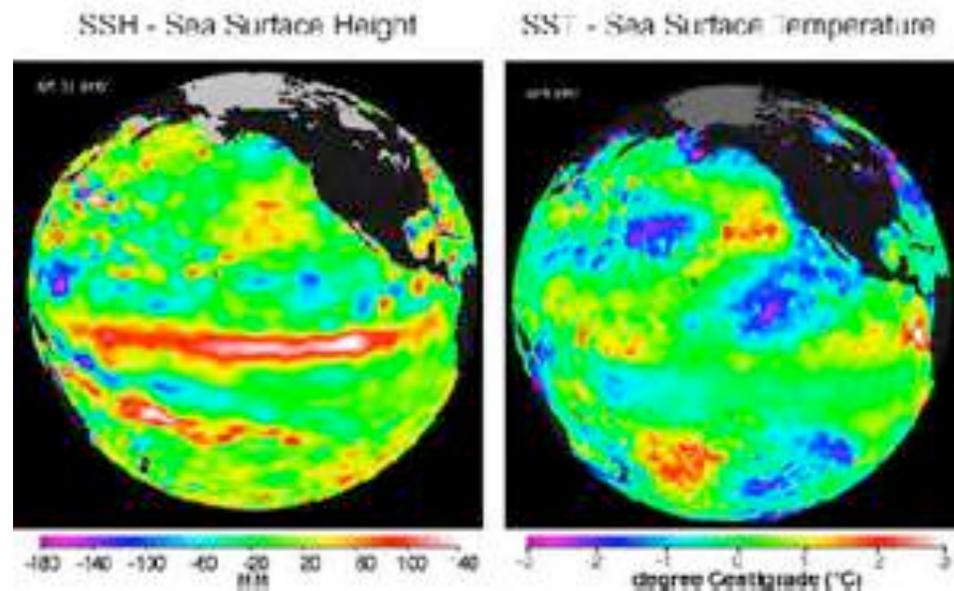




El Monitoreo de la Variabilidad Climática



Objetivo

Presentar i) variabilidad climática asociada con interacciones océano-atmósfera, ii) standardized climate indices, and iii) access to climate variability information

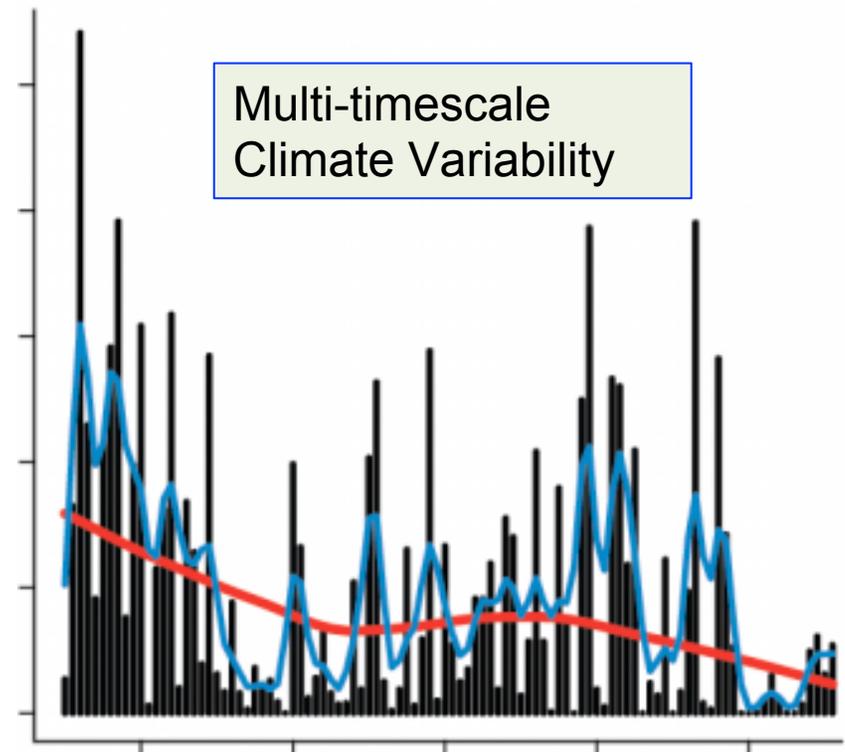
Resumen

- La Variabilidad Climática
- El Niño y La Niña / Oscilación del Sur
- *NOAA Climate Variability Indices and Access (Con Demostración en Vivo)*
- *International Research Institute (IRI) Climate Data Portal (Con Demostración en Vivo)*

