



# Global Land Survey Update

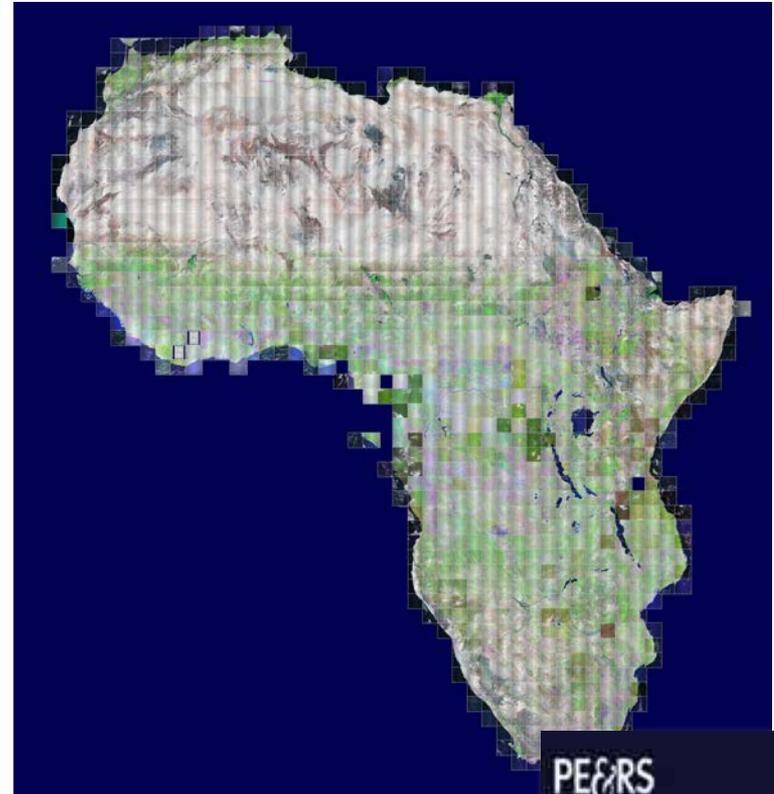
Jeff Masek, NASA GSFC

Rachel Headley, USGS EROS

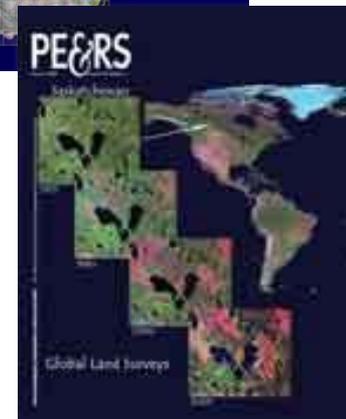
# Background: Global Land Survey Data Sets

**Global cloud-free, orthorectified Landsat data sets centered on 1975, 1990, 2000, 2005, and 2010**

- Partnership between USGS and NASA, in support of USGCRP
- Support global assessments of land-cover, land-cover change, and ecosystem dynamics (disturbance, vegetation health, etc)
- **GLS2010 currently in development**



*Browse image mosaic of GLS2005 coverage for Africa; Global Land Survey data sets featured on the cover of Photogrammetric Engineering & Remote Sensing, January 2008*



