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ポスター 3 : 11/6 AM1/AM2 (9:00-12:30)

#榎本 結衣¹⁾, 石坂 圭吾²⁾, 栗田 怜³⁾, 小嶋 浩嗣⁴⁾, 頭師 孝拓⁵⁾, 熊本 篤志⁶⁾, 齋藤 義文⁷⁾, 阿部 琢美⁸⁾

(¹⁾富山県大, (²⁾富山県大・工, (³⁾京都大学 生存研, (⁴⁾京大, (⁵⁾奈良高専, (⁶⁾東北大・理・地球物理, (⁷⁾宇宙研, (⁸⁾JAXA宇宙科学研究所

Analysis of DC electric field in the cusp region observed by SS-520-3 rocket

#Yui Enomoto¹⁾, Keigo Ishisaka²⁾, Satoshi Kurita³⁾, Hirotsugu Kojima⁴⁾, Takahiro Zushi⁵⁾, Atsushi Kumamoto⁶⁾, Yoshifumi Saito⁷⁾, Takumi Abe⁸⁾

(¹⁾Toyama Pref. Univ., (²⁾Toyama Pref. Univ., (³⁾RISH, Kyoto Univ., (⁴⁾Kyoto Univ., (⁵⁾National Institute of Technology, Nara Col., (⁶⁾Dept. Geophys, Tohoku Univ., (⁷⁾ISAS, (⁸⁾ISAS/JAXA

The region called the cusp is near the surface where the lines of magnetic field close. Some physical phenomena are observed in the cusp region due to the downward flow of high-energy plasma particles from the solar wind or the magnetosphere. The SS-520-3 rocket was launched in November 2021 to observe ion heating and acceleration due to the interaction of atmospheric ions and waves over the Arctic region. The SS-520-3 sounding rocket payload is equipped with low frequency wave analysis system (LFAS) with two set of orthogonal double probes to measure both DC and AC electric fields in the spin plane of the payload by using the double probe method. The Electric Field Detector (EFD) is one of the instruments in the LFAS. The EFD observe the DC electric field and extreme low frequency components less than 400 Hz. The EFD electronics was normally operating but only two of the four antennas were normally extended. However, the two antennas extend on different axes. In the case of the S-520-27 sounding rocket, the electric field detector was outputted the potential difference measured by probes extended on different axes. We compared the electric field waveform measured by a normal double probe system with the electric field waveform by a probe extended on a different axis. As a result, both electric field waveforms were almost the same. Therefore, we obtained the electric field waveform using single probe data observed by two antennas extended on the different axis measure by the EFD onboard the SS-520-3 sounding rocket. In this presentation, we will describe the derivation of the DC electric field vector using the single probe data observed by the SS-520-3 sounding rocket.