

From: HRDRAC::UARS::PIERCE 16-JAN-1996 14:44:05.44

To: MARSHALL

CC: PIERCE

Subj: NURSC003

CCSD1Z00000100000052CCSD1R00000300000032 Tracking Information -

DELIMITER=EOF; Revision: 2

TYPE=CCSD1F000001; Rel. Date: 12/10/91

CCSD1C00000400000013

ADI=NURSC003;

CCSD1R00000300000032

DELIMITER=EOF;

TYPE=CCSD1D000002;

Documentation of NMC aerosol data produced for UARS project

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1) WHOLE DATA SETS

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DataSetName:

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NOAA/AVHRR Aerosol Optical Thickness

DataSource:

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National Meteorological Center data (NMC) &

National Environmental Satellite Data and Information Service (NESDIS)/

National Oceanic and Atmospheric Administration (NOAA)

ScientificContact:

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SourceCharacteristics:

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Weekly Aerosol Optical Thickness data in the UARS files are a reduced dataset from NOAA/AVHRR (Advanced Very High Resolution Radiometers) aerosol optical thickness products. (For more detailed description of the data product please refer to the reference indicated under the LitReferences.) This operational production by NOAA/NESDIS, composites seven-day satellite measurements over ocean to cover the domain from 70 deg. N to 70 deg. S, from date line to date line eastward at 1 deg. x 1 deg. resolution. Over the land area, there is no data and the data points are flagged with missing indicator -999. A land/ocean distribution map is also provided in the dataset for reference. The data is updated once a week on Thursday morning.

InvestigationObjectives:

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UARS project

InstrumentAttributes:

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The radiances measured by Channel 1 (0.58~0.68 um) of AVHRR, advanced very high resolution radiometer, onboard NOAA operational polar orbiter are utilized for deriving the optical thickness using the algorithm of Rao, et al.(1989). Channel 3 (3.55~3.93 um) is used for quality control rejecting cloud contaminated data.

MeasuredParameters:

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-- Aerosol Optical thickness (dimensionless)

A weekly composite of satellite measurements will be supplied to the CDHF on Thursday morning.

DataSetQuality:

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The aerosol optical thickness in the UARS file assumes the quality of operational NOAA/NESDIS products. In addition, if a datum is not updated during the current week, it is flagged with missing indicator -999 instead of carrying over the previous week data as in the original product.

DataProcessingOverview:

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Satellite measurements from the sunlit side of the NOAA operational polar orbiter are used for the data process. Only the half scanning swath away from the sun are used. The data are process at NESDIS in Washington, D.C. For more detailed information on the processing that is performed at NESDIS, please contact Larry Stowe at (301)763-8053.

DataUsage:

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The NOAA/NMC & NESDIS processed aerosol data is provided for members of the UARS science team as a first understanding of the current atmospheric aerosol conditions.

ACCESS SOFTWARE:

The information on the access routine for NMC Aerosol datasets can be obtained through CDHF under HELP CORRELATIVE.

DataOrganization: N/A

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FileClassRelationships:

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There will be one file class  
NMCYMMDD.AEROSOL

LitReferences:

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C. R. N. Rao, L.L. Stowe, and E.P. McClain, 1989:  
Remote Sensing of Aerosols over Oceans Using AVHRR Data, Theory, Practice, and Application. Int. J. Remote Sensing , V10, Nos 4 & 5, pp743-749  
(Hard copy of the reference is available and can be obtained from CDHF)

2) FILE CLASS

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FileClassName: NMC processed aerosol data

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RecordTypeNames: SFDU\_Label\_And\_UARS\_Header\_Record, Data\_Records

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Algorithms: N/A to UARS project

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FileClassSyntax:

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FileClassFieldRelationships:

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The first 448 bytes of the SFDU\_Label\_And\_UARS\_Header\_Record,  
which is always Record#1, must be read first.

FileClassMisc: N/A

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3) RECORD

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1. SFDU\_Label\_And\_UARS\_Header\_Record

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RecordName: SFDU\_Label\_And\_UARS\_Header\_Record

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RecordStructure: Variable length

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RecordLength: 448 bytes (NMC size)

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RecordFieldName: Tz\_Field, Lz\_Field, Ti\_Field, Li\_Field,

