

Shortname: OMDOAO3
Longname: OMI/Aura Ozone (O3) DOAS Total Column 1-Orbit L2 Swath 13x24km
PSF Version: 1.2.3
Date: March 16, 2011
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PGE Version: 1.2.3.1
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PGE Developer(s):

Description: >

This document specifies the product format for the OMDOAO3 Level 2 PGE, which uses the DOAS method to determine total column ozone from OMI UV-2 measurements (Reference 1). The product is stored as one HDF-EOS 5 swath file for each granule (i.e., one orbit) of OMI Level 1B data, and has a size range of 1 to 20 Mb.

Global Metadata:

- Metadata Name: InstrumentName
Mandatory: T
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Valid are "HIRDLS", "MLS", "OMI" and "TES".
Data Source: PCF
Description: Actual is "OMI" (see Section 6.1 of Reference 2).
- Metadata Name: ProcessLevel
Mandatory: T
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: PCF
Description: Actual is "2" (see Reference 7).
- Metadata Name: GranuleMonth
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 1 to 12
Data Source: PGE
Description: The month at the start of the granule.
- Metadata Name: GranuleDay
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 1 to 31
Data Source: PGE
Description: The day of the month at the start of the granule.
- Metadata Name: GranuleYear
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1

Range or Valid: 2003 to 2099
 Data Source: PGE
 Description: The (four-digit) year at the start of the granule.

- Metadata Name: TAI93At0zOfGranule
 Mandatory: T
 Data Type: HE5T_NATIVE_DOUBLE
 Number of Values: 1
 Range or Valid: 0.0d+00 to 1.0d+30
 Data Source: PGE
 Description: TAI time at 00:00 UTC at date of start of granule.

- Metadata Name: PGEVERSION
 Mandatory: T
 Data Type: HE5T_NATIVE_CHAR
 Number of Values: 1
 Range or Valid: Range is "0.0.0" to "9.9.99".
 Data Source: PGE
 Description: Example is "0.9.20" (see Appendix K of Reference 3).

- Metadata Name: ProcessingSystem
 Mandatory: T
 Data Type: HE5T_NATIVE_CHAR
 Number of Values: 1
 Range or Valid: Valid are "OFFLINE", "NRT" and "VFD".
 Data Source: PCF
 Description: Actual is "OFFLINE" for OSIPS processing.

- Metadata Name: OzoneColumnAmountHistogram
 Mandatory: T
 Data Type: HE5T_NATIVE_INT32
 Number of Values: 20
 Range or Valid: 0 to 1000000
 Data Source: PGE
 Description: Histogram of ozone vertical column density in the granule.

- Metadata Name: SolarProductMissing
 Mandatory: T
 Data Type: HE5T_NATIVE_INT
 Number of Values: 1
 Range or Valid: 0 to 1
 Data Source: PGE
 Description: >

Set if the Solar product could not be opened, read, is in unexpected format or the data is missing.

The Backup product is used in this case.

- Metadata Name: SolarProductOutOfDate
 Mandatory: T
 Data Type: HE5T_NATIVE_INT
 Number of Values: 1
 Range or Valid: 0 to 1
 Data Source: PGE
 Description: >

Set if the difference of the dates of the measurements of the Earth radiance and Solar irradiance is larger than maxSolarAge.

- Metadata Name: SolarIrradianceWarning
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 1
Data Source: PGE
Description: >

Set if QAPctIrradianceWarning is larger than 0.

- Metadata Name: BackupSolarProductUsed
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 1
Data Source: PGE
Description: >

Set if the backup Solar product is used instead of the normal Solar product.

- Metadata Name: ParametersInconsistent
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 1
Data Source: PGE
Description: >

Set if there is an inconsistency between the OPF parameters and the parameters of the LUTs.

- Metadata Name: RadianceParametersMissing
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 1
Data Source: PGE
Description: >

Set if any of the general parameters from the L1B radiance product are missing.

- Metadata Name: RadianceScienceQualityFlag
Mandatory: T
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: 0 to 1
Data Source: PGE
Description: >

Set to the value set for the radiance product ScienceQualityFlag metadata attribute.

- Metadata Name: IrradianceScienceQualityFlag
Mandatory: T
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: 0 to 1
Data Source: PGE
Description: >

Set to the value set for the Solar product ScienceQualityFlag metadata attribute.

- Metadata Name: CloudProductMissing
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 1
Data Source: PGE
Description: >

Set if the Cloud product could not be opened, read or is in unexpected format.

- Metadata Name: QAPctSunGlint
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of ground pixels for which L2 GroundPixelQualityFlags bit 4 is set.

- Metadata Name: QAPctEclipse
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of ground pixels for which L2 GroundPixelQualityFlags bit 5 is set.

- Metadata Name: QAPctIrradianceWarning
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of ground pixels for which L2 ProcessingQualityFlags bit 0 is set.

- Metadata Name: QAPctRadianceMissing

Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of ground pixels for which L2 ProcessingQualityFlags bit 1 is set.

- Metadata Name: QAPctRadianceError
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of ground pixels for which L2 ProcessingQualityFlags bit 2 is set.

- Metadata Name: QAPctRadianceWarning
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of ground pixels for which L2 ProcessingQualityFlags bit 3 is set.

- Metadata Name: QAPctCloudDataError
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of ground pixels for which L2 ProcessingQualityFlags bit 4 is set.

