

Measurements of three-dimensional DC electric field in the ionosphere using the S-310-37 sounding rocket

Keigo Ishisaka[1]; Yuki Ashihara[1]; Taketoshi Miyake[1]; Toshimi Okada[2]; Yasumasa Kasaba[3]; Takumi Abe[4]

[1] Toyama Pref. Univ.; [2] Electronics and Infomatics, Toyama Pref Univ; [3] JAXA/ISAS; [4] ISAS/JAXA

The S-310-37 sounding rocket experiments were carried out at Uchinoura Space Center (USC) on 16 January, 2007. The purpose of S-310-37 rocket experiment is an integrated observation of the high electron temperature layer in the Sq current focus during the winter daytime over USC. In order to measure the field-aligned electric field due to the Sq current, we developed the three-dimensional electric field detector (EFD). The EFD measures three components of electric field by using 3 pair of probe antennas. As a result of rocket measurement, it is clearly seen three components of electric field are fluctuated at the altitude from about 90 km to 120 km during the ascent. Particularly the electric field component parallel to the rocket spin axis is fluctuated in the region where the electron temperature is high.

In this presentation, we report on the result of electric field measurement of S-310-37 sounding rocket. Then we will discuss about the relation between DC electric field and high electron temperature layer in the ionosphere.