

A wide-angle photograph of a lush green cornfield stretching to the horizon under a clear blue sky. The corn plants are in the foreground, showing their characteristic leaves and stalks. In the distance, a line of trees and a few white buildings are visible on the horizon.

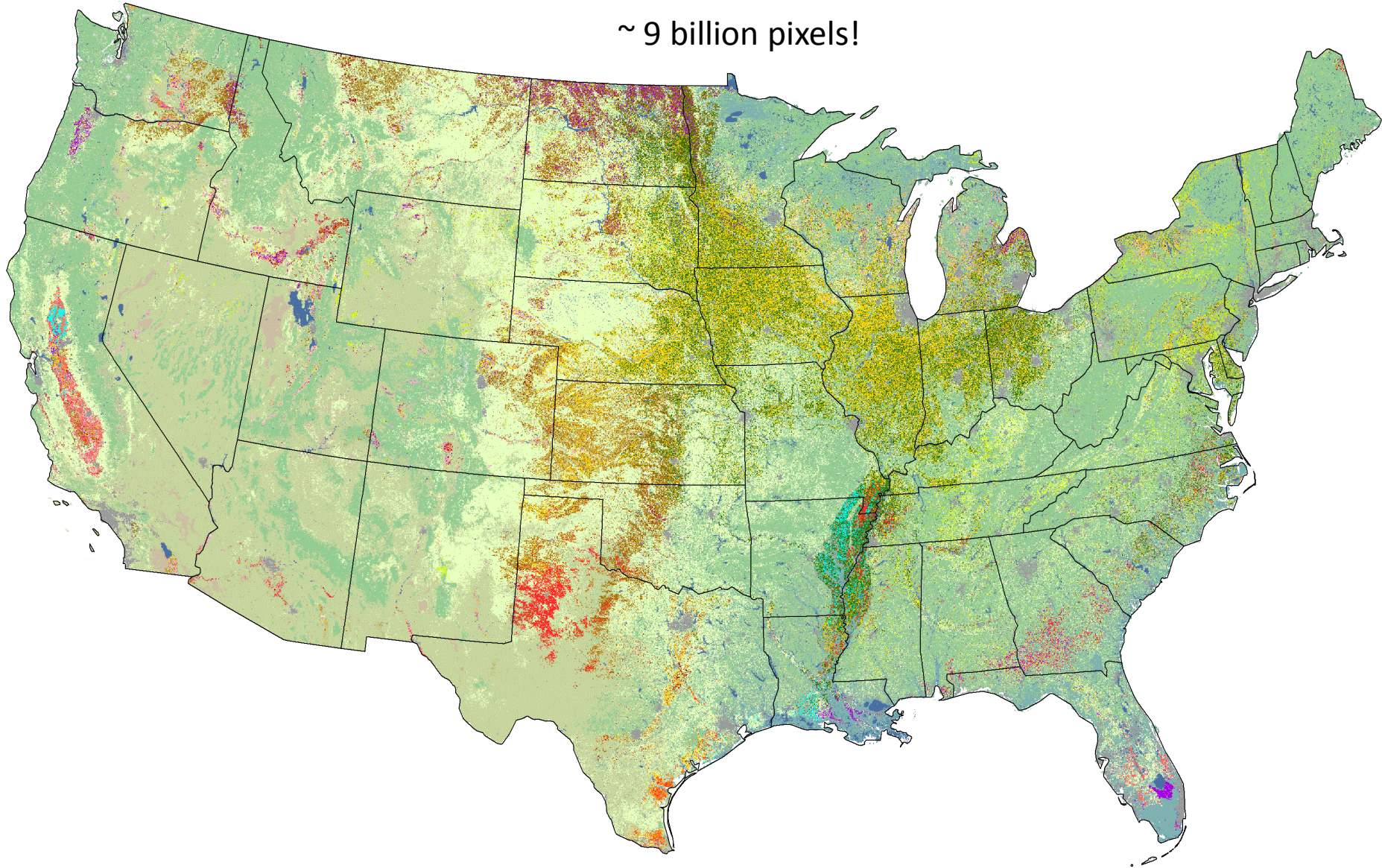
Using Disaster Monitoring Constellation to Improve Agriculture Landcover Classification in the Cropland Data Layer

Audra Zakzeski
USDA NASS

2010 Cropland Data Layers

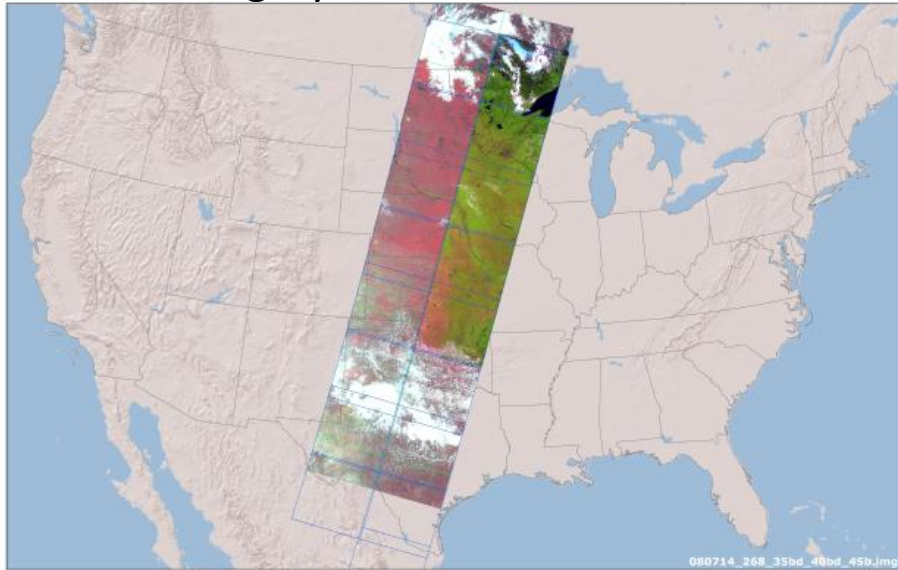
Inputs: Landsat (8601 scenes) AWiFS (1194 scenes)

~ 9 billion pixels!

