

Mission Status of RISING-2

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RISING-2 is a 50kg microsatellite successfully launched with the H-IIA rocket piggybacked on the ALOS-2 mission in May 2014. It is the result of a synergic joint collaboration between Hokkaido University and Tohoku University. Mission instruments consist of a VLF receiver, bolometer camera, wide field camera, lightning and sprite imager and a high precision telescope (HPT). This last comprises a reflecting telescope of 5m ground sample distance followed by two optical channels - visible and near infrared, respectively coupled with RGB filters and a liquid crystal tunable filter (LCTF).

The onboard LCTF is a compact (30mm cube) and light weight (80g) component developed by Hokkaido University, and as the world's first space LCTF, its spectral features are promising for the multi and hyperspectral data community, with configurable bands within 650-1050nm, 1nm/step, 10 to 30nm bandwidth.

We demonstrate the RISING-2 HPT-LCTF imagery pre-processing chain as well as its spatial and spectral capabilities, comparing its performance to existing systems. Quality metrics used for this analysis are Noise to Signal ratio, Modulation Transfer Function and Normalized Difference Vegetation Index comparison.

Keywords: microsatellite, remote sensing, Earth Observation, hyperspectral, LCTF