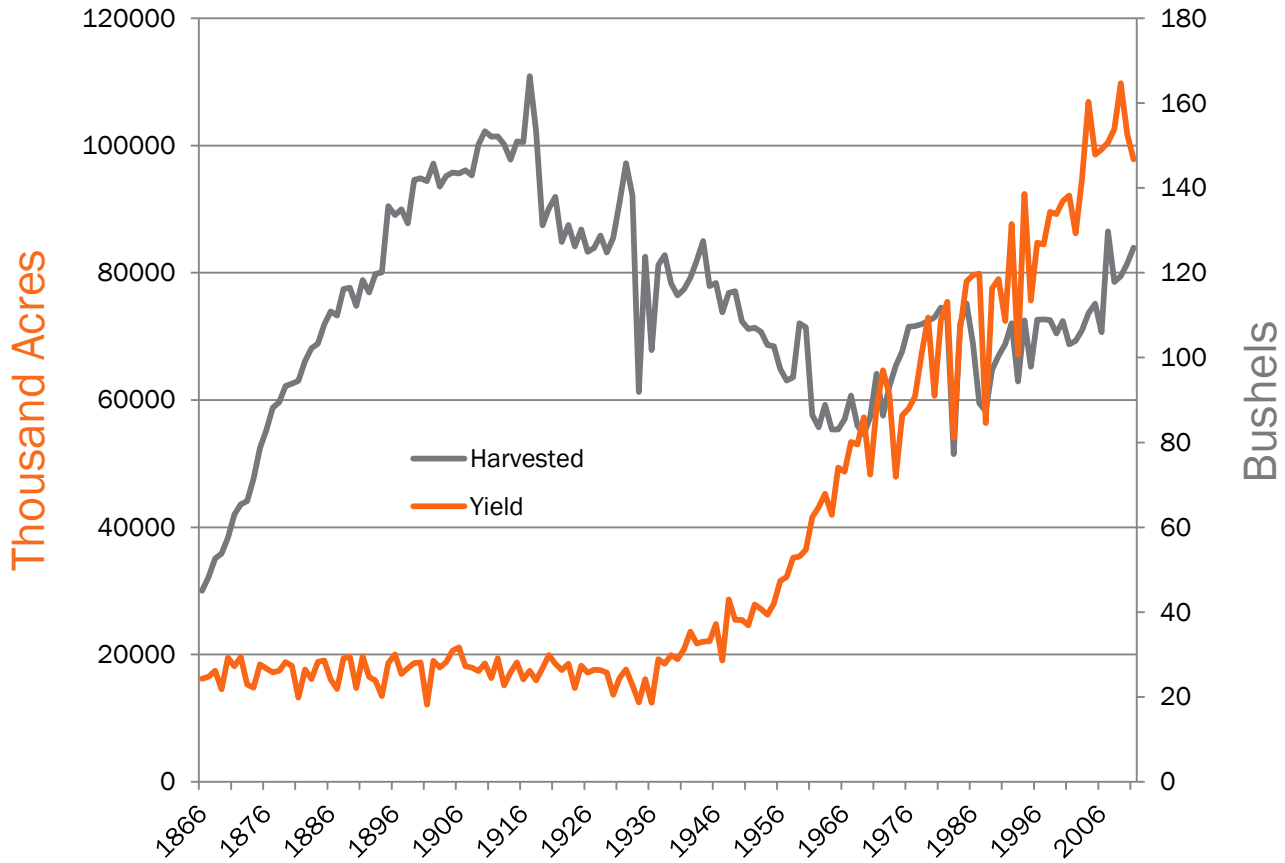


MONITORING THE AGRICULTURAL LANDSCAPE

PECORA 18

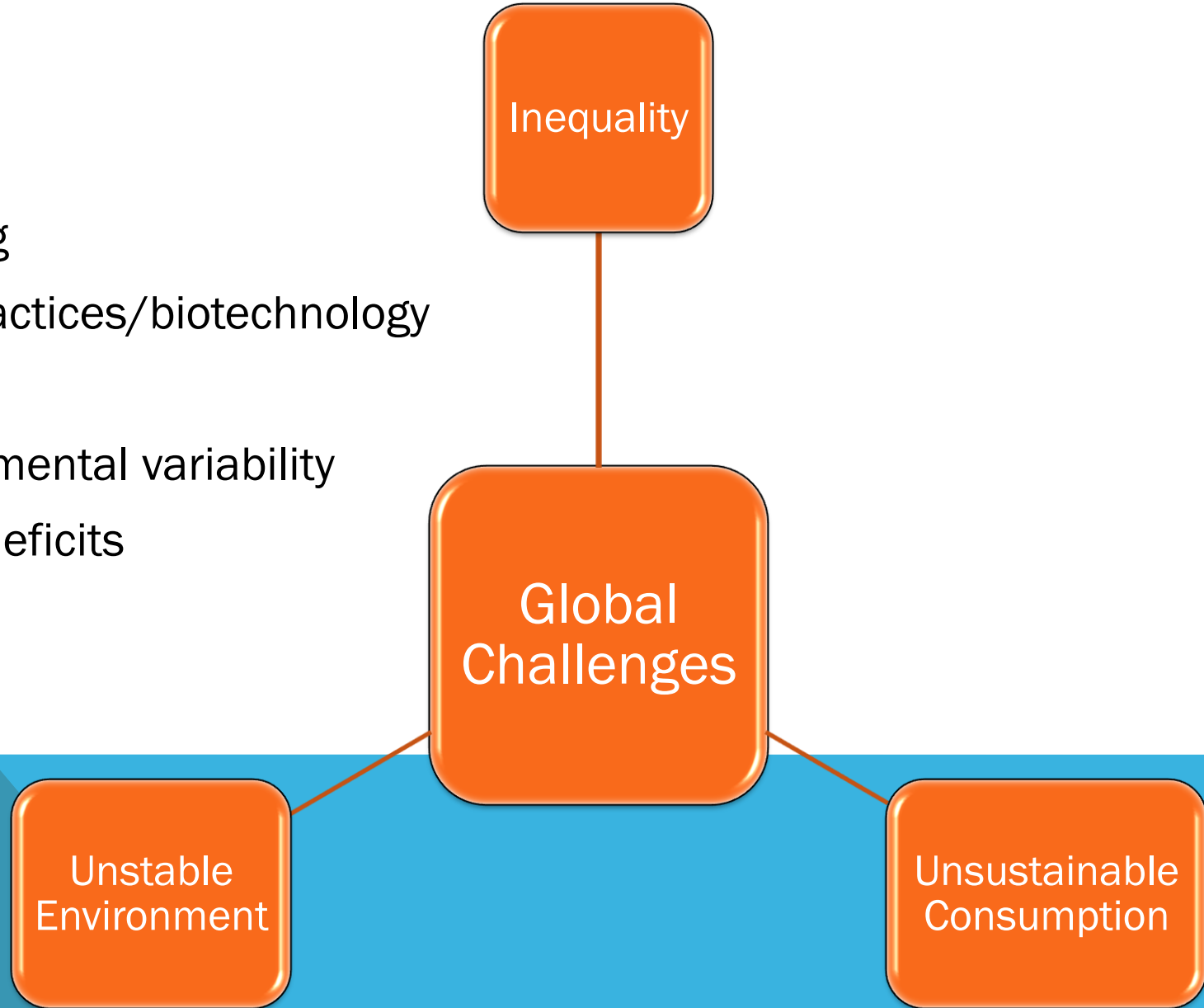
Rick Mueller
USDA/National Agricultural Statistics Service
16 Nov. 2011

CORN HARVESTED ACRES & YIELD



