

# Extending the Climate Data Initiative to GeoPlatform.gov

---

AGU Fall Meeting  
Washington, D.C.  
December 11, 2018

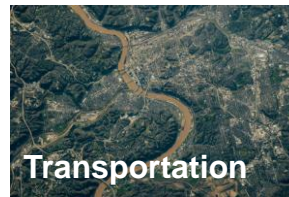
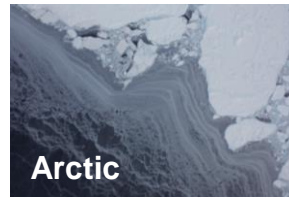
Adam W. Sisco<sup>1</sup>, Sarah Ramdeen<sup>2</sup>, Kaylin Bugbee<sup>1</sup>, John Davidson<sup>3</sup>, Lara Duffy<sup>3</sup>, Patrick Neal<sup>3</sup>, Thomas O. Dabolt<sup>4</sup>, Amanda Whitehurst<sup>5</sup>, and Rahul Ramachandran<sup>6</sup>

(1) University of Alabama in Huntsville, (2) Ronin Institute for Independent Scholarship, (3) Image Matters, LLC, (4) Department of the Interior, (5) ASRC Federal Holding Company, (6) NASA Marshall Space Flight Center



# Climate Data Initiative

- The CDI data collection is composed of approximately 700 freely available federal datasets curated by subject matter experts into 9 thematic areas.
- NASA was appointed as the lead agency in developing the Climate Data Initiative's web presence (climate.data.gov launched March 19, 2014).
- We continue to maintain the collection and provide periodic updates as needed.
- See Ramachandran et al. 2016 in *Computers & Geosciences* for more.

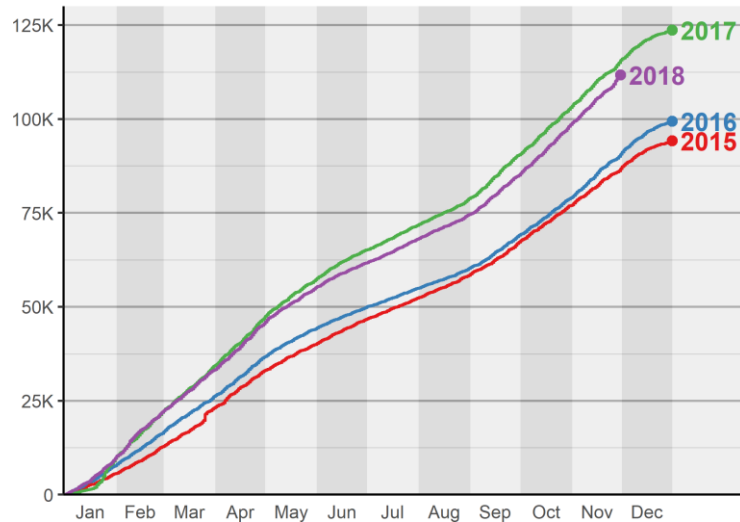


# Sustained Relevance of the CDI Collection

- Curation should not be a one-off process. As long as the curated collection is relevant, it requires periodic updates and monitoring to maintain both its quality and value to end users (Ramachandran et al. 2016).
- Our primary responsibility is digital curation, i.e., maintaining, preserving, and adding value to digital research data throughout its lifecycle.

