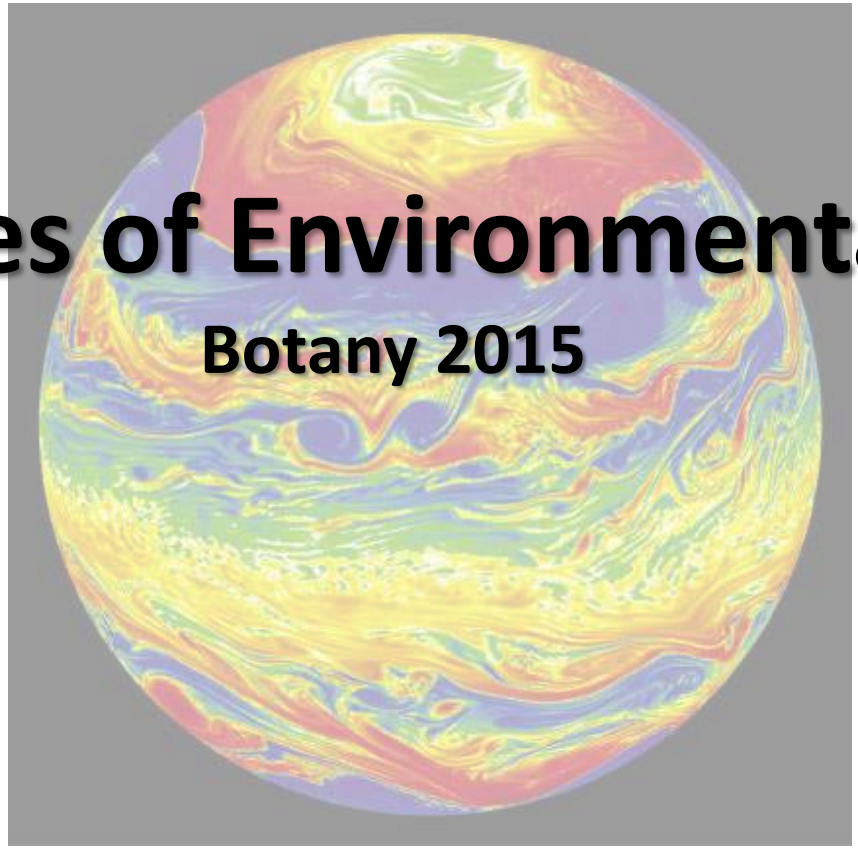
iDigBio
Integrated Digitized Biocollections

Sources of Environmental Data

Botany 2015



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Environmental data

What?

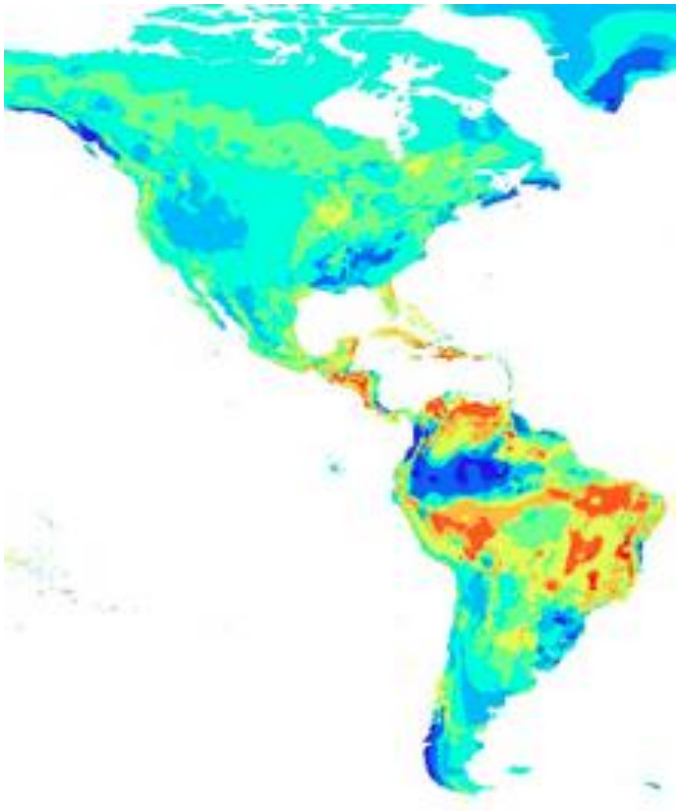
Temperature, rainfall, soil, land use…

Where?

Local, U.S., North America, Global…

When?

