

# Pre-LBA ISLSCP Initiative I Data

## Summary

This data set contains hydrology, soils, radiation, cloud, and vegetation data from the International Satellite Land Surface Climatology Project (ISLSCP) Initiative I. The ISLSCP data sets should provide LBA modelers with many of the fields required to describe boundary conditions, and to initialize and force a wide range of land-biosphere-atmosphere models. All of the data have been processed to the same global spatial resolution (1 deg. x 1 deg.), using the same land/sea mask and steps have been taken to ensure spatial and temporal continuity of the data. The data sets cover the period 1987-1988 at 1-month time resolution for most of the seasonally varying quantities. For this pre-LBA data set, the ISLSCP I data are provided as global coverages. The companion file illustrations were subset over the LBA study area, from 35-85 deg. W longitude and 20 deg. S to 10 deg. N latitude, as shown in Figure 1.

The data files and illustrations are organized into the three groups listed below.

1. Hydrology and Soils
2. Radiation and Clouds
3. Vegetation

The data within each of these areas were acquired from a variety of sources including model output, satellites, and ground measurements. The individual data sets were provided in a variety of forms. In some cases, this required the data publication team to regrid and reformat data sets and in others to produce monthly averages from finer resolution data. The specific processing for each data set is detailed in the documentation.

The processed, quality controlled and integrated data in the documented Pre-LBA Data sets were originally published as a set of three CD-ROMs (Marengo and Victoria, 1998) but are now archived individually.

# Continental Precipitation (GPCP/GPCC,1994)

## Amazonia

### January

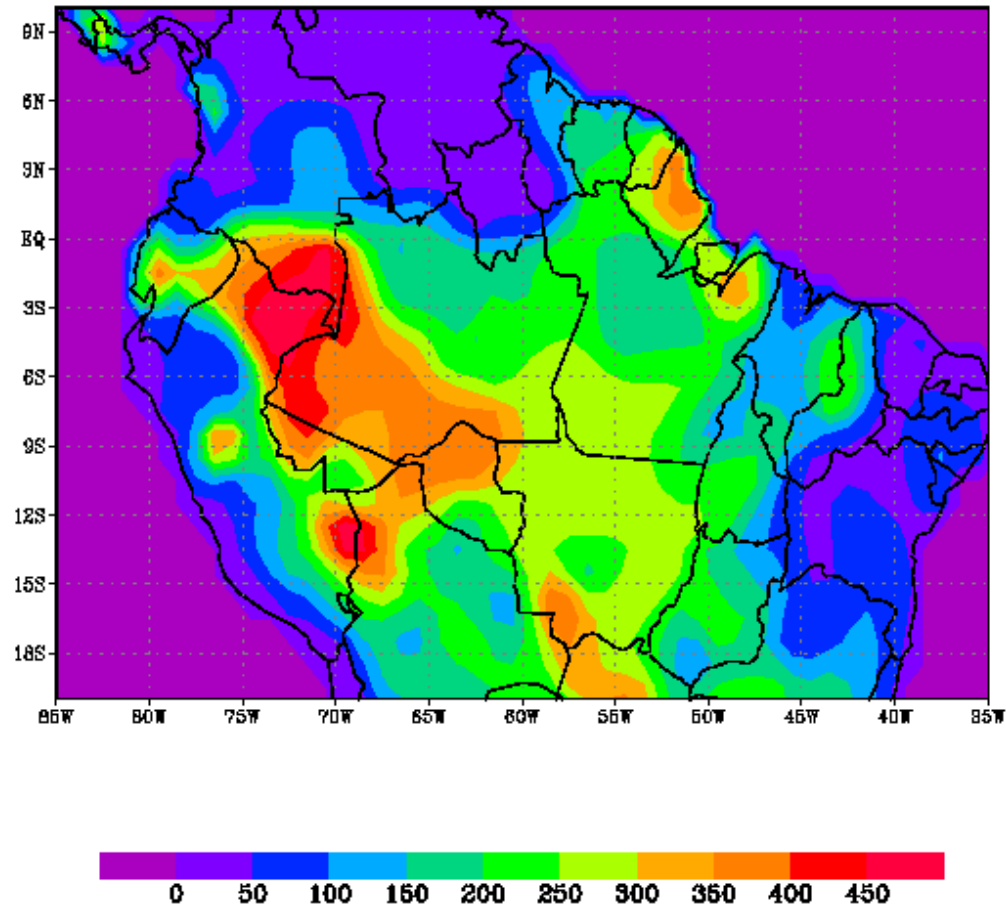


Figure 1. Typical illustration of ISLSCP monthly-averaged data showing the Amazon geographic region