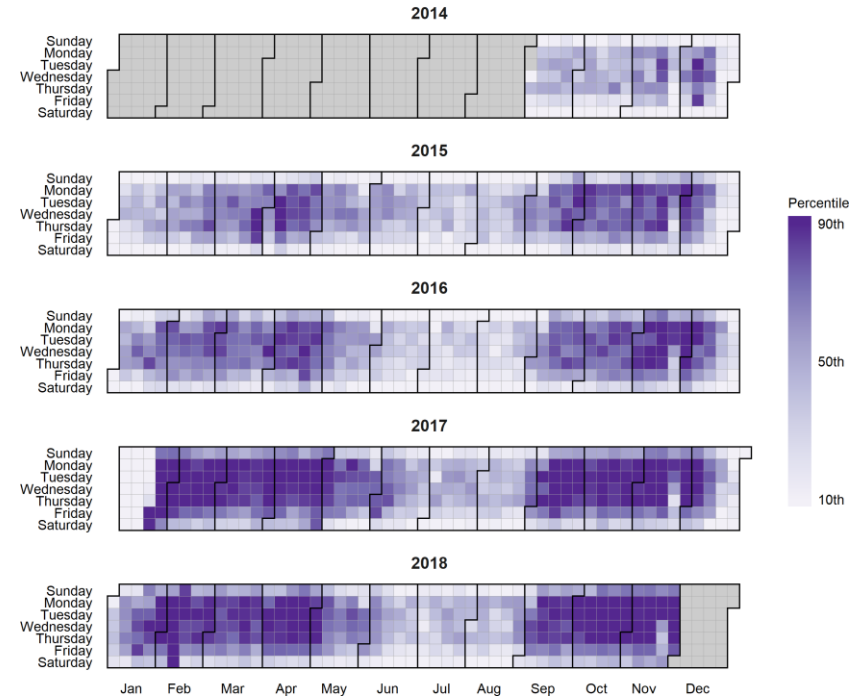
Data.gov/climate Cumulative Page Views

Ending November 2018






## Climate Data Initiative

Data.gov/climate Daily Page Views



# More Than Just Datasets

- Data are increasingly served through a variety of web services that offer access, visualization, and subsetting capabilities:
    - ESRI REST services
    - OGC web services (WCS, WMS, WFS, etc.)
    - OPeNDAP
1.  Service endpoints are not always associated with the relevant dataset(s).
  2.  Service endpoints are sometimes mislabeled or buried among dozens of other related resources.
  3.  Services may have a steep learning curve for first-time users.

# GeoPlatform.gov

- The Geospatial Platform is a Federal Geographic Data Committee (FGDC) initiative that provides shared and trusted geospatial data, services, and applications for use by the public and by government agencies and partners to meet their mission needs.
- The GeoPlatform is an online portal that enables the sharing of geographic data, maps, and online services with the public.
- Portfolio - A group of resources, assets, product and/or service offerings of an organization or community
- The **GeoPlatform Portfolio Model** is the information model of business objects representing the assets of a geospatial portfolio.
  - NOAA
  - NASA
  - DOI
  - FEMA
  - EPA
  - USCB
  - USDA
  - DOT
  - USACE
  - HUD

