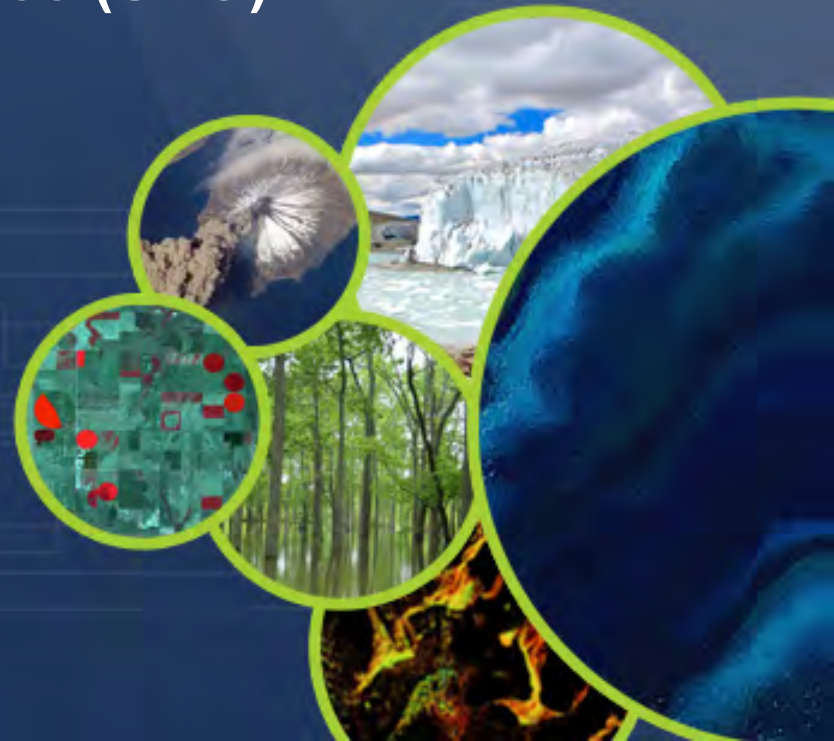


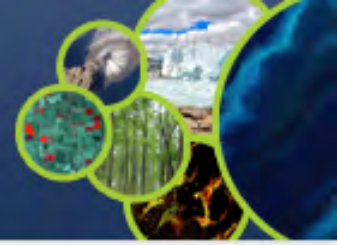


SEO Report to WGISS

Brian Killough
CEOS Systems Engineering Office (SEO)

WGISS-45 Meeting
April 10, 2018





- The CEOS Visualization Environment (**COVE**) is a browser-based suite of tools for searching, analyzing, and visualizing actual and potential satellite sensor coverage.
- COVE is **FREE and OPEN** for anyone to use! There is a large international user base with 4000+ users in 2017.
- COVE includes **131 missions** and is linked to several mission archives to get metadata and browse images for past acquired data: *Landsat, SPOT, Pleiades, Radarsat-2, ALOS-1, TerraSAR-X, Sentinel-1, Sentinel-2, CBERS-4 and ResourceSAT-2.*
- **Coverage Analyzer and Data Browser:** New tools for coverage assessments and scene data to support data ordering.

www.ceos-cove.org

COVE Home Tools Case Studies Help Contact Us Español (ES) Log In View Full Screen

Missions and Instruments

Alphabetical Custom

Sentinel-1A
 C-SAR (IW) - 249 km
 C-SAR (WV) - 291 km
 C-SAR (DM) - 372 km
 C-SAR (WV) - 188 km

Sentinel-1B
 C-SAR (IW) - 249 km
 C-SAR (WV) - 291 km
 C-SAR (DM) - 372 km
 C-SAR (WV) - 188 km

Filter: none

Time Span: 200007 to 200017

Add Ground Swath
 Add North Track
 Add Actual Acquisitions

Cart Clear Cart

Sentinel-1A: C-SAR (IW) (Actual)

