Global Modeling and Assimilation Office

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File Specification for the 7-km GEOS-5 Nature Run, Ganymed Release

Non-hydrostatic 7-km Global Mesoscale Simulation

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Non-hydrostatic 7-km Global Mesoscale Simulation

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Approved by:

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Steven Pawson   Date

Chief, Global Modeling and Assimilation Office
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REVISION HISTORY

Version	Revision Date	Extent of Changes
1.0	11/21/2014	Baseline

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1. Introduction

This document describes the gridded output files produced by a two-year global, non-hydrostatic mesoscale simulation for the period 2005-2006 produced with the non-hydrostatic version of GEOS-5 Atmospheric Global Climate Model (AGCM). In addition to standard meteorological parameters (wind, temperature, moisture, surface pressure), this simulation includes 15 aerosol tracers (dust, sea-salt, sulfate, black and organic carbon), O_3, CO and CO_2. This model simulation is driven by prescribed sea-surface temperature and sea-ice, daily volcanic and biomass burning emissions, as well as high-resolution inventories of anthropogenic sources. A description of the GEOS-5 model configuration used for this simulation can be found in Putman *et al.* (2014).

The simulation is performed at a horizontal resolution of 7 km using a cubed-sphere horizontal grid with 72 vertical levels, extending up to to 0.01 hPa (~ 80 km). For user convenience, all data products are generated on two logically rectangular longitude-latitude grids: a *full-resolution* 0.0625^o grid that approximately matches the native cubed-sphere resolution, and another 0.5^o *reduced-resolution* grid. The majority of the full-resolution data products are instantaneous with some fields being time-averaged. The reduced-resolution datasets are mostly time-averaged, with some fields being instantaneous. Hourly data intervals are used for the reduced-resolution datasets, while 30-minute intervals are used for the full-resolution products. All full-resolution output is on the model's native 72-layer hybrid sigma-pressure vertical grid, while the reduced-resolution output is given on native vertical levels and on 48 pressure surfaces extending up to 0.02 hPa. Section 4 presents additional details on horizontal and vertical grids. Information of the model surface representation can be found in Appendix B.

The GEOS-5 product is organized into file collections that are described in detail in Appendix C. Additional details about variables listed in this file specification can be found in a separate document, the *GEOS-5 File Specification Variable Definition Glossary.* Documentation about the current access methods for products described in this document can be found on the GEOS-5 Nature Run portal: http://gmao.gsfc.nasa.gov/projects/G5NR. Information on the scientific quality of this simulation will appear in a forthcoming *NASA Technical Report Series on Global Modeling and Data Assimilation* to be available from http://gmao.gsfc.nasa.gov/pubs/tm/ .

2. Format and File Organization

GEOS-5 files are generated with the Network Common Data Form (NetCDF-4) library, which uses Hierarchical Data Format Version 5 (HDF-5) as the underlying format. NetCDF-4 is an open-source product of UCAR/Unidata (https://www.unidata.ucar.edu/software/netcdf/) and HDF-5 is developed by the HDF Group (http://www.hdfgroup.org/). One convenient method of reading GEOS-5 files is to use the netCDF library, but the HDF-5 library can also be used directly. These files can be easily read by applications such as IDL, Matlab, GrADS, FERRET, NCL, Panoply as well in Python using the netCDF4, h5py or PyTables packages.

Each GEOS-5 file contains a collection of geophysical quantities that we will refer to as "fields" or "variables" as well as a set of coordinate variables that contain information about the grid coordinates. While the coordinate variables are COARDS and CF-1.0 compliant, the metadata associated with the data variables may not strictly meet all recent CF requirements.

All products are chunked and internally compressed with a GZIP-based method that is transparent to the user. This method degrades the precision of the data, but every effort has been made to ensure that differences between the product and the original, uncompressed data are not scientifically meaningful. Once the precision has been degraded, the files are written using the standard GZIP deflation available in NetCDF-4. When reading these files the NetCDF-4 Library will automatically decompress these files without any specific input from the user.

2.1 Dimensions

GMAO NetCDF-4 files contain dimension variables that can be identified and interpreted by the *units* and *positive* metadata attributes, as defined in the CF metadata conventions. The *units* attribute uses standard UDUNITS terminology to define specific coordinate variables, e.g., latitude, while the *positive* attribute defines whether a vertical coordinate increases or decreases from the surface to the top of the atmosphere. Some 3D products are defined on model layers rather than pressure coordinates and the units attribute is set to **layer.** This is allowed under the CF conventions to be backward compatible with the older COARDS conventions.

Table 2.1-1. Dimension Variables Contained in GMAO NetCDF-4 Files

Name	Description	Type	*units* attribute	*positive* attribute (3D only)
lon	longitude	double	degrees_east	n/a
lat	latitude	double	degrees_north	n/a
lev (3D only)	pressure or layer index	double	hPa or layer	Down
time	minutes since reference date & time	int	minutes	n/a

2.2 Variables

GMAO NetCDF-4 files are written using the NetCDF classic model. Arrays of scientific data are stored as variables of type **float** that contain various attributes such as *units*, *long_name*, *standard_name*, *_FillValue*, and others. Please note that we do not guarantee that the value in the *standard_name* attribute will conform to the CF metadata conventions. You can quickly list the variables as well as the complete structure of the file by using common utilities such as *ncdump* or *h5dump*. The utilities are distributed with the NetCDF and HDF-5 distributions.

Table 2.2-1 Metadata attributes associated with each variable.

Name	Type	Description
_FillValue	float	Floating-point value used to identify missing data. Will normally be set to 1e15. Required by CF.
missing_value	float	Same as _FillValue. Included for backward compatibility.
valid_range	float32, array(2)	This attribute defines the valid range of the variable. The first element is the smallest valid value and the second element is the largest valid value. Required by CF, but this attribute is not
long_name	String	An ad hoc description of the variable as required by COARDS. It approximates the standard names as defined in an early version of CF conventions. (See References). The *Description* column from the tables of Section 6 is based on this name.
standard_name	String	Same as long_name.
Units	String	The units of the variable. Must be a string that can be recognized by UNIDATA's Udunits package.
scale_factor	float32	If variable is packed as 16-bit integers, this is the scale_factor for expanding to floating-point. Currently we do not plan to pack data, thus value will be 1.0
add_offset	float32	If variable is packed as 16-bit integers, this is the offset for expanding to floating-point. Currently, we do not plan to pack data, thus value will be 0.0.

2.3 Global Attributes

In addition to scientific variables and dimension scales, global metadata is also stored in GMAO NetCDF-4 files. These metadata attributes are largely defined by the CF/COARDS conventions.

Table 2.3-1 Global metadata attributes associated with each variable.

Name	Type	Description
Conventions	character	Identification of the file convention used, currently "COARDS"
Title	character	Contains information about frequency, dimensionality, resolution and short description of the collection.
History	character	Processing history.
Institution	character	"NASA Global Modeling and Assimilation Office"
Source	character	CVS tag of this release. CVS tags are used internally by the GMAO to designate versions of the system.
References	character	GMAO website address
Comment	character	Identifies this experiment.

3. Instantaneous versus Time-averaged Products

Each file collection listed in Appendix C contains either instantaneous or time-averaged products, but not both. All files contain a single timestep with the date and time being part of the filename. Time-averaged collections contain either hourly (reduced-resolution datasets) or 30-minute means (full-resolution datasets), time-stamped with the central time of the interval. For hourly data, these times are 00:30 UTC, 01:30 UTC, 02:30 UTC, etc. Thirty-minute time-averaged files contain averages over time intervals centered and time stamped at 00:15 UTC, 00:45 UTC, 01:15 UTC, and so on. The monthly diurnal files contain monthly averages for each hour of the day.

4. Grid Structure

4.1 Horizontal Structure

The version of the GEOS-5 used for this simulation utilizes a cubed-sphere horizontal grid (*e.g.*, Putman and Lin 2007). However, all datasets provided here are given on a logically rectangular longitude-latitude grid. Files are produced on either a *full resolution* 0.0625° x0.0625° grid or a *reduced resolution* 0.5°x0.5° grid. The horizontal native grid origin, associated with variables indexed ($i=1$, $j=1$) represents a grid point located at (180°W, 90°S). Latitude and longitude of grid points as a function of their indices (i, j) can be determined by:

$$\lambda_i = -180 + (i-1)\Delta\lambda, \quad i = 1, ..., I$$
$$\varphi_j = -90 + (j-1)\Delta\varphi, \quad j = 1, ..., J$$

Mesh sizes ($\Delta\varphi, \Delta\lambda$) and total number of grid points (I,J) are given in the table below.

Resolution	I	$\Delta\lambda$	J	$\Delta\varphi$
Full	5760	0.0625°	2881	0.0625°
Reduced	720	0.5°	361	0.5°

4.2 Vertical Structure

Gridded products use 3 different vertical configurations: horizontal-only (can be vertical averages, single level, or surface values), pressure-level, or model-level. Assuming Fortran indexing, horizontal-only data for a given variable appear as 3-dimensional fields (x, y, time), while pressure-level, model-level, or model-edge data appear as 4-dimensional fields (x, y, z, time). In all cases the time dimension spans multiple files, as each file (granule) contains only one time. Pressure-level data is output on the **48** pressure levels shown in Appendix B. The model layers used for GEOS-5 products are on a hybrid sigma-pressure coordinate system: terrain following sigma for most of the troposphere, and constant pressure coordinates for the upper levels. Model-level data is output on the **72** layers shown in the second table of Appendix B. The pressure at the model top is a fixed constant, **p_{top}=0.01 hPa**. Pressures at model edges should be computed by summing the pressure thickness (variable name *DELP)* starting from **p_{top}**. (Integrating from the surface will lead to negative pressure at the top due to round-off errors.) The full 3-dimensional pressure variable (*PL)* at the middle of each layer is also provided. Even though the model-level fields are on a hybrid sigma-pressure coordinate and their vertical location could be obtained from coefficients (a_k,b_k) typical of hybrid coordinates, this may change in future GMAO systems. We thus recommend that users rely on the reported 3D pressure distribution, and not use ones computed from the (a_k,b_k) coefficients.

Note that the indexing for the GEOS-5 vertical coordinate system is from top to bottom, i.e., layer 1 is the top layer of the atmosphere, while layer **72** is adjacent to the earth's surface. Unlike other GEOS-5 data products, the G5NR pressure level files are written top-down as well.

5. File Naming Conventions

Each GEOS-5 product file will have a complete file name identified in the metadata attribute *comment*.

5.1 File Names

The standard generic complete name for the GEOS-5 data products will appear as follows:

c1440_NR.collection.timestamp.nc4

A brief description of each file name nodes follow:

c1440_NR: The **c1440** token indicates the resolution of the cubed-sphere grid: 1440^2 is the number of grid-points in each face of the cubed-sphere. The **NR** stands for *Nature Run.*

collection: The operational GEOS-5 data are organized into file *collections* that contain fields with common characteristics. These collections are used to make the data more accessible for specific purposes. However, given the high resolution of the global mesoscale simulation, computational considerations required that 3D collections have a single variable in them. Collection names are of the form

freq_dims_group_HV

where the four attributes (freq,dims,group,HV) are:

freq: time-independent (**const**), instantaneous (**inst***F*)**,** time-average (**tavg***F*), diurnally time-averaged (**tdav**F) where *F* indicates the frequency or averaging interval and can be any of the following:
  30mn = every 30 minutes
  01hr = hourly
  01mo = monthly
The **tdav**F files typically contain monthly diurnal files, meaning, monthly means for each hour of the day: 0 UTC, 1 UTC, …, 23UTC.

dims: **2d** for collections with only 2-dimensional fields or **3d** for collections with a mix of 2- and 3-dimensional fields.

group: A short mnemonic for the type of fields in the collection, or the variable name for single-variable collections.

HV: Horizontal and Vertical grid.

H can be:

> **N**: Nominal (full) horizontal resolution of lat/lon grid.
> **C**: Coarse (reduced) horizontal resolution of lat/lon grid.

V can be:

> **x**: horizontal-only data (surface, single level, etc.); *dims* must be **2D**
> **p**: pressure-level data (see Appendix B for levels); *dims* must be **3D**
> **v**: model layer centers (see Appendix B); *dims* must be **3D**
> **e**: model layer edges (see Appendix B); *dims* must be **3D**

timestamp: This node defines the date and time associated with the data in the file. It has the form *yyyymmdd_hhmmz*

> **yyyy** - year string (e.g. , "2002")
> **mm** - month string (e.g.., "09" for September)
> **dd** - day of the month string
> **hh** – hour (UTC)
> **mm** – minute

nc4: All files are in NetCDF-4 format, thus the suffix ".nc4".

5.2 Examples

File: c1440_NR.inst30mn_3d_T_Nv.20050701_1330z.nc4

This file has the following attributes:

- **c1440_NR**: Nature Run, cubed-sphere with each of the 6 faces of the cube having dimensions 1440x1440.
- **inst30mn**: Instantaneous, every 30 minutes
- **3d**: 3-dimensional
- **T**: this collection has a single variable: temperature
- **Nv**: full horizontal resolution, hybrid sigma-pressure vertical coordinates
- **20050701_1330z**: the collection is valid 13:30 UTC on July 1st, 2005

File: c1440_NR.tavg01hr_2d_aer2_Cx.20050805_1130z.nc4

This file has the following attributes:

- **c1440_NR**: Nature Run, cubed-sphere with each of the 6 faces of the cube having dimensions 1440x1440.
- **tavg01hr**: Time averaged, hourly
- **2d**: 2-dimensional
- **aer2**: this collection has multiple variables with aerosol/carbon diagnostics, this is a second set of such diagnostics.
- **Cx**: coarsened horizontal resolution, single-level variables
- **20050805_1130z**: the collection is valid 11:30 UTC on August 5th, 2005

6. Metadata

The following CF-1.0 metadata are included in the files:

- Space-time grid information (dimension variables)
- Variable names and descriptions
- Variable units
- "Missing" value for each variable

Grid information and units comply with the CF-1.0 conventions. Most variables, but not all, will conform to CF conventions for identification by having a valid "standard_name" attribute defined.

References

Koster, R. D., M. J. Suárez, A. Ducharne, M. Stieglitz, and P. Kumar, 2000: A catchment-based approach to modeling land surface processes in a GCM, Part 1, Model Structure. *J. Geophys. Res.*, **105**, 24809-24822.

Putman, W., A.M. da Silva, L.E. Ott and A. Darmenov, 2014: Model Configuration for the 7-km GEOS-5.12 Nature Run, Ganymed Release (Non-hydrostatic 7 km Global Mesoscale Simulation). GMAO Office Note No. 5 (Version 1.0), 18 pp, available from http://gmao.gsfc.nasa.gov/pubs/office_notes.

Pfafstetter, Otto., 1989. Classification of hydrographic basins: coding methodology, unpublished manuscript, Departamento Nacional de Obras de Saneamento, August 18, 1989, Rio de Janeiro; available from J.P. Verdin, U.S. Geological Survey, EROS Data Center, Sioux Falls, South Dakota 57198 USA. See, for example: Verdin, K.L. and J.P. Verdin, 1999, A topological system for delineation and codification of the Earth's river basins," *Journal of Hydrology*, vol. 218, nos. 1-2, pp. 1-12 or http://gis.esri.com/library/userconf/proc01/professional/papers/pap1008/p1008.htm

Web Resources

GMAO web site: http://gmao.gsfc.nasa.gov/

NetCDF information: http://www.unidata.ucar.edu/software/netcdf/

CF Standard Description: http://cf-pcmdi.llnl.gov/

The HDF Group: http://www.hdfgroup.org /

Acronyms

ADAS	atmospheric data assimilation system
AOT	aerosol optical thickness
CF	Climate and Forecast metadata convention
CLSM	Catchment Land Surface Model
COARDS	Cooperative Ocean/Atmosphere Research Data Service metadata convention
DMS	dimethylsulphide
ECS	EOS Core System
EOS	Earth Observing System
ESDT	Earth Science Data Type
ESMF	Earth System Modeling Framework
FP	Forward-processing
GES DISC	Goddard Earth Sciences Data and Information Services Center
GMAO	Global Modeling and Assimilation Office
GRIB	GRIdded Binary
GSI	Gridpoint Statistical Interpolation
HDF	Hierarchical Data Format
IAU	Incremental Analysis Update
JCSDA	Joint Center for Satellite Data Assimilation
MSA	methane sulphonic acid
NCEP	National Center for Environmental Prediction
NetCDF	Network Common Data Form
PAR	photosynthetically active radiation
TOA	top of atmosphere
TOMS	Total Ozone Mapping Spectrometer
UTC	Universal Time, Coordinated

Appendix A: Vertical Structure

A.1 Pressure Levels

Pressure-level data will be output on the following 48 pressure levels. Notice that unlike other GEOS-5 data products, these pressure levels are ordered from top to bottom.

Lev	P (hPa)	Lev	P (hPa)	Lev	P (hPa)	Lev	P (hPa)
1	0.02	2	0.03	3	0.04	4	0.05
5	0.07	6	0.10	7	0.20	8	0.30
9	0.40	10	0.50	11	0.70	12	1.00
13	2.00	14	3.00	15	4.00	16	5.00
17	7.00	18	10.00	19	20.00	20	30.00
21	40.00	22	50.00	23	70.00	24	100.00
25	150.00	26	200.00	27	250.00	28	300.00
29	350.00	30	400.00	31	450.00	32	500.00
33	550.00	34	600.00	35	650.00	36	700.00
37	725.00	38	750.00	39	775.00	40	800.00
41	825.00	42	850.00	43	875.00	44	900.00
45	925.00	46	950.00	47	975.00	48	1000.00

A.2 Hybrid Sigma-Pressure Levels

Products on the native vertical grid will be output on the following levels. Pressures are nominal for a 1000 hPa surface pressure and refer to the top edge of the layer. Note that the bottom layer has a nominal thickness of 15 hPa.

Lev	P(hPa)	Lev	P(hPa)	Lev	P(hPa)	Lev	P(hPa)	Lev	P(hPa)	Lev	P(hPa)
1	0.0100	13	0.6168	25	9.2929	37	78.5123	49	450.000	61	820.000
2	0.0200	14	0.7951	26	11.2769	38	92.3657	50	487.500	62	835.000
3	0.0327	15	1.0194	27	13.6434	39	108.663	51	525.000	63	850.000
4	0.0476	16	1.3005	28	16.4571	40	127.837	52	562.500	64	865.000
5	0.0660	17	1.6508	29	19.7916	41	150.393	53	600.000	65	880.000
6	0.0893	18	2.0850	30	23.7304	42	176.930	54	637.500	66	895.000
7	0.1197	19	2.6202	31	28.3678	43	208.152	55	675.000	67	910.000
8	0.1595	20	3.2764	32	33.8100	44	244.875	56	700.000	68	925.000
9	0.2113	21	4.0766	33	40.1754	45	288.083	57	725.000	69	940.000
10	0.2785	22	5.0468	34	47.6439	46	337.500	58	750.000	70	955.000
11	0.3650	23	6.2168	35	56.3879	47	375.000	59	775.000	71	970.000
12	0.4758	24	7.6198	36	66.6034	48	412.500	60	800.000	72	985.000

Appendix B: Surface Representation

In GEOS-5 the surface below each atmospheric column consists of a set of tiles that represent various surface types. Tiles can be of four different types: Ocean, Land, Ice, Lake, as illustrated in the figure. In each grid box a single Ice tile represents those areas covered by permanent ice. Similarly a single Lake tile represents continental areas covered permanently by water. Other continental areas (non Lake or Ice) can be further subdivided into tiles that represent parts of the grid box in different hydrological catchments, defined according to the Pfafstetter (1989) system. Each of these is, in turn, divided into subtiles (not shown in figure) that represent the wilted, unsaturated, saturated, and snow-covered fractions of the tile. These fractions vary with time and are predicted by the model based on the hydrological state of the catchment and its fine-scale topographic statistics. Details of the land model, including the partitioning into subtiles, can be found in Koster et al. (2000). The Ocean tile can be divided into two subtiles that represent the ice-covered and ice-free parts of the ocean part of the atmospheric grid box. The fractional cover of these subtiles also varies with time.
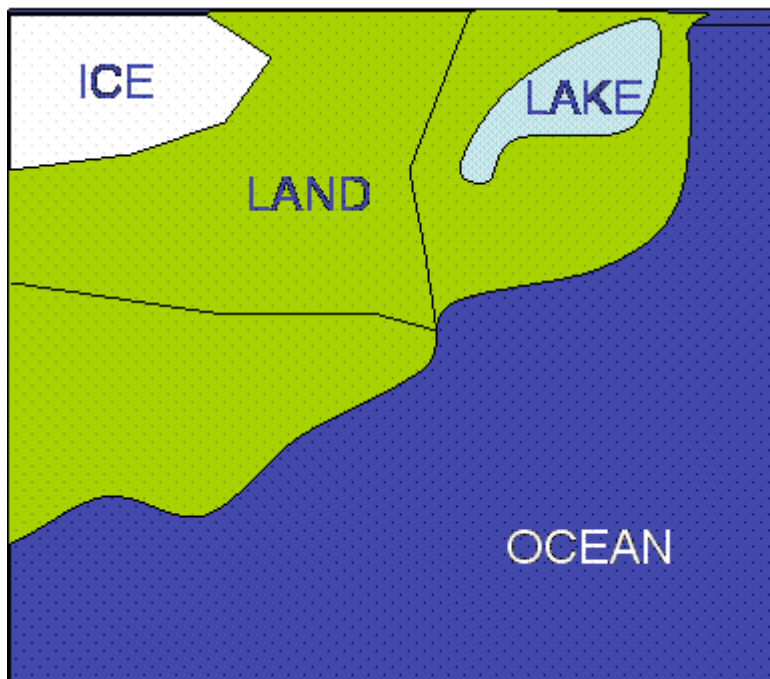
Appendix C. List of File Collections

C.1 Time Invariant Collections

const_2d_asm_Cx: Topography & Land/Ice/Ocean Fractions & Grid-box Area

Frequency: *constant from 00:00 UTC (time-invariant)*
Spatial Grid: *2D, single-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, time=1*
Granule Size: *~7 MB*

Name	Dim	Description	Units
AREA	tyx	agrid cell area	m+2
FRLAKE	tyx	fraction of lake	1
FRLAND	tyx	fraction of land	1
FRLANDICE	tyx	fraction of land ice	1
FROCEAN	tyx	fraction of ocean	1
PHIS	tyx	surface geopotential height	m+2 s-2
SGH	tyx	isotropic stdv of GWD topography	m

const_2d_asm_Nx: Topography & Land/Ice/Ocean Fractions & Grid-box Area

Frequency: *constant from 00:00 UTC (time-invariant)*
Spatial Grid: *2D, single-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, time=1*
Granule Size: *~31 MB*

Name	Dim	Description	Units
AREA	tyx	agrid cell area	m+2
FRLAKE	tyx	fraction of lake	1
FRLAND	tyx	fraction of land	1
FRLANDICE	tyx	fraction of land ice	1
FROCEAN	tyx	fraction of ocean	1
PHIS	tyx	surface geopotential height	m+2 s-2
SGH	tyx	isotropic stdv of GWD topography	m

C.2 Full Resolution, Instantaneous Collections

inst30mn_2d_aer1_Nx: Single-Level Aerosol/Carbon Diagnostics (1)

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *2D, single-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, time=1*
Granule Size: *~936 MB*

Name	Dim	Description	Units
BCANGSTR	tyx	Black Carbon Angstrom parameter [470-870 nm]	1
BCCMASS	tyx	Black Carbon Column Mass Density	kg m-2
BCEXTTAU	tyx	Black Carbon Extinction AOT [550 nm]	1
BCSCATAU	tyx	Black Carbon Scattering AOT [550 nm]	1
BCSMASS	tyx	Black Carbon Surface Mass Concentration	kg m-3
CO2CL001	tyx	CO2 Bulk Mixing Ratio (Column Mass/ps) Bin 001	1
CO2SC001	tyx	CO2 Surface Concentration Bin 001	1e-6
COCL	tyx	CO Column Burden	kg m-2
COSC	tyx	CO Surface Concentration in ppbv	1e-9
DMSCMASS	tyx	DMS Column Mass Density	kg m-2
DMSSMASS	tyx	DMS Surface Mass Concentration	kg m-3
DUANGSTR	tyx	Dust Angstrom parameter [470-870 nm]	1
DUCMASS	tyx	Dust Column Mass Density	kg m-2
DUCMASS25	tyx	Dust Column Mass Density - PM 2.5	kg m-2
DUEXTT25	tyx	Dust Extinction AOT [550 nm] - PM 2.5	1
DUEXTTAU	tyx	Dust Extinction AOT [550 nm]	1
DUSCAT25	tyx	Dust Scattering AOT [550 nm] - PM 2.5	1
DUSCATAU	tyx	Dust Scattering AOT [550 nm]	1
DUSMASS	tyx	Dust Surface Mass Concentration	kg m-3
DUSMASS25	tyx	Dust Surface Mass Concentration - PM 2.5	kg m-3
OCANGSTR	tyx	Organic Carbon Angstrom parameter [470-870 nm]	1
OCCMASS	tyx	Organic Carbon Column Mass Density	kg m-2
OCEXTTAU	tyx	Organic Carbon Extinction AOT [550 nm]	1
OCSCATAU	tyx	Organic Carbon Scattering AOT [550 nm]	1
OCSMASS	tyx	Organic Carbon Surface Mass Concentration	kg m-3
SO2CMASS	tyx	SO2 Column Mass Density	kg m-2

Name	Dim	Description	Units
SO2SMASS	tyx	SO2 Surface Mass Concentration	kg m-3
SO4CMASS	tyx	SO4 Column Mass Density	kg m-2
SO4SMASS	tyx	SO4 Surface Mass Concentration	kg m-3
SSANGSTR	tyx	Sea Salt Angstrom parameter [470-870 nm]	1
SSCMASS	tyx	Sea Salt Column Mass Density	kg m-2
SSCMASS25	tyx	Sea Salt Column Mass Density - PM 2.5	kg m-2
SSEXTT25	tyx	Sea Salt Extinction AOT [550 nm] - PM 2.5	1
SSEXTTAU	tyx	Sea Salt Extinction AOT [550 nm]	1
SSSCAT25	tyx	Sea Salt Scattering AOT [550 nm] - PM 2.5	1
SSSCATAU	tyx	Sea Salt Scattering AOT [550 nm]	1
SSSMASS	tyx	Sea Salt Surface Mass Concentration	kg m-3
SSSMASS25	tyx	Sea Salt Surface Mass Concentration - PM 2.5	kg m-3
SUANGSTR	tyx	SO4 Angstrom parameter [470-870 nm]	1
SUEXTTAU	tyx	SO4 Extinction AOT [550 nm]	1
SUSCATAU	tyx	SO4 Scattering AOT [550 nm]	1
TOTANGSTR	tyx	Total Aerosol Angstrom parameter [470-870 nm]	1
TOTEXTTAU	tyx	Total Aerosol Extinction AOT [550 nm]	1
TOTSCATAU	tyx	Total Aerosol Scattering AOT [550 nm]	1

inst30mn_2d_met1_Nx: Single-Level Meteorology

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *2D, single-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, time=1*
Granule Size: *~1.3 GB*

Name	Dim	Description	Units
CAPE	tyx	cape for surface parcel	J m-2
CLDHGH	tyx	cloud area fraction for high clouds	1
CLDLOW	tyx	cloud area fraction for low clouds	1
CLDMID	tyx	cloud area fraction for middle clouds	1
CLDPRS	tyx	cloud top pressure	Pa
CLDTMP	tyx	cloud top temperature	K
CLDTOT	tyx	total cloud area fraction	1
CWP	tyx	condensed water path	kg m-2
H1000	tyx	height at 1000 mb	m

H250	tyx	height at 250 hPa	m
H500	tyx	height at 500 hPa	m
H850	tyx	height at 850 hPa	m
HLML	tyx	surface layer height	m
IWP	tyx	ice water path	kg m-2
LWP	tyx	liquid water path	kg m-2
LWTUP	tyx	upwelling longwave flux at toa	W m-2
MXDIAM	tyx	diameter of largest RAS plume	m
PBLH	tyx	planetary boundary layer height	m
PRECANV	tyx	anvil precipitation	kg m-2 s-1
PRECCON	tyx	convective precipitation	kg m-2 s-1
PRECLSC	tyx	nonanvil large scale precipitation	kg m-2 s-1
PRECSNO	tyx	snowfall	kg m-2 s-1
PRECTOT	tyx	total precipitation	kg m-2 s-1
PS	tyx	surface pressure	Pa
Q250	tyx	specific humidity at 250 hPa	kg kg-1
Q500	tyx	specific humidity at 500 hPa	kg kg-1
Q850	tyx	specific humidity at 850 hPa	kg kg-1
QLML	tyx	surface specific humidity	1
QV10M	tyx	10-meter specific humidity	kg kg-1
QV2M	tyx	2-meter specific humidity	kg kg-1
RHOA	tyx	air density at surface	kg m-3
SLP	tyx	sea level pressure	Pa
SNODP	tyx	snow depth	m
SNOMAS	tyx	Total snow storage land	kg m-2
SWTDN	tyx	toa incoming shortwave flux	W m-2
T10M	tyx	10-meter air temperature	K
T250	tyx	air temperature at 250 hPa	K
T2M	tyx	2-meter air temperature	K
T500	tyx	air temperature at 500 hPa	K
T850	tyx	air temperature at 850 hPa	K
TAUHGH	tyx	in cloud optical thickness of high clouds(EXPORT)	1
TAULOW	tyx	in cloud optical thickness of low clouds	1
TAUMID	tyx	in cloud optical thickness of middle clouds	1
TAUTOT	tyx	in cloud optical thickness of all clouds	1