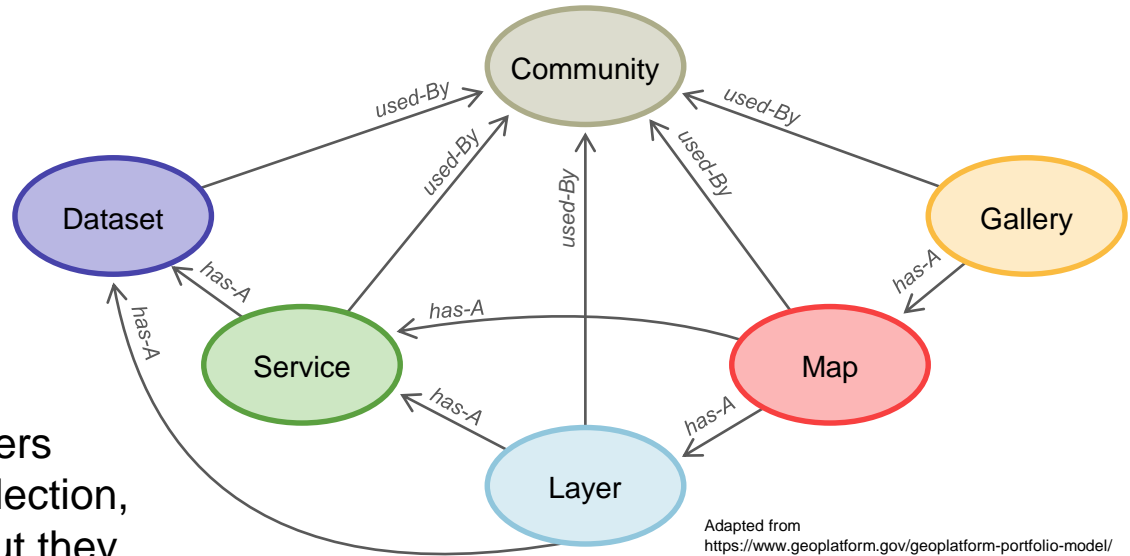
# GeoPlatform.gov

- The Geospatial Platform is a Federal Geographic Data Committee (FGDC) initiative that provides shared and trusted geospatial data, services, and applications for use by the public and by government agencies and partners to meet their mission needs.
- The GeoPlatform is an online portal that enables the sharing of geographic data, maps, and online services with the public.
- **Geospatial** portfolio - A group of **geospatial** resources, assets, product and/or service offerings of an organization or community
- The **GeoPlatform Portfolio Model** is the information model of business objects representing the assets of a geospatial portfolio.
  - NOAA
  - NASA
  - DOI
  - FEMA
  - EPA
  - USCB
  - USDA
  - DOT
  - USACE
  - HUD

# GeoPlatform.gov

- Core business objects:

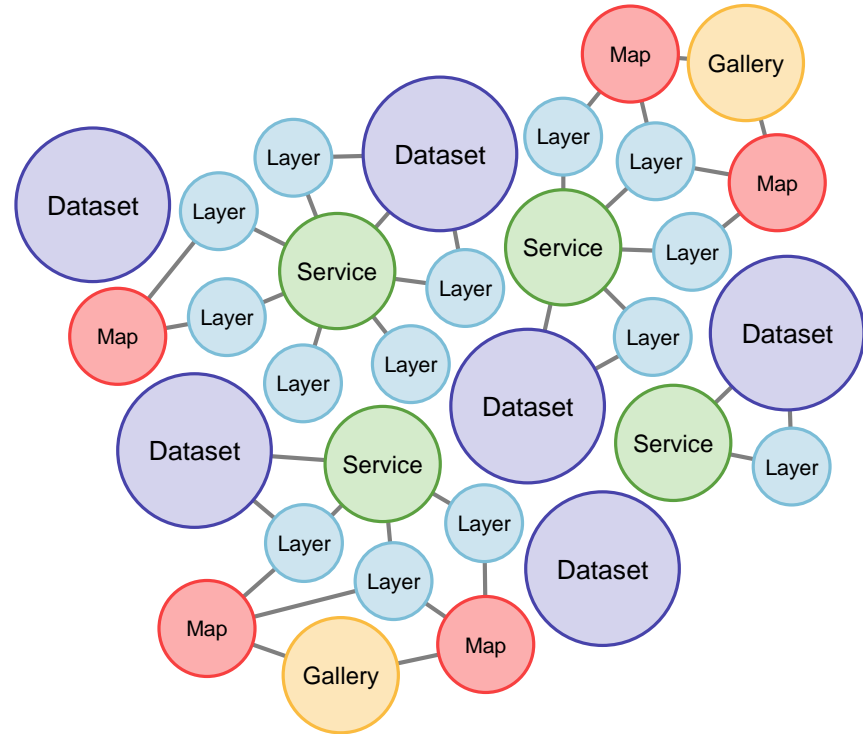
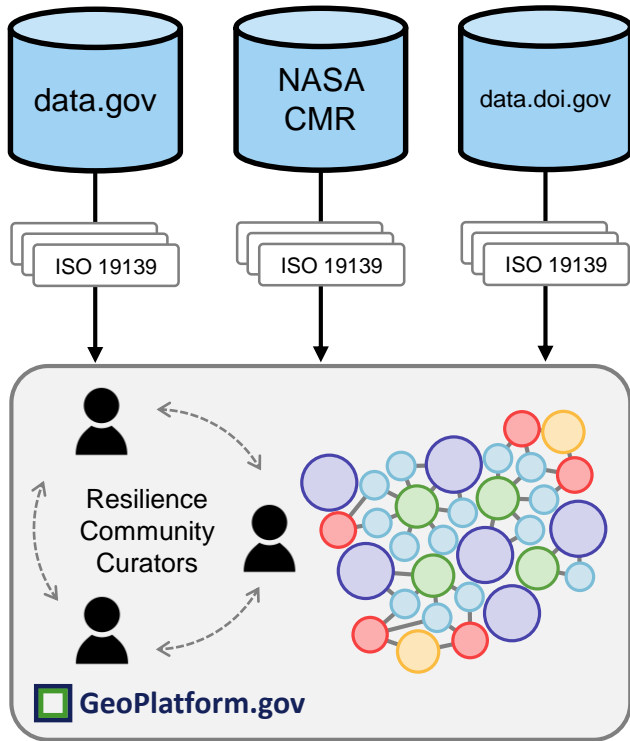
- Datasets
- Services
- Layers
- Maps
- Galleries
- Communities