- Metadata Name: QAPctCloudDataWarning
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of ground pixels for which L2 ProcessingQualityFlags bit 5 is set

- Metadata Name: QAPctSnowIceDataError
Mandatory: T
Data Type: HE5T_NATIVE_INT

Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of ground pixels for which L2 ProcessingQualityFlags bit 6 is set

- Metadata Name: QAPctSCDError
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of ground pixels for which L2 ProcessingQualityFlags bit 7 is set

- Metadata Name: QAPctSCDWarning
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of ground pixels for which L2 ProcessingQualityFlags bit 8 is set

- Metadata Name: QAPctAMFError
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of ground pixels for which L2 ProcessingQualityFlags bit 9 is set

- Metadata Name: QAPctAMFWarning
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of ground pixels for which L2 ProcessingQualityFlags bit 10 is set

- Metadata Name: QAPctGhostColumnWarning
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100

Data Source: PGE
Description: >

Percent of ground pixels for which L2 ProcessingQualityFlags bit 11 is set

- Metadata Name: QAPctGhostColumnError
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of ground pixels for which L2 ProcessingQualityFlags bit 12 is set

- Metadata Name: QAPctVCDError
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of ground pixels for which L2 ProcessingQualityFlags bit 13 is set

- Metadata Name: QAPctVCDWarning
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of ground pixels for which L2 ProcessingQualityFlags bit 14 is set

- Metadata Name: QAPctWavelengthRegistrationWarning
Mandatory: F
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of ground pixels for which L2 ProcessingQualityFlags bit 15 is set

- Metadata Name: QAPctMeasMissing
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of measurements for which L2 MeasurementQualityFlags bit 0 is set

- Metadata Name: QAPctMeasError
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of measurements for which L2 MeasurementQualityFlags bit 1 is set

- Metadata Name: QAPctMeasWarning
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of measurements for which L2 MeasurementQualityFlags bit 2 is set

- Metadata Name: QAPctRebinned
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of measurements for which L2 MeasurementQualityFlags bit 3 is set

- Metadata Name: QAPctSAA
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of measurements for which L2 MeasurementQualityFlags bit 4 is set

- Metadata Name: QAPctSpacecraftManeuver
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of measurements for which L2 MeasurementQualityFlags bit 5 is set

- Metadata Name: QAPctInstrumentSettingsError
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of measurements for which L2 MeasurementQualityFlags bit 6 is set

- Metadata Name: QAPctCloudDataNotSynchronized
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

Percent of measurements for which L2 MeasurementQualityFlags bit 7 is set

- Metadata Name: OPF_opfVersion
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_CloudFractionComputedInternally
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_fittingWindow
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_fittingWindowColumnRange
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_level1ReadBufferSize
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_level2WriteBufferSize
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_meritFunction
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_fittingPolydegree
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_interpolationMethod
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

