

# ATMOSPHERIC SCIENCE DATA CENTER

## NASA ASDC Distributed Active Archive Center (DAAC)

Earth Venture Sub-Orbital Support Team

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DCOTSS Open Data Workshop

December 8, 2022

# DCOTSS Data at the ASDC

- Sole post project data portal for distribution of data products
- Responsible for long-term preservation and stewardship
- DCOTSS data holdings
  - Archive the latest versions of publication quality data, including observational, derived, and value-added data products
- Assign DOIs to data products tailored to support manuscript and presentation development

# DCOTSS Data at the ASDC

- ASDC worked with the DCOTSS Data Manager (Cameron) to determine organization/groups to distribute DCOTSS data
  - Commonly referred to as collections
- DCOTSS data is grouped into 5 collections, all of which can be accessed at the ASDC
- Both DCOTSS deployments will be included in these collections once the second deployment data is ready for transfer to the ASDC

# DCOTSS Data at the ASDC

- DCOTSS-Aircraft-Data\_1
  - All ER-2 aircraft data, including merged data files
- DCOTSS-Balloon-Data\_1
  - Balloon/Ozonesonde data products
- DCOTSS-Model-Output\_1
  - Modeled data products, including WRF, TRAJ3D (Trajectory), GOES satellites
- DCOTSS-Radar-Satellite-Data\_1
  - NEXRAD, GOES-16, GOES-17 radar/satellite data products
- DCOTSS-Reports\_1
  - Flight Reports

# Earthdata Account

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EARTHDATA Find a DAAC Feedback

**EARTHDATA LOGIN** [Documentation](#)

Get single sign-on access to all your favorite EOSDIS sites

**REGISTER FOR A PROFILE**

**LOG IN** **REGISTER**

- 🔗 I don't remember my username
- 🔗 I don't remember my password
- 🔗 Help

for all EOSDIS system components (DAACs, Tools, Services). Your Earthdata login also helps the EOSDIS program better understand the usage of EOSDIS services to improve user experience through customization of tools and improvement of services. EOSDIS data are openly available to all and free of charge except where governed by international

free



## Register for an Earthdata Login Profile

### Profile Information

Username

Password

Password confirmation:

**REGISTER FOR EARTHDATA LOGIN**

- Not begin, end or contain two consecutive special characters( . \_ )

**Password must contain:**

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

Feedback

# ASDC Website

- <https://asdc.larc.nasa.gov/project/DCOTSS>

EARTHDATA  
ASDC | Atmospheric Science Data Center

Search the ASDC site...

ABOUT DATA COMMUNITY OUTREACH RESOURCES

Level 4 Level 3 **Level 2**

Collection	Disciplines	Spatial	Temporal
DCOTSS-Aircraft-Data_1 Dynamics and Chemistry of the Summer Stratosphere Airborne Data Products	Aerosols, Field Campaigns	Spatial Coverage: (13.5, 58), (-131, -78.5)	Temporal Coverage: 2021-06-09 - Present
DCOTSS-Balloon-Data_1 Dynamics and Chemistry of the Summer Stratosphere Balloon Data Products	Field Campaigns	Spatial Coverage: (0, 49), (-172, 0)	Temporal Coverage: 2021-06-09 - Present
DCOTSS-Reports_1 Dynamics and Chemistry of the Summer Stratosphere Reports	Clouds, Field Campaigns	Spatial Coverage: (25, 47), (-123, -80)	Temporal Coverage: 2021-07-16 - Present

Showing 1 to 3 of 3 entries

Recent DCOTSS News

Nov. 21, 2022  
DCOTSS 2022 Open Data Workshop  
[Read Article](#)

