

EARTH OBSERVATION SYMPOSIUM (B1)
Future Earth Observation Systems (2)

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HIGH PERFORMANCE HYPERSPECTRAL IMAGER FOR A LOW-COST MICROSAT MISSION

Abstract

The simplified HySpec payload concept compactly integrates a 21 degree field-of-view telescope with a single VNIR/SWIR pushbroom imaging spectrometer operating continuously from 400 to 2360 nm with a spectral sampling of about 2.4nm/pixel. A simultaneous 250 km cross-track swath width at 30mx30m ground sample distance can be provided. Two options for the VNIR/SWIR imaging spectrometer are being considered; one based on the Offner all-mirror configuration and the second on a modified Dyson for the most compact configuration. This facilitates accommodation on a proven, standard SSTL 150 microsat bus. The mission development is supported by an ongoing relevant prototyping in collaboration with DRDC and CSA for potential airborne validations in 2015. An on board Smart Data Manager and Handler facilitates the most efficient use of the existing Canadian data downlink capabilities to meet the varying needs of the different potential data users. This allows HySpec to address the multiple Canadian users' needs for monitoring changes in land use and cover, forest and crop health, water quality and aerosol pollution. HySpec can also be an excellent complement to the current Radarsat-2 and planned Radarsat constellation missions by providing additional co-located hyperspectral discrimination of the terrain.