TLML	tyx	surface air temperature	K
TOX	tyx	total column odd oxygen	kg m-2
TQI	tyx	total precipitable ice water	kg m-2
TQL	tyx	total precipitable liquid water	kg m-2
TQV	tyx	total precipitable water vapor	kg m-2
TROPPB	tyx	tropopause pressure based on blended estimate	Pa
TROPPT	tyx	tropopause pressure based on thermal estimate	Pa
TROPPV	tyx	tropopause pressure based on EPV estimate	Pa
TROPQ	tyx	tropopause specific humidity using blended TROPP estimate	kg kg-1
TROPT	tyx	tropopause temperature using blended TROPP estimate	K
TS	tyx	surface skin temperature	K
U10M	tyx	10-meter eastward wind	m s-1
U250	tyx	eastward wind at 250 hPa	m s-1
U2M	tyx	2-meter eastward wind	m s-1
U500	tyx	eastward wind at 500 hPa	m s-1
U50M	tyx	eastward wind at 50 meters	m s-1
U850	tyx	eastward wind at 850 hPa	m s-1
ULML	tyx	surface eastward wind	m s-1
USTAR	tyx	surface velocity scale	m s-1
V10M	tyx	10-meter northward wind	m s-1
V250	tyx	northward wind at 250 hPa	m s-1
V2M	tyx	2-meter northward wind	m s-1
V500	tyx	northward wind at 500 hPa	m s-1
V50M	tyx	northward wind at 50 meters	m s-1
V850	tyx	northward wind at 850 hPa	m s-1
VLML	tyx	surface northward wind	m s-1
VORT850	tyx	vorticity at 850 hPa	m s-1
W10	tyx	w at 10 hPa	m s-1
W200	tyx	w at 200 hPa	m s-1
W500	tyx	w at 500 hPa	m s-1
W850	tyx	w at 850 hPa	m s-1

inst30mn_3d_AIRDENS_Nv: Air Density

Frequency: *30-minute from 23:30 UTC (instantaneous)*

Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~727 MB*

Name	Dim	Description	Units
AIRDENS	tzyx	air density	kg m-3

inst30mn_3d_BCPHILIC_Nv: Hydrophilic Black Carbon

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.5 GB*

Name	Dim	Description	Units
BCPHILIC	tzyx	Hydrophilic Black Carbon	kg kg-1

inst30mn_3d_BCPHOBIC_Nv: Hydrophobic Black Carbon

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.4 GB*

Name	Dim	Description	Units
BCPHOBIC	tzyx	Hydrophobic Black Carbon	kg kg-1

inst30mn_3d_CLOUD_Nv: Cloud Fraction

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~382 MB*

Name	Dim	Description	Units
CLOUD	tzyx	cloud fraction for radiation	1

inst30mn_3d_CO2_Nv: Carbon Dioxide

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~926 MB*

Name	Dim	Description	Units
CO2	tzyx	Carbon Dioxide (All Sources)	mol mol-1

inst30mn_3d_CO_Nv: Carbon Monoxide

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~784 MB*

Name	Dim	Description	Units
CO	tzyx	Carbon Monoxide (All Sources)	mol mol-1

inst30mn_3d_DELP_Nv: Surface Pressure and Pressure Thickness

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~289 MB*

Name	Dim	Description	Units
DELP	tzyx	pressure thickness	Pa
PS	tyx	surface pressure	Pa

inst30mn_3d_DU001_Nv: Dust Bin 1 (0.7-1 microns)

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.5 GB*

Name	Dim	Description	Units
DU001	tzyx	Dust Mixing Ratio (bin 001)	kg kg-1

inst30mn_3d_DU002_Nv: Dust Bin 2 (1-1.8 microns)

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.5 GB*

Name	Dim	Description	Units
DU002	tzyx	Dust Mixing Ratio (bin 002)	kg kg-1

inst30mn_3d_DU003_Nv: Dust Bin 3 (1.8-3 microns)

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.4 GB*

Name	Dim	Description	Units
DU003	tzyx	Dust Mixing Ratio (bin 003)	kg kg-1

inst30mn_3d_DU004_Nv: Dust Bin 4 (3-6 microns)

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.4 GB*

Name	Dim	Description	Units
DU004	tzyx	Dust Mixing Ratio (bin 004)	kg kg-1

inst30mn_3d_DU005_Nv: Dust Bin 5 (6-10 microns)

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*

Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.2 GB*

Name	Dim	Description	Units
DU005	tzyx	Dust Mixing Ratio (bin 005)	kg kg-1

inst30mn_3d_EPV_Nv: Ertel Potential Vorticity

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.4 GB*

Name	Dim	Description	Units
EPV	tzyx	ertels potential vorticity	K m+2 kg-1 s-1

inst30mn_3d_H_Nv: Height at Mid-Layer

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~505 MB*

Name	Dim	Description	Units
H	tzyx	mid layer heights	m

inst30mn_3d_O3_Nv: Ozone

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~773 MB*

Name	Dim	Description	Units
O3	tzyx	ozone mass mixing ratio	kg kg-1

inst30mn_3d_OCPHILIC_Nv: Hydrophilic Organic Carbon

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.5 GB*

Name	Dim	Description	Units
OCPHILIC	tzyx	Hydrophilic Organic Carbon (Particulate Matter)	kg kg-1

inst30mn_3d_OCPHOBIC_Nv: Hydrophobic Organic Carbon

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.4 GB*

Name	Dim	Description	Units
OCPHOBIC	tzyx	Hydrophobic Organic Carbon (Particulate Matter)	kg kg-1

inst30mn_3d_PL_Nv: Pressure at Mid-Layer

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~346 MB*

Name	Dim	Description	Units
PL	tzyx	mid level pressure	Pa

inst30mn_3d_QI_Nv: Cloud Ice Condensate

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~395 MB*

Name	Dim	Description	Units
QI	tzyx	mass fraction of cloud ice water	kg kg-1

inst30mn_3d_QL_Nv: Cloud Liquid Condensate

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~523 MB*

Name	Dim	Description	Units
QL	tzyx	mass fraction of cloud liquid water	kg kg-1

inst30mn_3d_QR_Nv: Falling Rain

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~27 MB*

Name	Dim	Description	Units
QR	tzyx	Falling rain for radiation	kg kg-1

inst30mn_3d_QS_Nv: Falling Snow

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~27 MB*

Name	Dim	Description	Units
QS	tzyx	Falling snow for radiation	kg kg-1

inst30mn_3d_QV_Nv: Specific Humidity

Frequency: *30-minute from 23:30 UTC (instantaneous)*

Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~920 MB*

Name	Dim	Description	Units
QV	tzyx	specific humidity	kg kg-1

inst30mn_3d_RH_Nv: Relative Humidity

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.1 GB*

Name	Dim	Description	Units
RH	tzyx	relative humidity after moist	1

inst30mn_3d_SO2_Nv: Sulfate Dioxide

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.5 GB*

Name	Dim	Description	Units
SO2	tzyx	Sulphur dioxide	kg kg-1

inst30mn_3d_SO4_Nv: Sulfate Aerosol

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.5 GB*

Name	Dim	Description	Units
SO4	tzyx	Sulphate aerosol	kg kg-1

inst30mn_3d_SS001_Nv: Sea Salt Bin 1 (0.03-0.1 microns)

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.5 GB*

Name	Dim	Description	Units
SS001	tzyx	Sea Salt Mixing Ratio (bin 001)	kg kg-1

inst30mn_3d_SS002_Nv: Sea Salt Bin 2 (0.1-0.5 microns)

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.5 GB*

Name	Dim	Description	Units
SS002	tzyx	Sea Salt Mixing Ratio (bin 002)	kg kg-1

inst30mn_3d_SS003_Nv: Sea Salt Bin 3 (0.5-1.5 microns)

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.5 GB*

Name	Dim	Description	Units
SS003	tzyx	Sea Salt Mixing Ratio (bin 003)	kg kg-1

inst30mn_3d_SS004_Nv: Sea Salt Bin 4 (1.5-5 microns)

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.4 GB*

Name	Dim	Description	Units
SS004	tzyx	Sea Salt Mixing Ratio (bin 004)	kg kg-1

inst30mn_3d_SS005_Nv: Sea Salt Bin 5 (5-10 microns)

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.2 GB*

Name	Dim	Description	Units
SS005	tzyx	Sea Salt Mixing Ratio (bin 005)	kg kg-1

inst30mn_3d_TAUCLI_Nv: Ice Cloud Optical Depth (VIS)

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~171 MB*

Name	Dim	Description	Units
TAUCLI	tzyx	in cloud optical thickness for ice clouds	1

inst30mn_3d_TAUCLW_Nv: Liquid Cloud Optical Depth (VIS)

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~216 MB*

Name	Dim	Description	Units
TAUCLW	tzyx	in cloud optical thickness for liquid clouds	1

inst30mn_3d_TAUIR_Nv: Cloud Optical Depth (IR)

Frequency: *30-minute from 23:30 UTC (instantaneous)*

Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~322 MB*

Name	Dim	Description	Units
TAUIR	tzyx	longwave cloud optical thickness at 800 cm-1	W m-2

inst30mn_3d_T_Nv: Temperature

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~810 MB*

Name	Dim	Description	Units
T	tzyx	air temperature	K

inst30mn_3d_U_Nv: Zonal Wind

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.2 GB*

Name	Dim	Description	Units
U	tzyx	eastward wind	m s-1

inst30mn_3d_V_Nv: Meridional Wind

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.5 GB*

Name	Dim	Description	Units
V	tzyx	northward wind	m s-1

inst30mn_3d_W_Nv: Vertical Wind

Frequency: *30-minute from 23:30 UTC (instantaneous)*
Spatial Grid: *3D, model-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, level=72, time=1*
Granule Size: *~1.9 GB*

Name	Dim	Description	Units
W	tzyx	vertical velocity	m s-1

C.3 Full Resolution, Time-averaged Collections

tavg30mn_2d_aer2_Nx: Single-Level Aerosol/Carbon Diagnostics (2)

Frequency: *30-minute from 23:45 UTC (time-averaged)*
Spatial Grid: *2D, single-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, time=1*
Granule Size: *~1002 MB*

Name	Dim	Description	Units
DUDP001	tyx	Dust Dry Deposition Bin 001	kg m-2 s-1
DUDP002	tyx	Dust Dry Deposition Bin 002	kg m-2 s-1
DUDP003	tyx	Dust Dry Deposition Bin 003	kg m-2 s-1
DUDP004	tyx	Dust Dry Deposition Bin 004	kg m-2 s-1
DUDP005	tyx	Dust Dry Deposition Bin 005	kg m-2 s-1
DUEM001	tyx	Dust Emission Bin 001	kg m-2 s-1
DUEM002	tyx	Dust Emission Bin 002	kg m-2 s-1
DUEM003	tyx	Dust Emission Bin 003	kg m-2 s-1
DUEM004	tyx	Dust Emission Bin 004	kg m-2 s-1
DUEM005	tyx	Dust Emission Bin 005	kg m-2 s-1
DUFLUXU	tyx	Dust column u-wind mass flux	kg m-1 s-1
DUFLUXV	tyx	Dust column v-wind mass flux	kg m-1 s-1
DUSD001	tyx	Dust Sedimentation Bin 001	kg m-2 s-1
DUSD002	tyx	Dust Sedimentation Bin 002	kg m-2 s-1
DUSD003	tyx	Dust Sedimentation Bin 003	kg m-2 s-1
DUSD004	tyx	Dust Sedimentation Bin 004	kg m-2 s-1
DUSD005	tyx	Dust Sedimentation Bin 005	kg m-2 s-1

DUSV001	tyx	Dust Convective Scavenging Bin 001	kg m-2 s-1
DUSV002	tyx	Dust Convective Scavenging Bin 002	kg m-2 s-1
DUSV003	tyx	Dust Convective Scavenging Bin 003	kg m-2 s-1
DUSV004	tyx	Dust Convective Scavenging Bin 004	kg m-2 s-1
DUSV005	tyx	Dust Convective Scavenging Bin 005	kg m-2 s-1
DUWT001	tyx	Dust Wet Deposition Bin 001	kg m-2 s-1
DUWT002	tyx	Dust Wet Deposition Bin 002	kg m-2 s-1
DUWT003	tyx	Dust Wet Deposition Bin 003	kg m-2 s-1
DUWT004	tyx	Dust Wet Deposition Bin 004	kg m-2 s-1
DUWT005	tyx	Dust Wet Deposition Bin 005	kg m-2 s-1
SSDP001	tyx	Sea Salt Dry Deposition Bin 001	kg m-2 s-1
SSDP002	tyx	Sea Salt Dry Deposition Bin 002	kg m-2 s-1
SSDP003	tyx	Sea Salt Dry Deposition Bin 003	kg m-2 s-1
SSDP004	tyx	Sea Salt Dry Deposition Bin 004	kg m-2 s-1
SSDP005	tyx	Sea Salt Dry Deposition Bin 005	kg m-2 s-1
SSEM001	tyx	Sea Salt Emission Bin 001	kg m-2 s-1
SSEM002	tyx	Sea Salt Emission Bin 002	kg m-2 s-1
SSEM003	tyx	Sea Salt Emission Bin 003	kg m-2 s-1
SSEM004	tyx	Sea Salt Emission Bin 004	kg m-2 s-1
SSEM005	tyx	Sea Salt Emission Bin 005	kg m-2 s-1
SSFLUXU	tyx	Sea Salt column u-wind mass flux	kg m-1 s-1
SSFLUXV	tyx	Sea Salt column v-wind mass flux	kg m-1 s-1
SSSD001	tyx	Sea Salt Sedimentation Bin 001	kg m-2 s-1
SSSD002	tyx	Sea Salt Sedimentation Bin 002	kg m-2 s-1
SSSD003	tyx	Sea Salt Sedimentation Bin 003	kg m-2 s-1
SSSD004	tyx	Sea Salt Sedimentation Bin 004	kg m-2 s-1
SSSD005	tyx	Sea Salt Sedimentation Bin 005	kg m-2 s-1
SSSV001	tyx	Sea Salt Convective Scavenging Bin 001	kg m-2 s-1
SSSV002	tyx	Sea Salt Convective Scavenging Bin 002	kg m-2 s-1
SSSV003	tyx	Sea Salt Convective Scavenging Bin 003	kg m-2 s-1
SSSV004	tyx	Sea Salt Convective Scavenging Bin 004	kg m-2 s-1
SSSV005	tyx	Sea Salt Convective Scavenging Bin 005	kg m-2 s-1
SSWT001	tyx	Sea Salt Wet Deposition Bin 001	kg m-2 s-1
SSWT002	tyx	Sea Salt Wet Deposition Bin 002	kg m-2 s-1
SSWT003	tyx	Sea Salt Wet Deposition Bin 003	kg m-2 s-1

Name	Dim	Description	Units
SSWT004	tyx	Sea Salt Wet Deposition Bin 004	kg m-2 s-1
SSWT005	tyx	Sea Salt Wet Deposition Bin 005	kg m-2 s-1

tavg30mn_2d_aer3_Nx: Single-Level Aerosol/Carbon Diagnostics (3)

Frequency: *30-minute from 23:45 UTC (time-averaged)*
Spatial Grid: *2D, single-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, time=1*
Granule Size: *~784 MB*

Name	Dim	Description	Units
BCANGSTR	tyx	Black Carbon Angstrom parameter [470-870 nm]	1
BCCMASS	tyx	Black Carbon Column Mass Density	kg m-2
BCDP001	tyx	Black Carbon Dry Deposition Bin 001	kg m-2 s-1
BCDP002	tyx	Black Carbon Dry Deposition Bin 002	kg m-2 s-1
BCEM001	tyx	Black Carbon Emission Bin 001	kg m-2 s-1
BCEM002	tyx	Black Carbon Emission Bin 002	kg m-2 s-1
BCEMAN	tyx	Black Carbon Anthropogenic Emissions	kg m-2 s-1
BCEMBB	tyx	Black Carbon Biomass Burning Emissions	kg m-2 s-1
BCEXTTAU	tyx	Black Carbon Extinction AOT [550 nm]	1
BCFLUXU	tyx	Black Carbon column u-wind mass flux	kg m-1 s-1
BCFLUXV	tyx	Black Carbon column v-wind mass flux	kg m-1 s-1
BCSCATAU	tyx	Black Carbon Scattering AOT [550 nm]	1
BCSMASS	tyx	Black Carbon Surface Mass Concentration	kg m-3
BCSV001	tyx	Black Carbon Convective Scavenging Bin 001	kg m-2 s-1
BCSV002	tyx	Black Carbon Convective Scavenging Bin 002	kg m-2 s-1
BCWT002	tyx	Black Carbon Wet Deposition Bin 002	kg m-2 s-1
CO2EM001	tyx	CO2 Emission Bin 001	kg m-2 s-1
COEM	tyx	CO Emission	kg m-2 s-1
OCDP001	tyx	Organic Carbon Dry Deposition Bin 001	kg m-2 s-1
OCDP002	tyx	Organic Carbon Dry Deposition Bin 002	kg m-2 s-1
OCEM001	tyx	Organic Carbon Emission Bin 001	kg m-2 s-1
OCEM002	tyx	Organic Carbon Emission Bin 002	kg m-2 s-1
OCEMAN	tyx	Organic Carbon Anthropogenic Emissions	kg m-2 s-1
OCEMBB	tyx	Organic Carbon Biomass Burning Emissions	kg m-2 s-1
OCEMBG	tyx	Organic Carbon Biogenic Emissions	kg m-2 s-1

OCFLUXU	tyx	Organic Carbon column u-wind mass flux	kg m-1 s-1
OCFLUXV	tyx	Organic Carbon column v-wind mass flux	kg m-1 s-1
OCSV001	tyx	Organic Carbon Convective Scavenging Bin 001	kg m-2 s-1
OCSV002	tyx	Organic Carbon Convective Scavenging Bin 002	kg m-2 s-1
OCWT002	tyx	Organic Carbon Wet Deposition Bin 002	kg m-2 s-1
SO2EMAN	tyx	SO2 Anthropogenic Emissions	kg m-2 s-1
SO2EMBB	tyx	SO2 Biomass Burning Emissions	kg m-2 s-1
SO2EMVE	tyx	SO2 Volcanic (explosive) Emissions	kg m-2 s-1
SO2EMVN	tyx	SO2 Volcanic (non-explosive) Emissions	kg m-2 s-1
SO4EMAN	tyx	SO4 Anthropogenic Emissions	kg m-2 s-1
SUDP002	tyx	Sulfate Dry Deposition Bin 002	kg m-2 s-1
SUDP003	tyx	Sulfate Dry Deposition Bin 003	kg m-2 s-1
SUDP004	tyx	Sulfate Dry Deposition Bin 004	kg m-2 s-1
SUEM001	tyx	Sulfate Emission Bin 001	kg m-2 s-1
SUEM002	tyx	Sulfate Emission Bin 002	kg m-2 s-1
SUEM003	tyx	Sulfate Emission Bin 003	kg m-2 s-1
SUFLUXU	tyx	SO4 column u-wind mass flux	kg m-1 s-1
SUFLUXV	tyx	SO4 column v-wind mass flux	kg m-1 s-1
SUPMSA	tyx	MSA Prod from DMS Oxidation [column]	kg m-2 s-1
SUPSO2	tyx	SO2 Prod from DMS Oxidation [column]	kg m-2 s-1
SUPSO4AQ	tyx	SO4 Prod from Aqueous SO2 Oxidation [column]	kg m-2 s-1
SUPSO4G	tyx	SO4 Prod from Gaseous SO2 Oxidation [column]	kg m-2 s-1
SUPSO4WT	tyx	SO4 Prod from Aqueous SO2 Oxidation (wet dep) [column]	kg m-2 s-1
SUSV001	tyx	Sulfate Convective Scavenging Bin 001	kg m-2 s-1
SUSV002	tyx	Sulfate Convective Scavenging Bin 002	kg m-2 s-1
SUSV003	tyx	Sulfate Convective Scavenging Bin 003	kg m-2 s-1
SUSV004	tyx	Sulfate Convective Scavenging Bin 004	kg m-2 s-1
SUWT002	tyx	Sulfate Wet Deposition Bin 002	kg m-2 s-1
SUWT003	tyx	Sulfate Wet Deposition Bin 003	kg m-2 s-1
SUWT004	tyx	Sulfate Wet Deposition Bin 004	kg m-2 s-1

tavg30mn_2d_met2_Nx: Single-Level Surface Diagnostics

Frequency: *30-minute from 23:45 UTC (time-averaged)*
Spatial Grid: *2D, single_level, full resolution*

Dimensions: *longitude=5760, latitude=2881, time=1*
Granule Size: *~655 MB*

Name	Dim	Description	Units
BASEFLOW	tyx	baseflow flux	kg m-2 s-1
BSTAR	tyx	surface bouyancy scale	m s-2
CDH	tyx	surface exchange coefficient for heat	kg m-2 s-1
CDM	tyx	surface exchange coefficient for momentum	kg m-2 s-1
CDQ	tyx	surface exchange coefficient for moisture	kg m-2 s-1
CN	tyx	surface neutral drag coefficient	1
DISPH	tyx	zero plane displacement height	m
ECHANGE	tyx	rate of change of total land energy	W m-2
EFLUX	tyx	total latent energy flux	W m-2
EMIS	tyx	surface emissivity	1
EVAP	tyx	evaporation from turbulence	kg m-2 s-1
EVLAND	tyx	Evaporation land	kg m-2 s-1
EVPINTR	tyx	interception loss energy flux	W m-2
EVPSBLN	tyx	snow ice evaporation energy flux	W m-2
EVPSOIL	tyx	baresoil evap energy flux	W m-2
EVPTRNS	tyx	transpiration energy flux	W m-2
FRSAT	tyx	fractional area of saturated zone	1
FRSEAICE	tyx	ice covered fraction of tile	1
FRSNO	tyx	fractional area of land snowcover	1
FRUNST	tyx	fractional area of unsaturated zone	1
FRWLT	tyx	fractional area of wilting zone	1
GHLAND	tyx	Ground heating land	W m-2
GRN	tyx	greeness fraction	1
GWETPROF	tyx	ave prof soil moisture	1
GWETROOT	tyx	root zone soil wetness	1
GWETTOP	tyx	surface soil wetness	1
HFLUX	tyx	sensible heat flux from turbulence	W m-2
LAI	tyx	leaf area index	1
LHLAND	tyx	Latent heat flux land	W m-2
LWLAND	tyx	Net longwave land	W m-2
PRMC	tyx	water profile	m-3 m-3
QINFIL	tyx	Soil water infiltration rate	kg m-2 s-1

QSH	tyx	effective surface specific humidity	kg kg-1
QSTAR	tyx	surface moisture scale	kg kg-1
RHOA	tyx	air density at surface	kg m-3
RISFC	tyx	surface bulk richardson number	1
RNOFFTOT	tyx	runoff flux	kg m-2 s-1
RUNOFF	tyx	surface runoff flux	kg m-2 s-1
RZMC	tyx	water root zone	m-3 m-3
SFMC	tyx	water surface layer	m-3 m-3
SHLAND	tyx	Sensible heat flux land	W m-2
SMLAND	tyx	Snowmelt flux land	kg m-2 s-1
SNODP	tyx	snow depth	m
SNOMAS	tyx	Total snow storage land	kg m-2
SPEED	tyx	surface ventilation velocity	m s-1
SPLAND	tyx	rate of spurious land energy source	W m-2
SPSNOW	tyx	rate of spurious snow energy	W m-2
SPWATR	tyx	rate of spurious land water source	kg m-2 s-1
SWLAND	tyx	Net shortwave land	W m-2
TAUGWX	tyx	surface eastward gravity wave stress	N m-2
TAUGWY	tyx	surface northward gravity wave stress	N m-2
TAUX	tyx	eastward surface stress	N m-2
TAUY	tyx	northward surface stress	N m-2
TELAND	tyx	Total energy storage land	J m-2
TPSNOW	tyx	surface temperature of snow	K
TSAT	tyx	surface temperature of saturated zone	K
TSH	tyx	effective surface skin temperature	K
TSOIL1	tyx	soil temperatures layer 1	K
TSOIL2	tyx	soil temperatures layer 2	K
TSOIL3	tyx	soil temperatures layer 3	K
TSOIL4	tyx	soil temperatures layer 4	K
TSOIL5	tyx	soil temperatures layer 5	K
TSOIL6	tyx	soil temperatures layer 6	K
TSTAR	tyx	surface temperature scale	K
TSURF	tyx	surface temperature of land incl snow	K
TUNST	tyx	surface temperature of unsaturated zone	K
TWLAND	tyx	Avail water storage land	kg m-2

Name	Dim	Description	Units
TWLT	tyx	surface temperature of wilted zone	K
USTAR	tyx	surface velocity scale	m s-1
WCHANGE	tyx	rate of change of total land water	kg m-2 s-1
Z0H	tyx	surface roughness for heat	m
Z0M	tyx	surface roughness	m

tavg30mn_2d_met3_Nx: Single-Level Physics Diagnostics

Frequency: *30-minute from 23:45 UTC (time-averaged)*
Spatial Grid: *2D, single-level, full resolution*
Dimensions: *longitude=5760, latitude=2881, time=1*
Granule Size: *~824 MB*

Name	Dim	Description	Units
ALBEDO	tyx	surface albedo	1
ALBNIRDF	tyx	surface albedo for near infrared diffuse	1
ALBNIRDR	tyx	surface albedo for near infrared beam	1
ALBVISDF	tyx	surface albedo for visible diffuse	1
ALBVISDR	tyx	surface albedo for visible beam	1
CAPE	tyx	cape for surface parcel	J m-2
CLDHGH	tyx	cloud area fraction for high clouds	1
CLDLOW	tyx	cloud area fraction for low clouds	1
CLDMID	tyx	cloud area fraction for middle clouds	1
CLDTOT	tyx	total cloud area fraction	1
LWGAB	tyx	surface absorbed longwave radiation	W m-2
LWGABCLR	tyx	surface absorbed longwave radiation assuming clear sky	W m-2
LWGABCLRCLN	tyx	surface absorbed longwave radiation assuming clear sky and no aerosol	W m-2
LWGEM	tyx	longwave flux emitted from surface	W m-2
LWGNT	tyx	surface net downward longwave flux	W m-2
LWGNTCLR	tyx	surface net downward longwave flux assuming clear sky	W m-2
LWGNTCLRCLN	tyx	surface net downward longwave flux assuming clear sky and no aerosol	W m-2
LWTUP	tyx	upwelling longwave flux at toa	W m-2
LWTUPCLR	tyx	upwelling longwave flux at toa assuming clear sky	W m-2
LWTUPCLRCLN	tyx	upwelling longwave flux at toa assuming clear sky and no aerosol	W m-2

MXDIAM	tyx	diameter of largest RAS plume	m
PARDF	tyx	surface downwelling par diffuse flux	W m-2
PARDR	tyx	surface downwelling par beam flux	W m-2
PGENTOT	tyx	Total column production of precipitation	kg m-2 s-1
PRECANV	tyx	anvil precipitation	kg m-2 s-1
PRECCON	tyx	convective precipitation	kg m-2 s-1
PRECLSC	tyx	nonanvil large scale precipitation	kg m-2 s-1
PRECSNO	tyx	snowfall	kg m-2 s-1
PRECTOT	tyx	total precipitation	kg m-2 s-1
PREVTOT	tyx	Total column re-evap/subl of precipitation	kg m-2 s-1
SWGDN	tyx	surface incoming shortwave flux	W m-2
SWGDNCLR	tyx	surface incoming shortwave flux assuming clear sky	W m-2
SWGNT	tyx	surface net downward shortwave flux	W m-2
SWGNTCLN	tyx	surface net downward shortwave flux assuming no aerosol	W m-2
SWGNTCLR	tyx	surface net downward shortwave flux assuming clear sky	W m-2
SWGNTCLRCLN	tyx	surface net downward shortwave flux assuming clear sky and no aerosol	W m-2
SWTDN	tyx	toa incoming shortwave flux	W m-2
SWTNT	tyx	toa net downward shortwave flux	W m-2
SWTNTCLN	tyx	toa net downward shortwave flux assuming no aerosol	W m-2
SWTNTCLR	tyx	toa net downward shortwave flux assuming clear sky	W m-2
SWTNTCLRCLN	tyx	toa net downward shortwave flux assuming clear sky and no aerosol	W m-2
TAUGWX	tyx	surface eastward gravity wave stress	N m-2
TAUGWY	tyx	surface northward gravity wave stress	N m-2
TAUHGH	tyx	in cloud optical thickness of high clouds(EXPORT)	1
TAULOW	tyx	in cloud optical thickness of low clouds	1
TAUMID	tyx	in cloud optical thickness of middle clouds	1
TAUTOT	tyx	in cloud optical thickness of all clouds	1
TBC	tyx	total black carbon aerosol loading	kg m-2
TDUST	tyx	total dust aerosol loading	kg m-2
TOC	tyx	total organic carbon aerosol loading	kg m-2
TSALT	tyx	total sea salt aerosol loading	kg m-2
TSO4	tyx	total sulfate aerosol loading	kg m-2
TTAUBC	tyx	total black carbon optical thickness in 0.4-0.690 band	1
TTAUDU	tyx	total dust optical thickness in 0.4-0.690 band	1

Name	Dim	Description	Units
TTAUOC	tyx	total organic carbon optical thickness in 0.4-0.690 band	1
TTAUSO	tyx	total sulfate optical thickness in 0.4-0.690 band	1
TTAUSS	tyx	total salt optical thickness in 0.4-0.690 band	1