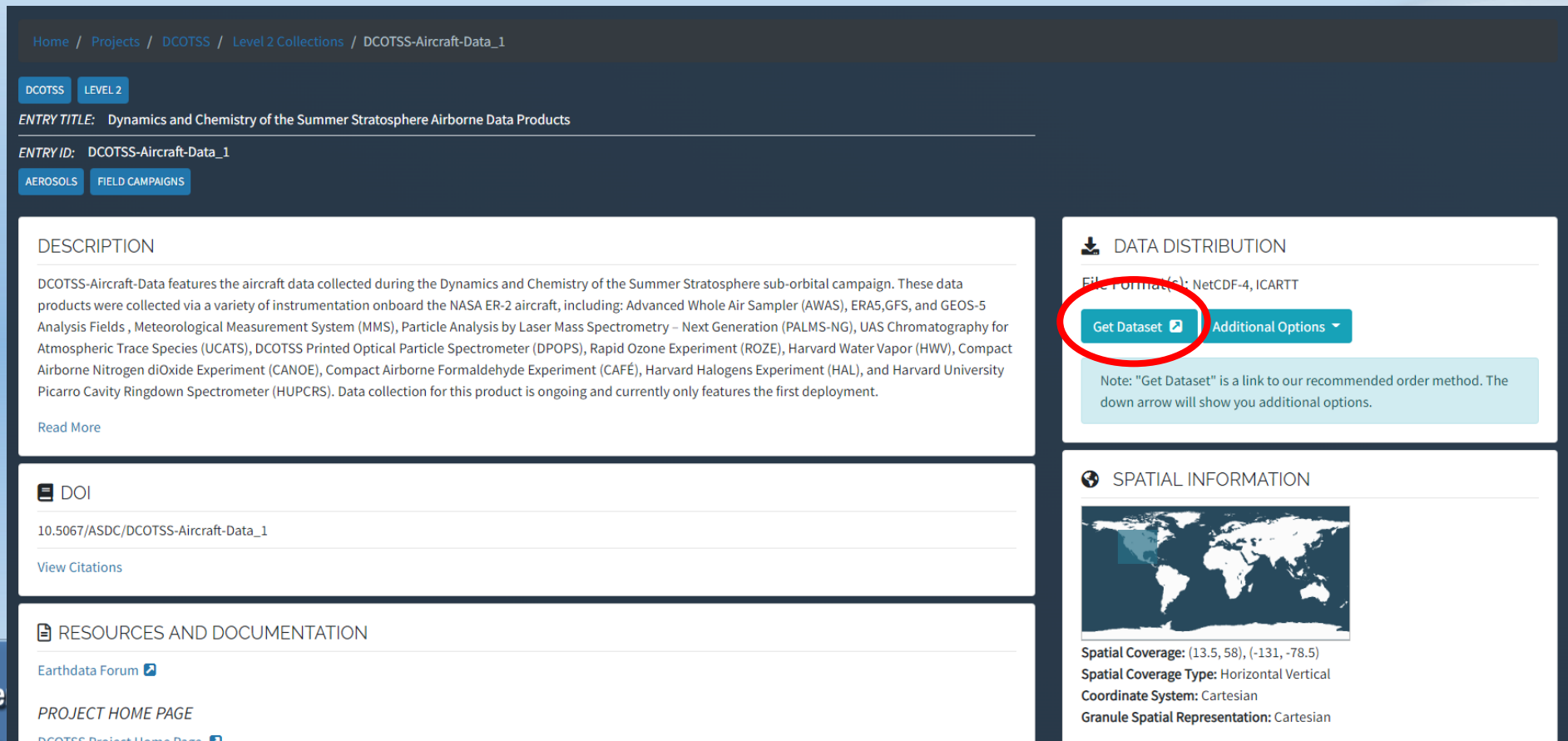
# Accessing DCOTSS Data

- There are a few different ways to access DCOTSS data
  - Primary data download options are available via each collection landing page (some download options are more advanced than others)
  - For this example, I will walk through the simplest way to obtain data (one or two files)
  - More advanced options for experienced users, or those who want to download a high number of files, will be provided at a high level



# Obtaining Data from Aircraft Collection

- [https://asdc.larc.nasa.gov/project/DCOTSS/DCOTSS-Aircraft-Data\\_1](https://asdc.larc.nasa.gov/project/DCOTSS/DCOTSS-Aircraft-Data_1)



Home / Projects / DCOTSS / Level 2 Collections / DCOTSS-Aircraft-Data\_1

DCOTSS LEVEL 2

ENTRY TITLE: Dynamics and Chemistry of the Summer Stratosphere Airborne Data Products

ENTRY ID: DCOTSS-Aircraft-Data\_1

AEROSOLS FIELD CAMPAIGNS

### DESCRIPTION

DCOTSS-Aircraft-Data features the aircraft data collected during the Dynamics and Chemistry of the Summer Stratosphere sub-orbital campaign. These data products were collected via a variety of instrumentation onboard the NASA ER-2 aircraft, including: Advanced Whole Air Sampler (AWAS), ERA5,GFS, and GEOS-5 Analysis Fields, Meteorological Measurement System (MMS), Particle Analysis by Laser Mass Spectrometry – Next Generation (PALMS-NG), UAS Chromatography for Atmospheric Trace Species (UCATS), DCOTSS Printed Optical Particle Spectrometer (DPOPS), Rapid Ozone Experiment (ROZE), Harvard Water Vapor (HWV), Compact Airborne Nitrogen diOxide Experiment (CANOE), Compact Airborne Formaldehyde Experiment (CAFÉ), Harvard Halogens Experiment (HAL), and Harvard University Picarro Cavity Ringdown Spectrometer (HUPCRS). Data collection for this product is ongoing and currently only features the first deployment.

