

# Mock Dataset Results Submission Guidelines

PS: 10 - Change detection in satellite imagery

- In this presentation, we are presenting how to submit the results for PS -10 Statement.

The following points are covered in brief:-

- Downloading Dataset
- Generation of Inference\Output for submission on portal
- Creating a package (zip file), its nomenclature and its submission for online portal for correct evaluation by the organizer.
- Common mistakes to avoid
- Submitting results in portal

# Step 1: Download Data (LISS4)

Login to the Portal

The screenshot shows the Bhoonidhi portal interface. At the top, there is a header with the Indian Government logo, the ISRO logo, and the text "Bhoonidhi ISRO's EO Data HUB" in English and "भूनिधि इसरो इओ डाटा हब" in Hindi. On the right side of the header, there is a "Login" button with a red box drawn around it. The main area features a large satellite map of the world, centered on Asia. To the left of the map is a search and filter interface. It includes sections for "Area of Interest" (with options for Location, Polygon, Shapefile, KML / KMZ, Events, and Mapsheet), "Date range" (set from 03 September 2025 to 03 October 2025), "Filters (Optional)" (with dropdowns for Open/Priced, Resolution, Imaging Spectrum, Satellite, Sensor Type, Products, and Themes), and "Satellite-Sensor (select max 10)" (with checkboxes for various options like OpenData\_DirectDownload, OpenData\_OnOrder, and Priced). There is also an "Advanced Filters" section and a "Submit" button. A "FEEDBACK" link is located at the bottom left of the search interface. The bottom of the page contains a footer with links for "About Us", "Help", "Terms&Conditions", "Disclaimer", "FAQ", and copyright information: "© Bhoonidhi: ISRO/NRSC, 2020".

<https://bhoonidhi.nrsc.gov.in/bhoonidhi/index.html>

## Plot location

The screenshot shows the Bhoonidhi EO Data HUB interface. On the left, there is a sidebar with various search and filter options. The main area is a satellite map of a green, hilly terrain. A red rectangular box highlights a specific area on the map. In the bottom right corner of the map area, there is a small white box containing the coordinates "Latitude: 25.7934 Longitude: 91.6497". The top of the page features the ISRO logo, the Bhoonidhi logo, and the text "nrsc". The top navigation bar includes links for Explore, Archives, PI Actions, Utilities, Logout, Help, and Home.

**Area of Interest**

**Location**

Place Name:

Decimal  Degree-Minute-Second

Latitude:

Longitude:

Area(km<sup>2</sup>):

Date range: 03 September 2025 - 03 October 2025

**Filters (Optional)**

- Open/Priced
- Resolution
- Imaging Spectrum
- Satellite
- Sensor Type
- Products
- Themes

**Satellite-Sensor (select max 10)**

- Disabled / Unavailable for the selected date range
- OpenData\_DirectDownload

Enter latitude & longitude provided in “PS10\_Mock\_Dataset.docx” and click plot to view Area of Interest on map.

## Select dates and sensor

ISRO Logo and Bhoomidhi Logo

Bhoomidhi - ISRO's EO Data HUB

भूनिधि इसरो इओ डाटा हब

nrsc

Explore Archives PI Actions Utilities ▾

Logout Help

Search-Criteria Search-Results Cart

Date range

Filters (Optional)

Open/Priced

Resolution

Imaging Spectrum

Satellite

**Sensor Type (1/18)**

LISS4

AIS

AVHRR

AWIFS

LISS1

LISS2

LISS3

MODIS

MultiSpectral

Products

Themes

Satellite-Sensor (select max 10)

- Disabled / Unavailable for the selected date range

OpenData\_DirectDownload

ResourceSat-2\_LISS4(MX70)\_L2

ResourceSat-2A\_LISS4(MX70)\_L2

OpenData\_OnOrder

Advanced Filters

Submit  FEEDBACK

Latitude: 25.7903 Longitude: 91.6469

The screenshot shows the Bhoomidhi EO Data Hub interface. On the left, there are search filters for date range (15 February 2022 to 15 February 2022), sensor type (LISS4 selected), and satellite-sensor (ResourceSat-2\_LISS4(MX70)\_L2 and ResourceSat-2A\_LISS4(MX70)\_L2 selected). A large red box highlights the 'LISS4' checkbox under 'Sensor Type'. Another red box highlights the 'ResourceSat-2\_LISS4(MX70)\_L2' and 'ResourceSat-2A\_LISS4(MX70)\_L2' checkboxes under 'Satellite-Sensor'. A third red box highlights the 'Submit' button at the bottom left. The main right side of the screen displays a satellite image of a green, hilly or mountainous terrain with a red rectangular box drawn over a specific area. The image is labeled with 'nrsc / ISRO' and 'Bhutan'.