- Hundreds of services and layers were curated into the CDI collection, either explicitly or implicitly, but they are not always represented as such.

- Objects are often disjointed and scattered about the Web. We are attempting to overcome this by establishing relationships between objects.

# Curating the CDI Geospatial Portfolio

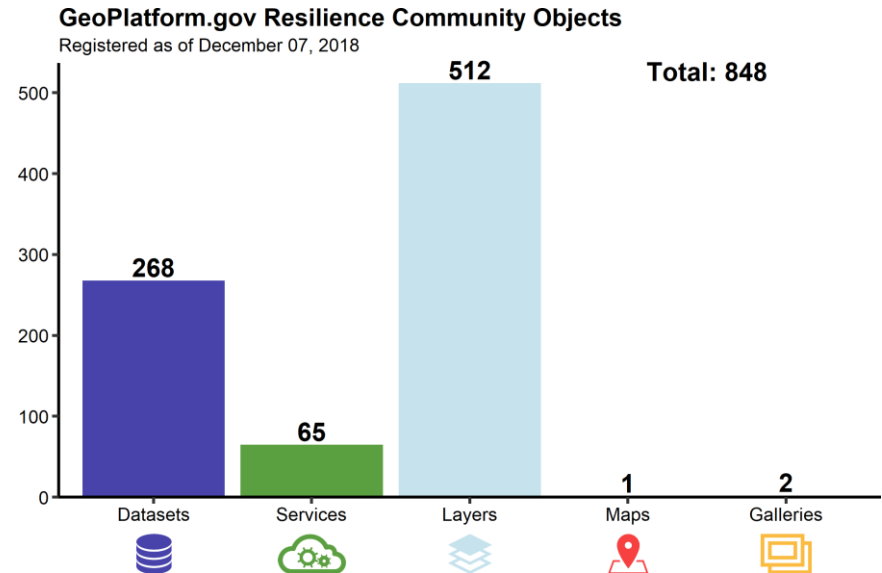


Network of linked portfolio objects



# GeoPlatform.gov Resilience Community

- Our mission is to ensure CDI objects are discoverable, accessible, and usable within the GeoPlatform ecosystem.
- <https://communities.geoplatform.gov/resilience> **UNDER CONSTRUCTION**
- Relevant Data.gov/climate content PLUS:
  - Filtered search widgets (theme, object type, etc.)
  - Map widgets featuring related layers
  - Galleries to house related objects (e.g., NTAD, EnviroAtlas, etc.)

