

Measurement of electric field and LF/MF band radio waves in the ionosphere by S-520-23 sounding rocket

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S-520-23 sounding rocket experiments are carried out at Uchinoura Space Center (USC) in Japan at 19:20 LT on 2 September, 2007. The purpose of this experiment is the investigation of the process of momentum transportation between the atmospheres and the plasma in the thermosphere during the summer evening time at mid latitudes. The Electric field and VLF/MF band Receiver (EVMR) is loaded on this sounding rocket. The EVMR measures the two components of electric field by using 2 pair of probe antenna in order to obtain a dynamics of plasma particle in the ionosphere. The EVMR measures the intensities and the waveforms of two radio waves from NHK Kumamoto broadcasting station (873 kHz, 500 kW) and JJY signal from Haganeyama radio station (60 kHz, 50 kW), too. The electron density profile and the collision frequency in the ionosphere are estimated by the propagation characteristics of two radio waves measured by the sounding rocket and the full wave method.

In presentation, we will show the results of electric field measurements and propagation characteristics of VLF/MF radio waves measured by S-520-23 sounding rocket and an electron density profile in the ionosphere.