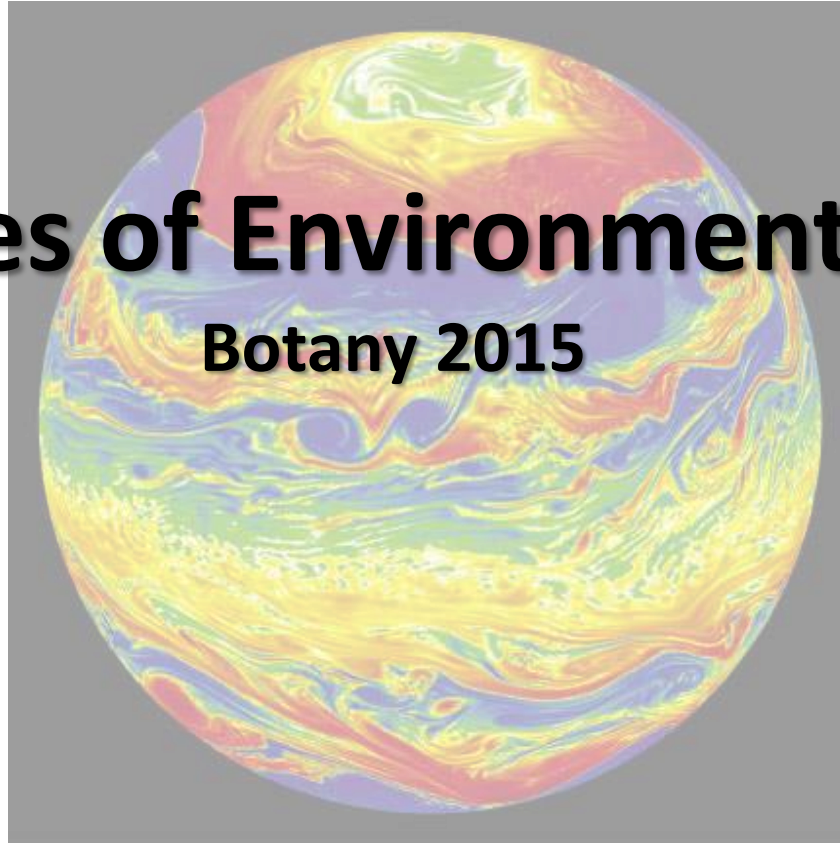


Sources of Environmental Data

Botany 2015



Environmental data

What?

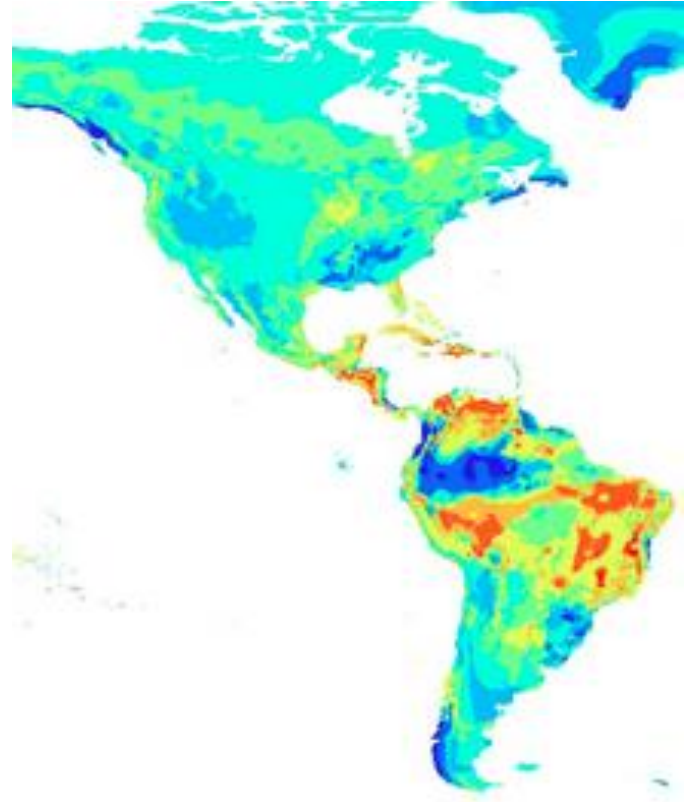
Temperature, rainfall, soil, land use...

