



Using the SANSa Earth Observation Catalogue

2013-01-09

Prepared by

SANSa Earth Observation

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The SANSA Earth Observation data catalogue contains a very large selection of satellite imagery dating back as early as 1972. Archived satellite images that are found here can be ordered via the catalogue. Tasking requests for imagery is done through SANSA Earth Observation customer services. SANSA Earth Observation (formally known as CSIR-SAC-EO) has been acquiring satellite earth observation data since the early 1980's when reception of Landsat-2 MSS data commenced. Data on our archives is funded to students from South Africa. We also order high resolution satellite imagery for students at a discounted rate.

This guide will help you to better understand how to use the SANSA Earth Observation Catalogue.

Begin by navigating your browser to the SANSA Earth Observation Catalogue

catalogue.sansa.org.za

If you have an account select login, otherwise register. Once you have confirmed registration, login.

Select search from the navigation bar. This will take you to the search criteria page where you will see a map and the search criteria. The map lets you explore your areas of interest. It also allows you to digitise a polygon containing your area of interest. The results of your searches are then displayed in the map window as yellow image footprints

Map window tools



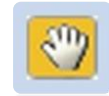
The **map help** icon displays a pop-up window when selected. It explains the map navigation and digitising tools and offers some useful keyboard shortcuts.





The **zoom in and zoom out** icons allow the user to zoom in and out of the map by clicking or drawing rectangles.

Use the **pan** icon on the map to enable map panning by clicking and dragging on the map.

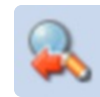


! You can also pan the map by clicking and dragging with the mouse wheel



Use **next view** to quickly jump to the next map view. This works only with a previous view.

Previous view allows you to quickly jump to the previous map view.



Digitising/capturing a polygon over your area of interest in the map window is not necessary but recommended. To capture a polygon over your area of interest, use the **capture polygon** icon.

Left click to add points and double click to finish capturing the polygon.



The **modify polygon** icon is located to the right of the capture polygon icon. It is used to edit/modify the captured polygon. Left click to move/add points, hover over and press delete to remove points.



The **delete polygon** icon deletes the captured polygon

48.29590, -15.76269

Coordinates are displayed in the lower left of the map window. The coordinates continuously update as you move the cursor around the map view,



The **scale bar** displayed on the lower center of the map window. Hover the cursor over the scale bar to display the scale text.



Use the **restore and full screen** icons to quickly resize the map window. The **restore map to original size** icon will restore the map window to its default size. The **resize map to full screen** icon will resize the map to fill the current browser window.



On the upper right corner of the map window you will see a **layers** tab, clicking on it will allow you to change your base layer and overlays.

Once a polygon has been captured over your area of interest, you may then fill in the required search criteria in the fields below the map window. Note that it is not necessary to digitise a polygon over your area of interest although it is recommended. You can still search imagery by specifying only the search criteria.

By default the catalogue is set to **simple search criteria**. The only fields required for a simple search are the sensor and date range. To toggle **advanced search criteria**, click the advanced search button.

Using simple search criteria

Select your sensor(s), hold in ctrl and click to select multiple sensors. In the date field specify your date ranges. Specify the start and end date and then click the **add date range** icon (the right pointing arrow icon) to add the date range to the list. Multiple date ranges can be added in this manner. To remove a date range, first select it in the date range list and then click the **remove date range** icon (the left pointing arrow icon).

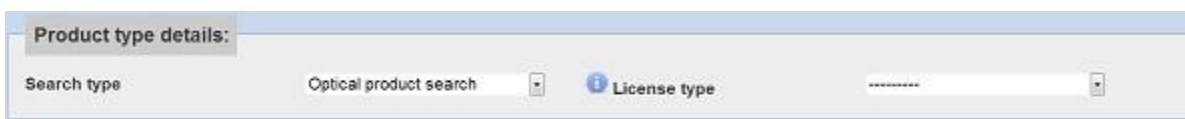


Using advanced search criteria

The advanced search criteria are optional. Filling in these criteria can be used to further refine image searches. The advanced criteria are explained below.

Product type details

Search type allows you to select between different types of data. By default it is set to search optical products however, radar and other geospatial products can be selected. **License type** allows you to select between free, government, and commercially licensed products. Do not worry about this criterion; rather opt to keep it at its default of neither.



