

Climate Adaptation Tools Resource Directory



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A number of web-based and software tools have emerged in recent years to help local governments plan for climate adaptation and mitigation in their communities. This resource guide profiles the best of these tools, broken out into categories. For each tool, we specify the type of tool it is, its topical focus area, and a brief description of its purpose. –

The categories of tools include:

- **Adaptation / mitigation modeling:** Computer-based models incorporate mathematics and physical data to understand and predict behavior. Mitigation models are used to understand the long-term risk and hazards of climate change to human life and property. Adaptation models are used to understand how to adjust to climate change (including climate variability and extremes) to moderate potential damage, and to take advantage of opportunities, or to cope with the consequences.
- **Decision-making:** Guides for possible paths of action or alternative paths with consequent tradeoffs.
- **Visualization:** Visual representation of data, to aid decision making including maps, charts, tables, videos, etc.
- **Datasets:** A collection of data records organized according to particular variables for computer processing.
- **Related resources:** Any charts, tables, or information that helps people understand climate related data.

This guide is a work in progress and will continue to be updated and refined. Please contact us with questions or suggestions.

Name and Web Link	Organization & Web link	Tool Type	Focus Area	Website	Description
CanVis	NOAA Digital Coast	Visualization Tool	Coastal Sea Level Rise	http://coast.noaa.gov/digitalcoast/tools/canvis	An easy-to-use visualization tool that allows users to “see” potential community impacts from coastal development or sea level rise.
SRL Viewer	NOAA	Visualization Tool	Coastal Sea Level Rise	http://coast.noaa.gov/slr/	Provides coastal managers and scientists with a preliminary look at sea level rise and coastal flooding impacts.
SoVI - Social Vulnerability Index	Hazard and Vulnerability Research Institute	Visualization Tool	County Level Hazard Index	www.sovius.org	Assesses the social vulnerability of U.S. counties to environmental hazards. It shows where there is uneven capacity for preparedness and response and where resources might be used most effectively to reduce the pre-existing vulnerability.
HAZUS	NOAA	Model	Natural Disaster Impact Calculator	www.fema.gov/hazus	A nationally applicable standardized methodology, HAZUS contains models for estimating potential losses from earthquakes, floods and hurricanes. The tool uses Geographic Information Systems (GIS) technology to estimate physical, economic and social impacts of disasters.
OpenNSPECT	NOAA	Model	Water Quality Impact Calculator	http://coast.noaa.gov/digitalcoast/tools/opennspect	Enables users to investigate potential water quality impacts from development, other land uses, and climate change.
SLAMM -Sea Level Affecting Marshes Model	Warren Pinnacle Consulting, Inc.	Model	Coastal Sea Level Rise	http://warrenpinnacle.com/prof/SLAMM	Simulates the dominant processes involved in wetland conversions and shoreline modifications during long-term sea level rise.
InVEST - Integrated Valuation of Environmental Services and Tradeoffs	Natural Capital Project	Model	Ecosystem Services	http://www.naturalcapitalproject.org/InVEST.html	A suite of software models used to map and value the goods and services from nature that sustain human life.
CCVI - NatureServe Climate Change Vulnerability Index	NatureServe	Model	Plant and Animal Vulnerability	https://connect.natureserve.org/science/climate-change/ccvi	Identifies plant and animal species that are particularly vulnerable to the effects of climate change.