Variabilidad Climática

Repaso: Variabilidad Climática

- ❑ Clima se define como la media estadística de las condiciones del tiempo o 'instantáneas'
- ❑ La Variabilidad Climática generalmente se observa como 'patrones espaciales a gran escala' cambiando con 'baja frecuencia temporal' (**anomalías persistentes – o desviaciones de condiciones medias temporales**)
- ❑ En cualquier lugar las condiciones del tiempo diarias y las variaciones semanales a intraestacionales (40-50 días) en circulaciones y condiciones hidrológicas resultan debido a contribuciones de:
 - **Cambio Climático**
 - **Variabilidad Climática en varias escalas temporales**



Variabilidad Climática

La Variabilidad Climática puede ser resultado de uno o una combinación de estos factores:

- Variabilidad de Temperatura Superficial
- Variabilidad Atmosférica
- Teleconexión Atmosférica

Es importante saber las condiciones climáticas (factores mencionados) para entender y pronosticar cómo afectan las condiciones regionales y locales en escalas temporales de diaria a estacional

Major Climate Variability Phenomena Affecting South America on inter-annual to Decadal Scales

El Niño – Southern Oscillation (ENSO)

Focus of this
training

Pacific Decadal Oscillation (PDO)

Antarctic Oscillation (AAO)

Tropical Atlantic Sea Surface Temperature

Reference: Past Climate Variability in South America and Surrounding Regions
From the Last Glacial Maximum to the Holocene

Editors: Vimeux, Françoise, Sylvestre, Florence, Khodri, Myriam (Eds.)

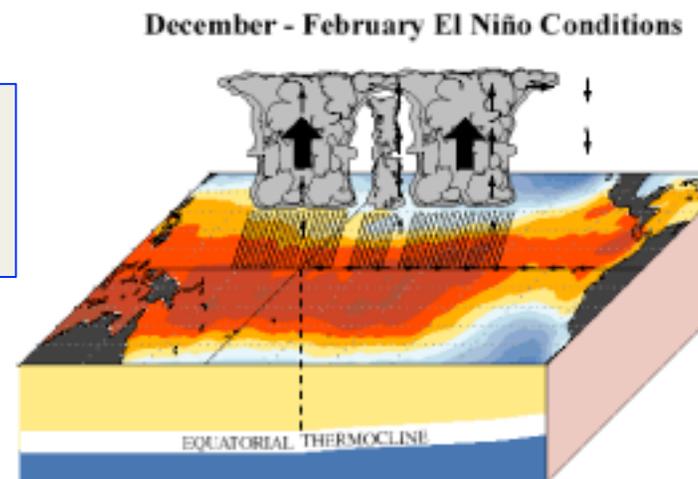
<http://www.springer.com/us/book/9789048126712>

“El Niño, La Niña, and Southern Oscillation” (ENSO)

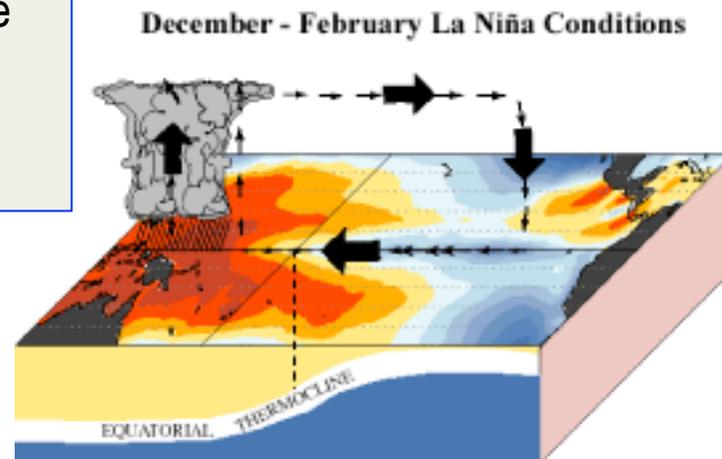
El Niño, La Niña y la Oscilación del Sur

- "ENSO" o "El Niño/Southern Oscillation" es el ciclo de eventos de calentamiento (El Niño) y enfriamiento (La Niña) que ocurren **a lo largo de intervalos de aproximadamente 2 a 7 años** en el **Océano Pacífico ecuatorial** y la **atmósfera por encima de él**.
- SO: se define como el cambio de presión al nivel del mar entre Tahití y Darwin
- Esta variabilidad de un año para otro o multianual en las condiciones oceánicas y atmosféricas tiene impactos profundos llamados "teleconexiones" sobre los patrones estacionales de precipitación y temperatura en muchas áreas del mundo.

