

AO for Aeolus Calibration and Validation, reopening March 2018

Description of Aeolus online data dissemination system and data reading and conversion and orbit software tools

Version: 1.1

Authors: K. Galloway and A.G. Straume



The screenshot shows the homepage of the ESA Aeolus Online Dissemination System. At the top, there is a blue header with the ESA logo on the left, the text "ESA Aeolus Online Dissemination" in the center, and "European Space Agency" on the right. Below the header is a dark blue navigation bar with "Help | Aeolus Mission" on the left and "Not signed in" on the right. In the top right corner of the main content area, there are two buttons: "Collections" and "Login". The main content area has a blue background with a white box containing the following text:

Welcome to the ESA Aeolus Online Dissemination System

 **adm-aeolus** Welcome to the **ESA Aeolus Online Dissemination System**. All functionalities are currently available for **evaluation and testing purposes by selected users**.

The Aeolus Science, Calibration, Auxiliary and Telemetry data is organised into different collections. Only L1B Wind Measurements and L2A/B/C Geophysical Parameters are freely accessible to all users.

Web Access:

Users can search and browse the Aeolus products openly, but download of files is only possible after login.

To start searching for data, click on the "Collections" button and choose a collection. Different product search mechanisms are provided.

The **Catalogue** search allows for both temporal and geographical queries, while a search by **Tree View Navigation** allows navigating a dynamic structure by processing Baseline (Science and Calibration data only), File Type, Year-Month and Day (of sensing or validity). Finally, a search by **File Name** allows searching a product by its file name or part of it (using wildcards).

FTP Access:

The Aeolus data can be also downloaded from the `aeolus-ds.eo.esa.int` server by FTP/FTPES (FTP over SSL/TLS). Data on the server is organised by processing Baseline (Science and Calibration data only), File Type, Year-Month and Day (of sensing or validity).

Please provide your feedback to aeolus_pdqs.calvalrehearsal2017@esa.int

At the bottom of the page, there is a dark blue footer with "Copyright @ ESA European Space Agency. All rights reserved." on the left and "Homepage | Terms & Conditions | Contact us" on the right.

1. Introduction and purpose

The purpose of this document is to describe the use of the Aeolus Online data Dissemination System, the CODA Aeolus data reading tools, the Aeolus L2B BUFR convertor tools, and ESA Overpass Table tools.

The Aeolus Online data Dissemination System (<http://aeolus-ds.eo.esa.int/oads/access/>): The server is currently (March 2018) populated with three test datasets. One is a “dummy” dataset containing 13 days of observations of a homogeneous, cloud-free atmosphere with a horizontally and vertically constant wind speed (product levels 1B, 2A, 2B and various calibration and auxiliary files). The second dataset (expected to be uploaded by 31 March 2018) is 1 day (15 orbits) of data for 1 October 2015, populated with realistic winds from the ECMWF forecast model (product levels 1B, 2B and 2C and various Calibration and auxiliary files). The third dataset (expected to be uploaded by 31 March 2018) is 15 half orbits of data for 1 January 2007, based on observations by the CALIPSO satellite for a realistic simulation of the Aeolus L2A product. More details of all datasets are given in section 6 below. More details about the Aeolus Online data Dissemination System is given in section 8 below.

Please note that until the launch of the Aeolus satellite (at the time of writing expected in August 2018), various ground segment testing is on-going. This could lead to datasets or the **Aeolus Online data Dissemination System** being unavailable during some periods. The “dummy” test dataset duration and dates may also change. Also, some of the realistic test datasets may be temporarily unavailable.

The ESA CODA and HARP tools: These have been developed for the reading of atmospheric data from the ESA ENVISAT satellite, and has been extended for the reading of Aeolus data. The CODA software and the necessary CODA definition file for Aeolus are available for testing, and can be found here:

CODA and CODAdef-aeolus:

<https://github.com/stcorp/coda/releases/latest>

<https://github.com/stcorp/coda-def-aeolus/releases/latest>

See also:

<http://www.stcorp.nl/coda/>

In addition, example scripts in Python, IDL, and MATLAB on how to read the basic variables from the Aeolus L1B, L2A and L2B files are available on the CODA examples github website:

<https://github.com/stcorp/coda-examples/tree/master/python/aeolus>

<https://github.com/stcorp/coda-examples/tree/master/idl/aeolus>

<https://github.com/stcorp/coda-examples/tree/master/matlab/aeolus>

For more information about the CODA software and the soon to come extension of the HARP tool for Aeolus, see section 10 below.

Aeolus Level 2 BUFR convertor: KNMI and ECMWF have under ESA contract developed a tool to convert Aeolus Level 2 data (provided in the ESA [Earth Explorer binary format](#)) to [BUFR format](#). The tool and its documentation can be found on <https://software.ecmwf.int/wiki/display/AEOL/Aeolus+Level-2B+Processor+Package>, **i.e. contained in the Aeolus L2B processor package**. For more details of the Aeolus L2B BUFR convertor tool, see section 11 below.

Overpass table tools: ESA has furthermore developed tools for the visualization of the Earth Observation Satellites and their orbits, in support of users working with the observations. The tools can be found here:

Relevant ESA EOP-CFI tools

Command line executables:

1) Zone OverPass tool

Version 1.4 can be download at the following URL (no username/password required)

<https://eop-cfi.esa.int/index.php/applications/tools>

Folder ZONE_OVERPASS can be found at the bottom of the page.