Current, past, future



WorldClim – Global Climate Data

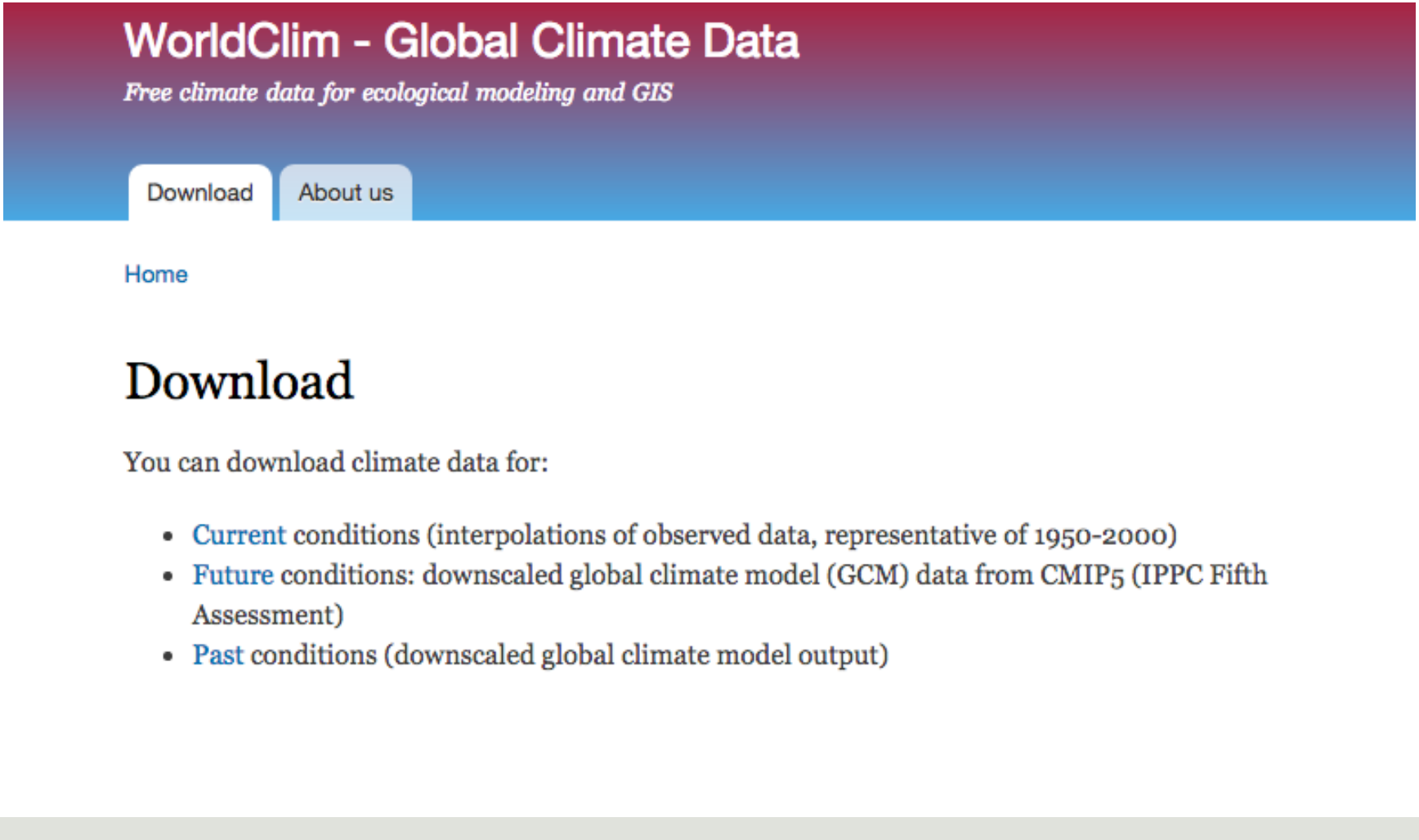
http://www.worldclim.org/

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

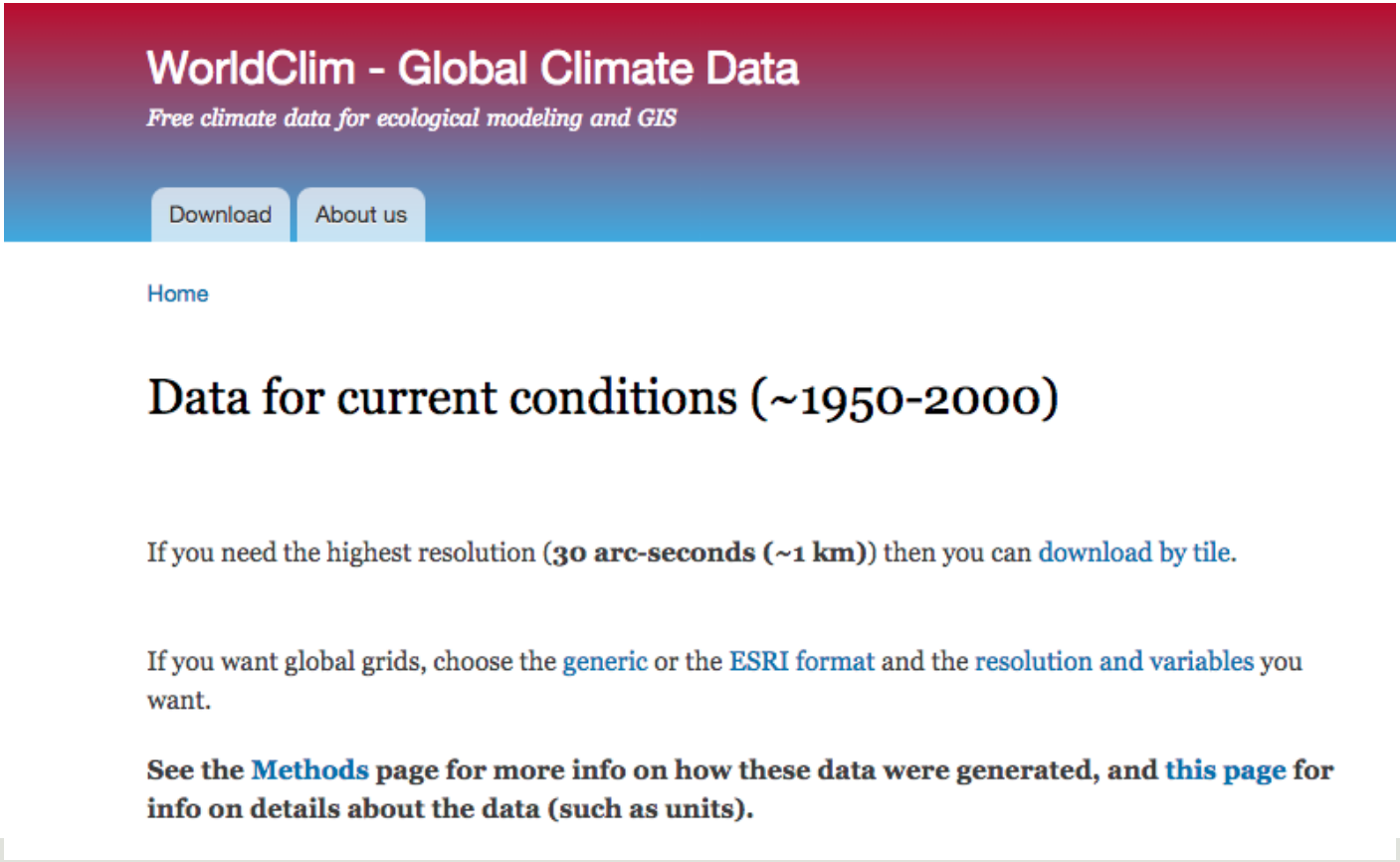
http://www.worldclim.org/download



WorldClim – Global Climate Data

http://www.worldclim.org/current

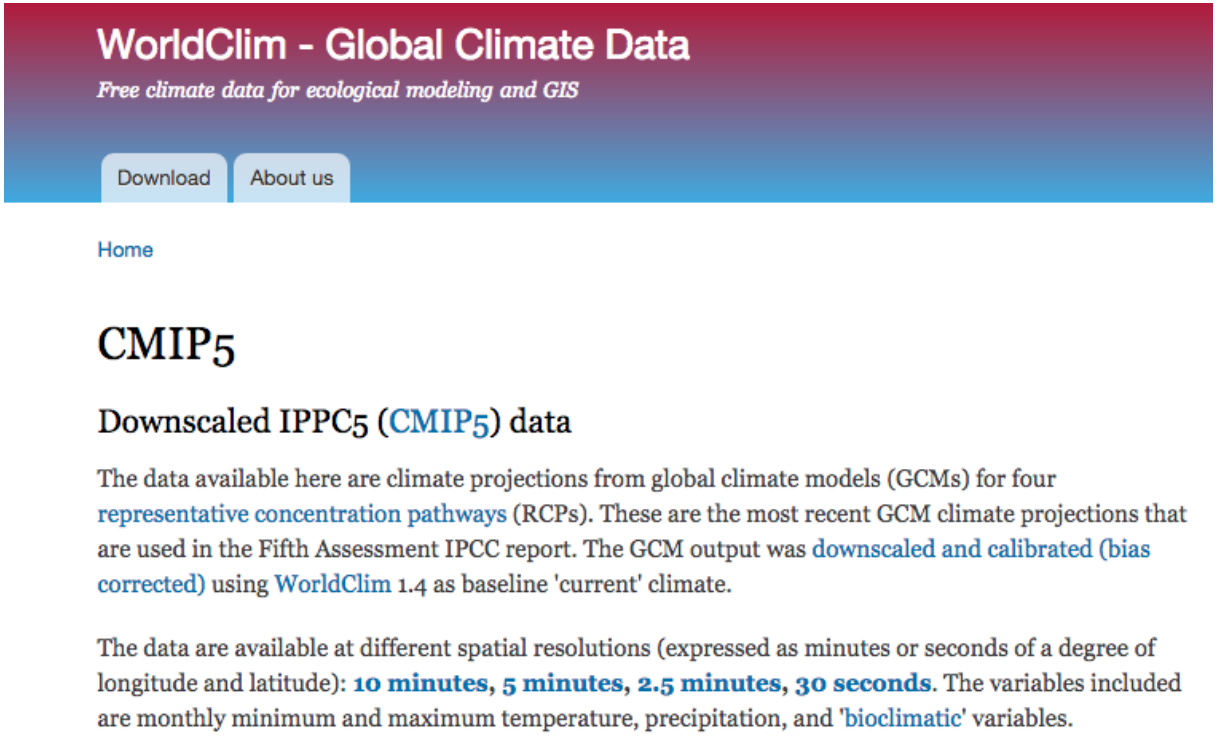
