

## **FACT SHEET: Harnessing Climate Data to Boost Ecosystem & Water Resilience**

*“We’re going to have to all work together in the years to come to make sure that we address the challenge and leave this incredible land embodied to our children and our grandchildren in at least as good shape as we found it.” – President Barack Obama, Remarks on the California Drought, February 14, 2014*

In March 2014, the Obama Administration launched the Climate Data Initiative, unleashing troves of open government data about our climate and calling on America’s innovators to leverage data in ways that can make our Nation’s communities and businesses more resilient to climate change.

To date, an array of datasets focused on the resilience of our coasts and America’s agricultural sector have been made available on [climate.data.gov](http://climate.data.gov) and a host of collaborators across Federal agencies and in the nonprofit, philanthropic, and private sectors have stepped up, committing to leverage their resources, expertise, and technical capabilities to turn these data into products and services that can assist people on the ground.

Today, the Administration is making a new tranche of data about ecosystems and water resilience available as part of the Climate Data Initiative—including key datasets related water quality, streamflow, land cover, soils, and biodiversity.

In addition to the datasets being added today to [climate.data.gov](http://climate.data.gov), the Department of Interior (DOI) is launching a suite of geospatial mapping tools on [ecosystems.data.gov](http://ecosystems.data.gov) that will enable users to visualize and overlay datasets related to ecosystems, land use, water, and wildlife. Together, the data and tools unleashed today will help natural-resource managers, decision makers, and communities on the front lines of climate change build resilience to climate impacts and better plan for the future.

To continue momentum under the Climate Data Initiative, the Obama Administration is today renewing its call to America’s private-sector innovators to leverage open government data and other resources to build tools that will make U.S. ecosystems and water resources more resilient to climate change. In response to this call, today’s launch includes a number of commitments by Federal agencies and private-sector organizations to combat climate change and support ecosystem and water-resource resilience through data-driven innovation.

**NASA. Climate Resilience Data Challenge.** With over \$35,000 in prizes, NASA, in partnership with United States Geological Survey (USGS), will host the Climate Resilience Data Challenge — an effort to spur data innovation in support of resilience in communities

and ecosystems. Through the NASA Tournament Lab hosted on topcoder, the Challenge will kick-off on December 15 and last for three months, starting with an ideation stage for data-driven application pitches, followed by storyboarding and prototyping of concepts with the greatest potential. The winning ideas can one day be implemented on the web and will inform the development of earth science web services.

**Amazon Web Services.** Amazon Web Services (AWS) is today committing to make up to a petabyte of Landsat earth-imagery data from the USGS widely available as an AWS Public Data Set. AWS and its collaborators will also contribute expertise, open source tools, and educational materials to accelerate climate research by making Landsat data easier to access and analyze.

**Antioch University.** Antioch University's Center for Climate Preparedness and Community Resilience will convene end-user decision-makers and others to "road test" version 1.0 of the Obama Administration's Climate Resilience Toolkit, which was released in November 2014. Results of the road test will be compiled, summarized, and shared with Federal agencies to inform ongoing efforts to improve usability of the Climate Resilience Toolkit for decision makers and planners on the ground.

**Center for Robust Decision Making on Climate and Energy Policy and the 1896 Project at the University of Chicago.** A new project from the Center for Robust Decision Making on Climate and Energy Policy (RDCEP) and the 1896 Project will convert irrigation data collected by the USGS into a higher resolution dataset that can be used to help drive advanced scientific models of climate change, aquifer levels, and crop growth. Combining this data with agricultural models will help generate predictions for irrigation demand, crop yield, and other measures (planting, flowering and maturity dates) for seven major crops in the US and Canada (maize, soy, wheat, cotton, barley, sorghum, and canola). The high-resolution data can also be used in climate and hydrology models to help generate additional insights for vulnerability analysis, risk management, and decision-making.

**EMC Corporation.** EMC, Pivotal, and Earthwatch Institute, in association with the Schoodic Institute, are announcing the *Big Data vs. Climate Change* project to enable the study of interactions between nature and climate, and to promote the engagement of citizen scientists in using Big Data tools, analytics, and visualizations. EMC and Pivotal plan to provide increased analytics capabilities to allow researchers to draw meaningful insights on the interactions between plant and animal phenology (the timing of plant and animal life cycles) and climate data, and enhanced visualizations of these datasets to provide information in forms more accessible to citizens, educators, and scientists.

**Esri.** To transform data to actionable knowledge, Esri is collaborating with the Open Water Data Initiative (OWDI) to jointly stand up a showcase *Water Open Data* portal that will extend accessibility of key water data as interactive services and tools through which selected data can be viewed, accessed, subscribed to and downloaded in various formats through an intuitive user interface. Esri will create and publish a publicly accessible *Water Insights* app that will run spatial analytics to determine water-catchment areas based on a user-specified location, and then deliver key hydrological, community and environmental

characteristics in map and graphic forms. In partnership with the nongovernmental organization GLEON, Esri will stand up a citizen-science crowdsourcing application to facilitate information sharing in regions across the globe. Esri will also convene a Water Immersion Summit in February 2015 to facilitate collaboration between water-relevant subject-matter experts from the government, NGO, and academic communities.

**Float.** Float is launching a new website and announcing the early 2015 release of its online map of projected climate change impacts in the United States. At release, Float Map will depict climate change impacts related to inland flood risks in the Midwest United States, and will allow users to see projected impacts down to a neighborhood level. Float Map will use FEMA flood hazard assessments and precipitation-modeling data from NOAA. Future revisions of the map will include additional regions of the United States and new types of projected climate-change impacts. Float Map will also offer a platform for municipal governments and other local stakeholders to assess their exposures to climate impacts and serve as an easy-to-use tool for users to gauge the risk of climate change to their homes, businesses, and communities.

