

# International Satellite Cloud Climatology Project (ISCCP) D1 and D2 Langley Data Center Data Set Document



## Summary:

The International Satellite Cloud Climatology Project (ISCCP), the first project of the World Climate Research Program (WCRP), was established in 1982 (WMO-35 1982, Schiffer and Rossow 1983):

- To produce a global, reduced resolution, calibrated and normalized radiance data set containing basic information on the properties of the atmosphere from which cloud parameters can be derived.
- To stimulate and coordinate basic research on techniques for inferring the physical properties of clouds from the condensed radiance data set and to apply the resulting algorithms to derive and validate a global cloud climatology for improving the parameterization of clouds in climate models.
- To promote research using ISCCP data that contributes to improved understanding of the Earth's radiation budget and hydrological cycle.

Since 1983 an international group of institutions has collected and analyzed satellite radiance measurements from up to five geostationary and two polar orbiting satellites to infer the global distribution of cloud properties and their diurnal, seasonal and interannual variations. The primary focus of the first phase of the project (1983-1995) was the elucidation of the role of clouds in the radiation budget (top of the atmosphere and surface). In the second phase of the project (1995 onwards) the analysis also concerns improving understanding of clouds in the global hydrological cycle.

This document provides information for the following data sets:

- ISCCP\_D1
- ISCCP\_D1\_NAT
- ISCCP\_D2
- ISCCP\_D2\_NAT

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## 1. Data Set Overview



## Data Set Identification:

<b>ISCCP_D1:</b>	International Satellite Cloud Climatology Project (ISCCP) Stage D1 3-Hourly Cloud Products - Revised Algorithm in Hierarchical Data Format (ISCCP_D1)
<b>ISCCP_D1_NAT:</b>	International Satellite Cloud Climatology Project (ISCCP) Stage D1 3-Hourly Cloud Products - Revised Algorithm in Native (NAT) Data Format (ISCCP_D1_NAT)
<b>ISCCP_D2:</b>	International Satellite Cloud Climatology Project (ISCCP) Stage D2 Monthly cloud Products - Revised Algorithm in Hierarchical Data Format (ISCCP_D2)
<b>ISCCP_D2_NAT:</b>	International Satellite Cloud Climatology Project (ISCCP) Stage D2 Monthly cloud Products - Revised Algorithm in Native (NAT) Data Format (ISCCP_D2_NAT)

## Data Set Introduction:

The ISCCP analysis combines satellite-measured radiances (Stage B3 data, Schiffer and Rossow 1985), Rossow et al. 1987) with the TOVS atmospheric temperature-humidity and ice/snow correlative data sets to obtain information about clouds and the surface. The analysis method first determines the presence of absence of clouds in each individual image pixel and retrieves the radiometric properties of the cloud for each cloudy pixel and of the surface for each clear pixel. The pixel analysis is performed separately for each satellite radiance data set and the results reported in the Stage DX data product, which has a nominal resolution of 30 km and 3 hours. The Stage D1 product is produced by summarizing the pixel-level results every 3 hours on an equal-area map with 280 km resolution and merging the results from separate satellites with the atmospheric and ice/snow data sets to produce global coverage at each time. The Stage D2 data product is produced by averaging the Stage D1 data over each month, first at each of the eight three hour time intervals and then over all time intervals.

## Objective/Purpose:

...

## Summary of Parameters:

Clouds  
Ice  
Ozone  
Precipitable Water  
Pressure  
Radiance  
Reflectance  
Snow  
Temperature

## Discussion:

...

## Related Data Sets:

...

## 2. Contact Information

Investigator(s) Name and Title:	Technical Contact:	Data Center:
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### 3. Theory of Measurements

...

### 4. Equipment

#### Sensor/Instrument Description:

#### Collection Environment:

...

#### Source/Platform:

GMS-3  
GMS-4  
GOES-6  
GOES-7  
METEOSAT-2  
METEOSAT-3  
METEOSAT-4  
METEOSAT-5  
NOAA-9  
NOAA-10  
NOAA-11  
NOAA-12

#### Source/Platform Mission Objectives:

...

#### Key Variables:

Clouds  
Ice  
Ozone  
Precipitable Water  
Pressure  
Radiance  
Reflectance  
Snow  
Temperature

#### Principles of Operation:

...