Select and navigate to the bottom of the new page.

For support: mpinol@eopp.esa.int

2) Instrument Collocation tool

Version 1.1.1 can be download at the following URL (no username/password required)

<https://eop-cfi.esa.int/index.php/applications/tools>

Folder INSTRUMENT_COLLOCATION can be found at the bottom of the page.

Select and navigate to the bottom of the new page.

For support: mpinol@eopp.esa.int

- Desktop applications

3) ESOV (Swath and Orbit Calculation and Visualisation Software, 2D)

Version 2.4.1 has just been released and is available for download at the following URL:

<https://eop-cfi.esa.int/index.php/applications/esov>

For support: esov@eopp.esa.int

4) EOMER (Swath and Orbit Calculation and Visualisation Software, 2D/3D)

Version 1.3.1 is available for download at the following URL:

<https://eop-cfi.esa.int/index.php/applications/eomer>

For support: eomer@eopp.esa.int

5) SAMI (Satellite Mission Editor and Player 3D Visualisation Software - High Resolution)

Version 1.1.4 is available for download at the following URL:

<https://eop-cfi.esa.int/index.php/applications/sami>

For support: sami@eopp.esa.int

NB! ESA would appreciate if the users could send a short e-mail notifying that they have downloaded the software to the e-mail addresses indicated above.

This will help ESA to keep the user distribution list complete and to ensure that users are informed whenever there are updates to the various tools. NB!

The EOMER (desktop application) and ZoneOverPass (command line executable) tools can be used to predict the Aeolus satellite overpasses based on one week orbit predictions provided throughout the mission by the Aeolus Flight Operation Facility in ESA-ESOC. The Aeolus satellite will have a weekly repeat cycle, which means that the overpass times can easily be extrapolated for weeks, unless special manoeuvres are performed leading to a slightly different longitudinal orbit position. More details about the overpass table tools are given in section 12 below.

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3. Scope

This document describes the use of the Aeolus data dissemination system, ESA tools for Aeolus data reading, L2B BUFR data conversion, and the use of ESA satellite overpass table tools.

4. Limitations

The Aeolus data dissemination user interface has not yet been integrated into the [ESA EO single sign-on interface](#) and therefore the login mechanism is slightly modified to that of the operational mission. A single generic login is being used for this exercise of downloading and reading Aeolus simulated test datasets, whereas in operations (after launch) everyone will register individually and have their own account. However, after login is completed the interface is the operational interface.

The actual ESA single sign on interface can be seen here:

<https://earth.esa.int/>

with Registration/ sign on in the top right corner.

The log-in details are provided to proposing teams via email, using the ESA Aeolus CAL/VAL community email list. New teams who have not received this email can request the log-in details by sending an email to aeolus.pdgs.calvalrehearsal2017@esa.int.

Please note also that until the launch of the Aeolus satellite (at the time of writing expected in August 2018), various ground segment testing is on-going. This could lead to datasets or the Aeolus Online data Dissemination System being unavailable during some periods. Some test datasets and their duration and dates may also change.

5. Terminology

The following terms appear in this document:

Baseline: processing baseline (Science and Calibration data only), e.g. "1B01" (where the first two chars indicate the processing level and the last two a sequential counter). This is a qualifier summarising all quality characteristics of a specific product, depending on the applied algorithm and on the input used to generate it.

Collection: A logical grouping of Aeolus data. Typically this is by product type.

E2S: End to end system simulator that is used to generate meaningful Aeolus data for subsequent use by the Aeolus ground segment (PDGS and L2MetPF).

ECMWF: The [European Centre for Medium-Range Weather Forecasts](#).

L2MetPF: The Aeolus Level 2 processing facility, hosted by ECMWF, that is responsible for the generations of the Level 2B and Level 2C products .

NRT processing: The standard processing for the Aeolus mission. Data is downlinked from the satellite once per orbit and processed in near real time by the PDGS with the aim of making the data available to the various Aeolus users within 3 hours.

PDGS: The Aeolus PDGS is responsible for the reception of all recorded instrument measurement data and housekeeping telemetry, the systematic processing, archiving and dissemination of the measurement data and of various planning and monitoring tasks. In the context of this test it is system responsible for the generation of the Level 0, Level 1 and Level 2A products and the dissemination of all Aeolus products.

Reprocessing: If there is a significant change in an algorithm or the Aeolus calibration data, it may be necessary to reprocess the data that has already been received to regenerate the Aeolus products. This is reprocessing and will, in general, result in a new baseline for the newly generated products.

Single sign on: An explanation of the ESA single sign on is given [here](#).