[Read More](#)

### DATA DISTRIBUTION

File Format(s): NetCDF-4, ICARTT

[Get Dataset](#) [Additional Options](#)

Note: "Get Dataset" is a link to our recommended order method. The down arrow will show you additional options.

### DOI

10.5067/ASDC/DCOTSS-Aircraft-Data\_1

[View Citations](#)


### RESOURCES AND DOCUMENTATION

[Earthdata Forum](#)

[PROJECT HOME PAGE](#)

[DCOTSS Project Home Page](#)

### SPATIAL INFORMATION



Spatial Coverage: (13.5, 58), (-131, -78.5)

Spatial Coverage Type: Horizontal Vertical

Coordinate System: Cartesian

Granule Spatial Representation: Cartesian

# DCOTSS Aircraft Collection on Earthdata Search

- Provides the ability to search through the entire collection
- Search filters are provided on the left (temporal, date/time, etc.)
- For free-text search please ensure you are using wildcards, specifically the asterisk (\*)
  - This will help narrow the results if you know what specific files you are looking for

Search for collections or topics

Search Results (9,308 Collections)

Dynamics and Chemistry of the Summer Stratosphere Airborne Data Products

Showing 20 of 334 matching granules

Sort View

Granule ID(s)	START	END
DCOTSS-MERGE-ALL-AWAS_MERGE_20210609_R2.nc	2021-06-09 17:29:16	2021-06-10 04:13:14
DCOTSS-METNAV_ER2_20210609_R0.ict	2021-06-09 18:00:56	2021-06-09 22:08:47
DCOTSS-MMS-20HZ_ER2_20210609_R0.zip	2021-06-09 18:01:33	2021-06-09 22:07:55
DCOTSS-MERGE-10S_MERGE_20210609_R2.nc	2021-06-09 18:01:46	2021-06-10 22:07:36
DCOTSS-MERGE-ALL-10S_MERGE_20210609_R3.nc	2021-06-09 18:01:46	2021-06-10 04:52:56
DCOTSS-MMS-1HZ_ER2_20210609_R0.ict	2021-06-09 18:01:50	2021-06-09 22:07:38
DCOTSS-ERA5-track_ER2_20210609_R0.nc	2021-06-09 18:01:50	
DCOTSS-MERGE-1S_MERGE_20210609_R2.nc	2021-06-09 18:01:50	

EARTHDATA Find a DAAC - EARTHDATA SEARCH

Search for collections or topics

Search Results (9,295 Collections)

Dynamics and Chemistry of the Summer Stratosphere Airborne Data Products

Showing 20 of 33 matching granules

Filter Granules Clear Filters

Granule Search

Granule ID(s)

dcotss-merge\*

Temporal

Start

YYYY-MM-DD HH:mm:ss

End

YYYY-MM-DD HH:mm:ss

Recurring?

Day/Night

Find granules captured during the day, night or anytime.

Anytime

Data Access

Find only granules that have browse images

Find only granules that are available online

DCOTSS-MERGE-1S_MERGE_20210823_R2.nc	DCOTSS-MERGE-10S_MERGE_20210823_R2.nc
START 2021-08-23 13:57:22	START 2021-08-23 13:57:16
END 2021-08-24 17:20:46	END 2021-08-24 17:20:46
DCOTSS-MERGE-1S_MERGE_20210819_R2.nc	DCOTSS-MERGE-10S_MERGE_20210819_R2.nc
START 2021-08-19 13:57:53	START 2021-08-19 13:57:46
END 2021-08-20 21:03:44	END 2021-08-20 21:03:36
DCOTSS-MERGE-1S_MERGE_20210817_R2.nc	DCOTSS-MERGE-10S_MERGE_20210817_R2.nc
START 2021-08-17 15:09:30	START 2021-08-17 15:09:26
END 2021-08-18 21:57:06	END 2021-08-18 21:57:06
DCOTSS-MERGE-10S_MERGE_20210814_R2.nc	DCOTSS-MERGE-1S_MERGE_20210814_R2.nc
START 2021-08-14 12:07:26	START 2021-08-14 12:07:25
END 2021-08-15 10:08:06	END 2021-08-15 10:08:06

Search Time: 0.8s

Add Download All 33

EARTHDATA Find a DAAC - EARTHDATA SEARCH

Search for collections or topics

Search Results (9,295 Collections)

Dynamics and Chemistry of the Summer Stratosphere Airborne Data Products

Showing 20 of 33 matching granules

Filter Granules Clear Filters

Granule Search

Granule ID(s)

dcotss-merge\*

Temporal

Start

YYYY-MM-DD HH:mm:ss

End

YYYY-MM-DD HH:mm:ss

Recurring?

