Data Store user guide

The following guide is an introduction to EUMETSAT's Data Store and Data Tailor (Customisation tool) aimed at beginners. Here, we include information on the downloading tool Data Store, as well as the customisation tool Data Tailor. Use the **Data Store detailed guide** for advanced guidance.

Exploring the Data Store

The Data Store consolidates all the different data streams that are present in the EUMETSAT's archives, to allow users to access the products through a single unified interface. If you would like to customise the data before download, we also offer a tailoring service called Data Tailor that integrates with our Data Store.



Figure 1: Log into Data Store using the Web User Interface

Authentication and log in

Downloading products from the Data Store is only possible for those users who are registered with us. New users need to <u>register</u>. In order to authenticate, you would need to first proceed to the <u>Data Store</u> and then click on the 'Log in' button at the top right-hand corner. Insert your username and password and log in.

Accessing the Data Store catalogue

The first step is to decide about the collection you want to download products from through the **Data Store catalogue**. Once that has been done, you may want to filter the products you need through available product properties. Find detailed information on the data available in the Data Store and Data Tailor in our **Data Store detailed guide**.

Here you have a few ways to explore the catalogue:

- 1. Perform free-text search using the search box
- 2. Scroll down and explore collections
- 3. Perform an advanced search.



Figure 2: Data Store catalogue

Advanced search offers the possibility to refine the search results using constraints in the panel on the left. Filters such 'Sensor Type', 'Platform', 'Parameter' are present. The catalogue updates automatically on adding filters.

EUMETSAT DATA SERVICES			Api Cart Cart O Rems La	og in
Data Access / Advanced s	search results			_
		We've found 60 results		
e.g. "Atlant <mark>i</mark> c Sea"	Q			
			AMSU-A Level 1B - Metop - Global	
LATFORM	~	304519	The Advanced Microwave Sounding Unit-A (AMSU-A) is a 15-channel microwave radiometer that is used for measuring global atmospheric temperature profiles and will provide information on atmospheric water in all of its phases (with the exception of small ice particles, which are transparent at microwave frequencies). AMSU-A will	
Sentinel-3 (25)			provide information even in cloudy conditions learn more	
Metop (21)		500 0 00 000 000 000 000	Access Data	
Sentinel-6 (6)		AME Classed I finitesen souther to an AMECA radiances, that	Access Data	
] MSG (5)				
] MFG (3)			ASCAT Coastal Winds at 12.5 km Swath Grid - Metop	
ENSOR TYPE	\sim		Equivalent neutral 10m winds over the global oceans, with specific sampling to provide as many observations as	and and a
Altimetric (13)			possible near the coasts. Better than using this archived NRT product, please use the reprocessed ASCAT winds data records (EO:EUM:DAT:METOP:OSI-150-A, EO:EUM:DAT:METOP:OSI-150-B). Metop-A data are available in the Data	
] Interferometer (3)			Centre up to 15/11/2021.	100
Microwave Radiometer (1)			learn more	12.00
Optical (25)		1 A 1	Access Data	and the second
Radiometer (2)				-
low remaining sensor types (3)		E BERNE	ASCAT L2 12.5 km Winds Data Record Release 1 - Metop	
ENSOR	\sim		The ASCAT Wind Product contains stress equivalent 10m winds (speed and direction) over the global oceans. The	717-16
] AMR-C (1)			The ASCAT wind Product contains stress equivalent 1 um winds (speed and direction) over the global oceans. The winds are obtained through the processing of reprocessed scatterometer backscatter data originating from the ASCAT instrument on EUMETSAT's Metop satellite.	-
AMSU-A (1)			ASCAT instrument on EUMETSAT's Metop satellite. learn more	
ASCAT (11)				Strate C
AVHRR (2)			Access Data	
] GOME-2 (2)		2		an deriver

Figure 3: Advanced Search on the Data Store catalogue

Each collection in the catalogue has an information panel, as shown below, with the following details:

Collection thumbnail	Collection title	Orbit type
	AMSU-A Level 1B - Metop - Global	LEO
in the second se	The Advanced Microwave Sounding Unit-A (AMS microwave radiometer that is used for measuring temperature profiles and will provide information all of its phases (with the exception of small ice pranspa	g global atmospheric on atmospheric water in
	Access Data	
		Collection access window

The 'learn more' link opens the 'Product details' window and provides more details about a collection, as follows.