CommunityViz	Place Ways	Decision Support, Visualization Tool	Planning	http://placeways.com/communityviz	Provides an advanced-yet-accessible framework for planners and citizens to learn and make choices about the future of places.
NatureServe Vista	Nature Serve	Decision Support	Planning and Conservation	www.natureserve.org/vista	A free ArcGIS extension that automates advanced spatial analyses to help users integrate conservation with many types of planning, such as land use and natural resource management, marine spatial planning and marine protected areas, infrastructure and transportation, energy development, and climate change adaptation.
Climate Wizard	The Nature Conservancy	Visualization Tool	Data and Information Provision	http://www.climatewizard.org/	Enables technical and non-technical audiences to access leading climate change information and visualize the impacts anywhere on Earth.
Climate Reanalyzer	The Climate Change Institute – University of Maine	Visualization Tool, Model	Map Based Climate Change Analysis	http://cci-reanalyzer.org	Under development by the Climate Change Institute at the University of Maine, this tool provides an intuitive platform for visualizing a variety of weather and climate datasets and models.
Data Basin	Map Based Climate Change Analysis	Visualization Tool, Decision Support	Map Based Climate Change Analysis	http://www.databasin.org	A science-based mapping and analysis platform that supports learning, research, and sustainable environmental stewardship. Datasets are member-uploaded spatial information, typically created using a Geographic Information System (GIS).
Legislative Tracker	Georgetown Climate Center	Decision Support	Policy Analysis	http://www.georgetownclimate.org/federal-action/legislative-tracker	Developed by the Georgetown Climate Center, this website tracks federal legislation that affects adaptation, energy, greenhouse gas emissions, and transportation policies. The Center also analyzes key legislation and identifies how pending bills could impact existing state policies and programs.
Massachusetts Office of Coastal Zone Management's StormSmart Coasts Program	State of Massachusetts – Energy and Environmental Affairs	Decision Support	Coastal Sea Level Rise	http://www.mass.gov/eea/agencies/czm/program-areas/stormsmart-coasts/	Provides information, strategies, and tools to help communities and people working and living on the coast to address the challenges of erosion, flooding, storms, sea level rise, and other climate change impacts.
Stormsmart.org	Climate Change Information Collection	Visualization Tool, Model	Climate Change Information Collection	http://www.stormsmart.org/	Helps coastal professionals find and share information on weather and climate hazards.

USFS Climate Change Resource Center (CCRC)	USDA - Forest Service Climate Change Resource Center	Decision Support, Visualization Tool, Model	Climate Change Information Collection	http://www.fs.usda.gov/ccrc/	A web-based, national resource that connects land managers and decision makers with useable science to address climate change in planning and application. Actively managing forests and other ecosystems so they can adapt to climate change is a form of risk management. It can help to maintain the many benefits we receive from ecosystems, and avoid future costs that might come from reacting too late to changes.
NorEaST – Stream Temperature Data Inventory	NorEast Climate Science Center – University of MA at Amherst	Visualization Tool Really?	Regional Stream Temperature Inventory	http://wim.usgs.gov/NorEaST/	A dataset providing access to stream temperature information. Stream data for the northeastern U.S. are needed to enable managers to understand baseline conditions, historic trends, and future projections of the impacts of climate change on stream temperature and flow, and in turn on aquatic species in freshwater ecosystems.
Coastal Flood Exposure Mapper	NOAA office of Coastal Management	Visualization Tool	Coastal Sea Level Rise	http://coast.noaa.gov/digitalcoast/tools/flood-exposure	Supports users undertaking a community-based approach to assessing coastal hazard risks and vulnerabilities by providing maps that show people, places, and natural resources exposed to coastal flooding.
Coastal Resilience 2.0	Coastal Resilience – The Nature Conservancy	Visualization Tool, Decision Support, Model	Risk and Vulnerability Assessment	http://www.coastalresilience.org	Assesses vulnerability to coastal hazards including current and future storms and sea level rise scenarios.
Template for Assessing Climate Change Impacts and Management Options (TACCIMO)	USDA - Forest Service - Climate Change Resource Center	Decision Support, Knowledge-sharing	Climate Change Information Collection	http://www.taccimo.sgccp.ncsu.edu/	The CCRC provides information about climate change impacts on forests and other ecosystems, and approaches to adaptation and mitigation in forests and grasslands. The website compiles and creates educational resources, climate change and carbon tools, video presentations, literature, and briefings on management-relevant topics, ranging from basic climate change information to details on specific management responses
Adaptation Database and Planning Tool (ADAPT)	ICLEI Local Governments for Sustainability	Decision Support, Model	Vulnerability Assessment	http://www.icleiusa.org/tools/adapt	Walks users through the process of assessing your vulnerabilities, setting resiliency goals, and developing plans that integrate into existing hazard and comprehensive planning efforts.

