



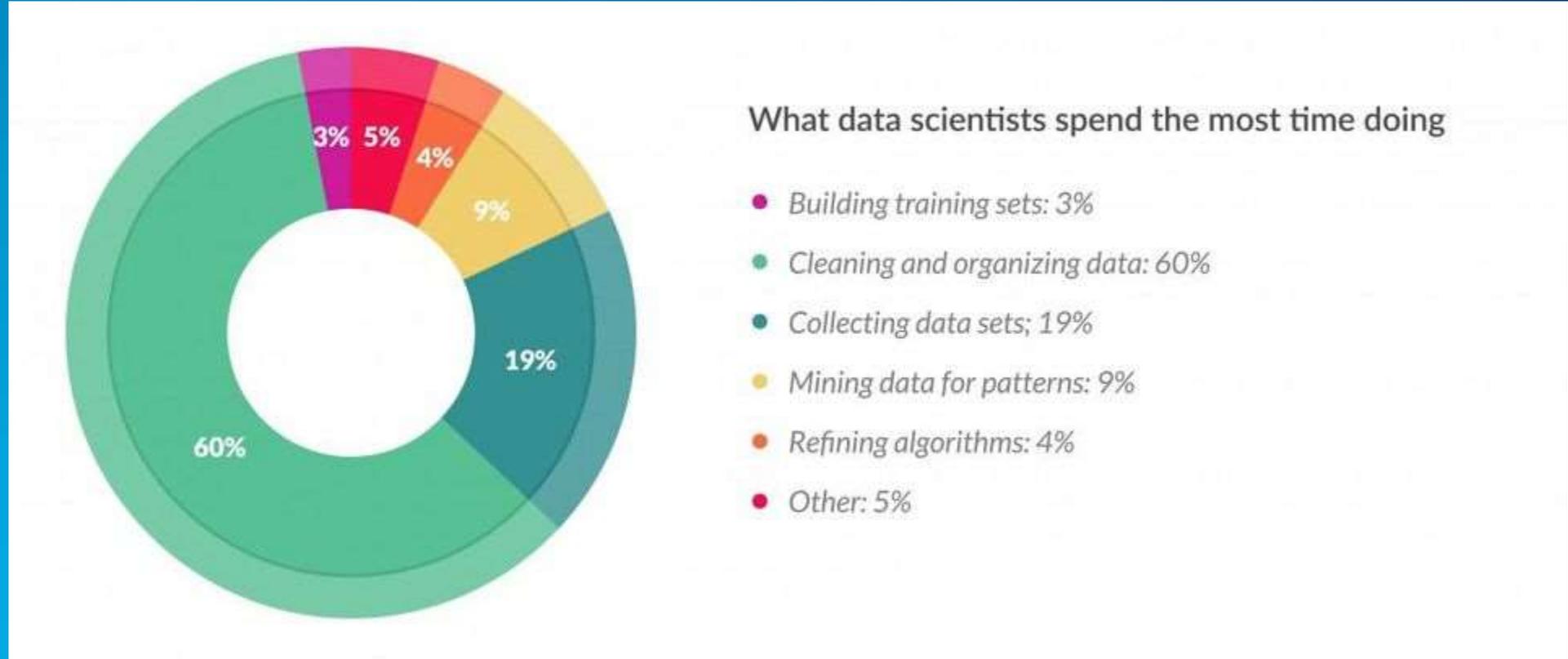
Making Data Actionable: Why Data as Services Matter

NGAC Lightning Talk – Pat Cummins

(Adam Martin)