Further terminology used for the Aeolus CAL/VAL organization and teams:

Team / Role	Function	Name	Organization / Affiliation
ESA support teams			
Aeolus Project Manager	Aeolus Project Manager in phases B/C/D/E1 (satellite development and in-flight commissioning phase)	Anders Elfving	ESA-ESTEC
Project Support Team	Mission Scientist Engineering and Satellite Manager Performance Engineer Campaigns Manager Ground Segment Engineer Assembly, Integration, Verification and Testing Engineer	Anne Grete Straume Frank de Bruin Thomas Kanitz Thorsten Fehr Kevin Galloway Mehrddad Rezaad	ESA-ESTEC
Aeolus Mission Management	Mission Manager In charge of the Aeolus mission in its operational phase (Phase E2)	Wolfgang Lengert	ESA-ESRIN
Flight Operations System - Flight Control and Support Team	S/C operations manager, mission experts in charge of - mission planning tasks - flight dynamics analyses - anomaly investigation	Juan Piñeiro Gabriela Ansteeg and more	ESA-ESOC
Payload Data Ground Segment (PDGS) Team	PDGS Manager Cal/Val support & PDGS management in charge of - facility operations & maintenance - calibration processing, analysis - mission planning tasks - data distribution	Fabio Buscaglione Ivan Di Lodovico Annalisa Martini Emiliano Fedeli	ESA-ESRIN
Product Quality Team	Aeolus Product Quality Manager Aeolus calibration and monitoring support	Jonas von Bismarck Sebastian Bley	ESA-ESRIN
Non-ESA teams			
Aeolus Phase C/D Industrial Team	spacecraft and payload development and expert team in charge of: • overall LEOP & commissioning phase tasks • payload operations • mission analysis • performance verification • on-board software maintenance • error budget compilation • others (tbd)	Richard Wimmer John Marshall John Brewster Phil McGoldrick Olivier Lecrenier Jeremie Lochar .. and more	Airbus Defence and Space

Team / Role	Function	Name	Organization / Affiliation
L1/2 Algorithm Development Team (expert users)	L1B/2A/2B algorithm development, validation expert team in charge of: <ul style="list-style-type: none"> • algorithm development verification, and maintenance tasks • aux. data base generation • specific processing tasks • performance analyses / error budget compilation • others (tbd) 	O. Reitebuch D. Huber U. Marksteiner K. Schmit F. Weiler A. Dabas T. Flament C. Payan L. Isaksen M. Rennie A. Stoffelen J. de Kloe G.-J. Marseille	DoRIT, DLR, MétéoFrance, ECMWF, KNMI
ECMWF Operations Team (expert users)	Team responsible for the L2B processing facility	<nn>	ECMWF
Announcement of Opportunity (AO) CAL/VAL project teams			
<i>Teams in charge of specific validation projects, which are reviewed and accepted by ESA. Most projects have been submitted in response of the Aeolus CAL/VAL AO Call in summer 2014</i>			
CAL/VAL Teams Proposal IDs: 5156, 5166, 5177, 5186, 5188, 5190, 5192, 26989, 27329, 27389, 27409, 27411, 27449, 27529, 27589, 27590, 28295	independent performance analysis Typical AO projects may cover <ul style="list-style-type: none"> • consistency analyses of instrument calibration data, systematic error sources • long-term trend analyses of spacecraft equipment, payload instrument • evaluation of algorithm (model) induced errors • error budgets in engineering calibration data • end-to-end error budgets in L1B/L2A/L2B/Cproduct • others (tbd) 		

6. Test data

Three test data sets have at the time of writing (March 2018) been made available for the purposes of Aeolus Cal/ Val preparations.

1. Synthetic test data for the period March 2017: Test data is available for the following dates:

- 07-09/03/2017 (3 days of data)
- 20-30/03/2017 (10 days of data)

This is a coherent test data set containing Aeolus Level 1 and Level 2 products. It has been used throughout ground segment testing to date. The raw input data was generated with the E2S using the Aeolus flight altitude baseline of ~320 km. This raw data was subsequently processed by the PDGS and the L2MetPF to generate **Aeolus products from Level 0 to Level 1B and further to Level 2A and Level 2B** while exercising both a NRT (baseline nn01 where nn = 1B, 2A, etc) and re-processing (baseline nn02) scenario. The atmospheric input scene used is not realistic, based on a standard homogeneous atmosphere definition.

2. Test data for the single day 01/10/2015 (with a small overlap into 02/10/2015) (will be uploaded before 31 March 2018):

This is a coherent test data set generated specifically for the testing of the Aeolus data reading and data conversion tools. The raw data was generated with the Aeolus end-to-end simulator (E2S) using the baseline Aeolus flight altitude of 320 km and realistic atmospheric scenes from ECMWF model forecast data. The forecast fields contained realistic clouds but no realistic aerosol distribution. This raw data was subsequently processed by the PDGS to generate **Aeolus products from Level 0 to Level 1B**. The L2MetPF was then used to generate the **Aeolus Level 2B and Level 2C products**. These products were generated with a different baseline to those of the synthetic test data set (nnCV where nn = 1B, 2A, etc). *Please note that the Aeolus Level 2B and Level 2C product documentation is joint (hence available in the same documents).*

3. Test data for the single day 01/01/2007 (15 half orbits) (will be uploaded before 31 March 2018):

This is a realistic test data set suited for the testing of the Aeolus data reading and data conversion tools and for the inspection of the expected Aeolus L2A data characteristics. The raw data was generated with the Aeolus end-to-end simulator (E2S) using a specific CALIPSO flight configuration, hence assuming a 0.3 degrees off Nadir geometry. This raw data was subsequently processed by the operational Aeolus L1B retrieval code and the prototype L2A retrieval code, generating **Aeolus L1B and L2A products**.

