

Remote sensing of thunderstorms and TLEs by RISING-2 microsatellite

Junichi Kurihara^{1*}, Yukihiro Takahashi¹

¹Faculty of Science, Hokkaido University

Tohoku University and Hokkaido University developed a new 50 kg-class microsatellite RISING-2, which will be launched in sun-synchronous (12 LT) polar orbit at 628 km altitude as a piggyback of the ALOS-2 satellite with H-IIA rocket in 2013. This satellite inherits the development technique of RISING (SPRITE-SAT), which was designed for the observations of TLEs and launched on January 2009. In addition to the Lightning and Sprite CMOS Imagers (LSI) installed on RISING and JEM-GLIMS, RISING-2 carries a new optical instrument, High Precision Telescope (HPT), developed by Hokkaido University. HPT uses a Cassegrain telescope with 10-cm diameter and 1-m focal length and can observe the earth surface with 5-m GSD. HPT has four sensitive CCDs, and three of them are allocated to Red/Green/Blue bands to make color images. The other CCD is for multispectral observations in the near-infrared region (650-1050 nm) using a Liquid Crystal Tunable Filter (LCTF). LCTF can change the center wavelength to transmit the near-infrared light with the mean band width of 20 nm. By the three-axis attitude stabilization of RISING-2, HPT is able to observe the designated area or direction from the orbit. This allows flexible observations of thunderstorms and TLEs from space with high spatial resolution.