



USDA CropScape Data Resources

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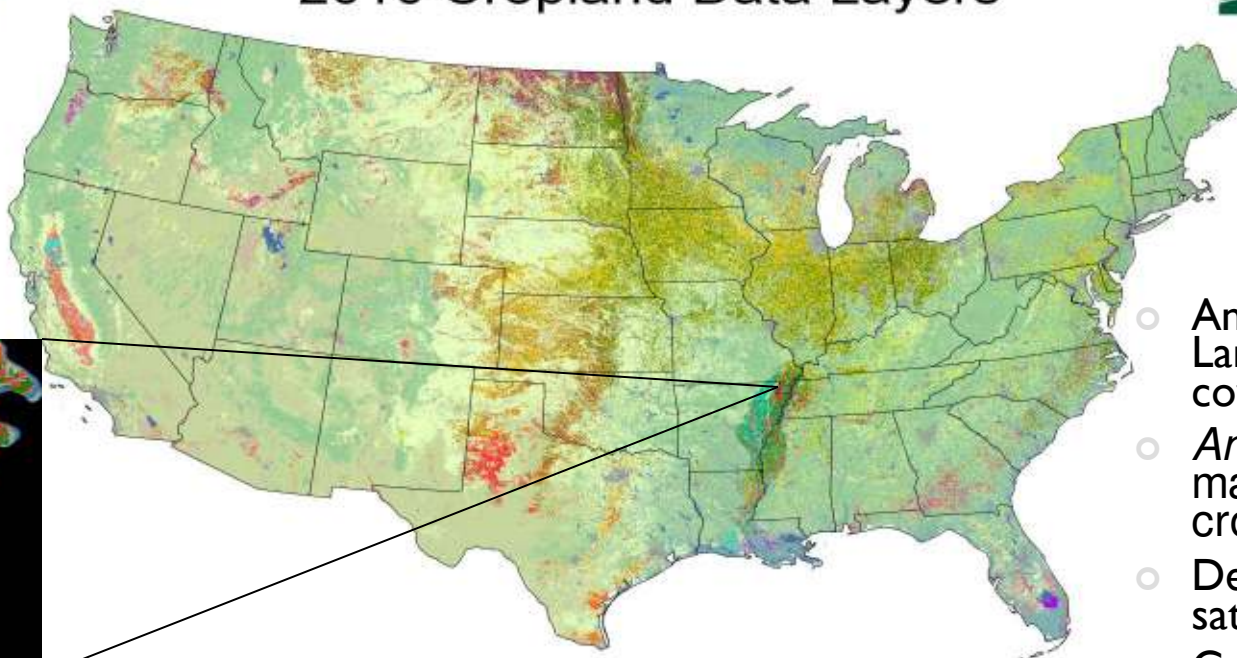
What Is CropScape?

- An online GIS application for agricultural geospatial data visualization, analytics and dissemination
- Serves the NASS Cropland Data Layers (CDL), CropMask, and Crop Planting Frequency Data Layers (Crop-Specific)
- Web based interactive maps to provide capabilities of on-line geospatial crop information access, geospatial query, retrieval and analytics
- OGC standards-compliant geospatial web services for disseminating all data to the decision makers and users via real time retrieval, processing and publishing over the web
- <http://www.nassgeodata.gmu/CropScape>

WHAT ARE THE CROPLAND DATA LAYERS?



2010 Cropland Data Layers



Major Land Cover Categories

Agriculture

Pasture/Grass
Corn
Soybeans
All Wheat
Other Hay

Fallow/Idle Cropland
Alfalfa
Cotton
Other Crops
Vegetables/Fruits/Nuts

Sorghum
Other Small Grains
Rice

Non-Agriculture

Woodland
Shrubland
Urban/Developed
Wetlands
Water

Barren
Perennial Ice/Snow

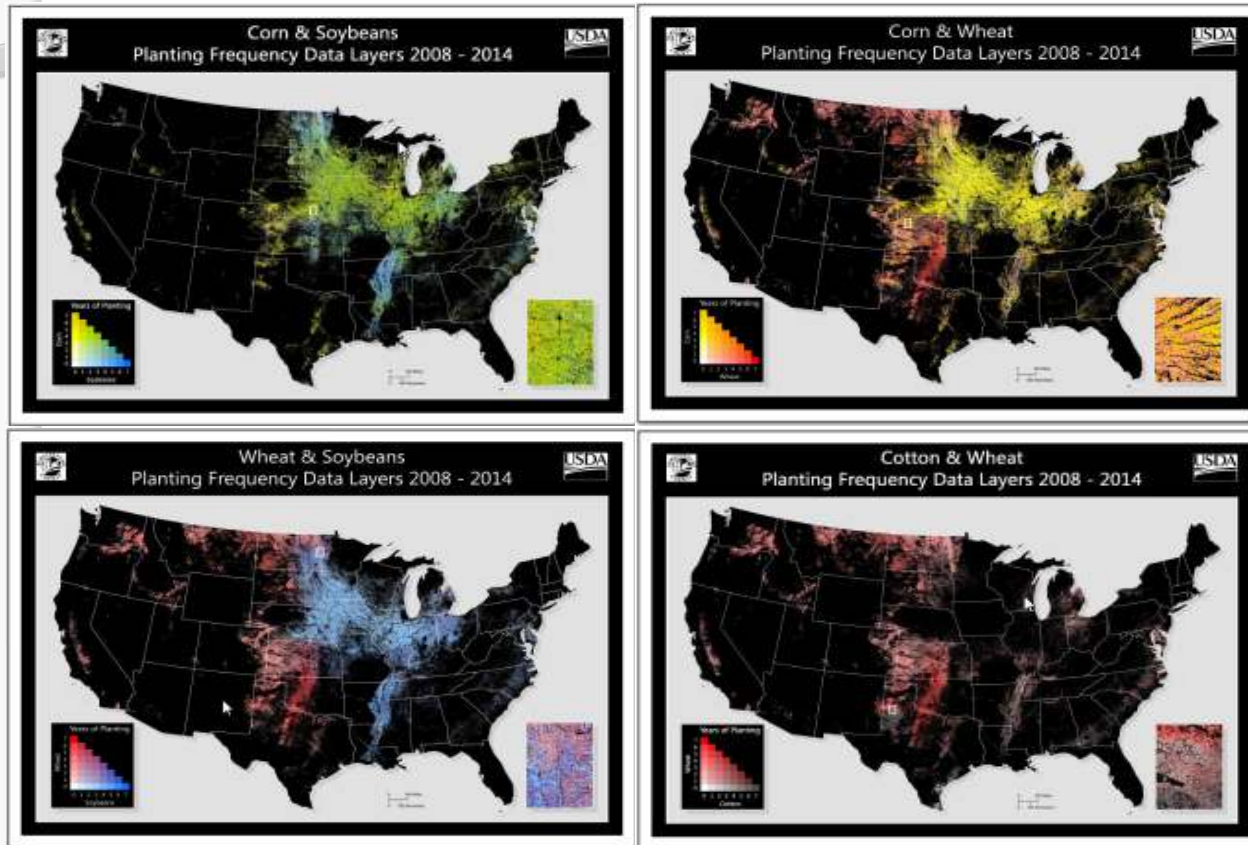
- Annual geospatial Land cover(CONUS)
- *Annually* cover major program crops and regions
- Derived from satellite images
- Geo-referenced
- Raster formatted
- Thematic maps
- Provide timely, accurate, useful estimates