April 3, 2018

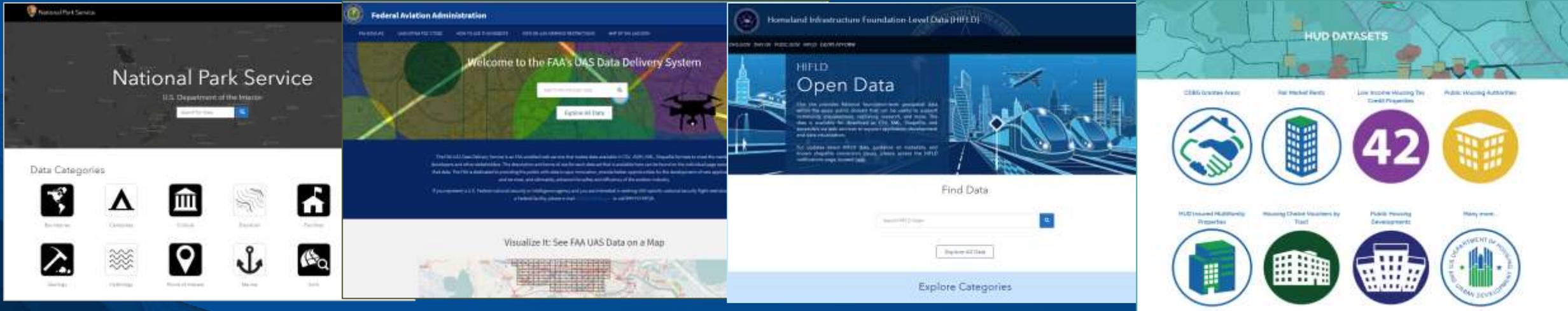
Data preparation accounts for about 80% of the work of data scientists



Adoption of Open Data:

ArcGIS
Open Data
Publish Once Approach
DCAT Standards

- **Unique visitors +110%**
 - 2.5 m across all customers ArcGIS open data sites
 - All go direct or via Google
- **Downloads +110%**
 - 60 m since 2014



US Federal Open Data Sites account for ~7% of traffic

Web GIS via Shared Services Is Already Here

Thousands of Ready-to-Use Maps
and Datasets from Esri

Basemaps **Soils**
Agriculture Topo Maps Addressing
Ecology Sentinel Earthquakes **Traffic** Rainfall
Geology **Vegetation** Roads
Imagery **Land Cover** **Scientific**
Stream Gauges **Landsat** Species NAIP Planes Lifestyle
Water MODIS Biology **Elevation** POIs
Demographics Protected Areas
Distribution
Hazards Climate DigitalGlobe **Floodplains**
Historical Maps Landscape Oceans Stream Forecasts
Weather **Population** **Boundaries** OSM
Sea Temperature Wildfires Railroads