Figure 4: This image shows the product details window for a collection. This window is accessible by clicking the 'Show more' link.

Here you will be able to explore the collection, including information such as temporal and spatial scale, as well as any license conditions attached to the data. The metadata of the collection can be downloaded as an XML file by scrolling down to the bottom of the page and clicking on the 'download metadata' link.

The 'Access' section lists the ways to access the products of the collection. These possibilities are grouped by the distributing service and the file format of the products.

- By distribution: refers to the EUMETSAT services where the collection is available. In this case, you will always see 'Data Store'.
- By format: refers to the data format of the products.

In both cases, additional information can be seen by clicking on 'Details'.

Detailed information on formats can be found in the **Formats guide**.

CESS	
By distribution	By format
Download	Details /
<u>Download</u>	
lative	
	This is sent in a compressed Submission Information Package (SIP) by default.
lative	 This is sent in a compressed Submission Information Package (SIP) by default. AMSA_xxx_1B_M01_20220209074321Z_20220209092225Z_N_0_2022020908303 8Z.zip
lative Format description	AMSA_xxx_1B_M01_20220209074321Z_20220209092225Z_N_0_2022020908303
lative Format description Typical file name	AMSA_xxx_1B_M01_20220209074321Z_20220209092225Z_N_0_2022020908303 8Z.zip

Figure 5: List of ways to access a product grouped by distribution

ACCESS	~
By distribution	By format
Native	Details 🔨
Technical details about t	his format:
Download	
Download	
Format description	This is sent in a compressed Submission Information Package (SIP) by default.
Typical file name	AMSA_xxx_1B_M01_20220209074321Z_20220209092225Z_N_0_2022020908303 8Z.zip
Typical file size	1.5 MB
Frequency	14-15 (per day)(per satellite)
Documentation	SIP documentation and tools

Figure 6: List of ways to access a product grouped by format

Refining your search

Once you have identified your collection, you will be able to refine your search by either pressing the 'Access data' button in the initial panel, or clicking the 'download' button in the 'Access' section of the extensive product information panel. Both options will open a new window as the one shown below.

EUMETSAT DATA SERVICES		API Access	Cart 0 items	Log in	Q
Data Access / Product details / AMSU-A Level 1B	Metop - Global				
AMSU-A Level 1B - Metop - Global			-		Li O
AVAILABLE TIME RANGE: 2007-03-01 - 2023-02-17		RE	Ś	37	
202342217 V (10:46)		S.		Ş	+
Filename Sort by				-	2
Sensing time V Descending V Filters Mission / satelliteV P Reset Filters Show Results			-		

Figure 7: Product selection page for a chosen collection

The options and filters available depends on the type of the chosen collection–for some collections there are different filters then for others.

For GEO collections

The available filters in the left panel are:

- **Available time range** (this differs from the 'Temporal extent' shown in the collection information window that describes the length of the collection in general, irrespective of the service).
- Filename of the product as stored in the Data Store.
- The mission/satellite the product is sensed by.
- The type of the product.

The results can also be sorted based on the following attributes:

- **Type of orbit** ('Ascending' or 'Descending', where 'Ascending' refers to the phase of a satellite's orbit where it moves from the South to the North pole and 'Descending' refers to the phase of a satellite's orbit where it moves from the North to the South pole.).
- **Time** ('Sensing time' or 'Ingestion time', where 'Sensing time' is the time the satellite recorded the information and 'Ingestion time' is the time when EUMETSAT published the data).

Once you have selected the search criteria, clicking on the 'Show Results' button opens a panel showing the matching results as illustrated below.



Figure 8:Filtering products for a collection with a geostationery orbit (GEO)

Here you will have the possibility to explore all the available products that match your search criteria. At the top of the panel you will see the number of products that are being shown and the total number of <u>products</u> that match the search criteria

(1-20 of 29 products found). Clicking on the con at the top, shows a code snippet to perform an identical search on the EUMDAC CLI.

In the same panel, for each of the products, it is possible to:

- download the product directly by clicking on the icon.
- access the EUMDAC command to download the product by clicking on the icon
- add the product to the cart by clicking on the icon

It is also possible to select and download multiple products simultaneously by clicking on the tick boxes beside each of the required products, and then clicking on the 'Add selected to Cart' button.

All products matching the search criteria can be added to the cart using the 'Add Results to Cart' button.

For LEO collections

The window is very similar to that of the GEO orbit, with two notable differences.