www.nassgeodata.gmu/CropScape

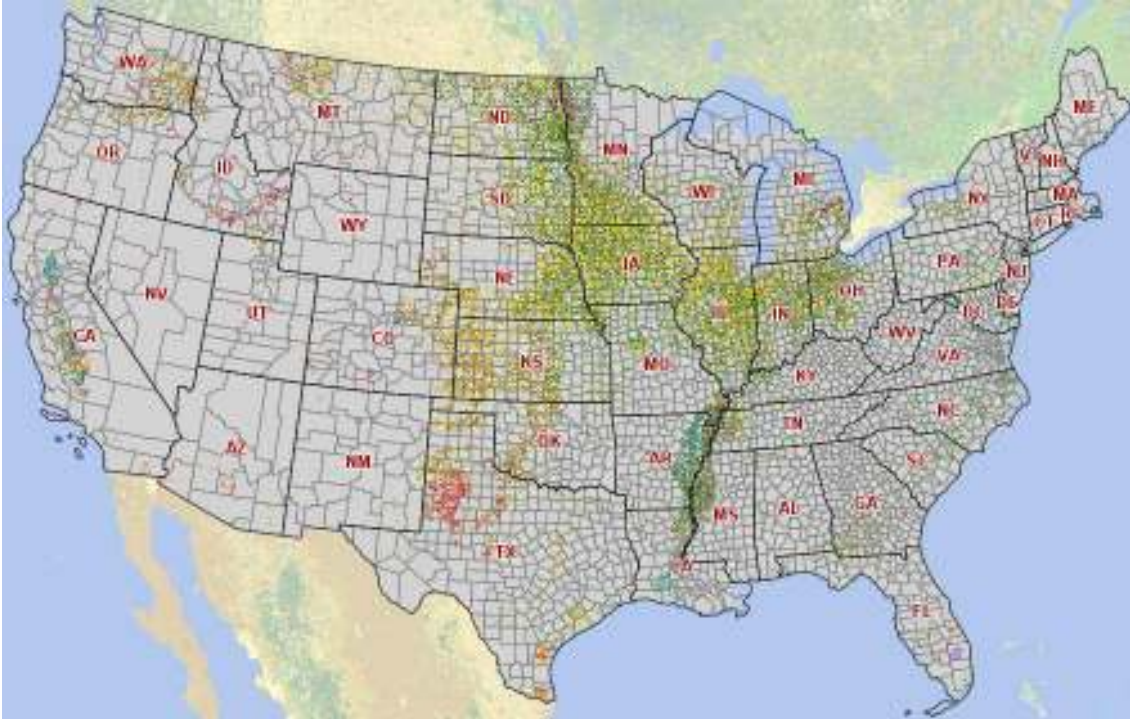


Crop Planting Frequency Data Layers



- Derived from CDL
- Crop specific, 30m resolution, geo-referenced
- computed from 2008-2014 CDLs.