AGRICULTURAL CHALLENGES

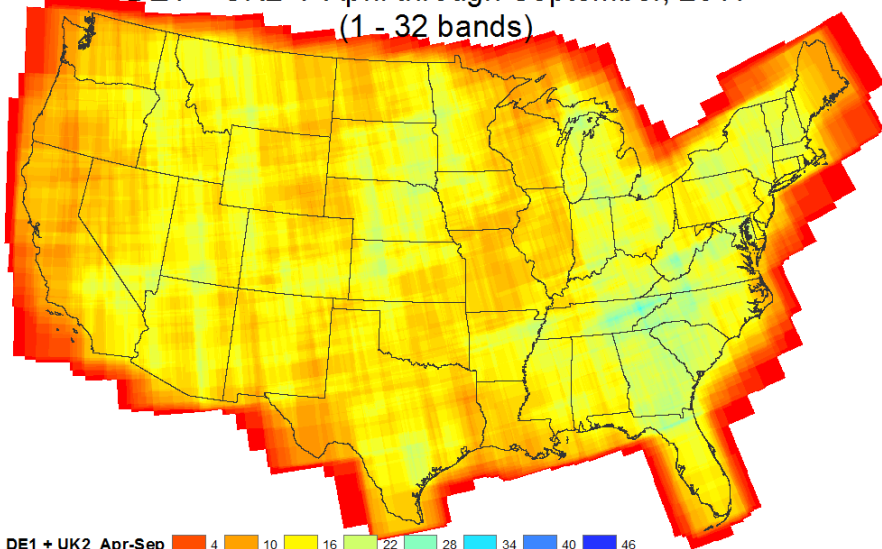
- Food security
- Sustainability
- Capacity building
- Conservation practices/biotechnology
- Food vs. fuel
- Climate/environmental variability
- Fiscal budgets/deficits
- Water resources