**ForumOne.** ForumOne will organize a roundtable discussion in Washington, DC, in early 2015 about effective strategies to foster public-private partnerships that advance the President's Climate Data Initiative. The event will bring together 10-20 thought leaders from the innovation, business, academic, government, and philanthropic communities to answer questions about the potential focus, structure, and location of an ongoing "platform" for private and public sector collaboration and innovation around climate data.

**Global Lake Ecological Observatory Network.** The Global Lake Ecological Observatory Network (GLEON) is launching a pilot mobile application for citizen scientists to record lake-water-quality observations in 2015. The *Lake Observer* app supports the goal of making water-resources data open and accessible, and advances the mission to understand, predict, and communicate the role and response of lakes in a changing global environment. In addition, GLEON is teaming up with Esri and the USGS to create a crowdsourcing platform to facilitate the collection and sharing of lake- and water-related information across the globe.

**GoodCompany Ventures.** GoodCompany Ventures (GCV) is announcing a three-phase expansion of *Climate Ventures 2.0*, an initiative to mobilize, scale, and deploy entrepreneurial innovations in response to acute climate threats at the intersection of food and water security. The Wharton Social Impact Initiative will reframe these climate threats as market-based opportunities for entrepreneurial innovation. This research will inform a global hackathon design to mobilize world-class entrepreneurs. The most promising innovations that emerge from the hackathon will join the *GCV Accelerator*, a program designed to build scalable business models for long-term change and mobilize capital to maximize their impact. Finally, top graduates will be given an opportunity to pilot their innovations in select locations globally, where climate threats are acute, including those that impact water resources.

**Google.** Google is providing funding to researchers working on water and ecosystem related projects through the *Google Earth Engine Research Awards* program. Currently funded projects aim to compute and visualize drought indices, map flood vulnerability in real-time, monitor trends in snow and ice cover, develop downscaling methods for flood hazard layers, conserve urban water use, monitor global deforestation, map invasive species, and measure the impact of protected areas on species ranges. Google expects to award approximately 10 grants in 2015, including grants for ecosystems and water related projects. These research activities will use the previously-announced 1 petabyte of cloud storage and 50 million hours of high-performance computing on the Google Earth Engine geospatial analysis platform.

**The GovLab.** Recent Open Data Roundtables convened by The GovLab, along with federal agencies, have brought together data-providers in government and data-users in business and the nonprofit sector to identify the kinds of datasets that have the greatest value and help make them as useful as possible. In support of the Climate Data initiative, The GovLab is now working to organize similar events focused on climate data. Up to 6 Open Data Roundtables will be organized in 2015 and will be designed to help prioritize the most important climate-relevant datasets for business and public use, improve key datasets to make them easier to access and work with, and enable businesses and organizations to provide feedback on the government data they use. In the first quarter of 2015 The GovLab will design three roundtables with the Departments of Energy, Education, and Transportation.

**HP.** As part of the HP Earth Insights initiative with Conservation International (CI), HP is jointly creating data-sharing and analytic tools with the founding members of the Camera Trap Data Network, including Conservation International, Wildlife Conservation Society, the Smithsonian Institution, and the North Carolina Museum of Natural Sciences. As part of the HP Earth Insights initiative, a cloud-based system will allow users to share, access, and analyze millions of camera trap images and related data, including data available through the Climate Data Initiative. The data network and its analytics platform will be launched in 2015 and aims to reveal a more complete picture than has been seen before of the status of threatened species, their surrounding ecosystems, and the threats that are impacting them, including climate change.

**Open Geospatial Consortium.** The Open Geospatial Consortium (OGC) is enabling open access to climate change information using open standards. Through its Interoperability Program OGC encourages geospatial technology users and providers to work collaboratively in an agile development environment to develop, evolve, test, demonstrate and validate candidate geospatial standards under real world conditions. To support national climate-change preparedness, part of this program, *OGC's Testbed 11*, will integrate technology based on the scenario of spatial information needed when a population is displaced due to coastal inundation.

**University of Maryland National Socio-Environmental Synthesis Center.** The National Socio-Environmental Synthesis Center (SESYNC) is committing to fund, starting in early 2015, 25 early-career scholars to address critical, actionable research questions at the

water and food systems nexus within the context of climate change. Advanced Ph.D. students and scholars fewer than two years post-Ph.D. will be invited to apply through an open call. Successful candidates will participate in unique SESYNC–USGS–USDA workshops that focus on leveraging a wealth of USGS data and tools, such as the National Water Information System and WaterWatch, along with those from other agencies, to develop new questions and proposals for interdisciplinary team projects. SESYNC will fund up to six teams as well as a full-time, resident research scientist to undertake and help coordinate research for the program.

**Western States Water Council.** The member states of the Western States Water Council (WSWC) have initiated the development of the Water Data Exchange (WaDE) project, which is ultimately envisioned to become an online, interoperable data-exchange network for sharing water planning, water use, and water-allocation data. Expected to launch in early summer 2015, WaDE will provide a framework for accessing formatted information and methodologies regarding local and regional water availability and use estimates in a more streamlined, sustainable, and cost-effective way. The WSWC is committed to the continued advancement of this program, and to assisting states with the information technology tasks needed to share their datasets in the WaDE platform.