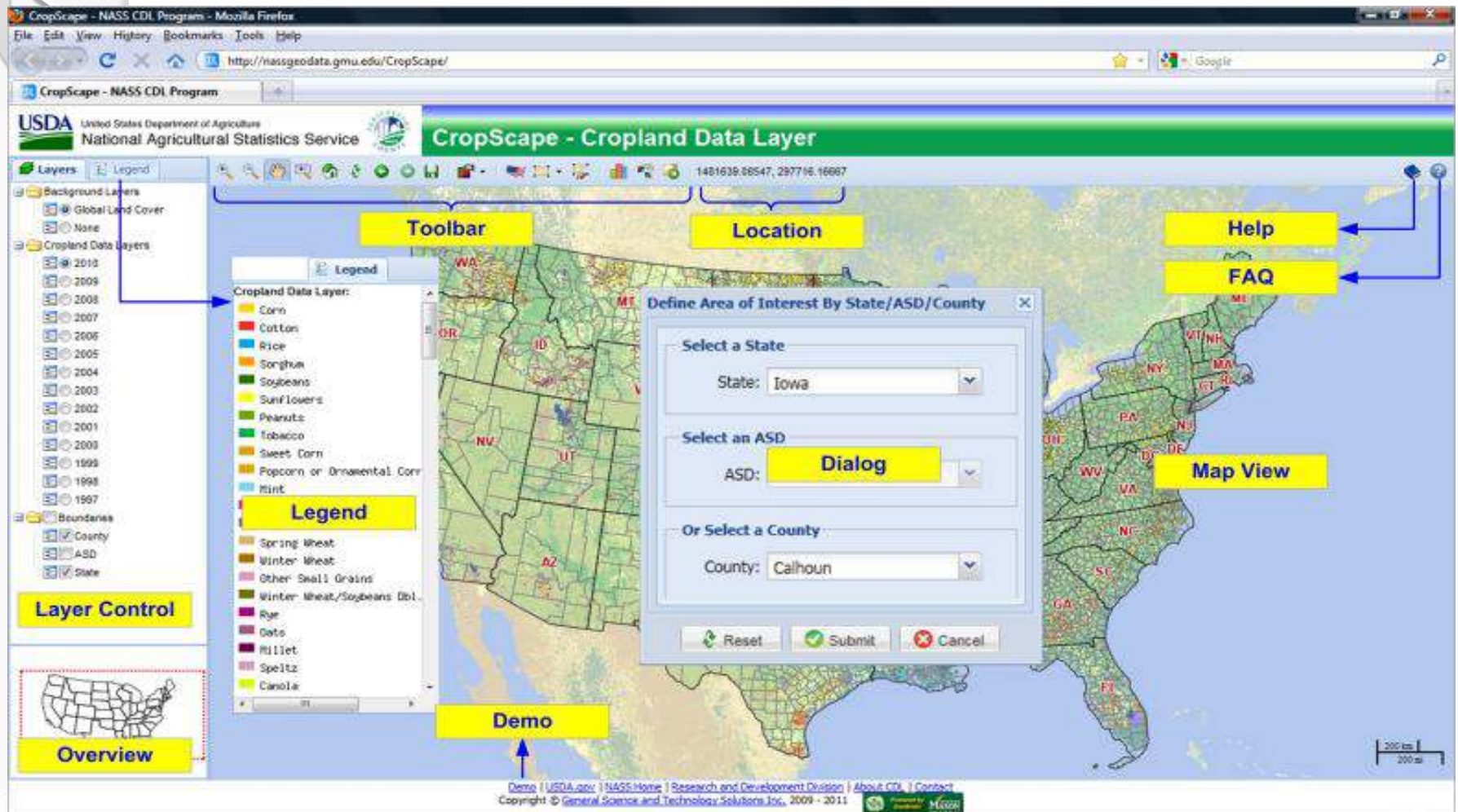
CropMask



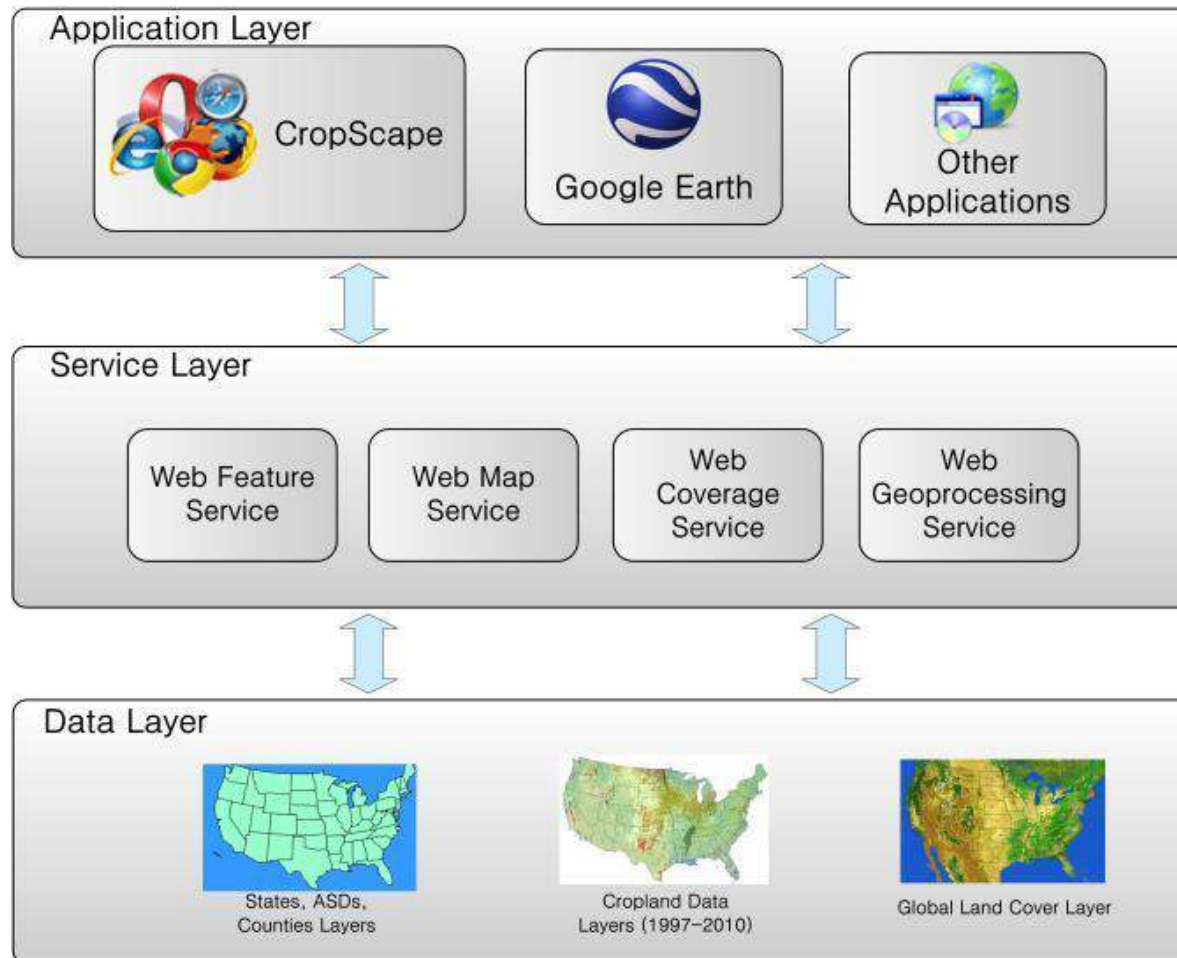
- A CDL derivative product
- A map of national cultivated crop land cover.
- 30m resolution, geo-referenced