- As GEO platforms have a pre-defined coverage, this is shown as soon as the **collection** is accessed. For LEO products, the footprint is dependent on the specific product and, therefore, footprint is shown by default.
- As LEO products change coverage, the **map controls** offer additional functionality. The AOI toolbox allows to define a region of interest as a:
 - regular rectangle \int_{AOI}
 - o irregular polygon

 $_{\circ}$ EQUI7 region $\mathbb{F}_{\text{EQUI7}}$

EUMETSAT DATA SERVICES		Dart Cart Log in Q
Data Access / Product details / AMSU-A Level 18	3 - Metop - Global	
AMSU-A Level 1B - Metop - Global	1-20 of 29 products found 🖃 1 2 > 🔨	4
ID: EO:EUM:DAT:METOP:AMSUL1 Orbit: LEO	Select all in page Add selected to Cart Add Results to Cart	
Data Policy: learn more	□ 2023-02-17 (09-04) - 2023-02-17 Metop-B ① 1.52 ± Ξ 〒	
	□ 2023-02-17 (08:16) - 2023-02-17 Metop- ① 1.59 ± 급 〒 (09:58)	
AVAILABLE TIME RANGE: 2007-03-01 - 2023-02-17	□ 2023-02-17 (07-25) - 2023-02-17 Metop-8 ① 1.48 ± 🗉 🚡	
2023-02-16 \checkmark $<$ 10:46 $>$	□ 2023-02-17 (06-34) - 2023-02-17 C ● 1.60 ± □ 〒	
2023-02-17	□ 2023-02-17 (05.43) - 2023-02-17 Metop-B ① 1.52 → 🖃 🐂	
2023-02-17 🗸 10:46	□ 2023-02-17 (04-52) · 2023-02-17 C	+
Filename	□ 2023-02-17 (03:58) - 2023-02-17 Metop-8 ① 1.57 ± Ξ 〒 (05:43)	
	□ 2023-02-17 (03:10) - 2023-02-17 (04:52) C	
Sort by	□ 2023-02-17 (02-16) - 2023-02-17 Metop-B ① 1.52 ± Ξ 〒 (03.58)	and the first the
Sensing time V Descending V	□ 2023-02-17 (01-28) - 2023-02-17 C ● 1.59 ± □ 〒 (03:10) C ● MB ± □ 〒	
	□ 2023-02-17 (00:34) - 2023-02-17 Metop-B ① 1.52	
Filters Reset Filters Show Results	□ 2023-02-16 (23.43) - 2023-02-17 C ● 1.64 ± □ 〒	
Mission / Satellite Y P	□ 2023-02-16 (22:52) - 2023-02-17 Metop-B 1.52 + □ =	

Figure 9: Filtering products for a collection with a Low Earth Orbit (LEO)

Downloading your products

Downloading specific products

If you would like to download specific products from the cart, click on the download button beside that product to download it as a zip file.

Figure 10: Download specific product from cart

Downloading products in bulk

While the strategy described above works best for downloading products one-byone, it is a cumbersome process to download all the products in the cart this way. In order to download the entire cart, first download the XML manifest file for the cart using the 'Download Cart' button at the top of the list.

Note: the Data Store cart is set with a limit of 500000Mb or 100 items, whichever is lower.

Download Cart

Clicking this button downloads an XML metadata file that contains the name of each of the products and the URL to access it.

Data Tailor: Customising your products

As we saw in the previous section, in the Data Store you could choose a collection from our catalogue, filter the products by setting different criteria and choose the products you are interested in by adding them to a cart. Once products have been added to the cart, the cart would look similar to the figure below. By default, when no specific products have been selected, you can either download the entire cart using the 'Download Cart' button, customise the selected products to meet your specific needs by clicking on the 'Customize Cart' button or empty the cart using 'Clear Cart' button. After specific products have been selected, you can also remove those specific products from the cart.

Product Name	1000 0000						
	Satellite	Collection ID	Sensing Start (UTC)	Sensing Stop (UTC)	Download	Remove	
MSG4-SEVI-MSG15-0100-NA-2023021411_	MSG4	EO:EUM:DAT:MSG:HRSEVIRI	2023-02-14 11:15	2023-02-14 11:27	٤	×	
MSG4-SEVI-MSG15-0100-NA-2023021411_ 0	MSG4	EO EUM DAT MSG HRSEVIRI	2023-02-14 11:00	2023-02-14 11:12	٤	×	
	MIGR-EXY-MIGTS-DIGP-M-202027411.						