Day/Night

Find granules captured during the day, night or anytime.

Anytime

Data Access

Find only granules that have browse images

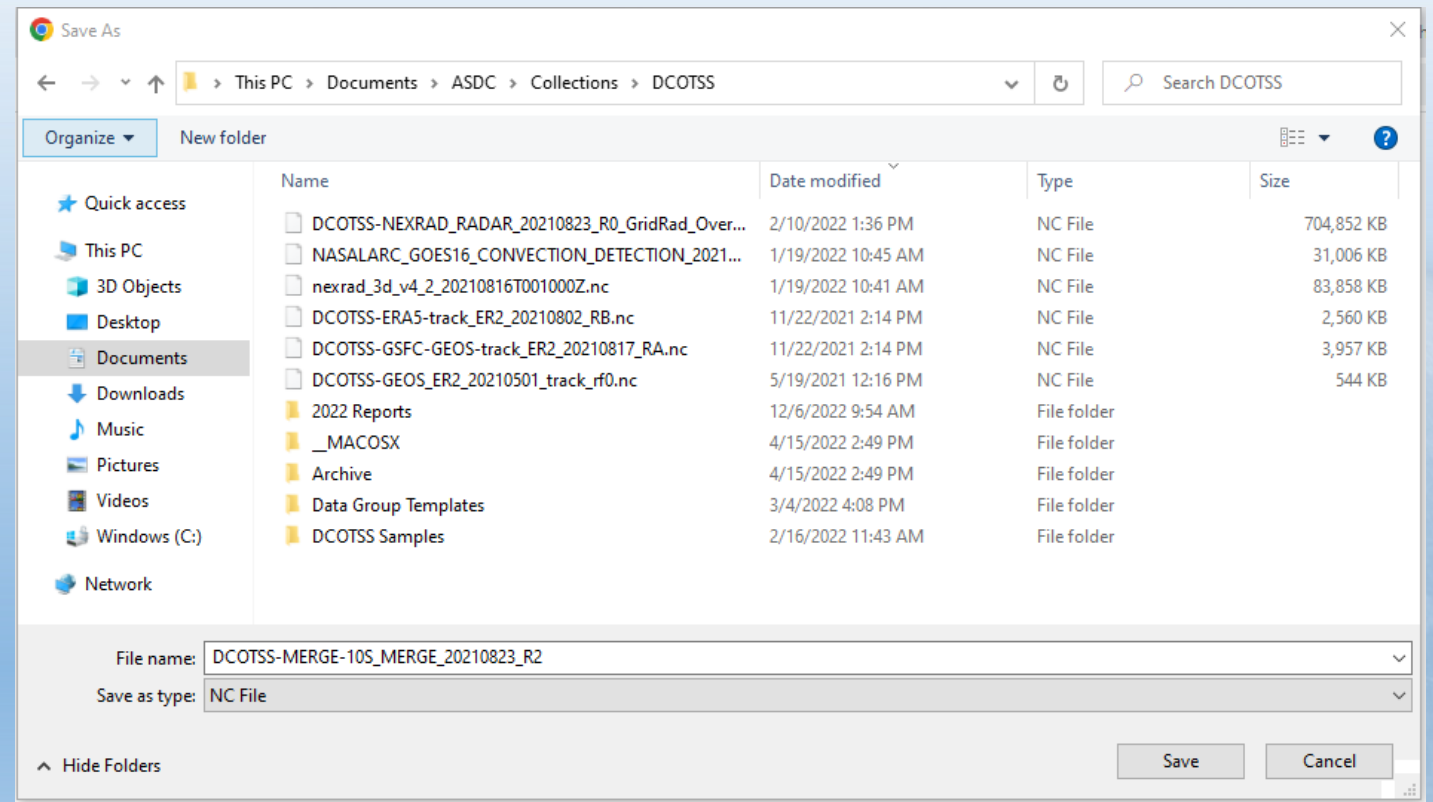
Find only granules that are available online

