



Committee on Earth Observation Satellites

# MIM Update

G Dyke

LSI-VC-8

Session 4

Anchorage, Alaska, USA

4-6 September 2019



- MIM Update Survey for 2019 Underway (Matt)
- MIM Web App Development Progressed
  - Addition of Launch Activity based on COSPAR
  - Addition of Data Sets based on OpenSearch
  - Addition of Featured Data Sets
- Plan to launch updates before CEOS Plenary
- MIM API to be iterated
  - Based on migration to SQL Server Back End on AWS RDS
  - Reworked to mirror website architecture
  - October-December



## CEOS EO HANDBOOK - MISSION ACTIVITY (18 MONTHS)

Mission launch activity from the past 18 months. Powered by information from the CEOS MIM, SATCAT (collected 27-Aug-2019) [↗](#), and the UCS Satellite Database (ver. 1-Apr-2019) [↗](#).

Display:  MIM Only  All Earth Observation  All

Legend: **MIM** | **EO non-MIM** | **Other / Unknown**

2019-Q3 · 2019-Q2 · 2019-Q1 · 2018-Q4 · 2018-Q3 · 2018-Q2 · 2018-Q1

### 2019-Q3: July - September

**ICEYE-X4**, Jul-2019, Earth Observation, Finland, Vostochny (Russia) [\[Search ↗\]](#)

**ICEYE-X5**, Jul-2019, Earth Observation, Finland, Vostochny (Russia) [\[Search ↗\]](#)

**LEMUR-2-ALEX-MADDY**, Jul-2019, Earth Observation, USA, Vostochny (Russia) [\[Search ↗\]](#)

**LEMUR-2-DUSTINTHEWIND**, Jul-2019, Earth Observation, USA, Vostochny (Russia) [\[Search ↗\]](#)

**LEMUR-2-EJATTA**, Jul-2019, Earth Observation, USA, Vostochny (Russia) [\[Search ↗\]](#)

**LEMUR-2-GREGROBINSON**, Jul-2019, Earth Observation, USA, Vostochny (Russia) [\[Search ↗\]](#)

## CEOS EO HANDBOOK – MISSION SUMMARY - Landsat 8 - [?](#)

**Full Name** Landsat 8  
aka *L8, Landsat Data Continuity Mission (LDCM), Landsat-8*

**Status** Currently being flown  
**Launch Date** 11 Feb 2013

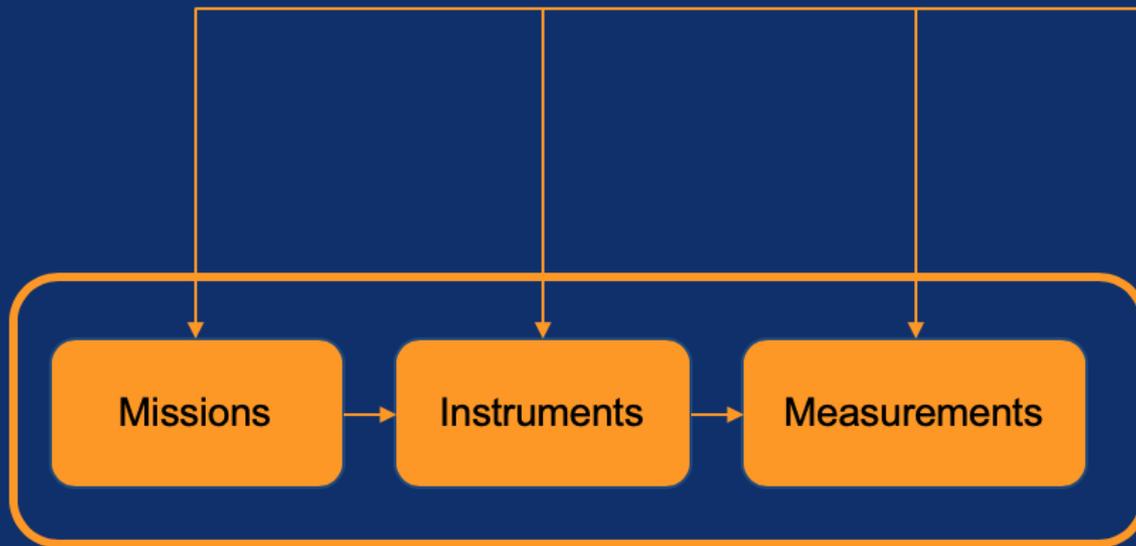
**EOL Date** May 2023

**Mission Agencies** USGS <sup>L</sup>, NASA <sup>C</sup>

**Mission Links** [mission site](#) | [mission site](#) | [data access portal](#)

**EO Portal Info** 

**NORAD Catalog # 39084 (TLE)**  
**International Designator 2013-008A**



### Datasets

*Metadata: name,  
agency(s),  
measurement(s),  
instrument(s), dates,  
description, units,  
external/access link(s)*