REMOTE SENSING TASKS/CHALLENGES



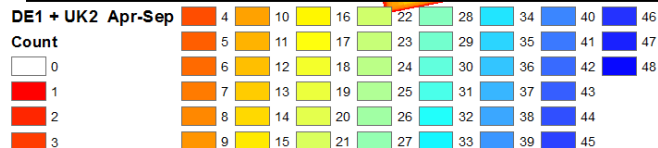
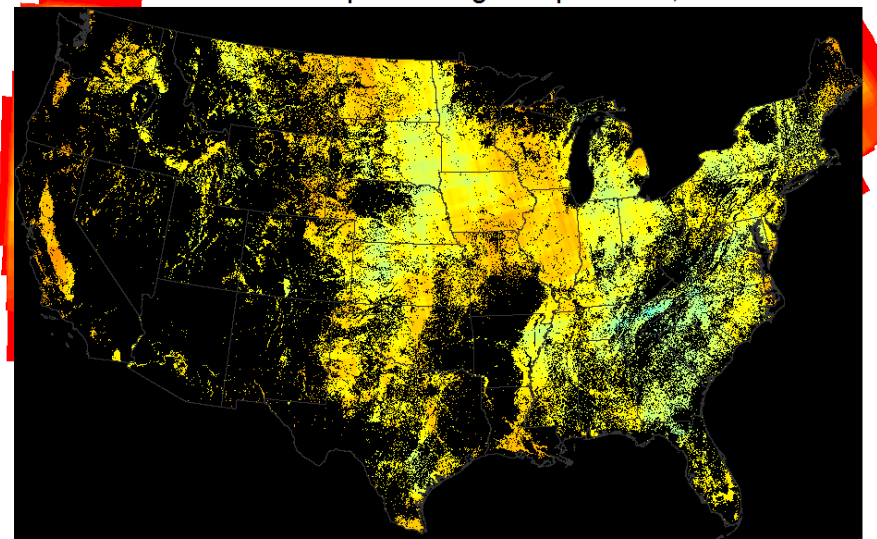
DE1 + UK2 : April through September, 2011
(1 - 32 bands)



Unmasked

DISASTER MONITORING CONSTELLATION 2011 COVERAGE

DE1 + UK2 : April through September, 2011

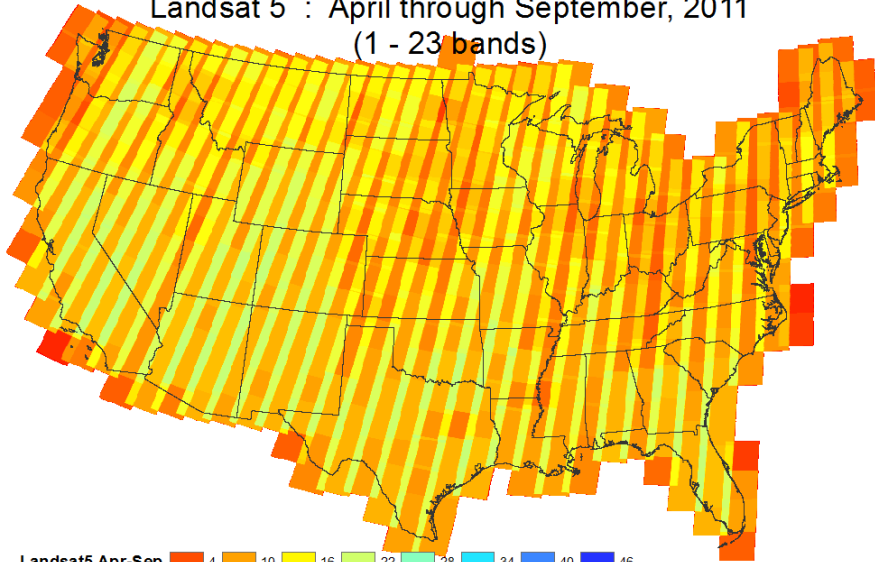


Ag Mask

Deimos-1 & UK2



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



Landsat5 Apr-Sep

4	10	16	22	28	34	40	46
5	11	17	23	29	35	41	47
6	12	18	24	30	36	42	48
7	13	19	25	31	37	43	
8	14	20	26	32	38	44	
9	15	21	27	33	39	45	