Cutwindow is commented out because presently it is not used

```
# - Metadata Name: OPF_cutWindow
# Mandatory: F
# Data Type: HE5T_NATIVE_CHAR
# Number of Values: 1
# Range or Valid: Not applicable (free format).
# Data Source: OPF
# Description: OPF parameter.
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- Metadata Name: OPF_amfAngleUpperLimit
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_O3ReferenceTemperature
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_maxNSolarWavelengthsFlagged
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_maxNEarthWavelengthsFlagged
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_maxNEarthWavelengthsFlaggedMissing
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_maxSolarWavelnPrecision
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_maxEarthWavelnPrecision
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_maxScdPrecision
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_maxFitRms
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_maxGcd
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_limitsVCD
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_limitsSCD
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_limitsAMF
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_limitsEarthRad
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_maxEarthRadPrecision
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_limitsSolarIrrad

Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_maxSolarIrradPrecision
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_limitsLatitude
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_limitsLongitude
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_limitsSZA
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_limitsSAZ
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_limitsVZA
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_limitsVAZ
Mandatory: F

Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_limitsRAZ
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_limitsSurfaceHeight
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_limitsSurfacePressure
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_limitsSurfaceAlbedo
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_maxSCDCovariance
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_maxSolarIrradianceAgeInDays
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_automaticQualityFailed
Mandatory: F
Data Type: HE5T_NATIVE_CHAR

Number of Values: 1
 Range or Valid: Not applicable (free format).
 Data Source: OPF
 Description: OPF parameter.

- Metadata Name: OPF_automaticQualitySuspect
 Mandatory: F
 Data Type: HE5T_NATIVE_CHAR
 Number of Values: 1
 Range or Valid: Not applicable (free format).
 Data Source: OPF
 Description: OPF parameter.

- Metadata Name: OPF_albedoSnow
 Mandatory: F
 Data Type: HE5T_NATIVE_CHAR
 Number of Values: 1
 Range or Valid: Not applicable (free format).
 Data Source: OPF
 Description: OPF parameter.

- Metadata Name: OPF_albedoDefault
 Mandatory: F
 Data Type: HE5T_NATIVE_CHAR
 Number of Values: 1
 Range or Valid: Not applicable (free format).
 Data Source: OPF
 Description: OPF parameter.

- Metadata Name: OPF_albedoLandThreshold
 Mandatory: F
 Data Type: HE5T_NATIVE_CHAR
 Number of Values: 1
 Range or Valid: Not applicable (free format).
 Data Source: OPF
 Description: OPF parameter.

- Metadata Name: OPF_albedoWaterThreshold
 Mandatory: F
 Data Type: HE5T_NATIVE_CHAR
 Number of Values: 1
 Range or Valid: Not applicable (free format).
 Data Source: OPF
 Description: OPF parameter.

- Metadata Name: OPF_albedoSeaIceNH
 Mandatory: F
 Data Type: HE5T_NATIVE_CHAR
 Number of Values: 1
 Range or Valid: Not applicable (free format).
 Data Source: OPF
 Description: OPF parameter.

- Metadata Name: OPF_albedoSeaIceSH
 Mandatory: F
 Data Type: HE5T_NATIVE_CHAR
 Number of Values: 1

Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_wavelengthRegistrationShiftRadianceGrid
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

- Metadata Name: OPF_wavelengthRegistrationLimit
Mandatory: F
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: OPF
Description: OPF parameter.

Swath Metadata:

- Metadata Name: NumTimes
Mandatory: T
Data Type: HE5T_NATIVE_INT32
Number of Values: 1
Range or Valid: 0 to 9999
Data Source: L1B
Description: The number of "scan" lines in the swath.

- Metadata Name: NumTimesSmallPixel
Mandatory: T
Data Type: HE5T_NATIVE_INT32
Number of Values: 1
Range or Valid: 0 to 9999
Data Source: L1B
Description: The number of small pixel "scan" lines in the swath.

- Metadata Name: VerticalCoordinate
Mandatory: T
Data Type: HE5T_NATIVE_CHAR
Number of Values: 1
Range or Valid: Valid are "Pressure", "Altitude", "Potential Temperature" and "Total Column".
Data Source: PGE
Description: Actual is "Total Column" (see Section 6.2 of Reference 2).

Swath Dimensions:

- Dimension Name: nXtrack
Data Type: HE5T_NATIVE_INT
Dimension Type: FIXED
Number of Values: 1
Range or Valid: 1 to 120
Data Source: L1B
Description: The number of ground pixels per OMI measurement.

- Dimension Name: nTimes
 Data Type: HE5T_NATIVE_INT
 Dimension Type: UNLIMITED
 Number of Values: 1
 Range or Valid: 0 to 9999
 Data Source: L1B
 Description: The number of OMI measurements.

- Dimension Name: nTimesSmallPixel
 Data Type: HE5T_NATIVE_INT
 Dimension Type: UNLIMITED
 Number of Values: 1
 Range or Valid: 0 to 9999
 Data Source: L1B
 Description: The number of OMI small pixel measurements.

- Dimension Name: Unlimited
 Data Type: HE5T_NATIVE_INT
 Dimension Type: UNLIMITED
 Number of Values: 1
 Range or Valid: 0 to 9999
 Data Source: PGE
 Description: Dimension used internally for unlimited data field dimensions.

Geolocation Fields:

- Field Name: Time
 Data Type: HE5T_NATIVE_DOUBLE
 Dimensions: nTimes
 Range or Valid: 0.0d+00 to 1.0d+30
 Missing Value: "-1.2676506002282294d+30"
 Offset: 0.0d+00
 Scale Factor: 1.0d+00
 Units: s
 Data Source: L1B
 Title: "Time at Start of Scan (s, TAI93)"
 Unique Field Definition: Aura-Shared
 Description: >

The TAI93 time (in s) at the start of the "scan".

- Field Name: Latitude
 Data Type: HE5T_NATIVE_FLOAT
 Dimensions: nXtrack,nTimes
 Range or Valid: Range is -90.0 to 90.0.
 Missing Value: -1.2676506e+30
 Offset: 0.0d+00
 Scale Factor: 1.0d+00
 Units: deg
 Data Source: L1B
 Title: "Latitude of the center of the groundpixel"
 Unique Field Definition: Aura-Shared
 Description: >

The geodetic latitude (in degrees) at the center of the ground pixel.

- Field Name: Longitude
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack,nTimes
Range or Valid: Range is -180.0 to 180.0.
