of the chorus is opposite to the propagation direction and the electron beam is observed at the same time, this event is thought to be due to the electron accelerated by the $E_{//}$ component of the Chorus.

In this presentation, we report a similar event observed by the Arase satellite. From the data observed by the WFC onboard the Arase satellite in May 2017, we confirmed a similar event 205 times. For these electric field waveforms, we extracted only the $E_{//}$ components of each of the chorus and Langmuir waves, and analyzed the relationship between the phase of the chorus and the intensity of the Langmuir waves. As a result, we were able to confirm an event in which a strong Langmuir wave was generated in a specific phase of the chorus, as in previous studies. In addition, we also found an example in which there was no relationship between the Langmuir wave intensity and the chorus phase, suggesting that there are multiple event generation mechanisms. In the presentation, we will report the details of these events and compare the parameters when observed for the two types of events.

References

Li, J., et al. (2017). Chorus wave modulation of Langmuir waves in the radiation belts. *Geophys. Res. Lett.*, 44, 11,713– 11,721. doi: 10.1002/2017GL075877

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