Circulación de este a oeste débil



Circulación de este a oeste intensificada



Índices de Variabilidad Climática de la NOAA y Acceso a Ellas

Índices de Variabilidad Climática

La NOAA Brinda Índices de Variabilidad Climática
<http://www.esrl.noaa.gov/psd/data/climateindices/list/>



U.S. Department of Commerce | National Oceanic & Atmospheric Administration | NOAA Research

 **Earth System Research Laboratory**
Physical Sciences Division

Physical Sciences Division About Contact Research Data Products News Outreach

CLIMATE INDICES PLOTTING PAGE

Climate Indices: Monthly Atmospheric and Ocean Time Series

Selected Longer (18xx) timeseries

Please reference time series use in publications! Time series that are regularly updated have a * after their name.

Las condiciones climáticas están representadas por índices específicos derivados de la temperatura superficial marina (e.g. El Niño y La Niña), presión a nivel del mar (e.g. Oscilación del Sur) y otros variables (tales como precipitación, momento)

Índices de ENSO

<http://www.esrl.noaa.gov/psd/data/climateindices/list/>

Indices

Niño 3	Eastern Tropical Pacific SSTA (5°N-5°S, 150°W-90°W)
Niño 1+2 90°W-80°W)	<i>Extreme Eastern Tropical Pacific SSTA (0°-10°S,</i>
Niño 4	<i>Central Tropical Pacific SSTA (5°N-5°S) (160°E-150°W)</i>
Niño 3.4	<i>East Central Tropical Pacific SSTA (5°N-5°S)(170°-120°W)</i>
SOI Nivel del Mar Tahiti-Darwin)	<i>Southern Oscillation Index (Diferencia de Presión a</i>
MEI bimensual)	<i>Multivariate ENSO Index (MEI) (Serie temporal</i>

SSTA significa "Sea Surface Temperature Anomalies" sobre el Pacífico tropical. Estos seis variables

con presión a nivel

Índices Climáticos de la NOAA

<http://www.esrl.noaa.gov/psd/data/climateindices/list/>

La NOAA brinda:

- Valores mensuales de los Índices Climáticos de 1948 hasta el presente
- Gráficos de series temporales mensuales y estacionales de Índices a elección del usuario para años selectos

Índices Climáticos

Teleconnections:

*PNA | WP | NAO | EP/NP |
EA/WR | NAO (Jones) | NP |
NOI | PDO*

Atmosphere:

*QBO | Global Angular
Momentum | SOI | AAO | AO |
MJO*

Precipitation:

*Indian Monsoon | Sahel | SW
Monsoon | ESPI | Brazil*

ENSO:

*MEI | Nino 1+2 | Nino 3 | Nino
3.4 | Nino 4 | BEST | Tropical
Pacific EOF*

SST:Pacific

*ONI | Nino 1+2 | Nino 3 | Nino
3.4 | Nino 4 | TNI | WHWP |
Pacific Warm Pool | Tropical
Pacific EOF*

SST:Atlantic

*MDR | MDRMTROP | TNA |
TSA | Atlantic Tripole | WHWP
| Atlantic Multi-decadal
Oscillation | Atlantic Meridional
Mode | North Tropical Atlantic
Index (NTA) | Caribbean Index
(CAR)*

Other:

*Global Mean Lan/Ocean
Temperature | Solar Flux |
Trend | Hurricane Activity*

Índices Climáticos de la NOAA

<http://www.esrl.noaa.gov/psd/data/climateindices/>

Representación Gráfica y Análisis de Índices Climáticos

Purpose: Plot, analyze and compare different monthly mean climate time series.

Anomalies are now available. Climatology is entire time period of time series. I am actively working on improvements and additions. Suggestions are welcome.

Selected Longer (18xx) timeseries
Directions and comments
Teleconnections: PNA WP NAO EP/NP EA/WR NAO (Jones) NP NOI PDO
Atmosphere: QBO Global Angular Momentum SOI AAO AO MJO
Precipitation: Indian Monsoon Sahel SW Monsoon ESPI Brazil
ENSO: MEI Nino 1+2 Nino 3 Nino 3.4 Nino 4 BEST Tropical Pacific EOF
SST:Pacific ONI Nino 1+2 Nino 3 Nino 3.4 Nino 4 TNI WHWP Pacific Warm Pool Tropical Pacific EOF

Time Series 1? PNA (Pacific North American Index) If custom what is filename?
If custom what is time series title?