In this section, we will focus on customising the products in the cart according to your requirements.

The products in the Data Store are stored in the native data format. EUMETSAT's users come from different backgrounds and each user has their own preferences for the data format, extent, channels and so on. Furthermore, the exact specifications of the data needed by the user depends heavily on the specific use case as well as considerations on feasibility–for instance, the user's internet bandwidth and available storage space. Therefore, EUMETSAT offers its users the provision of customising the data to meet these requirements so that the data could be tailor-made and downloaded directly from us. The Data Tailor service embedded within the Data Store offers this possibility.

The following sub-sections describes the Data Tailor workflow and guides the user from selecting the required products to downloading the customised versions of them.

Customising the cart

After products have been added to the cart, you need to to click on the 'Customize Cart' button at the top-left of the list of products. At this moment, the Data Tailor Web UI supports customisation of a maximum of three products at the time.

Cart (2	tems)
Customi	ze Cart Download Cart Remove Select
	Product Name
	MSG4-SEVI-MSG15-0100-NA-2023021411
	MSG4-SEVI-MSG15-0100-NA-2023021411

Figure 12: Select products in the cart and customise them

Clicking this button opens the Data Tailor Web UI in a new tab. The Data Tailor Web UI is arranged in the form of consecutive panels that contain collections of related options for you to choose. You need to make the choices available in any panel to move on to the subsequent ones. The options are updated dynamically. In other words, the options available in each panel depends on the choices made in the previous ones. We shall now go through each of the panels briefly.

Launchpad

This is the starting point for all customisations in Data Tailor and is one of the most crucial ones. Once you have added the products, the field 'Product type' usually is chosen automatically. However, in some cases (as SEVIRI products), you have to make the choice manually from a drop-down menu. The second option is to choose the output format the customised data is to be downloaded in. The dropdown offers several popular formats for you to choose from. The third option is this panel is 'Configuration' that contains preset templates for commonly used settings.



Aggregation

In many cases, instead of having multiple individual datasets, it is useful to work with fewer products with aggregated values. Depending on the context, the aggregation can be done over different dimensions such as over time, orbits etc. using commonly used aggregation functions such as mean, median, sum and so on. This panel allows you to aggregate certain products over chosen dimensions. For example, in the figure shown below, aggregation is being performed over time for Global L3C AVHRR Sea Surface Temperature (GHRSST) - Metop products.

Aggregation Aggregation type Time Time

Figure 14: Data Tailor aggregation panel

Layer Filter

Earth Observation data products often contain data in the form of layers that are identically georeferenced. For optical data products these layers usually correspond to bands or measurement values in different ranges of the electromagnetic spectrum. The layer filter allows you to select layers that are of interest. The 'Configured Filters' section often has pre-configured templates for various common use cases. On the right hand side, layers of interest can be selected manually. Clicking on the checkmark on the left of the layer names in the 'Available Layers' selection box and then sending them to the 'Selected Layers' box by clicking on the Send to the Right button ('>') adds that layer to the customised product. If required, the selected layer(s) can be removed again by clicking on the Send to the Left ('<') button. The set of layers selected in this step can be saved as a layer filter template in the your profile for use in subsequent sessions.





Reprojection

The reprojection panel allows you to reproject the data to another coordinate reference system. Commonly used coordinate reference systems are available on the left hand side as a drop-down menu entitled 'Target Projection'. This panel also offers resampling the data to a desired resolution and you may provide the target x

and y resolution values in units of the reference system. The method to be used for resampling can also be chosen from the drop-down menu 'Resampling algorithm'.

Reprojection				^
Target projection Search	~	Target resolution (in georeference units)		
		Xres	Yres	
		Resampling algorithm		
		Search		\sim

Figure 16: Data Tailor reprojection panel

ROI

The ROI (Region of Interest) panel enables you to spatially subset the product. The ROI may be chosen from the drop-down menu on the left with a list of many country names and regions. Alternatively, you may also provide latitude and longitude (in decimal degrees) values for custom bounding boxes or upload a shapefile from their local machine. The filter may also be saved in your profile for subsequent use.