DCOTSS-MERGE-1S_MERGE_20210823_R2.nc	DCOTSS-MERGE-10S_MERGE_20210823_R2.nc
START 2021-08-23 13:57:22	START 2021-08-23 13:57:16
END 2021-08-24 17:20:46	END 2021-08-24 17:20:46
DCOTSS-MERGE-1S_MERGE_20210819_R2.nc	DCOTSS-MERGE-10S_MERGE_20210819_R2.nc
START 2021-08-19 13:57:53	START 2021-08-19 13:57:46
END 2021-08-20 21:03:44	END 2021-08-20 21:03:36
DCOTSS-MERGE-1S_MERGE_20210817_R2.nc	DCOTSS-MERGE-10S_MERGE_20210817_R2.nc
START 2021-08-17 15:09:30	START 2021-08-17 15:09:26
END 2021-08-18 21:57:06	END 2021-08-18 21:57:06
DCOTSS-MERGE-10S_MERGE_20210814_R2.nc	DCOTSS-MERGE-1S_MERGE_20210814_R2.nc
START 2021-08-14 12:07:26	START 2021-08-14 12:07:25
END 2021-08-15 10:08:06	END 2021-08-15 10:08:06

Search Time: 0.8s

Add Download All 33

- Clicking the “Download Single Granule Data” prompts a window to open and the ability to save the file as you typically would when downloading a file



Search for collections or topics

Search Results (38, 1001)

Dynamics and Products

Showing 20 of 334

Filter Granules

Clear Filters

Granule Search

Granule ID(s)

Search Single or Multiple Granule IDs...

Temporal

Start

YYYY-MM-DD HH:mm:ss

End

YYYY-MM-DD HH:mm:ss

Recurring?

Day/Night

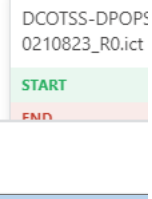
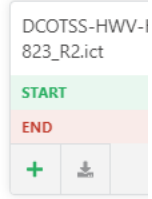
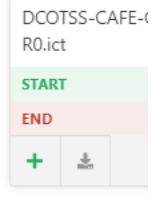
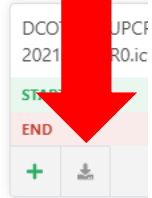
Find granules captured during the day, night or anytime.

