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

Table of Contents:

1. Data Set Overview
2. Investigator(s)
3. Theory of Measurements
4. Equipment
5. Data Acquisition Methods
6. Observations
7. Data Description
8. Data Organization
9. Data Manipulations
10. Errors
11. Notes
12. Application of the Data Set
13. Future Modifications and Plans
14. Software
15. Data Access
16. Output Products and Availability
17. References
18. Glossary of Terms
19. List of Acronyms
20. Document Information

1. Data Set Overview
Data Set Identification:

**ISCCP_D1:** International Satellite Cloud Climatology Project (ISCCP) Stage D1 3-Hourly Cloud Products - Revised Algorithm in Hierarchical Data Format (ISCCP_D1)

**ISCCP_D1_NAT:** International Satellite Cloud Climatology Project (ISCCP) Stage D1 3-Hourly Cloud Products - Revised Algorithm in Native (NAT) Data Format (ISCCP_D1_NAT)

**ISCCP_D2:** International Satellite Cloud Climatology Project (ISCCP) Stage D2 Monthly cloud Products - Revised Algorithm in Hierarchical Data Format (ISCCP_D2)

**ISCCP_D2_NAT:** 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

<table>
<thead>
<tr>
<th>Investigator(s) Name and Title:</th>
<th>Technical Contact:</th>
<th>Data Center:</th>
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<tbody>
<tr>
<td>Dr. William B. Rossow</td>
<td>Violeta Golea</td>
<td>User and Data Services Office</td>
</tr>
<tr>
<td>NASA, Goddard Institute for Space Studies</td>
<td>NASA, Goddard Institute for Space Studies</td>
<td>Langley Atmospheric Science Data Center</td>
</tr>
<tr>
<td>Room 322A</td>
<td>Room 322</td>
<td>NASA Langley Research Center</td>
</tr>
<tr>
<td>2880 Broadway</td>
<td>2880 Broadway</td>
<td>Mail Stop 157D</td>
</tr>
<tr>
<td>New York, NY 10025</td>
<td>New York, NY 10025</td>
<td>Hampton, Virginia 23681-2199</td>
</tr>
<tr>
<td>USA</td>
<td>USA</td>
<td>USA</td>
</tr>
<tr>
<td>Telephone: (212) 278-5567</td>
<td>Telephone: (212) 678-5542</td>
<td>Telephone: (757) 864-8656</td>
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<tr>
<td>FAX: (212) 678-5662</td>
<td>FAX: (212) 678-5552</td>
<td>FAX: (757) 864-8807</td>
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<tr>
<td>E-mail: <a href="mailto:clwbr@giss.nasa.gov">clwbr@giss.nasa.gov</a></td>
<td>E-mail: <a href="mailto:vgolea@giss.nasa.gov">vgolea@giss.nasa.gov</a></td>
<td>E-mail: <a href="mailto:support-asdc@earthdata.nasa.gov">support-asdc@earthdata.nasa.gov</a></td>
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</table>
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: 

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Spatial Coverage Map: 
...

Spatial Resolution: 
...

Projection: 
...

Grid Description: 
...

Temporal Characteristics: 
Temporal Coverage: 

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Distributed by the Atmospheric Science Data Center
http://eosweb.larc.nasa.gov
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<td>06-30-1994</td>
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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

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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