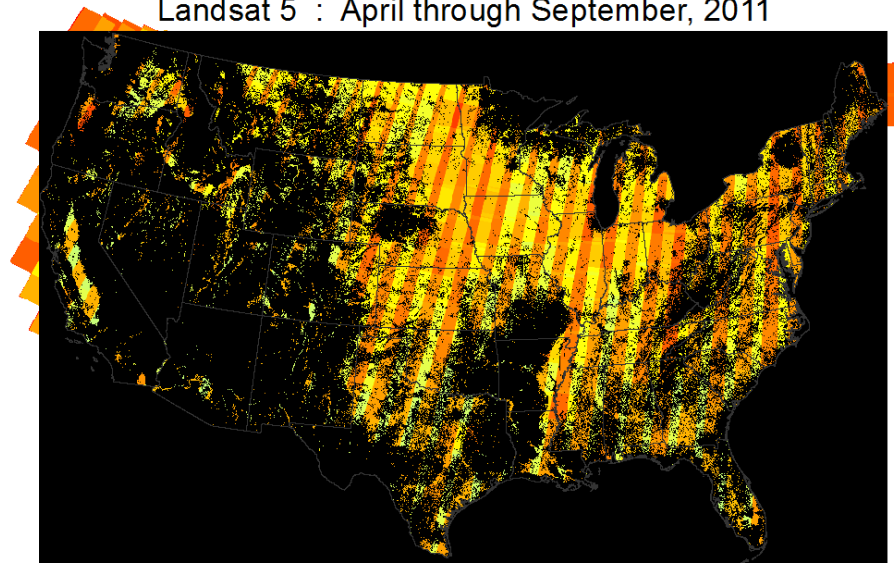
Count

0	1	2	3
---	---	---	---

Unmasked

LANDSAT 5 2011 COVERAGE

Landsat 5 : April through September, 2011



Landsat5 Apr-Sep

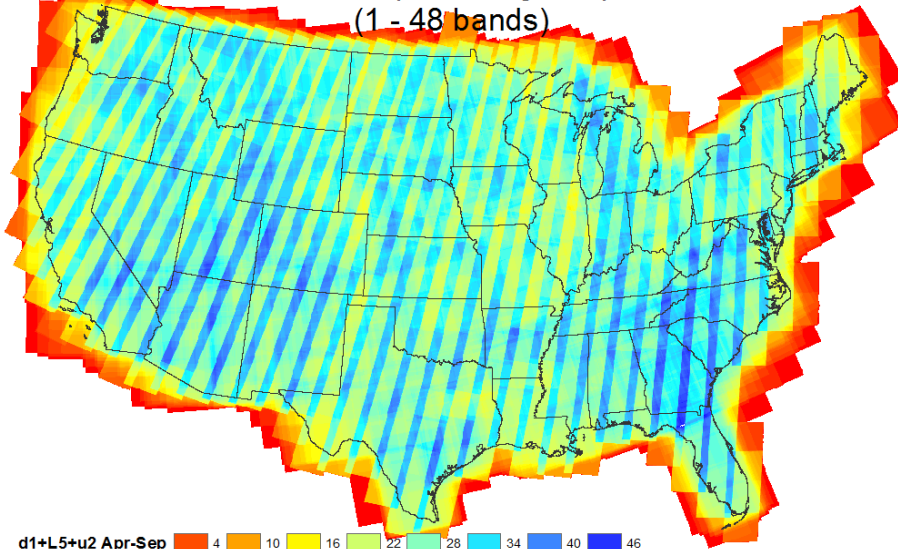
4	10	16	22	28	34	40	46
5	11	17	23	29	35	41	47
6	12	18	24	30	36	42	48
7	13	19	25	31	37	43	
8	14	20	26	32	38	44	
9	15	21	27	33	39	45	

