

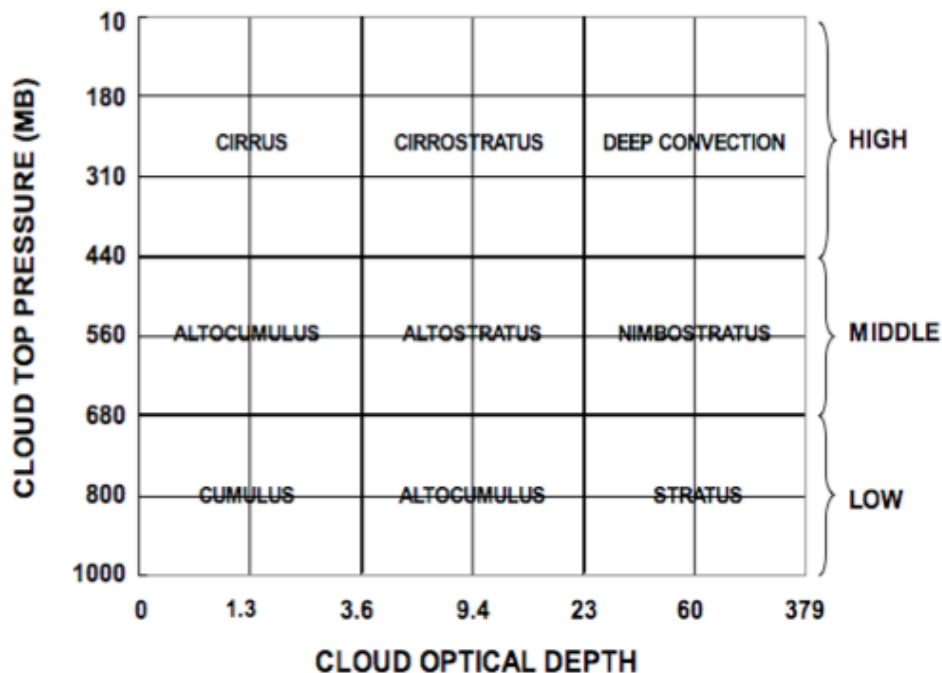
Clouds and the Earth's Radiant Energy System (CERES) Monthly Gridded Cloud Averages (ISCCP-D2like-Day/Nit) Data Set Abstract

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Data Set Description:

The Monthly Gridded Cloud Averages (ISCCP-D2like-Day/Nit) archival data product contains monthly and monthly 3-hourly (GMT-based) $1^\circ \times 1^\circ$ gridded regional mean CERES MODIS-derived cloud properties as a function of 18 cloud types, similar to the [ISCCP D2](#) product, where the cloud properties are stratified by pressure, optical depth, and phase. There are separate daytime and nighttime datasets for both Terra-MODIS and Aqua-MODIS. The retrievals, and therefore the quality, are different for each dataset. The CERES MODIS-derived cloud properties are not the official NASA MODIS cloud retrievals, but are based on the CERES cloud working group retrievals that are also available in other CERES products. The CERES MODIS-derived cloud properties have coverage from pole to pole. For these MODIS-based ISCCP-D2like products, the cloud fractions for 42 cloud types, similar to the [ISCCP D1](#) product, are also available. The Single Scanner Footprint TOA/Surface Fluxes and Clouds (SSF) archival data product is the input to this product. Each ISCCP-D2like-Day/Nit file covers a single month using the SSFs from the CERES instrument that is in cross-track scan mode.



The stratification of the 9 (thick lines, large blocks) and 42 (thin lines, small blocks) cloud types as a function of cloud top pressure and cloud optical depth. The cloud type names are given for the 9 cloud types.

List of cloud properties available as a function of ISCCP-D2like product.
The 42 cloud type format is not available for either the GEO or Mrg products.

Cloud Property	9 cloud types			42 cloud types		
	Day/Nit	GEO	Mrg	Day/Nit	GEO	Mrg
Total Cloud Fraction	X	X	X	X		
Liquid Cloud Fraction	X	X	X	X		
Ice Cloud Fraction	X	X	X	X		
Effective Temperature	X	X	X			
Effective Pressure	X	X	X			
Optical Depth	X	X	X			
LWP (Liquid Water Path)	X	X	X			
IWP (Ice Water Path)						
Particle Size	X					
IR Emissivity	X					

Additional information about the format and content of the ISCCP-D2like Day/Nit product can be found in the CERES [Data Products Catalog](#). Information about the quality of the content of the ISCCP-D2like Day/Nit product can be found in the [Data Quality Summary](#).

Summary of Changes:

The CERES Data Management Team and the Langley Atmospheric Science Data Center (ASDC) use a Sampling Strategy, a Production Strategy, and a Configuration Code (CCode) to track versions of CERES primary data products. In general, minor reprocessing changes are tracked by increasing the Configuration Code while major reprocessing changes result in a new Production Strategy. The Sampling Strategy identifies the satellite and instruments that acquired the data in the product.

A summary of changes made to the CERES ISCCP-D2like Day/Nit product is shown in the following tables.