Millions of Maps and Layers
Shared as Services

Community

Government Provided

User Provided

The Living Atlas

Esri Public Services

Esri Premium Services

... The World's Largest Collection of Geospatial Information

Services Increase Visibility & Use

Exposing on ArcGIS Online

5.4 MILLION
Users

15 MILLION
Items

1 BILLION
Tiles Served / Day



Items are mostly Services (Map, Image, Feature, Tile) & Applications

NAIP Services → More Visibility through More, Value-Added Services

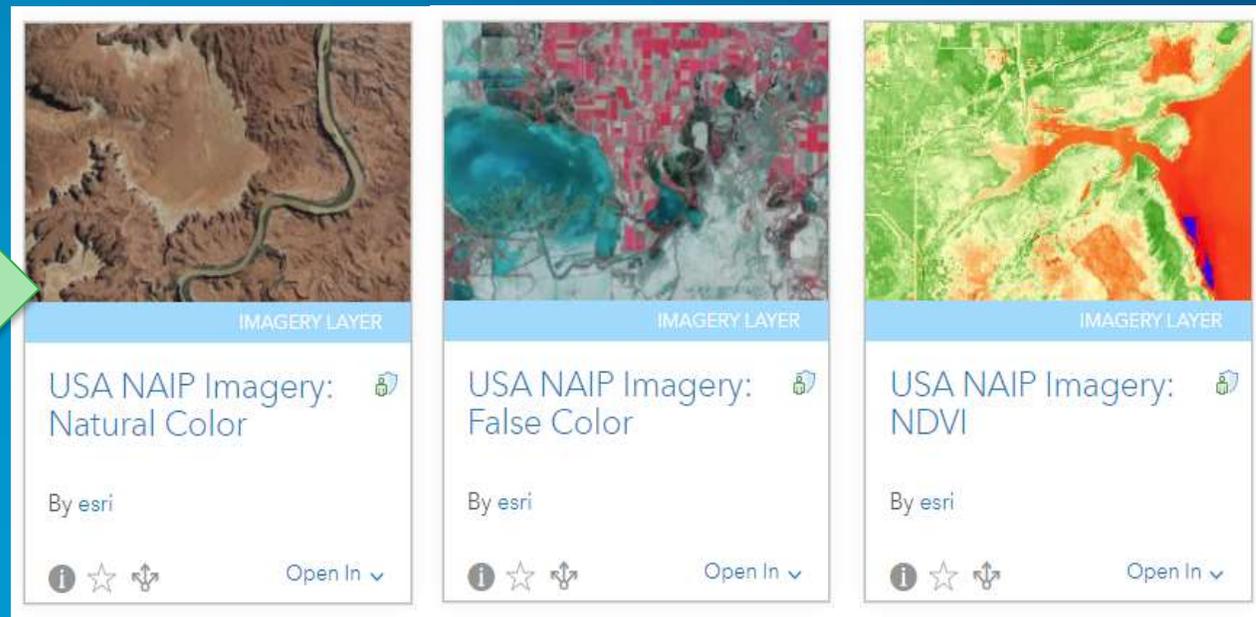
Tailored to different audience needs

USDA

State-Level
Imagery Services

Esri

USA CONUS Imagery (Subscribers)
Pre-configured for Natural Color, False Color, and NDVI



18.9 million
views in 2017

- 8.4 Professional use
- 2.7 Other types
- 2.4 Educational
- 1.7 Local Govt
- 1.2 Fed Govt

Landsat & Sentinel 2 Imagery → Better Analytical Applications

USGS provides Data & Full Service

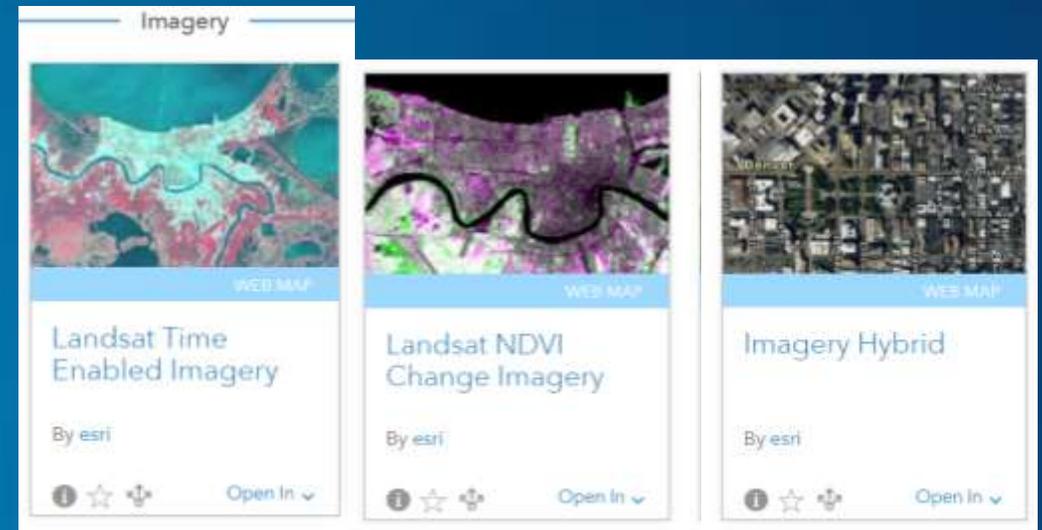
- Bulk Download Order ([EROS](#))
- Download Image Segments free from Web Apps:
 - [EarthExplorer](#)
 - [GloVis](#)
 - [LandsatLook Viewer](#) (1:578K)

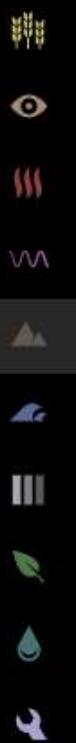
Service:

<https://landsatlook.usgs.gov/arcgis/rest/services>

Esri provides services

- 43 targeted services





Identify

Current Scene ID: LC82030452018082LGN00 Product Name: L1TP
Acquisition Date: March 23, 2018 WRS Path/Row: 203/45
Sun Azimuth: 126.4 Sun Elevation: 57.8 Cloud Cover: 0.0%