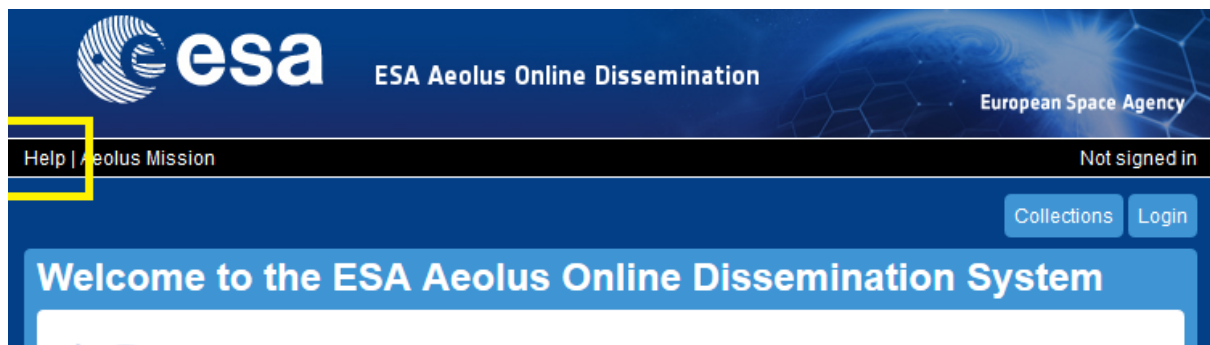
7. Documentation

7.1 Aeolus Online data Dissemination System user interface user manual

This is the link to the user documentation/ FAQ relating to the Aeolus user interface:

<https://aeolus-ds.eo.esa.int/aeolus/faq.html>

This link is also available as part of the user interface. Simply click on the Help button on the top left of the user interface pages.



7.2 Aeolus product documentation

The documentation associated with the Aeolus products can be found on <https://earth.esa.int/aos/AeolusCaIVal>.

Further information on the Aeolus products, the data processing strategy, product information content etc. can be found in Chapter 9 of the Aeolus Mission Requirements Document which is available on <https://earth.esa.int/aos/AeolusCaIVal>.

8. Logging on to the Aeolus Online data Dissemination System

As noted in section 3 this is not the operational single sign-on but it is still indicative of how you will access the Aeolus data. A development interface is being used and you do not have your own unique user account.

Also note that registration is only required if you wish to download data. You can perform searching and browsing of the data without logging in. However, as this testing will focus on the retrieval experience let's proceed to logging in:

You are the following (generic) user with access to all of the Aeolus data:

Username: ADDFint

Password: The password is provided to proposing teams via email, using the ESA Aeolus CAL/VAL community email list. New teams who have not received this email can request the password by sending an email to aeolus.pdgs.calvalrehearsal2017@esa.int.

Please go to

<http://aeolus-ds.eo.esa.int/oads/access/>

click on the Login and enter your user details, which identifies the Aeolus data collections which are available to you.

9. Testing various functionalities in the Aeolus Data Dissemination Facility

The purpose is to identify a few simple tasks for you to perform to brows for Aeolus data.

If you have any issues you may use the “Contact us” link at the bottom right of each page.



9.1 Task 1: Retrieve an Aeolus product based on “treeview”

Any Aeolus collection can be navigated using the “treeview” mechanism

Choose a collection. In this example the Level1B collection is chosen, but you can choose another should you wish. Then navigate down choosing:

- L1B Products
- Tree view navigation search
- 1B01
- File Type: ALD_U_N_1B (this is the only file type)
- Year-Month: 2017-03
- Day: 07

and then the list of available products is presented. Note that at any point during the “treeview” navigation you can select the “Show product list” button to present a list of products which satisfy the current navigation level.



The screenshot displays the ESA Aeolus Online Dissemination interface. At the top, the ESA logo and 'Online Dissemination' text are visible, along with the European Space Agency name. The user is signed in as ADDFint. The main content area shows the 'L1B Products' tree view with the following details:

- Collection: L1B Products
- Baseline: 1B01
- File Type: ALD_U_N_1B
- Year-Month: 2017-03
- Day: 07

Below the tree view, there is a section for 'Available products (12)'. Two product entries are shown:

Product 1: AE_OPER_ALD_U_N_1B_20170307T233133059_004776000_001033_0001.TGZ

- Baseline: 1B01
- Sensing Start Time: 2017-03-07T23:31:33.059Z
- Sensing Stop Time: 2017-03-08T00:51:09.059Z
- Orbit Number: 1033
- Processor Version: 91.00
- Product Quality: NOMINAL
- Product Quality Degradation:

Product 2: AE_OPER_ALD_U_N_1B_20170307T202521059_011196000_001031_0001.TGZ

- Baseline: 1B01
- Sensing Start Time: 2017-03-07T20:25:21.059Z

You can view the browse products, check the metadata and the quality report associated with product and you can select a specific product for download. Please have a look at the various options then select a product and download it.