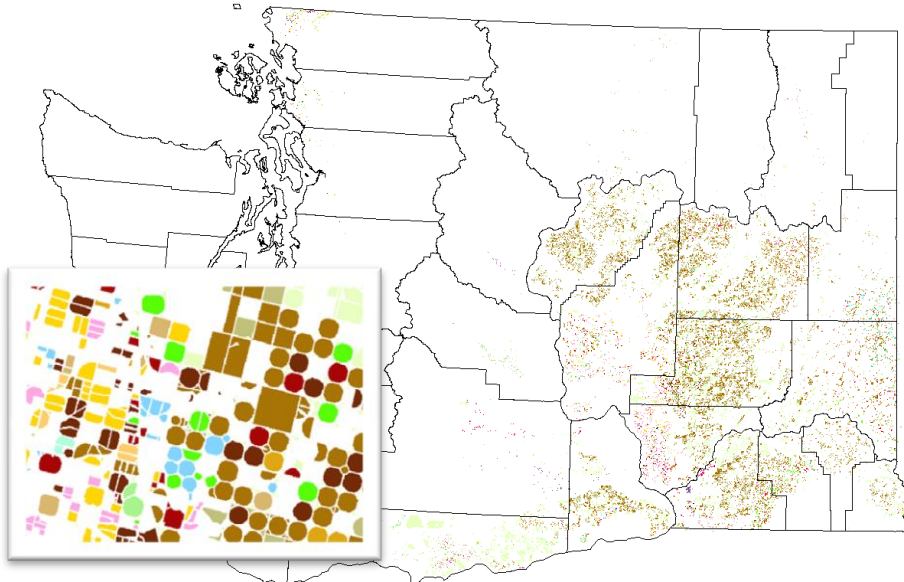


2011 Cropland Data Layer Inputs

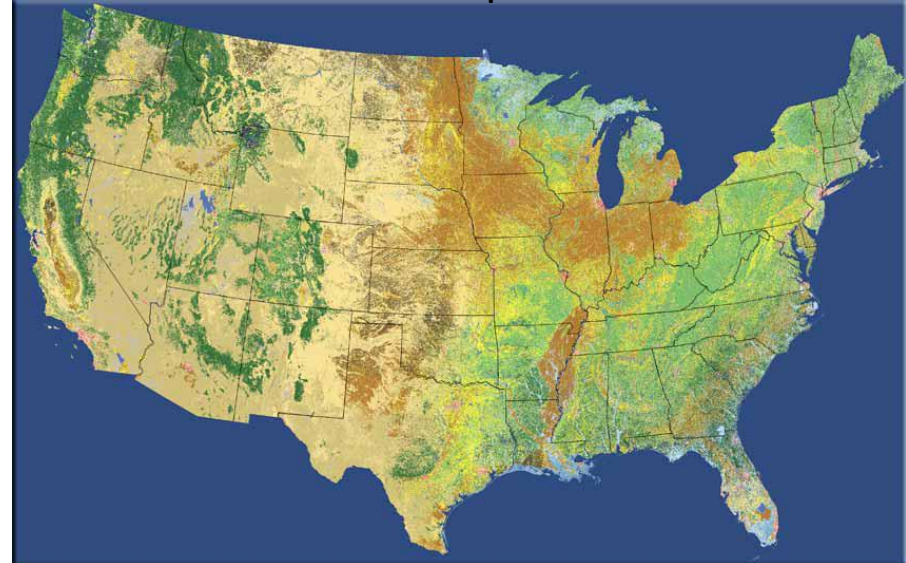
Satellite Imagery – Landsat



Farm Service Agency: Common Land Unit

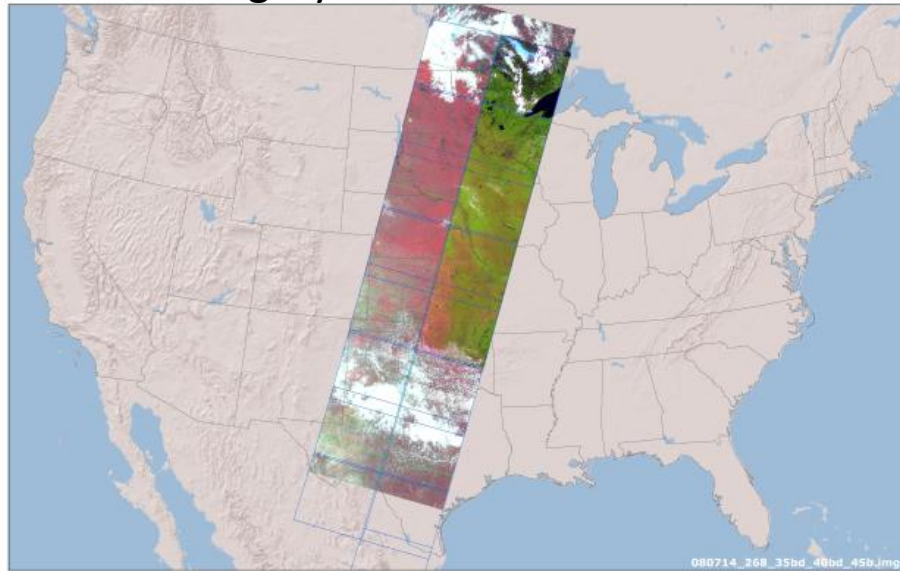


2006 NLCD & Derivative products

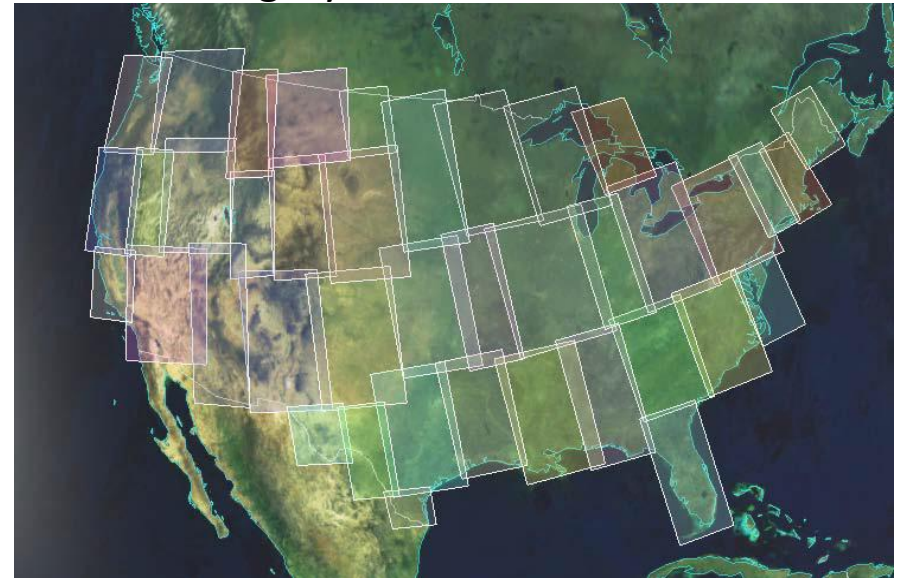


2011 Cropland Data Layer Inputs

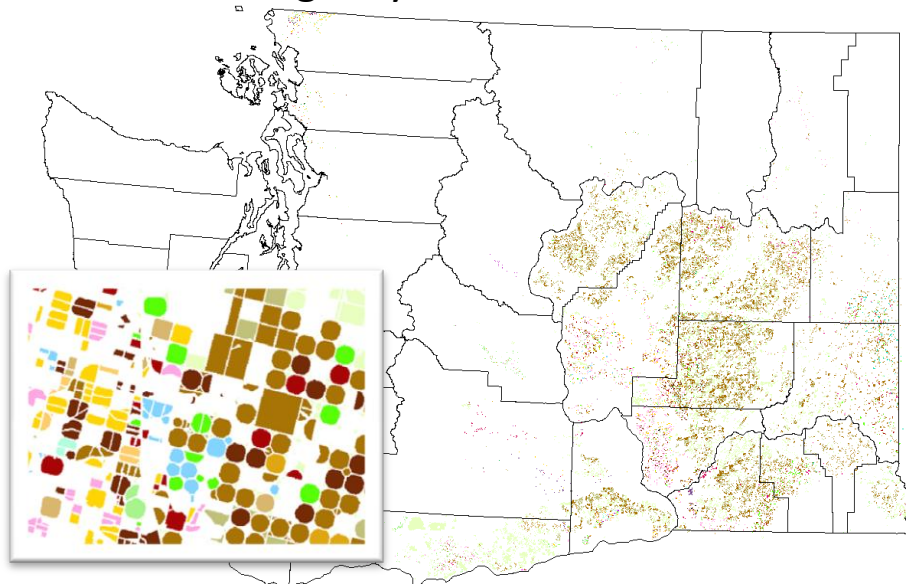