Select date mentioned in “PS10\_Mock\_Dataset.docx”, choose LISS4 data. Click Submit.

## View metadata & Add to Cart

The screenshot displays the Bhoomidhi portal interface for viewing satellite metadata and adding products to a cart.

**Left Panel (Search Results):**

- Header: ISRO Bhoomidhi
- Menu: Explore, Archives, PI Actions, Utilities, Search-Criteria, Search-Results, Cart
- Footprint Controls, Search Details
- Add these products to Cart (button)
- Load more results (link)
- Map overlay color codes
- Filter Results
- Showing 1 to 1 of 1 entries
- Product details:
  - Sat\_Sen: RS2\_LIS4 \_ F\_L2
  - Scene: 056180\_110\_53
  - Dop: 15-Feb-2022
  - Pricing: OpenData\_DirectDownload
  - Added to open data cart**
- Showing 1 to 1 of 1 entries

A red arrow points from the "Added to open data cart" link to the "Add to Cart" button below it.

**Middle Panel (Meta Data Information):**

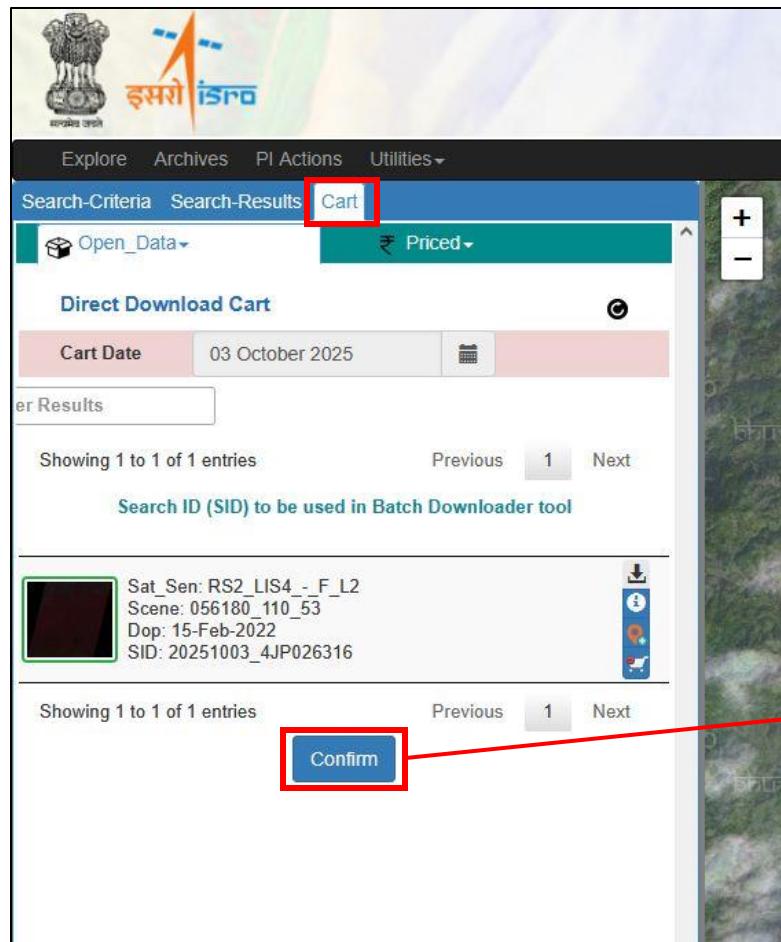
- Header: Meta Data Information
- Large thumbnail image of the satellite scene.
- Brightness and Contrast sliders (both set to 0).
- Product Id: R2F15FEB202205618001100053SSANSTUC00GTDD
- SCENE DETAILS:
  - Satellite: RS2
  - Sensor: LIS4
  - Date of Pass: 15-Feb-2022
- COVERAGE DETAILS:
  - Top Left Lat: 26.2241
  - Top Left Lon: 91.3428
  - Top Right Lat: 26.231764

**Right Panel (Satellite Map):**

- Header: Bhoomidhi
- nrsc logo
- Logout, Help, Home buttons
- Map controls (zoom, orientation, location)
- Satellite map showing a region with a red rectangular box highlighting a specific area.
- Coordinates: N 25° 46' 52" E 91° 39' 45"
- Latitude: 25.7812 Longitude: 91.6624

In case of multiple results, check product id with id mentioned in “PS10\_Mock\_Dataset.docx”. Add correct product to cart.