9.2 Task 2: Retrieve an Aeolus product based on its filename

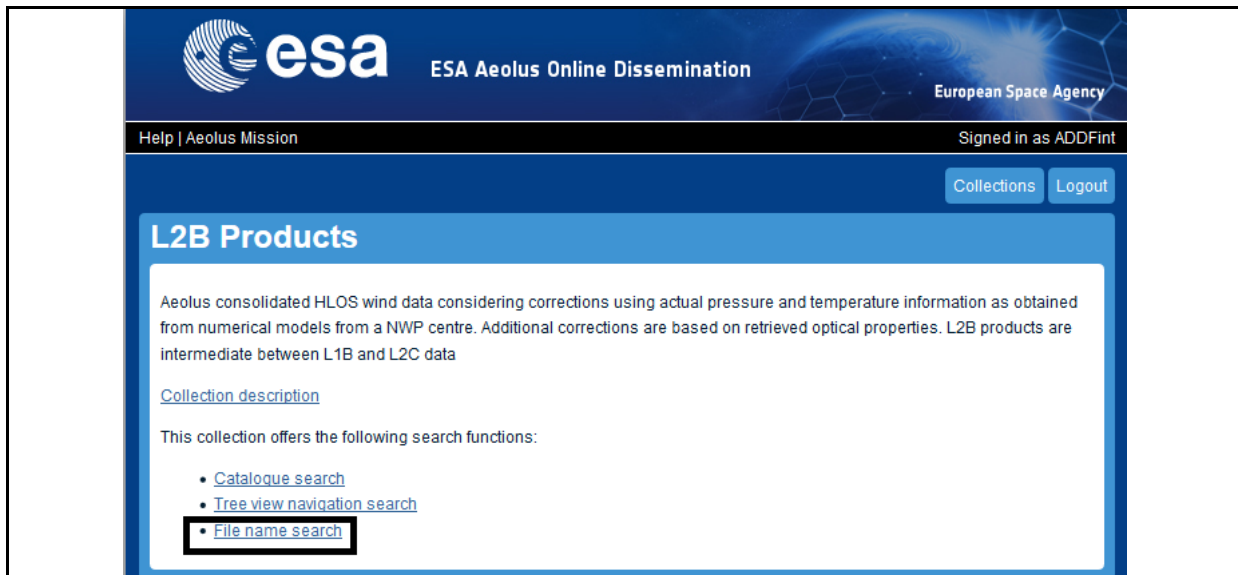
[Make sure to return to the Collections page by clicking on the Collections button in the top right hand corner]

Knowing the filename syntax of the products can allow you to quickly search for the specific products you are after. Select the Level 2B product (or feel free to select a different collection)

The Level 2 product documentation indicates that the syntax of the product is:

AE_OPER_ALD_U_N_2B_YYYYMMDDThhmmss_YYYYMMDDThhmmss_vvv

Click on the “L2B Products” Collection and choose to search based on file name.



The screenshot shows the ESA Aeolus Online Dissemination website. The header includes the ESA logo, the text "ESA Aeolus Online Dissemination", and "European Space Agency". Below the header, there is a navigation bar with "Help | Aeolus Mission" and "Signed in as ADDFint". On the right side of the navigation bar, there are buttons for "Collections" and "Logout". The main content area is titled "L2B Products" and contains the following text:

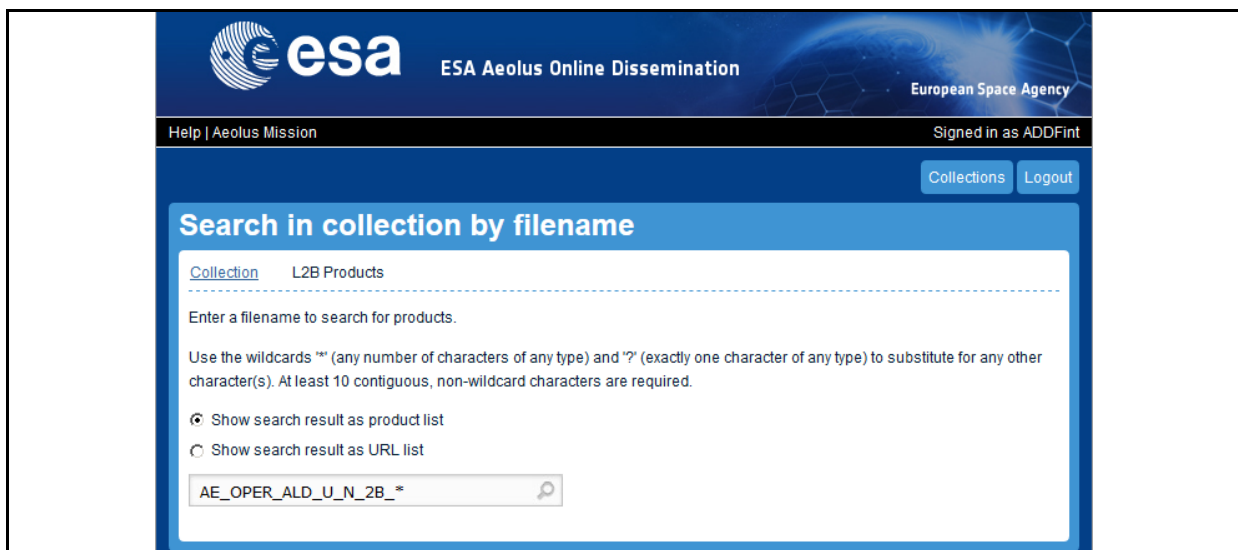
Aeolus consolidated HLOS wind data considering corrections using actual pressure and temperature information as obtained from numerical models from a NWP centre. Additional corrections are based on retrieved optical properties. L2B products are intermediate between L1B and L2C data

[Collection description](#)

This collection offers the following search functions:

- [Catalogue search](#)
- [Tree view navigation search](#)
- [File name search](#)

Then choose to select all of the available Level 2B products by using a wildcard for the time coverage and version number.