Show Spectral Profile

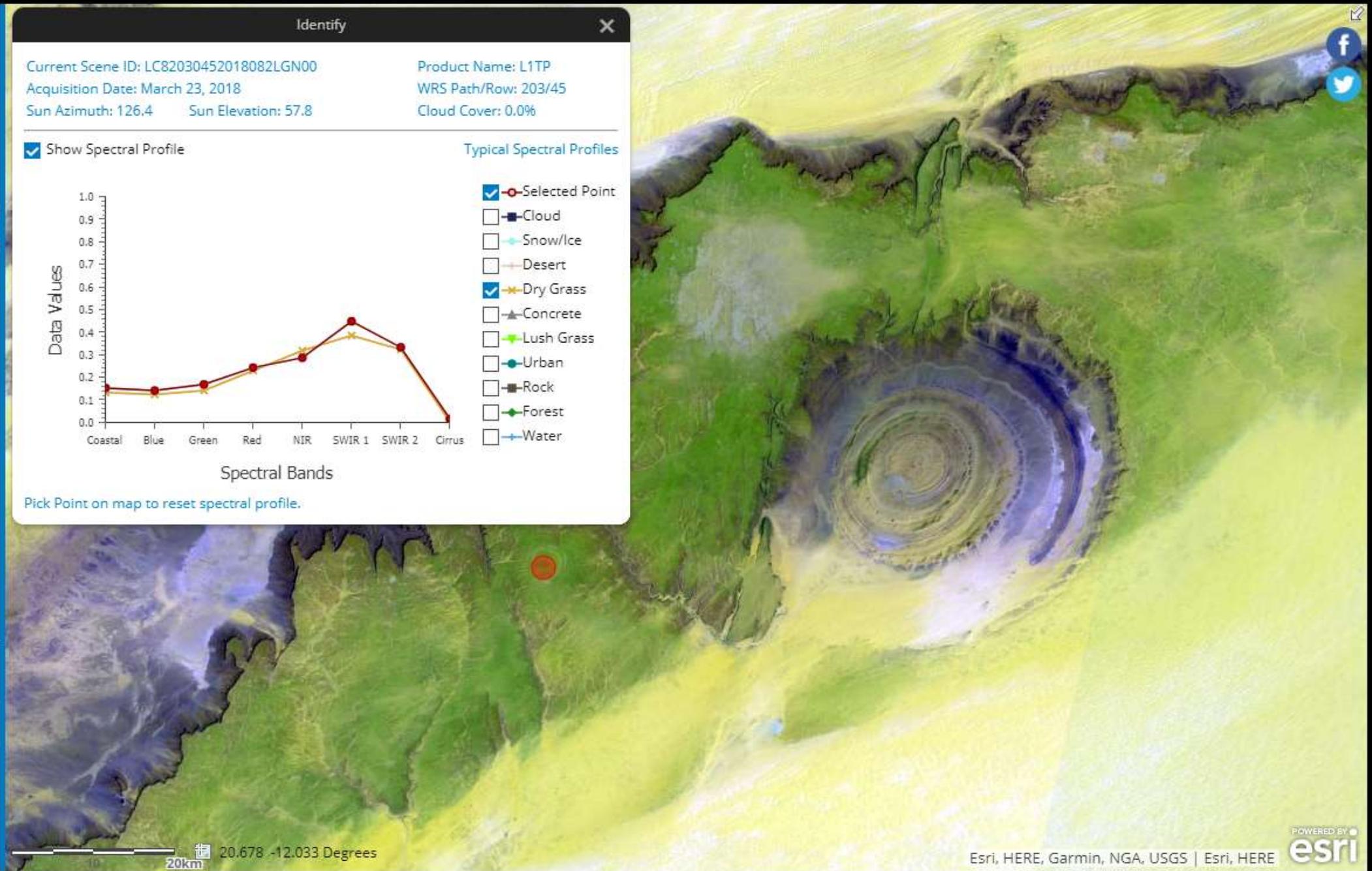
Typical Spectral Profiles

- Selected Point
- Cloud
- Snow/Ice
- Desert
- Dry Grass
- Concrete
- Lush Grass
- Urban
- Rock
- Forest
- Water

The graph plots 'Data Values' (y-axis, 0.0 to 1.0) against 'Spectral Bands' (x-axis: Coastal, Blue, Green, Red, NIR, SWIR 1, SWIR 2, Cirrus). A red line with circular markers represents the 'Selected Point', and a yellow line with star markers represents 'Dry Grass'. Both lines show a similar trend, peaking at the SWIR 1 band.

Spectral Band	Selected Point	Dry Grass
Coastal	0.15	0.15
Blue	0.14	0.14
Green	0.18	0.18
Red	0.25	0.25
NIR	0.30	0.32
SWIR 1	0.45	0.38
SWIR 2	0.35	0.35
Cirrus	0.02	0.02

Pick Point on map to reset spectral profile.



