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- B31B-0466: The Sentinel-2 MSI Can Increase the Temporal Resolution of 30m Satellite-Derived LAI Estimates

The successful launch of the European Space Agency (ESA) Sentinel-2A (S2-A) on 23 June 2015 with its MultiSpectral Instrument (MSI) provides an important means to augment Earth-observation capabilities following the legacy of Landsat. After the three-month satellite commissioning campaign, the MSI onboard S-2A is performing very well (ESA, 2015). By 3 December 2015, the sensor data records have achieved provisional maturity status and have been accessed in level-1C Top-Of-Atmosphere (TOA) reflectance by the remote sensing community worldwide. Near-nadir observations by the MSI onboard S-2A and the Operational Land Imager (OLI) onboard Landsat 8 were collected during Simultaneous Nadir Overpasses as well as nearly coincident overpasses. This paper presents a processing chain using harmonized S-2A MSI and Landsat 8 OLI sensors to obtain increased temporal resolution in Leaf Area Index (LAI) estimates using the red-edge band B8A of MSI to replace the NIR band B08. Results demonstrate that LAI estimates from the MSI and OLI are comparable, and, given sufficient preprocessing for atmospheric correction and geometric rectification, can be used interchangeably to improve the frequency with which low LAI canopies can be monitored.

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