


# Download OMI NO<sub>2</sub> or SO<sub>2</sub> Data

Data Analysis Tools for High Resolution Air Quality Satellite Datasets

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# Step 1: Visit <https://urs.earthdata.nasa.gov/users/new>

**EARTHDATA LOGIN**

**Register for an Earthdata Login Profile**

Profile Information

**Username:** •

**Password:** •

**Password Confirmation:** •

• Required field

**Username must:**

- Be a Minimum of 4 characters
- Be a Maximum of 30 characters
- Use letters, numbers, periods and underscores
- Not contain any blank spaces
- Not begin, end or contain two consecutive special characters( . \_ )

**Password must contain:**

- Minimum of 8 characters
- One Uppercase letter
- One Lowercase letter
- One Number



# Step 2: Add NASA GESDISC to your Applications

- Login to Earthdata
- Click on **My Applications**
- Click on **Approve More Applications**
- Look for NASA GESDISC DATA ARCHIVE in the list or search
- Add NASA GESDISC DATA ARCHIVE to your applications

You should see NASA GESDISC DATA ARCHIVE in list of approved applications

## My Applications

### Approved Applications

Applications that use your Earthdata Login profile for authentication.

Earthdata Feedback Module	?
Earthdata Website	?
Earthdata Code Collaborative	?
Metadata Management Tool	?
Earthdata Wiki	✎ ✕
SEDAC Website	✎ ✕
Earthdata Search	✎ ✕
LAADS Web	✎ ✕
Toolsets for Airborne Data (TAD)	✎ ✕
Earthdata Search Prod (new)	✎ ✕
NASA GESDISC DATA ARCHIVE	✎ ✕