## OpenSearch Datasets [Selected IDN OpenSearch Results](#) (search all 75 [↗](#))

- [ABoVE: Landsat-derived Burn Scar dNBR across Alaska and Canada, 1985-2015](#) [↗](#)
- [ABoVE: River Ice Breakup and Freeze-up Stages, Yukon River Basin, Alaska, 1972-2016](#) [↗](#)
- [ABoVE: Riverbank Erosion and Vegetation Changes, Yukon River Basin, Alaska, 1984-2017](#) [↗](#)
- [CMS: Mangrove Forest Cover Extent and Change across Major River Deltas, 2000-2016](#) [↗](#)
- [COLLABORATIVE RESEARCH; IPY: Ocean-Ice Interaction in the Amundsen Sea sector of West Antarctica](#) [↗](#)
- [GFOI\\_Borneo\\_Island](#) [↗](#)
- [Global Food Security-support Analysis Data \(GFSAD\) Cropland Extent 2015 Africa 30 m V001](#) [↗](#)
- [Global Food Security-support Analysis Data \(GFSAD\) Cropland Extent 2015 Australia, New Zealand, Chin ...](#) [↗](#)
- [Global Food Security-support Analysis Data \(GFSAD\) Cropland Extent 2015 Europe, Central Asia, Russia ...](#) [↗](#)
- [Global Food Security-support Analysis Data \(GFSAD\) Cropland Extent 2015 South America product 30 m V ...](#) [↗](#)

## [Selected FedEO OpenSearch Results](#) (total 75 results)

- [ABoVE: Landsat-derived Burn Scar dNBR across Alaska and Canada, 1985-2015](#) [↗](#)
- [ABoVE: River Ice Breakup and Freeze-up Stages, Yukon River Basin, Alaska, 1972-2016](#) [↗](#)
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Want to explore more? Try FedEO on the EO Portal [↗](#) or CWIC-Start [↗](#).

## OPENSEARCH DATASET LINKS

The links below are to IDN OpenSearch for the top 50 current and past missions in each measurement domain. (Number of measurements indicated in perentheses.)

### Atmosphere



- [Metop-B \(53\) OpenSearch](#) [↗](#)
- [Metop-A \(53\) OpenSearch](#) [↗](#)
- [Aqua \(50\) OpenSearch](#) [↗](#)
- [Metop-C \(46\) OpenSearch](#) [↗](#)

### Land



- [Terra \(20\) OpenSearch](#) [↗](#)
- [Envisat \(19\) OpenSearch](#) [↗](#)
- [NMP EO-1 \(18\) OpenSearch](#) [↗](#)
- [Landsat 8 \(18\) OpenSearch](#) [↗](#)

### Ocean



- [Envisat \(29\) OpenSearch](#) [↗](#)
- [ERS-2 \(14\) OpenSearch](#) [↗](#)
- [ERS-1 \(14\) OpenSearch](#) [↗](#)
- [OSTM \(Jason-2\) \(10\) OpenSearch](#) [↗](#)



## FEATURED DATASETS

**Landsat Collection 2**  
 Dec-2019


"In 2019, the USGS will finalize the definition, production timeline and public availability of Landsat Collection 2 Level-1 and Level-2 products." [Read more](#)

**Agencies:** USGS, NASA

**Missions:** 547, 349, 88, 226, 662, 663, 664

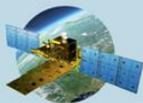
**Sentinel-2 Level-2A**  
 Dec-2018


**CARD4L** "The Level-2A product provides Bottom Of Atmosphere (BOA) reflectance images derived from the associated Level-1C products. Each Level-2A product is composed of 100x100 km<sup>2</sup> tiles in cartographic geometry (UTM/WGS84 projection). Level-2A products are systematically generated at the ground segment over Europe since March 2018, and the production was extended to global in December 2018. Level-2A generation can also be performed by the user through the Sentinel-2 Toolbox using as input the associated Level-1C product (demonstrated below)." [Read more](#)

**Groups:** LSI-VC

**Agencies:** ESA, COM

**Missions:** 552, 553

**Global PALSAR-2/PALSAR/JERS-1  
 Mosaic and Forest/Non-Forest map**  
 Jul-2018


**CARD4L** "Global 25m resolutions PALSAR-2/PALSAR mosaic and forest/non-forest map are free and open dataset generated by applying JAXA's powerful processing and sophisticated analysis method/techniques to a lot of images obtained with Japanese L-band Synthetic Aperture Radars (PALSAR and PALSAR-2) on Advanced Land Observing Satellite (ALOS) and Advanced Land Observing Satellite-2 (ALOS-2)." [Read more](#)