Time Series 2? None If custom what is filename?
If custom, what is time series title?

Year range? (1948 to present): to

Action?

Plot time series

Optional Set y range: to | Type of Plot: Line Boxes

Optional Apply Running Mean to monthly values:: months (use odd number)

Correlate two time series

Lag of 1st time series? Positive lag values indicate 1st time series leads 2nd; negative lag values means 1st lags second.

Correlate using? All months or seasons in time-series (1 value) Each months or season calculated separately

Plot autocorrelation function

Plot Cross correlation function

For all actions:

Time Averaging? Monthly Seasonal Average First Month of season: Second:

Type of data? Mean Anomaly

Demostración en Vivo del Portal de Índices Climáticos de la NOAA

Portal de Datos Climáticos del Instituto de Investigación Internacional (International Research Institute o IRI en inglés)

Cortesía:

Pietro Ceccato

Instituto de Investigación Internacional sobre el Clima y la Sociedad

IRI- Sala de Mapas Climáticos

<http://iridl.ldeo.columbia.edu/maproom/index.html?Set-Language=es>



- Acceso a Mapas Climáticos Actuales y Pronósticos: Globales y Regionales
- Información Regional sobre Seguridad de Salud, Incendios y Alimentaria
- Acceso a la Biblioteca de Datos Climáticos (Climate Data Library (Requiere Capacitación Más Avanzada con Programación))

IRI- Sala de Mapas Climáticos

<http://iridl.ideo.columbia.edu/maproom/index.html?Set-Language=es>

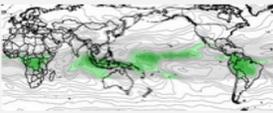
Disponible en Múltiples Idiomas

IRI Clima y la Sociedad Maproom

El clima y la sociedad maproom es una colección de mapas y otras figuras que vigilar el clima y las condiciones sociales en la actualidad y en El pasado reciente. Los mapas y las cifras pueden ser manipuladas y están vinculados a los datos originales. Incluso si usted está interesado principalmente en datos en lugar de cifras, este es un buen lugar para ver qué conjuntos de datos son particularmente útiles para vigilar las condiciones actuales.

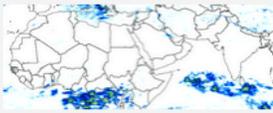
Climate: Analysis, Monitoring and Forecasts

Historical, current, and future climate conditions around the globe.



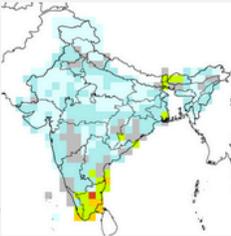
Food Security

Climate may affect food security directly or indirectly.



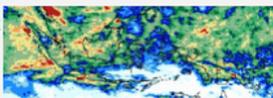
Climate and Agriculture

The variability of seasonal temperature and precipitation and the sub-seasonal statistics of these and other climate variables play a key role in the quality and quantity of agricultural output. This map room includes maps and analyses of seasonal statistics of historical temperature and precipitation, seasonal temperature and precipitation forecasts, and GCM skill maps for regions of Asia and South America, and a map of farming systems in Africa.



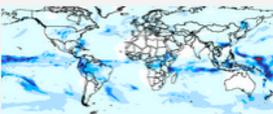
Climate and Fire

The Climate and Fire Map Room includes two tools that can support a robust fire early warning system in Indonesia. The Indonesia Rainfall Analysis Tool provides maps and time series of recent rainfall in Indonesia and a fire risk map for Kapuas



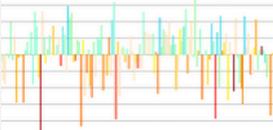
La Federación Internacional de Sociedades de la Cruz Roja y de la Media Luna Roja: Predicciones en Contexto

Esta colección de mapas provee información que puede ser utilizado para tomar decisiones humanitarias a cualquier parte del mundo. Esta colección fue creada por el IRI y la FICR. También provee información de acciones tempranas que puede hacer basada de los mapas.



El Niño, La Niña and the Southern Oscillation

This Map Room includes maps and analyses useful for monitoring ENSO, understanding the impacts and learning about key scientific advancements that have led to our current level of knowledge.