Where?

Local, U.S., North America, Global...

When?

Current, past, future



WorldClim – Global Climate Data

<http://www.worldclim.org/>

19 Bioclimatic variables – derived from monthly temperature and rainfall values

BIO1 = Annual Mean Temperature

BIO2 = Mean Diurnal Range (Mean of monthly (max temp - min temp))

BIO3 = Isothermality (P2/P7) (* 100)

BIO4 = Temperature Seasonality (standard deviation * 100)

BIO5 = Max Temperature of Warmest Month

BIO6 = Min Temperature of Coldest Month

BIO7 = Temperature Annual Range (P5-P6)

BIO8 = Mean Temperature of Wettest Quarter

BIO9 = Mean Temperature of Driest Quarter

BIO10 = Mean Temperature of Warmest Quarter

BIO11 = Mean Temperature of Coldest Quarter

BIO12 = Annual Precipitation

BIO13 = Precipitation of Wettest Month

BIO14 = Precipitation of Driest Month

BIO15 = Precipitation Seasonality (Coefficient of Variation)

BIO16 = Precipitation of Wettest Quarter

BIO17 = Precipitation of Driest Quarter

BIO18 = Precipitation of Warmest Quarter

BIO19 = Precipitation of Coldest Quarter

WorldClim – Global Climate Data

<http://www.worldclim.org/download>

WorldClim - Global Climate Data

Free climate data for ecological modeling and GIS

Download

About us

[Home](#)

Download

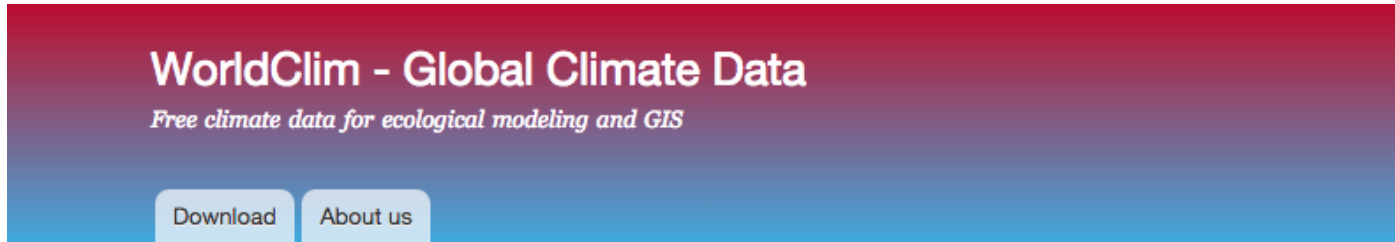
You can download climate data for:

- **Current** conditions (interpolations of observed data, representative of 1950-2000)
- **Future** conditions: downscaled global climate model (GCM) data from CMIP5 (IPPC Fifth Assessment)
- **Past** conditions (downscaled global climate model output)

WorldClim – Global Climate Data

<http://www.worldclim.org/current>

Current conditions – averaged over 50 years



WorldClim - Global Climate Data
Free climate data for ecological modeling and GIS

Download About us

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Data for current conditions (~1950-2000)

If you need the highest resolution (**30 arc-seconds (~1 km)**) then you can [download by tile](#).