CropScape Browser Based Client

- User Interface

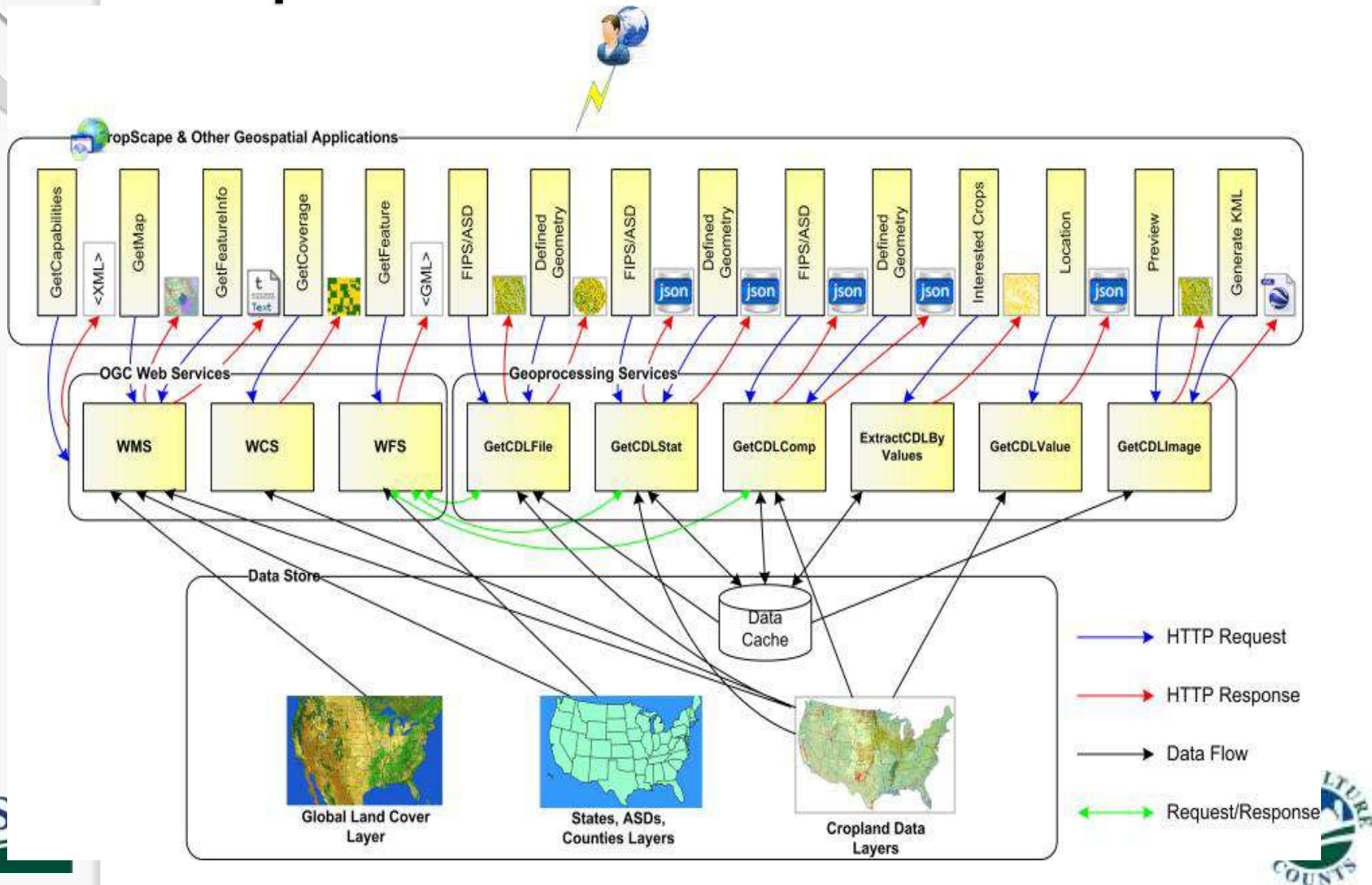


Service Oriented Architecture



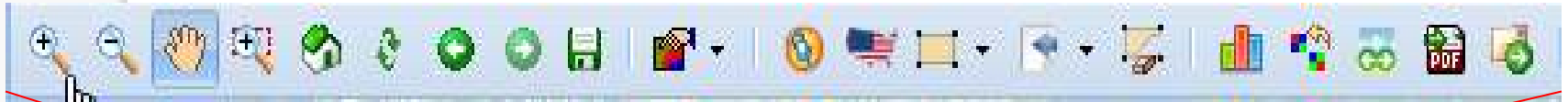
- Open Architecture
- Comprehensive Standard API
- Accessible through HTTP
- Scalable, Robust, and Reusable
- Implement standard web services and geoprocessing web services
- Raster data
- Vector data
- Attribute Data

Functional Diagram Blocks Implemented in Web Services



CropScape Tools

Zoom in
Zoom out
Pan
Drag zoom
Home
Refresh
Previous View
Next view
Save view
Query pixel value
Find location
Define state/county
AOI
Define rectangle
AOI
Import AOI
Clear AOI
Statistics analysis
Change analysis
Swipe layers
Create PDF map
Download Data



Select an Area of Interest (AOI)

Define Area of Interest By State/ASD/County

Select a State

State:

Select an ASD

ASD:

Or Select a County

County:

Reset Submit Cancel

State

Define Area of Interest By State/ASD/County

Select a State

State:

