The Center for International Earth Science Information Network (CIE-SIN) is a data and research center of Columbia University's Earth Institute that addresses human interactions with the environment. Our focus is on the impacts of human activities and institutional arrangements on the environment, and, in turn, how environmental change affects society.

We manage a number of Web sites that contain data, information, and interactive applications useful to researchers, policymakers, educators, and students.

Center for International Earth Science Information Network
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CIESIN is located at the Lamont-Doherty Campus of Columbia University in Palisades, New York. Its international staff have advanced training in a range of fields, including geography, demography, political science, history, economics, natural resource management, geophysics, information management, library science, geospatial technologies, software engineering and computer science.
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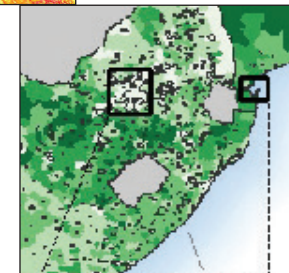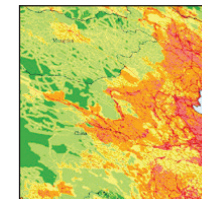# COLUMBIA UNIVERSITY

The Earth Institute, Columbia University, mobilizes the sciences, education and public policy to achieve a sustainable Earth. Through interdisciplinary research among more than 500 scientists in diverse fields, the Institute is adding to the knowledge necessary for addressing the challenges of the 21st century and beyond. With over two dozen associated degree curricula and a vibrant fellowship program, the Earth Institute is educating new leaders to become professionals and scholars in the growing field of sustainable development. We work alongside governments, businesses, nonprofit organizations and individuals to devise innovative strategies to protect the future of our planet.
www.earth.columbia.edu

Data and Information Resources

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Environmental Sustainability and Change

Environmental Performance Index (EPI): Assesses national performance with respect to environmental goals.
sedac.ciesin.columbia.edu/data/collection/epi

Population, Landscape, and Climate Estimates: National-level aggregates of territorial extent and population size (urban and rural) by biome, climate zone, coastal proximity, and elevation.
sedac.ciesin.columbia.edu/theme/sustainability

Global Roads: Includes the public-domain Global Roads Open Access Data Set (gROADS) and a catalog of roads data.
sedac.ciesin.columbia.edu/data/collection/groads

Anthropogenic Biomes: Describes 21 anthropogenic biomes based on population density, land use, biota, climate, terrain, and geology.
sedac.ciesin.columbia.edu/data/collection/anthromes

Gridded Species Distribution: Gridded downloadable data for global amphibian and mammal distribution.
sedac.ciesin.columbia.edu/data/collection/species

Historical Anthropogenic Sulfur Dioxide Emissions: Annual estimates of anthropogenic sulfur dioxide emissions,1850–2005.
sedac.ciesin.columbia.edu/data/collection/haso2

Global Fertilizer and Manure: Global data on fertilizer application and manure production of nitrogen and phosphorus.
sedac.ciesin.columbia.edu/data/collection/ferman-v1

Global Distribution of Mangroves, 2000: Database on the extent of mangroves forests from the Global Land Survey and the Landsat archive, at 30 m spatial resolution.
bit.ly/1QqZ834

Intergovernmental Panel on Climate Change (IPCC) Socioeconomic Data Distribution Centre (DDC): Socio-economic baseline and scenario data for use in climate impact assessments.
sedac.ciesin.columbia.edu/ddc/

Global Reservoir and Dam: 6,862 spatially-explicit records of reservoirs and associated dams.
sedac.ciesin.columbia.edu/data/collection/grand-v1

Interactive Tools

POPGRID Viewer: A four-panel display enables comparison of six different population data sets; a single-panel mode provides metadata and side-by-side comparison of population estimates.
http://sedac.ciesin.columbia.edu/mapping/popgrid/

Population Estimation Service: A Web-based service for easily estimating population totals for specific areas, updated with basic demographic information and the Population Estimator Tool.
bit.ly/1NXjhw5

Data Visualization and Access Tool: View/download GMIS and HBASE data sets by country, tile, shapefile, rectangle or polygon; at 30 m, 250 m, or 1 km resolution; geographic or UTM projection.
http://sedac.ciesin.columbia.edu/mapping/gmis-hbase