The screenshot shows the search interface for the L2B Products collection. The header and navigation bar are the same as in the previous screenshot. The main content area is titled "Search in collection by filename" and contains the following text:

[Collection](#) L2B Products

Enter a filename to search for products.

Use the wildcards "*" (any number of characters of any type) and "?" (exactly one character of any type) to substitute for any other character(s). At least 10 contiguous, non-wildcard characters are required.

Show search result as product list

Show search result as URL list

AE_OPER_ALD_U_N_2B_*

Click the search symbol to obtain a list of the available products

esa Online Dissemination European Space Agency

Help | Aeolus Mission Signed in as ADDFint

Collections Logout

Search in collection by filename

L2B Products [Info](#)

[Collection](#) L2B Products

Enter a filename to search for products as per [Section 2.1.2](#) in the help page.

Use the wildcards "*" (any number of characters of any type) and "?" (exactly one character of any type) to substitute for any other character(s). At least 10 contiguous, non-wildcard characters are required.


Show search result as product list
 Show search result as URL list

AE_OPER_ALD_U_N_2B_*

Available products (177)


AE_OPER_ALD_U_N_2B_20170330T192957_20170330T194721_0001.TGZ

[Browse](#) [Metadata](#) [Product](#)

 **Baseline:** 2B02
Sensing Start Time: 2017-03-30T19:29:57.257Z
Sensing Stop Time: 2017-03-30T19:47:20.741Z
Orbit Number: 1395
Processor Version: 03.00
Product Quality: NOMINAL
Product Quality Degradation:

AE_OPER_ALD_U_N_2B_20170330T175833_20170330T193021_0001.TGZ

[Browse](#) [Metadata](#) [Product](#)

 **Baseline:** 2B02
Sensing Start Time: 2017-03-30T17:58:33.257Z
Sensing Stop Time: 2017-03-30T19:30:20.741Z
Orbit Number: 1394
Processor Version: 03.00
Product Quality: NOMINAL
Product Quality Degradation:

Then select a product in the same manner as that described in Task 1.

9.3 Task 3: Retrieve an Aeolus product based on location and/ or time.

[Make sure to return to the Collections page by clicking on the Collections button in the top right hand corner]

You can identify products which correspond to a specified location and/ or time.

Choose to search the Level 2A collection and select the “Catalogue search” option. Use the graphical tool to identify the region for which you want to retrieve the L2A products (the coordinates are automatically given in the “Geographical coverage” boxes) and specify the time period (“Temporal Coverage”) to be midnight to midnight on 08/03/2017 and then press the “Search” button.

The screenshot displays the ESA Aeolus Online Catalogue search interface. At the top, the ESA logo and 'ESA Aeolus Online Dissemination' are visible, along with the European Space Agency logo. Below the header, there is a navigation bar with 'Help | Aeolus Mission'. The main content area is titled 'ESA Aeolus Online Catalogue - Search Form'. It includes a 'back to collections' link and the 'Collection L2A_Products' section, which describes the product as 'Aeolus supplementary geo-physical product (L2A, more information can be found in this page)'. A note instructs users to 'Fill in your selection criteria search the matching products.' The central feature is a map of Africa with a red bounding box drawn over it. Below the map, there is a 'Search' button. The search criteria are as follows:

- Format:** HTML search response.
- Items per page:** 10
- Geographical Coverage:** -2.584 to 53.086
- Temporal Coverage:** 2017-03-08 to 2017-03-08
- Generation Time:** single or start date to stop date (optional)
- Product Type:** ALD_U_N_2A

A list of the Level 2A products which satisfy the search criteria appear. You can then select a product in the same manner as that described in Task 1.

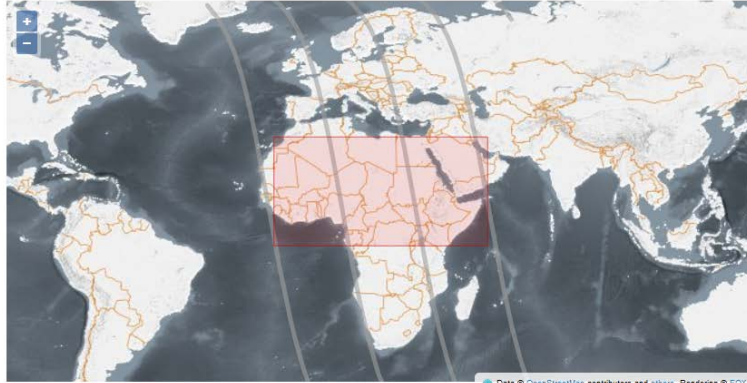
ESA Aeolus Online Catalogue - Search Result

[back to search form](#) | [bulk download lists](#)

Collection L2A_Products

Aeolus supplementary geo-physical product (L2A, more information can be found in [this page](#))

Search result page 1 of 1 pages (4 of 4 records found in 0.038 seconds).