C.4 Coarse Resolution, Instantaneous Collections

inst01hr_2d_aer1_Cx: Single-Level Aerosol/Carbon Diagnostics (1)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *2D, single-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, time=1*
Granule Size: *~44 MB*

Name	Dim	Description	Units
BCANGSTR	tyx	Black Carbon Angstrom parameter [470-870 nm]	1
BCCMASS	tyx	Black Carbon Column Mass Density	kg m-2
BCEXTTAU	tyx	Black Carbon Extinction AOT [550 nm]	1
BCSCATAU	tyx	Black Carbon Scattering AOT [550 nm]	1
BCSMASS	tyx	Black Carbon Surface Mass Concentration	kg m-3
CO2CL001	tyx	CO2 Bulk Mixing Ratio (Column Mass/ps) Bin 001	1
CO2SC001	tyx	CO2 Surface Concentration Bin 001	1e-6
COCL	tyx	CO Column Burden	kg m-2
COSC	tyx	CO Surface Concentration in ppbv	1e-9
DMSCMASS	tyx	DMS Column Mass Density	kg m-2
DMSSMASS	tyx	DMS Surface Mass Concentration	kg m-3
DUANGSTR	tyx	Dust Angstrom parameter [470-870 nm]	1
DUCMASS	tyx	Dust Column Mass Density	kg m-2
DUCMASS25	tyx	Dust Column Mass Density - PM 2.5	kg m-2
DUEXTT25	tyx	Dust Extinction AOT [550 nm] - PM 2.5	1
DUEXTTAU	tyx	Dust Extinction AOT [550 nm]	1
DUSCAT25	tyx	Dust Scattering AOT [550 nm] - PM 2.5	1
DUSCATAU	tyx	Dust Scattering AOT [550 nm]	1
DUSMASS	tyx	Dust Surface Mass Concentration	kg m-3
DUSMASS25	tyx	Dust Surface Mass Concentration - PM 2.5	kg m-3
OCANGSTR	tyx	Organic Carbon Angstrom parameter [470-870 nm]	1
OCCMASS	tyx	Organic Carbon Column Mass Density	kg m-2

OCEXTTAU	tyx	Organic Carbon Extinction AOT [550 nm]	1
OCSCATAU	tyx	Organic Carbon Scattering AOT [550 nm]	1
OCSMASS	tyx	Organic Carbon Surface Mass Concentration	kg m-3
SO2CMASS	tyx	SO2 Column Mass Density	kg m-2
SO2SMASS	tyx	SO2 Surface Mass Concentration	kg m-3
SO4CMASS	tyx	SO4 Column Mass Density	kg m-2
SO4SMASS	tyx	SO4 Surface Mass Concentration	kg m-3
SSANGSTR	tyx	Sea Salt Angstrom parameter [470-870 nm]	1
SSCMASS	tyx	Sea Salt Column Mass Density	kg m-2
SSCMASS25	tyx	Sea Salt Column Mass Density - PM 2.5	kg m-2
SSEXTT25	tyx	Sea Salt Extinction AOT [550 nm] - PM 2.5	1
SSEXTTAU	tyx	Sea Salt Extinction AOT [550 nm]	1
SSSCAT25	tyx	Sea Salt Scattering AOT [550 nm] - PM 2.5	1
SSSCATAU	tyx	Sea Salt Scattering AOT [550 nm]	1
SSSMASS	tyx	Sea Salt Surface Mass Concentration	kg m-3
SSSMASS25	tyx	Sea Salt Surface Mass Concentration - PM 2.5	kg m-3
SUANGSTR	tyx	SO4 Angstrom parameter [470-870 nm]	1
SUEXTTAU	tyx	SO4 Extinction AOT [550 nm]	1
SUSCATAU	tyx	SO4 Scattering AOT [550 nm]	1
TOTANGSTR	tyx	Total Aerosol Angstrom parameter [470-870 nm]	1
TOTEXTTAU	tyx	Total Aerosol Extinction AOT [550 nm]	1
TOTSCATAU	tyx	Total Aerosol Scattering AOT [550 nm]	1

inst01hr_2d_met1_Cx: Single-Level Meteorology

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *2D, single-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, time=1*
Granule Size: *~38 MB*

Name	*Dim*	*Description*	*Units*
H1000	tyx	height at 1000 mb	m
H250	tyx	height at 250 hPa	m
H500	tyx	height at 500 hPa	m
H850	tyx	height at 850 hPa	m
HLML	tyx	surface layer height	m

PS	tyx	surface pressure	Pa
Q250	tyx	specific humidity at 250 hPa	kg kg-1
Q500	tyx	specific humidity at 500 hPa	kg kg-1
Q850	tyx	specific humidity at 850 hPa	kg kg-1
QLML	tyx	surface specific humidity	1
QV10M	tyx	10-meter specific humidity	kg kg-1
QV2M	tyx	2-meter specific humidity	kg kg-1
SLP	tyx	sea level pressure	Pa
T10M	tyx	10-meter air temperature	K
T250	tyx	air temperature at 250 hPa	K
T2M	tyx	2-meter air temperature	K
T500	tyx	air temperature at 500 hPa	K
T850	tyx	air temperature at 850 hPa	K
TLML	tyx	surface air temperature	K
U10M	tyx	10-meter eastward wind	m s-1
U250	tyx	eastward wind at 250 hPa	m s-1
U2M	tyx	2-meter eastward wind	m s-1
U500	tyx	eastward wind at 500 hPa	m s-1
U50M	tyx	eastward wind at 50 meters	m s-1
U850	tyx	eastward wind at 850 hPa	m s-1
ULML	tyx	surface eastward wind	m s-1
V10M	tyx	10-meter northward wind	m s-1
V250	tyx	northward wind at 250 hPa	m s-1
V2M	tyx	2-meter northward wind	m s-1
V500	tyx	northward wind at 500 hPa	m s-1
V50M	tyx	northward wind at 50 meters	m s-1
V850	tyx	northward wind at 850 hPa	m s-1
VLML	tyx	surface northward wind	m s-1
VORT850	tyx	vorticity at 850 hPa	m s-1
W10	tyx	w at 10 hPa	m s-1
W200	tyx	w at 200 hPa	m s-1
W500	tyx	w at 500 hPa	m s-1
W850	tyx	w at 850 hPa	m s-1

inst01hr_3d_AIRDENS_Cp: Air Density

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
AIRDENS	tzyx	air density	kg m-3

inst01hr_3d_AIRDENS_Cv: Air Density

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
AIRDENS	tzyx	air density	kg m-3

inst01hr_3d_BCPHILIC_Cp: Hydrophilic Black Carbon

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
BCPHILIC	tzyx	Hydrophilic Black Carbon	kg kg-1

inst01hr_3d_BCPHILIC_Cv: Hydrophilic Black Carbon

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
BCPHILIC	tzyx	Hydrophilic Black Carbon	kg kg-1

inst01hr_3d_BCPHOBIC_Cp: Hydrophobic Black Carbon

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
BCPHOBIC	tzyx	Hydrophobic Black Carbon	kg kg-1

inst01hr_3d_BCPHOBIC_Cv: Hydrophobic Black Carbon

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
BCPHOBIC	tzyx	Hydrophobic Black Carbon	kg kg-1

inst01hr_3d_CO2_Cp: Carbon Dioxide

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
CO2	tzyx	Carbon Dioxide (All Sources)	mol mol-1

inst01hr_3d_CO2_Cv: Carbon Dioxide

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*

Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
CO2	tzyx	Carbon Dioxide (All Sources)	mol mol-1

inst01hr_3d_CO_Cp: Carbon Monoxide

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
CO	tzyx	Carbon Monoxide (All Sources)	mol mol-1

inst01hr_3d_CO_Cv: Carbon Monoxide

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
CO	tzyx	Carbon Monoxide (All Sources)	mol mol-1

inst01hr_3d_DELP_Cp: Surface Pressure and Pressure Thickness

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~49 MB*

Name	Dim	Description	Units
DELP	tzyx	pressure thickness	Pa
PS	tyx	surface pressure	Pa

inst01hr_3d_DELP_Cv: Surface Pressure and Pressure Thickness

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~72 MB*

Name	Dim	Description	Units
DELP	tzyx	pressure thickness	Pa
PS	tyx	surface pressure	Pa

inst01hr_3d_DU001_Cp: Dust Bin 1 (0.7-1 microns)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DU001	tzyx	Dust Mixing Ratio (bin 001)	kg kg-1

inst01hr_3d_DU001_Cv: Dust Bin 1 (0.7-1 microns)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DU001	tzyx	Dust Mixing Ratio (bin 001)	kg kg-1

inst01hr_3d_DU002_Cp: Dust Bin 2 (1-1.8 microns)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DU002	tzyx	Dust Mixing Ratio (bin 002)	kg kg-1

inst01hr_3d_DU002_Cv: Dust Bin 2 (1-1.8 microns)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DU002	tzyx	Dust Mixing Ratio (bin 002)	kg kg-1

inst01hr_3d_DU003_Cp: Dust Bin 3 (1.8-3 microns)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DU003	tzyx	Dust Mixing Ratio (bin 003)	kg kg-1

inst01hr_3d_DU003_Cv: Dust Bin 3 (1.8-3 microns)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DU003	tzyx	Dust Mixing Ratio (bin 003)	kg kg-1

inst01hr_3d_DU004_Cp: Dust Bin 4 (3-6 microns)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*

Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DU004	tzyx	Dust Mixing Ratio (bin 004)	kg kg-1

inst01hr_3d_DU004_Cv: Dust Bin 4 (3-6 microns)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DU004	tzyx	Dust Mixing Ratio (bin 004)	kg kg-1

inst01hr_3d_DU005_Cp: Dust Bin 5 (6-10 microns)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DU005	tzyx	Dust Mixing Ratio (bin 005)	kg kg-1

inst01hr_3d_DU005_Cv: Dust Bin 5 (6-10 microns)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DU005	tzyx	Dust Mixing Ratio (bin 005)	kg kg-1

inst01hr_3d_H_Cp: Height at Mid-Layer

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
H	tzyx	mid layer heights	m

inst01hr_3d_H_Cv: Height at Mid-Layer

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
H	tzyx	mid layer heights	m

inst01hr_3d_O3_Cp: Ozone

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
O3	tzyx	ozone mass mixing ratio	kg kg-1

inst01hr_3d_O3_Cv: Ozone

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
O3	tzyx	ozone mass mixing ratio	kg kg-1

inst01hr_3d_OCPHILIC_Cp: Hydrophobic Organic Carbon

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
OCPHILIC	tzyx	Hydrophilic Organic Carbon (Particulate Matter)	kg kg-1

inst01hr_3d_OCPHILIC_Cv: Hydrophobic Organic Carbon

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
OCPHILIC	tzyx	Hydrophilic Organic Carbon (Particulate Matter)	kg kg-1

inst01hr_3d_OCPHOBIC_Cp: Hydrophobic Organic Carbon

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
OCPHOBIC	tzyx	Hydrophobic Organic Carbon (Particulate Matter)	kg kg-1

inst01hr_3d_OCPHOBIC_Cv: Hydrophobic Organic Carbon

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*

Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
OCPHOBIC	tzyx	Hydrophobic Organic Carbon (Particulate Matter)	kg kg-1

inst01hr_3d_PL_Cp: Pressure at Mid-Layer

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
PL	tzyx	mid level pressure	Pa

inst01hr_3d_PL_Cv: Pressure at Mid-Layer

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
PL	tzyx	mid level pressure	Pa

inst01hr_3d_QI_Cp: Cloud Ice Condensate

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
QI	tzyx	mass fraction of cloud ice water	kg kg-1

inst01hr_3d_QI_Cv: Cloud Ice Condensate

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
QI	tzyx	mass fraction of cloud ice water	kg kg-1

inst01hr_3d_QL_Cp: Cloud Liquid Condensate

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
QL	tzyx	mass fraction of cloud liquid water	kg kg-1

inst01hr_3d_QL_Cv: Cloud Liquid Condensate

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
QL	tzyx	mass fraction of cloud liquid water	kg kg-1

inst01hr_3d_QV_Cp: Specific Humidity

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~49 MB*

Name	Dim	Description	Units
QV	tzyx	specific humidity	kg kg-1
tpw	tyx	Total Precipitable Water Vapor	kg m-2

inst01hr_3d_QV_Cv: Specific Humidity

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
QV	tzyx	specific humidity	kg kg-1

inst01hr_3d_RH_Cp: Relative Humidity

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
RH	tzyx	relative humidity after moist	1

inst01hr_3d_RH_Cv: Relative Humidity

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
RH	tzyx	relative humidity after moist	1

inst01hr_3d_SO2_Cp: Sulfate Dioxide

Frequency: *1-hourly from 23:00 UTC (instantaneous)*

Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
SO2	tzyx	Sulphur dioxide	kg kg-1

inst01hr_3d_SO2_Cv: Sulfate Dioxide

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
SO2	tzyx	Sulphur dioxide	kg kg-1

inst01hr_3d_SO4_Cp: Sulfate Aeroso

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
SO4	tzyx	Sulphate aerosol	kg kg-1

inst01hr_3d_SO4_Cv: Sulfate Aeroso

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
SO4	tzyx	Sulphate aerosol	kg kg-1

inst01hr_3d_SS001_Cp: Sea Salt Bin 1 (0.03-0.1 microns)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
SS001	tzyx	Sea Salt Mixing Ratio (bin 001)	kg kg-1

inst01hr_3d_SS001_Cv: Sea Salt Bin 1 (0.03-0.1 microns)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
SS001	tzyx	Sea Salt Mixing Ratio (bin 001)	kg kg-1

inst01hr_3d_SS002_Cp: Sea Salt Bin 2 (0.1-0.5 microns)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
SS002	tzyx	Sea Salt Mixing Ratio (bin 002)	kg kg-1

inst01hr_3d_SS002_Cv: Sea Salt Bin 2 (0.1-0.5 microns)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
SS002	tzyx	Sea Salt Mixing Ratio (bin 002)	kg kg-1

inst01hr_3d_SS003_Cp: Sea Salt Bin 3 (0.5-1.5 microns)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
SS003	tzyx	Sea Salt Mixing Ratio (bin 003)	kg kg-1

inst01hr_3d_SS003_Cv: Sea Salt Bin 3 (0.5-1.5 microns)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
SS003	tzyx	Sea Salt Mixing Ratio (bin 003)	kg kg-1

inst01hr_3d_SS004_Cp: Sea Salt Bin 4 (1.5-5 microns)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
SS004	tzyx	Sea Salt Mixing Ratio (bin 004)	kg kg-1

inst01hr_3d_SS004_Cv: Sea Salt Bin 4 (1.5-5 microns)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*

Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
SS004	tzyx	Sea Salt Mixing Ratio (bin 004)	kg kg-1

inst01hr_3d_SS005_Cp: Sea Salt Bin 5 (5-10 microns)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
SS005	tzyx	Sea Salt Mixing Ratio (bin 005)	kg kg-1

inst01hr_3d_SS005_Cv: Sea Salt Bin 5 (5-10 microns)

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
SS005	tzyx	Sea Salt Mixing Ratio (bin 005)	kg kg-1

inst01hr_3d_T_Cp: Air Temperature

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
T	tzyx	air temperature	K
qsat	tzyx	Saturation Specific Humidity	g/g

inst01hr_3d_T_Cv: Air Temperature

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
T	tzyx	air temperature	K

inst01hr_3d_U_Cp: Zonal Wind

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
U	tzyx	eastward wind	m s-1

inst01hr_3d_U_Cv: Zonal Wind

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
U	tzyx	eastward wind	m s-1

inst01hr_3d_V_Cp: Meridional Wind

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
V	tzyx	northward wind	m s-1

inst01hr_3d_V_Cv: Meridional Wind

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
V	tzyx	northward wind	m s-1

inst01hr_3d_W_Cp: Vertical Velocity

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
W	tzyx	vertical velocity	m s-1

inst01hr_3d_W_Cv: Vertical Velocity

Frequency: *1-hourly from 23:00 UTC (instantaneous)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
W	tzyx	vertical velocity	m s-1

C.5 Coarse Resolution, Hourly Time-averaged Collections

tavg01hr_2d_aer2_Cx: Single-Level Aerosol/Carbon Diagnostics (2)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *2D, single-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, time=1*
Granule Size: *~54 MB*

Name	Dim	Description	Units
DUDP001	tyx	Dust Dry Deposition Bin 001	kg m-2 s-1
DUDP002	tyx	Dust Dry Deposition Bin 002	kg m-2 s-1
DUDP003	tyx	Dust Dry Deposition Bin 003	kg m-2 s-1
DUDP004	tyx	Dust Dry Deposition Bin 004	kg m-2 s-1
DUDP005	tyx	Dust Dry Deposition Bin 005	kg m-2 s-1
DUEM001	tyx	Dust Emission Bin 001	kg m-2 s-1
DUEM002	tyx	Dust Emission Bin 002	kg m-2 s-1
DUEM003	tyx	Dust Emission Bin 003	kg m-2 s-1
DUEM004	tyx	Dust Emission Bin 004	kg m-2 s-1
DUEM005	tyx	Dust Emission Bin 005	kg m-2 s-1
DUFLUXU	tyx	Dust column u-wind mass flux	kg m-1 s-1
DUFLUXV	tyx	Dust column v-wind mass flux	kg m-1 s-1
DUSD001	tyx	Dust Sedimentation Bin 001	kg m-2 s-1
DUSD002	tyx	Dust Sedimentation Bin 002	kg m-2 s-1
DUSD003	tyx	Dust Sedimentation Bin 003	kg m-2 s-1
DUSD004	tyx	Dust Sedimentation Bin 004	kg m-2 s-1
DUSD005	tyx	Dust Sedimentation Bin 005	kg m-2 s-1
DUSV001	tyx	Dust Convective Scavenging Bin 001	kg m-2 s-1
DUSV002	tyx	Dust Convective Scavenging Bin 002	kg m-2 s-1
DUSV003	tyx	Dust Convective Scavenging Bin 003	kg m-2 s-1
DUSV004	tyx	Dust Convective Scavenging Bin 004	kg m-2 s-1
DUSV005	tyx	Dust Convective Scavenging Bin 005	kg m-2 s-1
DUWT001	tyx	Dust Wet Deposition Bin 001	kg m-2 s-1
DUWT002	tyx	Dust Wet Deposition Bin 002	kg m-2 s-1
DUWT003	tyx	Dust Wet Deposition Bin 003	kg m-2 s-1
DUWT004	tyx	Dust Wet Deposition Bin 004	kg m-2 s-1

DUWT005	tyx	Dust Wet Deposition Bin 005	kg m-2 s-1
SSDP001	tyx	Sea Salt Dry Deposition Bin 001	kg m-2 s-1
SSDP002	tyx	Sea Salt Dry Deposition Bin 002	kg m-2 s-1
SSDP003	tyx	Sea Salt Dry Deposition Bin 003	kg m-2 s-1
SSDP004	tyx	Sea Salt Dry Deposition Bin 004	kg m-2 s-1
SSDP005	tyx	Sea Salt Dry Deposition Bin 005	kg m-2 s-1
SSEM001	tyx	Sea Salt Emission Bin 001	kg m-2 s-1
SSEM002	tyx	Sea Salt Emission Bin 002	kg m-2 s-1
SSEM003	tyx	Sea Salt Emission Bin 003	kg m-2 s-1
SSEM004	tyx	Sea Salt Emission Bin 004	kg m-2 s-1
SSEM005	tyx	Sea Salt Emission Bin 005	kg m-2 s-1
SSFLUXU	tyx	Sea Salt column u-wind mass flux	kg m-1 s-1
SSFLUXV	tyx	Sea Salt column v-wind mass flux	kg m-1 s-1
SSSD001	tyx	Sea Salt Sedimentation Bin 001	kg m-2 s-1
SSSD002	tyx	Sea Salt Sedimentation Bin 002	kg m-2 s-1
SSSD003	tyx	Sea Salt Sedimentation Bin 003	kg m-2 s-1
SSSD004	tyx	Sea Salt Sedimentation Bin 004	kg m-2 s-1
SSSD005	tyx	Sea Salt Sedimentation Bin 005	kg m-2 s-1
SSSV001	tyx	Sea Salt Convective Scavenging Bin 001	kg m-2 s-1
SSSV002	tyx	Sea Salt Convective Scavenging Bin 002	kg m-2 s-1
SSSV003	tyx	Sea Salt Convective Scavenging Bin 003	kg m-2 s-1
SSSV004	tyx	Sea Salt Convective Scavenging Bin 004	kg m-2 s-1
SSSV005	tyx	Sea Salt Convective Scavenging Bin 005	kg m-2 s-1
SSWT001	tyx	Sea Salt Wet Deposition Bin 001	kg m-2 s-1
SSWT002	tyx	Sea Salt Wet Deposition Bin 002	kg m-2 s-1
SSWT003	tyx	Sea Salt Wet Deposition Bin 003	kg m-2 s-1
SSWT004	tyx	Sea Salt Wet Deposition Bin 004	kg m-2 s-1
SSWT005	tyx	Sea Salt Wet Deposition Bin 005	kg m-2 s-1

tavg01hr_2d_aer3_Cx: Single-Level Aerosol/Carbon Diagnostics (3)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *2D, single-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, time=1*
Granule Size: *~60 MB*

Name	Dim	Description	Units
BCANGSTR	tyx	Black Carbon Angstrom parameter [470-870 nm]	1
BCCMASS	tyx	Black Carbon Column Mass Density	kg m-2
BCDP001	tyx	Black Carbon Dry Deposition Bin 001	kg m-2 s-1
BCDP002	tyx	Black Carbon Dry Deposition Bin 002	kg m-2 s-1
BCEM001	tyx	Black Carbon Emission Bin 001	kg m-2 s-1
BCEM002	tyx	Black Carbon Emission Bin 002	kg m-2 s-1
BCEMAN	tyx	Black Carbon Anthropogenic Emissions	kg m-2 s-1
BCEMBB	tyx	Black Carbon Biomass Burning Emissions	kg m-2 s-1
BCEXTTAU	tyx	Black Carbon Extinction AOT [550 nm]	1
BCFLUXU	tyx	Black Carbon column u-wind mass flux	kg m-1 s-1
BCFLUXV	tyx	Black Carbon column v-wind mass flux	kg m-1 s-1
BCSCATAU	tyx	Black Carbon Scattering AOT [550 nm]	1
BCSD001	tyx	Black Carbon Sedimentation Bin 001	kg m-2 s-1
BCSD002	tyx	Black Carbon Sedimentation Bin 002	kg m-2 s-1
BCSMASS	tyx	Black Carbon Surface Mass Concentration	kg m-3
BCSV001	tyx	Black Carbon Convective Scavenging Bin 001	kg m-2 s-1
BCSV002	tyx	Black Carbon Convective Scavenging Bin 002	kg m-2 s-1
BCWT002	tyx	Black Carbon Wet Deposition Bin 002	kg m-2 s-1
CO2EM001	tyx	CO2 Emission Bin 001	kg m-2 s-1
COEM	tyx	CO Emission	kg m-2 s-1
OCDP001	tyx	Organic Carbon Dry Deposition Bin 001	kg m-2 s-1
OCDP002	tyx	Organic Carbon Dry Deposition Bin 002	kg m-2 s-1
OCEM001	tyx	Organic Carbon Emission Bin 001	kg m-2 s-1
OCEM002	tyx	Organic Carbon Emission Bin 002	kg m-2 s-1
OCEMAN	tyx	Organic Carbon Anthropogenic Emissions	kg m-2 s-1
OCEMBB	tyx	Organic Carbon Biomass Burning Emissions	kg m-2 s-1
OCEMBG	tyx	Organic Carbon Biogenic Emissions	kg m-2 s-1
OCFLUXU	tyx	Organic Carbon column u-wind mass flux	kg m-1 s-1
OCFLUXV	tyx	Organic Carbon column v-wind mass flux	kg m-1 s-1
OCSD001	tyx	Organic Carbon Sedimentation Bin 001	kg m-2 s-1
OCSD002	tyx	Organic Carbon Sedimentation Bin 002	kg m-2 s-1
OCSV001	tyx	Organic Carbon Convective Scavenging Bin 001	kg m-2 s-1
OCSV002	tyx	Organic Carbon Convective Scavenging Bin 002	kg m-2 s-1
OCWT002	tyx	Organic Carbon Wet Deposition Bin 002	kg m-2 s-1

SO2EMAN	tyx	SO2 Anthropogenic Emissions	kg m-2 s-1
SO2EMBB	tyx	SO2 Biomass Burning Emissions	kg m-2 s-1
SO2EMVE	tyx	SO2 Volcanic (explosive) Emissions	kg m-2 s-1
SO2EMVN	tyx	SO2 Volcanic (non-explosive) Emissions	kg m-2 s-1
SO4EMAN	tyx	SO4 Anthropogenic Emissions	kg m-2 s-1
SUDP002	tyx	Sulfate Dry Deposition Bin 002	kg m-2 s-1
SUDP003	tyx	Sulfate Dry Deposition Bin 003	kg m-2 s-1
SUDP004	tyx	Sulfate Dry Deposition Bin 004	kg m-2 s-1
SUEM001	tyx	Sulfate Emission Bin 001	kg m-2 s-1
SUEM002	tyx	Sulfate Emission Bin 002	kg m-2 s-1
SUEM003	tyx	Sulfate Emission Bin 003	kg m-2 s-1
SUFLUXU	tyx	SO4 column u-wind mass flux	kg m-1 s-1
SUFLUXV	tyx	SO4 column v-wind mass flux	kg m-1 s-1
SUPMSA	tyx	MSA Prod from DMS Oxidation [column]	kg m-2 s-1
SUPSO2	tyx	SO2 Prod from DMS Oxidation [column]	kg m-2 s-1
SUPSO4AQ	tyx	SO4 Prod from Aqueous SO2 Oxidation [column]	kg m-2 s-1
SUPSO4G	tyx	SO4 Prod from Gaseous SO2 Oxidation [column]	kg m-2 s-1
SUPSO4WT	tyx	SO4 Prod from Aqueous SO2 Oxidation (wet dep) [column]	kg m-2 s-1
SUSD003	tyx	Sulfate Settling Bin 003	kg m-2 s-1
SUSV001	tyx	Sulfate Convective Scavenging Bin 001	kg m-2 s-1
SUSV002	tyx	Sulfate Convective Scavenging Bin 002	kg m-2 s-1
SUSV003	tyx	Sulfate Convective Scavenging Bin 003	kg m-2 s-1
SUSV004	tyx	Sulfate Convective Scavenging Bin 004	kg m-2 s-1
SUWT002	tyx	Sulfate Wet Deposition Bin 002	kg m-2 s-1
SUWT003	tyx	Sulfate Wet Deposition Bin 003	kg m-2 s-1
SUWT004	tyx	Sulfate Wet Deposition Bin 004	kg m-2 s-1

tavg01hr_2d_met2_Cx: Single-Level Surface Diagnostics

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *2D, single-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, time=1*
Granule Size: *~92 MB*

Name	Dim	Description	Units
BASEFLOW	tyx	baseflow flux	kg m-2 s-1
BSTAR	tyx	surface bouyancy scale	m s-2
CAPE	tyx	cape for surface parcel	J m-2
CDH	tyx	surface exchange coefficient for heat	kg m-2 s-1
CDM	tyx	surface exchange coefficient for momentum	kg m-2 s-1
CDQ	tyx	surface exchange coefficient for moisture	kg m-2 s-1
CN	tyx	surface neutral drag coefficient	1
DISPH	tyx	zero plane displacement height	m
ECHANGE	tyx	rate of change of total land energy	W m-2
EFLUX	tyx	total latent energy flux	W m-2
EMIS	tyx	surface emissivity	1
EVAP	tyx	evaporation from turbulence	kg m-2 s-1
EVLAND	tyx	Evaporation land	kg m-2 s-1
EVPINTR	tyx	interception loss energy flux	W m-2
EVPSBLN	tyx	snow ice evaporation energy flux	W m-2
EVPSOIL	tyx	baresoil evap energy flux	W m-2
EVPTRNS	tyx	transpiration energy flux	W m-2
FRSAT	tyx	fractional area of saturated zone	1
FRSEAICE	tyx	ice covered fraction of tile	1
FRSNO	tyx	fractional area of land snowcover	1
FRUNST	tyx	fractional area of unsaturated zone	1
FRWLT	tyx	fractional area of wilting zone	1
GHLAND	tyx	Ground heating land	W m-2
GRN	tyx	greeness fraction	1
GWETPROF	tyx	ave prof soil moisture	1
GWETROOT	tyx	root zone soil wetness	1
GWETTOP	tyx	surface soil wetness	1
HFLUX	tyx	sensible heat flux from turbulence	W m-2
LAI	tyx	leaf area index	1
LHLAND	tyx	Latent heat flux land	W m-2
LWLAND	tyx	Net longwave land	W m-2
MXDIAM	tyx	diameter of largest RAS plume	m
PBLH	tyx	planetary boundary layer height	m

