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## COMPACT INFRARED CAMERA(CIRC) FOR EARTH OBSERVATION

**Abstract**

The Compact Infrared Camera (CIRC) is a technology-demonstration instrument equipped with an uncooled infrared array detector (microbolometer) for space application. Microbolometers have an advantage of not requiring cooling system such as a mechanical cooler. Another characteristic of the CIRC is its use of athermal optics. The athermal optics system compensates for defocus owing to temperature changes. The CIRC achieves a small size (approximately 200 mm), light mass (approximately 3 kg), and low electrical power consumption (<20 W) by employing athermal optics and a shutterless system. The main objective of the CIRC is to detect wildfires. Wildfires are major and chronic disasters affecting many countries in the Asia-Pacific region.

Lightweight, compact, and with low power consumption, CIRC can be mounted on multiple satellites to enable high-frequency observation. Two CIRCs are launched as a technology demonstration payload of ALOS-2 and JEM/CALET. ALOS-2/CIRC was launched in late May 2014. We plan ground vicarious radiometric calibrations such as a lake temperature measurement by ground-based and airborne observation to verify pre-launch calibration factor. These calibrations are significantly important to verify calibration accuracy because the CIRC is a challenging sensor without a calibration function in orbit. We evaluate the calibration accuracy of 4 K using brightness temperature at the top of the atmosphere in the calibration validation phase. We show the on-orbit check-out results of the CIRC onboard ALOS-2 and JEM/CALET in this presentation.