## Pre-LBA Data Set Collection Initiative

The Pre-LBA data set collection was dedicated to providing information to the LBA research community about existing data that have been collected in Amazonia during the 20 years prior to 1998. The main goal of

this activity was to compile and document existing data sets in a consistent manner and make them available prior to the beginning of the LBA experiment.

The data set compilation efforts included satellite illustrationry, micrometeorological observations, near surface and upper-air atmospheric conditions, surface biophysical and hydrological measurements obtained from 1970s-1990s in a number of field experiments. Data were collected for several intensive field campaigns, during the rainy and dry seasons, and other periods that vary from short intensive field campaigns to several years worth of observations, measured sometimes with a time resolution of 5 minutes and 1 hour.

## Citation:

### Cite this data set as follows:

Sellers, P. J. 2009. Pre-LBA ISLSCP Initiative I Data. Data set. Available on-line [<http://daac.ornl.gov>] from Oak Ridge National Laboratory Distributed Active Archive Center, Oak Ridge, Tennessee, U.S.A.  
doi:10.3334/ORNLDAAC/919

### The original CD-ROM citation is as follows:

Marengo, J.A., and R.L. Victoria. 1998. Pre-LBA Data Sets Initiative, 3 vols. [Pre-Large-Scale Biosphere-Atmosphere Experiment in Amazonia Data Sets Initiative, 3 vols.]. CD-ROM. Centro de Previsao de Tempo e Estudos Climaticos, Instituto Nacional de Pesquisas Espaciais (CPTEC/INPE) [Center for Weather Forecasting and Climate Study, National Institute for Space Research], Sao Paulo, Brazil.

<b><u>Pre-LBA Data Set Collection Metadata</u></b>	
<b>Project: ERBE &gt; Earth Radiation Budget Experiment</b>	<b>Temporal_Coverage</b>
<b>Project: ISCCP &gt; International Satellite Cloud Climatology Project</b>	Start_Date: 1987-01-01 Stop_Date: 1988-12-31
<b>Project: ISLSCP INITIATIVE-I &gt; International Satellite Land Surface Climatology Project Initiative-I</b>	<b>Spatial_Coverage</b>
<b>Originating_Center: GSFC_DAAC</b>	Southernmost_Latitude: 90S Northernmost_Latitude: 90N Westernmost_Longitude: 180W Easternmost_Longitude: 180E
<b>Science_Review_Date: 1995-05-15</b>	<b>Location: GLOBAL</b>
	<b>Investigator</b>

**Keywords**

SBIOSPHERE  
CLOUD AMOUNT  
CLOUD OPTICAL THICKNESS  
CLOUD TOP PRESSURE  
CLOUD WATER PATH  
CRYOSPHERE FEATURES  
DEW POINT TEMPERATURE  
DRAINAGE BASINS  
ECMWF  
FAPAR  
FASIR NDVI  
FPAR  
GCM  
GEWEX  
GLACIER ICE  
GPCP  
GREENNESS  
GRID DATA  
HOURLY DATA  
IDN\_NODE GSFC/GSFC\_DAAC  
ISCCP  
LAND COVER  
LATENT HEAT FLUX  
LEAF AREA INDEX  
LONGWAVE RADIATION FLUX  
MARSH  
MODEL OUTPUT  
MONTHLY DATA  
NDVI  
NET RADIATION FLUX  
NMC  
RIVER FLOW  
SALT FLATS  
SALT MARSH  
SALTWATER  
SAND DUNES  
SEA ICE CONCENTRATION  
SEA SURFACE TEMPERATURE  
SENSIBLE HEAT FLUX  
SHORTWAVE RADIATION FLUX  
SNOW COVER  
SNOW DEPTH  
SOIL DEPTH  
SOIL SLOPE  
SOIL TEMPERATURE  
SOIL TEXTURE