Clima y Salud

IRI- Biblioteca de Datos Climáticos

<http://iridl.ldeo.columbia.edu/>

También Disponible en Múltiples Idiomas

The screenshot shows the IRI Climate Data Library website. At the top, there is a navigation bar with the IRI logo and the text "Biblioteca de Datos Climáticos". To the right of the navigation bar is a search box labeled "Google™ Custom Search". Below the navigation bar, the main content area is divided into several sections. On the left, there is a large heading "IRI/LDEO Biblioteca de Datos Climáticos" followed by a paragraph describing the library as a powerful online data storage and analysis tool. Below this, there is a list of features. On the right, there are several smaller boxes, each with a heading and a brief description. These boxes include "IRI Clima y la Sociedad Maproom", "Navegación por la Biblioteca de Datos del IRI: Un Tutorial", "Técnicas Estadísticas en la Biblioteca de Datos: Un Tutorial", "Índice de las Funciones", "Ayuda y Recursos", "Datos por Fuentes", "Datos por Categoría", and "Navegación por Facetas de las Bases de Datos y Maprooms". Each box contains a small icon related to its content, such as a globe, a person, a calculator, or a tree diagram.

IRI/LDEO Biblioteca de Datos Climáticos

La Biblioteca de Datos del IRI es un poderoso almacén de datos disponible libremente en línea y una herramienta de análisis que permite visualizar, analizar, y bajar cientos de terabites de datos relacionados al clima, a través de un navegador estándar del internet.

Es una herramienta poderosa que permite lo siguiente libre de costos :

- acceder a una gran cantidad de datos;
- crear análisis de datos desde un promedio básico hasta análisis más avanzados como la descomposición en las Funciones Empíricas Ortogonales al utilizar el Language de Análisis de Datos Ingrid;
- monitorear a las condiciones climáticas actuales a través de mapas y análisis en el [Maproom](#);
- crear representaciones visuales de los datos, incluyendo animaciones;
- bajar datos en diferentes generalizados [formatos](#), incluyendo formatos compatibles con los SIG.

IRI Clima y la Sociedad Maproom

El clima y la sociedad maproom es una colección de mapas y otras figuras que vigilan el clima y las condiciones sociales en la actualidad y en el pasado reciente. Los mapas y las cifras pueden ser manipuladas y están vinculados a los datos originales. Incluso si usted está interesado principalmente en datos en lugar de cifras, este es un buen lugar para ver qué conjuntos de datos son particularmente útiles para vigilar las condiciones actuales.

Datos por Fuentes

Bases de datos organizadas por fuente, i.e. por autor o proveedor.

Datos por Categoría

Base de datos seleccionadas para temas particulares

Navegación por Facetas de las Bases de Datos y Maprooms

Encontrar bases de datos y

Navegación por la Biblioteca de Datos del IRI: Un Tutorial

Este tutorial es una introducción a la estructura de la Biblioteca de Datos y a las diferentes maneras de navegarla.

Técnicas Estadísticas en la Biblioteca de Datos: Un Tutorial

Las técnicas estadísticas son herramientas esenciales para analizar largas bases de datos; así este tutorial estadístico cubre las competencias esenciales para la mayoría de los usuarios de la biblioteca de datos.

Índice de las Funciones

Índice de las funciones disponibles para analizar los datos de la Biblioteca de Datos.

Ayuda y Recursos

La sección Ayuda y Recursos incluye tutoriales básicos y estadísticos, la documentación de las funciones, y otros recursos que permiten explotar la Biblioteca de Datos.

La Biblioteca de Datos del IRI es un(a)...

- Repositorio de datos
 - >400 conjuntos de datos cubriendo todos los aspectos de las características relacionados con el clima
- Herramienta de análisis de datos
 - Operaciones aritméticas → análisis EOF
- Herramienta de visualización de datos
 - Series temporales, mapas, imágenes transversales
- Recurso de descarga de datos
 - Acceso libre a archivos de datos de texto, binarios, compatibles con GIS etc.

<http://iridl.ldeo.columbia.edu>

Estructura de Conjuntos de Datos

Organización Principal

- Conj. de datos
 - Conj. de datos
 - Variables
- Conj. de Datos
- Variables **Ejemplo** →
- Conj. de datos
- Variables
- .
- .
- .
- .