----- Vi\_Field,

Project\_Name, UARS\_PI, UARS\_CMI,

Correlative\_Data\_Class, Instrument\_Type,

Observing\_Station\_Id,

Correlative\_Data\_File\_Type\_Id,

Start\_Time\_of\_File, Stop\_Time\_of\_File,

Maximum\_Latitude, Minimum\_Latitude,

Maximum\_Longitude, Minimum\_Longitude,

Maximum\_Atitude\_Kilometers,

Minimum\_Atitude\_Kilometers,

Maximum\_Atitude\_Millibars,

Minimum\_Atitude\_Millibars,

Record\_Size, Number\_Records\_in\_File,

Data\_Quality\_Word#1, Data\_Quality\_Word#2,

User\_Comments,

Correlative\_Data\_Parameter#1,

Correlative\_Data\_Parameter#2,

Correlative\_Data\_Parameter#3,

Correlative\_Data\_Parameter#4,

Correlative\_Data\_Parameter#5,

Record\_Fill

RecordSyntax: 33 Fields

----- #1: Tz\_Field

#2: Lz\_Field

#3: Ti\_Field

#4: Li\_Field

#5: Vi\_Field

#6: Project\_Name

#7: UARS\_PI

#8: UARS\_CMI  
#9: Correlative\_Data\_Class  
#10: Instrument\_Type  
#11: Observing\_Station\_Id  
#12: Correlative\_Data\_File\_Type\_Id  
#13: Start\_Time\_of\_File  
#14: Stop\_Time\_of\_File  
#15: Maximum\_Latitude  
#16: Minimum\_Latitude  
#17: Maximum\_Longitude  
#18: Minimum\_Longitude  
#19: Maximum\_Altitude\_Kilometers  
#20: Minimum\_Altitude\_Kilometers  
#21: Maximum\_Altitude\_Millibars  
#22: Minimum\_Altitude\_Millibars  
#23: Record\_Size  
#24: Number\_Records\_in\_File  
#25: Data\_Quality\_Word#1  
#26: Data\_Quality\_Word#2  
#27: User\_Comments  
#28: Correlative\_Data\_Parameter#1  
#29: Correlative\_Data\_Parameter#2  
#30: Correlative\_Data\_Parameter#3  
#31: Correlative\_Data\_Parameter#4  
#32: Correlative\_Data\_Parameter#5  
#33: Record\_Fill

#### 4.1) FIELDS

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##### 1.1 Tz\_Field

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FIELD\_NAME: Tz\_Field  
FIELD\_MNEMONIC: SFDU1  
FIELD\_SYSNTAX: ASCII Character\*12 String.  
FIELD\_RANGE: CCSD1Z000001  
FIELD\_DESCRIPTION: SFDU Type (Tz) Field.  
FIELD\_REPRESENTATION: 12A  
FIELD\_DISPLAY\_FORMAT: A12

##### 1.2 Lz\_Field

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FIELD\_NAME: Lz\_Field  
FIELD\_MNEMONIC: SFDU2  
FIELD\_SYSNTAX: ASCII Character\*8 String.  
FIELD\_RANGE: 00000068  
FIELD\_DESCRIPTION: SFDU Type (Lz) Field.  
FIELD\_REPRESENTATION: 8A  
FIELD\_DISPLAY\_FORMAT: A8

##### 1.3 Ti\_Field

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FIELD\_NAME: Ti\_Field  
FIELD\_MNEMONIC: SFDU3  
FIELD\_SYSNTAX: ASCII Character\*12 String.  
FIELD\_RANGE: CCSD1Z000003  
FIELD\_DESCRIPTION: SFDU Type (Ti) Field.  
FIELD\_REPRESENTATION: 12A  
FIELD\_DISPLAY\_FORMAT: A12

##### 1.4 Li\_Field

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FIELD\_NAME: Li\_Field  
FIELD\_MNEMONIC: SFDU4  
FIELD\_SYSNTAX: ASCII Character\*8 String.  
FIELD\_RANGE: 00000048  
FIELD\_DESCRIPTION: SFDU Type (Li) Field.  
FIELD\_REPRESENTATION: 8A  
FIELD\_DISPLAY\_FORMAT: A8

#### 1.5 Vi\_Field

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FIELD\_NAME: Vi\_Field  
FIELD\_MNEMONIC: SFDU5  
FIELD\_SYSNTAX: ASCII Character\*48 String.  
FIELD\_RANGE: PROTOCOL=NONE; DELIMITER=EOF; TYPE=NURS1I00NM04;  
FIELD\_DESCRIPTION: SFDU Type (Vi) Field.  
FIELD\_REPRESENTATION: 48A  
FIELD\_DISPLAY\_FORMAT: A48

