International Women's Hackathon – October 2014

Climate Data Challenge: build a web app, mobile app, or game to illustrate or visualize the impacts of climate change

Sponsor: The Nature Conservancy

The Nature Conservancy is an international, non-profit conservation organization working around the world to protect ecologically important lands and waters for nature and people. Their mission is to conserve the lands and waters upon which all life depends and are best known for their science-based, collaborative approach to developing creative solutions to conservation challenges. The Nature Conservancy firmly believes in the importance of broadening public understanding and support for urgent climate change solutions. They have committed to engage and advance that effort by developing specially designed scientific tools that can demonstrate how disruptions related to climate change are likely to affect people in specific places throughout the world.

Context for the Challenge

Throughout the world, there is a growing need for climate change science to inform on-the-ground adaptation planning. There is no shortage of scientific data that has been produced about climate change, but very little of this information is relevant to on-the-ground decisions. There are similarities in what is needed for virtually any decision-making situation: future climate information at spatial and temporal scales relevant to specific local impacts, such as agriculture, water supply, flooding, plants and animals, fire risk, human health, and urban energy demand. Our challenge is to make the available data *accessible* and *usable* for researchers, decision-makers, and communities worldwide.

General Technical Requirements

The finished application should fulfill these general requirements:
- ✓ Valid on web, iOS, Android, Windows, or other mobile platforms
- ✓ Extracted and implemented data and analyses from Climate Wizard Custom tools, the USDA Climate Data Initiative, or other data sources
- ✓ Aimed to help decision-makers and/or the general population comprehend the effects of climate change, or to inform how we can deter the future detrimental progression of climate and its effects

Recommended Data Sources

The Climate Wizard Framework

The Nature Conservancy has created a suite of tools under the Climate Wizard framework (www.climatewizard.org), providing easy and intuitive access to leading climate change information and visualizations of the impacts anywhere on Earth.

The Climate Wizard Custom tool (http://climatewizardcustom.org/index-ar5.html) offers more options for advanced users to customize outputs and to view the data behind Climate Wizard. Climate analysis results are sent to the user via a web link that includes an interactive map describing climate results, an Excel summary table of map statistics, a downloadable map image of the region, a figure of statistical trends, and an ASCII file of the data that can be converted to a raster by using a geographic information system (GIS).

More detail on the tool and resources for getting started will be available in the International Women's Hackathon Toolkit.

The USDA Climate Data Initiative

The White House recently announced the Climate Data Initiative (CDI) to increase the resilience of America's food system and help reduce the contribution of the nation's agricultural sector to climate change. These data resources have applicability both in the United States and worldwide

Microsoft is supporting these announcements by working with the USDA to make specific datasets freely available through the Azure Marketplace, within a new Agriculture tab.

The initial datasets are:
* National Agricultural Statistics Service (NASS) Quick Stats
* ARMS Farm Financial and Crop Production Practices
* National Agricultural Statistics Service (NASS) CropScape
* National Agricultural Statistics Service (NASS) VegScape

More detail on the datasets and resources for getting started will be available in the International Women's Hackathon Toolkit.

Other Resources and Ideas for Getting Started

We encourage you to explore other data sources as well as those listed above, and you can find additional resources for getting started in the International Women's Hackathon Toolkit.

For more ideas, you may be interested in the following examples:
* Flood Forecast: https://www.hackerleague.org/hackathons/esri-climate-resilience-app-challenge-2014/hacks/flood-forecast

* CommunityViz: https://www.hackerleague.org/hackathons/esri-climate-resilience-app-challenge-2014/hacks/communityviz-web-app

* Local Food Alternatives in Washington County: https://www.hackerleague.org/hackathons/esri-climate-resilience-app-challenge-2014/hacks/local-food-alternatives-in-washington-county

* #Climate: https://itunes.apple.com/us/app/climate/id786894088?mt=8

* Commute Greener: http://commutegreenerinfo.com/?page_id=3

* Waterly: http://www.waterly.ca/

* Urban Heat Risk Explorer: https://www.hackerleague.org/hackathons/esri-climate-resilience-app-challenge-2014/hacks/climate-change-and-vulnerable-populations