About

Heat Events Year 2040

Total days with temperatures over 95° 30 - One M

Display

Total Days

Days Increase since 2014

2014 Estimates

Population: 133,727,308

Daytime Population: 131,926,838 Housing Units: 55,473,732

Households: 48,228,665

Overall Score

Socioeconomic Status

Household Composition & Disability

Minority Status & Language

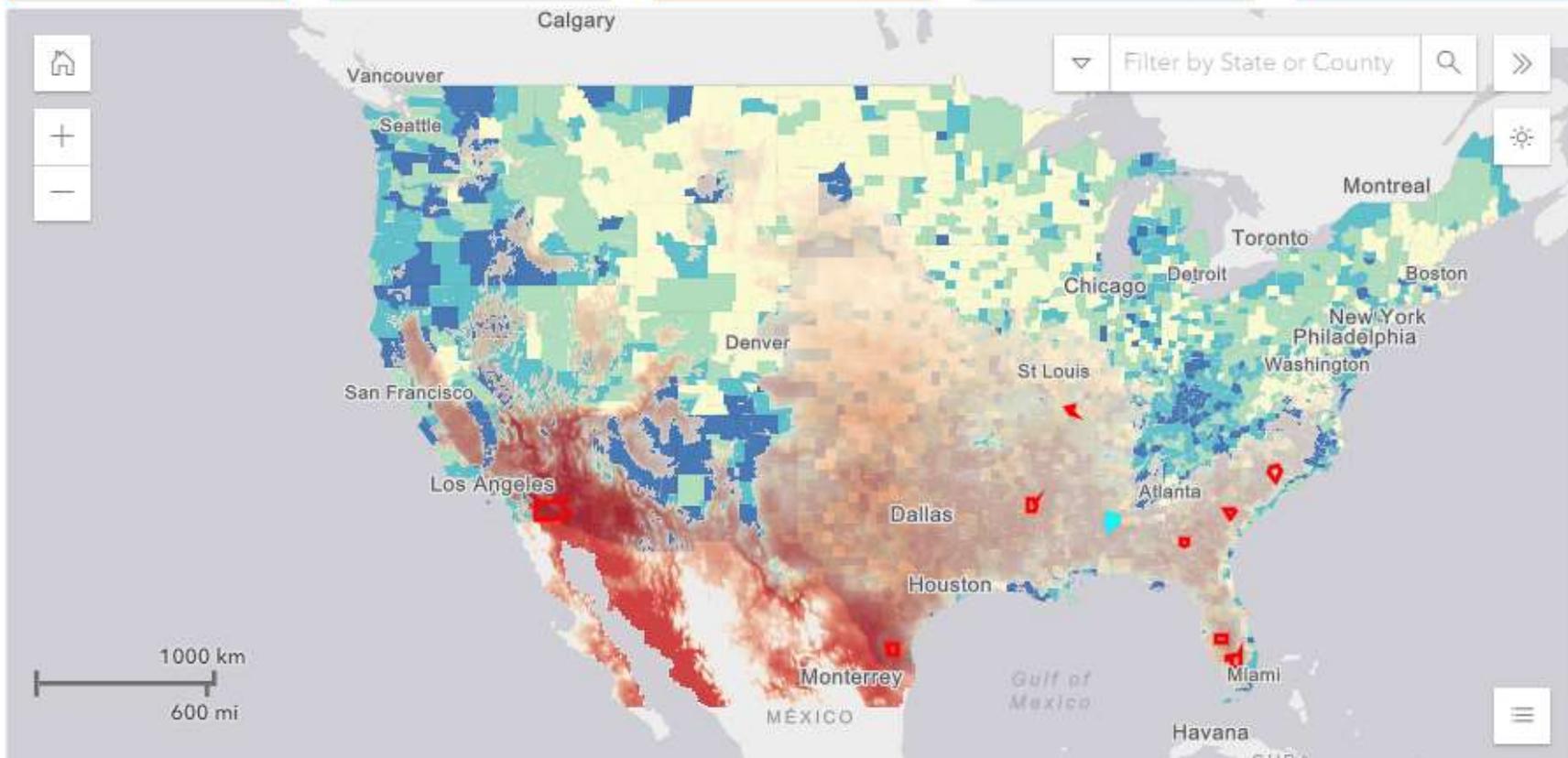
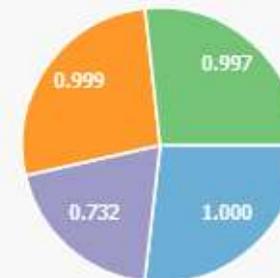
Housing & Transportation

