

Measurements of propagation characteristics of LF/MF band radio waves in the ionospheric E region by S-310-38 sounding rocket

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S-310-38 sounding rocket experiments are carried out at Uchinoura Space Center (USC) in February 2008. The purpose of this experiment is the investigation of spatial structure of ionospheric E region when the sporadic E region is arising. The LF/MF band radio receiver is installed on S-310-38 sounding rocket. This receiver measures the intensities of two radio waves transmitted from NHK Kumamoto broadcasting station (873 kHz, 500 kW) and JJY signal from Haganeyama radio station (60 kHz, 50 kW). The approximate electron density profile can be determined from the comparison between the propagation characteristics of radio waves measured by the sounding rocket and those calculated by the full wave method. The JJY signal (60 kHz radio wave) propagates above the reflection altitude so that 60 kHz radio wave changes the whistler mode wave at the its altitude. We investigate the layer structure of ionospheric E region using the propagation characteristic of 60 kHz radio wave.