### Hashtags: #earth, #climatehood

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### Tags: Citizen Science, Data Visualization, Model

**Challenge Description**

What apps would you build if you had access to climate projections for the rest of this century? How would you visualize these climate projections and their impacts to effectively engage policy makers, managers, planners, educators, and the general public? This challenge focuses on the creation of a visualization interface (mobile app or a web app accessible on a mobile platform) that would allow location-specific access to climate data sets using coordinates specified by the user, or from Global Positioning System (GPS) coordinates available from mobile devices. Applications could combine the climate datasets with other datasets (for example, maps of sea level rise) or models (for example, relationships between daily maximum temperature and electricity demand and pricing) to provide localized information on climate impacts. See what creative data uses and visualizations you can find.

**Background**

Global models of the climate system are now the foundation for many important climate studies, but they typically quantify climate changes at very large geographic scales, on the order of 100 to 250 kilometers (62 to 155 miles). Using supercomputing resources to analyze the latest generation of global climate scenarios, NASA recently released monthly climate projections for the coterminous United States at a spatial scale of one half mile (800 meters). This climate dataset, known as the NASA Earth Exchange Downscaled Climate Projections at 30 arc-seconds (NEX-DCP30), provides a view of future U.S. temperature and precipitation patterns based on four different greenhouse gas emissions scenarios, spanning the period from 1950 to 2099, at the spatial scale of an individual neighborhood. These high-resolution climate scenarios, derived from the best physical models of the climate system available, make it easier for resource managers to quantify anticipated climate change impacts on a wide range of conditions and resources important to local communities, such as water supplies and winter snow packs, public health and the spread of insect-borne diseases, flood risk and potential impacts to critical urban infrastructure, wildfire frequency and severity, agricultural production, and wildlife and biodiversity. Other federal agencies have already leveraged this massive dataset and distilled the information into easily-understood maps, summaries and spreadsheet compatible data files for each state and county in the United States. The [President’s Climate Action Plan](http://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf) launched a Climate Data Initiative on June 15, 2013 to leverage extensive federal climate-relevant data to stimulate innovation and private-sector entrepreneurship in support of national climate-change preparedness*.*

**Solution Ideas**

Here are some ways for you to frame this solution:

Mobile app or a web application accessible by a mobile device;

Visualizations of climate projections and/or impacts for a specific region based on geographic coordinates entered by the user or available from the GPS of the mobile device;

Applications that combine the NASA climate datasets with other information to quantify location-specific climate change impacts; and

Visualizations that use data, maps, and images in the public domain.

The solution could contain a brief description of the app or the mashup goal and design, a story of why this visualization/app/mashup is important and what insights or future capabilities it provides with regard to understanding climate impacts in our neighborhoods or cities; as well as descriptions and links to open source tools used in the development and for other data, images, API used by the app.

**Sample Resources**

* <http://portal.nccs.nasa.gov/portal_home/published/NEX.html>
* <https://nex.nasa.gov/OpenNEX/> [*‎*](https://nex.nasa.gov/OpenNEX/)
* <https://portal.nccs.nasa.gov/portal_home/published/NEX-DCP30_Tech_Note_v0.pdf>
* <https://nex.nasa.gov/nex/resources/264>
* <http://www.usgs.gov/climate_landuse/clu_rd/nex-dcp30.asp>
* <http://aws.typepad.com/aws/2013/11/process-earth-science-data-on-aws-with-nasa-nex.html> <http://aws.typepad.com/aws/2013/11/process-earth-science-data-on-aws-with-nasa-nex.html>