Satellite Imagery – Landsat



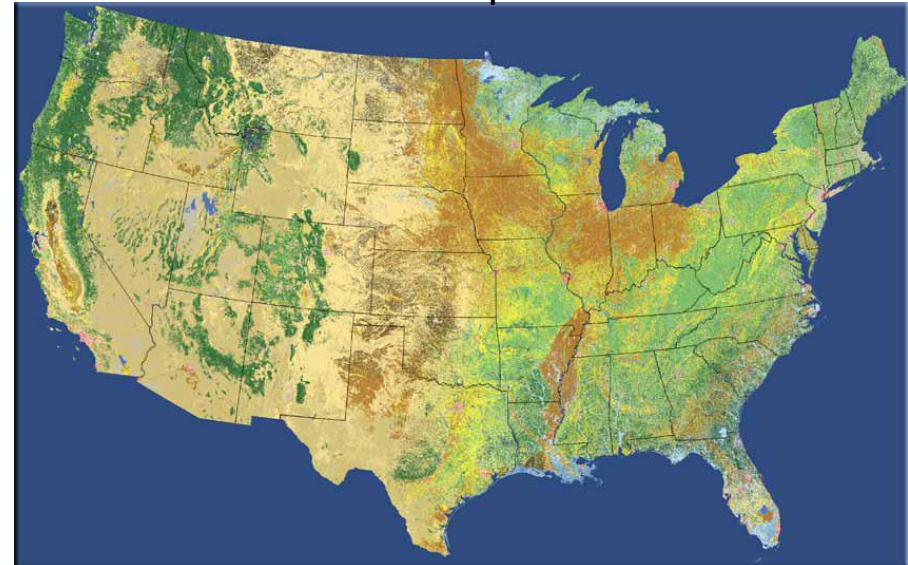
Satellite Imagery – Deimos & UK2



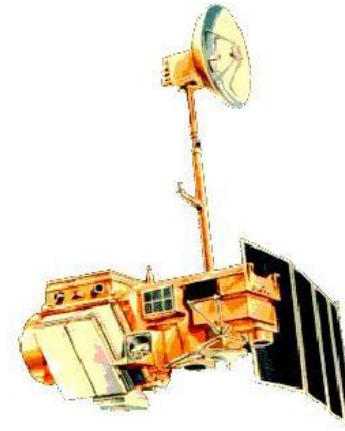
Farm Service Agency: Common Land Unit



2006 NLCD & Derivative products

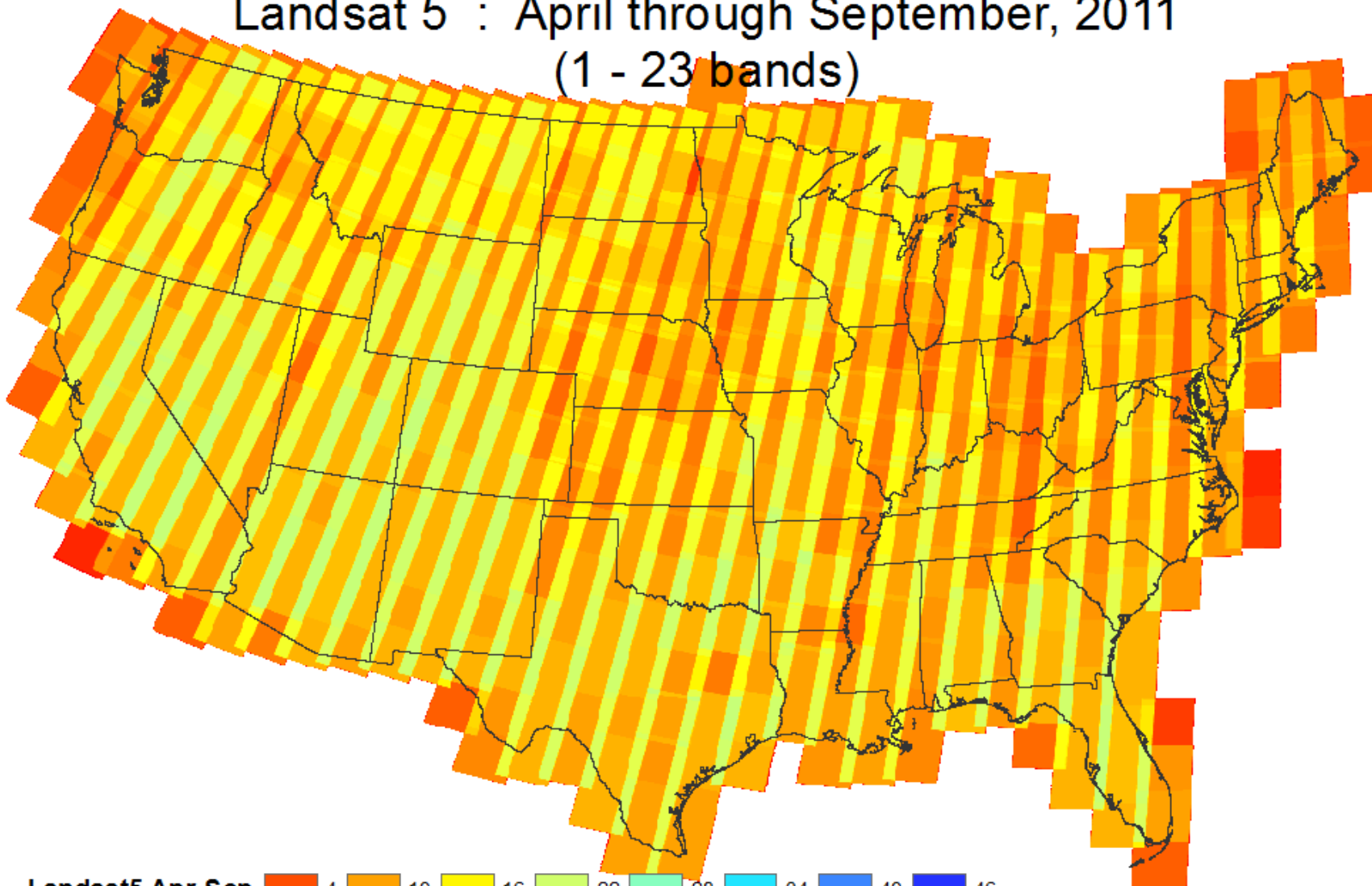


Side by Side Comparison



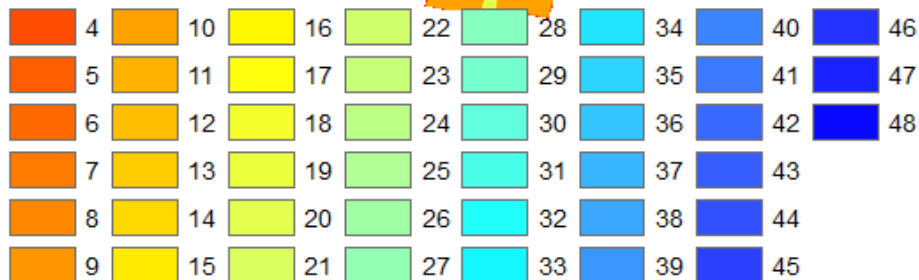
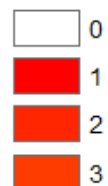
	Deimos/UK2	Landsat 5
Launch Date	2009	1984
Resolution	22 meters	30 meters
Spectral Bands	B2: 0.52 – 0.60 B3: 0.63 – 0.69 B4: 0.77 – 0.90 (Green, Red, NIR) 3 bands total	B2: 0.52 – 0.60 B3: 0.63 – 0.69 B4: 0.75 – 0.90 B5: 1.55 – 1.75 (Green, Red, NIR, SWIR) 7 bands total
Swath Width	600 kilometers	185 kilometers
Revisit Rate	4 Days	16 Days

Landsat 5 : April through September, 2011 (1 - 23 bands)