## Confirm & Download



ISRO Direct Download Cart

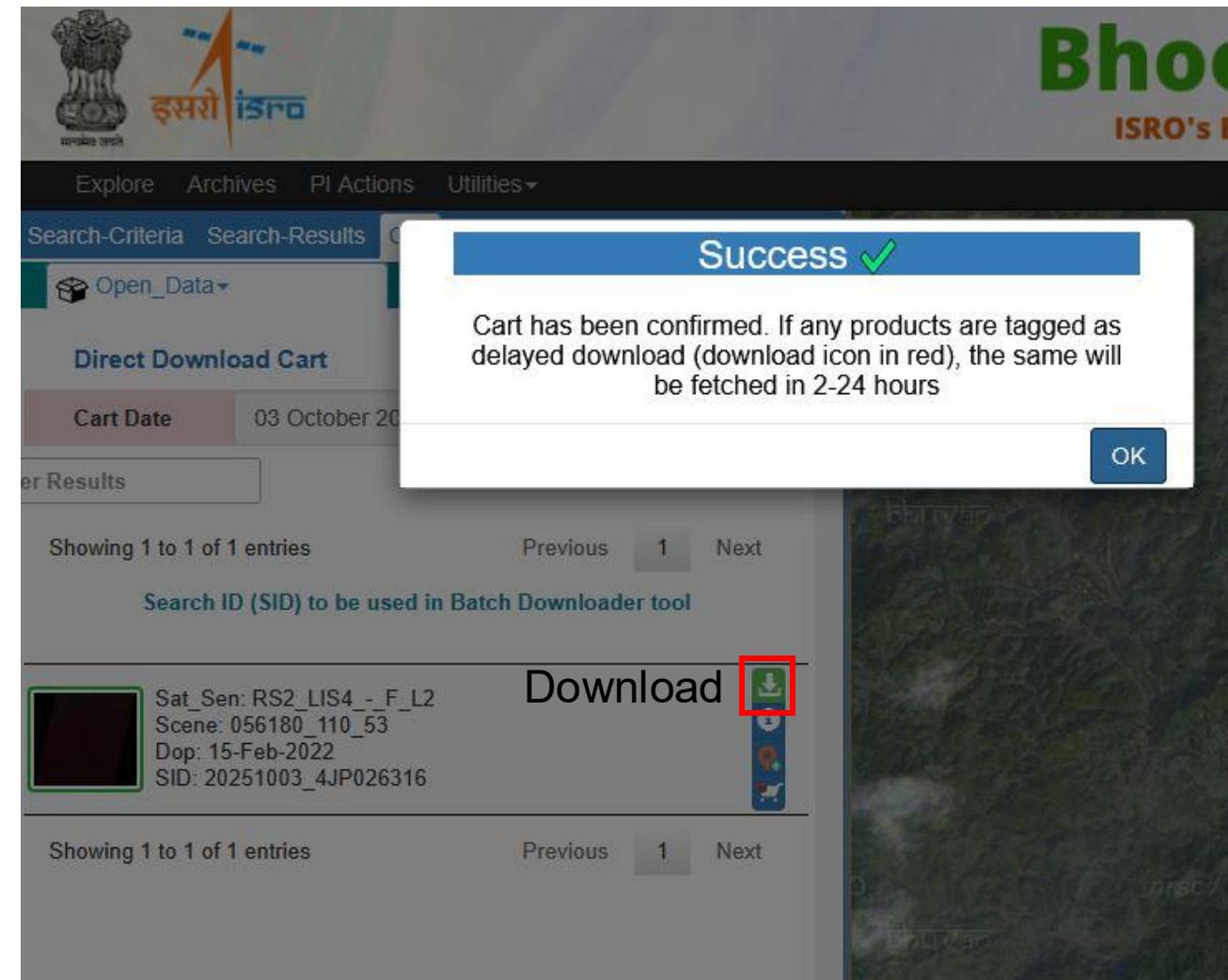
Cart Date: 03 October 2025

Search ID (SID) to be used in Batch Downloader tool

|                                                                                                |  |
|------------------------------------------------------------------------------------------------|--|
| Sat_Sen: RS2_LIS4_-F_L2<br>Scene: 056180_110_53<br>Dop: 15-Feb-2022<br>SID: 20251003_4JP026316 |  |
|------------------------------------------------------------------------------------------------|--|

Showing 1 to 1 of 1 entries

Confirm



Success ✓

Cart has been confirmed. If any products are tagged as delayed download (download icon in red), the same will be fetched in 2-24 hours