#### Sensor/Instrument Measurement Geometry:

...

#### Manufacturer of Sensor/Instrument:

...

#### Sensor/Instrument:

AVHRR  
MIR  
TOVS  
VISSR

#### Calibration:

#### Specifications:

...



Tolerance:

...

Frequency of Calibration:

...

Other Calibration Information:

...

## 5. Data Acquisition Methods

...

## 6. Observations

Data Notes:

...

Field Notes:

...

## 7. Data Description

Spatial Characteristics:

Spatial Coverage:

Data Set Name	Min Lat	Max Lat	Min Lon	Max Lon
ISCCP_D1	-90.00	90.00	-180.00	180.00
ISCCP_D1_NAT	-90.00	90.00	-180.00	180.00
ISCCP_D2	-90.00	90.00	-180.00	180.00
ISCCP_D2_NAT	-90.00	90.00	-180.00	180.00

Spatial Coverage Map:

...

Spatial Resolution:

...

Projection:

...

Grid Description:

...

Temporal Characteristics:

Temporal Coverage:

Data Set	Begin Date	End Date
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Name		
ISCCP_D1	06-01-1983	06-30-1994
ISCCP_D1_ NAT	06-01-1983	06-30-1994
ISCCP_D2	06-01-1983	06-30-1994
ISCCP_D2_ NAT	06-01-1983	06-30-1994

**Temporal Coverage Map:**

...

**Temporal Resolution:**

...

**Data Characteristics:**

**Parameter/Variable:**

...

**Variable Description/Definition:**

...

**Unit of Measurement:**

...

**Data Source:**

...

**Data Range:**

...

**Sample Data Record:**

Please refer to the [ISCCP Data and Information page](#) for Readme files and Sample Software files.

## 8. Data Organization

**Data Granularity:**

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

**Data Format:**

The ISCCP\_D1 and ISCCP\_D2 are in Hierarchical Data Format (HDF) and the ISCCP\_D1\_NAT and ISCCP\_D2\_NAT are in native binary format.

Please refer to the [ISCCP Access Data Table](#) for Readme files and Sample Software files.

## 9. Data Manipulations

**Formulae:**

**Derivation Techniques and Algorithms:**

...



## Data Processing Sequence:

### Processing Steps:

...

### Processing Changes:

...

### Calculations:

### Special Corrections/Adjustments:

...

### Calculated Variables:

...

### Graphs and Plots:

Images are not available for these data sets.

## 10. Errors

### Sources of Error:

...

### Quality Assessment:

#### Data Validation by Source:

...

#### Confidence Level/Accuracy Judgement:

...

#### Measurement Error for Parameters:

...

#### Additional Quality Assessments:

...

#### Data Verification by Data Center:

The Langley Data Center performs an inspection process on the data received by the data producer via ftp. The Data Center checks to see if the transfer of the data was completed and delivered in their entirety.

## 11. Notes

### Limitations of the Data:

...

### Known Problems with the Data:

...

### Usage Guidance:

...

### Any Other Relevant Information about the Study:



...

## 12. Application of the Data Set

...

## 13. Future Modifications and Plans

There are no plans to modify these data sets.

## 14. Software

### Software Description:

Sample read software are available for these data sets.

### Software Access:

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

## 15. Data Access

### Contact Information:

User and Data Services Office  
Langley 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](mailto:support-asdc@earthdata.nasa.gov)

### Data Center Identification:

User and Data Services Office  
Langley Atmospheric Science Data Center  
NASA Langley Research Center

### Procedures for Obtaining Data:

The Langley Data Center provides web interfaces that allow direct access to its data holdings for immediate downloading, for placing media orders, for searching the data holdings, and for ordering prepackaged CD-ROMs and videocassettes. All of these methods are easily accessible from the [Langley Data Center web site](#).

### Data Center Status/Plans:

The Langley Data Center will continue to archive this data. There are no plans to reprocess.

## 16. Output Products and Availability

There are no output products available at this time.

## 17. References

A complete list of ISCCP research publications is available from the [ISCCP Web Site](#).

## 18. Glossary of Terms

[EOSDIS Glossary](#).

## 19. List of Acronyms



## 20. Document Information

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