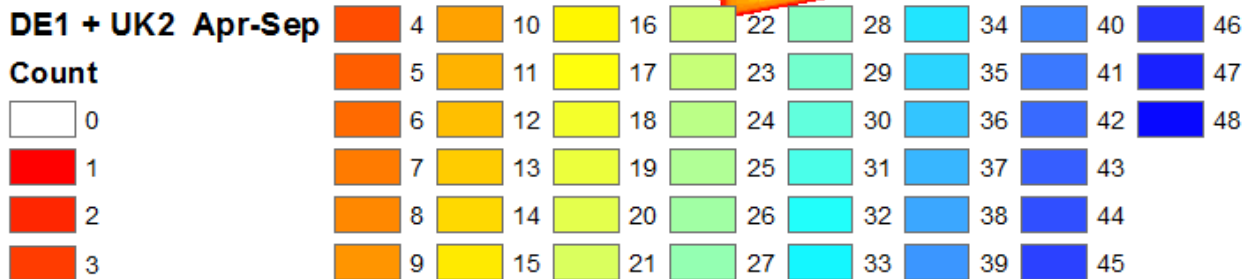
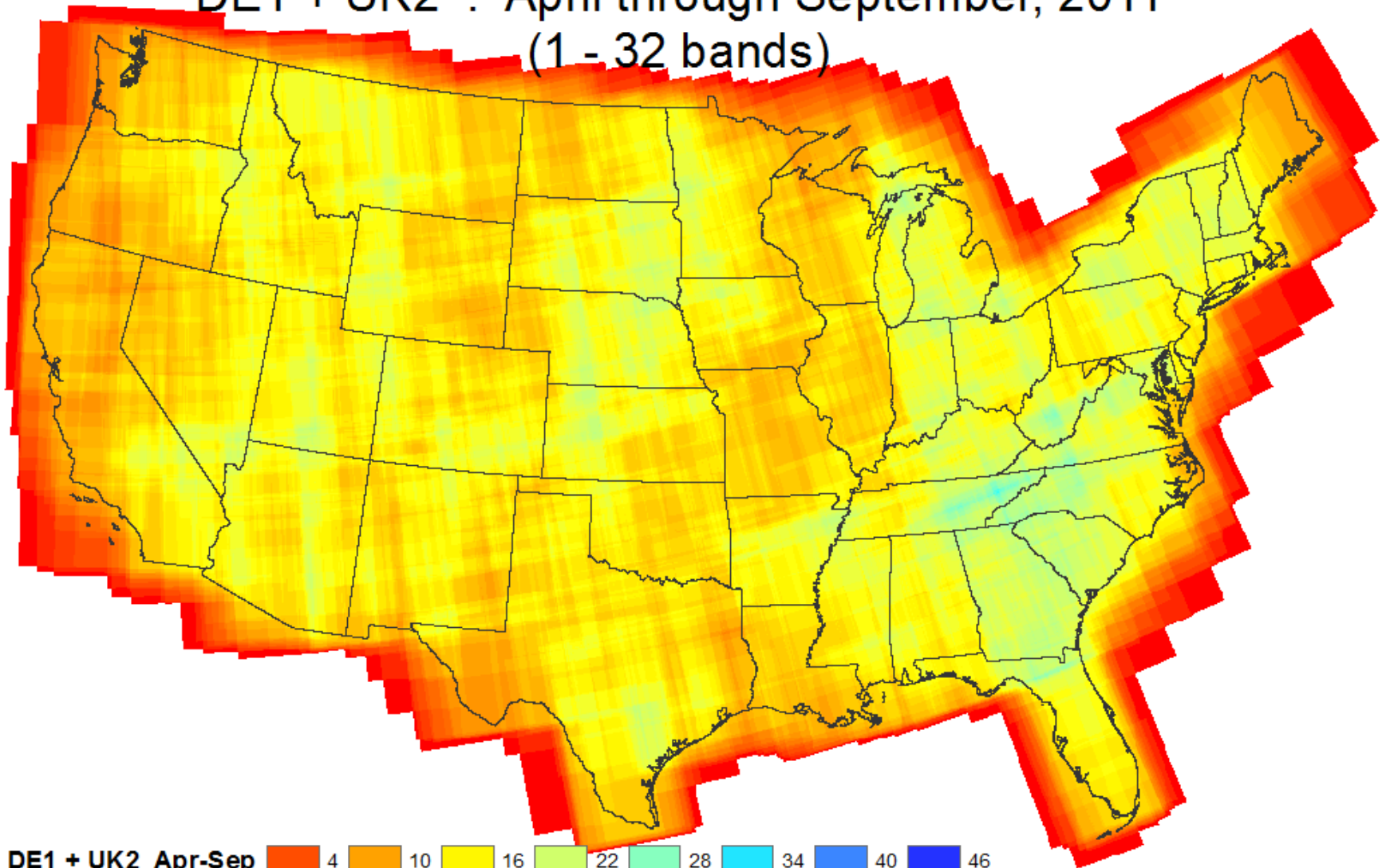


Landsat5 Apr-Sep

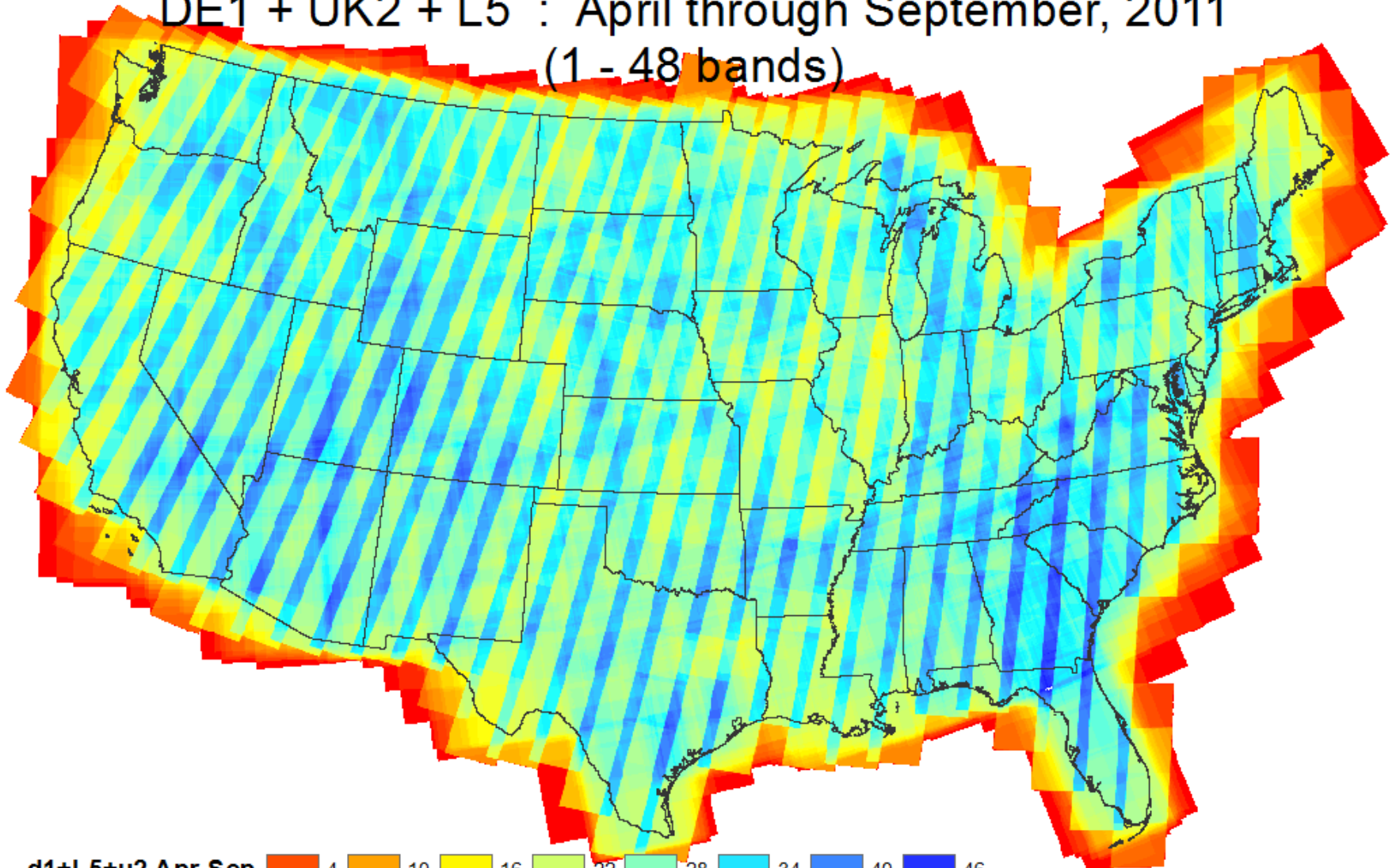
Count



DE1 + UK2 : April through September, 2011 (1 - 32 bands)