PGENTOT	tyx	Total column production of precipitation	kg m-2 s-1
PRECANV	tyx	anvil precipitation	kg m-2 s-1
PRECCON	tyx	convective precipitation	kg m-2 s-1
PRECLSC	tyx	nonanvil large scale precipitation	kg m-2 s-1
PRECSNO	tyx	snowfall	kg m-2 s-1
PRECTOT	tyx	total precipitation	kg m-2 s-1
PREVTOT	tyx	Total column re-evap/subl of precipitation	kg m-2 s-1
PRMC	tyx	water profile	m-3 m-3
QINFIL	tyx	Soil water infiltration rate	kg m-2 s-1
QSH	tyx	effective surface specific humidity	kg kg-1
QSTAR	tyx	surface moisture scale	kg kg-1
RHOA	tyx	air density at surface	kg m-3
RISFC	tyx	surface bulk richardson number	1
RNOFFTOT	tyx	runoff flux	kg m-2 s-1
RUNOFF	tyx	surface runoff flux	kg m-2 s-1
RZMC	tyx	water root zone	m-3 m-3
SFMC	tyx	water surface layer	m-3 m-3
SHLAND	tyx	Sensible heat flux land	W m-2
SMLAND	tyx	Snowmelt flux land	kg m-2 s-1
SNODP	tyx	snow depth	m
SNOMAS	tyx	Total snow storage land	kg m-2
SPEED	tyx	surface ventilation velocity	m s-1
SPLAND	tyx	rate of spurious land energy source	W m-2
SPSNOW	tyx	rate of spurious snow energy	W m-2
SPWATR	tyx	rate of spurious land water source	kg m-2 s-1
SWLAND	tyx	Net shortwave land	W m-2
TAUGWX	tyx	surface eastward gravity wave stress	N m-2
TAUGWY	tyx	surface northward gravity wave stress	N m-2
TAUX	tyx	eastward surface stress	N m-2
TAUY	tyx	northward surface stress	N m-2
TELAND	tyx	Total energy storage land	J m-2
TOX	tyx	total column odd oxygen	kg m-2
TPSNOW	tyx	surface temperature of snow	K
TQI	tyx	total precipitable ice water	kg m-2
TQL	tyx	total precipitable liquid water	kg m-2

TQV	tyx	total precipitable water vapor	kg m-2
TROPPB	tyx	tropopause pressure based on blended estimate	Pa
TROPPT	tyx	tropopause pressure based on thermal estimate	Pa
TROPPV	tyx	tropopause pressure based on EPV estimate	Pa
TROPQ	tyx	tropopause specific humidity using blended TROPP estimate	kg kg-1
TROPT	tyx	tropopause temperature using blended TROPP estimate	K
TS	tyx	surface skin temperature	K
TSAT	tyx	surface temperature of saturated zone	K
TSH	tyx	effective surface skin temperature	K
TSOIL1	tyx	soil temperatures layer 1	K
TSOIL2	tyx	soil temperatures layer 2	K
TSOIL3	tyx	soil temperatures layer 3	K
TSOIL4	tyx	soil temperatures layer 4	K
TSOIL5	tyx	soil temperatures layer 5	K
TSOIL6	tyx	soil temperatures layer 6	K
TSTAR	tyx	surface temperature scale	K
TSURF	tyx	surface temperature of land incl snow	K
TUNST	tyx	surface temperature of unsaturated zone	K
TWLAND	tyx	Avail water storage land	kg m-2
TWLT	tyx	surface temperature of wilted zone	K
USTAR	tyx	surface velocity scale	m s-1
WCHANGE	tyx	rate of change of total land water	kg m-2 s-1
Z0H	tyx	surface roughness for heat	m
Z0M	tyx	surface roughness	m

tavg01hr_2d_met3_Cx: Single-Level Physics Diagnostics

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *2D, single-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, time=1*
Granule Size: *~71 MB*

Name	*Dim*	*Description*	*Units*
ALBEDO	tyx	surface albedo	1
ALBNIRDF	tyx	surface albedo for near infrared diffuse	1

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ALBNIRDR	tyx	surface albedo for near infrared beam	1
ALBVISDF	tyx	surface albedo for visible diffuse	1
ALBVISDR	tyx	surface albedo for visible beam	1
CAPE	tyx	cape for surface parcel	J m-2
CLDHGH	tyx	cloud area fraction for high clouds	1
CLDLOW	tyx	cloud area fraction for low clouds	1
CLDMID	tyx	cloud area fraction for middle clouds	1
CLDPRS	tyx	cloud top pressure	Pa
CLDTMP	tyx	cloud top temperature	K
CLDTOT	tyx	total cloud area fraction	1
FLNS2	tyx	surface net downward longwave flux	W m-2
FLNSC2	tyx	surface net downward longwave flux assuming clear sky	W m-2
LWGAB	tyx	surface absorbed longwave radiation	W m-2
LWGABCLR	tyx	surface absorbed longwave radiation assuming clear sky	W m-2
LWGABCLRCLN	tyx	surface absorbed longwave radiation assuming clear sky and no aerosol	W m-2
LWGEM	tyx	longwave flux emitted from surface	W m-2
LWGNT	tyx	surface net downward longwave flux	W m-2
LWGNTCLR	tyx	surface net downward longwave flux assuming clear sky	W m-2
LWGNTCLRCLN	tyx	surface net downward longwave flux assuming clear sky and no aerosol	W m-2
LWTUP	tyx	upwelling longwave flux at toa	W m-2
LWTUPCLR	tyx	upwelling longwave flux at toa assuming clear sky	W m-2
LWTUPCLRCLN	tyx	upwelling longwave flux at toa assuming clear sky and no aerosol	W m-2
MXDIAM	tyx	diameter of largest RAS plume	m
OLC2	tyx	upwelling longwave flux at toa assuming clear sky	W m-2
OLR2	tyx	upwelling longwave flux at toa	W m-2
OSR2	tyx	toa outgoing shortwave flux	W m-2
OSRCLR2	tyx	toa outgoing shortwave flux assuming clear sky	W m-2
PARDF	tyx	surface downwelling par diffuse flux	W m-2
PARDR	tyx	surface downwelling par beam flux	W m-2
PGENTOT	tyx	Total column production of precipitation	kg m-2 s-1
PRECANV	tyx	anvil precipitation	kg m-2 s-1
PRECCON	tyx	convective precipitation	kg m-2 s-1
PRECLSC	tyx	nonanvil large scale precipitation	kg m-2 s-1

PRECSNO	tyx	snowfall	kg m-2 s-1
PRECTOT	tyx	total precipitation	kg m-2 s-1
PREVTOT	tyx	Total column re-evap/subl of precipitation	kg m-2 s-1
RSCS2	tyx	surface net downward shortwave flux assuming clear sky	W m-2
RSR2	tyx	toa net downward shortwave flux	W m-2
SWGDN	tyx	surface incoming shortwave flux	W m-2
SWGDNCLR	tyx	surface incoming shortwave flux assuming clear sky	W m-2
SWGNT	tyx	surface net downward shortwave flux	W m-2
SWGNTCLN	tyx	surface net downward shortwave flux assuming no aerosol	W m-2
SWGNTCLR	tyx	surface net downward shortwave flux assuming clear sky	W m-2
SWGNTCLRCLN	tyx	surface net downward shortwave flux assuming clear sky and no aerosol	W m-2
SWTDN	tyx	toa incoming shortwave flux	W m-2
SWTNT	tyx	toa net downward shortwave flux	W m-2
SWTNTCLN	tyx	toa net downward shortwave flux assuming no aerosol	W m-2
SWTNTCLR	tyx	toa net downward shortwave flux assuming clear sky	W m-2
SWTNTCLRCLN	tyx	toa net downward shortwave flux assuming clear sky and no aerosol	W m-2
TAUBKGX	tyx	surface eastward background gravity wave stress	N m-2
TAUBKGY	tyx	surface northward background gravity wave stress	N m-2
TAUGWX	tyx	surface eastward gravity wave stress	N m-2
TAUGWY	tyx	surface northward gravity wave stress	N m-2
TAUHGH	tyx	in cloud optical thickness of high clouds(EXPORT)	1
TAULOW	tyx	in cloud optical thickness of low clouds	1
TAUMID	tyx	in cloud optical thickness of middle clouds	1
TAUOROX	tyx	surface eastward orographic gravity wave stress	N m-2
TAUOROY	tyx	surface northward orographic gravity wave stress	N m-2
TAUTOT	tyx	in cloud optical thickness of all clouds	1
TBC	tyx	total black carbon aerosol loading	kg m-2
TDUST	tyx	total dust aerosol loading	kg m-2
TOC	tyx	total organic carbon aerosol loading	kg m-2
TSALT	tyx	total sea salt aerosol loading	kg m-2
TSO4	tyx	total sulfate aerosol loading	kg m-2
TTAUBC	tyx	total black carbon optical thickness in 0.4-0.690 band	1
TTAUDU	tyx	total dust optical thickness in 0.4-0.690 band	1
TTAUOC	tyx	total organic carbon optical thickness in 0.4-0.690 band	1

TTAUSO	tyx	total sulfate optical thickness in 0.4-0.690 band	1
TTAUSS	tyx	total salt optical thickness in 0.4-0.690 band	1

tavg01hr_3d_CBMF_Cp: Cloud Base Mass Flux

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	*Dim*	*Description*	*Units*
CBMF	tzyx	cloud base mass flux	kg m-2 s-1

tavg01hr_3d_CBMF_Cv: Cloud Base Mass Flux

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	*Dim*	*Description*	*Units*
CBMF	tzyx	cloud base mass flux	kg m-2 s-1

tavg01hr_3d_CFCU_Cp: Updraft Areal Fraction

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	*Dim*	*Description*	*Units*
CFCU	tzyx	updraft areal fraction	1

tavg01hr_3d_CFCU_Cv: Updraft Areal Fraction

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*

Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
CFCU	tzyx	updraft areal fraction	1

tavg01hr_3d_CLOUD_Cp: Cloud Fraction

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
CLOUD	tzyx	cloud fraction for radiation	1

tavg01hr_3d_CLOUD_Cv: Cloud Fraction

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
CLOUD	tzyx	cloud fraction for radiation	1

tavg01hr_3d_CMFMC_Cp: Cumulative Mass Flux

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
CMFMC	tzyx	cumulative mass flux	kg m-2 s-1

tavg01hr_3d_CMFMC_Cv: Cumulative Mass Flux

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=73, time=1*
Granule Size: *~72 MB*

Name	Dim	Description	Units
CMFMC	tzyx	cumulative mass flux	kg m-2 s-1

tavg01hr_3d_DELP_Cp: Surface Pressure and Pressure Thickness

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~49 MB*

Name	Dim	Description	Units
DELP	tzyx	pressure thickness	Pa
PS	tyx	surface pressure	Pa

tavg01hr_3d_DELP_Cv: Surface Pressure and Pressure Thickness

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~72 MB*

Name	Dim	Description	Units
DELP	tzyx	pressure thickness	Pa
PS	tyx	surface pressure	Pa

tavg01hr_3d_DQRCU_Cp: Convective Rainwater Source

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*

Granule Size: *~48 MB*

Name	Dim	Description	Units
DQRCU	tzyx	convective rainwater source	kg kg-1 s-1

tavg01hr_3d_DQRCU_Cv: Convective Rainwater Source

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DQRCU	tzyx	convective rainwater source	kg kg-1 s-1

tavg01hr_3d_DQRLSAN_Cp: Large Scale Rainwater Source

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DQRLSAN	tzyx	large scale rainwater source	kg kg-1 s-1

tavg01hr_3d_DQRLSAN_Cv: Large Scale Rainwater Source

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DQRLSAN	tzyx	large scale rainwater source	kg kg-1 s-1

tavg01hr_3d_DQVDTCHM_Cp: Tendency: Q due to Chemistry

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DQVDTCHM	tzyx	tendency of water vapor mixing ratio due to chemistry	kg kg-1 s-1

tavg01hr_3d_DQVDTCHM_Cv: Tendency: Q due to Chemistry

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DQVDTCHM	tzyx	tendency of water vapor mixing ratio due to chemistry	kg kg-1 s-1

tavg01hr_3d_DQVDTDYN_Cp: Tendency: Q due to Dynamics

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DQVDTDYN	tzyx	tendency of specific humidity due to dynamics	kg/kg/s

tavg01hr_3d_DQVDTDYN_Cv: Tendency: Q due to Dynamics

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DQVDTDYN	tzyx	tendency of specific humidity due to dynamics	kg/kg/s

tavg01hr_3d_DQVDTMST_Cp: Tendency: Q due to Moist Processes

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DQVDTMST	tzyx	specific humidity tendency due to moist	kg kg-1 s-1

tavg01hr_3d_DQVDTMST_Cv: Tendency: Q due to Moist Processes

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DQVDTMST	tzyx	specific humidity tendency due to moist	kg kg-1 s-1

tavg01hr_3d_DQVDTTRB_Cp: Tendency: Q due to Turbulence

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DQVDTTRB	tzyx	tendency of specific humidity due to turbulence	kg kg-1 s-1

tavg01hr_3d_DQVDTTRB_Cv: Tendency: Q due to Turbulence

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*

Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DQVDTTRB	tzyx	tendency of specific humidity due to turbulence	kg kg-1 s-1

tavg01hr_3d_DTDTBKG_Cp: Tendency: T due to Background GWD

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DTDTBKG	tzyx	air temperature tendency due to background GWD	K s-1

tavg01hr_3d_DTDTBKG_Cv: Tendency: T due to Background GWD

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DTDTBKG	tzyx	air temperature tendency due to background GWD	K s-1

tavg01hr_3d_DTDTDYN_Cp: Tendency: T due to Dynamics

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DTDTDYN	tzyx	tendency of air temperature due to dynamics	K s-1

tavg01hr_3d_DTDTDYN_Cv: Tendency: T due to Dynamics

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	*Dim*	*Description*	*Units*
DTDTDYN	tzyx	tendency of air temperature due to dynamics	K s-1

tavg01hr_3d_DTDTFRI_Cp: Tendency: T due to Friction

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	*Dim*	*Description*	*Units*
DTDTFRI	tzyx	tendency of air temperature due to friction	K s-1

tavg01hr_3d_DTDTFRI_Cv: Tendency: T due to Friction

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	*Dim*	*Description*	*Units*
DTDTFRI	tzyx	tendency of air temperature due to friction	K s-1

tavg01hr_3d_DTDTGWD_Cp: Tendency: T due to GWD

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DTDTGWD	tzyx	air temperature tendency due to GWD	K s-1

tavg01hr_3d_DTDTGWD_Cv: Tendency: T due to GWD

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DTDTGWD	tzyx	air temperature tendency due to GWD	K s-1

tavg01hr_3d_DTDTLWCNA_Cp: Tendency: T due to Longwave Radiation (Clear Sky,No Aerosols)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DTDTLWCNA	tzyx	air temperature tendency due to longwave for clear skies no aerosol	K s-1

tavg01hr_3d_DTDTLWCNA_Cv: Tendency: T due to Longwave Radiation (Clear Sky,No Aerosols)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DTDTLWCNA	tzyx	air temperature tendency due to longwave for clear skies no aerosol	K s-1

tavg01hr_3d_DTDTLWC_Cp: Tendency: T due to Longwave Radiation (Clear Sky)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DTDTLWC	tzyx	air temperature tendency due to longwave for clear skies	K s-1

tavg01hr_3d_DTDTLWC_Cv: Tendency: T due to Longwave Radiation (Clear Sky)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DTDTLWC	tzyx	air temperature tendency due to longwave for clear skies	K s-1

tavg01hr_3d_DTDTLW_Cp: Tendency: T due to Longwave Radiation (All Sky)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DTDTLW	tzyx	air temperature tendency due to longwave	K s-1

tavg01hr_3d_DTDTLW_Cv: Tendency: T due to Longwave Radiation (All Sky)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DTDTLW	tzyx	air temperature tendency due to longwave	K s-1

tavg01hr_3d_DTDTMST_Cp: Tendency: T due to Moist Processes

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DTDTMST	tzyx	tendency of air temperature due to moist processes	K s-1

tavg01hr_3d_DTDTMST_Cv: Tendency: T due to Moist Processes

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DTDTMST	tzyx	tendency of air temperature due to moist processes	K s-1

tavg01hr_3d_DTDTORO_Cp: Tendency: T due to Orographic GWD

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DTDTORO	tzyx	air temperature tendency due to orographic GWD	K s-1

tavg01hr_3d_DTDTORO_Cv: Tendency: T due to Orographic GWD

Frequency: *1-hourly from 23:30 UTC (time-averaged)*

Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DTDTORO	tzyx	air temperature tendency due to orographic GWD	K s-1

tavg01hr_3d_DTDTRAY_Cp: Tendency: T due to Rayleigh Friction

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DTDTRAY	tzyx	air temperature tendency due to Rayleigh friction	K s-1

tavg01hr_3d_DTDTRAY_Cv: Tendency: T due to Rayleigh Friction

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DTDTRAY	tzyx	air temperature tendency due to Rayleigh friction	K s-1

tavg01hr_3d_DTDTSWCNA_Cp: Tendency: T due to Shortwave Radiation (Clear Sky,No Aerosol)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DTDTSWCNA	tzyx	air temperature tendency due to shortwave for clear skies no aerosol	K s-1

tavg01hr_3d_DTDTSWCNA_Cv: Tendency: T due to Shortwave Radiation (Clear Sky, No Aerosol)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DTDTSWCNA	tzyx	air temperature tendency due to shortwave for clear skies no aerosol	K s-1

tavg01hr_3d_DTDTSWC_Cp: Tendency: T due to Shortwave Radiation (Clear Sky)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DTDTSWC	tzyx	air temperature tendency due to shortwave for clear skies	K s-1

tavg01hr_3d_DTDTSWC_Cv: Tendency: T due to Shortwave Radiation (Clear Sky)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DTDTSWC	tzyx	air temperature tendency due to shortwave for clear skies	K s-1

tavg01hr_3d_DTDTSWNA_Cp: Tendency: T due to Shortwave Radiation (Clear Sky)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*

Granule Size: *~48 MB*

Name	Dim	Description	Units
DTDTSWNA	tzyx	air temperature tendency due to shortwave no aerosol	K s-1

tavg01hr_3d_DTDTSWNA_Cv: Tendency: T due to Shortwave Radiation (Clear Sky)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DTDTSWNA	tzyx	air temperature tendency due to shortwave no aerosol	K s-1

tavg01hr_3d_DTDTSW_Cp: Tendency: T due to Shortwave Radiation (All Sky)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DTDTSW	tzyx	air temperature tendency due to shortwave	K s-1

tavg01hr_3d_DTDTSW_Cv: Tendency: T due to Shortwave Radiation (All Sky)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DTDTSW	tzyx	air temperature tendency due to shortwave	K s-1

tavg01hr_3d_DTDTTRB_Cp: Tendency: T due to Turbulence

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DTDTTRB	tzyx	tendency of air temperature due to turbulence	K s-1

tavg01hr_3d_DTDTTRB_Cv: Tendency: T due to Turbulence

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DTDTTRB	tzyx	tendency of air temperature due to turbulence	K s-1

tavg01hr_3d_DTRAIN_Cp: Detraining Mass Flux

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DTRAIN	tzyx	detraining mass flux	kg m-2 s-1

tavg01hr_3d_DTRAIN_Cv: Detraining Mass Flux

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DTRAIN	tzyx	detraining mass flux	kg m-2 s-1

tavg01hr_3d_DUDTBKG_Cp: Tendency: U due to Background GWD

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DUDTBKG	tzyx	tendency of eastward wind due to background GWD	m s-2

tavg01hr_3d_DUDTBKG_Cv: Tendency: U due to Background GWD

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DUDTBKG	tzyx	tendency of eastward wind due to background GWD	m s-2

tavg01hr_3d_DUDTDYN_Cp: Tendency: U due to Dynamics

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DUDTDYN	tzyx	tendency of eastward wind due to dynamics	m/s/s

tavg01hr_3d_DUDTDYN_Cv: Tendency: U due to Dynamics

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*

Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DUDTDYN	tzyx	tendency of eastward wind due to dynamics	m/s/s

tavg01hr_3d_DUDTGWD_Cp: Tendency: U due to GWD

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DUDTGWD	tzyx	tendency of eastward wind due to GWD	m s-2

tavg01hr_3d_DUDTGWD_Cv: Tendency: U due to GWD

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DUDTGWD	tzyx	tendency of eastward wind due to GWD	m s-2

tavg01hr_3d_DUDTMST_Cp: Tendency: U due to Moist Processes

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DUDTMST	tzyx	zonal wind tendency due to moist	m s-2

tavg01hr_3d_DUDTMST_Cv: Tendency: U due to Moist Processes

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	*Dim*	*Description*	*Units*
DUDTMST	tzyx	zonal wind tendency due to moist	m s-2

tavg01hr_3d_DUDTORO_Cp: Tendency: U due to Orographic GWD

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	*Dim*	*Description*	*Units*
DUDTORO	tzyx	tendency of eastward wind due to orographic GWD	m s-2

tavg01hr_3d_DUDTORO_Cv: Tendency: U due to Orographic GWD

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	*Dim*	*Description*	*Units*
DUDTORO	tzyx	tendency of eastward wind due to orographic GWD	m s-2

tavg01hr_3d_DUDTRAY_Cp: Tendency: U due to Rayleigh Friction

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DUDTRAY	tzyx	tendency of eastward wind due to Rayleigh friction	m s-2

tavg01hr_3d_DUDTRAY_Cv: Tendency: U due to Rayleigh Friction

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DUDTRAY	tzyx	tendency of eastward wind due to Rayleigh friction	m s-2

tavg01hr_3d_DUDTTRB_Cp: Tendency: U due to Turbulence

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DUDTTRB	tzyx	tendency of eastward wind due to turbulence	m s-2

tavg01hr_3d_DUDTTRB_Cv: Tendency: U due to Turbulence

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DUDTTRB	tzyx	tendency of eastward wind due to turbulence	m s-2

tavg01hr_3d_DVDTBKG_Cp: Tendency: V due to Background GWD

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*

Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DVDTBKG	tzyx	tendency of northward wind due to background GWD	m s-2

tavg01hr_3d_DVDTBKG_Cv: Tendency: V due to Background GWD

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DVDTBKG	tzyx	tendency of northward wind due to background GWD	m s-2

tavg01hr_3d_DVDTDYN_Cp: Tendency: V due to Dynamics

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DVDTDYN	tzyx	tendency of northward wind due to dynamics	m/s/s

tavg01hr_3d_DVDTDYN_Cv: Tendency: V due to Dynamics

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DVDTDYN	tzyx	tendency of northward wind due to dynamics	m/s/s

tavg01hr_3d_DVDTGWD_Cp: Tendency: V due to GWD

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DVDTGWD	tzyx	tendency of northward wind due to GWD	m s-2

tavg01hr_3d_DVDTGWD_Cv: Tendency: V due to GWD

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DVDTGWD	tzyx	tendency of northward wind due to GWD	m s-2

tavg01hr_3d_DVDTMST_Cp: Tendency: V due to Moist Processes

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DVDTMST	tzyx	meridional wind tendency due to moist	m s-2

tavg01hr_3d_DVDTMST_Cv: Tendency: V due to Moist Processes

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DVDTMST	tzyx	meridional wind tendency due to moist	m s-2

tavg01hr_3d_DVDTORO_Cp: Tendency: V due to Orographic GWD

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DVDTORO	tzyx	tendency of northward wind due to orographic GWD	m s-2

tavg01hr_3d_DVDTORO_Cv: Tendency: V due to Orographic GWD

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DVDTORO	tzyx	tendency of northward wind due to orographic GWD	m s-2

tavg01hr_3d_DVDTRAY_Cp: Tendency: V due to Rayleigh Friction

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DVDTRAY	tzyx	tendency of northward wind due to Rayleigh friction	m s-2

tavg01hr_3d_DVDTRAY_Cv: Tendency: V due to Rayleigh Friction

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*

Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DVDTRAY	tzyx	tendency of northward wind due to Rayleigh friction	m s-2

tavg01hr_3d_DVDTTRB_Cp: Tendency: V due to Turbulence

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
DVDTTRB	tzyx	tendency of northward wind due to turbulence	m s-2

tavg01hr_3d_DVDTTRB_Cv: Tendency: V due to Turbulence

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
DVDTTRB	tzyx	tendency of northward wind due to turbulence	m s-2

tavg01hr_3d_EPV_Cp: Ertel Potential Vorticity

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
EPV	tzyx	ertels potential vorticity	K m+2 kg-1 s-1

tavg01hr_3d_EPV_Cv: Ertel Potential Vorticity

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
EPV	tzyx	ertels potential vorticity	K m+2 kg-1 s-1

tavg01hr_3d_H_Cp: Height at Mid-Layer

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
H	tzyx	mid layer heights	m

tavg01hr_3d_H_Cv: Height at Mid-Layer

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
H	tzyx	mid layer heights	m

tavg01hr_3d_KH_Cp: Diffusion Coefficient (Heat)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
KH	tzyx	total scalar diffusivity	m+2 s-1

tavg01hr_3d_KH_Cv: Diffusion Coefficient (Heat)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=73, time=1*
Granule Size: *~72 MB*

Name	Dim	Description	Units
KH	tzyx	total scalar diffusivity	m+2 s-1

tavg01hr_3d_KM_Cp: Diffusion Coefficient (Momentum)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
KM	tzyx	total momentum diffusivity	m+2 s-1

tavg01hr_3d_KM_Cv: Diffusion Coefficient (Momentum)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=73, time=1*
Granule Size: *~72 MB*

Name	Dim	Description	Units
KM	tzyx	total momentum diffusivity	m+2 s-1

tavg01hr_3d_O3_Cp: Ozone

Frequency: *1-hourly from 23:30 UTC (time-average)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*

Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
O3	tzyx	ozone mass mixing ratio	kg kg-1

tavg01hr_3d_O3_Cv: Ozone

Frequency: *1-hourly from 23:30 UTC (time-average)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
O3	tzyx	ozone mass mixing ratio	kg kg-1

tavg01hr_3d_PL_Cp: Pressure at Mid-Layer

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
PL	tzyx	mid level pressure	Pa

tavg01hr_3d_PL_Cv: Pressure at Mid-Layer

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
PL	tzyx	mid level pressure	Pa

tavg01hr_3d_QCCU_Cp: Convective Condensate

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
QCCU	tzyx	grid mean convective condensate	kg kg-1

tavg01hr_3d_QCCU_Cv: Convective Condensate

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
QCCU	tzyx	grid mean convective condensate	kg kg-1

tavg01hr_3d_QI_Cp: Cloud Ice Condensate

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
QI	tzyx	mass fraction of cloud ice water	kg kg-1

tavg01hr_3d_QI_Cv: Cloud Ice Condensate

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
QI	tzyx	mass fraction of cloud ice water	kg kg-1

tavg01hr_3d_QL_Cp: Cloud Liquid Condensate

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
QL	tzyx	mass fraction of cloud liquid water	kg kg-1

tavg01hr_3d_QL_Cv: Cloud Liquid Condensate

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
QL	tzyx	mass fraction of cloud liquid water	kg kg-1

tavg01hr_3d_QQ_Cp: Second Moment: Q*Q

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
QQ	tzyx	specific humidity	1

tavg01hr_3d_QQ_Cv: Second Moment: Q*Q

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*

Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
QQ	tzyx	specific humidity	1

tavg01hr_3d_QR_Cp: Falling Rain

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
QR	tzyx	Falling rain for radiation	kg kg-1

tavg01hr_3d_QR_Cv: Falling Rain

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
QR	tzyx	Falling rain for radiation	kg kg-1

tavg01hr_3d_QS_Cp: Falling Snow

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
QS	tzyx	Falling snow for radiation	kg kg-1

tavg01hr_3d_QS_Cv: Falling Snow

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
QS	tzyx	Falling snow for radiation	kg kg-1

tavg01hr_3d_QT2_Cp: Second Moment: (Q+QC)**2

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
QT2	tzyx	specific humidity	kg kg-1

tavg01hr_3d_QT2_Cv: Second Moment: (Q+QC)**2

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
QT2	tzyx	specific humidity	kg kg-1

tavg01hr_3d_QT3_Cp: Third Moment: (Q+QC)**3

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
QT3	tzyx	specific humidity	kg kg-1

tavg01hr_3d_QT3_Cv: Third Moment: (Q+QC)**3

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
QT3	tzyx	specific humidity	kg kg-1

tavg01hr_3d_QV_Cp: Specific Humidity

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~49 MB*

Name	Dim	Description	Units
QV	tzyx	specific humidity	kg kg-1
tpw	tyx	Total Precipitable Water Vapor	kg m-2

tavg01hr_3d_QV_Cv: Specific Humidity

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
QV	tzyx	specific humidity	kg kg-1

tavg01hr_3d_REEVAPCN_Cp: Evaporation/Sublimation of Convective Precipitation

Frequency: *1-hourly from 23:30 UTC (time-averaged)*

Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
REEVAPCN	tzyx	evap subl of convective precipitation	kg kg-1 s-1

tavg01hr_3d_REEVAPCN_Cv: Evaporation/Sublimation of Convective Precipitation

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
REEVAPCN	tzyx	evap subl of convective precipitation	kg kg-1 s-1

tavg01hr_3d_REEVAPLSAN_Cp: Evaporation/Sublimation of Non-Convective Precipitation

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
REEVAPLSAN	tzyx	evap subl of non convective precipitation	kg kg-1 s-1

tavg01hr_3d_REEVAPLSAN_Cv: Evaporation/Sublimation of Non-Convective Precipitation

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
REEVAPLSAN	tzyx	evap subl of non convective precipitation	kg kg-1 s-1

tavg01hr_3d_RH_Cp: Relative Humidity

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
RH	tzyx	relative humidity after moist	1

tavg01hr_3d_RH_Cv: Relative Humidity

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
RH	tzyx	relative humidity after moist	1

tavg01hr_3d_RI_Cp: Richardson Number

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
RI	tzyx	Richardson number from Louis	1

tavg01hr_3d_RI_Cv: Richardson Number

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=73, time=1*
Granule Size: *~72 MB*