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SURFACE BACKGROUND REFLECTANCE SURFACE PAR SURFACE ROUGHNESS LENGTH SURFACE RUNOFF SURFACE SOIL MOISTURE SWAMP UNFAO VEGETATION VEGETATION CLASSIFICATION MAP WIND SPEED WIND STRESS	
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## Data Description

All of the data have been processed to the same global spatial resolution (1 deg. x 1 deg.), using the same land/sea mask and steps have been taken to ensure spatial and temporal continuity of the data. The data sets cover the period 1987-1988 at 1-month time resolution for most of the seasonally varying quantities.

### Data Files

- The data files are organized by the three types listed below: Hydrology and Soils, Radiation and Clouds, and Vegetation. Data files for a given type have been compiled and compressed into \*.zip files as shown in the table.
- Please note that while the data grids are all in the same format (see below) the "no data" value may vary. Fill or missing values are given in the respective data file's readme file (Section 8, Data Description).

### Documentation Files

The data within each of these areas were acquired from a variety of sources including model output, satellites, and ground measurements. The individual data sets were provided in a variety of forms. In some cases, this required the data publication team to regrid and reformat data sets and in others to produce monthly averages from finer resolution data.

- The specific handling for each data type is detailed in the documentation files that are included as companion files with this data set. These documentation files are linked in the table below.
- Please note that the Readme Files contain references to data file locations on the original distribution CDs and contact information that are no longer applicable. Data file naming syntax descriptions are applicable.

### Illustration Files

Each data file has a corresponding .gif illustration file. Figure 1 is a typical representation of the ISLSCP data over the 35-85 deg. W longitude and 20 deg. S to 10 deg. N latitude Amazon geographic region.

- The illustration files are similarly organized by the three types listed below: Hydrology and Soils, Radiation and Clouds, and Vegetation. All of the illustration files for a given type have been compiled and compressed into \*.zip files as shown in the table.

<b>ISLSCP I Data Type</b> ( data files )	<b>Data Description and Links to Companion Files with Details of ISLSCP I Processing, Data File Formats, and Example illustration Files</b>
<b>Hydrology and Soils</b> (HYDR_SOL.zip)	<p><b>Precipitation</b> (Monthly; GPCP/GPCC)</p> <p><b>Hydrology cover fractions</b> (Fixed; Trent University)</p> <p><b>Global soil properties</b> (Fixed; FAO, GISS, U. Arizona, NASA/GSFC)</p> <p><b>Readme files:</b> <a href="ftp://daac.ornl.gov/data/lba/land_use_land_cover_change/ISLSCP_comp/Hydrology_and_Soils_Readme.zip">ftp://daac.ornl.gov/data/lba/land_use_land_cover_change/ISLSCP_comp/Hydrology_and_Soils_Readme.zip</a></p> <p><b>illustration files:</b>  <a href="ftp://daac.ornl.gov/data/lba/land_use_land_cover_change/ISLSCP_comp/HYDR_SOL.zip">ftp://daac.ornl.gov/data/lba/land_use_land_cover_change/ISLSCP_comp/HYDR_SOL.zip</a></p>
<b>Radiation and Clouds</b> (RADIATN_CLOUDS.zip)  (RADIATN_ERBE_ALB.zip)  (RADIATN_MTH_3HR.zip)  (RADIATN_MTH_MEAN.zip)	<p><b>Monthly cloud products (C2)</b> (Monthly; ISCCP/GISS)</p> <ul style="list-style-type: none"> <li>• Cloud Amount CLD_AMNT</li> <li>• Cloud Top Pressure CLD_TPPR</li> <li>• Cloud Optical Thickness CLD_OPTH</li> </ul> <p><b>ERBE S4 Clear-Sky Albed.</b> (Monthly Mean Albedo; NASA/LaRC)</p> <p><b>Surface and Top of Atmosphere (TOA) Shortwave and Photosynthetically Active Radiation (PAR) Fluxes</b> (Monthly 3-Hourly Fluxes ; UMD/Dept. Meteorology)</p> <ul style="list-style-type: none"> <li>• Surface Shortwave Downward Flux SUR_SWDN</li> <li>• Surface Shortwave Upward Flux SUR_SWUP</li> <li>• TOA Shortwave Downward Flux TOA_SWDN</li> <li>• TOA Shortwave Upward Flux TOA_SWUP</li> </ul> <p><b>Surface Shortwave and Longwave Radiation Fluxes</b> (Monthly Mean Fluxes ; NASA/LaRC)</p>