SEDAC Hazards Mapper: Visualize data and map layers on a variety of themes; analyze potential impacts and exposure.
http://sedac.ciesin.columbia.edu/mapping/hazards/

Hazards and Population Mapper (HazPop): A free mobile app lets users display recent natural hazards data in relationship to population, major infrastructure, and satellite imagery.
http://apple.co/1W2IGJi

SEDAC Map Viewer: An interactive mapping tool enabling different thematic views of the NASA SEDAC data collection.
sedac.ciesin.columbia.edu/maps/client

NPL Superfund Footprint Mapper: Visualizes demo-graphic/environmental data for areas near U.S. hazardous waste sites.
superfund.ciesin.columbia.edu/sfmapper/index.html

Application for Extracting and Exploring Analysis Ready Samples (AppEEARS): Access/transform geospatial data from federal data archives; select GPWv4 data sets are also accessible.
https://lpdaacsvc.cr.usgs.gov/appeears/

Hudson River Flood Impact Decision Support System: This mapping tool assesses flood inundation impacts from sea level rise, storm surge, and rain events, on lower Hudson Valley areas.
http://www.ciesin.columbia.edu/hudson-river-flood-map/

AdaptMap: Story map/sea level rise viewer visualizes a study of historic landscapes 1609–1877 and potential future green shorelines of Jamaica Bay, New York.
http://adaptmap.info/jamaicabay2/

Jamaica Bay Water Quality Data Visualization and Access Tool: Enables users to explore, visualize, and download water quality data and metadata for Jamaica Bay, New York.
http://www.srijb.org/

Population and the Environment

Gridded Population of the World (GPWv4.10): An updated version of gridded population counts/density estimates has a new data set broken down into age group by sex (male and female).
sedac.ciesin.columbia.edu/data/collection/gpw-v4

The Global Estimated Net Migration Grids by Decade: Estimates of net migration over three decades, 1970–2000.
http://bit.ly/2odejp4

High Resolution Settlement Layer (HRSL): Estimates of human population distribution at a resolution of 1 arc-second (approximately 30m) for the year 2015, based on recent census data and high-resolution (0.5m) satellite imagery from DigitalGlobe.
http://www.ciesin.columbia.edu/data/hrsl/

Global Man-Made Impervious Surface (GMIS) and Global Human Built-up and Settlement Extent (HBASE): High-resolution data derived from 2010 Global Land Survey (GLS) free Landsat archive.
http://sedac.ciesin.columbia.edu/data/collection/ulandsat

Historical Urban Population: The first spatially explicit global data set with urban population location/size for the past 6,000 years.
https://bit.ly/2G5TgK4

India Data Collection: High-resolution georeferenced socioeconomic data derived from NASA MODIS, for insights into landscape-scale dynamics in India.
http://bit.ly/2zcl1C2

Global Grid of Probabilities of Urban Expansion: Spatially explicit probabilistic forecasts of global urban land cover change 2000–2030, at a 2.5 arc-minute resolution.
http://bit.ly/1R3Z4Tm

Global Rural-Urban Mapping Project (GRUMP): Includes a global point database of human settlements/urban extent mask.
sedac.ciesin.columbia.edu/data/collection/grump-v1

Population in the Low-Elevation Coastal Zone (LECZ): The numbers and proportions of the world's population located in the LECZ (all areas below 10 m elevation).
sedac.ciesin.columbia.edu/data/collection/lecz

Human Footprint and Last of the Wild: Global data on the intensity/extent of human land use and remaining "wild" places.
sedac.ciesin.columbia.edu/data/collection/wildareas-v3

Poverty, Health, and Hazards

Global Poverty Mapping Project: Global spatial data sets of infant mortality and malnutrition and country-level data sets, with subnational measures of poverty for 28 countries.
sedac.ciesin.columbia.edu/povmap

Satellite-Derived Environmental Indicators: Estimates of annual $PM_{2.5}$ concentrations; long-term exposure to NO_2; and global urban heat island/land surface temperature data.
sedac.ciesin.columbia.edu/data/collection/sdei

Energy Infrastructure: Nuclear power sites and associated attributes; and country-level estimates of populations in proximity to sites with at least one operating reactor as of March 2012.
http://sedac.ciesin.columbia.edu/data/collection/energy