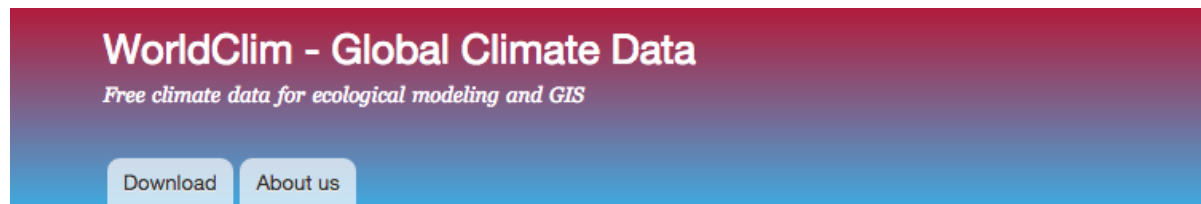
If you want global grids, choose the [generic](#) or the [ESRI format](#) and the [resolution and variables](#) you want.

See the [Methods](#) page for more info on how these data were generated, and [this page](#) for info on details about the data (such as units).

WorldClim – Global Climate Data

<http://www.worldclim.org/CMIP5>

Future conditions – climate projections from global climate models for 4 different greenhouse gas concentration trajectories



[Home](#)

CMIP5

Downscaled IPCC5 (CMIP5) data

The data available here are climate projections from global climate models (GCMs) for four [representative concentration pathways](#) (RCPs). These are the most recent GCM climate projections that are used in the Fifth Assessment IPCC report. The GCM output was [downscaled and calibrated \(bias corrected\)](#) using [WorldClim 1.4](#) as baseline 'current' climate.

The data are available at different spatial resolutions (expressed as minutes or seconds of a degree of longitude and latitude): **10 minutes, 5 minutes, 2.5 minutes, 30 seconds**. The variables included are monthly minimum and maximum temperature, precipitation, and 'bioclimatic' variables.

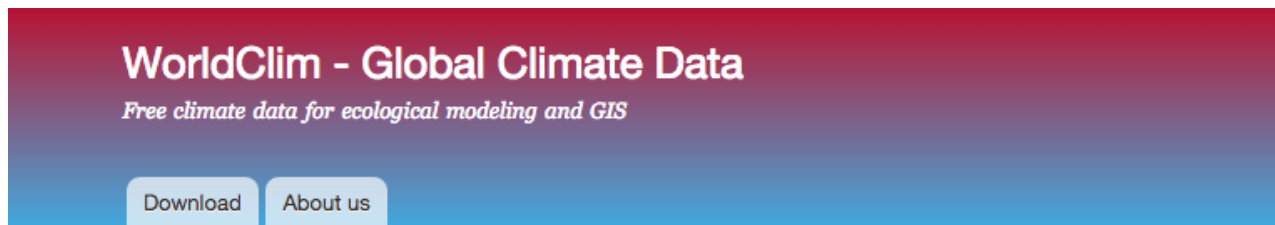
WorldClim – Global Climate Data

<http://www.worldclim.org/paleo-climate>

Past conditions – Mid-Holocene (6000 years ago)

Last Glacial Maximum (22,000 years ago)

Last Inter-glacial (120,000-140,000 years ago)



[Home](#)

Downscaled Paleoclimate data

Downscaled paleo climate

The data available here downscaled climate data from simulations with Global Climate Models (GCMs). The original data was made available by (CMIP5). These data were [downscaled and calibrated \(bias corrected\)](#) using [WorldClim 1.4](#) as baseline 'current' climate. The file format is GeoTIFF.

There is data for the [Mid-Holocene](#) (About 6000 years ago) and the [Last Glacial Maximum](#) (about 22,000 years ago). Go [here](#) for *future* climate data.

This spatial resolution available is between 30-seconds (of a longitude/latitude degree), or about 900 m at the equator to 10 minutes (18 km at the equator)

PRISM

<http://www.prism.oregonstate.edu/>

Climatic data for the U.S.

More precise than WorldClim (but more work)

Data available back to 1895 until present



PRISM

<http://www.prism.oregonstate.edu/>

More data and tools to explore

30-Year Normals: At the end of each decade, average values for temperature and precipitation are computed over the preceding 30 years. The current set of 30-year normals covers the period 1981-2010.