OK

Download

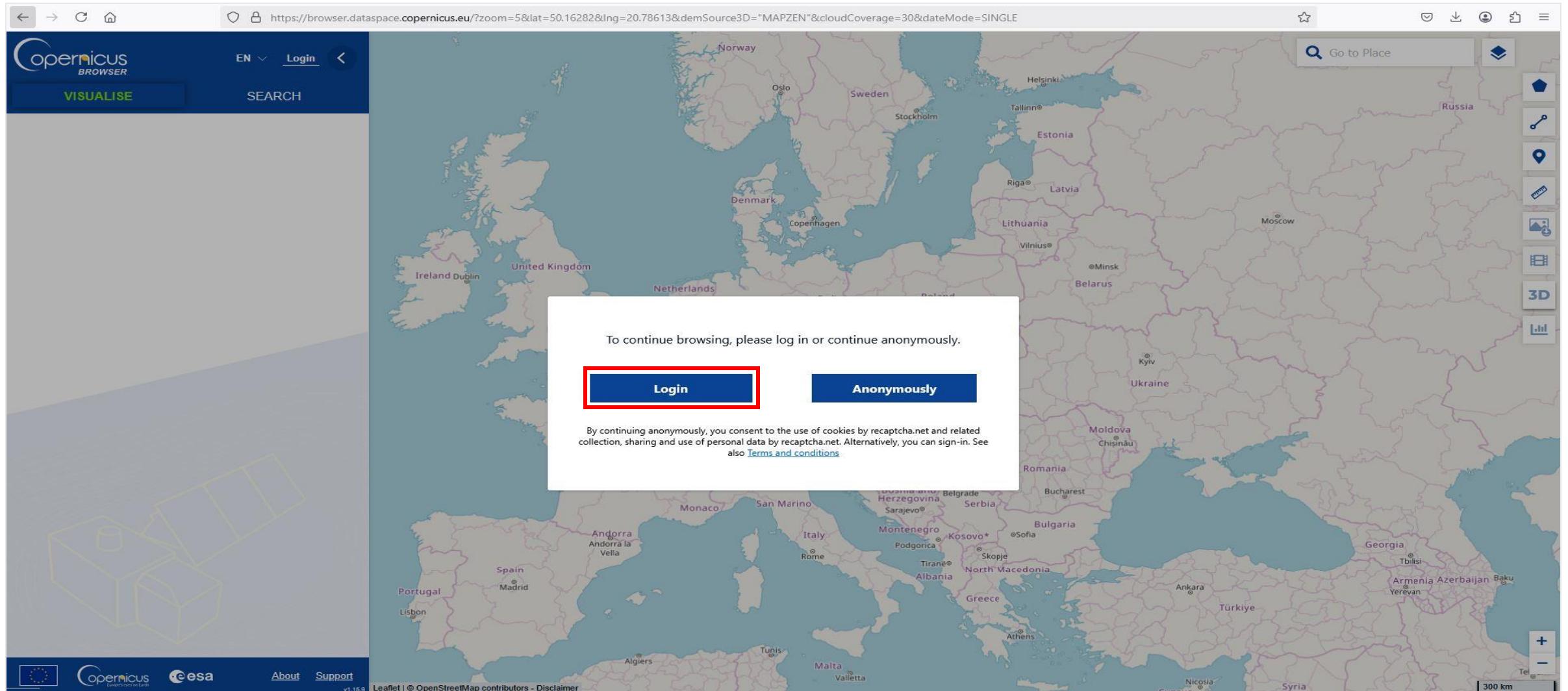
|                                                                                                |  |
|------------------------------------------------------------------------------------------------|--|
| Sat_Sen: RS2_LIS4_-F_L2<br>Scene: 056180_110_53<br>Dop: 15-Feb-2022<br>SID: 20251003_4JP026316 |  |
|------------------------------------------------------------------------------------------------|--|

Showing 1 to 1 of 1 entries

Go to cart tab, click confirm & download the product.

# Download Data (Sentinel)

Login to the Portal



<https://browser.dataspace.copernicus.eu>

## Search product

In search criteria, enter the image id mentioned in “PS10 Mock Dataset.docx” and click Search.

# Download product

The image shows the Copernicus Browser interface. On the left, a sidebar displays a thumbnail of a satellite image, search results, and download options. A red box highlights the download icon (a downward arrow) next to the file details. The main area is a satellite map of Europe, showing land cover and major cities.