Surging Seas	Climate Central	Visualization Tool, Model	Coastal Sea Level Rise	http://sealevel.climatecentral.org/	Interactive map showing threats from sea level rise and storm surge to all 3000+ coastal towns, cities, counties and states in the Lower 48. - See more at: http://sealevel.climatecentral.org/#sthash.G4qXUqWK.dpuf
NEclimateUS.org (NExUS)	NEclimateUS.org	Knowledge-sharing	Climate Change Information Collection	http://www.necclimateus.org/nexus/daps	NEclimateUS.org (a.k.a. 'NExUS') is a searchable online database that provides a gateway to climate information for the Eastern US, Atlantic Canada and the maritime region known as the Northwest Atlantic. NExUS summarizes available data, tools, plans and reports; climate-related organizations; ongoing projects; and needs for climate information identified largely in publications.
Maine Futures Community Mapper	University of Maine & the Maine's Sustainability Solutions Initiative (SSI)	Visualization Tool, Model	Map Based Climate Change Analysis	http://www.maine.landusefutures.org/mapper/	An interactive mapping tool that allows users to examine current and future land use in their town, region, and watershed. Focus is Maine.
Climate Resilience Evaluation & Awareness Tool (CREAT)	US EPA	Decision Support, Model	Water Utility Vulnerability Assessment	http://water.epa.gov/infrastructure/watersecurity/climate/creat.cfm	Developed by EPA, this software tool assists drinking water and wastewater utility owners and operators in understanding potential climate change threats and in assessing the related risks at their individual utilities.
Landfire	USGS	Decision Support, Model	Visualization Tool, Decision Support	http://www.landfire.gov/	The LANDFIRE Data Access Tool (LFDAT) is an ArcGIS toolbar developed by the Rocky Mountain Research Station and distributed by the Wildland Fire Management RD&A Fuels and Fire Ecology Program. The tool allows users to interact with the LANDFIRE Data Distribution Site and download LANDFIRE data directly from ArcMap.
USGS Derived Downscaled Climate Projection Portal	USGS	Visualization Tool, Model	Climate Projection Analysis	http://cida.usgs.gov/climate/derivative/	This web portal allows visualization and downloading of future climate projections from a group of "statistically downscaled" global climate models (GCMs).

Climate Change Database (Canada)	Government of Canada – Natural Resources Canada	Decision Support	Climate Change Information Collection	http://www.nrcan.gc.ca/environment/resources/publications/10766	Presents knowledge on climate change impacts and adaptation for Canadians. Contains scientific reports that assess, critically analyze and synthesize the growing knowledge base on the issue
LMI-CliCKE (Climate Change Knowledge Engine)	LMI CliCKE	Knowledge-sharing tool		http://clিকে.lmi.org/index.php/Home	Presents open-source data in a way that is accessible to nonscientific leaders in the public and private sectors. Contains resources to explore, analyze, evaluate, and compare nearly 3,000 scientific findings related to climate change.
Cakex climate change and adaptation tools	Cakex – Climate Adaptation Knowledge Exchange	Decision Support, Visualization and knowledge Sharing	Climate change and adaptation	http://www.cakex.org/about-tools	The Tools section of CAKE directs you to the wealth of tools available online to help you process climate change information and make adaptation decisions. Climate change information can seem daunting but there are a lot of efforts underway to make it more manageable. Within each Tools entry, you can also find related Case Studies, Virtual Library resources, and Directory entries in the green sidebar; these links provide users with more detailed information about how and by whom a tool has been used. Check out some of these tools and save yourself some time and effort! - See more at: http://www.cakex.org/about-tools#sthash.btJMSk2h.dpuf