<p><b>zip)</b></p>	<ul style="list-style-type: none"> <li>• Surface Shortwave Downward Flux SUR_SWDN</li> <li>• Surface Shortwave Net Flux SUR_SWNT</li> <li>• Surface Longwave Downward Flux SUR_LWDN</li> <li>• Surface Longwave Net Flux SUR_LWNT</li> <li>• Surface Total Net Radiation Flux SUR_TONT</li> </ul> <p><b>Readme files:</b>  <a href="ftp://daac.ornl.gov/data/lba/land_use_land_cover_change/ISLSCP/comp/Radiation_and_Clouds_Readme.zip">ftp://daac.ornl.gov/data/lba/land_use_land_cover_change/ISLSCP/comp/Radiation_and_Clouds_Readme.zip</a></p> <p><b>illustration files:</b>  <a href="ftp://daac.ornl.gov/data/lba/land_use_land_cover_change/ISLSCP/comp/RADIATN.zip">ftp://daac.ornl.gov/data/lba/land_use_land_cover_change/ISLSCP/comp/RADIATN.zip</a></p>
<p><b>Vegetation</b> <b>(VEGETATN.zip)</b></p>	<p><b>Background (soil/litter layer) reflectance</b> (Fixed; CSU, NASA/GSFC)</p> <p><b>Fraction of photosynthetic active radiation absorbed by the green vegetation canopy (FPAR)</b> (Monthly; NASA/GSFC)</p> <p><b>Percentage green leaf area of total leaf area (Greenness)</b> (Monthly; NASA/GSFC)</p> <p><b>Total Leaf Area Index (LAI)</b> (Monthly; NASA/GSFC)</p> <p><b>Normalized difference vegetation index (NDVI)</b> (Monthly; NASA/GSFC)</p> <p><b>Roughness length (Zo)</b> (Monthly; NASA/GSFC)</p> <p><b>Calculated snow-free albedo</b> (Monthly; CSU, NASA/GSFC)</p> <p><b>Global land cover classification from satellite data</b> (Fixed; UMD, NASA/GSFC)</p> <p><b>Readme files:</b>  <a href="ftp://daac.ornl.gov/data/lba/land_use_land_cover_change/ISLSCP/comp/Vegetation_Readme.zip">ftp://daac.ornl.gov/data/lba/land_use_land_cover_change/ISLSCP/comp/Vegetation_Readme.zip</a></p> <p><b>illustration files:</b>  <a href="ftp://daac.ornl.gov/data/lba/land_use_land_cover_change/ISLSCP/comp/VEGETATN.zip">ftp://daac.ornl.gov/data/lba/land_use_land_cover_change/ISLSCP/comp/VEGETATN.zip</a></p>

## Data File Format

## Data Format.

The file format is ASCII, and consists of numerical fields of varying length, which are space delimited and arranged in columns and rows. Each column contains 180 numerical values and each row contain 360 numerical values.

### Grid arrangement

```
ARRAY(I,J)
I = 1 IS CENTERED AT 179.5W79.5W79.5W79.5W
I INCREASES EASTWARD BY 1 DEGREE
J = 1 IS CENTERED AT 89.5N
J INCREASES SOUTHWARD BY 1 DEGREE
```

90N -	- - -   - - -   - - -   - -
	(1,1)   (2,1)   (3,1)
89N -	- - -   - - -   - - -   - -
	(1,2)   (2,2)   (3,2)
88N -	- - -   - - -   - - -   - -
	(1,3)   (2,3)   (3,3)
87N -	- - -   - - -   - - -
	180W 179W 178W 177W

```
ARRAY(360,180)
```

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## Data Access:

This data is available through the Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC) [<http://daac.ornl.gov>].

## Data Archive Center:

### Contact for Data Center Access Information:

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