**Groups:** SDCG, LSI-VC

**Agencies:** JAXA

**Missions:** 242, 629, 245

**GFOI Coverage Country Reports**  
 Jul-2017


"The CEOS Space Data Coordination group (SDCG) coordinates space satellite data for CEOS initiatives, such as the Global Forest Observation Initiative (GFOI). In support of the SDCG, the CEOS Systems Engineering Office (SEO) produces historical coverage analyses utilizing the data archives for the Landsat, Sentinel-1, and Sentinel-2 missions. Currently, the SEO produces an individual report for more than 70 GFOI countries (listed below alphabetically)." [Read more](#)

**Groups:** SDCG

**Agencies:** USGS, NASA, ESA, COM

**Missions:** 226, 349, 547, 575, 576, 552, 553

## Geoscience Australia Landsat Collection 3 Upgrade Jul-2019



*"The United States Geological Survey's (USGS) Landsat satellite program has been capturing images of the Australian continent for more than thirty years. DEA takes the hundreds of thousands of images, prepares them for Australian conditions, and makes adjustments to correct inconsistencies caused by changes in the atmosphere each time an image is captured (i.e. absence or presence of cloud cover), so that the data can be analysed to provide information about our changing continent. This corrected data set is known as Landsat Surface Reflectance, and it forms the basis for many of the other information products produced by DEA. Products derived from the surface reflectance collection include Fractional Cover, Water Observations from Space, the Intertidal Extents Model, and High and Low Tide Composites." Read more [↗](#)*

Agencies: USGS, GA

Missions: 226, 349, 547

Access data via [Digital Earth Australia](#) [↗](#)

jupyter Home Token

Your server is starting up.

You will be redirected automatically when it's ready for you.

File Edit View Run Kernel Tabs Settings Help

Launcher Agriculture.ipynb Python 3

Load the data

The `load_agriculture_data()` command performs several key steps:

- identify all available Sentinel-2 near real time data in the case-study area over the last 90 days
- remove any bad quality pixels
- keep images where more than half of the image contains good quality pixels
- collate images from Sentinel-2a and Sentinel-2b into a single data-set
- calculate the NDVI from the red and near infrared bands
- return the collated data for analysis

The cleaned and collated data is stored in the `dataset_sentinel2` object. As the command runs, feedback will be provided below the cell, including information on the number of cleaned images loaded from each satellite.