Modification History for: Aqua | [Terra](#)

Modification History of the CERES ISCCP-D2like-Day/Nit Aqua Product			
Also see Modification History for CERES SSF Aqua FM3 and FM4			
Sampling Strategy and Production Strategy	CCode	Available at ASDC	Impact on ISCCP-D2like Product
Aqua-FM3-MODIS_Edition3A ⁽⁴⁾ Aqua-FM4-MODIS_Edition3A ⁽⁴⁾	300300	Nov 2013	<ul style="list-style-type: none"> No overall change from Edition2A. Edition3A SSF data are used as inputs.
Aqua-FM3-MODIS_Edition2A ⁽⁴⁾ Aqua-FM4-MODIS_Edition2A ⁽⁴⁾	024031	Jun 2010	<ul style="list-style-type: none"> Code was updated to correct the error found in Liquid and Ice cloud fraction data. Code was updated to set Cloud Optical Depth values between 0.0 - 128.0 range to make it a standard for all ISCCP-D2like products. Edition2B, Edition2C, and Edition2D SSF data are used as inputs.
Aqua-FM3-MODIS_Beta1 ⁽³⁾ Aqua-FM4-MODIS_Beta1 ⁽³⁾	023030	Oct 2008	<ul style="list-style-type: none"> Edition2B, Edition2C SSF data are used as inputs.
Availability: (1) not available; (2) restricted to CERES analysts; (3) restricted to CERES Science Team and analysts; (4) public			

Modification History of the CERES ISCCP-D2like-Day/Nit Terra Product

Also see [Modification History for CERES SSF Terra FM1 and FM2](#)

Sampling Strategy and Production Strategy	CCode	Available at ASDC	Impact on ISCCP-D2like Product
Terra-FM1-MODIS_Edition2A ⁽⁴⁾ Terra-FM2-MODIS_Edition2A ⁽⁴⁾	300300	Nov 2013	<ul style="list-style-type: none"> No overall change from Edition2A. Edition3A SSF data are used as inputs.
Terra-FM1-MODIS_Edition2A ⁽⁴⁾ Terra-FM2-MODIS_Edition2A ⁽⁴⁾	024031	Jun 2010	<ul style="list-style-type: none"> Code was updated to correct the error found in Liquid and Ice cloud fraction data. Code was updated to set Cloud Optical Depth values between 0.0 - 128.0 range to make it a standard for all ISCCP-D2like products. Edition2B, Edition2F, and Edition2G SSF data are used as inputs.
Terra-FM1-MODIS_Beta1 ⁽³⁾ Terra-FM2-MODIS_Beta1 ⁽³⁾	023030	Oct 2008	<ul style="list-style-type: none"> Edition2B, Edition2F SSF data are used as inputs

Availability: (1) not available; (2) restricted to CERES analysts; (3) restricted to CERES Science Team and analysts; (4) public

References:

These two references describe the CERES_MODIS cloud retrieval algorithm.

1. Minnis P., S. Sun-Mack, D. F. Young, P. W. Heck, D. P. Garber, Y. Chen, D. A. Spangenberg, R. F. Arduini, Q. Z. Trepte, W. L. Smith, Jr., J. K. Ayers, S. C. Gibson, W. F. Miller, G. Hong, V. Chakrapani, Y. Takano, K.-N. Liou, Y. Xie, and P. Yang, 2011: CERES Edition-2 cloud property retrievals using TRMM VIRS and Terra and Aqua MODIS data--Part I: Algorithms. *IEEE Trans. Geosci. Remote Sens.*, **49**, 4374-4400.
2. Minnis P., S. Sun-Mack, Y. Chen, M. M. Khaiyer, Y. Yi, J. K. Ayers, R. R. Brown, X. Dong, S. C. Gibson, P. W. Heck, B. Lin, M. L. Nordeen, L. Nguyen, R. Palikonda, W. L. Smith, Jr., D. A. Spangenberg, Q. Z. Trepte, and B. Xi, 2011: CERES Edition-2 cloud property retrievals using TRMM VIRS and Terra and Aqua MODIS data--Part II: Examples of average results and comparisons with other data. *IEEE Trans. Geosci. Remote Sens.*, **49**, 4401-4430.

Contact Information:

Investigator(s) Name and Title	Technical Contact(s)	Data Center
Norman G. Loeb CERES Interdisciplinary Principal Investigator E-mail: norman.g.loeb@nasa.gov Telephone: (757) 864-5688	David R. Doelling E-mail: david.r.doelling@nasa.gov Telephone: (757) 864-2155 Atmospheric Sciences Research Mail Stop 420 NASA Langley Research Center Hampton, Virginia 23681-2199 USA FAX: (757) 864-7996	User and Data Services Office Atmospheric Science Data Center NASA Langley Research Center Mail Stop 157D Hampton, Virginia 23681-2199 USA Telephone: (757) 864-8656 FAX: (757) 864-8807 E-mail: support-asdc@earthdata.nasa.gov URL: https://eosweb.larc.nasa.gov

Acknowledgement:

The requested form of acknowledgment for any publication in which these data are used is:

"These data were obtained from the NASA Langley Research Center Atmospheric Science Data Center."

The Langley Data Center requests a reprint of any published papers or reports or a brief description of other uses (e.g., posters, oral presentations, etc.) of data that we have distributed. This will help the Data Center determine the use of data distributed, which is helpful in optimizing product development. It also helps us to keep our product related references current.

Reference:

The CERES Team has made considerable efforts to remove major errors and to verify the quality and accuracy of these data. Please provide a reference to the following paper when you publish scientific results with the CERES data:

Wielicki, B. A., B. R. Barkstrom, E. F. Harrison, R. B. Lee III, G. L. Smith, and J. E. Cooper, "Clouds and the Earth's Radiant Energy System (CERES): An Earth Observing System Experiment," *Bull. Amer. Meteor. Soc.*, **77**, 853-868, 1996.

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ASDC Help Desk: Phone (757) 864-8656; E-mail: support-asdc@earthdata.nasa.gov