Select an ASD

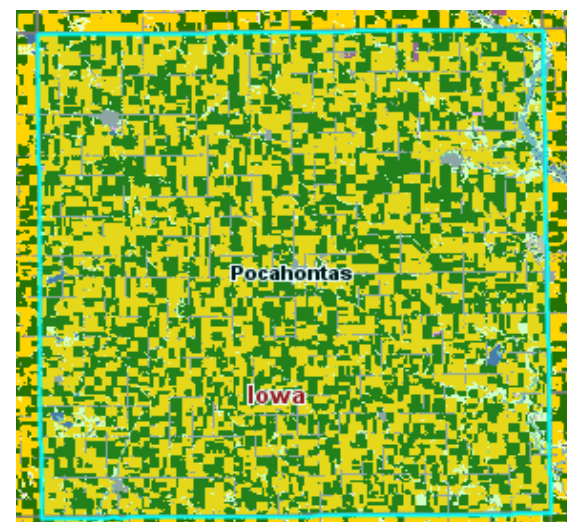
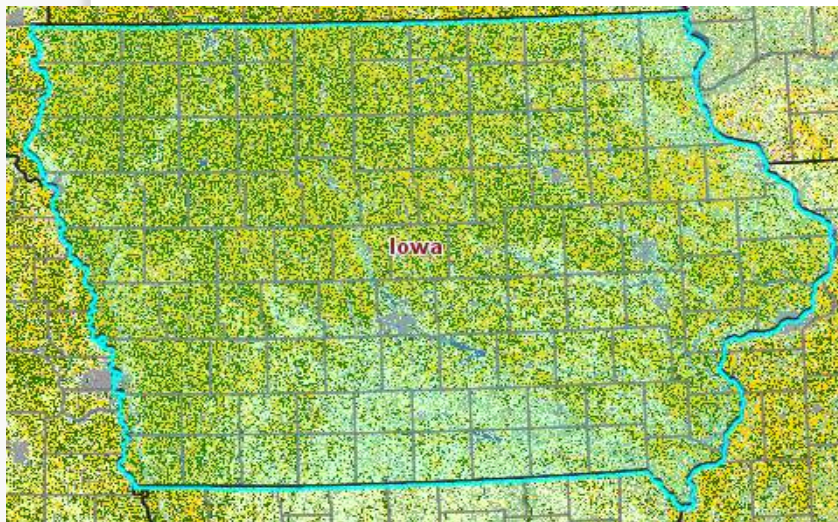
ASD:

Or Select a County

County:

Reset Submit Cancel

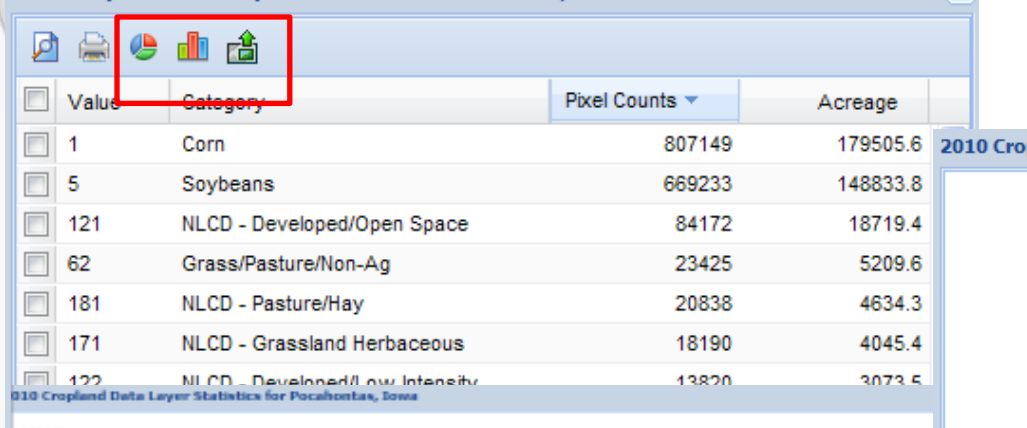
County



CropScape Statistics

Pie/Histogram/Graphic

2010 Cropland Data Layer Statistics for Pocahontas, Iowa



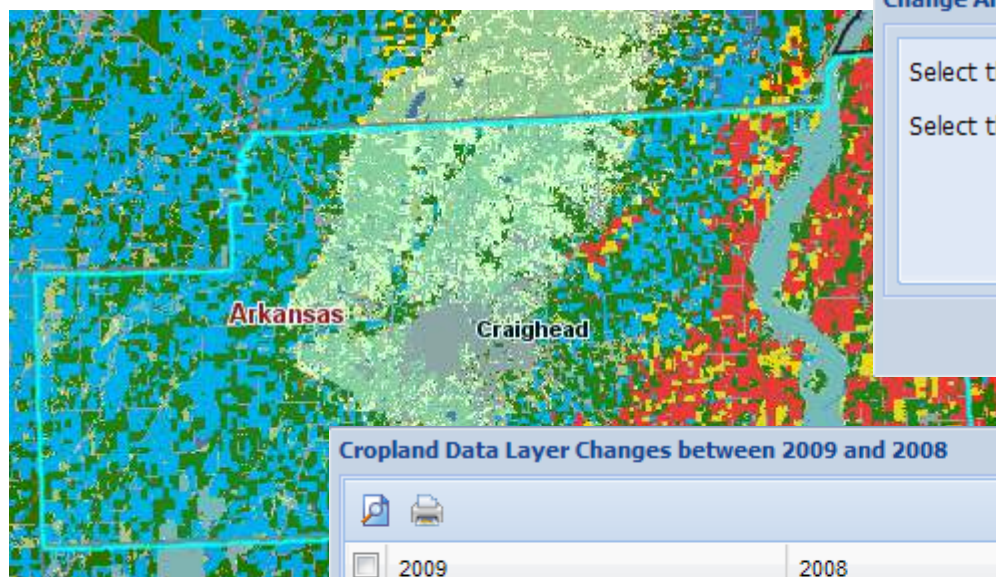
Value	Category	Pixel Counts	Acreage
1	Corn	807149	179505.6
5	Soybeans	669233	148833.8
121	NLCD - Developed/Open Space	84172	18719.4
62	Grass/Pasture/Non-Ag	23425	5209.6
181	NLCD - Pasture/Hay	20838	4634.3
171	NLCD - Grassland Herbaceous	18190	4045.4
122	NLCD - Developed/Low Intensity	13820	3073.5

Data Preview of Corn, Soybeans



Pixel counting is usually downward biased when compared to official estimates. Counting pixels and multiplying by the area of each pixel will result in biased area estimates and should be considered raw numbers needing bias correction. Official crop acreage estimates at the state and county level are available at <http://www.nass.usda.gov/>.