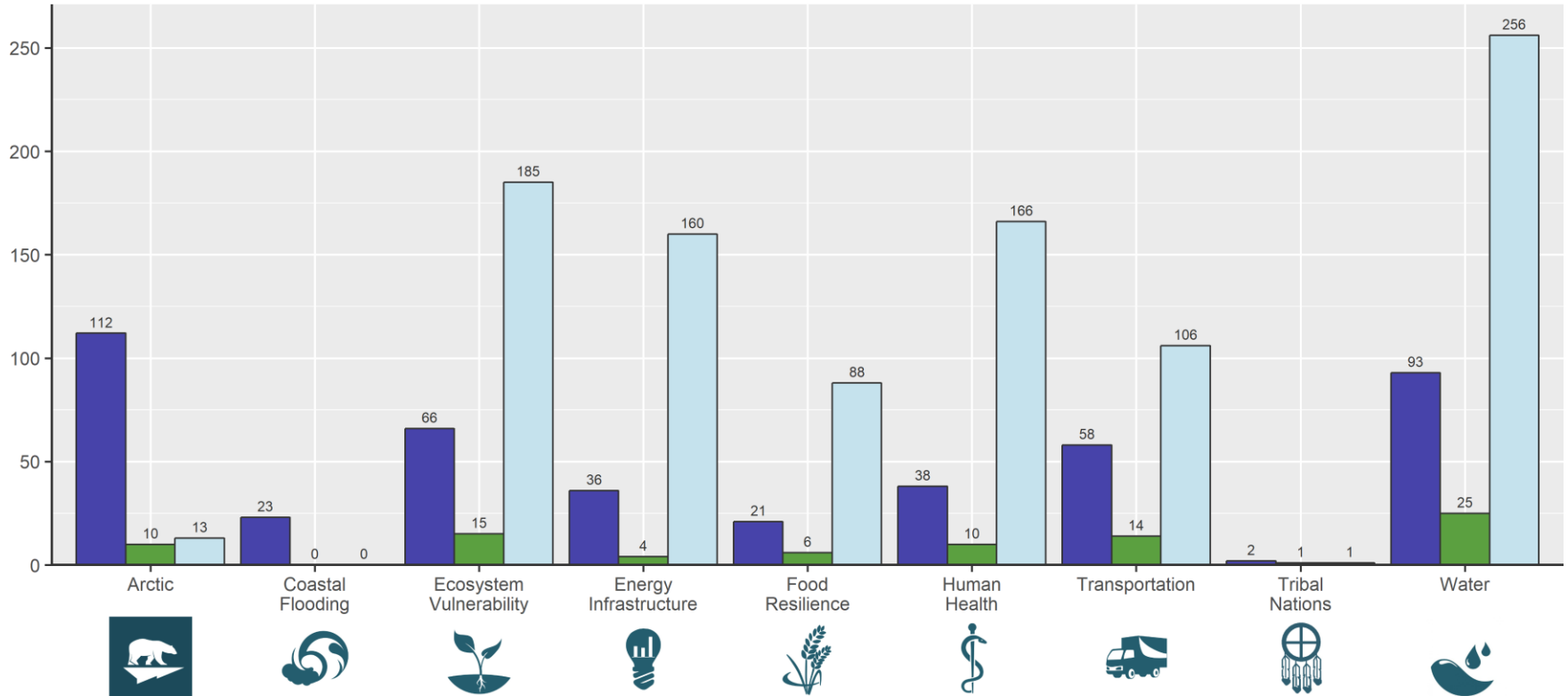


# Resilience Community Portfolio

## Resilience Community Theme Portfolio

Registered as of December 07, 2018

■ Datasets   ■ Services   ■ Layers



# Discovery and Use of Objects



Resilience  
Community



## What does curation of the CDI collection on the GeoPlatform enable?

- Users can search and discover datasets, then access them via the providing agency.
- Users can discern whether or not the dataset is service enabled. → **Service Enabled?**  
YES NO
- Users can search and discover services and determine the status before attempting to use. → **Service Status?**  
ONLINE OFFLINE
- Layers are made available for use by other communities.
- Users can search and discover layers and add them to their target map.

# Resilience Community Widgets

The screenshot shows the 'GeoPlatform Resilience Community' interface. At the top, there is a search bar and a 'Sign In' button. The main heading is 'Resilience' with a 'Learn More' button. Below this is a 'Featured' section containing a grid of nine widgets: Arctic, Coastal Flooding, Ecosystem Vulnerability, Energy Infrastructure, Food Resilience, Human Health, Transportation, Tribal Nations, and Water. Each widget has a representative image and a title.

