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Center for International Earth Science Information Network (CIESIN)

Brief Overview

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Center for International Earth
Science Information Network
EARTH INSTITUTE | COLUMBIA UNIVERSITY

About CIESIN

- **Status in IAI's structure: Associate of the Institute**
- Intersection of the social, natural, and information sciences:
 - on-line data and information management,
 - spatial data integration and training,
 - interdisciplinary research related to human-environment interactions
- Mission: to provide access to and enhance the use of information worldwide, advancing the understanding of the human interactions in/with the environment and serving the needs of science and public and private decision making.

5 Programas Vinculados al IAI IAI - Related Programs

CIESIN: Miembro Asociado del IAI

Roberta Balstad Miller (Directora, CIESIN, Universidad de Columbia)

El Centro para la Red de Información Internacional de Ciencias de la Tierra, conocido como CIESIN (pronunciado "season" en inglés), es uno de los dos Miembros Asociados del IAI. CIESIN ha trabajado estrechamente con el IAI durante varios años en dos áreas importantes: los expertos en tecnología de la información de CIESIN desarrollaron el software que soporta el Sistema de Datos e Información del IAI (IAI-DIS), y ambas instituciones co-financiaron la Reunión Abierta de la Comunidad de las Dimensiones Humanas del Cambio Ambiental Global que se realizó en Rio de Janeiro, Brasil en octubre de 2001.

Fundado en Michigan en 1989 como un consorcio independiente, el CIESIN pasó a formar parte de la Universidad de Columbia en 1998 y desde entonces ha estado físicamente ubicado en el campus ambiental de la Universidad en el Observatorio de la Tierra Lamont-Doherty en Palisades, Nueva York. El CIESIN trabaja en la intersección de las ciencias sociales, naturales y de la información. Su misión es (1) promover la comprensión de las interacciones entre los seres humanos y el medio ambiente en apoyo del desarrollo sustentable y (2) crear redes de recursos de información y conocimiento para la ciencia y la toma de decisiones a escalas desde global a local. Ambas partes de esta misión—investigación e información—están estrechamente vinculadas al trabajo de CIESIN. La investigación científica es fundamental para comprender, desarrollar y utilizar los recursos de información, y la creación y difusión de recursos de información contribuye tanto al avance de la investigación científica como a la mejora de la toma de decisiones.

Las actividades de CIESIN abarcan la investigación, educación y el manejo de centros y servicios operacionales de datos electrónicos. La organización opera varios centros de datos. El Consejo Internacional de Ciencia (ICSU) ha designado a CIESIN como el Centro Mundial de Datos de las Interacciones Humanas en el Medio Ambiente, constituyéndose en el primer Centro Mundial de Datos centrado en bases de datos socioeconómica y distribuida. Además, el CIESIN opera el Centro de Datos y Aplicaciones Socioeconómicas (SEDAC), uno de los centros de archivo distribuidos activos del Programa de Observación de la Tierra de la NASA. Dentro de SEDAC, el CIESIN ha desarrollado una base de datos reticulada de la población del mundo (Figura 1), que provee datos sobre la densidad de población en una grilla de la Tierra de 2,5 minutos. Otro recurso de información que puede obtenerse a través de SEDAC, llamado Tratados Ambientales e Indicadores de Recursos (ENTRI), que brinda un acceso on-line a tratados ambientales multilaterales y la información de estado asociada. El CIESIN también opera la Oficina de Información sobre Investigación del Cambio Global de Estados Unidos (GCRIO). GCRIO constituye el brazo de extensión del Programa de Investigación del Cambio Global de Estados Unidos y brinda información sobre cambio global tanto on-line como en copia impresa, a pedido, a las personas de Estados Unidos y los extranjeros. Para el Banco Mundial, el CIESIN ha creado el Sistema de Información de Desarrollo Rural Sustentable. Todos los da-

CIESIN: Associate Member of the IAI

Roberta Balstad Miller (Director, CIESIN, Columbia University)

The Center for International Earth Science Information Network, known as CIESIN (pronounced "season"), is one of two Associate Members of the IAI. CIESIN has worked closely with the IAI over several years in two important areas: CIESIN's information technology experts developed the software system that underlies the IAI Data and Information System (IAI-DIS), and the two organizations were co-sponsors of the Open Meeting of the Human Dimensions of Global Environmental Change Community held in Rio de Janeiro, Brazil in October, 2001.