Name	Dim	Description	Units
RI	tzyx	Richardson number from Louis	1

tavg01hr_3d_TAUCLI_Cp: Ice Cloud Optical Depth (VIS)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
TAUCLI	tzyx	in cloud optical thickness for ice clouds	1

tavg01hr_3d_TAUCLI_Cv: Ice Cloud Optical Depth (VIS)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
TAUCLI	tzyx	in cloud optical thickness for ice clouds	1

tavg01hr_3d_TAUCLW_Cp: Liquid Cloud Optical Depth (VIS)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
TAUCLW	tzyx	in cloud optical thickness for liquid clouds	1

tavg01hr_3d_TAUCLW_Cv: Liquid Cloud Optical Depth (VIS)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*

Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
TAUCLW	tzyx	in cloud optical thickness for liquid clouds	1

tavg01hr_3d_TAUIR_Cp: Cloud Optical Depth (IR)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
TAUIR	tzyx	longwave cloud optical thickness at 800 cm-1	W m-2

tavg01hr_3d_TAUIR_Cv: Cloud Optical Depth (IR)

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
TAUIR	tzyx	longwave cloud optical thickness at 800 cm-1	W m-2

tavg01hr_3d_TT_Cp: Second Moment: T*T

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
TT	tzyx	air temperature	K

tavg01hr_3d_TT_Cv: Second Moment: T*T

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
TT	tzyx	air temperature	K

tavg01hr_3d_T_Cp: Air Temperature

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
T	tzyx	air temperature	K
qsat	tzyx	Saturation Specific Humidity	g/g

tavg01hr_3d_T_Cv: Air Temperature

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
T	tzyx	air temperature	K

tavg01hr_3d_UU_Cp: Second Moment: U*U

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
UU	tzyx	eastward wind	m s-1

tavg01hr_3d_UU_Cv: Second Moment: U*U

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
UU	tzyx	eastward wind	m s-1

tavg01hr_3d_U_Cp: Zonal Wind

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
U	tzyx	eastward wind	m s-1

tavg01hr_3d_U_Cv: Zonal Wind

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
U	tzyx	eastward wind	m s-1

tavg01hr_3d_VV_Cp: Second Moment: V*V

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*

Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
VV	tzyx	northward wind	m s-1

tavg01hr_3d_VV_Cv: Second Moment: V*V

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
VV	tzyx	northward wind	m s-1

tavg01hr_3d_V_Cp: Meridional Wind

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
V	tzyx	northward wind	m s-1

tavg01hr_3d_V_Cv: Meridional Wind

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
V	tzyx	northward wind	m s-1

tavg01hr_3d_WQ_Cp: Second Moment: W*Q

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
WQ	tzyx	vertical velocity	m s-1

tavg01hr_3d_WQ_Cv: Second Moment: W*Q

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
WQ	tzyx	vertical velocity	m s-1

tavg01hr_3d_WTH_Cp: Second Moment: W*Theta

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
WTH	tzyx	vertical velocity	m s-1

tavg01hr_3d_WTH_Cv: Second Moment: W*Theta

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
WTH	tzyx	vertical velocity	m s-1

tavg01hr_3d_WT_Cp: Second Moment: W*T

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
WT	tzyx	vertical velocity	m s-1

tavg01hr_3d_WT_Cv: Second Moment: W*T

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
WT	tzyx	vertical velocity	m s-1

tavg01hr_3d_WU_Cp: Second Moment: W*U

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
WU	tzyx	vertical velocity	m s-1

tavg01hr_3d_WU_Cv: Second Moment: W*U

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*

Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
WU	tzyx	vertical velocity	m s-1

tavg01hr_3d_WV_Cp: Second Moment: W*V

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
WV	tzyx	vertical velocity	m s-1

tavg01hr_3d_WV_Cv: Second Moment: W*V

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	Dim	Description	Units
WV	tzyx	vertical velocity	m s-1

tavg01hr_3d_WW_Cp: Second Moment: W*W

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	Dim	Description	Units
WW	tzyx	vertical velocity	m s-1

tavg01hr_3d_WW_Cv: Second Moment: W*W

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	*Dim*	*Description*	*Units*
WW	tzyx	vertical velocity	m s-1

tavg01hr_3d_W_Cp: Vertical Wind

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~48 MB*

Name	*Dim*	*Description*	*Units*
W	tzyx	vertical velocity	m s-1

tavg01hr_3d_W_Cv: Vertical Wind

Frequency: *1-hourly from 23:30 UTC (time-averaged)*
Spatial Grid: *3D, model-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=72, time=1*
Granule Size: *~71 MB*

Name	*Dim*	*Description*	*Units*
W	tzyx	vertical velocity	m s-1

C.6 Coarse Resolution, Monthly Time-averaged Collections

tavg01mo_2d_aer1_Cx: Single-Level Aerosol/Carbon Diagnostics (1)

Frequency: *1-monthly from 00:00 UTC (time-averaged)*
Spatial Grid: *2D, single-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, time=1*
Granule Size: *~88 MB*

Name	Dim	Description	Units
BCANGSTR	tyx	Black Carbon Angstrom parameter [470-870 nm]	1
BCCMASS	tyx	Black Carbon Column Mass Density	kg m-2
BCEXTTAU	tyx	Black Carbon Extinction AOT [550 nm]	1
BCSCATAU	tyx	Black Carbon Scattering AOT [550 nm]	1
BCSMASS	tyx	Black Carbon Surface Mass Concentration	kg m-3
CO2CL001	tyx	CO2 Bulk Mixing Ratio (Column Mass/ps) Bin 001	1
CO2SC001	tyx	CO2 Surface Concentration Bin 001	1e-6
COCL	tyx	CO Column Burden	kg m-2
COSC	tyx	CO Surface Concentration in ppbv	1e-9
DMSCMASS	tyx	DMS Column Mass Density	kg m-2
DMSSMASS	tyx	DMS Surface Mass Concentration	kg m-3
DUANGSTR	tyx	Dust Angstrom parameter [470-870 nm]	1
DUCMASS	tyx	Dust Column Mass Density	kg m-2
DUCMASS25	tyx	Dust Column Mass Density - PM 2.5	kg m-2
DUEXTT25	tyx	Dust Extinction AOT [550 nm] - PM 2.5	1
DUEXTTAU	tyx	Dust Extinction AOT [550 nm]	1
DUSCAT25	tyx	Dust Scattering AOT [550 nm] - PM 2.5	1
DUSCATAU	tyx	Dust Scattering AOT [550 nm]	1
DUSMASS	tyx	Dust Surface Mass Concentration	kg m-3
DUSMASS25	tyx	Dust Surface Mass Concentration - PM 2.5	kg m-3
OCANGSTR	tyx	Organic Carbon Angstrom parameter [470-870 nm]	1
OCCMASS	tyx	Organic Carbon Column Mass Density	kg m-2
OCEXTTAU	tyx	Organic Carbon Extinction AOT [550 nm]	1
OCSCATAU	tyx	Organic Carbon Scattering AOT [550 nm]	1
OCSMASS	tyx	Organic Carbon Surface Mass Concentration	kg m-3
SO2CMASS	tyx	SO2 Column Mass Density	kg m-2
SO2SMASS	tyx	SO2 Surface Mass Concentration	kg m-3
SO4CMASS	tyx	SO4 Column Mass Density	kg m-2
SO4SMASS	tyx	SO4 Surface Mass Concentration	kg m-3
SSANGSTR	tyx	Sea Salt Angstrom parameter [470-870 nm]	1
SSCMASS	tyx	Sea Salt Column Mass Density	kg m-2
SSCMASS25	tyx	Sea Salt Column Mass Density - PM 2.5	kg m-2
SSEXTT25	tyx	Sea Salt Extinction AOT [550 nm] - PM 2.5	1
SSEXTTAU	tyx	Sea Salt Extinction AOT [550 nm]	1

SSSCAT25	tyx	Sea Salt Scattering AOT [550 nm] - PM 2.5	1
SSSCATAU	tyx	Sea Salt Scattering AOT [550 nm]	1
SSSMASS	tyx	Sea Salt Surface Mass Concentration	kg m-3
SSSMASS25	tyx	Sea Salt Surface Mass Concentration - PM 2.5	kg m-3
SUANGSTR	tyx	SO4 Angstrom parameter [470-870 nm]	1
SUEXTTAU	tyx	SO4 Extinction AOT [550 nm]	1
SUSCATAU	tyx	SO4 Scattering AOT [550 nm]	1
TOTANGSTR	tyx	Total Aerosol Angstrom parameter [470-870 nm]	1
TOTEXTTAU	tyx	Total Aerosol Extinction AOT [550 nm]	1
TOTSCATAU	tyx	Total Aerosol Scattering AOT [550 nm]	1
Var_BCANGSTR	tyx	Variance of BCANGSTR	1 1
Var_BCCMASS	tyx	Variance of BCCMASS	kg m-2 kg m-2
Var_BCEXTTAU	tyx	Variance of BCEXTTAU	1 1
Var_BCSCATAU	tyx	Variance of BCSCATAU	1 1
Var_BCSMASS	tyx	Variance of BCSMASS	kg m-3 kg m-3
Var_CO2CL001	tyx	Variance of CO2CL001	1 1
Var_CO2SC001	tyx	Variance of CO2SC001	1e-6 1e-6
Var_COCL	tyx	Variance of COCL	kg m-2 kg m-2
Var_COSC	tyx	Variance of COSC	1e-9 1e-9
Var_DMSCMASS	tyx	Variance of DMSCMASS	kg m-2 kg m-2
Var_DMSSMASS	tyx	Variance of DMSSMASS	kg m-3 kg m-3
Var_DUANGSTR	tyx	Variance of DUANGSTR	1 1
Var_DUCMASS	tyx	Variance of DUCMASS	kg m-2 kg m-2
Var_DUCMASS25	tyx	Variance of DUCMASS25	kg m-2 kg m-2
Var_DUEXTT25	tyx	Variance of DUEXTT25	1 1
Var_DUEXTTAU	tyx	Variance of DUEXTTAU	1 1
Var_DUSCAT25	tyx	Variance of DUSCAT25	1 1

Var_DUSCATAU	tyx	Variance of DUSCATAU	1 1
Var_DUSMASS	tyx	Variance of DUSMASS	kg m-3 kg m-3
Var_DUSMASS25	tyx	Variance of DUSMASS25	kg m-3 kg m-3
Var_OCANGSTR	tyx	Variance of OCANGSTR	1 1
Var_OCCMASS	tyx	Variance of OCCMASS	kg m-2 kg m-2
Var_OCEXTTAU	tyx	Variance of OCEXTTAU	1 1
Var_OCSCATAU	tyx	Variance of OCSCATAU	1 1
Var_OCSMASS	tyx	Variance of OCSMASS	kg m-3 kg m-3
Var_SO2CMASS	tyx	Variance of SO2CMASS	kg m-2 kg m-2
Var_SO2SMASS	tyx	Variance of SO2SMASS	kg m-3 kg m-3
Var_SO4CMASS	tyx	Variance of SO4CMASS	kg m-2 kg m-2
Var_SO4SMASS	tyx	Variance of SO4SMASS	kg m-3 kg m-3
Var_SSANGSTR	tyx	Variance of SSANGSTR	1 1
Var_SSCMASS	tyx	Variance of SSCMASS	kg m-2 kg m-2
Var_SSCMASS25	tyx	Variance of SSCMASS25	kg m-2 kg m-2
Var_SSEXTT25	tyx	Variance of SSEXTT25	1 1
Var_SSEXTTAU	tyx	Variance of SSEXTTAU	1 1
Var_SSSCAT25	tyx	Variance of SSSCAT25	1 1
Var_SSSCATAU	tyx	Variance of SSSCATAU	1 1
Var_SSSMASS	tyx	Variance of SSSMASS	kg m-3 kg m-3
Var_SSSMASS25	tyx	Variance of SSSMASS25	kg m-3 kg m-3
Var_SUANGSTR	tyx	Variance of SUANGSTR	1 1
Var_SUEXTTAU	tyx	Variance of SUEXTTAU	1 1

Var_SUSCATAU	tyx	Variance of SUSCATAU	1 1
Var_TOTANGSTR	tyx	Variance of TOTANGSTR	1 1
Var_TOTEXTTAU	tyx	Variance of TOTEXTTAU	1 1
Var_TOTSCATAU	tyx	Variance of TOTSCATAU	1 1

tavg01mo_2d_aer2_Cx: Single-Level Aerosol/Carbon Diagnostics (2)

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *2D, single-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, time=1*
Granule Size: *~108 MB*

Name	*Dim*	*Description*	*Units*
DUDP001	tyx	Dust Dry Deposition Bin 001	kg m-2 s-1
DUDP002	tyx	Dust Dry Deposition Bin 002	kg m-2 s-1
DUDP003	tyx	Dust Dry Deposition Bin 003	kg m-2 s-1
DUDP004	tyx	Dust Dry Deposition Bin 004	kg m-2 s-1
DUDP005	tyx	Dust Dry Deposition Bin 005	kg m-2 s-1
DUEM001	tyx	Dust Emission Bin 001	kg m-2 s-1
DUEM002	tyx	Dust Emission Bin 002	kg m-2 s-1
DUEM003	tyx	Dust Emission Bin 003	kg m-2 s-1
DUEM004	tyx	Dust Emission Bin 004	kg m-2 s-1
DUEM005	tyx	Dust Emission Bin 005	kg m-2 s-1
DUFLUXU	tyx	Dust column u-wind mass flux	kg m-1 s-1
DUFLUXV	tyx	Dust column v-wind mass flux	kg m-1 s-1
DUSD001	tyx	Dust Sedimentation Bin 001	kg m-2 s-1
DUSD002	tyx	Dust Sedimentation Bin 002	kg m-2 s-1
DUSD003	tyx	Dust Sedimentation Bin 003	kg m-2 s-1
DUSD004	tyx	Dust Sedimentation Bin 004	kg m-2 s-1
DUSD005	tyx	Dust Sedimentation Bin 005	kg m-2 s-1
DUSV001	tyx	Dust Convective Scavenging Bin 001	kg m-2 s-1
DUSV002	tyx	Dust Convective Scavenging Bin 002	kg m-2 s-1
DUSV003	tyx	Dust Convective Scavenging Bin 003	kg m-2 s-1

DUSV004	tyx	Dust Convective Scavenging Bin 004	kg m-2 s-1
DUSV005	tyx	Dust Convective Scavenging Bin 005	kg m-2 s-1
DUWT001	tyx	Dust Wet Deposition Bin 001	kg m-2 s-1
DUWT002	tyx	Dust Wet Deposition Bin 002	kg m-2 s-1
DUWT003	tyx	Dust Wet Deposition Bin 003	kg m-2 s-1
DUWT004	tyx	Dust Wet Deposition Bin 004	kg m-2 s-1
DUWT005	tyx	Dust Wet Deposition Bin 005	kg m-2 s-1
SSDP001	tyx	Sea Salt Dry Deposition Bin 001	kg m-2 s-1
SSDP002	tyx	Sea Salt Dry Deposition Bin 002	kg m-2 s-1
SSDP003	tyx	Sea Salt Dry Deposition Bin 003	kg m-2 s-1
SSDP004	tyx	Sea Salt Dry Deposition Bin 004	kg m-2 s-1
SSDP005	tyx	Sea Salt Dry Deposition Bin 005	kg m-2 s-1
SSEM001	tyx	Sea Salt Emission Bin 001	kg m-2 s-1
SSEM002	tyx	Sea Salt Emission Bin 002	kg m-2 s-1
SSEM003	tyx	Sea Salt Emission Bin 003	kg m-2 s-1
SSEM004	tyx	Sea Salt Emission Bin 004	kg m-2 s-1
SSEM005	tyx	Sea Salt Emission Bin 005	kg m-2 s-1
SSFLUXU	tyx	Sea Salt column u-wind mass flux	kg m-1 s-1
SSFLUXV	tyx	Sea Salt column v-wind mass flux	kg m-1 s-1
SSSD001	tyx	Sea Salt Sedimentation Bin 001	kg m-2 s-1
SSSD002	tyx	Sea Salt Sedimentation Bin 002	kg m-2 s-1
SSSD003	tyx	Sea Salt Sedimentation Bin 003	kg m-2 s-1
SSSD004	tyx	Sea Salt Sedimentation Bin 004	kg m-2 s-1
SSSD005	tyx	Sea Salt Sedimentation Bin 005	kg m-2 s-1
SSSV001	tyx	Sea Salt Convective Scavenging Bin 001	kg m-2 s-1
SSSV002	tyx	Sea Salt Convective Scavenging Bin 002	kg m-2 s-1
SSSV003	tyx	Sea Salt Convective Scavenging Bin 003	kg m-2 s-1
SSSV004	tyx	Sea Salt Convective Scavenging Bin 004	kg m-2 s-1
SSSV005	tyx	Sea Salt Convective Scavenging Bin 005	kg m-2 s-1
SSWT001	tyx	Sea Salt Wet Deposition Bin 001	kg m-2 s-1
SSWT002	tyx	Sea Salt Wet Deposition Bin 002	kg m-2 s-1
SSWT003	tyx	Sea Salt Wet Deposition Bin 003	kg m-2 s-1
SSWT004	tyx	Sea Salt Wet Deposition Bin 004	kg m-2 s-1
SSWT005	tyx	Sea Salt Wet Deposition Bin 005	kg m-2 s-1
Var_DUDP001	tyx	Variance of DUDP001	kg m-2 s-1

			kg m-2 s-1
Var_DUDP002	tyx	Variance of DUDP002	kg m-2 s-1 kg m-2 s-1
Var_DUDP003	tyx	Variance of DUDP003	kg m-2 s-1 kg m-2 s-1
Var_DUDP004	tyx	Variance of DUDP004	kg m-2 s-1 kg m-2 s-1
Var_DUDP005	tyx	Variance of DUDP005	kg m-2 s-1 kg m-2 s-1
Var_DUEM001	tyx	Variance of DUEM001	kg m-2 s-1 kg m-2 s-1
Var_DUEM002	tyx	Variance of DUEM002	kg m-2 s-1 kg m-2 s-1
Var_DUEM003	tyx	Variance of DUEM003	kg m-2 s-1 kg m-2 s-1
Var_DUEM004	tyx	Variance of DUEM004	kg m-2 s-1 kg m-2 s-1
Var_DUEM005	tyx	Variance of DUEM005	kg m-2 s-1 kg m-2 s-1
Var_DUFLUXU	tyx	Variance of DUFLUXU	kg m-1 s-1 kg m-1 s-1
Var_DUFLUXV	tyx	Variance of DUFLUXV	kg m-1 s-1 kg m-1 s-1
Var_DUSD001	tyx	Variance of DUSD001	kg m-2 s-1 kg m-2 s-1
Var_DUSD002	tyx	Variance of DUSD002	kg m-2 s-1 kg m-2 s-1
Var_DUSD003	tyx	Variance of DUSD003	kg m-2 s-1 kg m-2 s-1
Var_DUSD004	tyx	Variance of DUSD004	kg m-2 s-1 kg m-2 s-1
Var_DUSD005	tyx	Variance of DUSD005	kg m-2 s-1 kg m-2 s-1
Var_DUSV001	tyx	Variance of DUSV001	kg m-2 s-1 kg m-2 s-1
Var_DUSV002	tyx	Variance of DUSV002	kg m-2 s-1 kg m-2 s-1
Var_DUSV003	tyx	Variance of DUSV003	kg m-2 s-1 kg m-2 s-1
Var_DUSV004	tyx	Variance of DUSV004	kg m-2 s-1 kg m-2 s-1
Var_DUSV005	tyx	Variance of DUSV005	kg m-2 s-1

			kg m-2 s-1
Var_DUWT001	tyx	Variance of DUWT001	kg m-2 s-1 kg m-2 s-1
Var_DUWT002	tyx	Variance of DUWT002	kg m-2 s-1 kg m-2 s-1
Var_DUWT003	tyx	Variance of DUWT003	kg m-2 s-1 kg m-2 s-1
Var_DUWT004	tyx	Variance of DUWT004	kg m-2 s-1 kg m-2 s-1
Var_DUWT005	tyx	Variance of DUWT005	kg m-2 s-1 kg m-2 s-1
Var_SSDP001	tyx	Variance of SSDP001	kg m-2 s-1 kg m-2 s-1
Var_SSDP002	tyx	Variance of SSDP002	kg m-2 s-1 kg m-2 s-1
Var_SSDP003	tyx	Variance of SSDP003	kg m-2 s-1 kg m-2 s-1
Var_SSDP004	tyx	Variance of SSDP004	kg m-2 s-1 kg m-2 s-1
Var_SSDP005	tyx	Variance of SSDP005	kg m-2 s-1 kg m-2 s-1
Var_SSEM001	tyx	Variance of SSEM001	kg m-2 s-1 kg m-2 s-1
Var_SSEM002	tyx	Variance of SSEM002	kg m-2 s-1 kg m-2 s-1
Var_SSEM003	tyx	Variance of SSEM003	kg m-2 s-1 kg m-2 s-1
Var_SSEM004	tyx	Variance of SSEM004	kg m-2 s-1 kg m-2 s-1
Var_SSEM005	tyx	Variance of SSEM005	kg m-2 s-1 kg m-2 s-1
Var_SSFLUXU	tyx	Variance of SSFLUXU	kg m-1 s-1 kg m-1 s-1
Var_SSFLUXV	tyx	Variance of SSFLUXV	kg m-1 s-1 kg m-1 s-1
Var_SSSD001	tyx	Variance of SSSD001	kg m-2 s-1 kg m-2 s-1
Var_SSSD002	tyx	Variance of SSSD002	kg m-2 s-1 kg m-2 s-1
Var_SSSD003	tyx	Variance of SSSD003	kg m-2 s-1 kg m-2 s-1
Var_SSSD004	tyx	Variance of SSSD004	kg m-2 s-1

			kg m-2 s-1
Var_SSSD005	tyx	Variance of SSSD005	kg m-2 s-1 kg m-2 s-1
Var_SSSV001	tyx	Variance of SSSV001	kg m-2 s-1 kg m-2 s-1
Var_SSSV002	tyx	Variance of SSSV002	kg m-2 s-1 kg m-2 s-1
Var_SSSV003	tyx	Variance of SSSV003	kg m-2 s-1 kg m-2 s-1
Var_SSSV004	tyx	Variance of SSSV004	kg m-2 s-1 kg m-2 s-1
Var_SSSV005	tyx	Variance of SSSV005	kg m-2 s-1 kg m-2 s-1
Var_SSWT001	tyx	Variance of SSWT001	kg m-2 s-1 kg m-2 s-1
Var_SSWT002	tyx	Variance of SSWT002	kg m-2 s-1 kg m-2 s-1
Var_SSWT003	tyx	Variance of SSWT003	kg m-2 s-1 kg m-2 s-1
Var_SSWT004	tyx	Variance of SSWT004	kg m-2 s-1 kg m-2 s-1
Var_SSWT005	tyx	Variance of SSWT005	kg m-2 s-1 kg m-2 s-1

tavg01mo_2d_aer3_Cx: Single-Level Aerosol/Carbon Diagnostics (3)

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *2D, single-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, time=1*
Granule Size: *~119 MB*

Name	Dim	Description	Units
BCANGSTR	tyx	Black Carbon Angstrom parameter [470-870 nm]	1
BCCMASS	tyx	Black Carbon Column Mass Density	kg m-2
BCDP001	tyx	Black Carbon Dry Deposition Bin 001	kg m-2 s-1
BCDP002	tyx	Black Carbon Dry Deposition Bin 002	kg m-2 s-1
BCEM001	tyx	Black Carbon Emission Bin 001	kg m-2 s-1
BCEM002	tyx	Black Carbon Emission Bin 002	kg m-2 s-1
BCEMAN	tyx	Black Carbon Anthropogenic Emissions	kg m-2 s-1

BCEMBB	tyx	Black Carbon Biomass Burning Emissions	kg m-2 s-1
BCEXTTAU	tyx	Black Carbon Extinction AOT [550 nm]	1
BCFLUXU	tyx	Black Carbon column u-wind mass flux	kg m-1 s-1
BCFLUXV	tyx	Black Carbon column v-wind mass flux	kg m-1 s-1
BCSCATAU	tyx	Black Carbon Scattering AOT [550 nm]	1
BCSD001	tyx	Black Carbon Sedimentation Bin 001	kg m-2 s-1
BCSD002	tyx	Black Carbon Sedimentation Bin 002	kg m-2 s-1
BCSMASS	tyx	Black Carbon Surface Mass Concentration	kg m-3
BCSV001	tyx	Black Carbon Convective Scavenging Bin 001	kg m-2 s-1
BCSV002	tyx	Black Carbon Convective Scavenging Bin 002	kg m-2 s-1
BCWT002	tyx	Black Carbon Wet Deposition Bin 002	kg m-2 s-1
CO2EM001	tyx	CO2 Emission Bin 001	kg m-2 s-1
COEM	tyx	CO Emission	kg m-2 s-1
OCDP001	tyx	Organic Carbon Dry Deposition Bin 001	kg m-2 s-1
OCDP002	tyx	Organic Carbon Dry Deposition Bin 002	kg m-2 s-1
OCEM001	tyx	Organic Carbon Emission Bin 001	kg m-2 s-1
OCEM002	tyx	Organic Carbon Emission Bin 002	kg m-2 s-1
OCEMAN	tyx	Organic Carbon Anthropogenic Emissions	kg m-2 s-1
OCEMBB	tyx	Organic Carbon Biomass Burning Emissions	kg m-2 s-1
OCEMBG	tyx	Organic Carbon Biogenic Emissions	kg m-2 s-1
OCFLUXU	tyx	Organic Carbon column u-wind mass flux	kg m-1 s-1
OCFLUXV	tyx	Organic Carbon column v-wind mass flux	kg m-1 s-1
OCSD001	tyx	Organic Carbon Sedimentation Bin 001	kg m-2 s-1
OCSD002	tyx	Organic Carbon Sedimentation Bin 002	kg m-2 s-1
OCSV001	tyx	Organic Carbon Convective Scavenging Bin 001	kg m-2 s-1
OCSV002	tyx	Organic Carbon Convective Scavenging Bin 002	kg m-2 s-1
OCWT002	tyx	Organic Carbon Wet Deposition Bin 002	kg m-2 s-1
SO2EMAN	tyx	SO2 Anthropogenic Emissions	kg m-2 s-1
SO2EMBB	tyx	SO2 Biomass Burning Emissions	kg m-2 s-1
SO2EMVE	tyx	SO2 Volcanic (explosive) Emissions	kg m-2 s-1
SO2EMVN	tyx	SO2 Volcanic (non-explosive) Emissions	kg m-2 s-1
SO4EMAN	tyx	SO4 Anthropogenic Emissions	kg m-2 s-1
SUDP002	tyx	Sulfate Dry Deposition Bin 002	kg m-2 s-1
SUDP003	tyx	Sulfate Dry Deposition Bin 003	kg m-2 s-1
SUDP004	tyx	Sulfate Dry Deposition Bin 004	kg m-2 s-1

SUEM001	tyx	Sulfate Emission Bin 001	kg m-2 s-1
SUEM002	tyx	Sulfate Emission Bin 002	kg m-2 s-1
SUEM003	tyx	Sulfate Emission Bin 003	kg m-2 s-1
SUFLUXU	tyx	SO4 column u-wind mass flux	kg m-1 s-1
SUFLUXV	tyx	SO4 column v-wind mass flux	kg m-1 s-1
SUPMSA	tyx	MSA Prod from DMS Oxidation [column]	kg m-2 s-1
SUPSO2	tyx	SO2 Prod from DMS Oxidation [column]	kg m-2 s-1
SUPSO4AQ	tyx	SO4 Prod from Aqueous SO2 Oxidation [column]	kg m-2 s-1
SUPSO4G	tyx	SO4 Prod from Gaseous SO2 Oxidation [column]	kg m-2 s-1
SUPSO4WT	tyx	SO4 Prod from Aqueous SO2 Oxidation (wet dep) [column]	kg m-2 s-1
SUSD003	tyx	Sulfate Settling Bin 003	kg m-2 s-1
SUSV001	tyx	Sulfate Convective Scavenging Bin 001	kg m-2 s-1
SUSV002	tyx	Sulfate Convective Scavenging Bin 002	kg m-2 s-1
SUSV003	tyx	Sulfate Convective Scavenging Bin 003	kg m-2 s-1
SUSV004	tyx	Sulfate Convective Scavenging Bin 004	kg m-2 s-1
SUWT002	tyx	Sulfate Wet Deposition Bin 002	kg m-2 s-1
SUWT003	tyx	Sulfate Wet Deposition Bin 003	kg m-2 s-1
SUWT004	tyx	Sulfate Wet Deposition Bin 004	kg m-2 s-1
Var_BCANGSTR	tyx	Variance of BCANGSTR	1 1
Var_BCCMASS	tyx	Variance of BCCMASS	kg m-2 kg m-2
Var_BCDP001	tyx	Variance of BCDP001	kg m-2 s-1 kg m-2 s-1
Var_BCDP002	tyx	Variance of BCDP002	kg m-2 s-1 kg m-2 s-1
Var_BCEM001	tyx	Variance of BCEM001	kg m-2 s-1 kg m-2 s-1
Var_BCEM002	tyx	Variance of BCEM002	kg m-2 s-1 kg m-2 s-1
Var_BCEMAN	tyx	Variance of BCEMAN	kg m-2 s-1 kg m-2 s-1
Var_BCEMBB	tyx	Variance of BCEMBB	kg m-2 s-1 kg m-2 s-1
Var_BCEXTTAU	tyx	Variance of BCEXTTAU	1 1
Var_BCFLUXU	tyx	Variance of BCFLUXU	kg m-1 s-1 kg m-1 s-1