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: deg
Data Source: L1B
Title: "Longitude of the center of the groundpixel"
Unique Field Definition: Aura-Shared
Description: >

The geodetic longitude (in degrees) at the center of the ground pixel.

- Field Name: SpacecraftLatitude
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nTimes
Range or Valid: Range is -90.0 to 90.0.
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: deg
Data Source: L1B
Title: "Geodetic Latitude above WGS84 ellipsoid"
Unique Field Definition: HIRDLS-OMI-TES-Shared
Description: >

The geodetic latitude (in degrees) of the spacecraft.

- Field Name: SpacecraftLongitude
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nTimes
Range or Valid: Range is -180.0 to 180.0.
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0e+00
Units: deg
Data Source: L1B
Title: "Geodetic Longitude above WGS84 ellipsoid"
Unique Field Definition: HIRDLS-OMI-TES-Shared
Description: >

The geodetic longitude (in degrees) of the spacecraft.

- Field Name: SpacecraftAltitude
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nTimes
Range or Valid: 0.0 to 1.0e+06
Missing Value: -1.2676506e+30
Offset: 0.0e+00
Scale Factor: 1.0e+00
Units: m
Data Source: L1B
Title: "Altitude above WGS84 ellipsoid"
Unique Field Definition: HIRDLS-OMI-TES-Shared

Description: >

The altitude (in meters) of the spacecraft.

- Field Name: SolarZenithAngle
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack,nTimes
Range or Valid: Range is -90.0 to 90.0
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: deg
Data Source: L1B
Title: "Solar zenith angle at WGS84 ellipsoid for center co-ordinate of the ground pixel"
Unique Field Definition: Aura-Shared
Description: >

The solar zenith angle (in deg) at the center of the ground pixel.

- Field Name: SolarAzimuthAngle
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack,nTimes
Range or Valid: Range is -180.0 to 180.0
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: deg
Data Source: L1B
Title: "Solar azimuth angle at WGS84 ellipsoid for center co-ordinate of the ground pixel, defined East-of-North"
Unique Field Definition: OMI-Shared
Description: >

The solar azimuth angle (in deg) at the center of the ground pixel.

- Field Name: ViewingZenithAngle
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack,nTimes
Range or Valid: Range is -90.0 to 90.0
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: deg
Data Source: L1B
Title: "Viewing zenith angle at WGS84 ellipsoid for center co-ordinate of the ground pixel"
Unique Field Definition: OMI-Specific
Description: >

The viewing zenith angle (in deg) at the center of the ground pixel.

- Field Name: ViewingAzimuthAngle
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack,nTimes
Range or Valid: Range is -180.0 to 180.0
Missing Value: -1.2676506e+30

Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: deg
Data Source: L1B
Title: "Viewing azimuth angle at WGS84 ellipsoid for center co-ordinate of the ground pixel, defined East-of-North"
Unique Field Definition: OMI-Specific
Description: >

The viewing azimuth angle (in deg) at the center of the ground pixel.

- Field Name: TerrainHeight
Data Type: HE5T_NATIVE_INT16
Dimensions: nXtrack,nTimes
Range or Valid: Range is -100 to 10000
Missing Value: -32767
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: m
Data Source: L1B
Title: "Terrain height for center co-ordinate of the ground pixel"
Unique Field Definition: OMI-Specific
Description: >

The terrain height (in m) at the center of the ground pixel (from OMI Level 1B file).

- Field Name: GroundPixelQualityFlags
Data Type: HE5T_NATIVE_UINT16
Dimensions: nTimes,nXtrack
Range or Valid: Not meaningful
Missing Value: Not applicable
Offset: 0.0d0
Scale Factor: 1.0d0
Units: NoUnits
Data Source: L1B
Title: "Ground Pixel Quality Flags"
Unique Field Definition: OMI-Specific
Description: >

Bits 0 to 3 together contain the land/water flags:

- 0 - shallow ocean
- 1 - land
- 2 - shallow inland water
- 3 - ocean coastline/lake shoreline
- 4 - ephemeral (intermittent) water
- 5 - deep inland water
- 6 - continental shelf ocean
- 7 - deep ocean
- 8-14 - not used
- 15 - error flag for land/water

Bits 4 to 6 are flags that are set to 0 for FALSE, or 1 for TRUE:

- Bit 4 - sun glint possibility flag
- Bit 5 - solar eclipse possibility flag
- Bit 6 - geolocation error flag
- Bit 7 is reserved for future use (currently set to 0).

Bits 8 to 14 together contain the snow/ice flags (based on NISE):

- 0 - snow-free land
- 1-100 - sea ice concentration (percent)
- 101 - permanent ice (Greenland, Antarctica)
- 102 - not used
- 103 - dry snow
- 104 - ocean (NISE-255)
- 105-123 - reserved for future use
- 124 - mixed pixels at coastline (NISE-252)
- 125 - suspect ice value (NISE-253)
- 126 - corners undefined (NISE-254)
- 127 - error

Bit 15 - NISE nearest neighbor filling flag.

(See Section 6.2 of Reference 4 for more details.)

Data Fields:

- Field Name: ColumnAmountO3
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack,nTimes
Range or Valid: 0.0 to 1000.0
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: DU
Data Source: PGE
Title: "Ozone vertical column density"
Unique Field Definition: OMI-Specific
Description: >

Ozone Vertical Column Density (Total Column Ozone) in DU.

- Field Name: ColumnAmountO3Precision
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack,nTimes
Range or Valid: 0.0 to 1000.0
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: DU
Data Source: PGE
Title: "Precision of the ozone vertical column density"
Unique Field Definition: OMI-Specific
Description: >

Precision of the Ozone Vertical Column Density in DU.

- Field Name: SlantColumnAmountO3
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack,nTimes
Range or Valid: 0.0 to 10000.0
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: DU
Data Source: PGE
Title: "Ozone slant column density"

Unique Field Definition: OMI-Specific
Description: >

Ozone Slant Column Density (in DU).

- Field Name: SlantColumnAmountO3Precision
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack,nTimes
Range or Valid: 0.0 to 10000.0
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: DU
Data Source: PGE
Title: "Precision of the ozone slant column density"
Unique Field Definition: OMI-Specific
Description: >

Precision of the Ozone Slant Column Density (in DU).

- Field Name: GhostColumnAmountO3
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack,nTimes
Range or Valid: 0.0 to 1000.0
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: DU
Data Source: PGE
Title: "Ozone ghost column density"