**Copernicus BROWSER**

EN Login <

VISUALISE SEARCH

< Search Showing 1 result

Select all Add to workspace

S2B\_MSIL1C\_20230307T042709\_N0510\_R133\_T46RCP\_20240820T132041.SAFE

Mission: SENTINEL-2 Instrument: MSI Size: 791MB

Sensing time: 2023-03-07T04:27:09.025000Z

Visualise SENTINEL-2 MSI S2MSI1C

Ireland Dublin United Kingdom London Paris France Belgium Luxembourg Berlin Amsterdam Brussels Paris Bern Vaduz Liechtenstein Austria Slovakia

Netherlands Copenhagen Oslo Norway Sweden Denmark

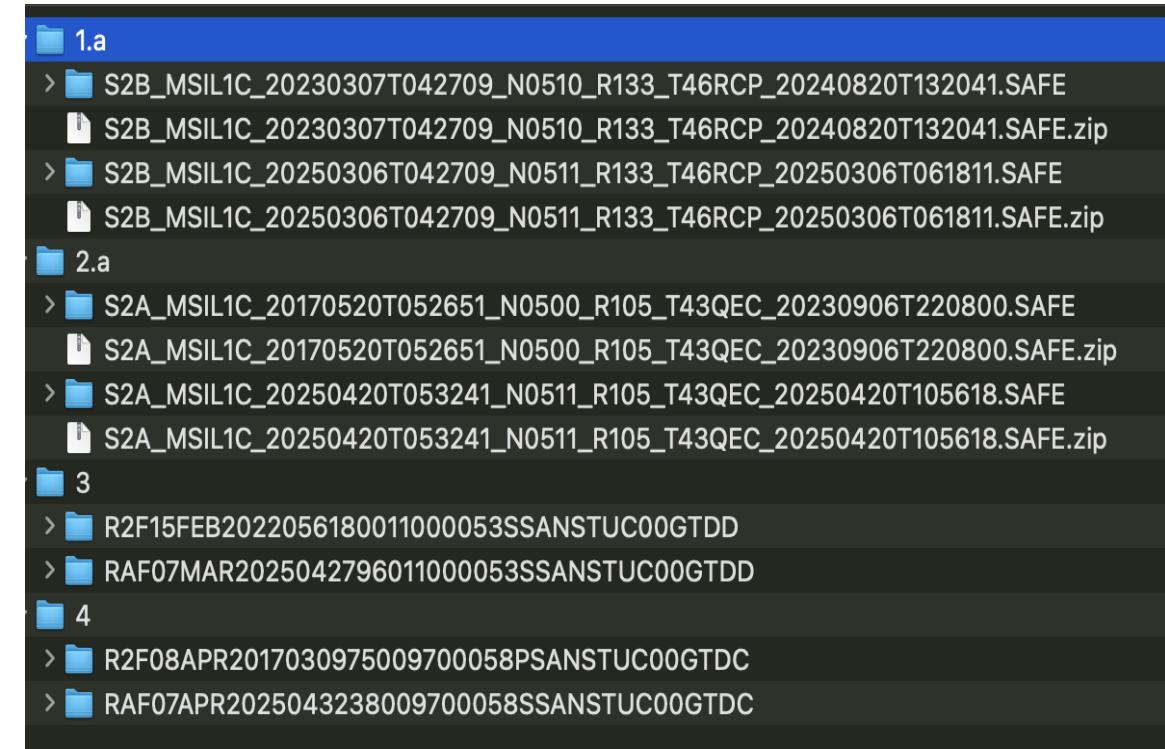


# Downloaded Data

- Download data mentioned in “PS10\_Mock\_Dataset.docx” from Bhoomidhi and Copernicus portal.
- Pre-process the data, if required.
- Note: Sentinel L1C data is shown here for reference. Participants can download and use either L1C or L2A products.

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One Example how downloaded data looks

## Step: 2 Generate inference on each image-pair

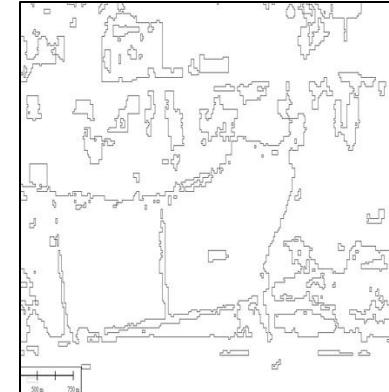
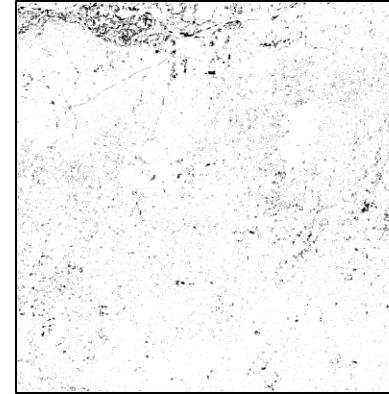
Old Image



New Image



AI/ML  
Model



Mask (.shp file)

Mask (.tif file) where 1 represents change and 0 represents no change

Ensure detected man-made changes mask has same dimensions & resolution of input image-pair

# Step: 3 How to submit the results

- Raster (tif) and vector (shapefile) files need to be submitted for all 4 image-pairs.
- Naming convention for files is “Change\_Mask\_Lat\_Long.[extension]”
- For shapefile, along with .shp submit all associated files
- Partial results submitted will not be considered for evaluation.