Path Number: 59 Frame Number: 140
 Scene Start Time: 2017-07-01 17:39:00 UTC
 Beam Mode: IW
 Path Direction: ASCENDING
 S1A_IW_GRDH_1SDV_20170701T173900_20170701T173925_017281_D1CD62_29E9
 Order Image

COVE Home Tools Case Studies

Landsat 8
 Sentinel-1A
 EW - C-SAR
 IW - C-SAR
 SM - C-SAR
 WV - C-SAR
 Sentinel-1B
 Sentinel-2A

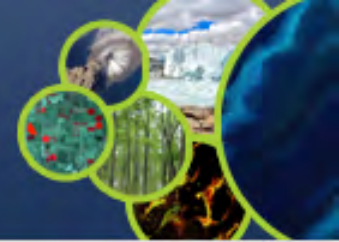
Filter Missions Filter Text

Start Time End Time

Min: 4/3/2014 Max: 8/15/2017

Region Selection

Predefined Discretizations



- Support for CBERS-4, Landsat 5/7/8, Sentinel-1A/1B, and Sentinel-2A.
- Output using discretizations for Landsat WRS, Sentinel-2 tiles, and various Lat-Lon degrees (0.10, 0.25, 0.5, 1.0).

- **Example Case:**

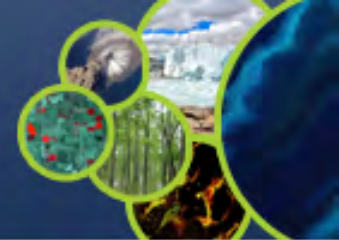
Sao Paulo,
28-Dec-2017,
Sentinel-1A,
IWS Mode

- Table Output
with scene
information

- View Browse
image

- Link to ordering





COVE
Home To

Missions and Instruments

Missions List

- ▾ CBERS-4
 - IRS - CBERS-4
 - MUXCam - CBERS-4
 - WFI - CBERS-4
 - Full - PanMUX - CBERS-4
- ▾ Landsat 5
- ▾ Landsat 7
- ▾ Landsat 8
- ▾ Sentinel-1A
- ▾ Sentinel-1B