- NASA
 - ERBE (Earth Radiation Budget Experiment)
 - Datasets by instrument
 - Variables
 - GES-DAAC (Distributed Active Archive Center)
 -
- GISS
 - LeGrande_Schmidt2006 (authors)
- GPCP (Global Precip Climatology Project)
 - Datasets by version
 - Datasets by instrument
 - Variables
- .
- .
- .

IRI/LDEO Climate Data Library

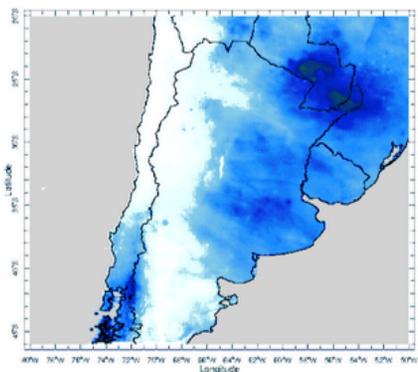
The IRI Data Library is a powerful and freely accessible online data repository and analysis tool that allows a user to view, analyze, and download hundreds of terabytes of climate-related data through a standard web browser.

It is a powerful tool that offers the following capabilities at no cost to the user:

- access any number of datasets;
- create analyses of data ranging from simple averaging to more advanced EOF analyses using the Ingrid Data Analysis Language;
- monitor present climate conditions with maps and analyses in the [Maproom](#);
- create visual representations of data, including animations;
- download data in a variety of commonly-used [formats](#), including GIS-compatible formats.

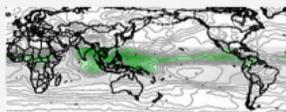
Latest from [What's New](#)

UCSB CHIRPS Version 1.8 Precipitation Analyses



IRI Climate and Society Map Room

The climate and society maproom is a collection of maps and other figures that monitor climate and societal conditions at present and in the recent past. The maps and figures can be manipulated and are linked to the original data. Even if you are primarily interested in data rather than figures, this is a good place to see which datasets are particularly useful for monitoring current conditions.



What's New

Data Library announcements about new datasets and capabilities are available on our tumblr blog



Data by Source

Datasets organized by source, i.e. creator and/or provider.



Data by Category

Selected Datasets for particular topics

Dataset and Map Room Browser

Find datasets and maps organized by many characteristics and keywords



Navigating Through the IRI Data Library: A Tutorial

The goal of this tutorial is to introduce you to the structure of the Data Library and the many ways to navigate through it.



Statistical Techniques in the Data Library: A Tutorial

Statistical techniques are essential tools for analyzing large datasets; this statistics tutorial thus covers essential skills for many data library users.



Function Index

Index for functions that can be used to analyze data within the Data Library.



Help Resources

The Help Resources include basic and statistics tutorials, function documentation, and other resources to help you get the maximum utility out of the Data Library

Customize Links Customize Links Free Hotmail Windows Media Windows

[MODELRUNS](#)
[Models](#)
[Morliere](#)
[MPI](#)
[NASA](#)
[NCAR](#)
[NMC](#)
[NMC9195](#)
[NOAA](#)
[OBERHUBER](#)
[OORT](#)
[OSUSFC](#)
[PALEO](#)
[PELTIER](#)
[RC](#)
[REVERDIN](#)
[River](#)
[Sandwell](#)
[SERVAIN](#)
[ShipDrift](#)
[SIO](#)
[SOC](#)
[STEVE](#)
[TAMU](#)
[TRENBERTH](#)

IRI

NASA options [Help](#) [Expert Mode](#)

SOURCES NASA

Data Library
 Finding Data
 Tutorial
 Questions & Answers
 help@iri

NASA

NASA: National Aeronautics and Space Administration.

Documents

[overview](#) an outline showing sub-datasets of this dataset

Datasets and variables

ERBE	Earth Radiation Budget Experiment.
GES-DAAC	GSFC Earth Sciences Distributed Active Archive Center.
GISS	NASA GISS[LeGrande_Schmidt2006]
GPCP	Combined satellite-gauge precipitation estimates and error estimates from the Global Precipitation Climatology Project.
GSFC	Goddard Space Flight Center.
ISCCP	International Satellite Cloud Climatology Project.
ISLSCP	International Satellite Land Surface Climatology Project.
Microwave Sounding Unit	Gridded oceanic rainfall data from the Microwave Sounding Unit.
JPL	Not Found

Other Info

iridl:hasSemantics

Done Done

served from [IRI/LDEO Climate Data L](#)