Anytime

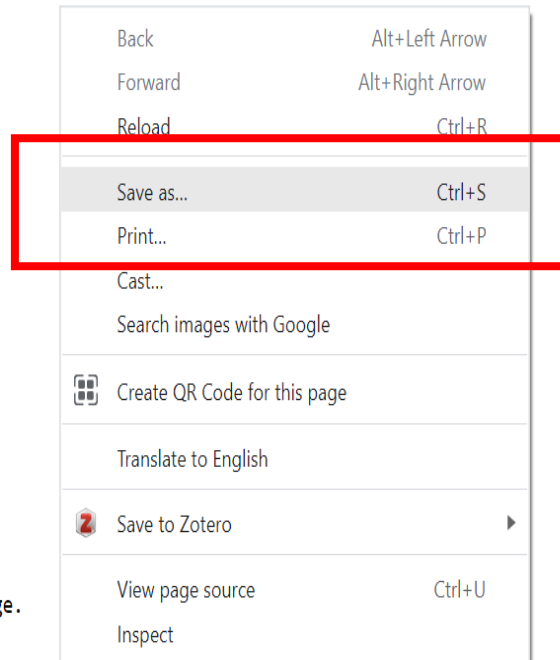
Data Access

Find only granules that have browse images

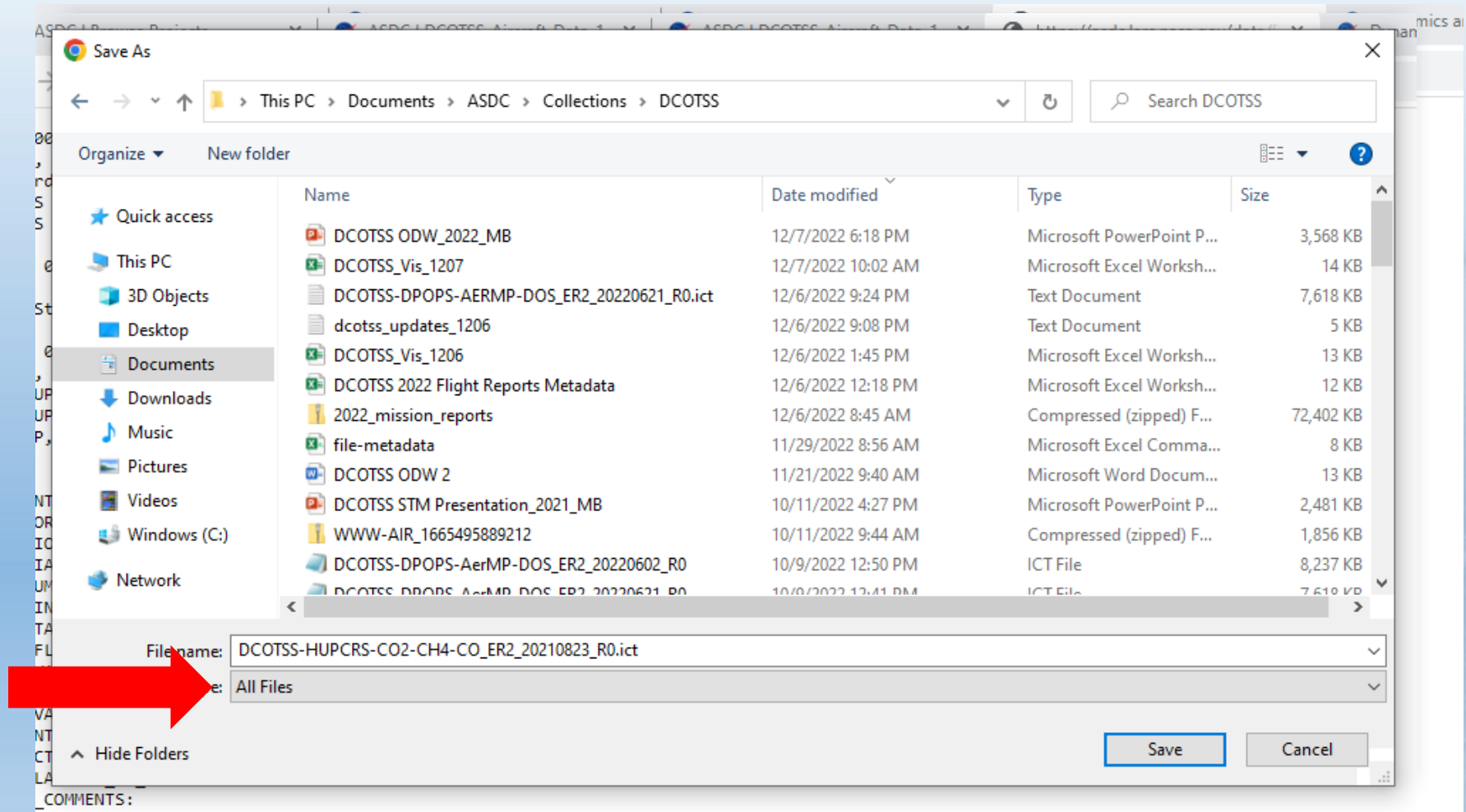
Find only granules that are available online



38, 1001  
Wofsy, S.C., Daube, B.C., Pittman, J.V., Budney, J., Chulakadabba, J.  
Harvard University  
HUPCRS  
DCOTSS  
1, 1  
2021, 08, 23, 2022, 02, 28  
1  
Time\_Start, seconds, elapsed time from 0000 UTC on take-off day  
3  
0.01, 0.01, 0.01  
-9999, -9999, -9999  
CO2\_HUP, ppmv, Gas\_CO2\_InSitu\_S\_DVMR  
CH4\_HUP, ppbv, Gas\_CO\_InSitu\_S\_DVMR  
CO\_HUP, ppbv, Gas\_CH4\_InSitu\_S\_DVMR  
0  
21  
PI\_CONTACT\_INFO: Address: 20 Oxford St, Cambridge, MA 02138; email: wofsy@g.harvard.edu  
PLATFORM: NASA ER-2  
LOCATION: Aircraft location data in separate file  
ASSOCIATED\_DATA: N/A  
INSTRUMENT\_INFO: Harvard University Picarro Cavity Ringdown Spectrometer  
DATA\_INFO: units are ppmv for CO2, ppbv for CH4 and CO  
UNCERTAINTY: 0.02 ppm CO2, 0.20 ppb CH4, 3.20 ppb CO in-flight 1-sigma precision in 10 sec  
ULOD\_FLAG: -7777  
ULOD\_VALUE: N/A  
LLOD\_FLAG: -8888  
LLOD\_VALUE: N/A  
DM\_CONTACT\_INFO: Jasna Pittman, Harvard University, pittman@seas.harvard.edu  
PROJECT\_INFO: DCOTSS Mission Jun - Aug 2021; Palmdale, CA and Salina, KS  
STIPULATIONS\_ON\_USE: Please contact the PI.  
OTHER\_COMMENTS:  
Data measured every ~2.2 sec.  
In-flight calibrations performed for 6 mins, every 60 mins on the hour.  
Sampling time has been corrected for the delay associated with transiting the inlet.  
REVISION: R0  
R0: New calibration applied. CO2 and CH4 at 1 sec when available, CO at midpoint of a 10-sec average.  
Time\_Start, CO2\_HUP, CH4\_HUP, CO\_HUP  
51975, 41279, 174774, -9999