The screenshot shows the 'EnviroAtlas' Layer Menu. On the left is a map of the United States with a color-coded overlay. On the right is a list of layers with checkboxes and information icons:

- Average annual daily potential solar energy (kWh/m2/day)
- Average annual precipitation (inches/yr)
- Grain yields (thousand tons/yr)
- Hectares of fruit crops
- Value of cotton crops (dollars/yr)

The screenshot shows the 'GeoPlatform Map Viewer' interface. It features a detailed map of the United States with a color-coded overlay. On the right side, there is a 'LAYER LEGEND' section with the following layers and their corresponding color ranges:

- AVERAGE ANNUAL DAILY POTENTIAL SOLAR ENERGY (KWH/M2/DAY)
- AVERAGE ANNUAL PRECIPITATION (INCHES/YR)
- GRAIN YIELDS (THOUSAND TONS/YR)
- HECTARES OF FRUIT CROPS
- VALUE OF COTTON CROPS (DOLLARS/YR)
  - \$0.00
  - \$0.01 - \$0.02
  - \$0.03 - \$2.25
  - \$2.26 - \$750.94
  - \$750.95 - \$19,200,130.93

# Resilience Community Widgets

GeoPlatform Resilience Community

Resilience

Learn More

Featured

- Arctic
- Coastal Flooding
- Ecosystem Vulnerability
- Energy Infrastructure
- Food Resilience
- Human Health
- Transportation
- Tribal Nations
- Water

Resilience Community Ecosystem Vulnerability Services

Search for items

1 - 5 of 15

- EnviroAtlas Master Web Service for National  
regp:Service  
Modified: 11/28/2018, 1:46:54 PM
- EnviroAtlas, U.S., Rare Ecosystems  
regp:Service  
Modified: 11/8/2018, 2:47:06 PM
- Groundfish Ag  
regp:Service  
Modified: 10/3/2018, 11:45:54 AM
- Local Climate  
regp:Service  
Modified: 11/1/2018, 11:45:54 AM
- NCEI ArcGIS R  
regp:Service  
Modified: 11/1/2018, 11:45:54 AM

Layers served by the EnviroAtlas Master Web Service

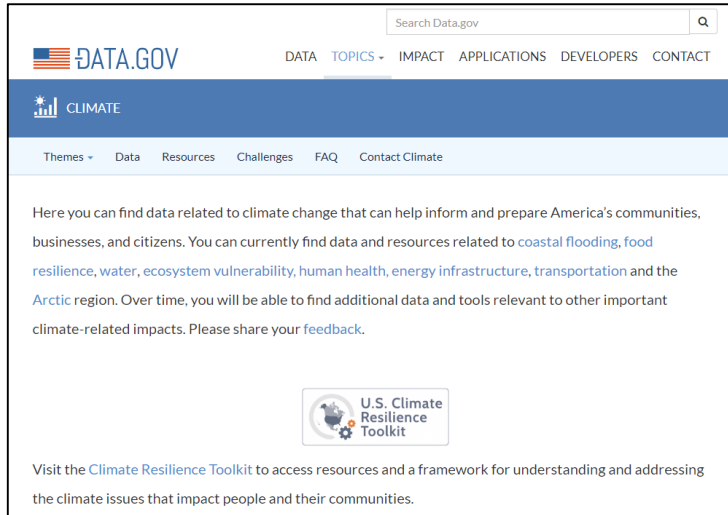
Search for items

1 - 5 of 151

- Acres of land enrolled in CRP  
Layer  
Modified: 11/8/2018, 3:26:56 PM
- Acres of pollinated crops with no nearby pollinator habitat  
Layer  
Modified: 11/8/2018, 3:26:56 PM
- Agricultural water use (million gallons/day)  
Layer  
Modified: 11/8/2018, 3:32:23 PM
- Annual oxidized nitrogen dry deposition (kg/ha)  
Layer  
Modified: 11/8/2018, 3:26:56 PM
- Annual oxidized nitrogen wet deposition (kg/ha)  
Layer  
Modified: 11/8/2018, 3:26:56 PM

# GeoPlatform.gov Resilience Community

Data.gov/climate



The screenshot shows the Data.gov website with the 'CLIMATE' section selected. The page features a search bar, navigation links for 'DATA', 'TOPICS', 'IMPACT', 'APPLICATIONS', 'DEVELOPERS', and 'CONTACT'. Below the navigation, there are links for 'Themes', 'Data', 'Resources', 'Challenges', 'FAQ', and 'Contact Climate'. The main content area contains a paragraph about finding climate change data and a link to the 'U.S. Climate Resilience Toolkit'. A dashed arrow points from this page to the GeoPlatform Resilience Community page.