Current conditions – averaged over 50 years



WorldClim – Global Climate Data

http://www.worldclim.org/CMIP5

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



WorldClim - Global Climate Data

Free climate data for ecological modeling and GIS

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CMIP5

Downscaled IPPC5 (CMIP5) data

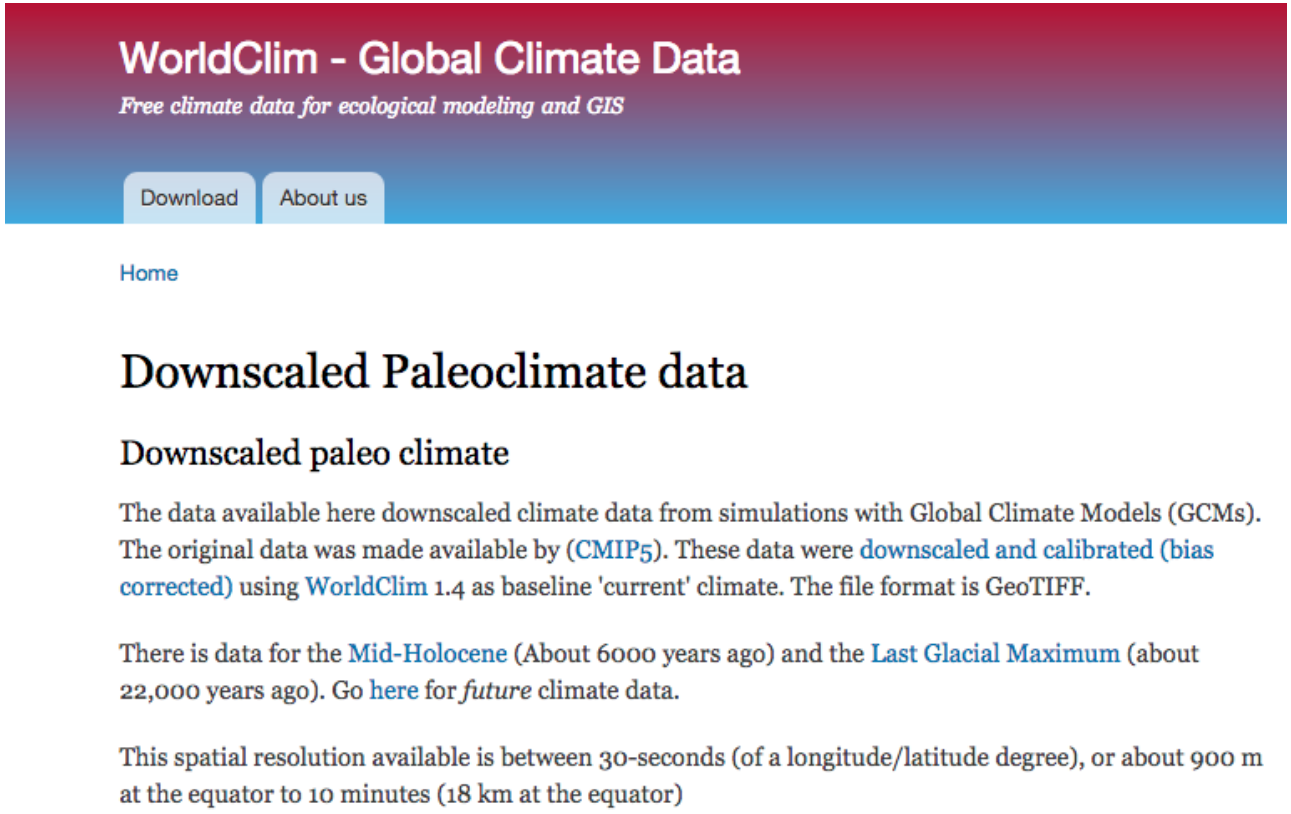
The data available here are climate projections from global climate models (GCMs) for four representative concentration pathways (RCPs). These are the most recent GCM climate projections that are used in the Fifth Assessment IPCC report. The GCM output was downscaled and calibrated (bias corrected) using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