- Please note the “save as type”
  - Currently says “text document”
- Update to “All Files” and Click Save



# Direct Data Download

- Similar methods can be applied to the ASDC's Direct Data Download

The screenshot displays the NASA EarthData ASDC website interface. The top navigation bar includes the NASA logo, 'EARTHDATA ASDC', and the text '| Atmospheric Science Data Center'. A search bar is located on the right. Below the navigation bar, there are links for 'ABOUT', 'DATA', 'COMMUNITY', 'OUTREACH', and 'RESOURCES'. The breadcrumb trail shows the path: Home / Projects / DCOTSS / Level 2 Collections / DCOTSS-Aircraft-Data\_1. The main content area features several tabs: 'DCOTSS', 'LEVEL 2', 'AEROSOLS', and 'FIELD CAMPAIGNS'. The 'ENTRY TITLE' is 'Dynamics and Chemistry of the Summer Stratosphere Airborne Data Products' and the 'ENTRY ID' is 'DCOTSS-Aircraft-Data\_1'. The 'DESCRIPTION' section provides details about the data collection. The 'DATA DISTRIBUTION' section shows the file format as 'NetCDF-4, ICARTT' and includes a 'Get Dataset' button with an 'Additional Options' dropdown menu. The 'Additional Options' dropdown is highlighted with a red box, and the 'DIRECT DOWNLOAD' option is selected. A note below the dropdown explains that the 'down arrow will' and 's...' are part of the download process. The 'SPATIAL INFORMATION' section includes a map of the Earth.

	Name	Last modified	Size
	<a href="#">DCOTSS-AWAS_ER2_20210614_R0.ict</a>	2022-06-16 17:02	16K
	<a href="#">DCOTSS-AWAS_ER2_20210617_R0.ict</a>	2022-06-16 14:11	16K
	<a href="#">DCOTSS-AWAS_ER2_20210716_R0.ict</a>	2022-06-16 14:52	16K
	<a href="#">DCOTSS-AWAS_ER2_20210720_R0.ict</a>	2022-06-16 19:28	16K
	<a href="#">DCOTSS-AWAS_ER2_20210723_R0.ict</a>	2022-06-16 14:20	16K
	<a href="#">DCOTSS-AWAS_ER2_20210726_R0.ict</a>	2022-06-16 14:51	16K
	<a href="#">DCOTSS-AWAS_ER2_20210729_R0.ict</a>	2022-06-16 13:13	16K
	<a href="#">DCOTSS-AWAS_ER2_20210802_R0.ict</a>	2022-06-16 12:45	16K
	<a href="#">DCOTSS-AWAS_ER2_20210806_R0.ict</a>	2022-06-16 17:21	16K
	<a href="#">DCOTSS-AWAS_ER2_20210810_R0.ict</a>	2022-06-16 14:07	16K
	<a href="#">DCOTSS-AWAS_ER2_20210814_R0.ict</a>	2022-06-16 19:01	16K
	<a href="#">DCOTSS-AWAS_ER2_20210817_R0.ict</a>	2022-06-16 15:36	15K
	<a href="#">DCOTSS-AWAS_ER2_20210819_R0.ict</a>	2022-06-16 19:19	16K
	<a href="#">DCOTSS-CAFE-CH20_ER2_20210609_R0.ict</a>	2022-05-13 16:23	215K
	<a href="#">DCOTSS-CAFE-CH20_ER2_20210614_R0.ict</a>	2022-05-13 16:15	192K
	<a href="#">DCOTSS-CAFE-CH20_ER2_20210617_R0.ict</a>	2022-05-13 16:30	317K
	<a href="#">DCOTSS-CAFE-CH20_ER2_20210716_R0.ict</a>	2022-05-13 16:17	428K
	<a href="#">DCOTSS-CAFE-CH20_ER2_20210720_R0.ict</a>	2022-05-13 16:42	387K
	<a href="#">DCOTSS-CAFE-CH20_ER2_20210723_R0.ict</a>	2022-05-13 16:32	368K
	<a href="#">DCOTSS-CAFE-CH20_ER2_20210726_R0.ict</a>	2022-05-13 16:07	318K