DATA.GOV

DATA TOPICS IMPACT APPLICATIONS DEVELOPERS CONTACT

CLIMATE

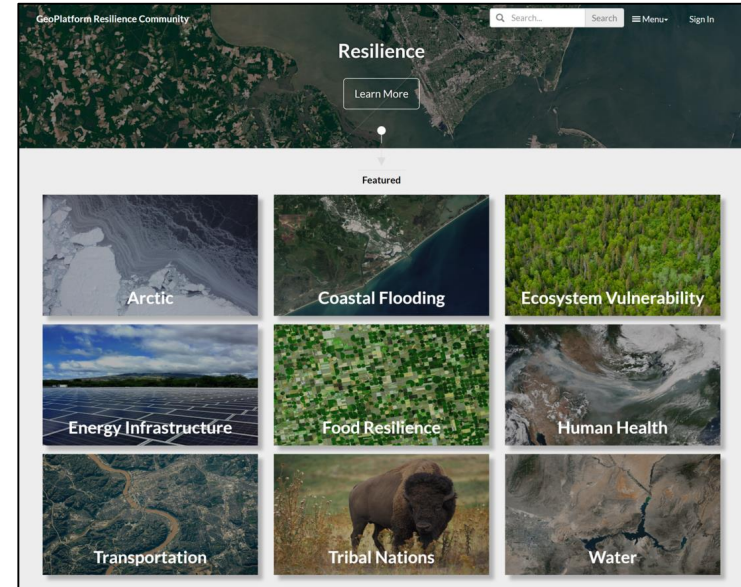
Themes Data Resources Challenges FAQ Contact Climate

Here you can find data related to climate change that can help inform and prepare America's communities, businesses, and citizens. You can currently find data and resources related to [coastal flooding](#), [food resilience](#), [water](#), [ecosystem vulnerability](#), [human health](#), [energy infrastructure](#), [transportation](#) and the [Arctic](#) region. Over time, you will be able to find additional data and tools relevant to other important climate-related impacts. Please share your [feedback](#).

 U.S. Climate Resilience Toolkit

Visit the [Climate Resilience Toolkit](#) to access resources and a framework for understanding and addressing the climate issues that impact people and their communities.

GeoPlatform Resilience Community



The screenshot shows the GeoPlatform Resilience Community page. It features a search bar, a 'Resilience' header with a 'Learn More' button, and a 'Featured' section with nine tiles. The tiles are: Arctic, Coastal Flooding, Ecosystem Vulnerability, Energy Infrastructure, Food Resilience, Human Health, Transportation, Tribal Nations, and Water. A dashed arrow points from this page back to the Data.gov Climate page.

GeoPlatform Resilience Community

Search... Search Menu Sign In

Resilience

Learn More

Featured

Arctic

Coastal Flooding

Ecosystem Vulnerability

Energy Infrastructure

Food Resilience

Human Health

Transportation

Tribal Nations

Water

# Outcomes and Next Steps

- The sharing of trusted geospatial resources is achieved through:
  - 1) The publication of relevant content in individual communities
  - 2) Objects being “used by” or identified as important to any number of communities
    - Resilience & Homeland Infrastructure Foundation-Level Data (HIFLD)
    - Resilience & National Geospatial Data Asset (NDGA)
- Object Editor is adequate for curating “smaller” collections of objects.
- Agencies will need a more streamlined/hands-off method of ingest and curation; automated solutions are in development.
- Collaboration works:
  - We have added value to the CDI collection through object augmentation.
  - The process has allowed for significant testing and use of the GeoPlatform (identified bugs, suggested new functionalities, and offered new use cases).

# Questions

Adam Sisco

[adam.sisco@nsstc.uah.edu](mailto:adam.sisco@nsstc.uah.edu)