Var_BCFLUXV	tyx	Variance of BCFLUXV	kg m-1 s-1 kg m-1 s-1
Var_BCSCATAU	tyx	Variance of BCSCATAU	1 1
Var_BCSD001	tyx	Variance of BCSD001	kg m-2 s-1 kg m-2 s-1
Var_BCSD002	tyx	Variance of BCSD002	kg m-2 s-1 kg m-2 s-1
Var_BCSMASS	tyx	Variance of BCSMASS	kg m-3 kg m-3
Var_BCSV001	tyx	Variance of BCSV001	kg m-2 s-1 kg m-2 s-1
Var_BCSV002	tyx	Variance of BCSV002	kg m-2 s-1 kg m-2 s-1
Var_BCWT002	tyx	Variance of BCWT002	kg m-2 s-1 kg m-2 s-1
Var_CO2EM001	tyx	Variance of CO2EM001	kg m-2 s-1 kg m-2 s-1
Var_COEM	tyx	Variance of COEM	kg m-2 s-1 kg m-2 s-1
Var_OCDP001	tyx	Variance of OCDP001	kg m-2 s-1 kg m-2 s-1
Var_OCDP002	tyx	Variance of OCDP002	kg m-2 s-1 kg m-2 s-1
Var_OCEM001	tyx	Variance of OCEM001	kg m-2 s-1 kg m-2 s-1
Var_OCEM002	tyx	Variance of OCEM002	kg m-2 s-1 kg m-2 s-1
Var_OCEMAN	tyx	Variance of OCEMAN	kg m-2 s-1 kg m-2 s-1
Var_OCEMBB	tyx	Variance of OCEMBB	kg m-2 s-1 kg m-2 s-1
Var_OCEMBG	tyx	Variance of OCEMBG	kg m-2 s-1 kg m-2 s-1
Var_OCFLUXU	tyx	Variance of OCFLUXU	kg m-1 s-1 kg m-1 s-1
Var_OCFLUXV	tyx	Variance of OCFLUXV	kg m-1 s-1 kg m-1 s-1
Var_OCSD001	tyx	Variance of OCSD001	kg m-2 s-1 kg m-2 s-1
Var_OCSD002	tyx	Variance of OCSD002	kg m-2 s-1 kg m-2 s-1

Var_OCSV001	tyx	Variance of OCSV001	kg m-2 s-1 kg m-2 s-1
Var_OCSV002	tyx	Variance of OCSV002	kg m-2 s-1 kg m-2 s-1
Var_OCWT002	tyx	Variance of OCWT002	kg m-2 s-1 kg m-2 s-1
Var_SO2EMAN	tyx	Variance of SO2EMAN	kg m-2 s-1 kg m-2 s-1
Var_SO2EMBB	tyx	Variance of SO2EMBB	kg m-2 s-1 kg m-2 s-1
Var_SO2EMVE	tyx	Variance of SO2EMVE	kg m-2 s-1 kg m-2 s-1
Var_SO2EMVN	tyx	Variance of SO2EMVN	kg m-2 s-1 kg m-2 s-1
Var_SO4EMAN	tyx	Variance of SO4EMAN	kg m-2 s-1 kg m-2 s-1
Var_SUDP002	tyx	Variance of SUDP002	kg m-2 s-1 kg m-2 s-1
Var_SUDP003	tyx	Variance of SUDP003	kg m-2 s-1 kg m-2 s-1
Var_SUDP004	tyx	Variance of SUDP004	kg m-2 s-1 kg m-2 s-1
Var_SUEM001	tyx	Variance of SUEM001	kg m-2 s-1 kg m-2 s-1
Var_SUEM002	tyx	Variance of SUEM002	kg m-2 s-1 kg m-2 s-1
Var_SUEM003	tyx	Variance of SUEM003	kg m-2 s-1 kg m-2 s-1
Var_SUFLUXU	tyx	Variance of SUFLUXU	kg m-1 s-1 kg m-1 s-1
Var_SUFLUXV	tyx	Variance of SUFLUXV	kg m-1 s-1 kg m-1 s-1
Var_SUPMSA	tyx	Variance of SUPMSA	kg m-2 s-1 kg m-2 s-1
Var_SUPSO2	tyx	Variance of SUPSO2	kg m-2 s-1 kg m-2 s-1
Var_SUPSO4AQ	tyx	Variance of SUPSO4AQ	kg m-2 s-1 kg m-2 s-1
Var_SUPSO4G	tyx	Variance of SUPSO4G	kg m-2 s-1 kg m-2 s-1
Var_SUPSO4WT	tyx	Variance of SUPSO4WT	kg m-2 s-1 kg m-2 s-1

Var_SUSD003	tyx	Variance of SUSD003	kg m-2 s-1 kg m-2 s-1
Var_SUSV001	tyx	Variance of SUSV001	kg m-2 s-1 kg m-2 s-1
Var_SUSV002	tyx	Variance of SUSV002	kg m-2 s-1 kg m-2 s-1
Var_SUSV003	tyx	Variance of SUSV003	kg m-2 s-1 kg m-2 s-1
Var_SUSV004	tyx	Variance of SUSV004	kg m-2 s-1 kg m-2 s-1
Var_SUWT002	tyx	Variance of SUWT002	kg m-2 s-1 kg m-2 s-1
Var_SUWT003	tyx	Variance of SUWT003	kg m-2 s-1 kg m-2 s-1
Var_SUWT004	tyx	Variance of SUWT004	kg m-2 s-1 kg m-2 s-1

tavg01mo_2d_met1_Cx: Single-Level Meteorology

Frequency: *1-monthly from 00:00 UTC (time-averaged)*
Spatial Grid: *2D, single-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, time=1*
Granule Size: *~76 MB*

Name	Dim	Description	Units
H1000	tyx	height at 1000 mb	m
H250	tyx	height at 250 hPa	m
H500	tyx	height at 500 hPa	m
H850	tyx	height at 850 hPa	m
HLML	tyx	surface layer height	m
PS	tyx	surface pressure	Pa
Q250	tyx	specific humidity at 250 hPa	kg kg-1
Q500	tyx	specific humidity at 500 hPa	kg kg-1
Q850	tyx	specific humidity at 850 hPa	kg kg-1
QLML	tyx	surface specific humidity	1
QV10M	tyx	10-meter specific humidity	kg kg-1
QV2M	tyx	2-meter specific humidity	kg kg-1
SLP	tyx	sea level pressure	Pa

T10M	tyx	10-meter air temperature	K
T250	tyx	air temperature at 250 hPa	K
T2M	tyx	2-meter air temperature	K
T500	tyx	air temperature at 500 hPa	K
T850	tyx	air temperature at 850 hPa	K
TLML	tyx	surface air temperature	K
U10M	tyx	10-meter eastward wind	m s-1
U250	tyx	eastward wind at 250 hPa	m s-1
U2M	tyx	2-meter eastward wind	m s-1
U500	tyx	eastward wind at 500 hPa	m s-1
U50M	tyx	eastward wind at 50 meters	m s-1
U850	tyx	eastward wind at 850 hPa	m s-1
ULML	tyx	surface eastward wind	m s-1
V10M	tyx	10-meter northward wind	m s-1
V250	tyx	northward wind at 250 hPa	m s-1
V2M	tyx	2-meter northward wind	m s-1
V500	tyx	northward wind at 500 hPa	m s-1
V50M	tyx	northward wind at 50 meters	m s-1
V850	tyx	northward wind at 850 hPa	m s-1
VLML	tyx	surface northward wind	m s-1
VORT850	tyx	vorticity at 850 hPa	m s-1
Var_H1000	tyx	Variance of H1000	m m
Var_H250	tyx	Variance of H250	m m
Var_H500	tyx	Variance of H500	m m
Var_H850	tyx	Variance of H850	m m
Var_HLML	tyx	Variance of HLML	m m
Var_PS	tyx	Variance of PS	Pa Pa
Var_Q250	tyx	Variance of Q250	kg kg-1 kg kg-1
Var_Q500	tyx	Variance of Q500	kg kg-1 kg kg-1
Var_Q850	tyx	Variance of Q850	kg kg-1 kg kg-1
Var_QLML	tyx	Variance of QLML	1 1
Var_QV10M	tyx	Variance of QV10M	kg kg-1 kg kg-1

Var_QV2M	tyx	Variance of QV2M	kg kg-1 kg kg-1
Var_SLP	tyx	Variance of SLP	Pa Pa
Var_T10M	tyx	Variance of T10M	K K
Var_T250	tyx	Variance of T250	K K
Var_T2M	tyx	Variance of T2M	K K
Var_T500	tyx	Variance of T500	K K
Var_T850	tyx	Variance of T850	K K
Var_TLML	tyx	Variance of TLML	K K
Var_U10M	tyx	Variance of U10M	m s-1 m s-1
Var_U250	tyx	Variance of U250	m s-1 m s-1
Var_U2M	tyx	Variance of U2M	m s-1 m s-1
Var_U500	tyx	Variance of U500	m s-1 m s-1
Var_U50M	tyx	Variance of U50M	m s-1 m s-1
Var_U850	tyx	Variance of U850	m s-1 m s-1
Var_ULML	tyx	Variance of ULML	m s-1 m s-1
Var_V10M	tyx	Variance of V10M	m s-1 m s-1
Var_V250	tyx	Variance of V250	m s-1 m s-1
Var_V2M	tyx	Variance of V2M	m s-1 m s-1
Var_V500	tyx	Variance of V500	m s-1 m s-1
Var_V50M	tyx	Variance of V50M	m s-1 m s-1
Var_V850	tyx	Variance of V850	m s-1 m s-1
Var_VLML	tyx	Variance of VLML	m s-1 m s-1
Var_VORT850	tyx	Variance of VORT850	m s-1 m s-1
Var_W10	tyx	Variance of W10	m s-1 m s-1
Var_W200	tyx	Variance of W200	m s-1 m s-1
Var_W500	tyx	Variance of W500	m s-1 m s-1
Var_W850	tyx	Variance of W850	m s-1 m s-1
W10	tyx	w at 10 hPa	m s-1
W200	tyx	w at 200 hPa	m s-1
W500	tyx	w at 500 hPa	m s-1
W850	tyx	w at 850 hPa	m s-1

tavg01mo_2d_met2_Cx: Single-Level Surface Diagnostics

Frequency: *1-monthly from 00:30 UTC (time-averaged)*

Spatial Grid: *2D, single-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, time=1*
Granule Size: *~183 MB*

Name	Dim	Description	Units
BASEFLOW	tyx	baseflow flux	kg m-2 s-1
BSTAR	tyx	surface bouyancy scale	m s-2
CAPE	tyx	cape for surface parcel	J m-2
CDH	tyx	surface exchange coefficient for heat	kg m-2 s-1
CDM	tyx	surface exchange coefficient for momentum	kg m-2 s-1
CDQ	tyx	surface exchange coefficient for moisture	kg m-2 s-1
CN	tyx	surface neutral drag coefficient	1
DISPH	tyx	zero plane displacement height	m
ECHANGE	tyx	rate of change of total land energy	W m-2
EFLUX	tyx	total latent energy flux	W m-2
EMIS	tyx	surface emissivity	1
EVAP	tyx	evaporation from turbulence	kg m-2 s-1
EVLAND	tyx	Evaporation land	kg m-2 s-1
EVPINTR	tyx	interception loss energy flux	W m-2
EVPSBLN	tyx	snow ice evaporation energy flux	W m-2
EVPSOIL	tyx	baresoil evap energy flux	W m-2
EVPTRNS	tyx	transpiration energy flux	W m-2
FRSAT	tyx	fractional area of saturated zone	1
FRSEAICE	tyx	ice covered fraction of tile	1
FRSNO	tyx	fractional area of land snowcover	1
FRUNST	tyx	fractional area of unsaturated zone	1
FRWLT	tyx	fractional area of wilting zone	1
GHLAND	tyx	Ground heating land	W m-2
GRN	tyx	greeness fraction	1
GWETPROF	tyx	ave prof soil moisture	1
GWETROOT	tyx	root zone soil wetness	1
GWETTOP	tyx	surface soil wetness	1
HFLUX	tyx	sensible heat flux from turbulence	W m-2
LAI	tyx	leaf area index	1
LHLAND	tyx	Latent heat flux land	W m-2
LWLAND	tyx	Net longwave land	W m-2

MXDIAM	tyx	diameter of largest RAS plume	m
PBLH	tyx	planetary boundary layer height	m
PGENTOT	tyx	Total column production of precipitation	kg m-2 s-1
PRECANV	tyx	anvil precipitation	kg m-2 s-1
PRECCON	tyx	convective precipitation	kg m-2 s-1
PRECLSC	tyx	nonanvil large scale precipitation	kg m-2 s-1
PRECSNO	tyx	snowfall	kg m-2 s-1
PRECTOT	tyx	total precipitation	kg m-2 s-1
PREVTOT	tyx	Total column re-evap/subl of precipitation	kg m-2 s-1
PRMC	tyx	water profile	m-3 m-3
QINFIL	tyx	Soil water infiltration rate	kg m-2 s-1
QSH	tyx	effective surface specific humidity	kg kg-1
QSTAR	tyx	surface moisture scale	kg kg-1
RHOA	tyx	air density at surface	kg m-3
RISFC	tyx	surface bulk richardson number	1
RNOFFTOT	tyx	runoff flux	kg m-2 s-1
RUNOFF	tyx	surface runoff flux	kg m-2 s-1
RZMC	tyx	water root zone	m-3 m-3
SFMC	tyx	water surface layer	m-3 m-3
SHLAND	tyx	Sensible heat flux land	W m-2
SMLAND	tyx	Snowmelt flux land	kg m-2 s-1
SNODP	tyx	snow depth	m
SNOMAS	tyx	Total snow storage land	kg m-2
SPEED	tyx	surface ventilation velocity	m s-1
SPLAND	tyx	rate of spurious land energy source	W m-2
SPSNOW	tyx	rate of spurious snow energy	W m-2
SPWATR	tyx	rate of spurious land water source	kg m-2 s-1
SWLAND	tyx	Net shortwave land	W m-2
TAUGWX	tyx	surface eastward gravity wave stress	N m-2
TAUGWY	tyx	surface northward gravity wave stress	N m-2
TAUX	tyx	eastward surface stress	N m-2
TAUY	tyx	northward surface stress	N m-2
TELAND	tyx	Total energy storage land	J m-2
TOX	tyx	total column odd oxygen	kg m-2
TPSNOW	tyx	surface temperature of snow	K

TQI	tyx	total precipitable ice water	kg m-2
TQL	tyx	total precipitable liquid water	kg m-2
TQV	tyx	total precipitable water vapor	kg m-2
TROPPB	tyx	tropopause pressure based on blended estimate	Pa
TROPPT	tyx	tropopause pressure based on thermal estimate	Pa
TROPPV	tyx	tropopause pressure based on EPV estimate	Pa
TROPQ	tyx	tropopause specific humidity using blended TROPP estimate	kg kg-1
TROPT	tyx	tropopause temperature using blended TROPP estimate	K
TS	tyx	surface skin temperature	K
TSAT	tyx	surface temperature of saturated zone	K
TSH	tyx	effective surface skin temperature	K
TSOIL1	tyx	soil temperatures layer 1	K
TSOIL2	tyx	soil temperatures layer 2	K
TSOIL3	tyx	soil temperatures layer 3	K
TSOIL4	tyx	soil temperatures layer 4	K
TSOIL5	tyx	soil temperatures layer 5	K
TSOIL6	tyx	soil temperatures layer 6	K
TSTAR	tyx	surface temperature scale	K
TSURF	tyx	surface temperature of land incl snow	K
TUNST	tyx	surface temperature of unsaturated zone	K
TWLAND	tyx	Avail water storage land	kg m-2
TWLT	tyx	surface temperature of wilted zone	K
USTAR	tyx	surface velocity scale	m s-1
Var_BASEFLOW	tyx	Variance of BASEFLOW	kg m-2 s-1 kg m-2 s-1
Var_BSTAR	tyx	Variance of BSTAR	m s-2 m s-2
Var_CAPE	tyx	Variance of CAPE	J m-2 J m-2
Var_CDH	tyx	Variance of CDH	kg m-2 s-1 kg m-2 s-1
Var_CDM	tyx	Variance of CDM	kg m-2 s-1 kg m-2 s-1
Var_CDQ	tyx	Variance of CDQ	kg m-2 s-1 kg m-2 s-1
Var_CN	tyx	Variance of CN	1 1
Var_DISPH	tyx	Variance of DISPH	m m
Var_ECHANGE	tyx	Variance of ECHANGE	W m-2 W m-

125

			2
Var_EFLUX	tyx	Variance of EFLUX	W m-2 W m-2
Var_EMIS	tyx	Variance of EMIS	1 1
Var_EVAP	tyx	Variance of EVAP	kg m-2 s-1 kg m-2 s-1
Var_EVLAND	tyx	Variance of EVLAND	kg m-2 s-1 kg m-2 s-1
Var_EVPINTR	tyx	Variance of EVPINTR	W m-2 W m-2
Var_EVPSBLN	tyx	Variance of EVPSBLN	W m-2 W m-2
Var_EVPSOIL	tyx	Variance of EVPSOIL	W m-2 W m-2
Var_EVPTRNS	tyx	Variance of EVPTRNS	W m-2 W m-2
Var_FRSAT	tyx	Variance of FRSAT	1 1
Var_FRSEAICE	tyx	Variance of FRSEAICE	1 1
Var_FRSNO	tyx	Variance of FRSNO	1 1
Var_FRUNST	tyx	Variance of FRUNST	1 1
Var_FRWLT	tyx	Variance of FRWLT	1 1
Var_GHLAND	tyx	Variance of GHLAND	W m-2 W m-2
Var_GRN	tyx	Variance of GRN	1 1
Var_GWETPROF	tyx	Variance of GWETPROF	1 1
Var_GWETROOT	tyx	Variance of GWETROOT	1 1
Var_GWETTOP	tyx	Variance of GWETTOP	1 1
Var_HFLUX	tyx	Variance of HFLUX	W m-2 W m-2
Var_LAI	tyx	Variance of LAI	1 1
Var_LHLAND	tyx	Variance of LHLAND	W m-2 W m-2
Var_LWLAND	tyx	Variance of LWLAND	W m-2 W m-2
Var_MXDIAM	tyx	Variance of MXDIAM	m m
Var_PBLH	tyx	Variance of PBLH	m m
Var_PGENTOT	tyx	Variance of PGENTOT	kg m-2 s-1 kg m-2 s-1

Var_PRECANV	tyx	Variance of PRECANV	kg m-2 s-1 kg m-2 s-1
Var_PRECCON	tyx	Variance of PRECCON	kg m-2 s-1 kg m-2 s-1
Var_PRECLSC	tyx	Variance of PRECLSC	kg m-2 s-1 kg m-2 s-1
Var_PRECSNO	tyx	Variance of PRECSNO	kg m-2 s-1 kg m-2 s-1
Var_PRECTOT	tyx	Variance of PRECTOT	kg m-2 s-1 kg m-2 s-1
Var_PREVTOT	tyx	Variance of PREVTOT	kg m-2 s-1 kg m-2 s-1
Var_PRMC	tyx	Variance of PRMC	m-3 m-3 m-3 m-3
Var_QINFIL	tyx	Variance of QINFIL	kg m-2 s-1 kg m-2 s-1
Var_QSH	tyx	Variance of QSH	kg kg-1 kg kg-1
Var_QSTAR	tyx	Variance of QSTAR	kg kg-1 kg kg-1
Var_RHOA	tyx	Variance of RHOA	kg m-3 kg m-3
Var_RISFC	tyx	Variance of RISFC	1 1
Var_RNOFFTOT	tyx	Variance of RNOFFTOT	kg m-2 s-1 kg m-2 s-1
Var_RUNOFF	tyx	Variance of RUNOFF	kg m-2 s-1 kg m-2 s-1
Var_RZMC	tyx	Variance of RZMC	m-3 m-3 m-3 m-3
Var_SFMC	tyx	Variance of SFMC	m-3 m-3 m-3 m-3
Var_SHLAND	tyx	Variance of SHLAND	W m-2 W m-2
Var_SMLAND	tyx	Variance of SMLAND	kg m-2 s-1 kg m-2 s-1
Var_SNODP	tyx	Variance of SNODP	m m
Var_SNOMAS	tyx	Variance of SNOMAS	kg m-2 kg m-2
Var_SPEED	tyx	Variance of SPEED	m s-1 m s-1
Var_SPLAND	tyx	Variance of SPLAND	W m-2 W m-2

Var_SPSNOW	tyx	Variance of SPSNOW	W m-2 W m-2
Var_SPWATR	tyx	Variance of SPWATR	kg m-2 s-1 kg m-2 s-1
Var_SWLAND	tyx	Variance of SWLAND	W m-2 W m-2
Var_TAUGWX	tyx	Variance of TAUGWX	N m-2 N m-2
Var_TAUGWY	tyx	Variance of TAUGWY	N m-2 N m-2
Var_TAUX	tyx	Variance of TAUX	N m-2 N m-2
Var_TAUY	tyx	Variance of TAUY	N m-2 N m-2
Var_TELAND	tyx	Variance of TELAND	J m-2 J m-2
Var_TOX	tyx	Variance of TOX	kg m-2 kg m-2
Var_TPSNOW	tyx	Variance of TPSNOW	K K
Var_TQI	tyx	Variance of TQI	kg m-2 kg m-2
Var_TQL	tyx	Variance of TQL	kg m-2 kg m-2
Var_TQV	tyx	Variance of TQV	kg m-2 kg m-2
Var_TROPPB	tyx	Variance of TROPPB	Pa Pa
Var_TROPPT	tyx	Variance of TROPPT	Pa Pa
Var_TROPPV	tyx	Variance of TROPPV	Pa Pa
Var_TROPQ	tyx	Variance of TROPQ	kg kg-1 kg kg-1
Var_TROPT	tyx	Variance of TROPT	K K
Var_TS	tyx	Variance of TS	K K
Var_TSAT	tyx	Variance of TSAT	K K
Var_TSH	tyx	Variance of TSH	K K
Var_TSOIL1	tyx	Variance of TSOIL1	K K
Var_TSOIL2	tyx	Variance of TSOIL2	K K
Var_TSOIL3	tyx	Variance of TSOIL3	K K
Var_TSOIL4	tyx	Variance of TSOIL4	K K
Var_TSOIL5	tyx	Variance of TSOIL5	K K
Var_TSOIL6	tyx	Variance of TSOIL6	K K
Var_TSTAR	tyx	Variance of TSTAR	K K
Var_TSURF	tyx	Variance of TSURF	K K
Var_TUNST	tyx	Variance of TUNST	K K

Var_TWLAND	tyx	Variance of TWLAND	kg m-2 kg m-2
Var_TWLT	tyx	Variance of TWLT	K K
Var_USTAR	tyx	Variance of USTAR	m s-1 m s-1
Var_WCHANGE	tyx	Variance of WCHANGE	kg m-2 s-1 kg m-2 s-1
Var_Z0H	tyx	Variance of Z0H	m m
Var_Z0M	tyx	Variance of Z0M	m m
WCHANGE	tyx	rate of change of total land water	kg m-2 s-1
Z0H	tyx	surface roughness for heat	m
Z0M	tyx	surface roughness	m

tavg01mo_2d_met3_Cx: Single-Level Physics Diagnostics

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *2D, single-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, time=1*
Granule Size: *~141 MB*

Name	Dim	Description	Units
ALBEDO	tyx	surface albedo	1
ALBNIRDF	tyx	surface albedo for near infrared diffuse	1
ALBNIRDR	tyx	surface albedo for near infrared beam	1
ALBVISDF	tyx	surface albedo for visible diffuse	1
ALBVISDR	tyx	surface albedo for visible beam	1
CAPE	tyx	cape for surface parcel	J m-2
CLDHGH	tyx	cloud area fraction for high clouds	1
CLDLOW	tyx	cloud area fraction for low clouds	1
CLDMID	tyx	cloud area fraction for middle clouds	1
CLDPRS	tyx	cloud top pressure	Pa
CLDTMP	tyx	cloud top temperature	K
CLDTOT	tyx	total cloud area fraction	1
FLNS2	tyx	surface net downward longwave flux	W m-2
FLNSC2	tyx	surface net downward longwave flux assuming clear sky	W m-2
LWGAB	tyx	surface absorbed longwave radiation	W m-2
LWGABCLR	tyx	surface absorbed longwave radiation assuming clear sky	W m-2

LWGABCLRCLN	tyx	surface absorbed longwave radiation assuming clear sky and no aerosol	W m-2
LWGEM	tyx	longwave flux emitted from surface	W m-2
LWGNT	tyx	surface net downward longwave flux	W m-2
LWGNTCLR	tyx	surface net downward longwave flux assuming clear sky	W m-2
LWGNTCLRCLN	tyx	surface net downward longwave flux assuming clear sky and no aerosol	W m-2
LWTUP	tyx	upwelling longwave flux at toa	W m-2
LWTUPCLR	tyx	upwelling longwave flux at toa assuming clear sky	W m-2
LWTUPCLRCLN	tyx	upwelling longwave flux at toa assuming clear sky and no aerosol	W m-2
MXDIAM	tyx	diameter of largest RAS plume	m
OLC2	tyx	upwelling longwave flux at toa assuming clear sky	W m-2
OLR2	tyx	upwelling longwave flux at toa	W m-2
OSR2	tyx	toa outgoing shortwave flux	W m-2
OSRCLR2	tyx	toa outgoing shortwave flux assuming clear sky	W m-2
PARDF	tyx	surface downwelling par diffuse flux	W m-2
PARDR	tyx	surface downwelling par beam flux	W m-2
PGENTOT	tyx	Total column production of precipitation	kg m-2 s-1
PRECANV	tyx	anvil precipitation	kg m-2 s-1
PRECCON	tyx	convective precipitation	kg m-2 s-1
PRECLSC	tyx	nonanvil large scale precipitation	kg m-2 s-1
PRECSNO	tyx	snowfall	kg m-2 s-1
PRECTOT	tyx	total precipitation	kg m-2 s-1
PREVTOT	tyx	Total column re-evap/subl of precipitation	kg m-2 s-1
RSCS2	tyx	surface net downward shortwave flux assuming clear sky	W m-2
RSR2	tyx	toa net downward shortwave flux	W m-2
SWGDN	tyx	surface incoming shortwave flux	W m-2
SWGDNCLR	tyx	surface incoming shortwave flux assuming clear sky	W m-2
SWGNT	tyx	surface net downward shortwave flux	W m-2
SWGNTCLN	tyx	surface net downward shortwave flux assuming no aerosol	W m-2
SWGNTCLR	tyx	surface net downward shortwave flux assuming clear sky	W m-2
SWGNTCLRCLN	tyx	surface net downward shortwave flux assuming clear sky and no aerosol	W m-2
SWTDN	tyx	toa incoming shortwave flux	W m-2
SWTNT	tyx	toa net downward shortwave flux	W m-2

SWTNTCLN	tyx	toa net downward shortwave flux assuming no aerosol	W m-2
SWTNTCLR	tyx	toa net downward shortwave flux assuming clear sky	W m-2
SWTNTCLRCLN	tyx	toa net downward shortwave flux assuming clear sky and no aerosol	W m-2
TAUBKGX	tyx	surface eastward background gravity wave stress	N m-2
TAUBKGY	tyx	surface northward background gravity wave stress	N m-2
TAUGWX	tyx	surface eastward gravity wave stress	N m-2
TAUGWY	tyx	surface northward gravity wave stress	N m-2
TAUHGH	tyx	in cloud optical thickness of high clouds(EXPORT)	1
TAULOW	tyx	in cloud optical thickness of low clouds	1
TAUMID	tyx	in cloud optical thickness of middle clouds	1
TAUOROX	tyx	surface eastward orographic gravity wave stress	N m-2
TAUOROY	tyx	surface northward orographic gravity wave stress	N m-2
TAUTOT	tyx	in cloud optical thickness of all clouds	1
TBC	tyx	total black carbon aerosol loading	kg m-2
TDUST	tyx	total dust aerosol loading	kg m-2
TOC	tyx	total organic carbon aerosol loading	kg m-2
TSALT	tyx	total sea salt aerosol loading	kg m-2
TSO4	tyx	total sulfate aerosol loading	kg m-2
TTAUBC	tyx	total black carbon optical thickness in 0.4-0.690 band	1
TTAUDU	tyx	total dust optical thickness in 0.4-0.690 band	1
TTAUOC	tyx	total organic carbon optical thickness in 0.4-0.690 band	1
TTAUSO	tyx	total sulfate optical thickness in 0.4-0.690 band	1
TTAUSS	tyx	total salt optical thickness in 0.4-0.690 band	1
Var_ALBEDO	tyx	Variance of ALBEDO	1 1
Var_ALBNIRDF	tyx	Variance of ALBNIRDF	1 1
Var_ALBNIRDR	tyx	Variance of ALBNIRDR	1 1
Var_ALBVISDF	tyx	Variance of ALBVISDF	1 1
Var_ALBVISDR	tyx	Variance of ALBVISDR	1 1
Var_CAPE	tyx	Variance of CAPE	J m-2 J m-2
Var_CLDHGH	tyx	Variance of CLDHGH	1 1
Var_CLDLOW	tyx	Variance of CLDLOW	1 1
Var_CLDMID	tyx	Variance of CLDMID	1 1
Var_CLDPRS	tyx	Variance of CLDPRS	Pa Pa
Var_CLDTMP	tyx	Variance of CLDTMP	K K