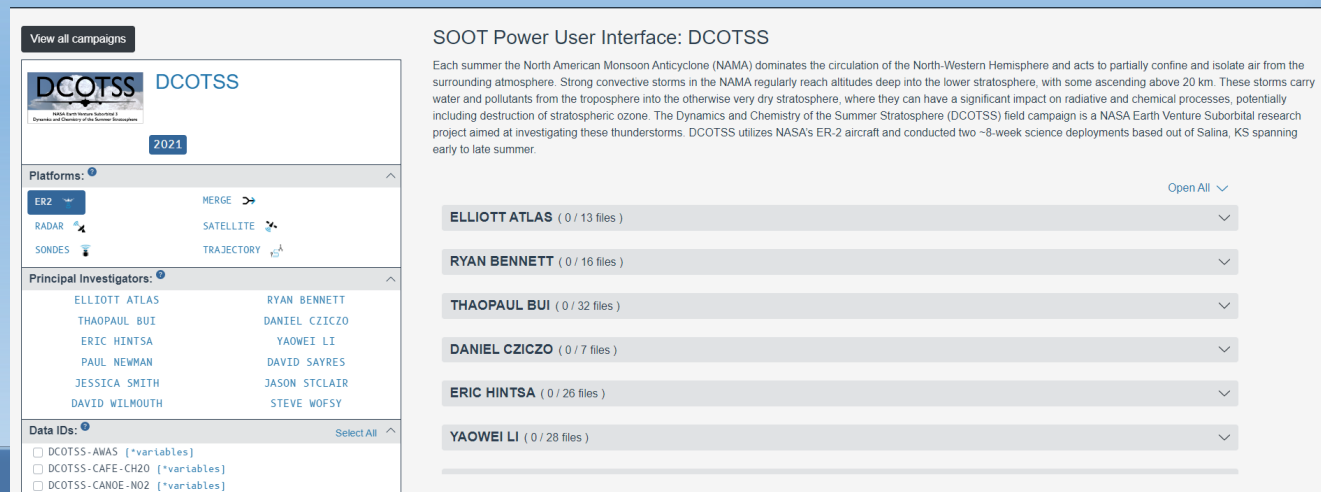
# Advanced Data Download Methods

- ASDC provides support for users who are downloading large amounts of data
  - Methods require downloading new applications (Cygwin, Python, etc.)
- Access to scripts to download data in bulk are provided on the Earthdata Forum ([Scripts for Downloading Data](#))

[Scripts for Downloading Data](#)

# Sub-Orbital Order Tool (SOOT)

- ASDC also distributes DCOTSS data via the Sub-Orbital Order Tool (SOOT)
  - Framework for handling sub-orbital campaigns that are currently assigned to and archived at the ASDC
  - <https://asdc.larc.nasa.gov/soot/power-user/DCOTSS/2021/ER2>



The screenshot shows the SOOT Power User Interface for DCOTSS. It features a navigation menu on the left with options for 'View all campaigns', 'DCOTSS', and '2021'. Below this, there are sections for 'Platforms' (ER2, RADAR, SONDES, MERGE, SATELLITE, TRAJECTORY), 'Principal Investigators' (listing names like Elliott Atlas, Ryan Bennett, etc.), and 'Data IDs' (listing codes like DCOTSS-AWAS, etc.). The main content area displays a list of data files for various investigators, such as 'ELLIOTT ATLAS (0 / 13 files)', 'RYAN BENNETT (0 / 16 files)', 'THAOPAU BUI (0 / 32 files)', 'DANIEL CZICZO (0 / 7 files)', 'ERIC HINTSA (0 / 26 files)', and 'YAOWEI LI (0 / 28 files)'. A descriptive paragraph about the DCOTSS campaign is also visible.



# Contact Information

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- Nathan Jester: [nathan.jester@nasa.gov](mailto:nathan.jester@nasa.gov)
- Sean Leavor: [sean.leavor@nasa.gov](mailto:sean.leavor@nasa.gov)