Count

0	1	2	3
---	---	---	---

Ag Mask

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

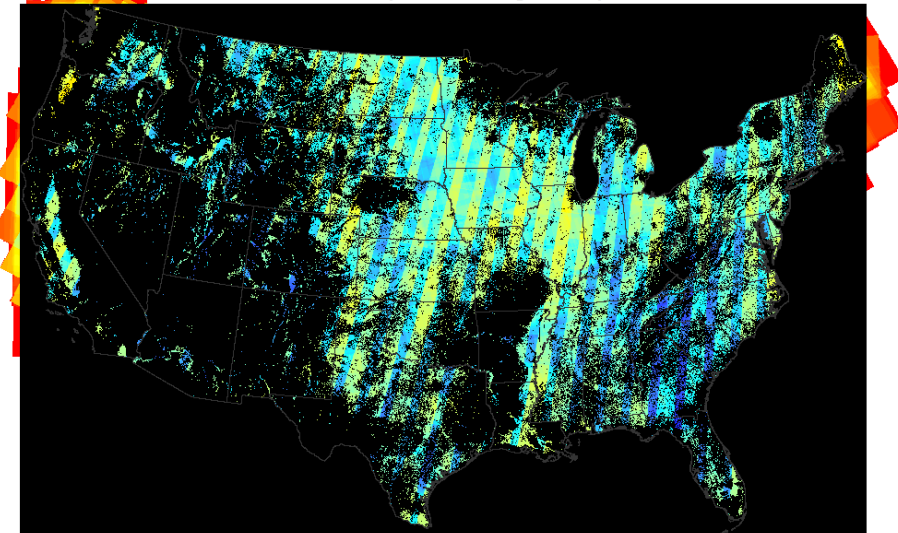


d1+L5+u2 Apr-Sep	4	10	16	22	28	34	40	46
Count	5	11	17	23	29	35	41	47
	6	12	18	24	30	36	42	48
1	7	13	19	25	31	37	43	
2	8	14	20	26	32	38	44	
3	9	15	21	27	33	39	45	

Unmasked

DMC & LANDSAT 5 2011 COVERAGE

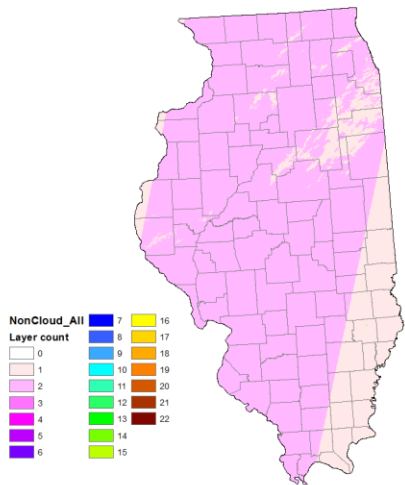
DE1 + UK2 + L5 : April through September, 2011



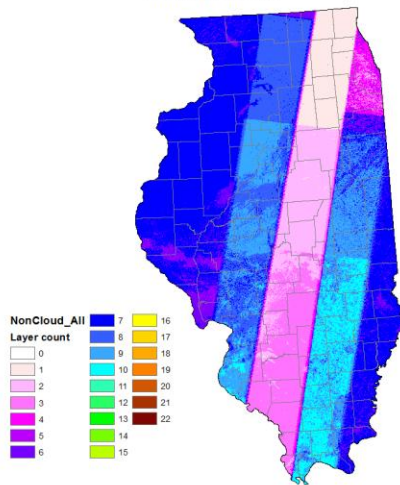
d1+L5+u2 Apr-Sep	4	10	16	22	28	34	40	46
Count	5	11	17	23	29	35	41	47
	6	12	18	24	30	36	42	48
1	7	13	19	25	31	37	43	
2	8	14	20	26	32	38	44	
3	9	15	21	27	33	39	45	

Ag Mask

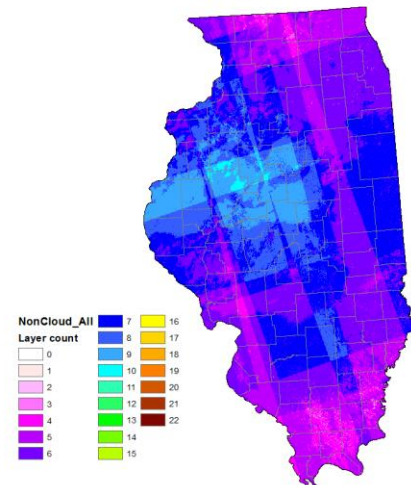
Imagery used for 2011 Illinois CDL Production
"clouds removed"



Imagery used for 2011 Illinois CDL Production
"clouds removed"



Imagery used for 2011 Illinois CDL Production
"clouds removed"