Perry County, Alabama

In 2040 a projected maximum of 56 total days with temperatures over

Population	10,203
Daytime Population	10,486
Housing Units	4,705
Households	3,263

Overall Vulnerability Score: 1.000



Drought Tracker

Government-Academic Partnership to create the data and services

United States Drought Monitor

Current Map | Maps | **Data** | Drought Summary | About USDM | Current Conditions and Outlooks | Tutorials | En Español

Data

Time Series
View a graph of the U.S. Drought Monitor statistics for a chosen area.

Data Tables
View the U.S. Drought Monitor data in tabular format for a selected area.

Data Download
Download U.S. Drought Monitor statistics.

GIS Data
Get GIS data files for each week including shapefiles, kmz, wms and more.

Metadata
Information about the GIS data and other U.S. Drought Monitor data file formats.

FSA Eligibility Tool
Tool to determine if an area qualifies for disaster payments from the Farm Service Agency.

United States Drought Monitor

Current Map | Maps | **Data** | Drought Summary | About USDM | Current Conditions and Outlooks | Tutorials | En Español

GIS Data Files

[Data](#) / [GIS Data](#)

Contact for GIS Data Requests

For more information regarding the Drought Monitor datasets, please contact Brian Fuchs at the NDMC via [e-mail](#).

For those individuals interested in obtaining DM data for a period of time longer than a few weeks visit our [Data Download](#) page. If you have further questions please [e-mail](#) your request to Brian Fuchs. We will make every effort to respond as soon as possible.

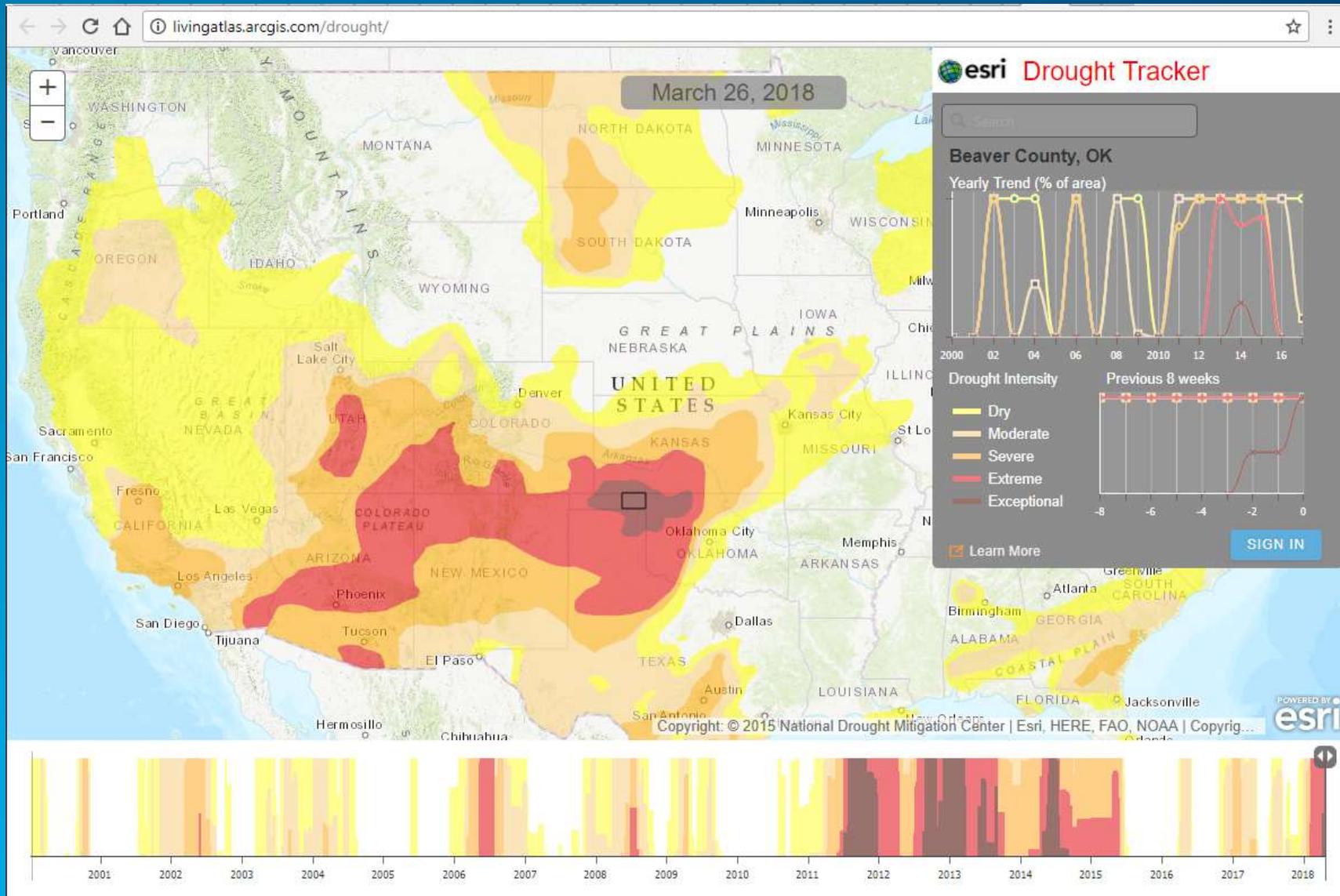
Please cite the Drought Monitor by including the National Drought Mitigation Center (NDMC), the U.S. Department of Agriculture (USDA) and the National Oceanic and Atmospheric Administration (NOAA).