CropScape Change Analysis



Change Analysis

Select the Reference Year: 2009

Select the Other Year: 2008

Submit Cancel

Cropland Data Layer Changes between 2009 and 2008

	2009	2008	Pixel Counts	Acreage
<input type="checkbox"/>	Rice	Soybeans	133502	103453.6
<input type="checkbox"/>	Soybeans	Rice	129916	100674.7
<input type="checkbox"/>	Cotton	Cotton	120872	93666.3
<input type="checkbox"/>	Soybeans	Soybeans	106428	82473.4
<input type="checkbox"/>	NLCD - Developed/Open Space	NLCD - Developed/Open Space	85414	66189.2
<input type="checkbox"/>	NLCD - Woody Wetlands	NLCD - Woody Wetlands	83660	64830
<input type="checkbox"/>	NLCD - Deciduous Forest	NLCD - Deciduous Forest	73312	56811.1
<input type="checkbox"/>	Other Hays	Other Hays	61496	47654.6
<input type="checkbox"/>	Rice	Rice	39116	30311.8
			1177212	912239.6

CropScape Download & Export

CDL Downloading - Please specify your choice(s)

Select Year(s)

Year: ☒ 2010 ☒ 2009 ☒ 2008 ☒ 2007
☐ 2006 ☐ 2005 ☐ 2004 ☐ 2003
☐ 2002 ☐ 2001 ☐ 2000 ☐ 1999
☐ 1998 ☐ 1997

☒ Specify Projection

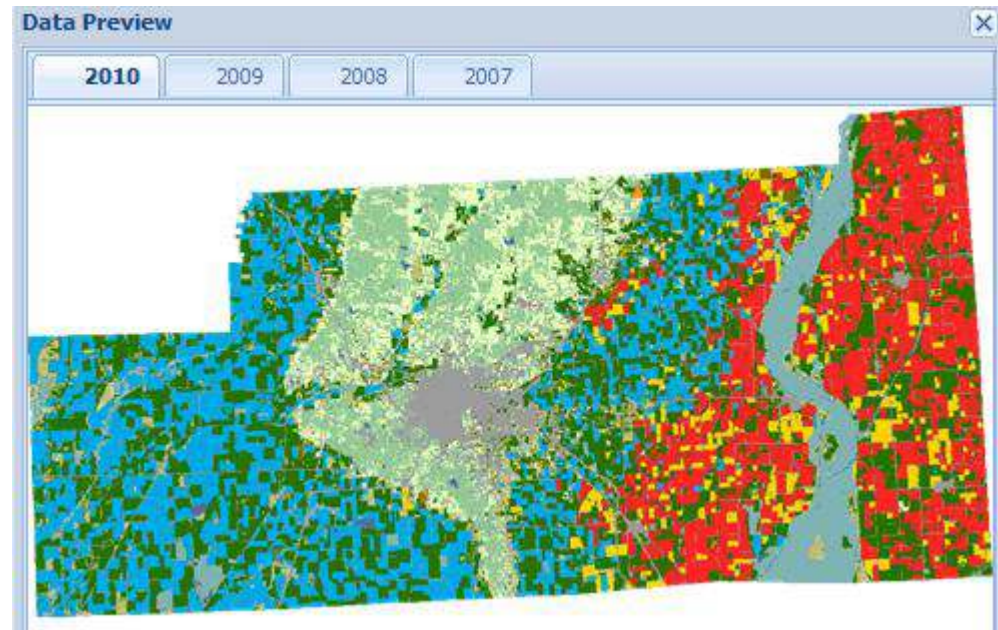
Projection: **USA Contiguous Albers Equal Area Conic USG**
 USA Contiguous Albers Equal Area Conic USGS
 Degrees Lat/Lon, WGS84 Datum
 UTM Zone 15
 UTM Zone 16
 UTM Zone 14

Download Files from Server

http://129.174.131.228/nass_data_cache/polygonclip_2011011801

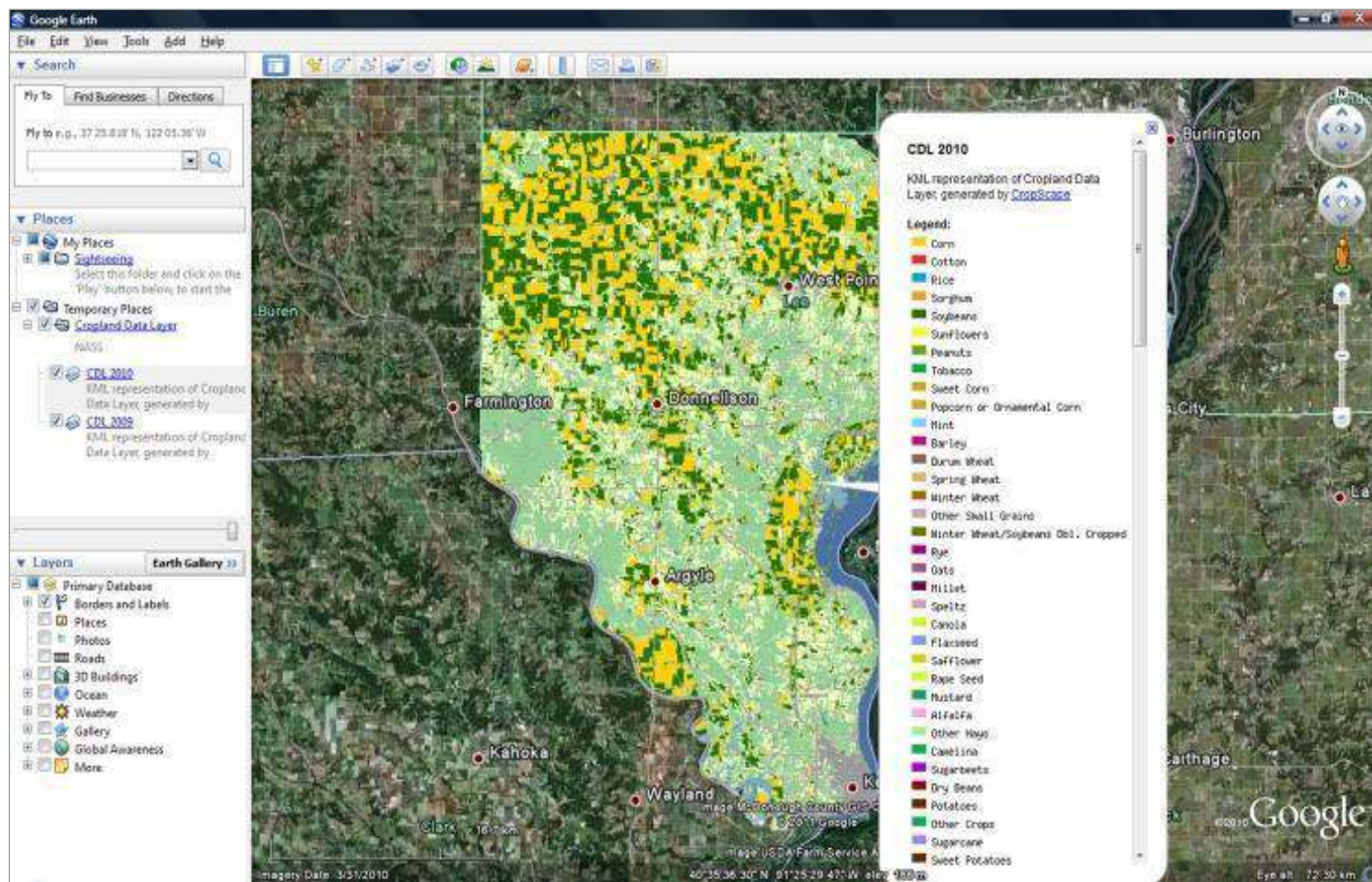
[Download](#) [Preview](#) [Export as KML](#)