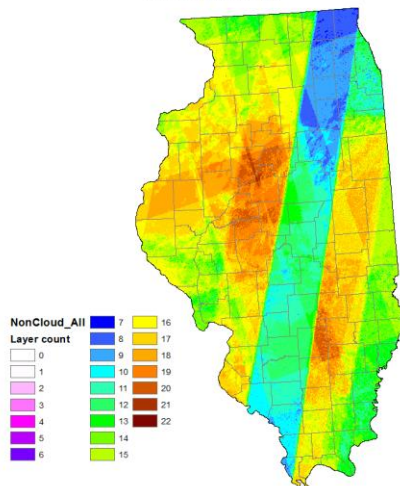


Resourcesat-1 AWiFS

Landsat 5

DMC

Imagery used for 2011 Illinois CDL Production
"clouds removed"



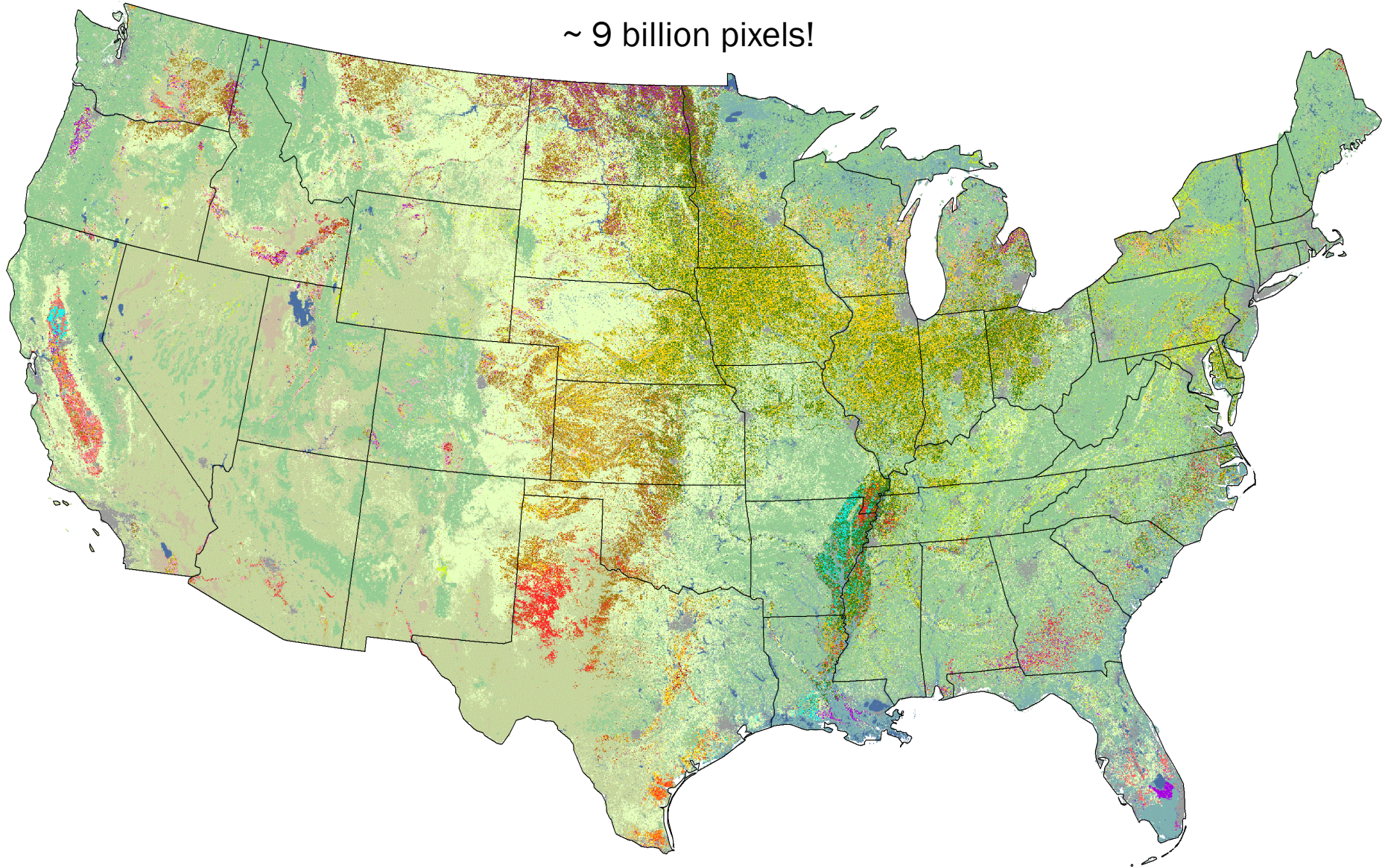
All Satellites

2011 Coverage
Illinois
Clouds Masked