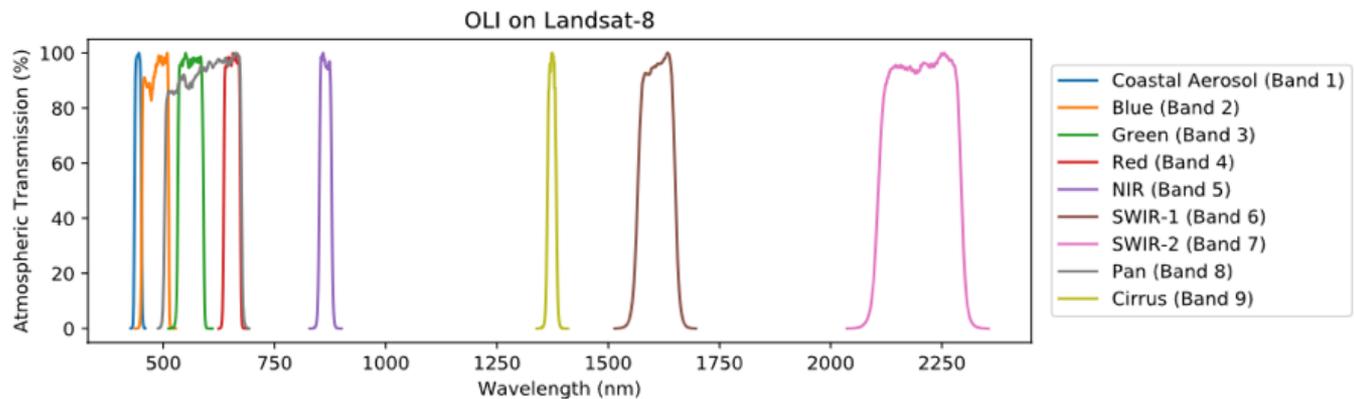
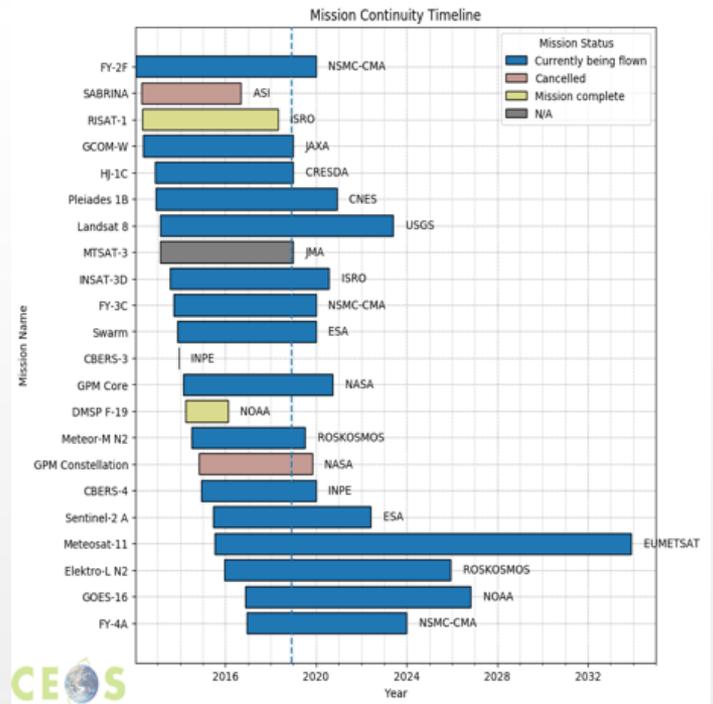
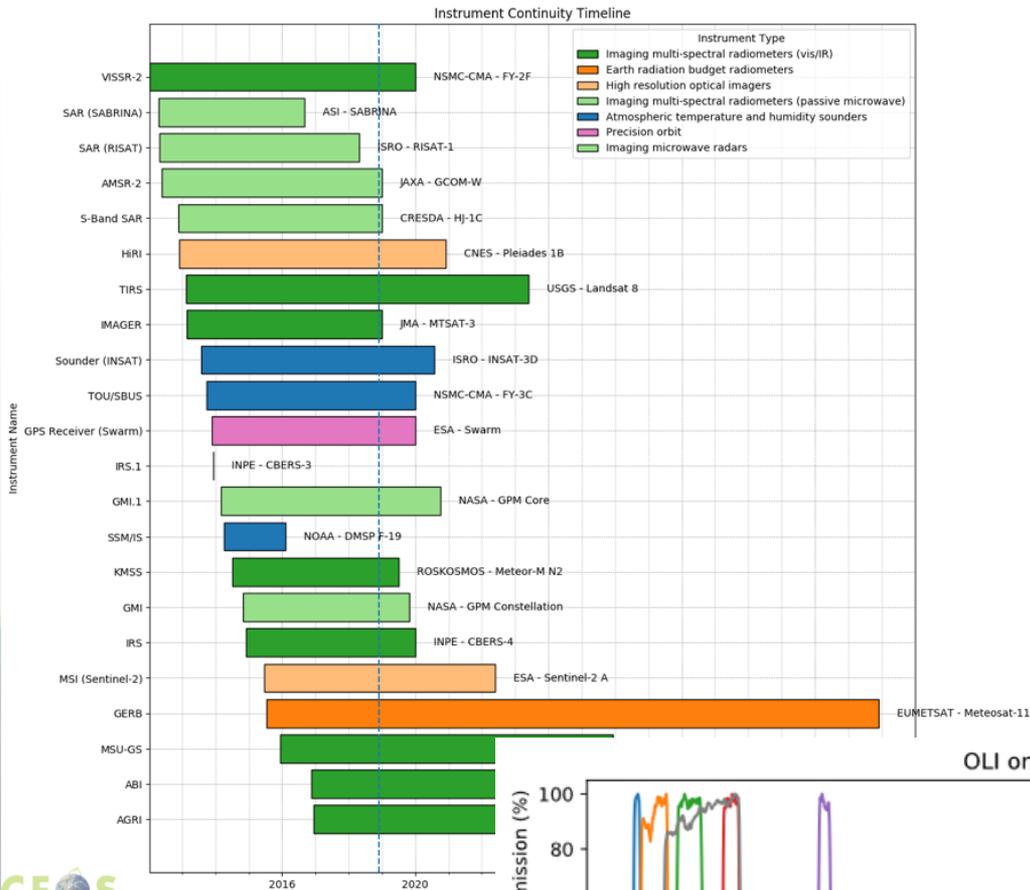
To run the following cell, click inside and either press the **Run** button on the tool-bar or press **Shift+Enter** on the keyboard.

```
[ ]: dataset_sentinel2 = load_agriculture_data()
```

Run the agriculture app



- Iterate to leverage addition of new upstream and downstream information
- Expand MIM utility for the community with more formats and more information
- Update to mirror existing CEOS MIM website structure
  - o /missions/index
  - o /mission/<missionID>
  - o /instruments/index
  - o /instrument/<instrumentID>
- Initial demonstration of utility for gap analysis in 2018 - hope to build on that



- Data
  - Featured Datasets - ARD catalog?
  - Accessibility - better links to exploitation and/or distributions platforms?
- API
  - Requirements / Gap Analysis?
  - Need more time to iterate underlying API and develop sharable examples
- Others?
  - ECV Inventory?