

29th IAA SYMPOSIUM ON SMALL SATELLITE MISSIONS (B4)
Small Earth Observation Missions (4)

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COMPARING PRE- AND POST-LAUNCH IMAGES FROM THE HYPSON-1 CUBESAT
HYPERSPETRAL IMAGER

Abstract

The HYPSON-1 cubesat is a 6U cubesat for ocean color observation with a hyperspectral imaging payload onboard, that was launched in January 2022. The following months after launch consisted of commissioning and validation phases to test and validate the satellite and payload performance. The hyperspectral imager is a visible to near infrared pushbroom instrument based on a transmissive grating design built out of commercial off-the-shelf components, which was thoroughly calibrated and characterized prior to launch. During launch, however, the satellite and payload must endure strong forces, and any tiny movements or changes to any of the components can affect the resulting data products, this is especially true for the components in the optical train of the hyperspectral imager. Preliminary testing showed that sub-millimeter shifts of optics spacing and component orientation resulted in measurable performance degradation. Careful on-orbit calibration and validation is therefore important to understand the data and its limitations. Here we present the observable changes in the recorded raw images between data gathered during the pre-launch calibration campaign and data from the post-launch validation campaign, focusing on how the observed changes may affect performance of the hyperspectral instrument.