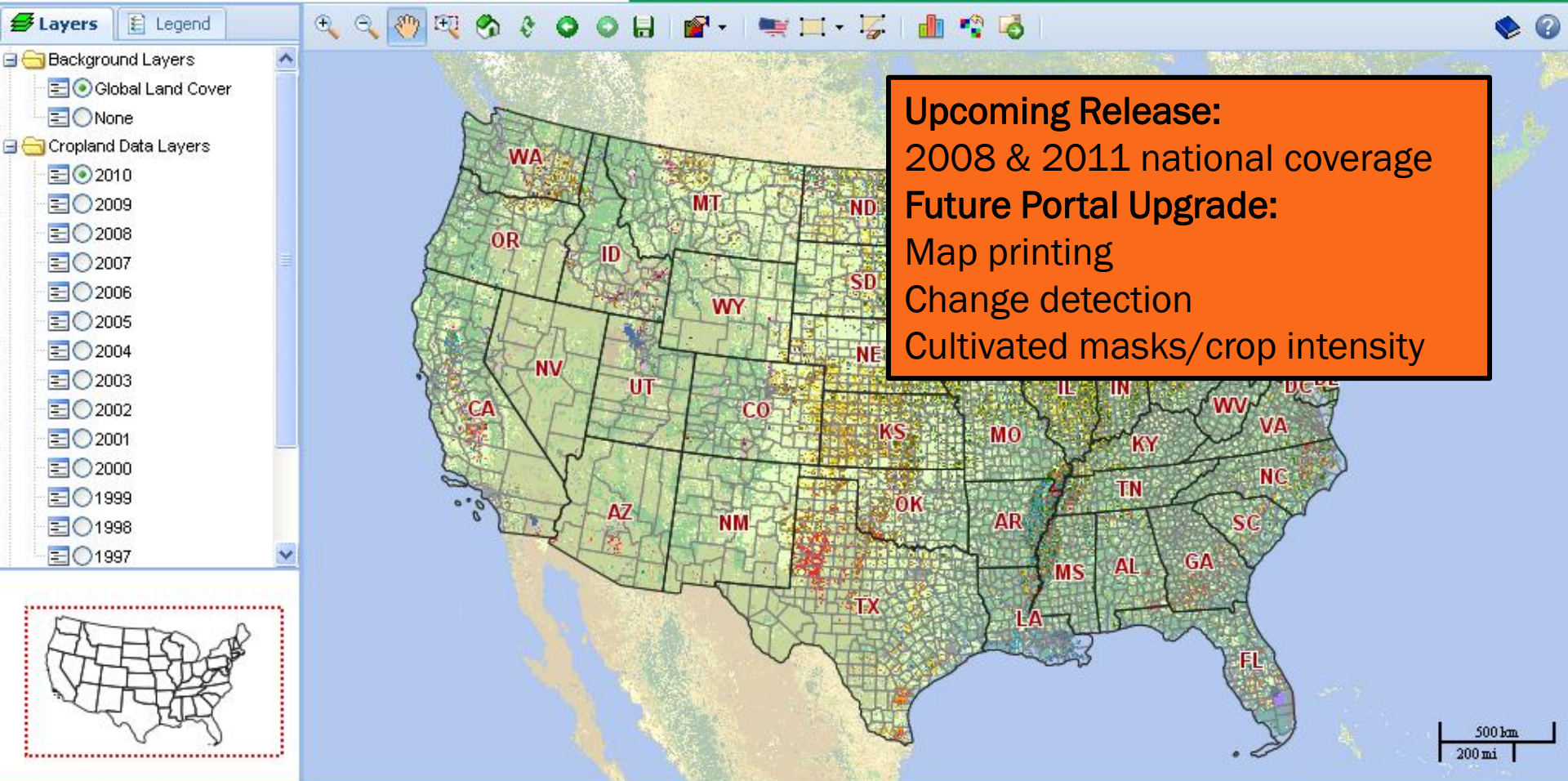
2010 Cropland Data Layers

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

~ 9 billion pixels!



CROPSCAPE PORTAL



HOW COMPETITIVE ARE THE REMOTE SENSING INDICATIONS FOR PLANTED ACRES?