Unique Field Definition: OMI-Specific
Description: >

Amount of ozone used to correct for cloudy part of the ground pixel (in DU).

- Field Name: AirMassFactor
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack,nTimes
Range or Valid: 0.0 to 100.0
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: NoUnits
Data Source: PGE
Title: "Air Mass Factor"
Unique Field Definition: OMI-Specific
Description: >

Air Mass Factor to compute the vertical column density from the slant column density.

- Field Name: ClearAirMassFactor
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack,nTimes
Range or Valid: 0.0 to 100.0
Missing Value: -1.2676506e+30

Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: NoUnits
Data Source: PGE
Title: "Air Mass Factor for cloud-free pixel"
Unique Field Definition: OMI-Specific
Description: >

Air Mass Factor used for the cloud-free part of the ground pixel.

- Field Name: CloudyAirMassFactor
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack,nTimes
Range or Valid: 0.0 to 100.0
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: NoUnits
Data Source: PGE
Title: "Air Mass Factor for cloud covered pixel"
Unique Field Definition: OMI-Specific
Description: >

Air Mass Factor used for the cloudy part of the ground pixel.

- Field Name: CloudFraction
Data Type: HE5T_NATIVE_INT8
Dimensions: nXtrack,nTimes
Range or Valid: 0 to 100
Missing Value: -127
Offset: 0.0d+00
Scale Factor: 100.0d+00
Units: NoUnits
Data Source: L2 OMCLD02
Title: "Effective cloud fraction"
Unique Field Definition: OMI-Specific
Description: >

Effective cloud fraction, scaled by a factor 100

- Field Name: CloudFractionPrecision
Data Type: HE5T_NATIVE_INT8
Dimensions: nXtrack,nTimes
Range or Valid: 0 to 100
Missing Value: -127
Offset: 0.0d+00
Scale Factor: 100.0d+00
Units: NoUnits
Data Source: L2 OMCLD02
Title: "Effective cloud fraction precision"
Unique Field Definition: OMI-Specific
Description: >

Effective cloud fraction precision, scaled by a factor 100

- Field Name: CloudRadianceFraction
Data Type: HE5T_NATIVE_INT8

Dimensions: nXtrack,nTimes
Range or Valid: 0 to 100
Missing Value: -127
Offset: 0.0d+00
Scale Factor: 100.0d+00
Units: NoUnits
Data Source: PGE
Title: "Fraction of the radiance that comes from the cloudy part"
Unique Field Definition: OMI-Specific
Description: >

Fraction of the radiance that comes from the cloudy part, scaled by a factor 100

- Field Name: CloudPressure
Data Type: HE5T_NATIVE_INT16
Dimensions: nXtrack,nTimes
Range or Valid: 0 to 1500
Missing Value: -32767
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: hPa
Data Source: L2 OMCLD02
Title: "Effective cloud pressure"
Unique Field Definition: OMI-Specific
Description: >

Effective cloud pressure in hPa.

- Field Name: CloudPressurePrecision
Data Type: HE5T_NATIVE_INT16
Dimensions: nXtrack,nTimes
Range or Valid: 0 to 1500
Missing Value: -32767
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: hPa
Data Source: L2 OMCLD02
Title: "Effective cloud pressure precision"
Unique Field Definition: OMI-Specific
Description: >

Precision of the effective cloud pressure in hPa.

- Field Name: TerrainPressure
Data Type: HE5T_NATIVE_INT16
Dimensions: nXtrack,nTimes
Range or Valid: 0 to 1500
Missing Value: -32767
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: hPa
Data Source: PGE
Title: "Pressure of the center of the ground pixel"
Unique Field Definition: OMI-Specific
Description: >

Pressure of the center of the ground pixel in hPa.

- Field Name: TerrainReflectivity
Data Type: HE5T_NATIVE_INT8
Dimensions: nXtrack,nTimes
Range or Valid: 0 to 100
Missing Value: -127
Offset: 0.0d+00
Scale Factor: 100.0d+00
Units: NoUnits
Data Source: PGE
Title: "Reflectivity of the ground pixel"
Unique Field Definition: OMI-Specific
Description: >

Reflectivity of the ground pixel, scaled by a factor 100.

- Field Name: SnowIceExtent
Data Type: HE5T_NATIVE_UINT8
Dimensions: nXtrack,nTimes
Range or Valid: 0 to 255
Missing Value: 255
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: NoUnits
Data Source: L2 OMCLD02
Title: "Snow Ice extent information. Uses the NISE convention."
Unique Field Definition: OMI-Specific
Description: >

Snow Ice extent information. Uses the NISE convention (see Reference 8).

- Field Name: RingCoefficient
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack,nTimes
Range or Valid: Range is -1e+30 to 1.0e+30
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: molecule cm⁻²
Data Source: PGE
Title: "Fitted ring coefficient"
Unique Field Definition: OMI-Specific
Description: >

Fitted amount of Ring effect.

- Field Name: RingCoefficientPrecision
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack,nTimes
Range or Valid: Range is -1e+30 to 1.0e+30
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: molecule cm⁻²

Data Source: PGE
Title: "Precision of the fitted ring coefficient"
Unique Field Definition: OMI-Specific
Description: >

Precision of the fitted amount of Ring effect.

- Field Name: EffectiveTemperature
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack,nTimes
Range or Valid: Range is -100 to 100
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: degree Celsius
Data Source: PGE
Title: "Fitted Effective temperature of the ozone"
Unique Field Definition: OMI-Specific
Description: >

Fitted Effective temperature of the ozone along the average path of the photons.

- Field Name: EffectiveTemperaturePrecision
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack,nTimes
Range or Valid: Range is -100 to 100
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: degree Celsius
Data Source: PGE
Title: "Precision of the Fitted Effective temperature of the ozone"
Unique Field Definition: OMI-Specific
Description: >

Precision of the fitted Effective temperature of the ozone along the average path of the photons.

- Field Name: ChiSquaredOfFit
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack,nTimes
Range or Valid: 0.0 to 1.0e+30
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: NoUnits
Data Source: PGE
Title: "Chi-squared diagnostics of DOAS fit"
Unique Field Definition: OMI-Specific
Description: >

Chi-squared diagnostics of DOAS fit.

- Field Name: RootMeanSquareErrorOfFit
Data Type: HE5T_NATIVE_FLOAT

Dimensions: nXtrack,nTimes
Range or Valid: 0.0 to 1.0e+30
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: NoUnits
Data Source: PGE
Title: "Root-Mean-Square error of DOAS fit"
Unique Field Definition: OMI-Specific
Description: >

Root-mean-square error of DOAS fit.

- Field Name: MeasurementQualityFlags
Data Type: HE5T_NATIVE_UINT8
Dimensions: nTimes
Range or Valid: Not meaningful