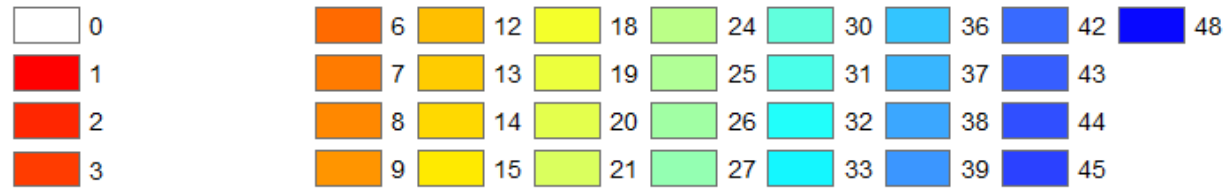


DE1 + UK2 + L5 : April through September, 2011 (1 - 48 bands)

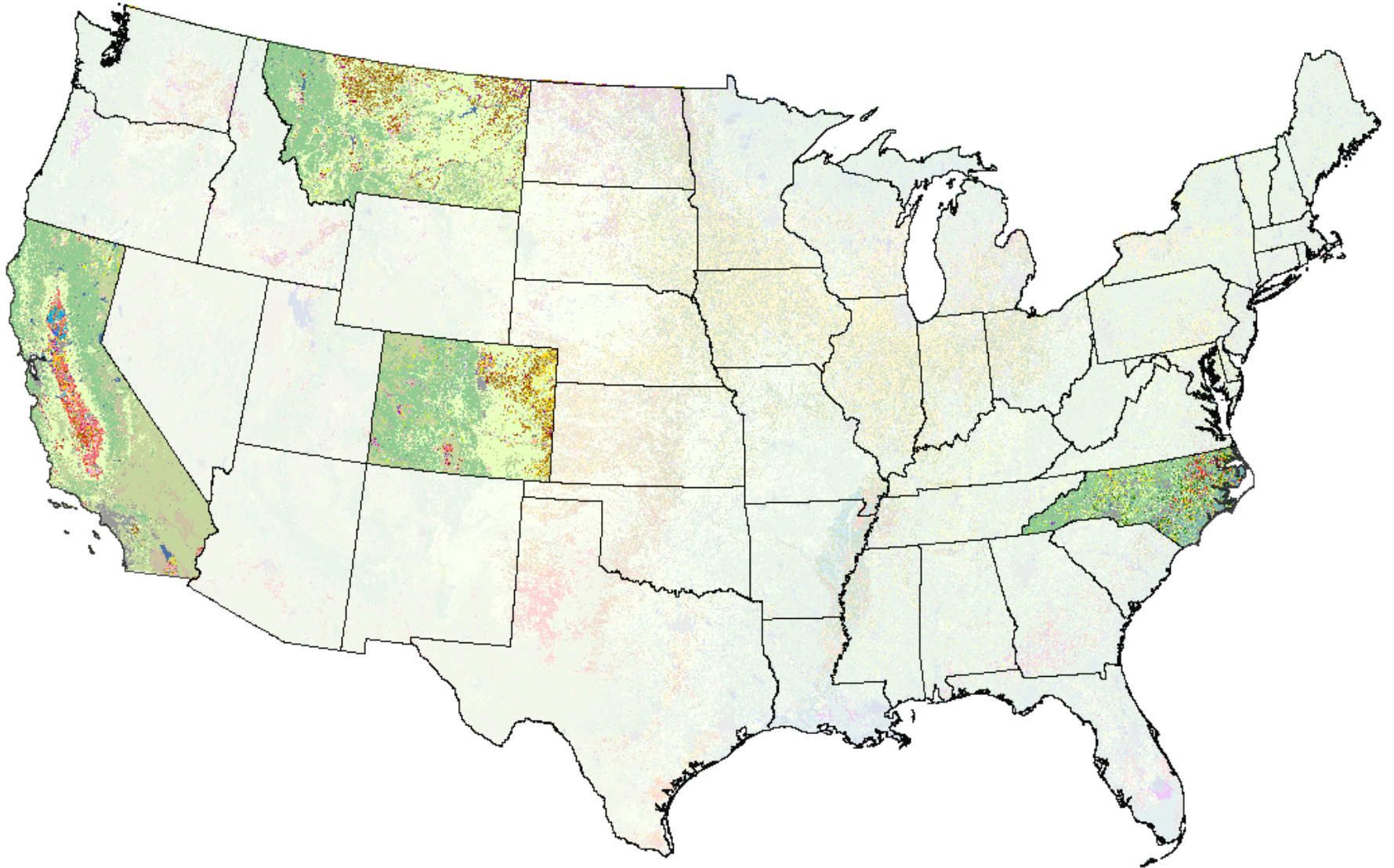


d1+L5+u2 Apr-Sep

Count



States to Analyze

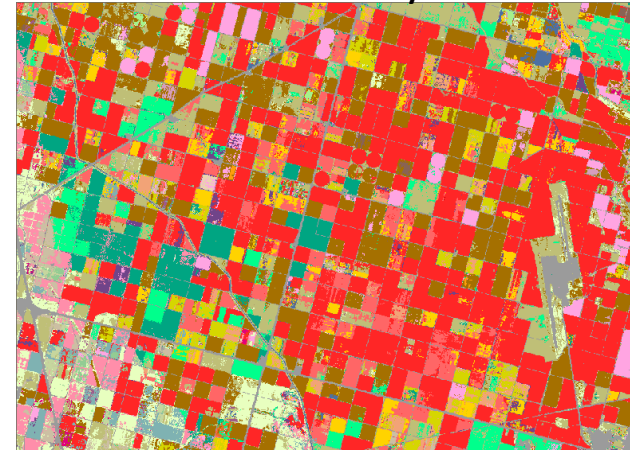
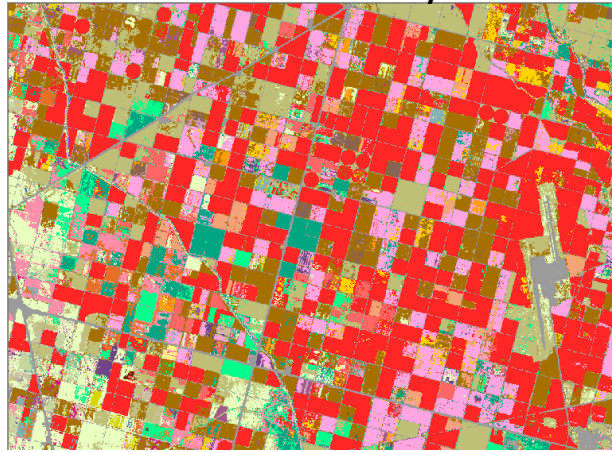
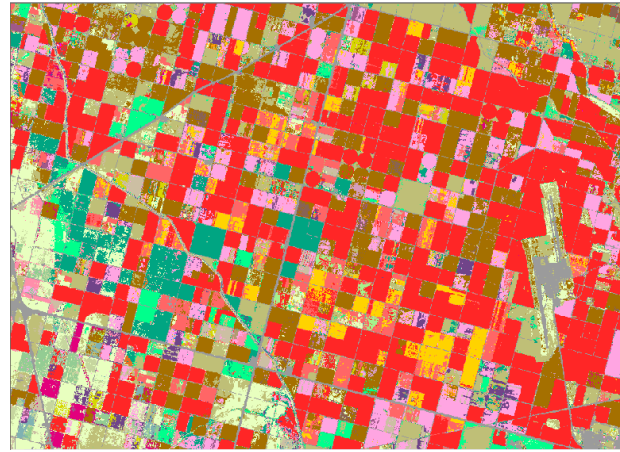


California

Landsat & DMC

Landsat Only

DMC Only



	Producer	User
ALL CROPS	85.1%	
Corn	91.4%	90.1%
Rice	99.1%	99.7%
Cotton	97.4%	94.9%
W. Wheat	84.9%	88.0%
Alfalfa	92.7%	90.4%
Fallow/Idle	79.2%	73.1%

	Producer	User
ALL CROPS	82.5%	
Corn	88.5%	89.0%
Rice	99.0%	99.8%
Cotton	95.8%	90.8%
W. Wheat	82.8%	85.5%
Alfalfa	91.7%	88.5%
Fallow/Idle	76.3%	67.6%

	Producer	User
ALL CROPS	76.4%	
Corn	90.6%	89.9%