#### 1.6 Project\_Name

-----

FIELD\_NAME: Project\_Name  
FIELD\_MNEMONIC: PNAME  
FIELD\_SYSNTAX: ASCII Character\*4 String.  
FIELD\_RANGE: UARS  
FIELD\_DESCRIPTION: The name of the project for which this file is supplied.  
FIELD\_REPRESENTATION: 4A  
FIELD\_DISPLAY\_FORMAT: A4

#### 1.7 UARS\_PI

-----

FIELD\_NAME: UARS\_PI  
FIELD\_MNEMONIC: UARSPI  
FIELD\_SYSNTAX: ASCII Character\*20 String.  
FIELD\_RANGE: A. J. MILLER  
FIELD\_DESCRIPTION: The name of the UARS PI (Principal Investigator) supplying this file.  
FIELD\_REPRESENTATION: 20A (Left Justified)  
FIELD\_DISPLAY\_FORMAT: A20

#### 1.8 UARS\_CMI

-----

FIELD\_NAME: UARS\_CMI  
FIELD\_MNEMONIC: CORR  
FIELD\_SYSNTAX: ASCII Character\*20 String.  
FIELD\_RANGE: S.K YANG  
FIELD\_DESCRIPTION: The name of the UARS CMI (Correlative Measurement Investigator) supplying this file.  
FIELD\_REPRESENTATION: 20A (Left Justified)  
FIELD\_DISPLAY\_FORMAT: A20

#### 1.9 Correlative\_Data\_Class

-----

FIELD\_NAME: Correlative\_Data\_Class  
FIELD\_MNEMONIC: CORRDAT  
FIELD\_SYNTAX: ASCII Character\*8 String.  
FIELD\_RANGE: NMC  
FIELD\_DESCRIPTION: The source of data contained in the file.  
FIELD\_REPRESENTATION: 8A  
FIELD\_DISPLAY\_FORMAT: A8

#### 1.10 Instrument\_Type

-----  
FIELD\_NAME: Instrument\_Type  
FIELD\_MNEMONIC: INSTYP  
FIELD\_SYNTAX: ASCII Character\*12 String.  
FIELD\_RANGE: AVHRR  
FIELD\_DESCRIPTION: The instrument used to provide the data.  
FIELD\_REPRESENTATION: 12A  
FIELD\_DISPLAY\_FORMAT: A12

#### 1.11 Observing\_Station\_Id

-----  
FIELD\_NAME: Observing\_Station\_Id  
FIELD\_MNEMONIC: OBSSTN  
FIELD\_SYNTAX: ASCII Character\*12 String.  
FIELD\_DESCRIPTION: The id of the observing station used to provide the data. File contains many observing stations.  
Field is blank - not used.  
FIELD\_REPRESENTATION: 12A  
FIELD\_DISPLAY\_FORMAT: A12

#### 1.12 Correlative\_Data\_File\_Type\_Id

-----  
FIELD\_NAME: Correlative\_Data\_File\_Type\_id  
FIELD\_MNEMONIC: CORRDAT  
FIELD\_RANGE: OPTIC\_THICK  
FIELD\_SYNTAX: ASCII Character\*12 String.  
FIELD\_DESCRIPTION: An identifier indicating the type of data contained in this correlative file. Field is blank - not used.  
FIELD\_REPRESENTATION: 12A (left justified)  
FIELD\_DISPLAY\_FORMAT: A12

#### 1.13 Start\_Time\_of\_File

-----  
FIELD\_NAME: Start\_Time\_of\_File  
FIELD\_MNEMONIC: TIME\_VALUE  
FIELD\_SYNTAX: ASCII Character\*23 String.  
FIELD\_DESCRIPTION: The start time of the data in the file in standard VAX VMS date and time format.  
FIELD\_REPRESENTATION: 23A  
FIELD\_DISPLAY\_FORMAT: A23

#### 1.14 Stop\_Time\_of\_File

-----  
FIELD\_NAME: Stop\_Time\_of\_File  
FIELD\_MNEMONIC: GSTOP  
FIELD\_SYNTAX: ASCII Character\*23 String.  
FIELD\_DESCRIPTION: The stop time of the data in the file in standard VAX VMS date and time format.  
FIELD\_REPRESENTATION: 23A  
FIELD\_DISPLAY\_FORMAT: A23

#### 1.15 Maximum\_Latitude

-----  
FIELD\_NAME: Maximum\_Latitude  
FIELD\_MNEMONIC: MAXLAT  
FIELD\_SYNTAX: ASCII Character\*7 String.  
FIELD\_UNITS: Degrees.  
FIELD\_RANGE: +70.0 normally  
FIELD\_DESCRIPTION: The maximum latitude of the data in the file.