Data

Download all Drought Monitor shapefiles for 2018.

Date	KMZ	Shapefiles	GML	WMS	Statistics			
Current	KMZ	SHP	Impacts	GML	WMS	U.S.	State	County
2018-03-27	KMZ	SHP	Impacts	GML	WMS	U.S.	State	County
2018-03-20	KMZ	SHP	Impacts	GML	WMS	U.S.	State	County
2018-03-13	KMZ	SHP	Impacts	GML	WMS	U.S.	State	County
2018-03-06	KMZ	SHP	Impacts	GML	WMS	U.S.	State	County
2018-02-27	KMZ	SHP	Impacts	GML	WMS	U.S.	State	County
2018-02-20	KMZ	SHP	Impacts	GML	WMS	U.S.	State	County

Services allow better applications for decision making



Infrastructure Permit Streamlining

Let's fill the gaps on priority services

Topics	Data Types	Dataset Availability	
		Government	Esri
Agricultural Resources	Cropland (CropScope)	Available	Available
	Prime Farmland	Not Easily Available	Available
Air Quality	Priority Areas for Air Quality	Available	Not Easily Available
Sensitive Species	Critical Habitat	Available	Available
	Threatened & Endangered Species	Not Easily Available	Not Easily Available
	Important Bird Areas	Somewhat Available	Not Easily Available
	Essential Fish Habitats	Not Easily Available	Not Easily Available
Environmental Justice	Household Income	Not Easily Available	Available
	Minority Residents	Available	Available
	Social Vulnerability	Available	Available
Terrain	Elevation Model (Slope, Aspect)	Available	Available
	Land Cover	Somewhat Available	Available
Historic/Cultural Resources	Native American Cultural Resources	Not Easily Available	Not Easily Available
	Wild and Scenic Rivers	Available	Not Easily Available
	National Register of Historic Places	Available	Available
	State Registers of Historic Places	Not Easily Available	Not Easily Available
Transportation	Highways & Roads	Somewhat Available	Available
	Railways	Available	Available
	Military Training Routes	Available	Not Easily Available
Land Management Boundaries	Federal Lands	Somewhat Available	Available
	Native American/Tribal Lands	Available	Available
Protected Lands	Marine Sanctuaries / Protected Areas	Available	Not Easily Available
Natural Hazards	Flood Hazard Zones	Available	Available
Soils	Soil Survey Geographic (SSURGO)	Not Easily Available	Available
Ground Water	Sole Source Aquifers	Available	Not Easily Available
Drinking Water Resources	Source Water Protection Areas	Available	Available
Surface Hydrology	Impaired Waterbodies & Streams	Available	Available
	NWI, Critical Wetland Sites (Ramsar)	Available	Available
	Waterbodies & Streams	Available	Available
	Watersheds	Available	Available





esri

THE
SCIENCE
OF
WHERE