Product type details:

Search type: Optical product search

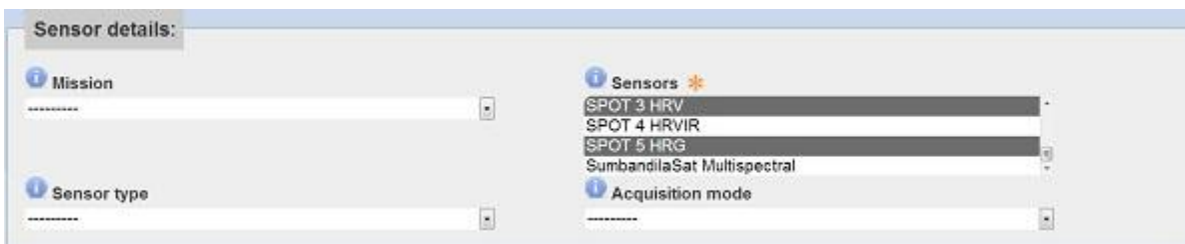
License type:

Sensor details

The **mission** option allows you to select from a list, the satellite mission. Once you've chosen the mission you can then specify the **sensor type** e.g. Mission = LS-5(Landsat 5), sensor type = TM-5 (Visual, NIR, SWIR and thermal). If the sensor has more than one **acquisition mode** you may select an option from the list.

List of available missions on the catalogue

ZASat-002 - SumbandilaSat
SAC-C - Scientific Application Satellite-C
LS-2 - Landsat 2
LS-3 - Landsat 3
LS-4 - Landsat 4
LS-5 - Landsat 5
LS-7 - Landsat 7
SPOT-1 - Systeme Pour l'Observation de la Terre 1
SPOT-2 - Systeme Pour l'Observation de la Terre 2
SPOT-3 - Systeme Pour l'Observation de la Terre 3
SPOT-4 - Systeme Pour l'Observation de la Terre 4
SPOT-5 - Systeme Pour l'Observation de la Terre 5
CBERS-2B - China, Brazil Earth Resources Satellite



Sensor details:

Mission:

Sensor type:

Sensors *
SPOT 3 HRV
SPOT 4 HRVIR
SPOT 5 HRG
SumbandilaSat Multispectral

Acquisition mode:

Image details

'Use cloud cover' by default this is unchecked, check it if you want to limit searches to optical products with a certain cloud cover. **Sensor inclination angle start and end** lets you specify the acquisition angles that the imagery were captured with. **Spatial resolution** allows you to select the mean spatial resolution class. The **cloud mean** lets you select the maximum cloud cover (range 0 -100) when searching for images. Note that not all sensors support cloud cover filtering. The **band count** allows you to specify the spectral resolution.

Image details:

Use cloud cover? Cloud mean

Sensor inclination angle start Sensor inclination angle end

Spatial resolution Band count

Row and Path

K orbit path, insert the orbit path as a list of comma separated values or ranges (e.g.: "10, 20, 30" or "20-40"). **J frame row**, allows you to insert the frame row as a list of comma separated values or ranges (e.g.: "10, 20, 30" or "20-40").

Row & path:

K orbit path J frame row

Geometry

Area of interest lets you specify bounding box coordinates separated by a comma for upper left and lower right coordinates (e.g. 20, -32, 22, -34), or enter single coordinate which defines a circle center and radius in kilometres (e.g. 20, -32, 100). Alternatively, digitise a polygon for your area of interest on the map. The **geometry file** lets you upload a zipped shapefile or KML/KMZ file. The uploaded file must be less than 1 Mb. For best results the uploaded file should contain one polygon. If the uploaded shapefile or KML/KMZ contains multiple polygons, only the first polygon will be used. Complex polygons will increase the time it takes to search for products. To upload your zipped shapefile or KML/KMZ, select the choose file button and then browse to where your zipped file is stored on your computer. Select it and then click ok.