Paste results in a folder, name it as shown  
and submit on Grand Challenge portal

**PS10\_DD-MM-YYYY\_STARTUPNAME.ZIP**

Example Folder for submission

|                                       |
|---------------------------------------|
| Change_Mask_20.015_75.878.cpg         |
| Change_Mask_20.015_75.878.dbf         |
| Change_Mask_20.015_75.878.prj         |
| Change_Mask_20.015_75.878.shp         |
| Change_Mask_20.015_75.878.shx         |
| Change_Mask_20.015_75.878.tif         |
| Change_Mask_20.015_75.878.tif.aux.xml |
| Change_Mask_20.259_75.533.cpg         |
| Change_Mask_20.259_75.533.dbf         |
| Change_Mask_20.259_75.533.prj         |
| Change_Mask_20.259_75.533.shp         |
| Change_Mask_20.259_75.533.shx         |
| Change_Mask_20.259_75.533.tif         |
| Change_Mask_20.259_75.533.tif.aux.xml |
| Change_Mask_25.751_91.615.cpg         |
| Change_Mask_25.751_91.615.dbf         |
| Change_Mask_25.751_91.615.prj         |
| Change_Mask_25.751_91.615.shp         |
| Change_Mask_25.751_91.615.shx         |
| Change_Mask_25.751_91.615.tif         |
| Change_Mask_25.846_91.745.cpg         |
| Change_Mask_25.846_91.745.dbf         |
| Change_Mask_25.846_91.745.prj         |
| Change_Mask_25.846_91.745.shp         |
| Change_Mask_25.846_91.745.shx         |
| Change_Mask_25.846_91.745.tif         |

# Common Mistakes to Avoid

- Wrong PS Submission.
- Incorrect zip file name.