FIELD\_REPRESENTATION: 7A (right justified - leading sign not included if value is positive)  
FIELD\_DISPLAY\_FORMAT: A7

#### 1.16 Minimum\_Latitude

-----

FIELD\_NAME: Minimum\_Latitude  
FIELD\_MNEMONIC: MINLAT  
FIELD\_SYNTAX: ASCII Character\*7 String.  
FIELD\_UNITS: Degrees.  
FIELD\_RANGE: -70.0 normally  
FIELD\_DESCRIPTION: The minimum latitude of the data in the file.  
FIELD\_REPRESENTATION: 7A (right justified)  
FIELD\_DISPLAY\_FORMAT: A7

#### 1.17 Maximum\_Longitude

-----

FIELD\_NAME: Maximum\_Longitude  
FIELD\_MNEMONIC: MAXLON  
FIELD\_SYNTAX: ASCII Character\*7 String.  
FIELD\_UNITS: Degrees.  
FIELD\_RANGE: +180.0 normally  
FIELD\_DESCRIPTION: The maximum longitude of the data in the file.  
FIELD\_REPRESENTATION: 7A (right justified - leading sign not included if value is positive)  
FIELD\_DISPLAY\_FORMAT: A7

#### 1.18 Minimum\_Longitude

-----

FIELD\_NAME: Minimum\_Longitude  
FIELD\_MNEMONIC: MINLON  
FIELD\_SYNTAX: ASCII Character\*7 String.  
FIELD\_UNITS: Degrees.  
FIELD\_RANGE: -180.0 normally  
FIELD\_DESCRIPTION: The minimum longitude of the data in the file.  
FIELD\_REPRESENTATION: 7A (right justified)  
FIELD\_DISPLAY\_FORMAT: A7

#### 1.19 Maximum\_Altitude\_Kilometers

-----

FIELD\_NAME: Maximum\_Altitude\_Kilometers  
FIELD\_MNEMONIC: MAXALTK  
FIELD\_SYNTAX: ASCII Character\*8 String.  
FIELD\_UNITS: Kilometers.  
FIELD\_DESCRIPTION: The maximum altitude of the data in the file.  
Field is blank.  
FIELD\_REPRESENTATION: 8A  
FIELD\_DISPLAY\_FORMAT: A8

#### 1.20 Minimum\_Altitude\_Kilometers

-----

FIELD\_NAME: Minimum\_Altitude\_Kilometers  
FIELD\_MNEMONIC: MINALTK  
FIELD\_SYNTAX: ASCII Character\*8 String.  
FIELD\_UNITS: Kilometers.  
FIELD\_DESCRIPTION: The minimum altitude of the data in the file.  
Field is blank.  
FIELD\_REPRESENTATION: 8A  
FIELD\_DISPLAY\_FORMAT: A8

### 1.21 Maximum\_Altitude\_Millibars

-----  
FIELD\_NAME: Maximum\_Altitude\_Millibars  
FIELD\_MNEMONIC: MAXALTP  
FIELD\_SYNTAX: ASCII Character\*8 String.  
FIELD\_UNITS: Mb.  
FIELD\_DESCRIPTION: The maximum altitude of the data in the file.  
Field is blank.  
FIELD\_REPRESENTATION: 8A (right justified)  
FIELD\_DISPLAY\_FORMAT: A8

### 1.22 Minimum\_Altitude\_Millibars

-----  
FIELD\_NAME: Minimum\_Altitude\_Millibars  
FIELD\_MNEMONIC: MINALTP  
FIELD\_SYNTAX: ASCII Character\*8 String.  
FIELD\_DESCRIPTION: The minimum altitude of the data in the file.  
Field is blank.  
FIELD\_REPRESENTATION: 8A (right justified)  
FIELD\_DISPLAY\_FORMAT: A8

### 1.23 Record\_Size

-----  
FIELD\_NAME: Record\_Size  
FIELD\_MNEMONIC: RECFM  
FIELD\_SYNTAX: ASCII Character\*6 String.  
FIELD\_UNITS: Bytes  
FIELD\_RANGE: positive integers  
FIELD\_DESCRIPTION: The size of each record in the file.  
(variable length)  
FIELD\_REPRESENTATION: 6A (right justified)  
FIELD\_DISPLAY\_FORMAT: A6