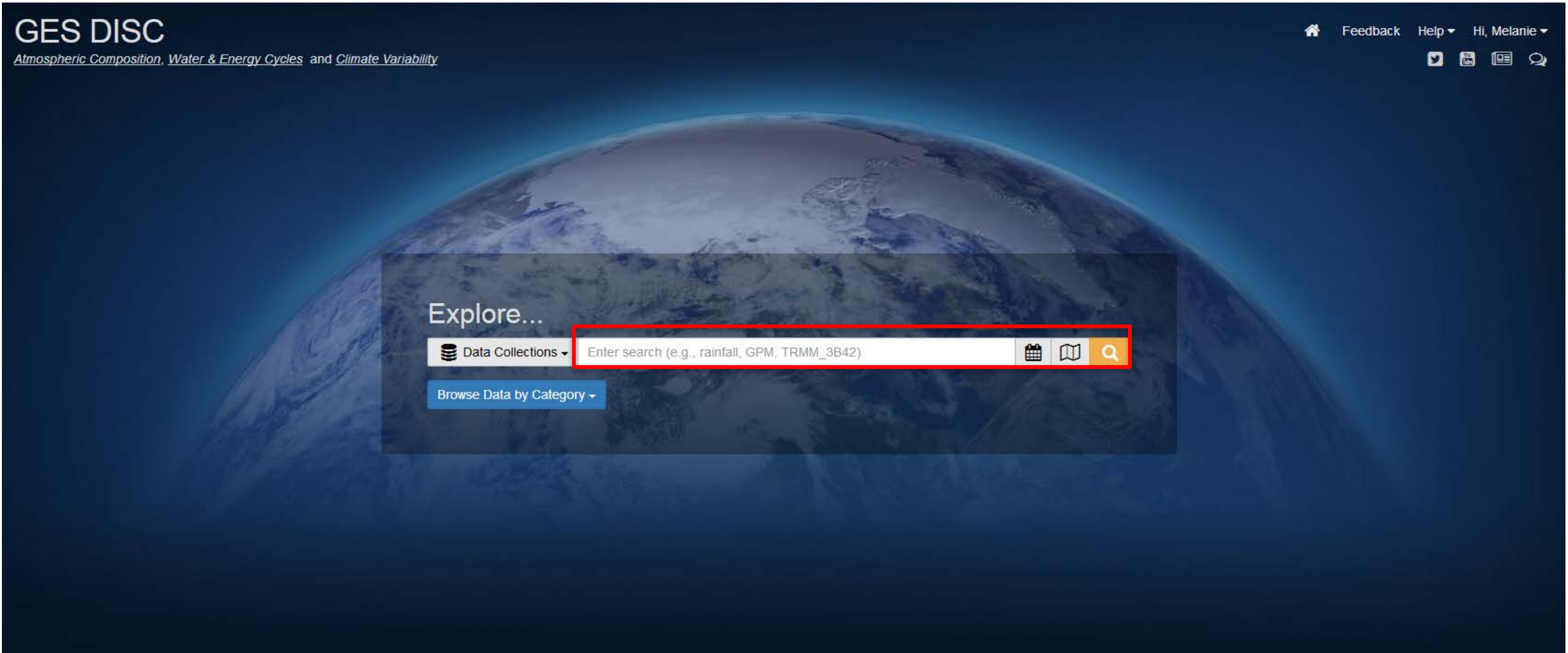


# Step 3: Login at <https://disc.gsfc.nasa.gov/>

The screenshot shows the NASA GES DISC website interface. The background is a satellite view of Earth. In the top left corner, the text "GES DISC" is displayed, with the subtitle "Atmospheric Composition, Water & Energy Cycles and Climate Variability" below it. In the top right corner, there are navigation links for "Feedback" and "Help", and a user profile dropdown menu that says "Hi, Melanie" with a downward arrow. Below the navigation links are social media icons for Twitter, YouTube, and Facebook. In the center of the page, there is a "Explore..." section with a search bar. The search bar contains the text "Data Collections" and "Enter search (e.g., rainfall, GPM, TRMM\_3B42)". To the right of the search bar are icons for a calendar, a book, and a magnifying glass. Below the search bar is a blue button that says "Browse Data by Category".



# Step 4: Enter Search Keywords (e.g. OMNO2 or OMSO2)






The screenshot shows the NASA GES DISC website interface. The background is a satellite view of Earth. In the top left, the text reads "GES DISC" and "Atmospheric Composition, Water & Energy Cycles and Climate Variability". In the top right, there are navigation links for "Feedback", "Help", and "Hi, Melanie", along with social media icons for Twitter, YouTube, and Facebook. The main content area features a dark overlay with the heading "Explore...". Below this heading is a search bar with a red border, containing the placeholder text "Enter search (e.g., rainfall, GPM, TRMM\_3B42)". To the left of the search bar is a "Data Collections" dropdown menu, and to the right are icons for a calendar, a book, and a search magnifying glass. Below the search bar is a blue button labeled "Browse Data by Category".









# Step 5: Make a Product Selection

**GES DISC** Data Collections ▼ OMSO2   

*Atmospheric Composition, Water & Energy Cycles and Climate Variability*

Feedback Help Hi, Melanie    

## Data Collections

Showing 1 - 3 of 3 datasets associated with OMSO2

**Refine By**

**Subject** Sort ▼  
 Atmospheric Chemistry (3)

**Measurement** Sort ▼  
 Sulfur Dioxide (3)

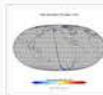
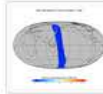
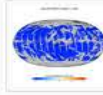
**Source** Sort ▼  
 Aura OMI (3)

**Processing Level** Sort ▼  
 2 (2)  
 3 (1)

**Project** Sort ▼  
 ATDD (1)  
 Aura (2)

**Temporal Resolution** Sort ▼  
 98 minutes (1)  
 98.8 minutes (1)  
 1 day (1)

**Spatial Resolution** Sort ▼  
 13 km x 24 km (2)  
 0.25 ° x 0.25 ° (1)

Image	Dataset	Source	Temporal Resolution	Spatial Resolution	Process Level	Begin Date	End Date
 Hover	<a href="#">OMI/Aura Level 2 Sulphur Dioxide (SO2) Trace Gas Column Data 1-Orbit subset Swath along CloudSat track 1-Orbit Swath 13x24 km (OMSO2_CPR.003) - Atmospheric Chemistry</a> <a href="#">Get Data</a>	Aura OMI	98.8 minutes	13 km x 24 km	2	2006-06-01	2018-01-17
 Hover	<a href="#">OMI/Aura Sulphur Dioxide (SO2) Total Column 1-orbit L2 Swath 13x24 km V003 (OMSO2.003) - Atmospheric Chemistry</a> <a href="#">Subset / Get Data</a>	Aura OMI	98 minutes	13 km x 24 km	2	2004-10-01	2018-01-17
 Hover	<a href="#">OMI/Aura Sulfur Dioxide (SO2) Total Column L3 1 day Best Pixel in 0.25 degree x 0.25 degree V3 (OMSO2e.003) - Atmospheric Chemistry</a> <a href="#">Subset / Get Data</a>	Aura OMI	1 day	0.25 ° x 0.25 °	3	2004-10-01	2018-01-17