PS10\_DD-MM-YYYY\_STARTUPNAME.ZIP



- Partial/ Incorrect Submissions

Missing tif files

Missing shapefile extensions

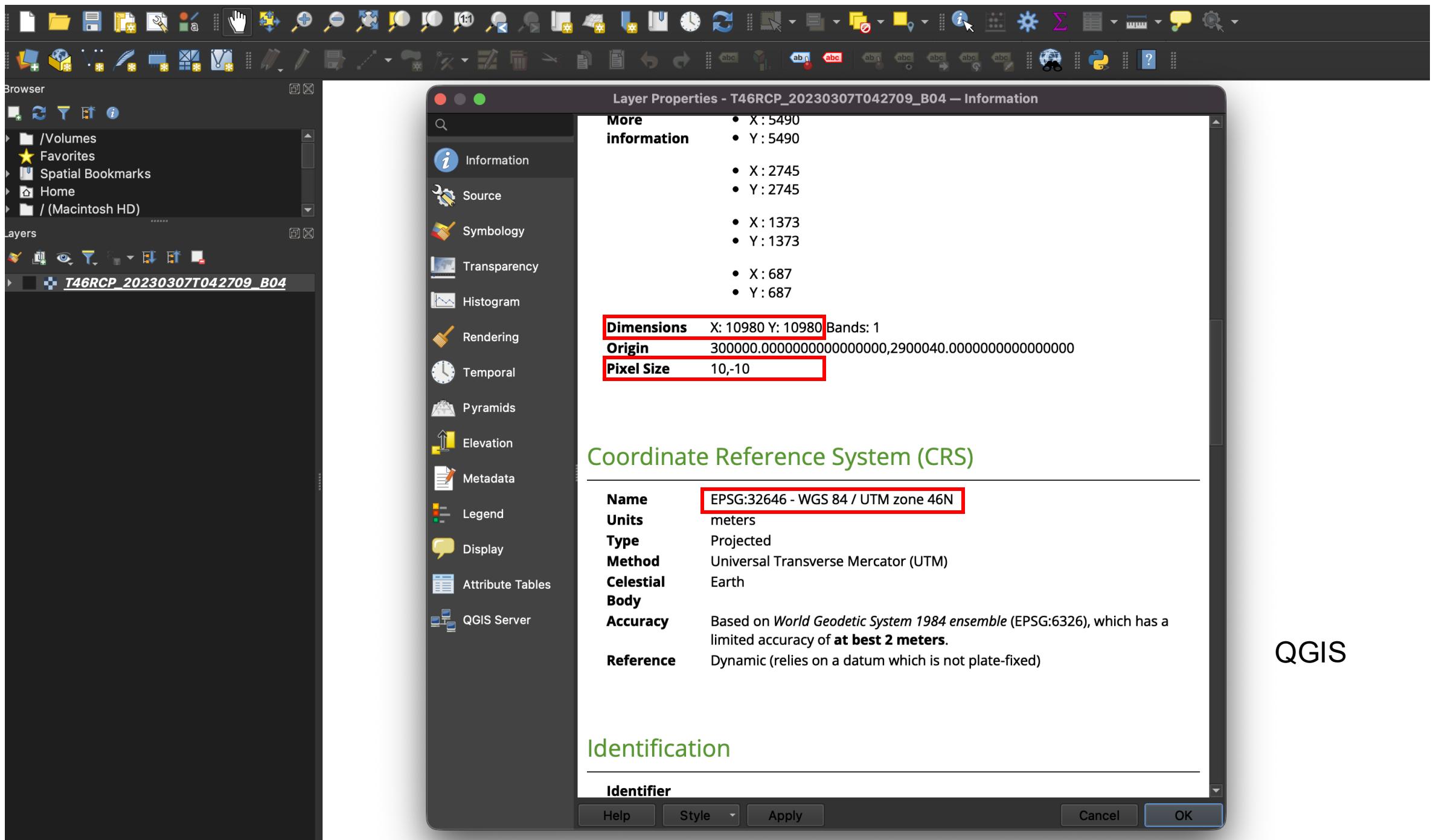
Incorrect folder structure

|                                       |
|---------------------------------------|
| Change_Mask_20.015_75.878.cpg         |
| Change_Mask_20.015_75.878.dbf         |
| Change_Mask_20.015_75.878.prj         |
| Change_Mask_20.015_75.878.shp         |
| Change_Mask_20.015_75.878.shx         |
| Change_Mask_20.015_75.878.tif         |
| Change_Mask_20.015_75.878.tif.aux.xml |
| Change_Mask_20.259_75.533.cpg         |
| Change_Mask_20.259_75.533.dbf         |
| Change_Mask_20.259_75.533.prj         |
| Change_Mask_20.259_75.533.shp         |
| Change_Mask_20.259_75.533.shx         |
| Change_Mask_20.259_75.533.tif         |
| Change_Mask_20.259_75.533.tif.aux.xml |
| Change_Mask_25.751_91.615.cpg         |
| Change_Mask_25.751_91.615.dbf         |
| Change_Mask_25.751_91.615.prj         |
| Change_Mask_25.751_91.615.shp         |
| Change_Mask_25.751_91.615.shx         |
| Change_Mask_25.751_91.615.tif         |
| Change_Mask_25.846_91.745.cpg         |
| Change_Mask_25.846_91.745.dbf         |
| Change_Mask_25.846_91.745.prj         |
| Change_Mask_25.846_91.745.shp         |
| Change_Mask_25.846_91.745.shx         |
| Change_Mask_25.846_91.745.tif         |

Complete Submission



- Incorrect pixel size, dimensions and CRS (Coordinate Reference System)
  - ✓ Pixel size of change mask should match the original image (10m for Sentinel & 5m for LISS4) 
  - ✓ Change mask dimensions should match the original image 
  - ✓ CRS of change mask should match the original image (recommended) 
  - ✓ Change mask should be georeferenced 
  - ✓ Change mask should cover entire extent of original image 



QGIS

# Submitting Results in Portal



- Home
- Community
- Problem Statement
- Sessions
- Inbox

## My Problem Statements (3)



**PS-11: Hyperspectral Anomaly Detection**

Active

AIGR-S31195 (Startup Name)

50.0% profile complete

Your Action (Submission) →



**PS-10: Change Detection in Satellite Imagery**

Active

AIGR-S34212 (Startup Name)

50.0% profile complete

Your Action (Submission) →



**PS-03: Visual Search, Retrieval and Detection in Satellite Imagery**

Active

AIGR-S32058 (My Own Startup)

50.0% profile complete

Your Action (Submission) →



AIGR-S34212 (Startup Name)