Var_CLDTOT	tyx	Variance of CLDTOT	1 1
Var_FLNS2	tyx	Variance of FLNS2	W m-2 W m-2
Var_FLNSC2	tyx	Variance of FLNSC2	W m-2 W m-2
Var_LWGAB	tyx	Variance of LWGAB	W m-2 W m-2
Var_LWGABCLR	tyx	Variance of LWGABCLR	W m-2 W m-2
Var_LWGABCLRCLN	tyx	Variance of LWGABCLRCLN	W m-2 W m-2
Var_LWGEM	tyx	Variance of LWGEM	W m-2 W m-2
Var_LWGNT	tyx	Variance of LWGNT	W m-2 W m-2
Var_LWGNTCLR	tyx	Variance of LWGNTCLR	W m-2 W m-2
Var_LWGNTCLRCLN	tyx	Variance of LWGNTCLRCLN	W m-2 W m-2
Var_LWTUP	tyx	Variance of LWTUP	W m-2 W m-2
Var_LWTUPCLR	tyx	Variance of LWTUPCLR	W m-2 W m-2
Var_LWTUPCLRCLN	tyx	Variance of LWTUPCLRCLN	W m-2 W m-2
Var_MXDIAM	tyx	Variance of MXDIAM	m m
Var_OLC2	tyx	Variance of OLC2	W m-2 W m-2
Var_OLR2	tyx	Variance of OLR2	W m-2 W m-2
Var_OSR2	tyx	Variance of OSR2	W m-2 W m-2
Var_OSRCLR2	tyx	Variance of OSRCLR2	W m-2 W m-2
Var_PARDF	tyx	Variance of PARDF	W m-2 W m-2
Var_PARDR	tyx	Variance of PARDR	W m-2 W m-2
Var_PGENTOT	tyx	Variance of PGENTOT	kg m-2 s-1 kg m-2 s-1
Var_PRECANV	tyx	Variance of PRECANV	kg m-2 s-1 kg m-2 s-1

Var_PRECCON	tyx	Variance of PRECCON	kg m-2 s-1 kg m-2 s-1
Var_PRECLSC	tyx	Variance of PRECLSC	kg m-2 s-1 kg m-2 s-1
Var_PRECSNO	tyx	Variance of PRECSNO	kg m-2 s-1 kg m-2 s-1
Var_PRECTOT	tyx	Variance of PRECTOT	kg m-2 s-1 kg m-2 s-1
Var_PREVTOT	tyx	Variance of PREVTOT	kg m-2 s-1 kg m-2 s-1
Var_RSCS2	tyx	Variance of RSCS2	W m-2 W m-2
Var_RSR2	tyx	Variance of RSR2	W m-2 W m-2
Var_SWGDN	tyx	Variance of SWGDN	W m-2 W m-2
Var_SWGDNCLR	tyx	Variance of SWGDNCLR	W m-2 W m-2
Var_SWGNT	tyx	Variance of SWGNT	W m-2 W m-2
Var_SWGNTCLN	tyx	Variance of SWGNTCLN	W m-2 W m-2
Var_SWGNTCLR	tyx	Variance of SWGNTCLR	W m-2 W m-2
Var_SWGNTCLRCLN	tyx	Variance of SWGNTCLRCLN	W m-2 W m-2
Var_SWTDN	tyx	Variance of SWTDN	W m-2 W m-2
Var_SWTNT	tyx	Variance of SWTNT	W m-2 W m-2
Var_SWTNTCLN	tyx	Variance of SWTNTCLN	W m-2 W m-2
Var_SWTNTCLR	tyx	Variance of SWTNTCLR	W m-2 W m-2
Var_SWTNTCLRCLN	tyx	Variance of SWTNTCLRCLN	W m-2 W m-2
Var_TAUBKGX	tyx	Variance of TAUBKGX	N m-2 N m-2
Var_TAUBKGY	tyx	Variance of TAUBKGY	N m-2 N m-2
Var_TAUGWX	tyx	Variance of TAUGWX	N m-2 N m-2
Var_TAUGWY	tyx	Variance of TAUGWY	N m-2 N m-2
Var_TAUHGH	tyx	Variance of TAUHGH	1 1

Var_TAULOW	tyx	Variance of TAULOW	1 1
Var_TAUMID	tyx	Variance of TAUMID	1 1
Var_TAUOROX	tyx	Variance of TAUOROX	N m-2 N m-2
Var_TAUOROY	tyx	Variance of TAUOROY	N m-2 N m-2
Var_TAUTOT	tyx	Variance of TAUTOT	1 1
Var_TBC	tyx	Variance of TBC	kg m-2 kg m-2
Var_TDUST	tyx	Variance of TDUST	kg m-2 kg m-2
Var_TOC	tyx	Variance of TOC	kg m-2 kg m-2
Var_TSALT	tyx	Variance of TSALT	kg m-2 kg m-2
Var_TSO4	tyx	Variance of TSO4	kg m-2 kg m-2
Var_TTAUBC	tyx	Variance of TTAUBC	1 1
Var_TTAUDU	tyx	Variance of TTAUDU	1 1
Var_TTAUOC	tyx	Variance of TTAUOC	1 1
Var_TTAUSO	tyx	Variance of TTAUSO	1 1
Var_TTAUSS	tyx	Variance of TTAUSS	1 1

tavg01mo_3d_AIRDENS_Cp: Air Density

Frequency: *1-monthly from 00:00 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	*Dim*	*Description*	*Units*
AIRDENS	tzyx	air density	kg m-3
Var_AIRDENS	tzyx	Variance of AIRDENS	kg m-3 kg m-3

tavg01mo_3d_BCPHILIC_Cp: Hydrophilic Black Carbon

Frequency: *1-monthly from 00:00 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*

Granule Size: *~95 MB*

Name	Dim	Description	Units
BCPHILIC	tzyx	Hydrophilic Black Carbon	kg kg-1
Var_BCPHILIC	tzyx	Variance of BCPHILIC	kg kg-1 kg kg-1

tavg01mo_3d_BCPHOBIC_Cp: Hydrophobic Black Carbon

Frequency: *1-monthly from 00:00 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
BCPHOBIC	tzyx	Hydrophobic Black Carbon	kg kg-1
Var_BCPHOBIC	tzyx	Variance of BCPHOBIC	kg kg-1 kg kg-1

tavg01mo_3d_CBMF_Cp: Cloud Base Mass Flux

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
CBMF	tzyx	cloud base mass flux	kg m-2 s-1
Var_CBMF	tzyx	Variance of CBMF	kg m-2 s-1 kg m-2 s-1

tavg01mo_3d_CFCU_Cp: Updraft Areal Fraction

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
CFCU	tzyx	updraft areal fraction	1
Var_CFCU	tzyx	Variance of CFCU	1 1

tavg01mo_3d_CLOUD_Cp: Cloud Fraction

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
CLOUD	tzyx	cloud fraction for radiation	1
Var_CLOUD	tzyx	Variance of CLOUD	1 1

tavg01mo_3d_CMFMC_Cp: Cumulative Mass Flux

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
CMFMC	tzyx	cumulative mass flux	kg m-2 s-1
Var_CMFMC	tzyx	Variance of CMFMC	kg m-2 s-1 kg m-2 s-1

tavg01mo_3d_CO2_Cp: Carbon Dioxide

Frequency: *1-monthly from 00:00 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
CO2	tzyx	Carbon Dioxide (All Sources)	mol mol-1
Var_CO2	tzyx	Variance of CO2	mol mol-1

			mol mol-1

tavg01mo_3d_CO_Cp: Carbon Monoxide

Frequency: *1-monthly from 00:00 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
CO	tzyx	Carbon Monoxide (All Sources)	mol mol-1
Var_CO	tzyx	Variance of CO	mol mol-1 mol mol-1

tavg01mo_3d_DELP_Cp: Surface Pressure and Pressure Thickness

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~97 MB*

Name	Dim	Description	Units
DELP	tzyx	pressure thickness	Pa
PS	tyx	surface pressure	Pa
Var_DELP	tzyx	Variance of DELP	Pa Pa
Var_PS	tyx	Variance of PS	Pa Pa

tavg01mo_3d_DQRCU_Cp: Convective Rainwater Source

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DQRCU	tzyx	convective rainwater source	kg kg-1 s-1
Var_DQRCU	tzyx	Variance of DQRCU	kg kg-1 s-1

			kg kg-1 s-1

tavg01mo_3d_DQRLSAN_Cp: Large Scale Rainwater Source

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	*Dim*	*Description*	*Units*
DQRLSAN	tzyx	large scale rainwater source	kg kg-1 s-1
Var_DQRLSAN	tzyx	Variance of DQRLSAN	kg kg-1 s-1 kg kg-1 s-1

tavg01mo_3d_DQVDTCHM_Cp: Tendency: Q due to Chemistry

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	*Dim*	*Description*	*Units*
DQVDTCHM	tzyx	tendency of water vapor mixing ratio due to chemistry	kg kg-1 s-1
Var_DQVDTCHM	tzyx	Variance of DQVDTCHM	kg kg-1 s-1 kg kg-1 s-1

tavg01mo_3d_DQVDTDYN_Cp: Tendency: Q due to Dynamics

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	*Dim*	*Description*	*Units*
DQVDTDYN	tzyx	tendency of specific humidity due to dynamics	kg/kg/s
Var_DQVDTDYN	tzyx	Variance of DQVDTDYN	kg/kg/s kg/kg/s

tavg01mo_3d_DQVDTMST_Cp: Tendency: Q due to Moist Processes

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DQVDTMST	tzyx	specific humidity tendency due to moist	kg kg-1 s-1
Var_DQVDTMST	tzyx	Variance of DQVDTMST	kg kg-1 s-1 kg kg-1 s-1

tavg01mo_3d_DQVDTTRB_Cp: Tendency: Q due to Turbulence

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DQVDTTRB	tzyx	tendency of specific humidity due to turbulence	kg kg-1 s-1
Var_DQVDTTRB	tzyx	Variance of DQVDTTRB	kg kg-1 s-1 kg kg-1 s-1

tavg01mo_3d_DTDTBKG_Cp: Tendency: T due to Background GWD

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DTDTBKG	tzyx	air temperature tendency due to background GWD	K s-1
Var_DTDTBKG	tzyx	Variance of DTDTBKG	K s-1 K s-1

tavg01mo_3d_DTDTDYN_Cp: Tendency: T due to Dynamics

Frequency: *1-monthly from 00:30 UTC (time-averaged)*

Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DTDTDYN	tzyx	tendency of air temperature due to dynamics	K s-1
Var_DTDTDYN	tzyx	Variance of DTDTDYN	K s-1 K s-1

tavg01mo_3d_DTDTFRI_Cp: Tendency: T due to Friction

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DTDTFRI	tzyx	tendency of air temperature due to friction	K s-1
Var_DTDTFRI	tzyx	Variance of DTDTFRI	K s-1 K s-1

tavg01mo_3d_DTDTGWD_Cp: Tendency: T due to GWD

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DTDTGWD	tzyx	air temperature tendency due to GWD	K s-1
Var_DTDTGWD	tzyx	Variance of DTDTGWD	K s-1 K s-1

tavg01mo_3d_DTDTLWCNA_Cp: Tendency: T due to Longwave Radiation (Clear Sky,No Aerosols)

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DTDTLWCNA	tzyx	air temperature tendency due to longwave for clear skies no aerosol	K s-1
Var_DTDTLWCNA	tzyx	Variance of DTDTLWCNA	K s-1 K s-1

tavg01mo_3d_DTDTLWC_Cp: Tendency: T due to Longwave Radiation (Clear Sky)

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DTDTLWC	tzyx	air temperature tendency due to longwave for clear skies	K s-1
Var_DTDTLWC	tzyx	Variance of DTDTLWC	K s-1 K s-1

tavg01mo_3d_DTDTLW_Cp: Tendency: T due to Longwave Radiation (All Sky)

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DTDTLW	tzyx	air temperature tendency due to longwave	K s-1
Var_DTDTLW	tzyx	Variance of DTDTLW	K s-1 K s-1

tavg01mo_3d_DTDTMST_Cp: Tendency: T due to Moist Processes

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DTDTMST	tzyx	tendency of air temperature due to moist processes	K s-1

Var_DTDTMST	tzyx	Variance of DTDTMST	K s-1 K s-1

tavg01mo_3d_DTDTORO_Cp: Tendency: T due to Orographic GWD

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DTDTORO	tzyx	air temperature tendency due to orographic GWD	K s-1
Var_DTDTORO	tzyx	Variance of DTDTORO	K s-1 K s-1

tavg01mo_3d_DTDTRAY_Cp: Tendency: T due to Rayleigh Friction

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DTDTRAY	tzyx	air temperature tendency due to Rayleigh friction	K s-1
Var_DTDTRAY	tzyx	Variance of DTDTRAY	K s-1 K s-1

tavg01mo_3d_DTDTSWCNA_Cp: Tendency: T due to Shortwave Radiation (Clear Sky,No Aerosol)

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DTDTSWCNA	tzyx	air temperature tendency due to shortwave for clear skies no aerosol	K s-1
Var_DTDTSWCNA	tzyx	Variance of DTDTSWCNA	K s-1 K s-1

tavg01mo_3d_DTDTSWC_Cp: Tendency: T due to Shortwave Radiation (Clear Sky)

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DTDTSWC	tzyx	air temperature tendency due to shortwave for clear skies	K s-1
Var_DTDTSWC	tzyx	Variance of DTDTSWC	K s-1 K s-1

tavg01mo_3d_DTDTSWNA_Cp: Tendency: T due to Shortwave Radiation (Clear Sky)

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DTDTSWNA	tzyx	air temperature tendency due to shortwave no aerosol	K s-1
Var_DTDTSWNA	tzyx	Variance of DTDTSWNA	K s-1 K s-1

tavg01mo_3d_DTDTSW_Cp: Tendency: T due to Shortwave Radiation (All Sky)

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DTDTSW	tzyx	air temperature tendency due to shortwave	K s-1
Var_DTDTSW	tzyx	Variance of DTDTSW	K s-1 K s-1

tavg01mo_3d_DTDTTRB_Cp: Tendency: T due to Turbulence

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*

Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DTDTTRB	tzyx	tendency of air temperature due to turbulence	K s-1
Var_DTDTTRB	tzyx	Variance of DTDTTRB	K s-1 K s-1

tavg01mo_3d_DTRAIN_Cp: Detraining Mass Flux

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DTRAIN	tzyx	detraining mass flux	kg m-2 s-1
Var_DTRAIN	tzyx	Variance of DTRAIN	kg m-2 s-1 kg m-2 s-1

tavg01mo_3d_DU001_Cp: Dust Bin 1 (0.7-1 microns)

Frequency: *1-monthly from 00:00 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DU001	tzyx	Dust Mixing Ratio (bin 001)	kg kg-1
Var_DU001	tzyx	Variance of DU001	kg kg-1 kg kg-1

tavg01mo_3d_DU002_Cp: Dust Bin 2 (1-1.8 microns)

Frequency: *1-monthly from 00:00 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DU002	tzyx	Dust Mixing Ratio (bin 002)	kg kg-1
Var_DU002	tzyx	Variance of DU002	kg kg-1 kg kg-1

tavg01mo_3d_DU003_Cp: Dust Bin 3 (1.8-3 microns)

Frequency: *1-monthly from 00:00 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DU003	tzyx	Dust Mixing Ratio (bin 003)	kg kg-1
Var_DU003	tzyx	Variance of DU003	kg kg-1 kg kg-1

tavg01mo_3d_DU004_Cp: Dust Bin 4 (3-6 microns)

Frequency: *1-monthly from 00:00 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DU004	tzyx	Dust Mixing Ratio (bin 004)	kg kg-1
Var_DU004	tzyx	Variance of DU004	kg kg-1 kg kg-1

tavg01mo_3d_DU005_Cp: Dust Bin 5 (6-10 microns)

Frequency: *1-monthly from 00:00 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DU005	tzyx	Dust Mixing Ratio (bin 005)	kg kg-1

Var_DU005	tzyx	Variance of DU005	kg kg-1 kg kg-1

tavg01mo_3d_DUDTBKG_Cp: Tendency: U due to Background GWD

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	*Dim*	*Description*	*Units*
DUDTBKG	tzyx	tendency of eastward wind due to background GWD	m s-2
Var_DUDTBKG	tzyx	Variance of DUDTBKG	m s-2 m s-2

tavg01mo_3d_DUDTDYN_Cp: Tendency: U due to Dynamics

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	*Dim*	*Description*	*Units*
DUDTDYN	tzyx	tendency of eastward wind due to dynamics	m/s/s
Var_DUDTDYN	tzyx	Variance of DUDTDYN	m/s/s m/s/s

tavg01mo_3d_DUDTGWD_Cp: Tendency: U due to GWD

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	*Dim*	*Description*	*Units*
DUDTGWD	tzyx	tendency of eastward wind due to GWD	m s-2
Var_DUDTGWD	tzyx	Variance of DUDTGWD	m s-2 m s-2

tavg01mo_3d_DUDTMST_Cp: Tendency: U due to Moist Processes

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DUDTMST	tzyx	zonal wind tendency due to moist	m s-2
Var_DUDTMST	tzyx	Variance of DUDTMST	m s-2 m s-2

tavg01mo_3d_DUDTORO_Cp: Tendency: U due to Orographic GWD

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DUDTORO	tzyx	tendency of eastward wind due to orographic GWD	m s-2
Var_DUDTORO	tzyx	Variance of DUDTORO	m s-2 m s-2

tavg01mo_3d_DUDTRAY_Cp: Tendency: U due to Rayleigh Friction

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DUDTRAY	tzyx	tendency of eastward wind due to Rayleigh friction	m s-2
Var_DUDTRAY	tzyx	Variance of DUDTRAY	m s-2 m s-2

tavg01mo_3d_DUDTTRB_Cp: Tendency: U due to Turbulence

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*

Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DUDTTRB	tzyx	tendency of eastward wind due to turbulence	m s-2
Var_DUDTTRB	tzyx	Variance of DUDTTRB	m s-2 m s-2

tavg01mo_3d_DVDTBKG_Cp: Tendency: V due to Background GWD

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DVDTBKG	tzyx	tendency of northward wind due to background GWD	m s-2
Var_DVDTBKG	tzyx	Variance of DVDTBKG	m s-2 m s-2

tavg01mo_3d_DVDTDYN_Cp: Tendency: V due to Dynamics

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DVDTDYN	tzyx	tendency of northward wind due to dynamics	m/s/s
Var_DVDTDYN	tzyx	Variance of DVDTDYN	m/s/s m/s/s

tavg01mo_3d_DVDTGWD_Cp: Tendency: V due to GWD

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DVDTGWD	tzyx	tendency of northward wind due to GWD	m s-2
Var_DVDTGWD	tzyx	Variance of DVDTGWD	m s-2 m s-2

tavg01mo_3d_DVDTMST_Cp: Tendency: V due to Moist Processes

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DVDTMST	tzyx	meridional wind tendency due to moist	m s-2
Var_DVDTMST	tzyx	Variance of DVDTMST	m s-2 m s-2

tavg01mo_3d_DVDTORO_Cp: Tendency: V due to Orographic GWD

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DVDTORO	tzyx	tendency of northward wind due to orographic GWD	m s-2
Var_DVDTORO	tzyx	Variance of DVDTORO	m s-2 m s-2

tavg01mo_3d_DVDTRAY_Cp: Tendency: V due to Rayleigh Friction

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DVDTRAY	tzyx	tendency of northward wind due to Rayleigh friction	m s-2
Var_DVDTRAY	tzyx	Variance of DVDTRAY	m s-2 m s-2

tavg01mo_3d_DVDTTRB_Cp: Tendency: V due to Turbulence

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
DVDTTRB	tzyx	tendency of northward wind due to turbulence	m s-2
Var_DVDTTRB	tzyx	Variance of DVDTTRB	m s-2 m s-2

tavg01mo_3d_EPV_Cp: Ertel Potential Vorticity

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
EPV	tzyx	ertels potential vorticity	K m+2 kg-1 s-1
Var_EPV	tzyx	Variance of EPV	K m+2 kg-1 s-1 K m+2 kg-1 s-1

tavg01mo_3d_H_Cp: Height at Mid-Layer

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
H	tzyx	mid layer heights	m
Var_H	tzyx	Variance of H	m m

tavg01mo_3d_KH_Cp: Diffusion Coefficient (Heat)

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
KH	tzyx	total scalar diffusivity	m+2 s-1
Var_KH	tzyx	Variance of KH	m+2 s-1 m+2 s-1

tavg01mo_3d_KM_Cp: Diffusion Coefficient (Momentum)

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
KM	tzyx	total momentum diffusivity	m+2 s-1
Var_KM	tzyx	Variance of KM	m+2 s-1 m+2 s-1

tavg01mo_3d_O3_Cp: Ozone

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
O3	tzyx	ozone mass mixing ratio	kg kg-1
Var_O3	tzyx	Variance of O3	kg kg-1 kg kg-1

tavg01mo_3d_OCPHILIC_Cp: Hydrophobic Organic Carbon

Frequency: *1-monthly from 00:00 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
OCPHILIC	tzyx	Hydrophilic Organic Carbon (Particulate Matter)	kg kg-1
Var_OCPHILIC	tzyx	Variance of OCPHILIC	kg kg-1 kg kg-1

tavg01mo_3d_OCPHOBIC_Cp: Hydrophobic Organic Carbon

Frequency: *1-monthly from 00:00 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
OCPHOBIC	tzyx	Hydrophobic Organic Carbon (Particulate Matter)	kg kg-1
Var_OCPHOBIC	tzyx	Variance of OCPHOBIC	kg kg-1 kg kg-1

tavg01mo_3d_PL_Cp: Pressure at Mid-Layer

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
PL	tzyx	mid level pressure	Pa
Var_PL	tzyx	Variance of PL	Pa Pa

tavg01mo_3d_QCCU_Cp: Convective Condensate

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
QCCU	tzyx	grid mean convective condensate	kg kg-1
Var_QCCU	tzyx	Variance of QCCU	kg kg-1 kg kg-1

tavg01mo_3d_QI_Cp: Cloud Ice Condensate

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
QI	tzyx	mass fraction of cloud ice water	kg kg-1
Var_QI	tzyx	Variance of QI	kg kg-1 kg kg-1

tavg01mo_3d_QL_Cp: Cloud Liquid Condensate

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
QL	tzyx	mass fraction of cloud liquid water	kg kg-1
Var_QL	tzyx	Variance of QL	kg kg-1 kg kg-1

tavg01mo_3d_QQ_Cp: Second Moment: Q*Q

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	*Dim*	*Description*	*Units*
QQ	tzyx	specific humidity	1
Var_QQ	tzyx	Variance of QQ	1 1

tavg01mo_3d_QR_Cp: Falling Rain

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	*Dim*	*Description*	*Units*
QR	tzyx	Falling rain for radiation	kg kg-1
Var_QR	tzyx	Variance of QR	kg kg-1 kg kg-1

tavg01mo_3d_QS_Cp: Falling Snow

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	*Dim*	*Description*	*Units*
QS	tzyx	Falling snow for radiation	kg kg-1
Var_QS	tzyx	Variance of QS	kg kg-1 kg kg-1

tavg01mo_3d_QT2_Cp: Second Moment: (Q+QC)**2

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
QT2	tzyx	specific humidity	kg kg-1
Var_QT2	tzyx	Variance of QT2	kg kg-1 kg kg-1

tavg01mo_3d_QT3_Cp: Third Moment: (Q+QC)**3

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
QT3	tzyx	specific humidity	kg kg-1
Var_QT3	tzyx	Variance of QT3	kg kg-1 kg kg-1

tavg01mo_3d_QV_Cp: Specific Humidity

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~97 MB*

Name	Dim	Description	Units
QV	tzyx	specific humidity	kg kg-1
Var_QV	tzyx	Variance of QV	kg kg-1 kg kg-1
Var_tpw	tyx	Variance of tpw	kg m-2 kg m-2
tpw	tyx	Total Precipitable Water Vapor	kg m-2

tavg01mo_3d_REEVAPCN_Cp: Evaporation/Sublimation of Convective Precipitation

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
REEVAPCN	tzyx	evap subl of convective precipitation	kg kg-1 s-1
Var_REEVAPCN	tzyx	Variance of REEVAPCN	kg kg-1 s-1 kg kg-1 s-1

tavg01mo_3d_REEVAPLSAN_Cp: Evaporation/Sublimation of Non-Convective Precipitation

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
REEVAPLSAN	tzyx	evap subl of non convective precipitation	kg kg-1 s-1
Var_REEVAPLSAN	tzyx	Variance of REEVAPLSAN	kg kg-1 s-1 kg kg-1 s-1

tavg01mo_3d_RH_Cp: Relative Humidity

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
RH	tzyx	relative humidity after moist	1
Var_RH	tzyx	Variance of RH	1 1

tavg01mo_3d_RI_Cp: Richardson Number

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
RI	tzyx	Richardson number from Louis	1
Var_RI	tzyx	Variance of RI	1 1

tavg01mo_3d_SO2_Cp: Sulfate Dioxide

Frequency: *1-monthly from 00:00 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
SO2	tzyx	Sulphur dioxide	kg kg-1
Var_SO2	tzyx	Variance of SO2	kg kg-1 kg kg-1

tavg01mo_3d_SO4_Cp: Sulfate Aerosol

Frequency: *1-monthly from 00:00 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
SO4	tzyx	Sulphate aerosol	kg kg-1
Var_SO4	tzyx	Variance of SO4	kg kg-1 kg kg-1

tavg01mo_3d_SS001_Cp: Sea Salt Bin 1 (0.03-0.1 microns)

Frequency: *1-monthly from 00:00 UTC (time-averaged)*

Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
SS001	tzyx	Sea Salt Mixing Ratio (bin 001)	kg kg-1
Var_SS001	tzyx	Variance of SS001	kg kg-1 kg kg-1

tavg01mo_3d_SS002_Cp: Sea Salt Bin 2 (0.1-0.5 microns)

Frequency: *1-monthly from 00:00 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
SS002	tzyx	Sea Salt Mixing Ratio (bin 002)	kg kg-1
Var_SS002	tzyx	Variance of SS002	kg kg-1 kg kg-1

tavg01mo_3d_SS003_Cp: Sea Salt Bin 3 (0.5-1.5 microns)

Frequency: *1-monthly from 00:00 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
SS003	tzyx	Sea Salt Mixing Ratio (bin 003)	kg kg-1
Var_SS003	tzyx	Variance of SS003	kg kg-1 kg kg-1

tavg01mo_3d_SS004_Cp: Sea Salt Bin 4 (1.5-5 microns)

Frequency: *1-monthly from 00:00 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*

Granule Size: *~95 MB*

Name	Dim	Description	Units
SS004	tzyx	Sea Salt Mixing Ratio (bin 004)	kg kg-1
Var_SS004	tzyx	Variance of SS004	kg kg-1 kg kg-1

tavg01mo_3d_SS005_Cp: Sea Salt Bin 5 (5-10 microns)

Frequency: *1-monthly from 00:00 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
SS005	tzyx	Sea Salt Mixing Ratio (bin 005)	kg kg-1
Var_SS005	tzyx	Variance of SS005	kg kg-1 kg kg-1

tavg01mo_3d_TAUCLI_Cp: Ice Cloud Optical Depth (VIS)

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
TAUCLI	tzyx	in cloud optical thickness for ice clouds	1
Var_TAUCLI	tzyx	Variance of TAUCLI	1 1

tavg01mo_3d_TAUCLW_Cp: Liquid Cloud Optical Depth (VIS)

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
TAUCLW	tzyx	in cloud optical thickness for liquid clouds	1
Var_TAUCLW	tzyx	Variance of TAUCLW	1 1

tavg01mo_3d_TAUIR_Cp: Cloud Optical Depth (IR)

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
TAUIR	tzyx	longwave cloud optical thickness at 800 cm-1	W m-2
Var_TAUIR	tzyx	Variance of TAUIR	W m-2 W m-2

tavg01mo_3d_TT_Cp: Second Moment: T*T

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
TT	tzyx	air temperature	K
Var_TT	tzyx	Variance of TT	K K

tavg01mo_3d_T_Cp: Air Temperature

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~190 MB*

Name	Dim	Description	Units
T	tzyx	air temperature	K

Var_T	tzyx	Variance of T	K K
Var_qsat	tzyx	Variance of qsat	g/g g/g
qsat	tzyx	Saturation Specific Humidity	g/g

tavg01mo_3d_UU_Cp: Second Moment: U*U

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	*Dim*	*Description*	*Units*
UU	tzyx	eastward wind	m s-1
Var_UU	tzyx	Variance of UU	m s-1 m s-1

tavg01mo_3d_U_Cp: Zonal Wind

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	*Dim*	*Description*	*Units*
U	tzyx	eastward wind	m s-1
Var_U	tzyx	Variance of U	m s-1 m s-1

tavg01mo_3d_VV_Cp: Second Moment: V*V

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	*Dim*	*Description*	*Units*
VV	tzyx	northward wind	m s-1
Var_VV	tzyx	Variance of VV	m s-1 m s-1

tavg01mo_3d_V_Cp: Meridional Wind

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
V	tzyx	northward wind	m s-1
Var_V	tzyx	Variance of V	m s-1 m s-1

tavg01mo_3d_WQ_Cp: Second Moment: W*Q

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
Var_WQ	tzyx	Variance of WQ	m s-1 m s-1
WQ	tzyx	vertical velocity	m s-1

tavg01mo_3d_WTH_Cp: Second Moment: W*Theta

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
Var_WTH	tzyx	Variance of WTH	m s-1 m s-1
WTH	tzyx	vertical velocity	m s-1

tavg01mo_3d_WT_Cp: Second Moment: W*T

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*

Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
Var_WT	tzyx	Variance of WT	m s-1 m s-1
WT	tzyx	vertical velocity	m s-1

tavg01mo_3d_WU_Cp: Second Moment: W*U

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
Var_WU	tzyx	Variance of WU	m s-1 m s-1
WU	tzyx	vertical velocity	m s-1

tavg01mo_3d_WV_Cp: Second Moment: W*V

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
Var_WV	tzyx	Variance of WV	m s-1 m s-1
WV	tzyx	vertical velocity	m s-1

tavg01mo_3d_WW_Cp: Second Moment: W*W

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
Var_WW	tzyx	Variance of WW	m s-1 m s-1
WW	tzyx	vertical velocity	m s-1

tavg01mo_3d_W_Cp: Vertical Wind

Frequency: *1-monthly from 00:30 UTC (time-averaged)*
Spatial Grid: *3D, pressure-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, level=48, time=1*
Granule Size: *~95 MB*