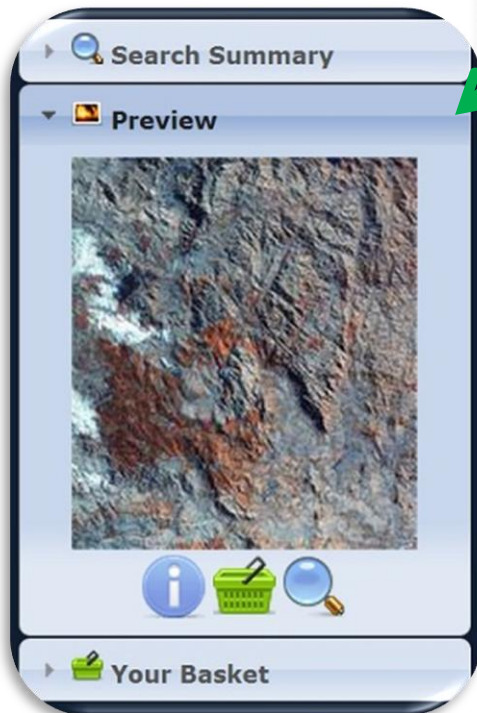
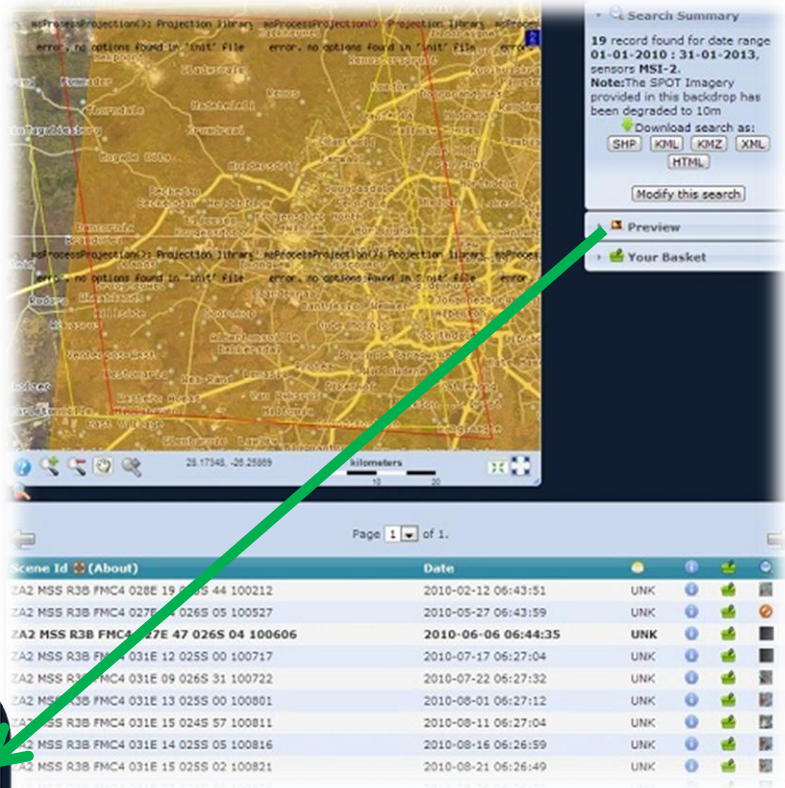
Geometry:

Area of interest Geometry file No file chosen

The advanced search criteria are for individuals who have very specific search criteria and know exactly what they want. Every time an optional criterion is defined, it further filters the search results. Administer care when specifying optional criteria. If you are unsure it is always a good idea to start off with the simple search criteria.

Search Results

When you are satisfied with your search criteria and have at least filled in the minimum required criteria (sensor and date range), you may click the search button. This will bring you to the search summary page. The results of your search are listed as records in a list. The image foot prints of those records can be viewed in the map window. The search results metadata can be downloaded and viewed in a GIS. To go back to the search criteria and make modifications, click the **modify this search** button. When you click on an image footprint in the map window or list of records, you can



view a preview of the image in the preview tab. You may also preview the image by selecting the image thumbnail in the list of records. A selected record is highlighted with a red border in the map window.



Click this icon in the preview tab or records list to **view the metadata** of the product.



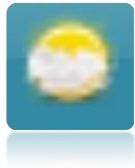
Click this icon in the preview tab or records list to **add a product to your basket**.



Click this icon in the preview tab or records list to see a larger preview image of the product.



This icon indicates that **no preview image** is available for the selected product.



This icon refers to the amount of **cloud cover** present in the optical image product. **UNK** means the cloud cover is unavailable for the optical image product. Always take care when previewing optical image products. Do not assume that a low cloud cover value or UNK means the image is clear of cloud cover. For best practice always preview the product before adding it to your basket.