PS-10: Change Detection in Satellite Imagery

50.0%

&gt; (1) remaining tasks

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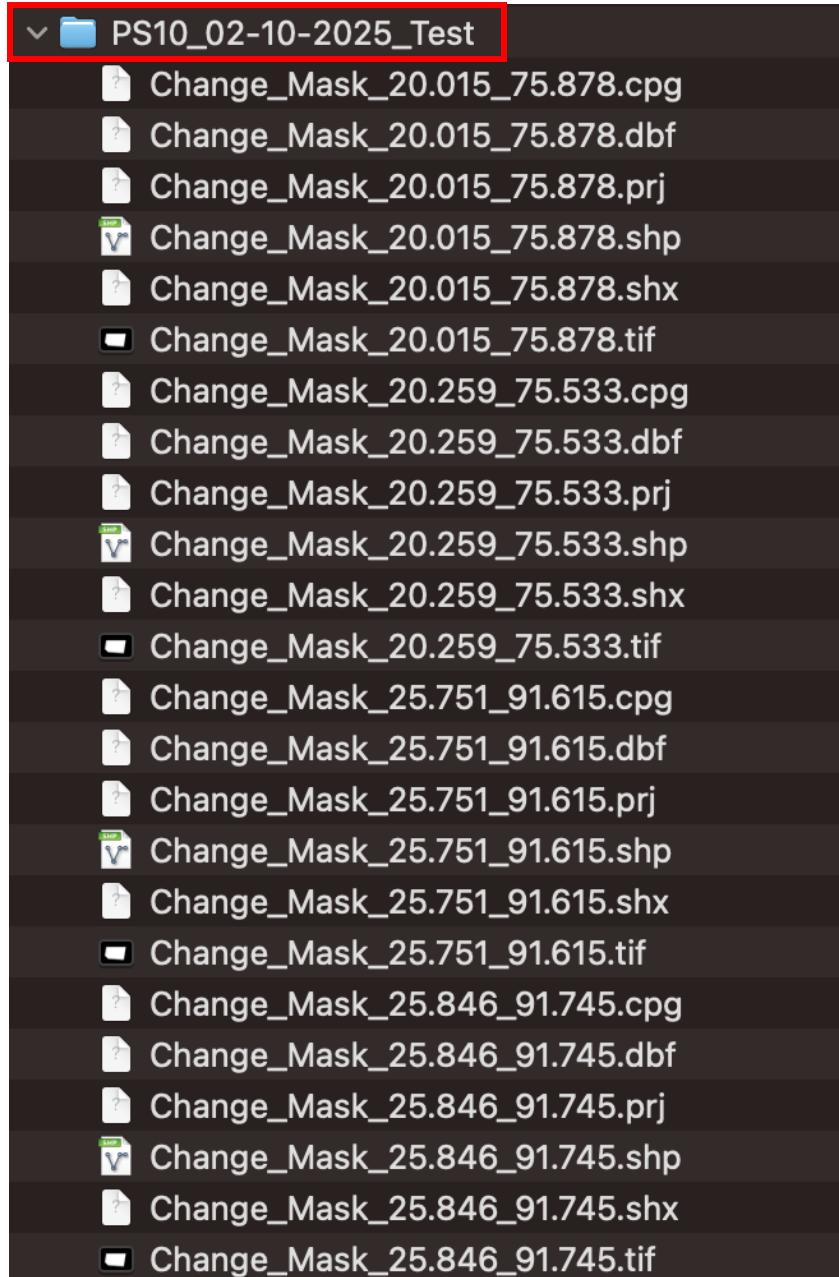
26th September Submission

Total Updates: 1



| Start Date  | Status     | Actions             |
|-------------|------------|---------------------|
| 26 Sep 2025 | Not Filled | <a href="#">Add</a> |

A screenshot of a web-based application interface. At the top, there's a header with various icons and a search bar labeled "Find something...". Below the header, the main content area shows a project titled "AIGR-S34212 (Startup Name)" with a subtitle "PS-10: Change Detection in Satellite Imagery". A progress bar indicates "50.0%" completion. Below the title, it says "(1) remaining tasks". The navigation menu on the left includes links for Home, Community, Problem Statement, Sessions, and Inbox. In the center, there's a modal dialog box with a white background. The dialog has a title "26 Sep 2025" and a sub-instruction "1 Upload .zip file (Output file should be in prescribed format) \*". Inside the modal, a file input field contains the path "PS10\_02-10-2025\_Test.zip" with a red border around it. At the bottom of the modal is a blue "Submit" button. To the right of the modal, there's a sidebar with sections for "Actions" and "Add". At the bottom of the page, there are copyright and support links.





AIGR-S34212 (Startup Name)



PS-10: Change Detection in Satellite Imagery

100.0%

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26th September Submission

Total Updates: 1



| Start Date  | Status    | Actions                                   |
|-------------|-----------|-------------------------------------------|
| 26 Sep 2025 | Submitted | <a href="#">View</a> <a href="#">Edit</a> |

Results Uploaded  
Successfully

Looking forward for your submissions in correct format.

**THANK YOU**