Missing Value: Not applicable
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: NoUnits
Data Source: PGE
Title: "Bit level quality flags at measurement level"
Unique Field Definition: OMI-Specific
Description: >

Bit	Description
Bit 0	Measurement Missing Flag Set if all Ground Pixels give Earth Radiance Missing Flag.
Bit 1	Measurement Error Flag Set if any of the L1B MeasurementQualityFlags bit 0, 1 or 3 are set for the Radiance or for the used Solar product.
Bit 2	Measurement Warning Flag Set if any of the L1B MeasurementQualityFlags bit 2, 4, 5, 8, 9 are set for the Radiance or for the used Solar product.
Bit 3	Rebinned Measurement Flag Set if L1B radiance MeasurementQualityFlags bit 7 is set to 1.
Bit 4	SAA Flag Set if L1B MeasurementQualityFlags bit 10 is set to 1, for the Radiance or for the used Solar product.
Bit 5	Spacecraft Maneuver Flag Set if L1B MeasurementQualityFlags bit 11 is set to 1, for the Radiance for the used Solar product.
Bit 6	Instrument Settings Error Flag The Earth and Solar InstrumentConfigurationIDs are not compatible.
Bit 7	Set if radiance and cloud data are not synchronized.

- Field Name: ProcessingQualityFlags
Data Type: HE5T_NATIVE_UINT16
Dimensions: nXtrack, nTimes
Range or Valid: Not meaningful
Missing Value: Not applicable
Offset: 0.0d+00
Scale Factor: 1.0d+00

Units: NoUnits
Data Source: PGE
Title: "Bit level quality flags at ground pixel level"
Unique Field Definition: OMI-Specific
Description: >

Bit Description

Bit 0 Solar Irradiance Warning Flag
For any of the irradiance pixels contained in the fit window:
L1B PixelQualityFlags bit 3-10 is set
wavelengthPrecision > maxWavelengthPrecision
wavelengthPrecision <= 0
wavelengthPrecision contains fill value
irradiancePrecision > maxIrradiancePrecision
irradiancePrecision <= 0
irradiancePrecision contains fill value

Bit 1 Earth Radiance Missing Flag
For this ground pixel the number of spectral pixels flagged with
the
OPF,
L1B PixelQualityFlags bit 0 is larger than threshold set in the
or the number of spectral pixels is too small to perform the
fitting.

Bit 2 Earth Radiance Error Flag
For this ground pixel the number of spectral pixels flagged with
the
L1B PixelQualityFlags bit 0-2 is larger
than a threshold set in the OPF.
L1B XTrackQualityFlags (when present) is 7.

Bit 3 Earth Radiance Warning Flag
For any of the radiance pixels contained in the fit window:
L1B PixelQualityFlags bit 3-10 is set
wavelengthPrecision > maxWavelengthPrecision
wavelengthPrecision <= 0
wavelengthPrecision contains fill value
radiancePrecision > maxRadiancePrecision
radiancePrecision <= 0
radiancePrecision contains fill value
Any of the radiance or geolocation fields used is out-of-bound
L1B XTrackQualityFlags (when present) is 1, 2, 3, or 4.

Bit 4 Cloud Data Error Flag
missing
Cloud fraction set to zero flag, because the cloud data is
or invalid. Note that if the cloud product is not synchronized
the cloud data is invalid.

Bit 5 Cloud Data Warning Flag
A warning flag is set for the cloud data

Bit 6 Snow/Ice Data Error Flag
Set if Snow/Ice data from cloud product is missing or invalid.

Bit 7 SCD Error Flag
Set if SCD fit returned error

Bit 8 SCD Warning Flag
Set if any of the following occurrences:
SCD precision > maxSCDPrecision
RMS Error > RMSErrorFlag
SCD Covariance > maxSCDCovarianceSCD is less than minSCD or SCD

is

larger than maxSCD

Bit 9 AMF Error Flag
Set if computation of AMFClear or AMFCloudy failed

Bit 10 AMF Warning Flag
Set if computation of AMFs returned warning because:
Extrapolation of the LUTs

Bit 11 Ghost Column Error Flag
Set if Ghost Column could not be computed.

Bit 12 Ghost Column Warning Flag
Set if the cloud pressure > surface pressure.
The ghost column will be set to zero in this case.

Bit 13 VCD Error Flag
Set if VCD could not be computed.

Bit 14 VCD Warning Flag
Set if any of the following:
Cloud Data Warning Flag set
SCD Warning Flag set
AMF Warning Flag set
VCD computation returned warning
VCD is less than minVCD or VCD is larger than maxVCD
VCD precision > maxVCDprecision

Bit 15 Wavelength registration warning flag
Set when the wavelength registration shift is larger than the
value in the OPF.

- Field Name: MeanSunNormalizedRadiance
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack,nTimes
Range or Valid: 0.0 to 10000.0
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: NoUnits
Data Source: PGE
Title: "Mean Sun Normalized Radiance over the DOAS Fit
Window"
Unique Field Definition: OMI-Specific
Description: >

Mean Sun Normalized Radiance over the DOAS Fit Window.

- Field Name: SmallPixelRadiance
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack,nTimesSmallPixel
Range or Valid: 0.0 to 1.0d+30
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: photons/(s.nm.cm^2.sr)
Data Source: L1B
Title: "Radiance of small pixel data column"
Unique Field Definition: OMI-Specific
Description: >

Radiance of small pixel data column of UV CCD.

- Field Name: NumberOfSmallPixelColumns

Data Type: HE5T_NATIVE_INT8
Dimensions: nTimes
Range or Valid: 0 to 100
Missing Value: -127
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: NoUnits
Data Source: L1B
Title: "Number of small pixels for current measurement"
Unique Field Definition: OMI-Specific
Description: >

Number of small pixels for current measurement.

- Field Name: InstrumentConfigurationId
Data Type: HE5T_NATIVE_UINT8
Dimensions: nTimes
Range or Valid: 0 to 255
Missing Value: Not applicable
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: NoUnits
Data Source: L1B
Title: "Unique ID for instrument settings for current measurement"
Unique Field Definition: OMI-Specific
Description: >

Unique ID for instrument settings for current measurement.

- Field Name: WavelengthRegistrationCheck
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack, nTimes
Range or Valid: Range is -1e+30 to 1.0e+30
Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: nm
Data Source: PGE
Title: >

"Wavelength registration check of the L1B wavelength assignment based on the position

of Fraunhofer absorption lines. This registration check can be applied as a correction,

depending on an OPF parameter. See OPF_wavelengthRegistrationShiftRadianceGrid in the file attributes."

Unique Field Definition: OMI-Specific
Description: >

Wavelength check on the L1B spectra.

- Field Name: WavelengthRegistrationCheckStd
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nXtrack, nTimes
Range or Valid: Range is -1e+30 to 1.0e+30

Missing Value: -1.2676506e+30
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: nm
Data Source: PGE
Title: "Precision of the wavelength registration"