IRI/LDEO Climate Data Library

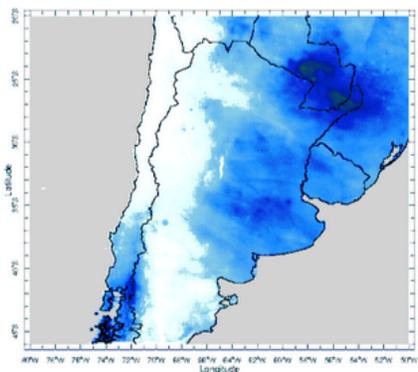
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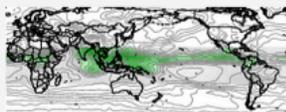
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← → ↻ iridl.ldeo.columbia.edu/docfind/databrief/index.html

IRI/LDEO Climate Data Library Data Library Dataset By Category Language english

Dataset Category

- Air Sea Interface
- Climate Indices
- Cloud Characteristics and Radiation Budget
- Atmosphere
- Forecasts
- Historical Model Simulations
- Hydrology
- Ice
- Oceanography

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IRI

- Interfaz Aire-Océano
- Atmósfera
- Índices Climáticos
- Características de Nubes y Balance de Radiación
- Pesquerías
- Pronósticos
- Simulaciones de Modelos Históricos
- Hidrología
- Hielo
- Oceanografía
- Topografía y Característica de la Tierra

- Dataset Category**
- Air Sea Interface
 - Climate Indices
 - Cloud Characteristics and Radiation Budget
 - Atmosphere
 - Forecasts
 - Historical Model Simulations
 - Hydrology
 - Ice
 - Oceanography

Share

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- Dataset Category**
- Climate Indices
 - Atmosphere

IRI Analyses SPI D

IRI Analyses SPI: Standardized Precipitation Index analyses of multiple global precipitation datasets.

IRI Analyses WASP D

IRI Analyses WASP: Weighted Anomaly of Standardized Precipitation Index analyses of multiple global precipitation data sets.

Indices CPC_Indices NHTI D

Northern Hemisphere Teleconnection Indices from Indices CPC_Indices: Northern Hemispheric Teleconnection Indices from the Climate Prediction Center. Time: [Jan 1950,Mar 2015]; monthly

Indices Darwin slp D

sea level pressure from Indices Darwin: Sea level pressure data from Darwin, Australia. Time: [Jan 1882,Apr 2015]; monthly

Indices Easter slp D

sea level pressure from Indices Easter: Sea level pressure data from Easter Island. Time: [Jan 1951,Dec 1995]; monthly

Indices HANSEN Global D

Indices HANSEN Global: Analysis of average global temperature at annual, seasonal, and monthly time scales

Indices Tahiti slp D

Indices nino KAPLAN D

KAPLAN from Indices nino: Indices representative of the NINO 1 and 2, NINO 3, NINO 3.4, and NINO 4 regions.

Indices nino NCEP D

NCEP from Indices nino: Indices representative of the NINO 1 and 2, NINO 3, NINO 3.4, and NINO 4 regions.

Indices nino NCEP_Olv2 D

NCEP_Olv2 from Indices nino: Indices representative of the NINO 1 and 2, NINO 3, NINO 3.4, and NINO 4 regions.

Indices soi c8110 D

1981-2010 base period from Indices soi: Southern Oscillation Index.

Indices standardized D

Indices standardized: Standardized Southern Oscillation Index. Time: [Jan 1882,Jan 1996]; monthly

NCAR CGD CAS Indices D

NCAR CGD CAS Indices: Palmer Drought Severity Index from the National Center for Atmospheric Research. Resolution: 2.5x2.5; Longitude: global; Latitude: [58.75S,76.25N]; Time: [Jan 1860,Dec 1995]; monthly

NOAA NCDC CIRS ClimateDivision D

NOAA NCDC CIRS ClimateDivision: Time bias corrected temperature, precipitation, and drought index data for United States climate divisions from the National Climatic Data Center.