[AE_OPER_ALD_U_N_2A_20170308T144409059_005460000_001043_0001.TGZ](#)

[download product](#) | [download quality report](#) | [download metadata](#) | [metadata](#) | [browse image](#)

[AE_OPER_ALD_U_N_2A_20170308T131409059_005423999_001042_0001.TGZ](#)

[download product](#) | [download quality report](#) | [download metadata](#) | [metadata](#) | [browse image](#)

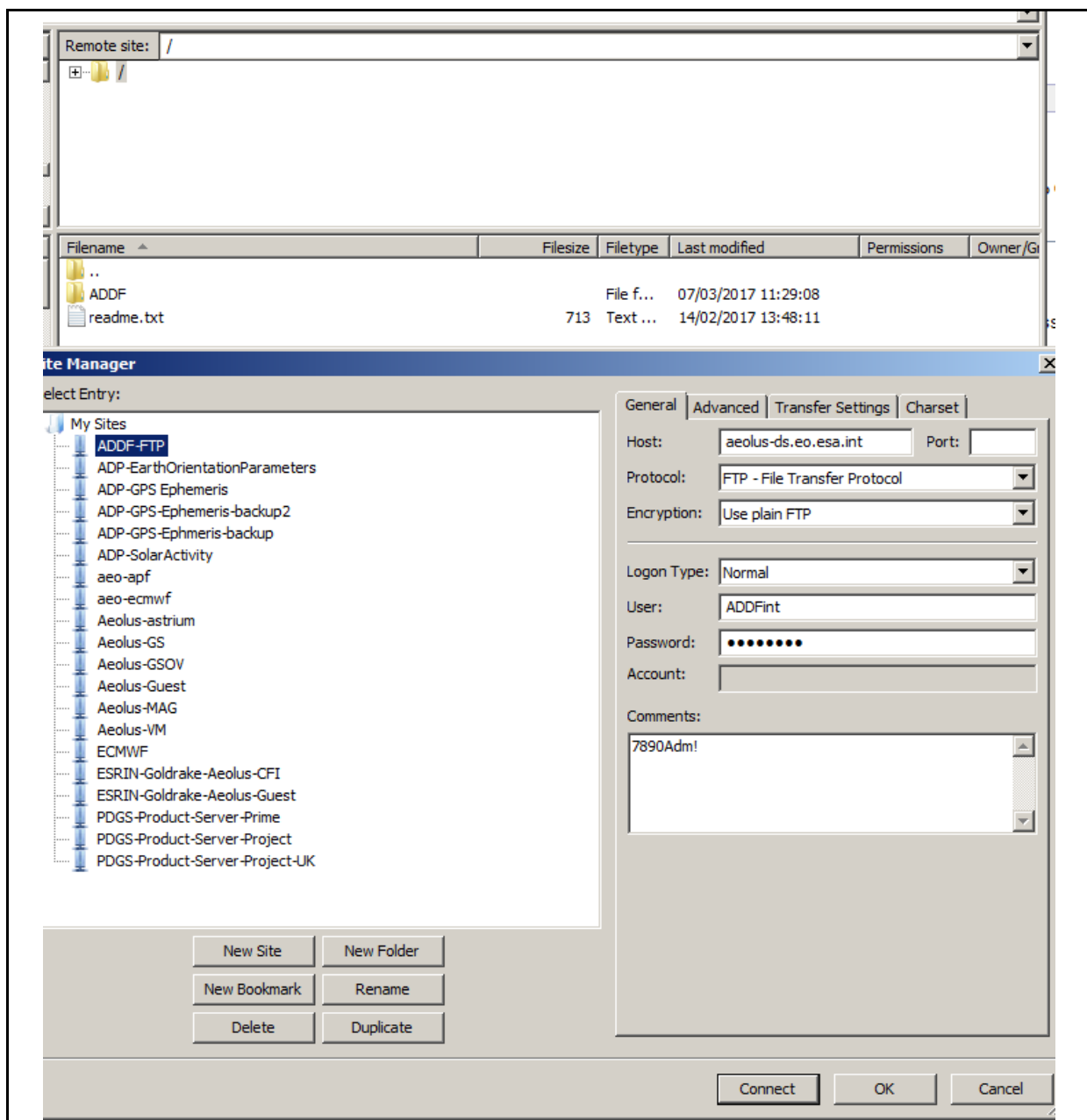
9.4 Task 4: Download Aeolus products in bulk.

The help pages (<https://aeolus-ds.eo.esa.int/aeolus/fag.html>) present various options for downloading the Aeolus products in bulk:

- Download via FTP
- Download using a Firefox tool called DownThemAll!
- Advanced query and download via command line.

Choose the FTP option (or feel free to try any of the other bulk retrieval options).

Use e.g. the FileZilla FTP client (but other commonly used clients are supported – see the help pages) with the settings shown below (using the same account details as given in section 7).



Clicking on the ADDF directory you are then presented with the Collections you see when using the standard graphical user interface. Select a collection/ product and then navigate as you did when using the treeview in Task 1.