Founded in Michigan in 1989 as an independent consortium, CIESIN became part of Columbia University in 1998 and since then has been physically located at the University's environmental campus at Lamont-Doherty Earth Observatory in Palisades, New York. CIESIN works at the intersection of the social, natural, and information sciences. Its mission is (1) to promote understanding of the interactions between humans and the environment in support of sustainable development and (2) to create information resources and knowledge networks for science and decision-making at global to local scales. The two parts of this mission—research and information—are closely related in CIESIN's work. Scientific research is critical for understanding, developing, and using information resources, and the creation and dissemination of information resources contributes both to the advancement of scientific research and the improvement of decision making.

CIESIN's activities span research, education, and the management of operational electronic data centers and services. The organization operates several data centers. The International Council of Science (ICSU) has designated CIESIN the World Data Center for Human Interactions in the Environment. This was the first World Data Center that concentrates on socioeconomic and distributed data bases. In addition, CIESIN operates the Socioeconomic Data and Applications Center (SEDAC), one of the distributed active archive centers in NASA's Earth Observing System program. Under SEDAC, CIESIN has developed a gridded database of the world's population (see Figure 1), which provides data on population density on a 2.5 minute grid of the Earth. Another information resource available through SEDAC is called Environmental Treaties and Resource Indicators (ENTRI), which provides on-line access to multilateral environmental treaties and associated status information. CIESIN also operates the U.S. Global Change Research Information Office (GCRIO). GCRIO serves as the outreach arm of the U.S. Global Change Research Program and provides both on-line and hard copy resources on global change, on request, to individuals in both the United States and abroad. For the World Bank, CIESIN has created the Sustainable Rural Development Information System. All the data and information resources in these programs are made available free of charge over the Internet by CIESIN.

One of the recent research projects conducted at CIESIN

CIESIN Projects

Federal Funding

- **NASA Socioeconomic Data and Applications Center (SEDAC)**
- Developing Global Building Exposure for Disaster Forecasting, Mitigation, and Response, Phase II (NASA)
- **Health Effects and Geochemistry of Arsenic and Manganese (NIEHS Superfund Research Program)**
- Consortium for Climate Risk in the Urban Northeast (NOAA)
- Computational Thinking in Ecosystems (NSF)
- Developing High Performance Green Infrastructure Systems to Sustain Coastal Cities (NSF)
- West Africa Biodiversity and Climate Change (USAID)
- SERVIR/West Africa Project for USAID/West Africa (USAID)
- **Recently Completed**
 - *Terra Populus*, NSF DataNet project (NSF)
 - Vulnerability of the U.S. Atlantic Coast to Hazards Associated with Extreme Winter Storms (StormEVAAC) (NASA)

Non-Federal Funding

- **Africa Soil Information Service (AfSIS) (Gates Foundation)**
- Global High Resolution Population Denominators (Gates Foundation)
- The Hudson River Flood Hazard Decision Support System (NYSERDA)
- Building Data for Climate Change Adaptation: Filling Data Gaps and Characterizing Storm Surge Impacts in the Hudson River Valley and Long Island (NYSERDA)
- Population Data Validation (Facebook)
- **Impact of Climate Change on Population Distribution and Migration: An Evidence-Based Analysis (World Bank)**
- **Recently Completed**
 - Development of National Disaster Risk Profiles for Sub Saharan Africa I and II (World Bank GFDRR)
 - Ecological Assessment of the Hudson River (Nature Conservancy)
 - Sixth Global Environment Outlook (GEO-6) North American Regional Assessment (UNEP)

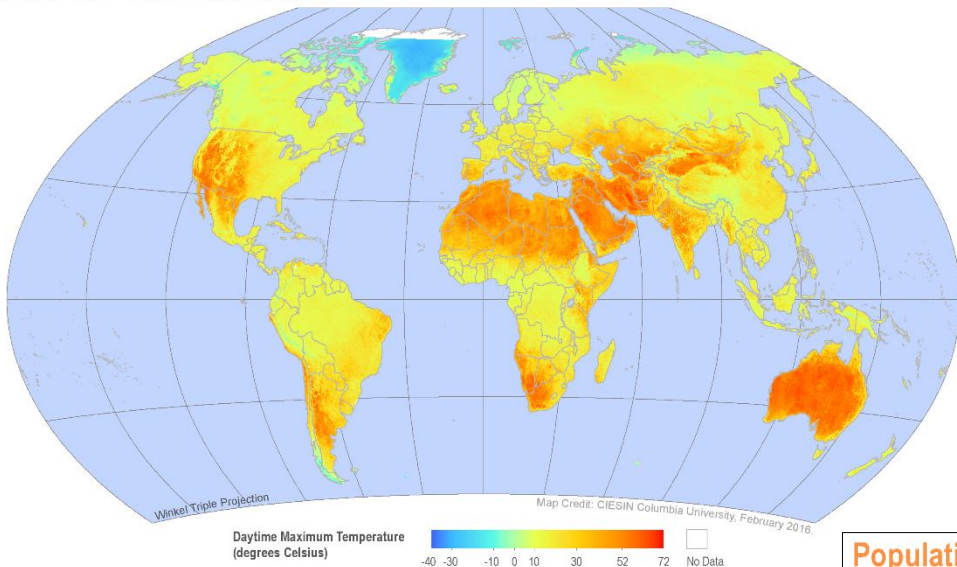
Socio Economic Data Applications Center (SEDAC)



