Measurement of Air Pollution from Satellites (MAPS) 5 degree by 5 degree Langley DAAC Data Set Document

Summary:

This document provides information for the following three data sets:

- MAPS_OSTA3_CO5X5_HDF
- MAPS_SRL1_CO5X5_HDF
- MAPS_SRL2_CO5X5_HDF

Table of Contents:

1. Data Set Overview:

Data Set Identification:

MAPS_OSTA3_CO5X5_HDF:

Measurement of Air Pollution from Satellites (MAPS) Office of Space and Terrestrial Applications - 3 (OSTA3) Carbon Monoxide 5 degree by 5 degree data in Hierarchical Data Format (HDF) (MAPS_OSTA3_CO5X5_HDF)

MAPS_SRL1_CO5X5_HDF:

Measurement of Air Pollution from Satellites (MAPS) Space Radar Laboratory - 1 (SRL1) Carbon Monoxide 5 degree by 5 degree data in Hierarchical Data Format (HDF) (MAPS_SRL1_CO5X5_HDF)

MAPS_SRL2_CO5X5_HDF:

Measurement of Air Pollution from Satellites (MAPS) Space Radar Laboratory - 2 (SRL2) Carbon Monoxide 5 degree by 5 degree data in Hierarchical Data Format (HDF) (MAPS_SRL2_CO5X5_HDF)

Data Set Introduction:

...

Objective/Purpose:

...

Summary of Parameters:

Carbon Monoxide

Discussion:

...

Related Data Sets:

...

2. Investigator(s):

Investigator(s) Name and Title:

Dr. Vickie S. Connors
NASA Langley Research Center
Atmospheric Science Division
Mail Stop 401A
Hampton, VA 23681-0001
USA

Title of Investigation:

Measurement of Air Pollution from Satellites, MAPS

3. Theory of Measurements:

...

4. Equipment:

Sensor/Instrument Description:

Collection Environment:

...

Source/Platform:

MAPS_OSTA3_CO5X5_HDF	STS-41-G
MAPS_SRL1_CO5X5_HDF	STS-59
MAPS_SRL2_CO5X5_HDF	STS-68

Source/Platform Mission Objectives:

...

Key Variables:

Carbon Monoxide

Principles of Operation:

...

Sensor/Instrument Measurement Geometry:

GFC RADIOMETER

Manufacturer of Sensor/Instrument:

...

Calibration:

Specifications:

...

Tolerance:

...

Frequency of Calibration:

...

Other Calibration Information:

...

5. Data Acquisition Methods:

...

6. Observations:

Data Notes:

...

Field Notes:

...

7. Data Description:

Spatial Characteristics:

Spatial Coverage:

Data Set Name	Min Lat	Max Lat	Min Lon	Max Lon
MAPS_OSTA3_CO5X5_HDF	-70.00	70.00	-180.00	180.00
MAPS_SRL1_CO5X5_HDF	-70.00	70.00	-180.00	180.00
MAPS_SRL2_CO5X5_HDF	-70.00	70.00	-180.00	180.00

Spatial Coverage Map:

...

Spatial Resolution:

...

Projection:

...

Grid Description:

...

Temporal Characteristics:

Temporal Coverage:

Data Set Name	Begin Date	End Date
MAPS_OSTA3_CO5X5_HDF	10/06/1984	10/13/1984
MAPS_SRL1_CO5X5_HDF	04/09/1994	04/19/1994
MAPS_SRL2_CO5X5_HDF	09/30/1994	10/11/1994

Temporal Coverage Map:

...

Temporal Resolution:

...

Data Characteristics:

Parameter/Variable:

MAPS_OSTA3_CO5X5_HDF

Parameter Name	Min Value	Max Value	Units
Longitude	-180.00	175.00	Degrees
Latitude	-70.00	65.00	Degrees
CO	0.00	139.88	Parts Per Billion by Volume
N2O	0.00	379.47	Parts Per Billion by Volume
COUNTS	0.00	140.00	Number Points per Average

MAPS_SRL1_CO5X5_HDF

Parameter Name	Min Value	Max Value	Units
Longitude	-180.00	175.00	Degrees
Latitude	-70.00	65.00	Degrees
CO	0.00	158.04	Parts Per Billion by Volume
N2O	0.00	359.93	Parts Per Billion by Volume
COUNTS	0.00	89.00	Number Points per Average

MAPS_SRL2_CO5X5_HDF

Parameter Name	Min Value	Max Value	Units
Longitude	-180.00	175.00	Degrees
Latitude	-70.00	65.00	Degrees
CO	0.00	165.00	Parts Per Billion by Volume
N2O	0.00	356.56	Parts Per Billion by Volume
COUNTS	0.00	803.00	Number Points per Average

*** **NOTE:** Ranges for all parameters vary for every granule!

Variable Description/Definition:

See above.

Unit of Measurement:

See above.

Data Source:

...

Data Range:

See above.