Highly Competitive

Corn

Soybeans

Winter Wheat

All Cotton

Spring Wheat

Fall Potatoes

All Rice

Sugarbeets

Peanuts

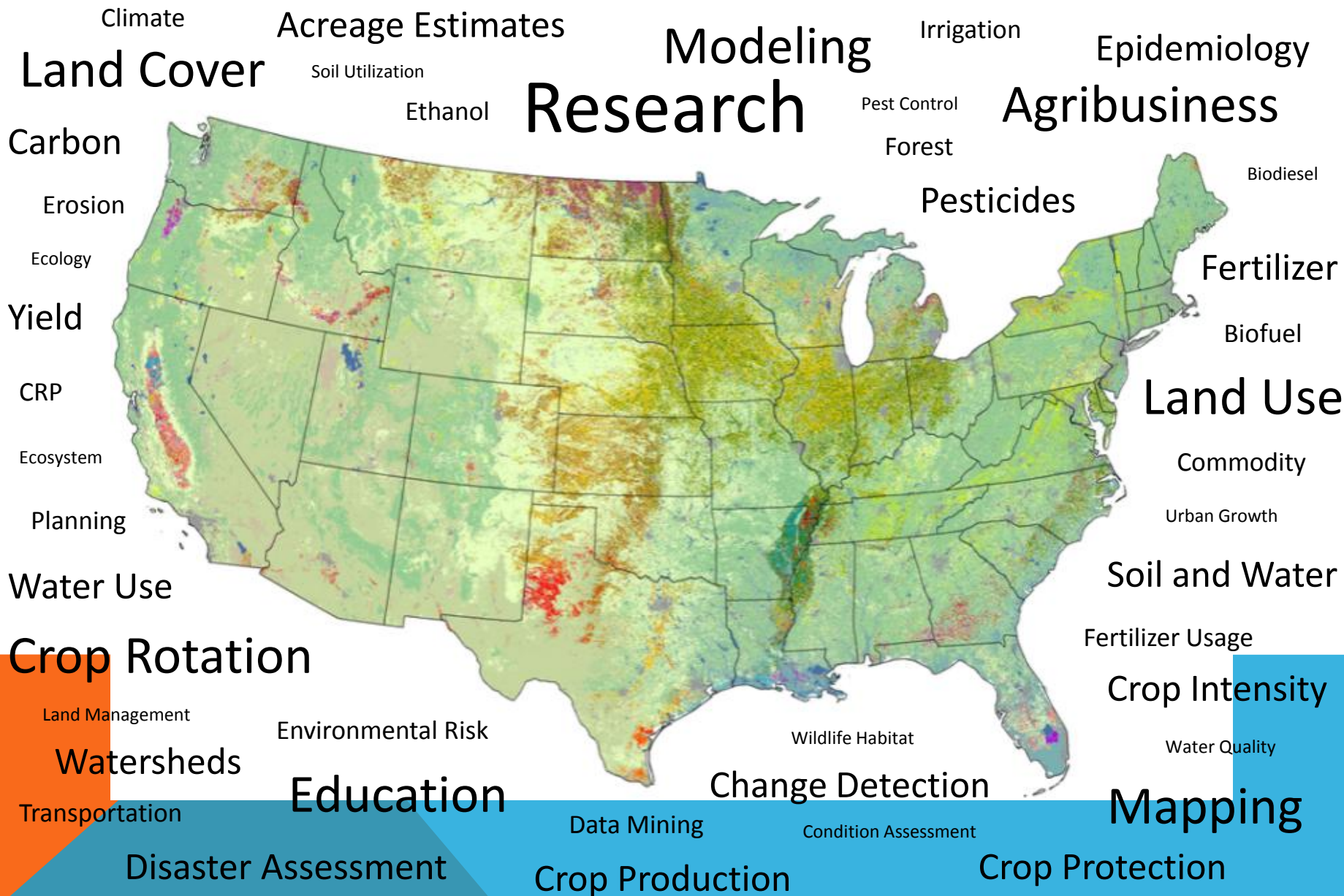
Durum Wheat

All Dry Beans

Sunflower

Canola

NASS Cropland Data Layer Applications



FUTURE AG MONITORING NEEDS...

Meet operational requirements

- Timely, useful, accurate ag statistics

Constellation approach

- Growing thirst for data and statistics

- Improved temporal coverage

- Less one-off missions

Consider new ideas

- Micro sats vs. one large observatory

- Enlarge swath

- Spatial/spectral improvements

 - Future monitoring programs

Open data policy/data democracy