- One of the Distributed Active Archive Centers (DAACs) in the Earth Observing System Data and Information System (EOSDIS) of the U.S. National Aeronautics and Space Administration.
- Mission: to develop and operate applications that support the integration of socioeconomic and earth science data and to serve as an "Information Gateway" between earth sciences and social sciences.
- <http://sedac.ciesin.columbia.edu/>

Summer Daytime Maximum Land Surface Temperature (LST), 2013: Global

Satellite-Derived Environmental Indicators



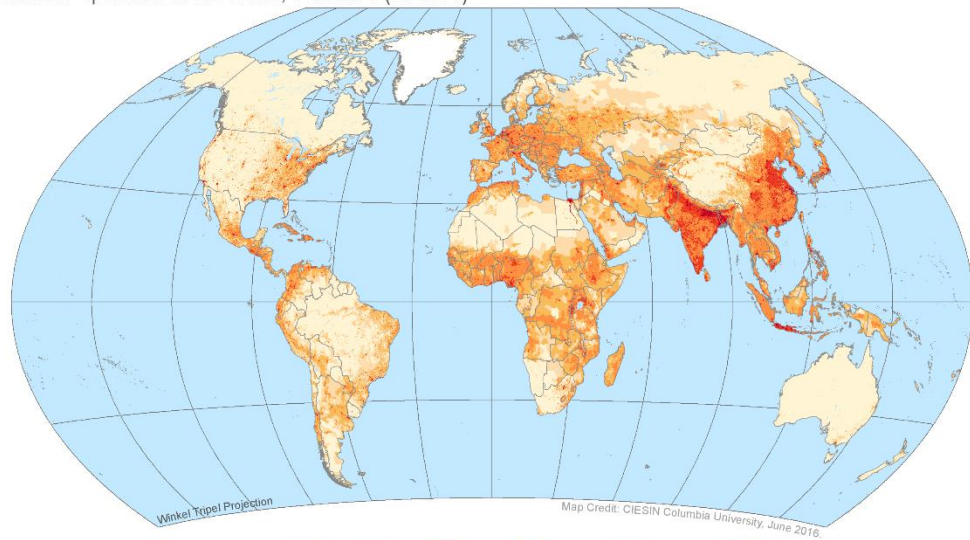
The Global Summer Land Surface Temperature (LST) Grids, 2013, part of the Satellite-Derived Environmental Indicators collection, estimate maximum temperature and nighttime (1:30 a.m.) minimum temperature in degrees Celsius at a spatial resolution of ~1km during summer and southern hemispheres for the year 2013. The LST grids are produced using the Aqua Level-3 Moderate Resolution Imaging Spectroradiometer (MODIS) Version 5 global daytime and nighttime LST 8-day composite data product (MYD11A2).

Center for International Earth Science Information Network Data Source: Center for International Earth Science Information Network - CIESIN - Columbia University, 2016. Global Summer Land Surface Temperature. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). <http://dx.doi.org/10.7927/H408639T>. © 2016. The Trustees of Columbia University in the City of New York.

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Population Density Grid, 2015: Global

Gridded Population of the World, Version 4 (GPWv4)



Gridded Population of the World, Version 4 (GPWv4) Population Density consists of estimates of human population density based on counts consistent with national censuses and population registers, for the years 2000, 2005, 2010, 2015, and 2020. A proportional allocation gridding algorithm, utilizing approximately 12.5 million national and sub-national administrative units, is used to assign population values to 30 arc-second (~1 km) grid cells. The population density grids are derived by dividing the population count grids by the land area grids. The pixel values represent persons per square kilometer.

Center for International Earth Science Information Network Data Source: Center for International Earth Science Information Network - CIESIN - Columbia University, 2016. Gridded Population of the World, Version 4 (GPWv4) Population Density. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). <http://dx.doi.org/10.7927/H4NP22DQ>. © 2016. The Trustees of Columbia University in the City of New York.

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Muchas gracias

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