Filter Missions
Filter Text

Start Time

Min: 12/7/2014

End Time

Max: 4/9/2018

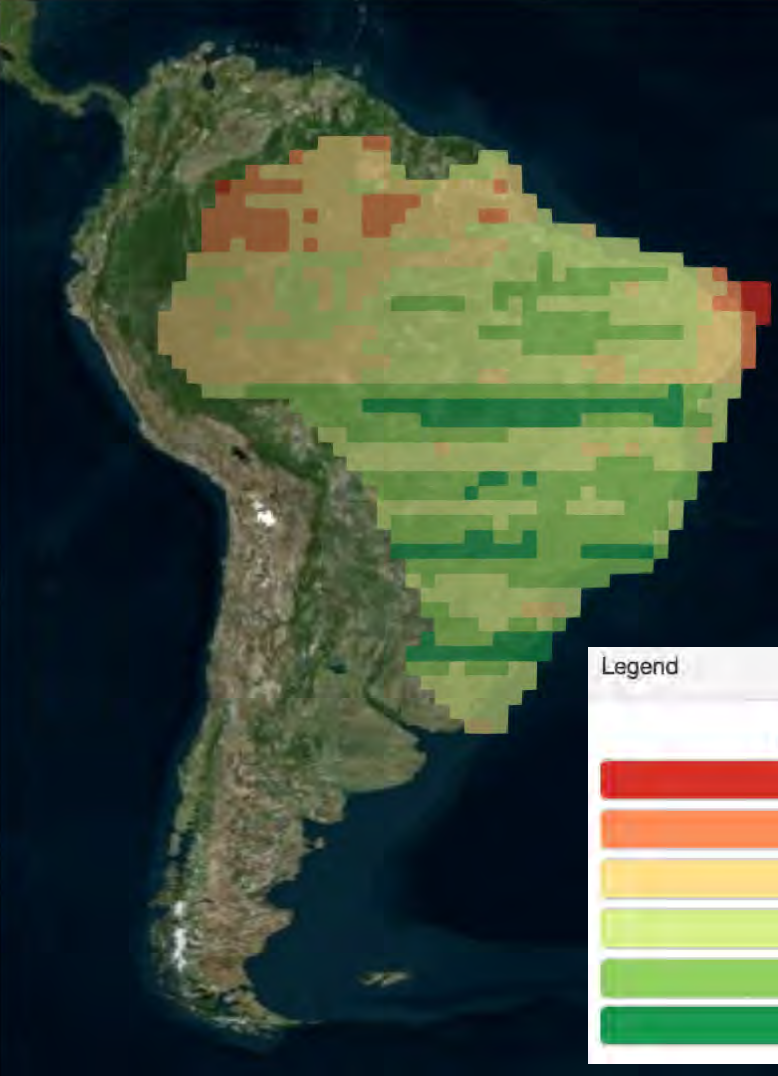
Region Selection

Predefined Discretizations

- Predefined
- User Defined

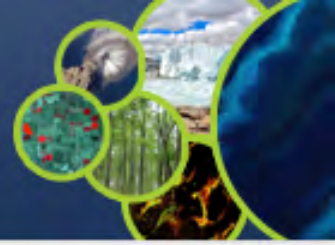
Task Status

No task pending



Legend

Color	# Images
	0 - 35
	36 - 71
	72 - 107
	108 - 143
	144 - 179
	180 - 216



- Support for CBERS-4, Landsat 5/7/8, Sentinel-1A/1B, and Sentinel-2A ... similar to Coverage Analyzer
- Filtering for cloud cover threshold (optical missions)
- Example Case:**
Japan, Nov 2017
Sentinel-2A, <50% cloudy
- Table Output with scene information and browse images
- Links to view the acquisition details, zoom into footprint on the map, and order the scene


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Query Results

Show entries 25 Click to view full table

Showing 1 to 25 of 183 entries

Acquisition Data For 2376952



Scene ID	2376952	Cloud Cover Full	33.7377
Date	Nov. 4, 2017	Granule Name	L1C_T54SVF_A012369_20171104T013555
Mission name	Sentinel-2A	Scene Center Latitude	36.5506074
Order URL	Order URL	Scene Center Longitude	140.4956272
Browse URL	Browse URL	Scene Start Time	2017-11-04T01:35:55.431Z
		Scene Stop Time	2017-11-04T01:38:16.134Z
		Sun Azimuth	166.521757716926
		Sun Elevation	52.9863210483174

on date 04

on date 04

on date 04

The CEOs Data Cube “Road to 20”

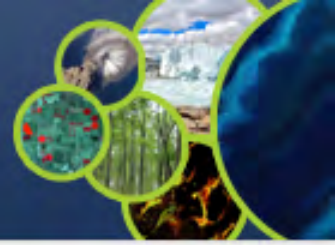


43 total countries in the 16 months!

Data Cube Plans

- New Open Data Cube deployments: Vietnam, U.K., Uganda and the Africa Regional Data Cube
- Progress collaborations with Google and Amazon
- This week ... **Swiss Data Cube Hackathon**
- IGARSS Conference in Valencia, Spain (July 2018) ... dedicated paper session and training course
- New technical additions: Jupyter (Python) Notebooks, Web-based User Interface tools
- New user applications and algorithms: Land Classification, Water Quality, NDVI Trend





- Maintain and expand the connections from satellite mission archives to the **COVE tool**.
- Investigate approaches for **on-demand Data Cube creation** using cloud-based (e.g. AWS), mirror sites (e.g. USGS, ASF), or other data sites (e.g. Copernicus Services) for discovery, processing, and ingesting of Data Cubes to support global users.

WGISS-44-08 Action: Rob Woodcock and Yonsook Enloe to further discuss the possibility to create a Python client to allow ingest of WGISS connected data assets into the CEOS Data Cube.