Comparisons: Maps showing how observed values have been deviating from long-term conditions (also known as anomalies) - includes the new Drought Indicator tool.

This Month: Although still very preliminary, results based on daily data readings are available for the month-in-progress.

Prior 6 Months: Provisional results based on both monthly and daily data are available for the 6 most recently completed months.

Recent Years: Daily and monthly observations become stabilized after 6 months. At that point the time series datasets are posted in this section, along with annual values computed at the end of each year.

Historical Past: Values prior to 1981 are based on less extensive observations. Time series datasets computed using monthly modeling are available for the years 1895-1990.

Gallery of State Maps: Prepared map images for each state in the continental US.

Data Explorer: analyze and download time-series data for a single location.

Soil

http://daac.ornl.gov/cgi-bin/dsvviewer.pl?ds_id=1242

Unified North American Soil Map



The screenshot shows the ORNL DAAC website interface. At the top left is the ORNL DAAC logo with the text "ORNL DAAC DISTRIBUTED ACTIVE ARCHIVE CENTER FOR BIOGEOCHEMICAL DYNAMICS". To the right is the NASA logo. Below the logos is a navigation bar with buttons for "About Us", "Products", "Data", "Tools", and "Help". Underneath is a secondary navigation bar with links for "Complete Data Set List", "Search for Data", "Field Campaigns", "Validation", "Regional/Global", and "Model Archive". The main content area includes a "Home" link, a "Sign in" link, a search bar containing "Search ORNL DAAC", and a dropdown menu set to "Data". A breadcrumb trail reads "DAAC Home > Data > Field Campaigns > NACP (North America) > Data Files". The main heading is "NACP MsTMIP: Unified North American Soil Map" with a prominent "Download Data" button below it.

Soil

<http://mrdata.usgs.gov/geochem/>

U.S only (stream sediments and soils)



[USGS Home](#)
[Contact USGS](#)
[Search USGS](#)

Mineral Resources On-Line Spatial Data

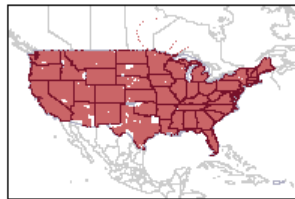
[Mineral Resources](#) > [Online Spatial Data](#)

National Geochemical Survey database

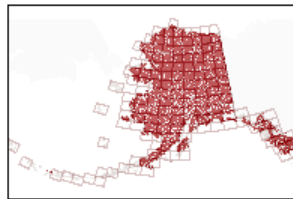
National-scale geochemical analysis of stream sediments and soils in the US, from existing data, reanalysis of existing samples, and new sampling. Goal for sample density is one per 289 square km.

View:

Show in a web browser window:



Continental US

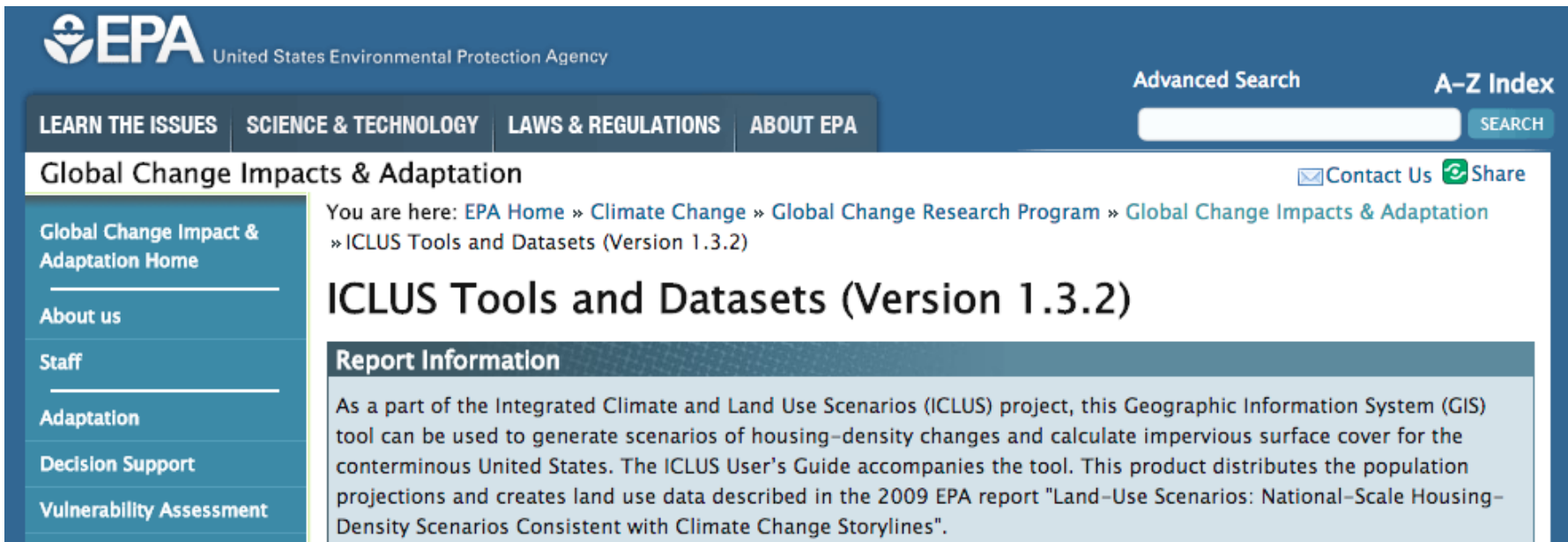


Alaska

EPA

<http://cfpub.epa.gov/ncea/global/recordisplay.cfm?deid=257306>

Land use – county population projections
housing density projections
percent impervious surface projections



The screenshot shows the EPA website header with the logo and navigation menu. The main content area is titled "Global Change Impacts & Adaptation" and features a sidebar with links to "Global Change Impact & Adaptation Home", "About us", "Staff", "Adaptation", "Decision Support", and "Vulnerability Assessment". The main content area displays the breadcrumb trail: "You are here: EPA Home » Climate Change » Global Change Research Program » Global Change Impacts & Adaptation » ICLUS Tools and Datasets (Version 1.3.2)". Below this is the heading "ICLUS Tools and Datasets (Version 1.3.2)" and a "Report Information" section. The report information text states: "As a part of the Integrated Climate and Land Use Scenarios (ICLUS) project, this Geographic Information System (GIS) tool can be used to generate scenarios of housing-density changes and calculate impervious surface cover for the conterminous United States. The ICLUS User's Guide accompanies the tool. This product distributes the population projections and creates land use data described in the 2009 EPA report 'Land-Use Scenarios: National-Scale Housing-Density Scenarios Consistent with Climate Change Storylines'."

EPA United States Environmental Protection Agency

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You are here: [EPA Home](#) » [Climate Change](#) » [Global Change Research Program](#) » [Global Change Impacts & Adaptation](#) » [ICLUS Tools and Datasets \(Version 1.3.2\)](#)

ICLUS Tools and Datasets (Version 1.3.2)

Report Information

As a part of the Integrated Climate and Land Use Scenarios (ICLUS) project, this Geographic Information System (GIS) tool can be used to generate scenarios of housing-density changes and calculate impervious surface cover for the conterminous United States. The ICLUS User's Guide accompanies the tool. This product distributes the population projections and creates land use data described in the 2009 EPA report "Land-Use Scenarios: National-Scale Housing-Density Scenarios Consistent with Climate Change Storylines".

Other resources

Paleoclimate data:

NOAA (NCEI)

<https://www.ncdc.noaa.gov/data-access/paleoclimatology-data/datasets>

PMIP

<https://pmip.lsce.ipsl.fr/>

Aquatic environments

AquaMaps

http://www.aquamaps.org/main/envt_data.php