### 1.24 Number\_Records\_in\_File

-----  
FIELD\_NAME: Number\_Records\_in\_File  
FIELD\_MNEMONIC: NUMRECT  
FIELD\_SYNTAX: ASCII Character\*6 String.  
FIELD\_RANGE: positive integers  
FIELD\_DESCRIPTION: The total number of records in the file.  
FIELD\_REPRESENTATION: 6A (right justified)  
FIELD\_DISPLAY\_FORMAT: A6

### 1.25 Data\_Quality\_Word#1

-----  
FIELD\_NAME: Data\_Quality\_Word#1  
FIELD\_MNEMONIC: USRQ11  
FIELD\_SYNTAX: ASCII Character\*3 String.  
FIELD\_DESCRIPTION: A number giving an indication of the quality of  
the data.  
FIELD\_REPRESENTATION: 3A (right justified)  
FIELD\_DISPLAY\_FORMAT: A3  
FIELD\_FILLED\_CODE: Blanks

### 1.26 Data\_Quality\_Word#2

-----  
FIELD\_NAME: Data\_Quality\_Word#2  
FIELD\_MNEMONIC: USRQ12  
FIELD\_SYNTAX: ASCII Character\*3 String.  
FIELD\_DESCRIPTION: A number giving more indication of the quality of

the data.  
FIELD\_REPRESENTATION: 3A (right justified)  
FIELD\_DISPLAY\_FORMAT: A3  
FIELD\_FILLED\_CODE: Blanks

#### 1.27 User\_Comments

-----

FIELD\_NAME: User\_Comments  
FIELD\_MNEMONIC: USERCOM  
FIELD\_SYNTAX: ASCII Character\*80 String.  
FIELD\_DESCRIPTION: Comments supplied by the UARS PI on the data.  
FIELD\_REPRESENTATION: 80A  
FIELD\_DISPLAY\_FORMAT: A80  
FIELD\_FILLED\_CODE: Blanks

#### 1.28 Correlative\_Data\_Parameter#1

-----

FIELD\_NAME: Correlative\_Data\_Parameter#1  
FIELD\_MNEMONIC: CORRDAT1  
FIELD\_SYNTAX: ASCII Character\*12 String.  
FIELD\_REPRESENTATION: 12A (left justified)  
FIELD\_DISPLAY\_FORMAT: A12

#### 1.29 Correlative\_Data\_Parameter#2

-----

FIELD\_NAME: Correlative\_Data\_Parameter#2  
FIELD\_MNEMONIC: CORRDAT2  
FIELD\_SYNTAX: ASCII Character\*12 String.  
FIELD\_REPRESENTATION: 12A (left justified)  
FIELD\_DISPLAY\_FORMAT: A12

#### 1.30 Correlative\_Data\_Parameter#3

-----

FIELD\_NAME: Correlative\_Data\_Parameter#3  
FIELD\_MNEMONIC: CORRDAT3  
FIELD\_SYNTAX: ASCII Character\*12 String.  
FIELD\_REPRESENTATION: 12A (left justified)  
FIELD\_DISPLAY\_FORMAT: A12

#### 1.31 Correlative\_Data\_Parameter#4

-----

FIELD\_NAME: Correlative\_Data\_Parameter#4  
FIELD\_MNEMONIC: CORRDAT4  
FIELD\_SYNTAX: ASCII Character\*12 String.  
FIELD\_REPRESENTATION: 12A (left justified)  
FIELD\_DISPLAY\_FORMAT: A12

#### 1.32 Correlative\_Data\_Parameter#5

-----

FIELD\_NAME: Correlative\_Data\_Parameter#5  
FIELD\_MNEMONIC: CORRDAT5  
FIELD\_SYNTAX: ASCII Character\*12 String.  
FIELD\_REPRESENTATION: 12A (left justified)  
FIELD\_DISPLAY\_FORMAT: A12

#### 1.33 Record\_Fill

-----

FIELD\_NAME: Record\_Fill  
FIELD\_MNEMONIC: Remaining fields in the SFDU record are not used

FIELD\_DESCRIPTION: A field of blanks used to fill out the SFDU\_Label\_ And\_UARS\_Header\_Record.

## 2. Optical-thickness and land/ocean records

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RecordName: Aerosol data records

-----  
RecordStructure: Fixed Length

-----  
RecordLength: 360 bytes

### 4.2) FIELDS

#### 2.1 Aerosol Optical Thickness\_Field

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Records 2-282 will have the Optical Thickness fields.

#### 2.2 Land/Ocean\_Field

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Records 283-565 will have the Land/Ocean fields.

### Cataloging NMC processed aerosol data

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TYPE = CORRELATIVE  
SOURCE = NMC  
SUBTYPES = OPTIC\_THICK