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/dsviewer.pl?ds_id=1242

Unified North American Soil Map

Soil

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

U.S only (stream sediments and soils)

USGS science for a changing world

USGS Home
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Mineral Resources On-Line Spatial Data

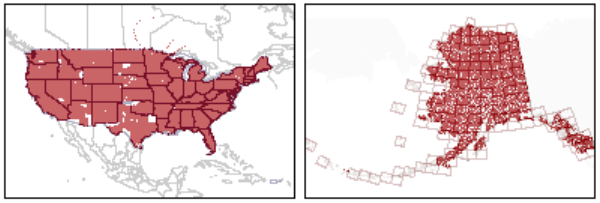
Mineral Resources > Online Spatial Data

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:

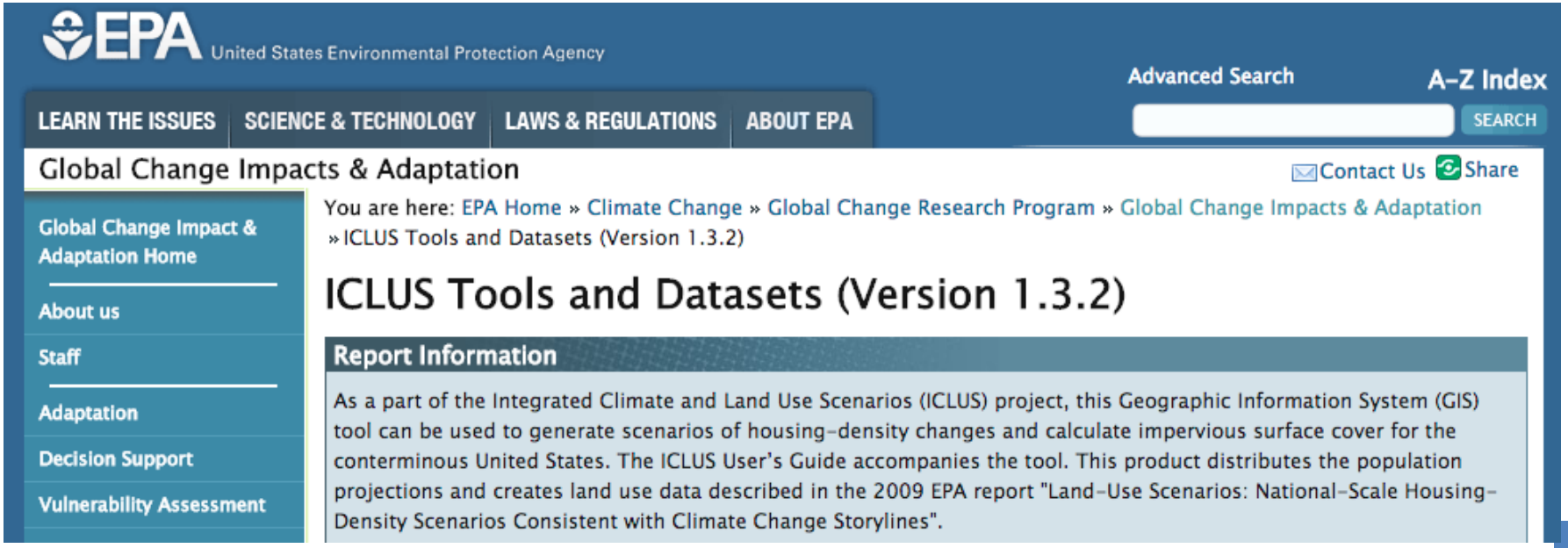


Continental US Alaska

EPA

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

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



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