# Step 6: Choose Data Access (we will use EARTHDATA)

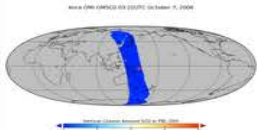
GES DISC Data Collections OMSO2

Atmospheric Composition, Water & Energy Cycles and Climate Variability

Feedback Help Hi, Melanie

Go to Search Results

## OMSO2: OMI/Aura Sulphur Dioxide (SO2) Total Column 1-orbit L2 Swath 13x24 km V003



The Aura Ozone Monitoring Instrument (OMI) Sulfur Dioxide Product 'OMSO2' Version 3 is now available to the public from the NASA Goddard Earth Sciences Data and Information Services Center (GES DISC). The OMSO2 product contains three values of SO2 Vertical column corresponding to three a-priori vertical profiles used in the retrieval algorithm. It also contains quality flags, geolocation and other ancillary information. The lead scientist for the OMSO2 product is Nickolay Kroktov. The shortname for this Level-2 OMI total column SO2 product is OMSO2.

The OMSO2 files are stored in the version 5 EOS Hierarchical Data Format (HDF-EOS5). Each file contains data from the day lit portion of an orbit (~53 minutes). There are approximately 14 orbits per day. The maximum file size for the OMSO2 data product is approximately 21 MB.

**Data Access**

- Online Archive
- EARTHDATA Search**
- Simple Subset Wizard
- OPENDAP DATA

Product Summary Data Citation Documentation

**Shortname:** OMSO2  
**Longname:** OMI/Aura Sulphur Dioxide (SO2) Total Column 1-orbit L2 Swath 13x24 km V003  
**DOI:** 10.5067/Aura/OMI/DATE2022  
**Version:** 003  
**Format:** HDF5  
**Spatial Coverage:** -180.0,-90.0,180.0,90.0  
**Temporal Coverage:** 2004-10-01 to present  
**File Size:** 26 MB per file  
**Data Resolution**  
**Spatial:** 13 km x 24 km  
**Vertical:** 80 km  
**Temporal:** 98 minutes



# Step 7: Select Product

The screenshot shows the NASA Earthdata Search interface. At the top, there is a search bar containing 'OMSO2\_003'. Below the search bar, a map of the Middle East and surrounding regions is displayed. On the left side, there is a sidebar with navigation options: 'Browse Collections', 'Features' (with sub-options for Map Imagery, Near Real Time, and Subsetting Services), 'Keywords', 'Platforms', 'Instruments', 'Organizations', 'Projects', and 'Processing levels'. Below the map, there are search filters and a '2 Matching Collections' section. The first collection is highlighted with a red box and has a mouse cursor pointing to it. The second collection is partially visible below it.

**Search Results:**

- Collection 1:** OMI/Aura Sulphur Dioxide (SO2) Total Column 1-orbit L2 Swath 13x24 km V003 (OMSO2) at GES DISC. 67736 Granules • 2004-10-01 ongoing • The Aura Ozone Monitoring Instrument (OMI) Sulphur Dioxide Product 'OMSO2' Version 3 is now available to the public from the NASA Goddard Earth Sciences Data and Information Services Center (GES DISC). The OMSO2 product contains three values of SO2 Vertical column corresponding to...  
MAP: IMAGERY | OMSO2 v003 - NASA/GSFC/SED/ESD/GCDC/GESDISC
- Collection 2:** OMI/Aura Sulphur Dioxide (SO2) Total Column 1-orbit L2 Swath 13x24 km V003 NRT. 114 Granules • 2004-07-15 ongoing • The Ozone Monitoring Instrument (OMI) was launched aboard the EOS-Aura satellite on July 15, 2004 (1:38 pm equator crossing time, ascending mode). OMI with its 2600 km viewing swath width provides almost daily global coverage. OMI is a contribution of the Netherlands Space Off...  
MAP: IMAGERY | NRT | OMSO2 v003 - OMI: SIP:5



# Step 8: Select Time

To choose time, click on + or - to change the time resolution (e.g. Click - to change to year, and + to change to day)

OMI/Aura Sulphur Dioxide (SO<sub>2</sub>) Total Column 1-orbit L2 Swath 13x24 km V003 (OMSO2) at GES DISC