Rice	98.9%	99.1%
Cotton	97.3%	94.5%
W. Wheat	83.6%	79.5%
Alfalfa	92.8%	82.4%
Fallow/Idle	79.0%	45.4%

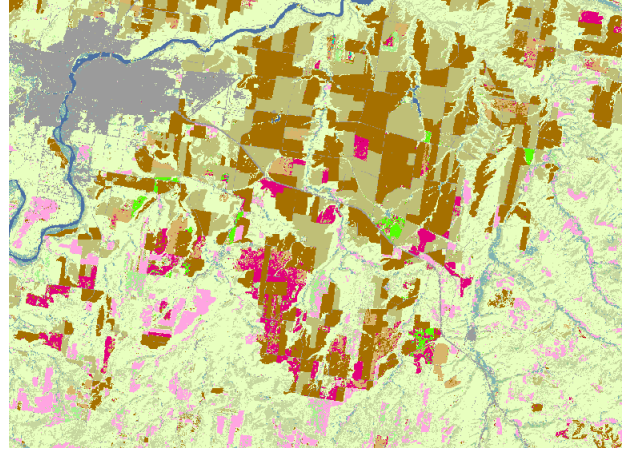
211 bands – North
215 bands – South

151 bands – North
135 bands – South

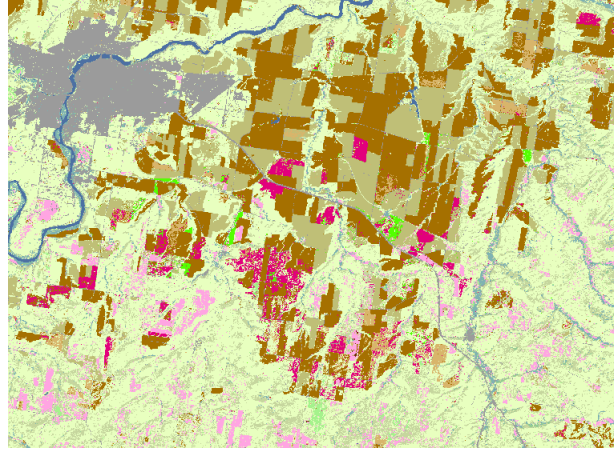
99 bands – North
93 bands – South

Montana

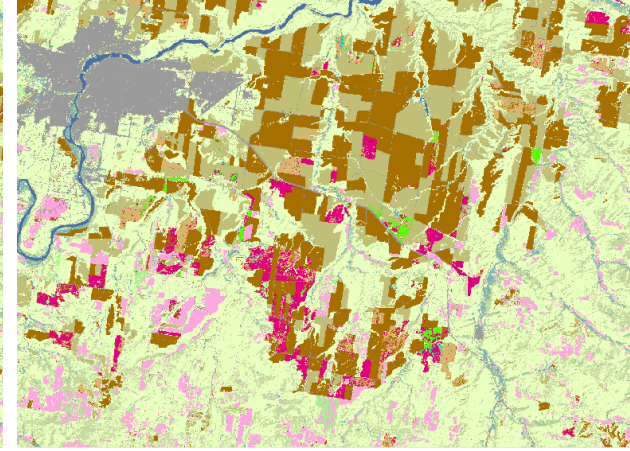
Landsat & DMC



Landsat Only



DMC Only



	Producer	User
ALL CROPS	71.6%	
Fallow/Idle	90.1%	90.3%
W. Wheat	89.7%	92.0%
S. Wheat	85.5%	83.2%
Alfalfa	59.6%	62.8%
Other Hay	20.6%	38.0%
Barley	66.1%	77.2%

181 bands

	Producer	User
ALL CROPS	67.2%	
Fallow/Idle	88.8%	87.8%
W. Wheat	86.7%	87.3%
S. Wheat	80.6%	78.1%
Alfalfa	54.9%	57.9%
Other Hay	18.6%	34.9%
Barley	56.5%	70.1%