Opciones de Visualización en la Sala de Mapas

Analysis

- Anomaly (128)
- Climatology (49)
- Column Average (4)
- Difference (9)
- Forecast (57)
- Mean (22)
- Percentile (21)
- Spatial Average (37)
- Standard Deviation (27)
- Standardized (52)
- Variance (8)
- Verification (6)

Disease

- Malaria (15)
- Meningitis (8)

Institution

- FAO (1)
- IRI (24)

Location

- Political World (82)
- Global (133)

Phenomena

- Atmospheric Circulation (47)
- Drought (3)
- ENSO (67)
- Precipitation (111)
- Vegetation (4)
- Wind (22)

Climate Indices (16)

Count (20)

Depth (4)

Divergence (1)

Elevation (1)

Evapotranspiration (1)

EVI (1)

Flux (7)

Geopotential Height (22)

14 more

Realm

- Atmosphere (207)
- Land Surface (9)
- Ocean (12)
- Planetary Surface (58)
- Sea Surface (45)
- Water Surface (45)

Sector

- Agriculture (51)
- Climate (295)
- Food Security (7)
- Hazards (28)
- Health (24)

Spatial Resolution

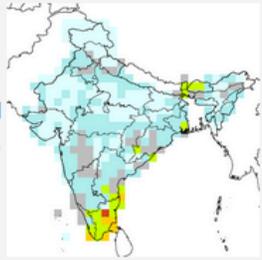
- Gridded (201)
- Spatial Average (38)
- Station (21)

Time

- Daily (56)
- Dekad (9)

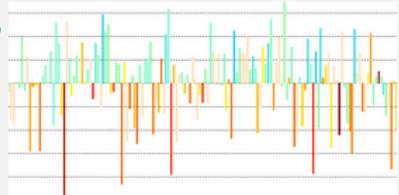
Climate and Agriculture M

The variability of seasonal temperature and precipitation and the sub-seasonal statistics of these and other climate variables play a key role in the quality and quantity of agricultural output. This map room includes maps and analyses of seasonal statistics of historical temperature and precipitation, seasonal temperature and precipitation forecasts, and GCM skill maps for regions of Asia and South America, and a map of farming systems in Africa.



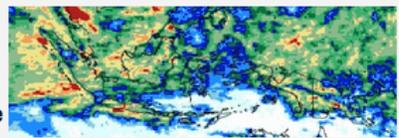
El Niño, La Niña and the Southern Oscillation M

This Map Room includes maps and analyses useful for monitoring ENSO, understanding the impacts and learning about key scientific advancements that have led to our current level of knowledge.



Climate and Fire M

The Climate and Fire Map Room includes two tools that can support a robust fire early warning system in Indonesia. The Indonesia Rainfall Analysis Tool provides maps and time series of recent rainfall in Indonesia and a fire risk map for Kapuas district in Central Kalimantan. The Predictive Tool for Fire Activity offers experimental forecasts of the likelihood of fire activity 1-2 months in advance in Kalimantan, Indonesia.



Food Security M

Options de Formatos de Descarga de Datos

Ejemplo: SST Anomaly

NOAA NCEP EMC CMB GLOBAL Reyn_SmithOlv2 monthly ssta Data Files

This dataset has bytes (1.0342080E08 98.629761MB) of data in it, which should give you a rough idea of the size of any file that you ask for.

Download Data To Specific Software

ingrid	The Postscript-based software on which the Data Library is built.
CPT	Climate Predictability Tool More information
ferret	Interactive computer visualization and analysis software. More information
GrADS	Grid Analysis and Display System More information
matlab	Data analysis and visualization software. More information
NCL	NCAR Command Language More information
WinDisp	A public domain software package for the display and analysis of satellite images, maps and associated databases, with an emphasis on early warning for food security. More information

Other Available File Formats

Full Information Formats These files contain all of the available metadata.	
OPeNDAP	A system which downloads data directly to software, such as matlab, Ferret, GrADS, etc. Specific instructions are available in the table above. Note: OPeNDAP was formerly known as DODS (Distributed Oceanographic Data System). More Information
netCDF (network Common Data Form)	A commonly supported self-describing data format. More Information
Partial Information Formats These files contain only some of the available metadata.	
Columnar Table	A table with separate columns of numbers for each independent variable (i.e., grids) and for the data. This is an inefficient format, so you would have gotten a HUGE file for dataset of this size. This file will be approximately 413683200 bytes, with 4 columns of 25855200 numbers.
2-Dimensional Tab-Separated Tables	Tab-separated-values (tsv) file with information about the independent variables (i.e., grids). The list to the left allows you to specify the format of the table.

**Demostración en Vivo de
la Biblioteca de Datos
Climáticos y la Sala de
Mapas del IRI**

Próximamente:

Actividad Presencial para

- 1) Aprender a Acceder a la Información de Variabilidad Climática y del ENSO usando la Sala de Mapas del IRI