Unique Field Definition: OMI-Specific
Description: >

Precision of the wavelength check on the L1B spectra.

- Field Name: XTrackQualityFlags
Data Type: HE5T_NATIVE_UINT8
Dimensions: nXtrack, nTimes
Range or Valid: Not meaningful
Missing Value: 255
Offset: 0.0d+00
Scale Factor: 1.0d+00
Units: NoUnits
Data Source: L1B
Title: "Across Track Quality Flags"
Unique Field Definition: OMI-Specific
Description: >

Value

0 Not affected by row anomaly, pixel can be used.
1 Affected by row anomaly; pixel not corrected, do not use pixel.
2 Slightly affected by row anomaly; pixel not corrected, pixel
can be used with caution.
3 Affected by row anomaly; pixel is corrected, but correction
is not optimal, use pixel with caution.
4 Affected by row anomaly; pixel is corrected, and correction
is optimal, pixel can be used, but is still less accurate than
pixels not affected by row anomaly.
7 Error during correction for row anomaly. Do not use pixel.
If not present in L1B, all pixels are set to 255 (MissingValue).

Core Metadata:

- Metadata Name: SizeMBECSDataGranule
Mandatory: F
Data Type: LF
Number of Values: 1
Range or Valid: 0.00d+00 to 1.00d+04
Data Source: DSS
Description: >

- Metadata Name: ReprocessingPlanned
Mandatory: T
Data Type: VA45
Number of Values: 1
Range or Valid: >

Valid: "no further update anticipated", "further update is
anticipated"
and "further update anticipated using enhanced PGE".

Data Source: DP
Description: Actual is "further update is anticipated".

- Metadata Name: REPROCESSINGACTUAL
Mandatory: T
Data Type: VA20
Number of Values: 1
Range or Valid: >

Valid: are "processed 1 time", "processed 2 times", etc...

Data Source: PCF
Description: >

An indication of what reprocessing has been performed on the granule.

- Metadata Name: LOCALVERSIONID
Mandatory: T
Data Type: VA
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: PCF
Description: >

Actual is "RFC1321 MD5 = not yet calculated"

- Metadata Name: LocalGranuleID
Mandatory: T
Data Type: VA80
Number of Values: 1
Range or Valid: >

"OMI-Aura_L1-OMDOAO3_2003m0101t0000-o00000_v001-2003m0101t000000.he5" to
"OMI-Aura_L1-OMDOAO3_2099m1231t2359-o99999_v999-2099m1231t235959.he5"

Data Source: PGE
Description: >

Example is

"OMI-Aura_L1-OMDOAO3_2002m0630t2354-o21434_v001-2003m0515t181917.he5"
(see Appendix E of Reference 3).

- Metadata Name: ProductionDateTime
Mandatory: T
Data Type: DT
Number of Values: 1
Range or Valid: >

"2003-01-01T00:00:00.000Z" to "2099-12-31T24:59:59.999Z"

Data Source: TK
Description: The date and time of the Level 2 processing.

- Metadata Name: DayNightFlag
Mandatory: T
Data Type: VA40

Number of Values: 1
Range or Valid: Valid are "Day", "Night", "Both", "NA", "D", "N".
Data Source: MCF
Description: >

Actual is "Day".

- Metadata Name: ParameterName
Mandatory: T
Data Type: VA40
Number of Values: 1
Range or Valid: Valid is "Ozone".
Data Source: PGE
Description: >

The measured science parameter expressed in the granule.

- Metadata Name: AutomaticQualityFlag
Mandatory: T
Data Type: VA64
Number of Values: 1
Range or Valid: Valid are "Passed", "Suspect" and "Failed".
Data Source: PGE
Description: >

A granule-level quality flag that applies generally to the granule and specifically to the parameters at the granule level.

- Metadata Name: AutomaticQualityFlagExplanation
Mandatory: T
Data Type: VA255
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: PGE
Description: >

Example:

The value is based on a combination of the RadianceScienceQualityFlag, IrradianceScienceQualityFlag, QAPctRadianceError, QAPctCloudDataError, QAPctSCDError, QAPctGhostColumnError, QAPctVCDError.

Thresholds used: xx% for Failed and yy% for Suspect.

- Metadata Name: OperationalQualityFlag
Mandatory: T
Data Type: VA20
Number of Values: 1
Range or Valid: >

Valid are "Passed", "Failed", "Being Investigated", "Not Investigated", "Inferred Passed", "Inferred Failed" and "Suspect".

Data Source: MCF
Description: >

Actual is "Passed".

- Metadata Name: OperationalQualityFlagExplanation
Mandatory: T
Data Type: VA255
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: MCF
Description: >

This granule passed operational tests that were administered by the OMI SIPS.

QA metadata was extracted and the file was successfully read using standard HDF-EOS utilities.

- Metadata Name: ScienceQualityFlag
Mandatory: T
Data Type: VA20
Number of Values: 1
Range or Valid: >

Valid: "Passed", "Failed", "Being Investigated", "Not Investigated", "Inferred Passed", "Inferred Failed" and "Suspect".

Data Source: DP
Description: Actual is "Not Investigated".

- Metadata Name: ScienceQualityFlagExplanation
Mandatory: T
Data Type: VA255
Number of Values: 1
Range or Valid: Not applicable (free format).
Data Source: DP
Description: >

An updated science quality flag and explanation is put in the product .met file when a granule has been evaluated. The flag value in this file,

Not Investigated, is an automatic default that is put in every granule during production.

- Metadata Name: QAPercentMissingData
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

The percent of the data in the granule that are missing.

- Metadata Name: QAPercentOutOfBoundsData
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 100
Data Source: PGE
Description: >

The percent of the data in the granule that are out of bounds data.

- Metadata Name: OrbitNumber
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 1 to 999999
Data Source: L1B
Description: The OMI orbit number.

- Metadata Name: EquatorCrossingDate
Mandatory: T
Data Type: D
Number of Values: 1
Range or Valid: Range is "2003-01-01" to "2099-12-31".
Data Source: L1B
Description: >

The date of the ascending equator crossing in the granule.

- Metadata Name: EquatorCrossingLongitude
Mandatory: T
Data Type: LF
Number of Values: 1
Range or Valid: Range is -1.80d-02 to 1.80d+02.
Data Source: L1B
Description: >

The terrestrial longitude of the ascending equator crossing in the granule.

- Metadata Name: EquatorCrossingTime
Mandatory: T
Data Type: T
Number of Values: 1
Range or Valid: Range is "01:00:0.000000" to "01:59:59.999999".
Data Source: L1B
Description: >

The time of the ascending equator crossing in the granule.

- Metadata Name: ShortName
Mandatory: T
Data Type: VA8
Number of Values: 1
Range or Valid: Valid is "OMDOAO3".
Data Source: MCF
Description: Actual is " OMDOAO3".

- Metadata Name: VersionID
Mandatory: T
Data Type: SI
Number of Values: 1
Range or Valid: 000 to 999
Data Source: MCF
Description: Actual is 1.

- Metadata Name: InputPointer
Mandatory: T
Data Type: VA255
Number of Values: 0 to 20