Ordering

Products added to your basket can be viewed in the basket tab/box. Items in the cart can be removed by clicking the **remove** icon. When you are satisfied with the products in your cart, click order now. This will bring you to **the create new order** page. You will be required to specify the following:

Projection: Select from a list of options the preferred projection coordinate system that you would like the products in. Choose from geographic coordinate, UTM or Google Mercator.

Datum: Choose the datum you want your products in. Currently only WGS84 is offered.

Resampling method: Choose the resampling method you would like applied to your products. **Nearest neighbour** and **cubic convolution** are offered. It is best practice to select the cubic convolution resampling method for continuous data and nearest neighbour for discrete data. Cubic convolution is a good option for optical satellite imagery.

File format: Image products can be delivered in either GeoTiff, ERMapper compressed wavelet (ECW), or JPEG 2000 format. Both ECW and JPEG 2000 use compression to keep file size low at the expense of the imagery's detail. If you would like to retain detail, select GeoTiff.



The screenshot shows a web form for ordering satellite data. The form is organized into several sections:

- Projection:** A dropdown menu set to "EPSG: 4326 Geographic WGS84".
- Datum:** A dropdown menu set to "WGS84".
- Resampling Method:** A dropdown menu set to "Cubic convolution".
- File Format:** A dropdown menu set to "GeoTiff".
- Area of Interest:** A text input field with a placeholder. Below it, instructions read: "Enter bounding box coordinates separated by comma for Upper left and Lower right coordinates i.e. (20,-32,22,-34), or enter single coordinate which defines circle center and radius in area in the map."
- Geometry file:** A "Choose File" button and the text "No file chosen". Below it, instructions read: "Upload a zipped shapefile or KML/KMZ file of less than 1MB. If the first will be used."
- Notes:** A large text area for user notes. Below it, instructions read: "Make a note of any special requirements or processing instructions. In case of free products and priority products, they will only be supplied if you provide detailed instructions."
- Delivery Method:** A dropdown menu set to "Courier + External Hard Disk".
- Market sector:** A dropdown menu set to "Decline to say".
- Submit Order:** A button at the bottom left of the form.

Area of interest : Enter bounding box coordinates separated by comma for Upper left and Lower right coordinates i.e. (20,-32,22,-34), or enter single coordinate which defines circle center and radius in kilometres (20,-32,100). Alternatively, digitise the clip area in the map.

Geometry file: If you would like the product(s) to be clipped and masked to a specific geographic region, you can digitise that region using the map above, or the geometry input field. Upload a zipped shapefile or KML/KMZ file of less than 1MB. If the shapefile contains more than one polygon, only the first will be used.

Notes: If you need specific processing steps taken on individual images, please use the notes area provide detailed instructions.

Delivery method: Specify from the options how you would like the products to be delivered to you.

Market sector: You must specify that you are either **academic-staff research** or **academic-student**. It is very important that you specify this. Certain data is free to the whole public and other data which usually carries a cost is funded provided you are a South African student.

Once you are satisfied with your order, click **Submit Order**.

If you are ordering SumbandilaSat, SAC-C or CBERS-2B data, you will be provided with a download link sent to your email address immediately. SumbandilaSat, SAC-C, and CBERS-2B data are free to the whole public. Currently no processing is offered for these products however, the public have unlimited access to these freely available datasets. If you are ordering commercial data such as SPOT-5 and Landsat, you will be contacted by customer services. Commercial data sets on our archive are funded to students provided they can provide us with proof of their research. Customer services usually request a letter from the student's supervisor or superior. The letter should state that the student is registered, provide a description of the research, and lastly list the required satellite image(s). The letter must be signed by the student's supervisor and should contain the universities contact details. In order to avoid scenarios where the student over orders imagery, SANSAT provides students with a maximum of 10 satellite images per annum. The student should do their own searches on the catalogue unless they require imagery not provided on the catalogue. In such a case, the student must contact customer services. If the student requires more than the capped amount, their supervisor or superior will be required to justify as to why in writing on their letter. The signed letter must be sent back to customer services either by scanning the document and emailing it, or mailing it in the post. Customer services will provide the student with all the necessary information.