133 bands

	Producer	User
ALL CROPS	68.9%	
Fallow/Idle	88.8%	87.9%
W. Wheat	89.2%	90.8%
S. Wheat	83.9%	81.1%
Alfalfa	58.1%	59.5%
Other Hay	18.5%	33.5%
Barley	63.8%	73.9%

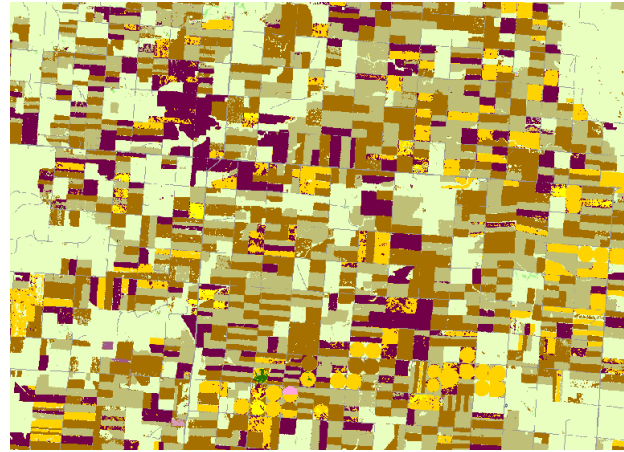
48 bands

Colorado

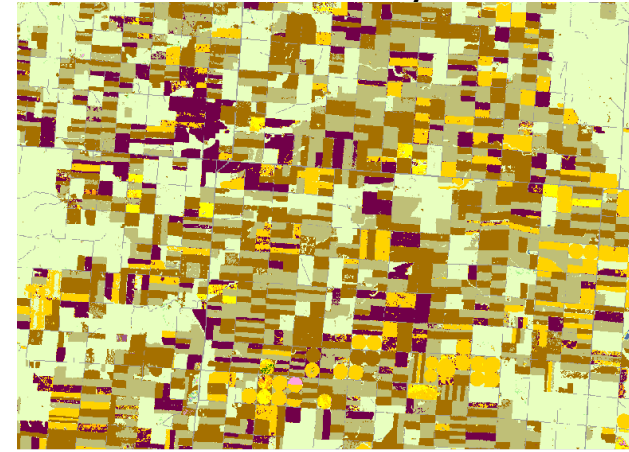
Landsat & DMC

Landsat Only

DMC Only



Not enough bands
available



	Producer	User
ALL CROPS	81.1%	
Corn	91.3%	92.5%
W. Wheat	89.9%	94.5%
Potatoes	87.0%	93.3%
Fallow/Idle	83.0%	88.5%
Barley	77.5%	73.7%
Millet	79.8%	72.4%

	Producer	User
ALL CROPS		
Corn		
W. Wheat		
Potatoes		
Fallow/Idle		
Barley		
Millet		

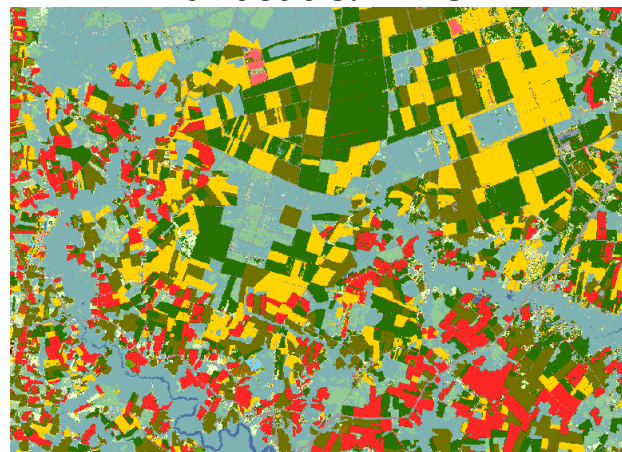
	Producer	User
ALL CROPS	81.0%	
Corn	91.7%	91.9%
W. Wheat	89.7%	93.0%
Potatoes	81.5%	98.3%
Fallow/Idle	83.4%	87.7%
Barley	73.0%	77.5%
Millet	71.1%	78.6%

140 bands

66 bands

North Carolina

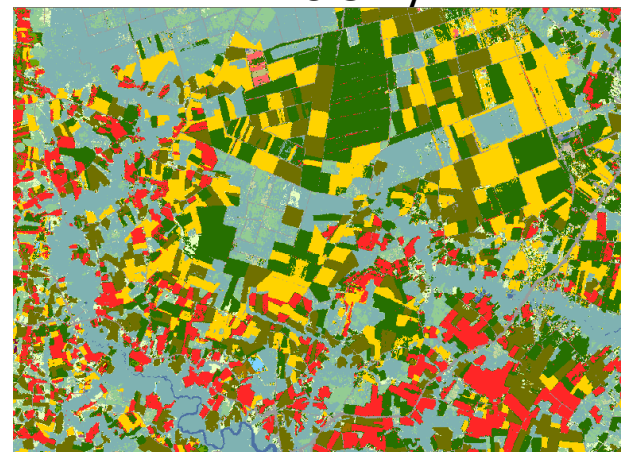
Landsat & DMC



Landsat Only



DMC Only



Producer User

	Producer	User
ALL CROPS	81.7%	
Corn	94.3%	92.1%
Cotton	96.3%	94.4%
Soybeans	84.7%	84.0%
WW/Soy	93.9%	87.9%
Pasture	66.5%	68.1%
Peanuts	87.1%	92.8%

118 bands

Producer User

	Producer	User
ALL CROPS	69.0%	
Corn	83.3%	81.9%
Cotton	91.0%	85.3%
Soybeans	62.9%	71.1%
WW/Soy	79.9%	82.0%
Pasture	58.5%	44.0%
Peanuts	71.4%	90.0%

73 bands

Producer User

	Producer	User
ALL CROPS	81.6%	
Corn	94.6%	92.1%
Cotton	95.9%	94.4%
Soybeans	84.3%	83.3%
WW/Soy	93.8%	87.7%
Pasture	67.2%	68.9%
Peanuts	82.1%	91.0%

66 bands

Questions?

Audra Zakzeski

USDA - NASS

3251 Old Lee Hwy, Room 305

Fairfax, VA 22030

Audra_Zakzeski@nass.usda.gov