

International Satellite Cloud Climatology Project (ISCCP) Langley DAAC Project/Campaign Document



Summary:

The International Satellite Cloud Climatology Project (ISCCP) was established as the first project of the World Climate Research Programme (WCP-2) to collect and analyze satellite radiance measurements to infer the global distribution of cloud radiative properties and their diurnal and seasonal variations. The operational phase of ISCCP began in July 1983 and is currently planned to continue through June 2000.

Table of Contents:

- [1. Project/Campaign Overview](#)
- [2. Data Availability](#)
- [3. Data Access](#)
- [4. Principal Investigator Information](#)
- [5. Submitting Investigator Information](#)
- [6. References](#)
- [7. Glossary and Acronyms](#)
- [8. Document Information](#)

1. Project/Campaign Overview

Name of Project/Campaign:

International Satellite Cloud Climatology Project (ISCCP)

Project/Campaign Introduction:

See Summary.

Project/Campaign Mission Objectives:

- To produce a global, reduced resolution, infrared and visible, calibrated and normalized radiance data set containing basic information on the radiative 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 and contributing to improved understanding of the Earth's radiation budget (top of the atmosphere and surface) and hydrological cycle.

Discipline(s):

Earth Science

Geographic Region(s):

Global coverage for ISCCP is provided by the five geostationary meteorological satellites (GOES-EAST, GOES-WEST, GMS, INSAT, and METEOSAT) and at least one polar orbiting NOAA satellite. The primary data are from the two standard visible (0.6 micrometers) and infrared (11 micrometers) channels common to all of the satellites. The polar orbiter provides coverage of the polar regions not viewed by the geostationary satellites and is used as a basis for normalization of the radiances observed by the different geostationary satellites.



Detailed Project/Campaign Description:

The strategy adopted for implementing ISCCP reflects the diverse nature of the spaceborne observing system and the large volume of imaging and other correlative data. The primary data processing is done by eight institutions: a Satellite Processing Center (SPC) for each satellite (nominally at least one polar orbiter and five geostationary satellites), the Satellite Calibration Center (SCC), and the Global Processing Center (GPC). The SPC's task is to collect raw satellite image data and reduce its volume. The SCC routinely receives special high resolution-image data from each of the SPCs. These data are used to normalize the calibration of each geostationary satellite to the polar orbiter. The resulting normalization coefficients are sent to the GPC to be used in data production. The SPC sends the reduced image data to the GPC for further processing of the ISCCP B3 and C1/C2 data.

In addition to the primary data processing centers, there are three other centers: the Correlative Data Center of which a main function is to coordinate the delivery of other satellite and conventional data (correlative data) to the GPC for use in the cloud analysis, the ISCCP Central Archive (ICA), which is responsible for the archival of all data produced by ISCCP, and the EOSDIS Langley DAAC, which archives and distributes ISCCP B3, C1 and C2 data.

Representatives of the following ISCCP Data Management Centers: SPC, SCC, GPC, Correlative Data Center, and ICA form the ISCCP Working Group on Data Management (WGDM) for the Joint Scientific Committee (JSC). Scientific guidance is provided to the project by the International Radiation Commission of IAMAP and by the JSC Working Group on Radiation Fluxes.

ISCCP B3 data are the primary global radiance data product used in the cloud analysis. The ISCCP cloud analysis has three fundamental parts: cloud detection, radiative transfer model analysis, and statistical analysis. The first part determines whether a particular radiance measurement is associated with cloudy or clear conditions. The second part compares the measured radiances, together with other correlative information about the atmosphere and surface, to a radiative model to retrieve several cloud (and surface) parameters. The third part accumulates spatial distribution information about the radiances and retrieved parameters to summarize the analysis, every 3 hours in C1 data and once per month in C2 data.

The ISCCP C1 and C2, along with the previously unavailable CX data products are being reproduced and will be made available in the first half of 1995. These new products are called D1, D2 and DX.

2. Data Availability

Data Type(s):

All data currently archived at the Langley DAAC are in native and hierarchical data form (HDF).

Input/Output Media:

Data are available via FTP from the Langley DAAC.

Proprietary Status:

There is no proprietary status for the data sets currently on-line at the Langley DAAC.

3. Data Access

Data Center Location:

Langley DAAC User and Data Services Office
NASA Langley Research Center
Mail Stop 157D
Hampton, Virginia 23681-2199
USA
Telephone: (757) 864-8656
FAX: (757) 864-8807
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E-mail: support-asdc@earthdata.nasa.gov

Associated Costs:

Currently, there is no charge for media.

4. Principal Investigator Information:

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6. References

- Rossow, W.B., L.C. Garder, P-J. Lu and A. Walker, July 1985: International Cloud Climatology Project (ISCCP) Description of Reduced Resolution Radiance Data, December 1985 (Revised August 1987).
- Rossow, W.B., L.C. Garder, P-J. Lu and A. Walker, 1988: International Cloud Climatology Project (ISCCP) Documentation of Cloud Data WMO/TD-No. 266, December 1988 (Revised April 1991), World Meteorological Organization, Geneva, 78 pp plus three appendices.
- Schiffer, R.A., and W.B. Rossow, 1983: The International Satellite Cloud Climatology Project (ISCCP) The First Project of the World Climate Research Program. Bull. Amer. Meteor. Soc., 64, 779-784

7. Glossary and Acronyms:

[EOSDIS Acronyms](#) (PDF).

8. Document Information

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