Name	Dim	Description	Units
Var_W	tzyx	Variance of W	m s-1 m s-1
W	tzyx	vertical velocity	m s-1

C.7 Coarse Resolution, Monthly Time-diurnally-averaged Collections

tdav01mo_2d_aer1_Cx: Single-Level Aerosol/Carbon Diagnostics (1)

Frequency: *1-monthly from 00:00 UTC (time-diurnally-averaged)*
Spatial Grid: *2D, single-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, time=24*
Granule Size: *~1.1 GB*

Name	Dim	Description	Units
BCANGSTR	tyx	Black Carbon Angstrom parameter [470-870 nm]	1
BCCMASS	tyx	Black Carbon Column Mass Density	kg m-2
BCEXTTAU	tyx	Black Carbon Extinction AOT [550 nm]	1
BCSCATAU	tyx	Black Carbon Scattering AOT [550 nm]	1
BCSMASS	tyx	Black Carbon Surface Mass Concentration	kg m-3
CO2CL001	tyx	CO2 Bulk Mixing Ratio (Column Mass/ps) Bin 001	1
CO2SC001	tyx	CO2 Surface Concentration Bin 001	1e-6
COCL	tyx	CO Column Burden	kg m-2
COSC	tyx	CO Surface Concentration in ppbv	1e-9
DMSCMASS	tyx	DMS Column Mass Density	kg m-2
DMSSMASS	tyx	DMS Surface Mass Concentration	kg m-3

DUANGSTR	tyx	Dust Angstrom parameter [470-870 nm]	1
DUCMASS	tyx	Dust Column Mass Density	kg m-2
DUCMASS25	tyx	Dust Column Mass Density - PM 2.5	kg m-2
DUEXTT25	tyx	Dust Extinction AOT [550 nm] - PM 2.5	1
DUEXTTAU	tyx	Dust Extinction AOT [550 nm]	1
DUSCAT25	tyx	Dust Scattering AOT [550 nm] - PM 2.5	1
DUSCATAU	tyx	Dust Scattering AOT [550 nm]	1
DUSMASS	tyx	Dust Surface Mass Concentration	kg m-3
DUSMASS25	tyx	Dust Surface Mass Concentration - PM 2.5	kg m-3
OCANGSTR	tyx	Organic Carbon Angstrom parameter [470-870 nm]	1
OCCMASS	tyx	Organic Carbon Column Mass Density	kg m-2
OCEXTTAU	tyx	Organic Carbon Extinction AOT [550 nm]	1
OCSCATAU	tyx	Organic Carbon Scattering AOT [550 nm]	1
OCSMASS	tyx	Organic Carbon Surface Mass Concentration	kg m-3
SO2CMASS	tyx	SO2 Column Mass Density	kg m-2
SO2SMASS	tyx	SO2 Surface Mass Concentration	kg m-3
SO4CMASS	tyx	SO4 Column Mass Density	kg m-2
SO4SMASS	tyx	SO4 Surface Mass Concentration	kg m-3
SSANGSTR	tyx	Sea Salt Angstrom parameter [470-870 nm]	1
SSCMASS	tyx	Sea Salt Column Mass Density	kg m-2
SSCMASS25	tyx	Sea Salt Column Mass Density - PM 2.5	kg m-2
SSEXTT25	tyx	Sea Salt Extinction AOT [550 nm] - PM 2.5	1
SSEXTTAU	tyx	Sea Salt Extinction AOT [550 nm]	1
SSSCAT25	tyx	Sea Salt Scattering AOT [550 nm] - PM 2.5	1
SSSCATAU	tyx	Sea Salt Scattering AOT [550 nm]	1
SSSMASS	tyx	Sea Salt Surface Mass Concentration	kg m-3
SSSMASS25	tyx	Sea Salt Surface Mass Concentration - PM 2.5	kg m-3
SUANGSTR	tyx	SO4 Angstrom parameter [470-870 nm]	1
SUEXTTAU	tyx	SO4 Extinction AOT [550 nm]	1
SUSCATAU	tyx	SO4 Scattering AOT [550 nm]	1
TOTANGSTR	tyx	Total Aerosol Angstrom parameter [470-870 nm]	1
TOTEXTTAU	tyx	Total Aerosol Extinction AOT [550 nm]	1
TOTSCATAU	tyx	Total Aerosol Scattering AOT [550 nm]	1

tdav01mo_2d_aer2_Cx: Single-Level Aerosol/Carbon Diagnostics (2)

Frequency: *1-monthly from 00:30 UTC (time-diurnally-averaged)*
Spatial Grid: *2D, single-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, time=24*
Granule Size: *~1.3 GB*

Name	Dim	Description	Units
DUDP001	tyx	Dust Dry Deposition Bin 001	kg m-2 s-1
DUDP002	tyx	Dust Dry Deposition Bin 002	kg m-2 s-1
DUDP003	tyx	Dust Dry Deposition Bin 003	kg m-2 s-1
DUDP004	tyx	Dust Dry Deposition Bin 004	kg m-2 s-1
DUDP005	tyx	Dust Dry Deposition Bin 005	kg m-2 s-1
DUEM001	tyx	Dust Emission Bin 001	kg m-2 s-1
DUEM002	tyx	Dust Emission Bin 002	kg m-2 s-1
DUEM003	tyx	Dust Emission Bin 003	kg m-2 s-1
DUEM004	tyx	Dust Emission Bin 004	kg m-2 s-1
DUEM005	tyx	Dust Emission Bin 005	kg m-2 s-1
DUFLUXU	tyx	Dust column u-wind mass flux	kg m-1 s-1
DUFLUXV	tyx	Dust column v-wind mass flux	kg m-1 s-1
DUSD001	tyx	Dust Sedimentation Bin 001	kg m-2 s-1
DUSD002	tyx	Dust Sedimentation Bin 002	kg m-2 s-1
DUSD003	tyx	Dust Sedimentation Bin 003	kg m-2 s-1
DUSD004	tyx	Dust Sedimentation Bin 004	kg m-2 s-1
DUSD005	tyx	Dust Sedimentation Bin 005	kg m-2 s-1
DUSV001	tyx	Dust Convective Scavenging Bin 001	kg m-2 s-1
DUSV002	tyx	Dust Convective Scavenging Bin 002	kg m-2 s-1
DUSV003	tyx	Dust Convective Scavenging Bin 003	kg m-2 s-1
DUSV004	tyx	Dust Convective Scavenging Bin 004	kg m-2 s-1
DUSV005	tyx	Dust Convective Scavenging Bin 005	kg m-2 s-1
DUWT001	tyx	Dust Wet Deposition Bin 001	kg m-2 s-1
DUWT002	tyx	Dust Wet Deposition Bin 002	kg m-2 s-1
DUWT003	tyx	Dust Wet Deposition Bin 003	kg m-2 s-1
DUWT004	tyx	Dust Wet Deposition Bin 004	kg m-2 s-1
DUWT005	tyx	Dust Wet Deposition Bin 005	kg m-2 s-1
SSDP001	tyx	Sea Salt Dry Deposition Bin 001	kg m-2 s-1

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Name	Dim	Description	Units
SSDP002	tyx	Sea Salt Dry Deposition Bin 002	kg m-2 s-1
SSDP003	tyx	Sea Salt Dry Deposition Bin 003	kg m-2 s-1
SSDP004	tyx	Sea Salt Dry Deposition Bin 004	kg m-2 s-1
SSDP005	tyx	Sea Salt Dry Deposition Bin 005	kg m-2 s-1
SSEM001	tyx	Sea Salt Emission Bin 001	kg m-2 s-1
SSEM002	tyx	Sea Salt Emission Bin 002	kg m-2 s-1
SSEM003	tyx	Sea Salt Emission Bin 003	kg m-2 s-1
SSEM004	tyx	Sea Salt Emission Bin 004	kg m-2 s-1
SSEM005	tyx	Sea Salt Emission Bin 005	kg m-2 s-1
SSFLUXU	tyx	Sea Salt column u-wind mass flux	kg m-1 s-1
SSFLUXV	tyx	Sea Salt column v-wind mass flux	kg m-1 s-1
SSSD001	tyx	Sea Salt Sedimentation Bin 001	kg m-2 s-1
SSSD002	tyx	Sea Salt Sedimentation Bin 002	kg m-2 s-1
SSSD003	tyx	Sea Salt Sedimentation Bin 003	kg m-2 s-1
SSSD004	tyx	Sea Salt Sedimentation Bin 004	kg m-2 s-1
SSSD005	tyx	Sea Salt Sedimentation Bin 005	kg m-2 s-1
SSSV001	tyx	Sea Salt Convective Scavenging Bin 001	kg m-2 s-1
SSSV002	tyx	Sea Salt Convective Scavenging Bin 002	kg m-2 s-1
SSSV003	tyx	Sea Salt Convective Scavenging Bin 003	kg m-2 s-1
SSSV004	tyx	Sea Salt Convective Scavenging Bin 004	kg m-2 s-1
SSSV005	tyx	Sea Salt Convective Scavenging Bin 005	kg m-2 s-1
SSWT001	tyx	Sea Salt Wet Deposition Bin 001	kg m-2 s-1
SSWT002	tyx	Sea Salt Wet Deposition Bin 002	kg m-2 s-1
SSWT003	tyx	Sea Salt Wet Deposition Bin 003	kg m-2 s-1
SSWT004	tyx	Sea Salt Wet Deposition Bin 004	kg m-2 s-1
SSWT005	tyx	Sea Salt Wet Deposition Bin 005	kg m-2 s-1

tdav01mo_2d_aer3_Cx: Single-Level Aerosol/Carbon Diagnostics (3)

Frequency: *1-monthly from 00:30 UTC (time-diurnally-averaged)*
Spatial Grid: *2D, single-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, time=24*
Granule Size: *~1.4 GB*

Name	Dim	Description	Units
BCANGSTR	tyx	Black Carbon Angstrom parameter [470-870 nm]	1

BCCMASS	tyx	Black Carbon Column Mass Density	kg m-2
BCDP001	tyx	Black Carbon Dry Deposition Bin 001	kg m-2 s-1
BCDP002	tyx	Black Carbon Dry Deposition Bin 002	kg m-2 s-1
BCEM001	tyx	Black Carbon Emission Bin 001	kg m-2 s-1
BCEM002	tyx	Black Carbon Emission Bin 002	kg m-2 s-1
BCEMAN	tyx	Black Carbon Anthropogenic Emissions	kg m-2 s-1
BCEMBB	tyx	Black Carbon Biomass Burning Emissions	kg m-2 s-1
BCEXTTAU	tyx	Black Carbon Extinction AOT [550 nm]	1
BCFLUXU	tyx	Black Carbon column u-wind mass flux	kg m-1 s-1
BCFLUXV	tyx	Black Carbon column v-wind mass flux	kg m-1 s-1
BCSCATAU	tyx	Black Carbon Scattering AOT [550 nm]	1
BCSD001	tyx	Black Carbon Sedimentation Bin 001	kg m-2 s-1
BCSD002	tyx	Black Carbon Sedimentation Bin 002	kg m-2 s-1
BCSMASS	tyx	Black Carbon Surface Mass Concentration	kg m-3
BCSV001	tyx	Black Carbon Convective Scavenging Bin 001	kg m-2 s-1
BCSV002	tyx	Black Carbon Convective Scavenging Bin 002	kg m-2 s-1
BCWT002	tyx	Black Carbon Wet Deposition Bin 002	kg m-2 s-1
CO2EM001	tyx	CO2 Emission Bin 001	kg m-2 s-1
COEM	tyx	CO Emission	kg m-2 s-1
OCDP001	tyx	Organic Carbon Dry Deposition Bin 001	kg m-2 s-1
OCDP002	tyx	Organic Carbon Dry Deposition Bin 002	kg m-2 s-1
OCEM001	tyx	Organic Carbon Emission Bin 001	kg m-2 s-1
OCEM002	tyx	Organic Carbon Emission Bin 002	kg m-2 s-1
OCEMAN	tyx	Organic Carbon Anthropogenic Emissions	kg m-2 s-1
OCEMBB	tyx	Organic Carbon Biomass Burning Emissions	kg m-2 s-1
OCEMBG	tyx	Organic Carbon Biogenic Emissions	kg m-2 s-1
OCFLUXU	tyx	Organic Carbon column u-wind mass flux	kg m-1 s-1
OCFLUXV	tyx	Organic Carbon column v-wind mass flux	kg m-1 s-1
OCSD001	tyx	Organic Carbon Sedimentation Bin 001	kg m-2 s-1
OCSD002	tyx	Organic Carbon Sedimentation Bin 002	kg m-2 s-1
OCSV001	tyx	Organic Carbon Convective Scavenging Bin 001	kg m-2 s-1
OCSV002	tyx	Organic Carbon Convective Scavenging Bin 002	kg m-2 s-1
OCWT002	tyx	Organic Carbon Wet Deposition Bin 002	kg m-2 s-1
SO2EMAN	tyx	SO2 Anthropogenic Emissions	kg m-2 s-1
SO2EMBB	tyx	SO2 Biomass Burning Emissions	kg m-2 s-1

SO2EMVE	tyx	SO2 Volcanic (explosive) Emissions	kg m-2 s-1
SO2EMVN	tyx	SO2 Volcanic (non-explosive) Emissions	kg m-2 s-1
SO4EMAN	tyx	SO4 Anthropogenic Emissions	kg m-2 s-1
SUDP002	tyx	Sulfate Dry Deposition Bin 002	kg m-2 s-1
SUDP003	tyx	Sulfate Dry Deposition Bin 003	kg m-2 s-1
SUDP004	tyx	Sulfate Dry Deposition Bin 004	kg m-2 s-1
SUEM001	tyx	Sulfate Emission Bin 001	kg m-2 s-1
SUEM002	tyx	Sulfate Emission Bin 002	kg m-2 s-1
SUEM003	tyx	Sulfate Emission Bin 003	kg m-2 s-1
SUFLUXU	tyx	SO4 column u-wind mass flux	kg m-1 s-1
SUFLUXV	tyx	SO4 column v-wind mass flux	kg m-1 s-1
SUPMSA	tyx	MSA Prod from DMS Oxidation [column]	kg m-2 s-1
SUPSO2	tyx	SO2 Prod from DMS Oxidation [column]	kg m-2 s-1
SUPSO4AQ	tyx	SO4 Prod from Aqueous SO2 Oxidation [column]	kg m-2 s-1
SUPSO4G	tyx	SO4 Prod from Gaseous SO2 Oxidation [column]	kg m-2 s-1
SUPSO4WT	tyx	SO4 Prod from Aqueous SO2 Oxidation (wet dep) [column]	kg m-2 s-1
SUSD003	tyx	Sulfate Settling Bin 003	kg m-2 s-1
SUSV001	tyx	Sulfate Convective Scavenging Bin 001	kg m-2 s-1
SUSV002	tyx	Sulfate Convective Scavenging Bin 002	kg m-2 s-1
SUSV003	tyx	Sulfate Convective Scavenging Bin 003	kg m-2 s-1
SUSV004	tyx	Sulfate Convective Scavenging Bin 004	kg m-2 s-1
SUWT002	tyx	Sulfate Wet Deposition Bin 002	kg m-2 s-1
SUWT003	tyx	Sulfate Wet Deposition Bin 003	kg m-2 s-1
SUWT004	tyx	Sulfate Wet Deposition Bin 004	kg m-2 s-1

tdav01mo_2d_met1_Cx: Single-Level Meteorology

Frequency: *1-monthly from 00:00 UTC (time-diurnally-averaged)*
Spatial Grid: *2D, single-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, time=24*
Granule Size: *~904 MB*

Name	Dim	Description	Units
H1000	tyx	height at 1000 mb	m
H250	tyx	height at 250 hPa	m

H500	tyx	height at 500 hPa	m
H850	tyx	height at 850 hPa	m
HLML	tyx	surface layer height	m
PS	tyx	surface pressure	Pa
Q250	tyx	specific humidity at 250 hPa	kg kg-1
Q500	tyx	specific humidity at 500 hPa	kg kg-1
Q850	tyx	specific humidity at 850 hPa	kg kg-1
QLML	tyx	surface specific humidity	1
QV10M	tyx	10-meter specific humidity	kg kg-1
QV2M	tyx	2-meter specific humidity	kg kg-1
SLP	tyx	sea level pressure	Pa
T10M	tyx	10-meter air temperature	K
T250	tyx	air temperature at 250 hPa	K
T2M	tyx	2-meter air temperature	K
T500	tyx	air temperature at 500 hPa	K
T850	tyx	air temperature at 850 hPa	K
TLML	tyx	surface air temperature	K
U10M	tyx	10-meter eastward wind	m s-1
U250	tyx	eastward wind at 250 hPa	m s-1
U2M	tyx	2-meter eastward wind	m s-1
U500	tyx	eastward wind at 500 hPa	m s-1
U50M	tyx	eastward wind at 50 meters	m s-1
U850	tyx	eastward wind at 850 hPa	m s-1
ULML	tyx	surface eastward wind	m s-1
V10M	tyx	10-meter northward wind	m s-1
V250	tyx	northward wind at 250 hPa	m s-1
V2M	tyx	2-meter northward wind	m s-1
V500	tyx	northward wind at 500 hPa	m s-1
V50M	tyx	northward wind at 50 meters	m s-1
V850	tyx	northward wind at 850 hPa	m s-1
VLML	tyx	surface northward wind	m s-1
VORT850	tyx	vorticity at 850 hPa	m s-1
W10	tyx	w at 10 hPa	m s-1
W200	tyx	w at 200 hPa	m s-1
W500	tyx	w at 500 hPa	m s-1

Name	Dim	Description	Units
W850	tyx	w at 850 hPa	m s-1

tdav01mo_2d_met2_Cx: Single-Level Surface Diagnostics

Frequency: *1-monthly from 00:30 UTC (time-diurnally-averaged)*
Spatial Grid: *2D, single-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, time=24*
Granule Size: *~2.2 GB*

Name	*Dim*	*Description*	*Units*
BASEFLOW	tyx	baseflow flux	kg m-2 s-1
BSTAR	tyx	surface bouyancy scale	m s-2
CAPE	tyx	cape for surface parcel	J m-2
CDH	tyx	surface exchange coefficient for heat	kg m-2 s-1
CDM	tyx	surface exchange coefficient for momentum	kg m-2 s-1
CDQ	tyx	surface exchange coefficient for moisture	kg m-2 s-1
CN	tyx	surface neutral drag coefficient	1
DISPH	tyx	zero plane displacement height	m
ECHANGE	tyx	rate of change of total land energy	W m-2
EFLUX	tyx	total latent energy flux	W m-2
EMIS	tyx	surface emissivity	1
EVAP	tyx	evaporation from turbulence	kg m-2 s-1
EVLAND	tyx	Evaporation land	kg m-2 s-1
EVPINTR	tyx	interception loss energy flux	W m-2
EVPSBLN	tyx	snow ice evaporation energy flux	W m-2
EVPSOIL	tyx	baresoil evap energy flux	W m-2
EVPTRNS	tyx	transpiration energy flux	W m-2
FRSAT	tyx	fractional area of saturated zone	1
FRSEAICE	tyx	ice covered fraction of tile	1
FRSNO	tyx	fractional area of land snowcover	1
FRUNST	tyx	fractional area of unsaturated zone	1
FRWLT	tyx	fractional area of wilting zone	1
GHLAND	tyx	Ground heating land	W m-2
GRN	tyx	greeness fraction	1
GWETPROF	tyx	ave prof soil moisture	1
GWETROOT	tyx	root zone soil wetness	1

GWETTOP	tyx	surface soil wetness	1
HFLUX	tyx	sensible heat flux from turbulence	W m-2
LAI	tyx	leaf area index	1
LHLAND	tyx	Latent heat flux land	W m-2
LWLAND	tyx	Net longwave land	W m-2
MXDIAM	tyx	diameter of largest RAS plume	m
PBLH	tyx	planetary boundary layer height	m
PGENTOT	tyx	Total column production of precipitation	kg m-2 s-1
PRECANV	tyx	anvil precipitation	kg m-2 s-1
PRECCON	tyx	convective precipitation	kg m-2 s-1
PRECLSC	tyx	nonanvil large scale precipitation	kg m-2 s-1
PRECSNO	tyx	snowfall	kg m-2 s-1
PRECTOT	tyx	total precipitation	kg m-2 s-1
PREVTOT	tyx	Total column re-evap/subl of precipitation	kg m-2 s-1
PRMC	tyx	water profile	m-3 m-3
QINFIL	tyx	Soil water infiltration rate	kg m-2 s-1
QSH	tyx	effective surface specific humidity	kg kg-1
QSTAR	tyx	surface moisture scale	kg kg-1
RHOA	tyx	air density at surface	kg m-3
RISFC	tyx	surface bulk richardson number	1
RNOFFTOT	tyx	runoff flux	kg m-2 s-1
RUNOFF	tyx	surface runoff flux	kg m-2 s-1
RZMC	tyx	water root zone	m-3 m-3
SFMC	tyx	water surface layer	m-3 m-3
SHLAND	tyx	Sensible heat flux land	W m-2
SMLAND	tyx	Snowmelt flux land	kg m-2 s-1
SNODP	tyx	snow depth	m
SNOMAS	tyx	Total snow storage land	kg m-2
SPEED	tyx	surface ventilation velocity	m s-1
SPLAND	tyx	rate of spurious land energy source	W m-2
SPSNOW	tyx	rate of spurious snow energy	W m-2
SPWATR	tyx	rate of spurious land water source	kg m-2 s-1
SWLAND	tyx	Net shortwave land	W m-2
TAUGWX	tyx	surface eastward gravity wave stress	N m-2
TAUGWY	tyx	surface northward gravity wave stress	N m-2

TAUX	tyx	eastward surface stress	N m-2
TAUY	tyx	northward surface stress	N m-2
TELAND	tyx	Total energy storage land	J m-2
TOX	tyx	total column odd oxygen	kg m-2
TPSNOW	tyx	surface temperature of snow	K
TQI	tyx	total precipitable ice water	kg m-2
TQL	tyx	total precipitable liquid water	kg m-2
TQV	tyx	total precipitable water vapor	kg m-2
TROPPB	tyx	tropopause pressure based on blended estimate	Pa
TROPPT	tyx	tropopause pressure based on thermal estimate	Pa
TROPPV	tyx	tropopause pressure based on EPV estimate	Pa
TROPQ	tyx	tropopause specific humidity using blended TROPP estimate	kg kg-1
TROPT	tyx	tropopause temperature using blended TROPP estimate	K
TS	tyx	surface skin temperature	K
TSAT	tyx	surface temperature of saturated zone	K
TSH	tyx	effective surface skin temperature	K
TSOIL1	tyx	soil temperatures layer 1	K
TSOIL2	tyx	soil temperatures layer 2	K
TSOIL3	tyx	soil temperatures layer 3	K
TSOIL4	tyx	soil temperatures layer 4	K
TSOIL5	tyx	soil temperatures layer 5	K
TSOIL6	tyx	soil temperatures layer 6	K
TSTAR	tyx	surface temperature scale	K
TSURF	tyx	surface temperature of land incl snow	K
TUNST	tyx	surface temperature of unsaturated zone	K
TWLAND	tyx	Avail water storage land	kg m-2
TWLT	tyx	surface temperature of wilted zone	K
USTAR	tyx	surface velocity scale	m s-1
WCHANGE	tyx	rate of change of total land water	kg m-2 s-1
Z0H	tyx	surface roughness for heat	m
Z0M	tyx	surface roughness	m

tdav01mo_2d_met3_Cx: Single-Level Physics Diagnostics

Frequency: *1-monthly from 00:30 UTC (time-diurnally-averaged)*

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Spatial Grid: *2D, single-level, coarsened to 1/2 degree*
Dimensions: *longitude=720, latitude=361, time=24*
Granule Size: *~1.7 GB*

Name	Dim	Description	Units
ALBEDO	tyx	surface albedo	1
ALBNIRDF	tyx	surface albedo for near infrared diffuse	1
ALBNIRDR	tyx	surface albedo for near infrared beam	1
ALBVISDF	tyx	surface albedo for visible diffuse	1
ALBVISDR	tyx	surface albedo for visible beam	1
CAPE	tyx	cape for surface parcel	J m-2
CLDHGH	tyx	cloud area fraction for high clouds	1
CLDLOW	tyx	cloud area fraction for low clouds	1
CLDMID	tyx	cloud area fraction for middle clouds	1
CLDPRS	tyx	cloud top pressure	Pa
CLDTMP	tyx	cloud top temperature	K
CLDTOT	tyx	total cloud area fraction	1
FLNS2	tyx	surface net downward longwave flux	W m-2
FLNSC2	tyx	surface net downward longwave flux assuming clear sky	W m-2
LWGAB	tyx	surface absorbed longwave radiation	W m-2
LWGABCLR	tyx	surface absorbed longwave radiation assuming clear sky	W m-2
LWGABCLRCLN	tyx	surface absorbed longwave radiation assuming clear sky and no aerosol	W m-2
LWGEM	tyx	longwave flux emitted from surface	W m-2
LWGNT	tyx	surface net downward longwave flux	W m-2
LWGNTCLR	tyx	surface net downward longwave flux assuming clear sky	W m-2
LWGNTCLRCLN	tyx	surface net downward longwave flux assuming clear sky and no aerosol	W m-2
LWTUP	tyx	upwelling longwave flux at toa	W m-2
LWTUPCLR	tyx	upwelling longwave flux at toa assuming clear sky	W m-2
LWTUPCLRCLN	tyx	upwelling longwave flux at toa assuming clear sky and no aerosol	W m-2
MXDIAM	tyx	diameter of largest RAS plume	m
OLC2	tyx	upwelling longwave flux at toa assuming clear sky	W m-2
OLR2	tyx	upwelling longwave flux at toa	W m-2
OSR2	tyx	toa outgoing shortwave flux	W m-2
OSRCLR2	tyx	toa outgoing shortwave flux assuming clear sky	W m-2

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PARDF	tyx	surface downwelling par diffuse flux	W m-2
PARDR	tyx	surface downwelling par beam flux	W m-2
PGENTOT	tyx	Total column production of precipitation	kg m-2 s-1
PRECANV	tyx	anvil precipitation	kg m-2 s-1
PRECCON	tyx	convective precipitation	kg m-2 s-1
PRECLSC	tyx	nonanvil large scale precipitation	kg m-2 s-1
PRECSNO	tyx	snowfall	kg m-2 s-1
PRECTOT	tyx	total precipitation	kg m-2 s-1
PREVTOT	tyx	Total column re-evap/subl of precipitation	kg m-2 s-1
RSCS2	tyx	surface net downward shortwave flux assuming clear sky	W m-2
RSR2	tyx	toa net downward shortwave flux	W m-2
SWGDN	tyx	surface incoming shortwave flux	W m-2
SWGDNCLR	tyx	surface incoming shortwave flux assuming clear sky	W m-2
SWGNT	tyx	surface net downward shortwave flux	W m-2
SWGNTCLN	tyx	surface net downward shortwave flux assuming no aerosol	W m-2
SWGNTCLR	tyx	surface net downward shortwave flux assuming clear sky	W m-2
SWGNTCLRCLN	tyx	surface net downward shortwave flux assuming clear sky and no aerosol	W m-2
SWTDN	tyx	toa incoming shortwave flux	W m-2
SWTNT	tyx	toa net downward shortwave flux	W m-2
SWTNTCLN	tyx	toa net downward shortwave flux assuming no aerosol	W m-2
SWTNTCLR	tyx	toa net downward shortwave flux assuming clear sky	W m-2
SWTNTCLRCLN	tyx	toa net downward shortwave flux assuming clear sky and no aerosol	W m-2
TAUBKGX	tyx	surface eastward background gravity wave stress	N m-2
TAUBKGY	tyx	surface northward background gravity wave stress	N m-2
TAUGWX	tyx	surface eastward gravity wave stress	N m-2
TAUGWY	tyx	surface northward gravity wave stress	N m-2
TAUHGH	tyx	in cloud optical thickness of high clouds(EXPORT)	1
TAULOW	tyx	in cloud optical thickness of low clouds	1
TAUMID	tyx	in cloud optical thickness of middle clouds	1
TAUOROX	tyx	surface eastward orographic gravity wave stress	N m-2
TAUOROY	tyx	surface northward orographic gravity wave stress	N m-2
TAUTOT	tyx	in cloud optical thickness of all clouds	1
TBC	tyx	total black carbon aerosol loading	kg m-2
TDUST	tyx	total dust aerosol loading	kg m-2

TOC	tyx	total organic carbon aerosol loading	kg m-2
TSALT	tyx	total sea salt aerosol loading	kg m-2
TSO4	tyx	total sulfate aerosol loading	kg m-2
TTAUBC	tyx	total black carbon optical thickness in 0.4-0.690 band	1
TTAUDU	tyx	total dust optical thickness in 0.4-0.690 band	1
TTAUOC	tyx	total organic carbon optical thickness in 0.4-0.690 band	1
TTAUSO	tyx	total sulfate optical thickness in 0.4-0.690 band	1
TTAUSS	tyx	total salt optical thickness in 0.4-0.690 band	1