Showing 20 of 67736 matching granules    Sort by: Start Date, Newest first    Granule Search: Search Single or Multiple Granule IDs...    Search Time: 0.4s    Report a metadata problem

Granule ID	START	END
OMI-Aura_L2-OMSO2_2018m0118t0800-o71867_v003-2018m0118t142500.he5	2018-01-18 08:00:41	2018-01-18 09:39:35
OMI-Aura_L2-OMSO2_2018m0118t0621-o71866_v003-2018m0118t141452.he5	2018-01-18 06:21:48	2018-01-18 08:00:41
OMI-Aura_L2-OMSO2_2018m0118t0442-o71865_v003-2018m0118t123448.he5	2018-01-18 04:42:55	2018-01-18 06:21:48
OMI-Aura_L2-OMSO2_2018m0118t0304-o71864_v003-2018m0118t092759.he5	2018-01-18 03:04:01	2018-01-18 04:42:55
OMI-Aura_L2-OMSO2_2018m0118t0125-o71863_v003-2018m0118t073427.he5	2018-01-18 01:25:08	2018-01-18 03:04:01
OMI-Aura_L2-OMSO2_2018m0117t2346-o71862_v003-2018m0118t055001.he5	2018-01-17 23:46:15	2018-01-18 01:25:08

MONTH: + -

Feb    Mar    Apr    May    Jun    Jul    Aug    Sep    Oct    Nov    Dec    Jan 2018

# Step 9: Select Swath

- Clicking on a swath will show you its location on the map

OMSO2\_003

Find a DAAC

Earthdata Login

2000 km  
1000 mi

Back to Collections

OMI/Aura Sulphur Dioxide (SO<sub>2</sub>) Total Column 1-orbit L2 Swath 13x24 km V003 (OMSO2) at GES DISC

Showing 15 of 15 matching granules for the selected day. (Show All) Sort by: Start Date, Newest first Granule Search: Search Single or Multiple Granule IDs... Search Time: 0.2s Report a metadata problem

Granule ID	START	END
OMI-Aura_L2-OMSO2_2016m1024t1228-o65302_v003-2016m1024t222720.he5	2016-10-24 12:28:14	2016-10-24 14:07:06
OMI-Aura_L2-OMSO2_2016m1024t1049-o65301_v003-2016m1024t224733.he5	2016-10-24 10:49:21	2016-10-24 12:28:14
OMI-Aura_L2-OMSO2_2016m1024t0910-o65300_v003-2016m1024t174753.he5	2016-10-24 09:10:29	2016-10-24 10:49:21
OMI-Aura_L2-OMSO2_2016m1024t0731-o65299_v003-2016m1024t163627.he5	2016-10-24 07:31:36	2016-10-24 09:10:29
OMI-Aura_L2-OMSO2_2016m1024t0552-o65298_v003-2016m1024t163822.he5	2016-10-24 05:52:43	2016-10-24 07:31:36
OMI-Aura_L2-OMSO2_2016m1024t0413-o65297_v003-2016m1024t114026.he5	2016-10-24 04:13:51	2016-10-24 05:52:43

DAY

OMI/Aura Sulphur Dioxide (SO<sub>2</sub>) Total Column 1-orbit L2 Swath 13x24 km V003 (OMSO2) at GES DISC

01 Oct 2016 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31





# Step 10: Download single granule by clicking gear icon

The screenshot shows the Earthdata search interface. At the top, there's a search bar with "OMSO2\_003" and a "Find a DAAC" dropdown. Below the search bar is a map of the globe with green orbital swaths. A tooltip over the map shows the dates "2016-10-24 09:10:29" and "2016-10-24 10:49:21". Below the map, there's a "Back to Collections" button and a "Download Data" button. The main content area shows a table of granules for "OMI/Aura Sulphur Dioxide (SO2) Total Column 1-orbit L2 Swath 13x24 km V003 (OMSO2) at GES DISC". The table has columns for granule ID, start time, and end time. A red box highlights the gear icon for the granule with ID "OMI-Aura\_L2-OMSO2\_2016m1024t0910-o65300\_v003-2016m1024t174753.he5". Below the table is a timeline for the day of October 24, 2016, with a green bar indicating the data coverage.