Retrieve the data you want in the usual manner for your FTP client.

10. Testing the reading of the Aeolus data with the CODA software

Data reading and viewing tools have been developed for the ESA ENVISAT atmospheric instrumentation. The first version of the software was called BEAT-I, which has now been developed further into the CODA satellite data reading tool and the HARP satellite data ingestion, processing and inter-comparison with model or correlated observations. The CODA tool is furthermore capable of translating Aeolus data into ascii, netCDF and HDF. CODA and HARP have been extended to ingest and visualise Aeolus L1 and L2 datasets. The CODA software testing is described here.

To run the CODA software to read the Aeolus product data, a data definition file, `codadef-aeolus`, is necessary. The CODA and `codadef-aeolus` files can be found here:

<https://github.com/stcorp/coda/releases/latest>

<https://github.com/stcorp/codadef-aeolus/releases/latest>

See also:

<http://www.stcorp.nl/coda/>

In addition, example scripts in Python, IDL, and MATLAB on how to read the basic variables from the Aeolus L1B, L2A and L2B files are available on the CODA examples github website:

<https://github.com/stcorp/coda-examples/tree/master/python/aeolus>

<https://github.com/stcorp/coda-examples/tree/master/idl/aeolus>

<https://github.com/stcorp/coda-examples/tree/master/matlab/aeolus>

Instructions and documentation on how to install and run the software are provided on the above mentioned web pages. You are hereby invited to download, install and test the software for the reading of the Aeolus test datasets described in section 6.

11. Testing of the Aeolus Level 2B BUFR Convertor Tool

KNMI and ECMWF have, under ESA contract, developed a tool to convert the ESA Aeolus [Earth Explorer format](#) files to BUFR, which is the binary format used by the meteorological community. The BUFR convertor tool is part of the Aeolus L2B processor package, which is available freely to the user community provided that users agree to the software licence terms. The BUFR convertor software is available in the L2B processor package and the BUFR format description in the Aeolus Level 2B/C documentation package.

The Aeolus Level 2B BUFR convertor tool and its documentation can be found on

<https://software.ecmwf.int/wiki/display/AEOL/Aeolus+Level-2B+Processor+Package>,

inside of the [Aeolus L2B processor package](#) and [Aeolus L2B/C Documentation](#), and it is built when executing a "configure;make;make install" sequence.

12. Testing of the ESA Overpass Table Tools

ESA have developed several tools for the viewing and calculation of the orbit and orbit position of its satellite mission. Tools to determine when the Aeolus satellite will pass in vicinity of a ground station or ground location will be tested in this rehearsal. The idea is to provide the Aeolus CAL/VAL teams with predictions of the satellite overpasses within agreed special and time limits. In this way users will be able to:

- Determine when to switch on and off ground-based instruments in order to perform collocated observations.
- Determine when and where to fly aircraft and other airborne platforms in order to under-fly the spacecraft to perform collocated observations.

The criteria for a collocated wind and aerosol/cloud observation was discussed at the Aeolus CAL/VAL Rehearsal Workshop in March 2018 and are reported in the CAL/VAL Implementation Plan.

A satellite overpass tool is available via the [ESA atmospheric Validation Data Centre \(EVDC\) web site](https://evdc.esa.int/) <https://evdc.esa.int/>

Predicted satellite overpass tables for **ground-based stations** will also be made available via the Aeolus Earth Net web pages and the Aeolus ESA Aeolus Dissemination Pages using the ZoneOverPass tool. EOMER is envisaged as a useful tool for **airborne campaigns**.

Relevant ESA EOP-CFI tools

Command line executables:

1) Zone OverPass tool

Version 1.4 can be download at the following URL (no username/password required)

<https://eop-cfi.esa.int/index.php/applications/tools>

Folder ZONE_OVERPASS can be found at the bottom of the page.

Select and navigate to the bottom of the new page.

For support: mpinol@eopp.esa.int

2) Instrument Collocation tool

Version 1.1.1 can be download at the following URL (no username/password required)

<https://eop-cfi.esa.int/index.php/applications/tools>

Folder INSTRUMENT_COLLOCATION can be found at the bottom of the page.

Select and navigate to the bottom of the new page.

For support: mpinol@eopp.esa.int

- Desktop applications

3) ESOV (Swath and Orbit Calculation and Visualisation Software, 2D)

Version 2.4.1 has just been released and is available for download at the following URL:

<https://eop-cfi.esa.int/index.php/applications/esov>

For support: esov@eopp.esa.int

4) EOMER (Swath and Orbit Calculation and Visualisation Software, 2D/3D)

Version 1.3.1 is available for download at the following URL:

<https://eop-cfi.esa.int/index.php/applications/eomer>

For support: eomer@eopp.esa.int

5) SAMI (Satellite Mission Editor and Player 3D Visualisation Software - High Resolution)

Version 1.1.4 is available for download at the following URL:

<https://eop-cfi.esa.int/index.php/applications/sami>

For support: sami@eopp.esa.int

NB! ESA would appreciate if the users could send a short e-mail notifying that they have downloaded the software to the e-mail addresses indicated above.

This will help ESA to keep the user distribution list complete and to ensure that users are informed whenever there are updates to the various tools. NB!