Preview and Download

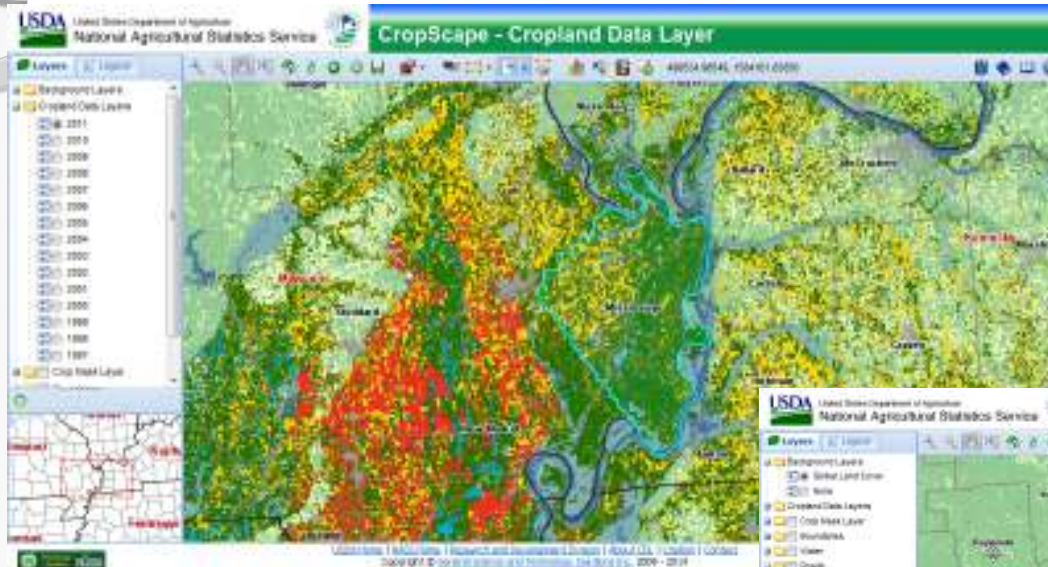


Specify Years and Projection

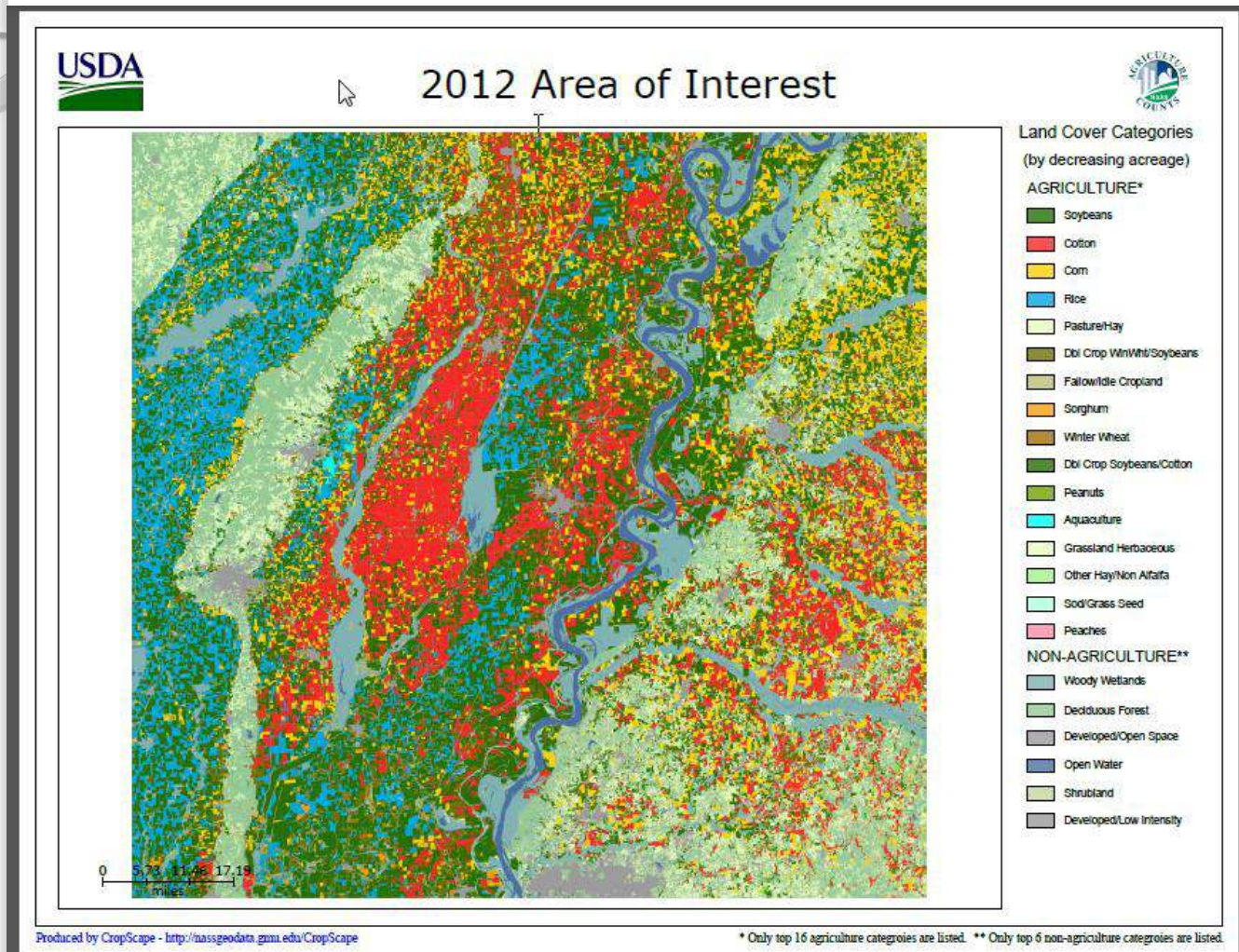
Export CDL Area of Interest to Google Earth