Range or Valid: >

Valid file names, each in double quotes, separated by commas, all surrounded by curved brackets.

Data Source: PGE
Description: >

Example is
("O3TDS3.opf", "OMI-Aura_L1-OML1BRUG_2000d275t1854-o12151_v001-2002d332t1500.he4",
"OMI-Aura_L2-OMCLD02_2000d275t1854-o12151_v001-2002d332t1500.he5",
"OMI-Aura_L1-OML1BIRR_2000d275t1854-o12151_v001-2002d332t1500.he4",
"rsclim.he5", "ozoneClim.h5",
"cloudyAMFLut.h5", "clearAMFLut.h5", "ozoneRefSpec.dat",
"ringRefSpecNorm.dat")

- Metadata Name: RangeBeginningDate
Mandatory: T
Data Type: D
Number of Values: 1
Range or Valid: Range is "2003-01-01" to "2099-12-31".
Data Source: L1B
Description: The year, month and day when the granule began.

- Metadata Name: RangeBeginningTime
Mandatory: T
Data Type: T
Number of Values: 1
Range or Valid: Range is "00:00:00.000000" to "23:59:59.999999".
Data Source: L1B
Description: >

The hour, minute, second and fraction of a second when the granule began.

- Metadata Name: RangeEndingDate
Mandatory: T
Data Type: D
Number of Values: 1
Range or Valid: "2003-01-01" to "2099-12-31"
Data Source: L1B
Description: The year, month and day when the granule ended.

- Metadata Name: RangeEndingTime
Mandatory: T
Data Type: T
Number of Values: 1
Range or Valid: Range is "00:00:00.000000" to "23:59:59.999999".
Data Source: L1B
Description: >

The hour, minute, second and fraction of a second when the granule

ended.

- Metadata Name: PGEVERSION
Mandatory: T
Data Type: VA10
Number of Values: 1
Range or Valid: Range is "0.0.0" to "9.9.99".
Data Source: PCF
Description: Example is "0.9.30" (see Appendix K of Reference 3).

- Metadata Name: AssociatedInstrumentShortName
Mandatory: T
Data Type: VA20
Number of Values: 1
Range or Valid: Valid is "OMI".
Data Source: MCF
Description: Actual is "OMI".

- Metadata Name: AssociatedPlatformShortName
Mandatory: T
Data Type: VA20
Number of Values: 1
Range or Valid: Valid is "Aura".
Data Source: MCF
Description: Actual is "Aura".

- Metadata Name: AssociatedSensorShortName
Mandatory: T
Data Type: VA20
Number of Values: 1
Range or Valid: Valid is "CCD Ultra Violet" and "CCD Visible".
Data Source: MCF
Description: Actual is "CCD Ultra Violet".

- Metadata Name: OPERATIONMODE
Mandatory: T
Data Type: VA20
Number of Values: 1
Range or Valid: >

Valid is "Calibration", "Diagnostic", "Initialization", "Launch",
"Normal", "Roll", "Routine", "Safe", "Solar Calibration", "Standby",
"Survival" and "Test".

Data Source: PCF
Description: Actual is "Normal".

Product Specific Attributes:

- Metadata Name: NrMeasurements
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 9999
Data Source: L1B
Description: >

The number of measurements in the granule (per output product).

- Metadata Name: NrZoom
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 9999
Data Source: L1B
Description: The number of measurements in zoom modes.
- Metadata Name: NrSpatialZoom
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 9999
Data Source: L1B
Description: The number of measurements in spatial zoom mode.
- Metadata Name: NrSpectralZoom
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1
Range or Valid: 0 to 9999
Data Source: L1B
Description: The number of measurements in spectral zoom mode.
- Metadata Name: ExpeditedData
Mandatory: T
Data Type: VA10
Number of Values: 1
Range or Valid: Valid are "TRUE" and "FALSE".
Data Source: L1B
Description: The indicator for expedited L0 data.
- Metadata Name: SouthAtlanticAnomalyCrossing
Mandatory: T
Data Type: VA10
Number of Values: 1
Range or Valid: Valid are "TRUE" and "FALSE".
Data Source: L1B
Description: >

The indicator that during part of the measurements the spacecraft was in the SAA.

- Metadata Name: SpacecraftManeuverFlag
Mandatory: T
Data Type: VA10
Number of Values: 1
Range or Valid: Valid are "TRUE", "FALSE" and "UNKNOWN".
Data Source: L1B
Description: >

The indicator that during part of the measurements the spacecraft was performing a maneuver.

- Metadata Name: SolarEclipse

Mandatory: T
Data Type: VA10
Number of Values: 1
Range or Valid: Valid are "TRUE" and "FALSE".
Data Source: L1B
Description: >

The indicator that during part of the measurements a solar eclipse occurred.

- Metadata Name: InstrumentConfigurationIDs
Mandatory: T
Data Type: SI
Number of Values: 1 to 256
Range or Valid: 0 to 255
Data Source: L1B
Description: >

An array containing the instrument configuration identifiers used for the measurements.

- Metadata Name: MasterClockPeriods
Mandatory: T
Data Type: F
Number of Values: 1 to 128
Range or Valid: 0.0 to 10.0
Data Source: L1B
Description: >

An array containing the master clock periods in seconds used for the measurements.

- Metadata Name: ExposureTimes
Mandatory: T
Data Type: F
Number of Values: 1 to 256
Range or Valid: 0.0 to 2000.0
Data Source: L1B
Description: >

An array containing the exposure times in seconds used for the measurements.

- Metadata Name: PathNr
Mandatory: T
Data Type: HE5T_NATIVE_INT
Number of Values: 1 to 500
Range or Valid: 1 to 466
Data Source: L1B
Description: Number of the NOSE path within the repeat cycle.

- Metadata Name: StartBlockNr
Mandatory: T
Data Type: SI
Number of Values: 1 to 500
Range or Valid: 1 to 50
Data Source: L1B

Description: Number of the NOSE start block along the track.

- Metadata Name: EndBlockNr
Mandatory: T
Data Type: SI
Number of Values: 1 to 500
Range or Valid: 1 to 50
Data Source: L1B
Description: The number of the NOSE end block along the track.

Archived Metadata:

- Metadata Name: LongName
Mandatory: T
Data Type: VA80
Number of Values: 1
Range or Valid: >

Valid is
"OMI/Aura Ozone (O3) DOAS Total Column 1-Orbit L2 Swath 13x24km".

Data Source: MCF
Description: >

Actual is
"OMI/Aura DOAS Total Column Ozone 1-Orbit L2 Swath 13x24km"
(see Section 7.0 of Reference 2).

- Metadata Name: ESDTDestructorRevision
Mandatory: T
Data Type: VA20
Number of Values: 1
Range or Valid: Range is "0.0.0" to "9.9.99".
Data Source: MCF
Description: >

The version of the ESDT descriptor file as determined by ECS.
Actual is "0.9.30"

References: >

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4. "OMI GDPS Input/Output Data Specification (IODS) Volume 2"
(OMI-GDPS-IODS-2, SD-OMIE-7200-DS-467, 9 April 2003)
5. "Release 6A Implementation Earth Science Data Model for the ECS Project"
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(<https://omiwww.gsfc.nasa.gov/mlinda/OMImetadataRefGuide.html>)
7. "OMI Level 2 Ozone DOAS Data Product Specification"
(SD-OMIE-KNMI-298, issue 1.2, Draft)
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Extent"
(March 2002)
(http://nsidc.org/data/docs/daac/nisel_nise.gd.html)