OMSO2\_003

Find a DAAC

Earthdata Login

2000 km  
1000 mi

Back to Collections

OMI/Aura Sulphur Dioxide (SO2) Total Column 1-orbit L2 Swath 13x24 km V003 (OMSO2) at GES DISC

Download Data

Showing 15 of 15 matching granules for the selected day. (Show All) Sort by: Start Date, Newest first Granule Search: Search Single or Multiple Granule IDs... Search Time: 0.2s Report a metadata problem

Granule ID	START	END
OMI-Aura_L2-OMSO2_2016m1024t1228-o65302_v003-2016m1024t222720.he5	2016-10-24 12:28:14	2016-10-24 14:07:06
OMI-Aura_L2-OMSO2_2016m1024t1049-o65301_v003-2016m1024t224733.he5	2016-10-24 10:49:21	2016-10-24 12:28:14
OMI-Aura_L2-OMSO2_2016m1024t0910-o65300_v003-2016m1024t174753.he5	2016-10-24 09:10:29	2016-10-24 10:49:21
OMI-Aura_L2-OMSO2_2016m1024t0731-o65299_v003-2016m1024t163627.he5	2016-10-24 07:31:36	2016-10-24 09:10:29
OMI-Aura_L2-OMSO2_2016m1024t0552-o65298_v003-2016m1024t163822.he5	2016-10-24 05:52:43	2016-10-24 07:31:36
OMI-Aura_L2-OMSO2_2016m1024t0413-o65297_v003-2016m1024t114026.he5	2016-10-24 04:13:51	2016-10-24 05:52:43

DAY

OMI/Aura Sulphur Dioxide (SO2) Total Column 1-orbit L2 Swath 13x24 km V003 (OMSO2) at GES DISC

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31  
Oct 2016



# Step 11: Choose “Direct Download” and Click “Submit”

**Data Access**  
Review and select service options for your data prior to download

**1** OMI/Aura Sulphur Dioxide (SO<sub>2</sub>) Total Column 1-orbit L2 Swath 13x24 km V003 (OMSO2) at GES DISC

**Review & Select Service Options**

**Review**

1 Granule  
26.2 Megabytes

**Granule List**

Expand List

**Select Data Access Method**

**Direct Download**  
Download data as-is now from your browser or access script.

Submit





# Step 12: Click “View Download Link” to Download

**The following collections are available for immediate download**

Click the "View Download Links" button to view a page containing links to your data. You may bookmark this page for later access. A browser download manager plugin such as Firefox's [DownThemAll!](#) can assist you in managing a large number of download links.

- **OMI/Aura Sulphur Dioxide (SO<sub>2</sub>) Total Column 1-orbit L2 Swath 13x24 km V003 (OMSO2) at GES DISC**

[View Download Links](#) [Download Data Links File](#) [Download Access Script](#)

**Additional Resources and Documentation**

- **OMI/Aura Sulphur Dioxide (SO<sub>2</sub>) Total Column 1-orbit L2 Swath 13x24 km V003 (OMSO2) at GES DISC**

[https://aura.gesdisc.eosdis.nasa.gov/opendap/Aura\\_OMI\\_Level2/OMSO2.003/contents.html](https://aura.gesdisc.eosdis.nasa.gov/opendap/Aura_OMI_Level2/OMSO2.003/contents.html)  
<https://disc.sci.gsfc.nasa.gov/SSW/#keywords=OMSO2>  
<https://aura.gsfc.nasa.gov/>  
[http://projects.knmi.nl/omi/research/news/newsWrap.php?language=only\\_enhttps://www.knmi.nl/omitimeFrame=latesthttps://www.knmi.nl/omichoise=page](http://projects.knmi.nl/omi/research/news/newsWrap.php?language=only_enhttps://www.knmi.nl/omitimeFrame=latesthttps://www.knmi.nl/omichoise=page)  
<https://so2.gsfc.nasa.gov/>

**Next Steps**

- [Back to Earthdata Search Results](#)
- [Start a New Earthdata Search Session](#)
- [View Your Download Status & History](#)



# Step 13: Download the Data

- [http://aura.gesdisc.eosdis.nasa.gov/data//Aura\\_OMI\\_Level2/OMS02.003/2016/298/OMI-Aura\\_L2-OMS02\\_2016m1024t0910-o65300\\_v003-2016m1024t174753.he5](http://aura.gesdisc.eosdis.nasa.gov/data//Aura_OMI_Level2/OMS02.003/2016/298/OMI-Aura_L2-OMS02_2016m1024t0910-o65300_v003-2016m1024t174753.he5)



- Click on the provided link and save the data in your directory where you will run your python scripts