Configured ROI Germany	Configure ROI	nal degree)	N 54.98	3104		
		v 5	5.988658	E 15.016996		
			s 47.30	2488		
	O By sensing time					
	O By shapefile	SELECT	T A FILE.			
	O By segment sele	ection Sele	ct all			
		1		Π.4	□ 7	
	Save filter as Germany					

Quick Look

The quick look panel helps you to download RGB images of, at most, three layers from the product in JPG or PNG file formats that are adjusted for increased contrast. These quick look images can also be resampled and 'No Data' values encoded to a colour of your choice. The settings in this panel can also be saved in the your profile for subsequent use.

Available quick-look config				Formats	
Search				JPEG (RGB)	~
	Available 0/8 selected		Selected 0/3 selected	Stretch Min - Max	~
	WV6.2		VIS0.6		
	WV7.3	>	IR13.4	X size Y size	
	IR8.7	<	NIR1.6	Resampling algorithm Search	~
	□ IR9.7			No data to color	
	🔲 IR10.8			Search	~
				Save quick look as	ADD >

Output options

This panel allows you to choose from common compression types such as zip, tar and BZip2 from a drop-down menu. The customised data is compressed to this format before making it available for download.

Find details on the capabilities of the Data Tailor in the **Data Store detailed guide**.

Running the customisation

You can execute the customisation process by clicking on the green button on the bottom right hand corner of the page.



Clicking this button starts the execution of the tailoring process. You can see the progress for each of the selected products in a window as shown below.



Figure 20: Data Tailor execution window

Downloading tailored products

Once the customisation processes have finished and the status field for a product shows 'Completed', a download button appears for each product. Click on that button to download the specific product customised to your needs. After the customised product has been downloaded, you can delete the customisation job by clicking on the checkbox beside the product and then clicking on the 'Delete Selected' button at the bottom of the Status window. This frees up space in the your Data Tailor profile. Information on the amount of storage space being used as well as your available quota is displayed in absolute as well as percentage terms on the bottom-left of the Status window.

Status								
	Customisation ID	Size	Status	Progress/Time				
~	49aae778	194.9KB	✓ Completed 🛓	2				
	c979224d	194.9KB	✓ Completed	19				
5KB	of 20.0GB 0%			Delete selecte				

Figure 21:Data Tailor status window

You can view the log for a specific customisation job in the window on the right hand side by clicking on the customisation ID in the Status window on the left.

Status				Log	
Customisation ID	Size	Status	Progress/	Time	ERROR 1: Point outside of projection domain
✓ 49aae778	194.9KB	Completed	<u>+</u>	21s	2023-02-14 16:05:18 - PROCESSING.epct_gis[1168] - INFO step "IMPORT" finished!
c979224d	194.9KB	Completed	±	19s	2023-02-14 16:05:18 - PROCESSING.epct_gis[1175] - INFO - Starting step "FILTER" 2/5
					2023-02-14 16:05:18 - PROCESSING.epct_gis[1179] - INFO step "FILTER" finished!
					2023-02-14 16:05:18 - PROCESSING.epct_gis[1175] - INFO - Starting step "ROI" 3/5
					2023-02-14 16:05:18 - PROCESSING.vrt[89] - INFO - Command line and its output
					gdalwarp -overwriteconfig CPL_MAX_ERROR_REPORTS 1 -te 5.988658 47.302488 15.016996 54.983104 -te_srs EPSG:4326 -r bili
					2023-02-14 16:05:18 - PROCESSING.epct_gis[918] - INFO step "ROI" finished!
					2023-02-14 16:05:18 - PROCESSING.epct_gis[1175] - INFO - Starting step "FORMAT" 4/5
					2023-02-14 16:05:18 - PROCESSING.vrt[89] - INFO - Command line and its output
					2023-02-14 16:05:19 - PROCESSING.epct_gis[918] - INFO step "FORMAT" finished!
					2023-02-14 16:05:19 - PROCESSING.postprocessing[464] - INFO - Starting step "POST-PROCESSING" 5/5
					2023-02-14 16:05:19 - PROCESSING.postprocessing[489] - INFO step "POST-PROCESSING" finished!
					2023-02-14 16:05:19 - PROCESSING.postprocessing[491] - INFO - output-product: /var/dtws/users/pramit/outputs/HRSEVIRI-FC-
					2023-02-14 16:05:19 - PROCESSING.postprocessing[501] - INFO - customisation time: 19 - process: c979224d
93.5KB of 20.0GB 0%	3.5K8 of 20.008 0%				2023-02-14 16:05:19 - PROCESSING.postprocessing[502] - INFO - *** STOP PROCESSING - Status DONE ***
iqure 22: Data Tailor log window					4