Sample Data Record:

This sample record represents the layout for all three data sets. This example record is from the data granule osta35x5_1006_06_hdf.

```
Longitude: Coordinate of 5x5 box lower left corner. The longitude position
represents the suborbital point perpendicular to the surface of the earth
specified by a state vector originating from the center of the earth to a
spacecraft in low earth orbit.:
-180.00        -180.00        -180.00        -180.00        -180.00
-180.00        -180.00        -180.00        -180.00        -180.00
-180.00        -180.00        -180.00        -180.00        -180.00
-180.00        -180.00        -180.00        -180.00        -180.00
-180.00        -180.00        -180.00        -180.00        -180.00
-180.00        -180.00        -180.00

Latitude: Coordinate of 5x5 box lower left corner. The latitude position
represents the suborbital point perpendicular to the surface of the earth
specified by a state vector originating from the center of the earth to a
spacecraft in low earth orbit.:
 65.00          60.00          55.00          50.00          45.00
 40.00          35.00          30.00          25.00          20.00
 15.00          10.00           5.00           0.00          -5.00
-10.00         -15.00         -20.00         -25.00         -30.00
-35.00         -40.00         -45.00         -50.00         -55.00
-60.00         -65.00         -70.00

CO: The average of the inferred CO mixing ratio data in the 5 degree by 5 degree
(5x5) box.:
-777.77          0.00         121.05           0.00          71.21
 68.13          72.57           0.00          54.02          55.55
  0.00           0.00          56.34          57.91           0.00
  0.00          76.01          91.99           0.00         121.01
 98.30          79.49          92.62           0.00           0.00
 80.63        -777.77        -777.77
```

```
N2O: The average of the inferred N2O mixing ratio data in the 5 degree by 5 degree
(5x5) box.:
-777.77           0.00          365.12           0.00          273.06
 248.65         305.36            0.00         237.67         239.36
   0.00           0.00          280.62         285.19           0.00
   0.00         306.34          346.99           0.00         338.80
 296.31         243.36          298.29           0.00           0.00
 362.43        -777.77         -777.77

COUNTS:  The number of data points contained in average for the 5 degree by 5 degree
(5x5) box.:
-777.77           0.00            5.00           0.00          55.00
  15.00           3.00            0.00           7.00          13.00
   0.00           0.00           17.00          60.00           0.00
   0.00          41.00           22.00           0.00           7.00
  62.00           7.00           34.00           0.00           0.00
  18.00        -777.77         -777.77
```

8. Data Organization:

Data Granularity:

A general description of data granularity as it applies to the IMS appears in the [EOSDIS Glossary](#).

Most granules consists of one day of data. There are a few granules that contain a few days of data.

Data Format:

All data granules are in Hieararchical Data Format (HDF).

9. Data Manipulations:

Formulae:

Derivation Techniques and Algorithms:

...

Data Processing Sequence:

Processing Steps:

...

Processing Changes:
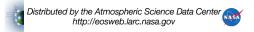
There are no plans for reprocessing.

Calculations:

Special Corrections/Adjustments:

...

Calculated Variables:

...

Graphs and Plots:

There is a browse product available for each granule in these data sets.

10. Errors:

Sources of Error:

...

Quality Assessment:

Data Validation by Source:

...

Confidence Level/Accuracy Judgement:

...

Measurement Error for Parameters:

...

Additional Quality Assessments:

...

Data Verification by Data Center:

The Langley DAAC performs an inspection process on this data received by the data producer via ftp. The DAAC checks to see if the transfer of the data completed and were delivered in their entirety. An inspection software was developed by the DAAC to see if the code was able to read every granule. The code also checks to see if every parameter of data falls within the ranges which are included in the granule. This same code extracts the metadata required for ingesting the data into the IMS. If any discrepancies are found, the data producer is contacted. The discrepancies are corrected before the data are archived at the DAAC.

11. Notes:

Limitations of the Data:

...

Known Problems with the Data:

...

Usage Guidance:

...

Any Other Relevant Information about the Study:

...

12. Application of the Data Set:

...

13. Future Modifications and Plans:

...

14. Software:

Software Description:

Sample read software is available for these data sets. This code is written in C. A makefile and a readme file are also available to work with the code and data.

Software Access:

The software can be obtained through the Langley DAAC. Please refer to the contact information below. The software can also be obtained at the same time the user is ordering this data set.

15. Data Access:

Data Center Identificationand Contact Information:

Langley DAAC User and Data Services Office
NASA Langley Research Center
Mail Stop 157D
Hampton, Virginia 23681-2199
USA
Telephone: (757) 864-8656
FAX: (757) 864-8807
E-mail: support-asdc@earthdata.nasa.gov

Procedures for Obtaining Data:

Data, programs for reading the data, and user's guides can be obtained through the EOSDIS Langley DAAC on-line system which will allow users to search through the data inventory and place orders on-line.

Langley DAAC User and Data Services Office
NASA Langley Research Center
Mail Stop 157D
Hampton, Virginia 23681-2199
USA
Telephone: (757) 864-8656
FAX: (757) 864-8807
E-mail: support-asdc@earthdata.nasa.gov
URL: http://eosweb.larc.nasa.gov

The Langley DAAC User and Data Services staff provides technical and operational support for users ordering data.

Data Center Status/Plans:

The Langley DAAC will continue to archive this data.

16. Output Products and Availability:

There is a browse image for each granule of data archived at the Langley DAAC.

17. References:

...

18. Glossary of Terms:

EOSDIS Glossary.

19. List of Acronyms:

DAAC - Distributed Active Archive Center
EOSDIS - Earth Observing System Data and Information System
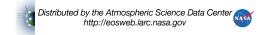**ftp** - File Transfer Protocol
IMS - Information Management System
LaRC - Langley Research Center
NASA - National Aeronautics and Space Administration
URL - Uniform Resource Locator

EOSDIS Acronyms.

20. Document Information:

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