Import Area of Interest Boundary and Customer Data Layer



Automatically Created On-the-Fly Map in PDF

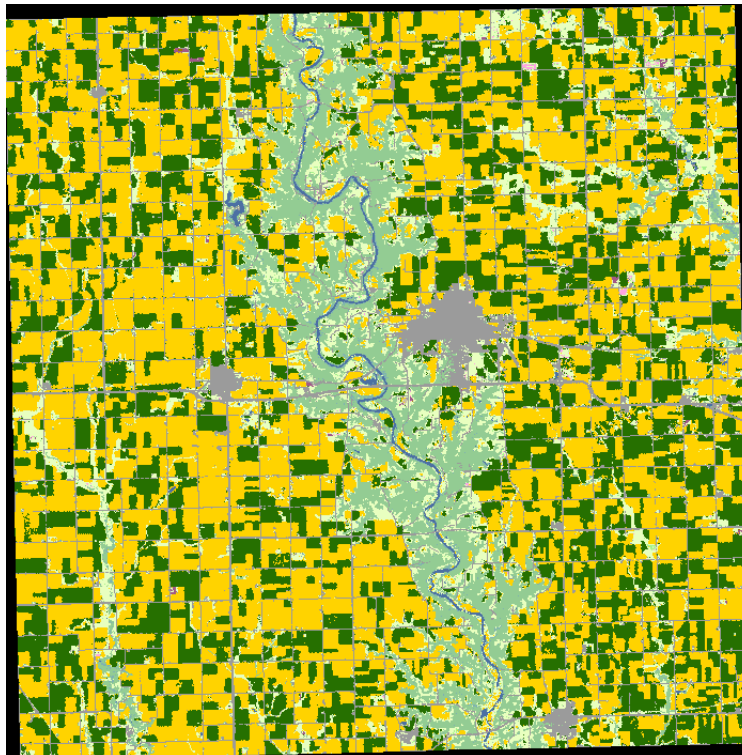


CROPSCAPE WEB SERVICE EXAMPLES

a) <http://nassgeodata.gmu.edu/CropScape/GetCDL?year=2009&fips=19015>

(Get CDL County data)

a) <http://nassgeodata.gmu.edu/CropScape/GetCDLStatData?year=2009&fips=19015> (Get CDL County Statistics Data)



a)

Value Category Acreage

1	Corn	156661.3
5	Soybeans	100869.2
12	Sweet Corn	1.5
24	Winter Wheat	13.2
28	Oats	389.8
36	Alfalfa	327.8
37	Other Hays	486.7
59	Seed/Sod Grass	2.3
61	Fallow/Idle Cropland	0.8
62	Grass/Pasture/Non-Ag	3313.6
63	Woodland	13.9
87	Wetlands	41.8
111	NLCD - Open Water	2064.4
121	NLCD - Developed/Open Space	29350.2
122	NLCD - Developed/Low Intensity	3873.8
123	NLCD - Developed/Medium Intensity	708.3
124	NLCD - Developed/High Intensity	206.1
131	NLCD - Barren	93.0
141	NLCD - Deciduous Forest	34563.8
142	NLCD - Evergreen Forest	7.0
143	NLCD - Mixed Forest	0.8
152	NLCD - Shrubland	19.4
171	NLCD - Grassland Herbaceous	10842.7
181	NLCD - Pasture/Hay	21097.2
190	NLCD - Woody Wetlands	1896.2
195	NLCD - Herbaceous Wetlands	285.9

b)

CropScape Usage Statistics

(From July 1, 2014 to Oct. 14, 2015)

- Total Visits: 55,188
 - 59.1% New Visitor, 40.1% Returning Visitor
- Total users visited: 33,492 (92% from US)
- Total user countries: 113

CropScape – An Award Winning Application

- CropScape won 2014 URISA Exemplary Systems in Government (ESIG™) Award
- CropScape Application & CDL won 2011 USDA Secretary's honor awards.
- CropScape was listed as only USDA achievement in “highlights of Agency Open Government IT Accomplishments that improve citizen engagement” in the FY 2011 Report to Congress on the Implementation of The E-Government Act of 2002 (U. S. Office of Management and Budget, 2012).

Publications

- W. Han, Z. Yang, L. Di, B. Zhang, C. Peng, “ Enhancing Agricultural Geospatial Data Dissemination and Applications Using Geospatial Web Services,” *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 05/2014; 11(7).
- W. Han, Z. Yang and L. Di, “A Web Geoprocessing Service Approach for Generating On-demand Thematic Map”, *Trans of American Society of Agricultural and Biological Engineers (ASABE)*, 02/2014; 57(1):239-247.
- W. Han, Z. Yang, L. Di, A. L. Yagci, “CropScape: Making Cropland Data Layer data accessible and actionable in GIS education,” *Journal of Geography*, 01/2014.
- W. Han, Z. Yang, L. Di, R. Mueller, “CropScape: A Webservice based application for exploring and disseminating US conterminous geospatial cropland data products for decision support,” *Computers and Electronics in Agriculture*, Volume 84, June 2012, Pages 111–123



Question?

THANK YOU!

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<http://www.nassgeodata.gmu/CropScape>