# GLS2010 Campaign Station Status – August 2011

## GLS2010 Data Acquisition Plans Wrapping Up

Organization	Country	Location	GSID	Desired Start Date	Desired Finish Date	Actual Start Date (WBDR)	Actual Finish Date (WBDR)	Scenes (WBDR)	Actual Start Date (Archive)	Actual Finish Date (Archive)	Scenes (Archive)
CONABIO	Mexico	Chetumal	CHM	N/A	N/A	8/6/09	8/6/09	16	3/6/09	8/20/09	156
				10/15/09	12/31/11	11/23/09	6/13/11	2267	11/24/09	6/2/11	4206
CSIR-SAC	South Africa	Hartebeesthoek	JSA	2/1/09	5/31/09	3/18/09	5/30/09	1723	3/19/09	5/30/09	1161
				2/1/10	5/31/10	2/1/10	4/29/10	1857	2/1/10	5/18/10	1016
				2/1/11	5/31/11	2/1/11	5/30/11	1197	5/10/11	5/10/11	8
ESA/UR	Kenya	Malindi	MLK	6/1/09	7/19/09	6/1/09	7/18/09	1568	6/1/09	7/17/09	1176
				11/1/09	1/20/10	11/2/09	2/12/10	3258	11/2/09	2/13/10	2032
				6/1/10	7/19/10	6/24/10	9/1/10	766	6/24/10	8/31/10	390
				11/1/10	1/20/11	11/1/10	1/20/11	2338	11/1/10	1/20/11	1637
				6/1/11	7/19/11	6/3/11	8/1/11	855			0
				11/1/11	1/20/12			0			0
	Spain	Maspalomas	MPS	6/1/09	12/31/11	6/3/09	8/1/11	11783	6/3/09	7/17/11	11362
	Sweden	Kiruna	KIS	6/1/09	12/31/10	6/8/09	11/30/10	11246	6/8/09	12/1/09	11262
				3/24/11	12/31/11	3/25/11	8/1/11	3627			0
	ScanEx	Russia	Irkutsk	IKR	6/1/09	10/1/09	6/17/09	9/30/09	6866	6/5/09	9/30/09
6/1/10					10/1/10	6/1/10	9/30/10	4695	6/1/10	9/30/10	5873
6/1/11					10/1/11	6/1/11	8/1/11	2532	6/1/11	7/18/11	2326
Magadan			MGR	6/1/09	10/1/09	6/10/09	9/30/09	4808	6/5/09	9/30/09	5734
				6/1/10	10/1/10	8/1/10	9/30/2011	972	8/1/10	9/29/10	1053
				6/1/11	10/1/11	6/1/11	8/2/11	918	6/1/11	7/19/11	6960
Moscow			MOR	6/1/09	10/1/09	6/5/09	9/30/09	5864	6/5/09	9/30/09	6900
				6/1/10	10/1/10	6/1/10	9/30/10	4247	6/1/10	9/30/10	5855
6/1/11	10/1/11	6/1/11	8/1/11	2293	6/1/11	7/18/11	2299				
<b>4</b>	<b>6</b>	<b>8</b>	<b>8</b>					<b>75696</b>			<b>79012</b>

- Currently active
- Currently in-active
- Updates from last report
- Requires attention

# GLS2010 Data @ EROS

<u>Station</u>	<u>2009 Scenes</u>	<u>2010 Scenes</u>	<u>2011 Scenes</u>
Beijing	187	23	0
Bangkok	2,370	0	0
● Mexico	671	3,525	449
Argentina	19	0	0
Brazil	2,526	18,601	1,507
Alaska	7,368	4,146	0
Gatineau, Canada	51	2,926	298
● Irkutsk	7,606	5,873	0
● South Africa	1,445	1,924	0
KaShi, China	6,414	11,889	0
● Magadan	5,658	1,179	0
● Kenya	865	3,326	1,059
● Moscow	6,872	5,838	0
● Canaries	3,696	4,384	950
Italy	820	3,004	195
Pr. Albert, Canada	144	11,065	737
	<b>46,712</b>	<b>77,703</b>	<b>5,195</b>
EROS	16,000	16,264	992
Alice Springs	5,500	5,515	790
	<b>68,212</b>	<b>99,482</b>	<b>6,977</b>

(As of March, 2011)

**>200,000 scenes  
2009-2011**

● GLS Campaign

# GLS2010 Selection & Processing

Mapping epoch planned as 2009-2011 w/ both L5 & L7

- stronger preference for L5 than GLS2005
- some issues with seasonality in GLS2005 – probably inherited from use of AVHRR NDVI record within LASSI
- original epoch was 2009-2010, but some regions (e.g. N. America) require a 3rd growing season

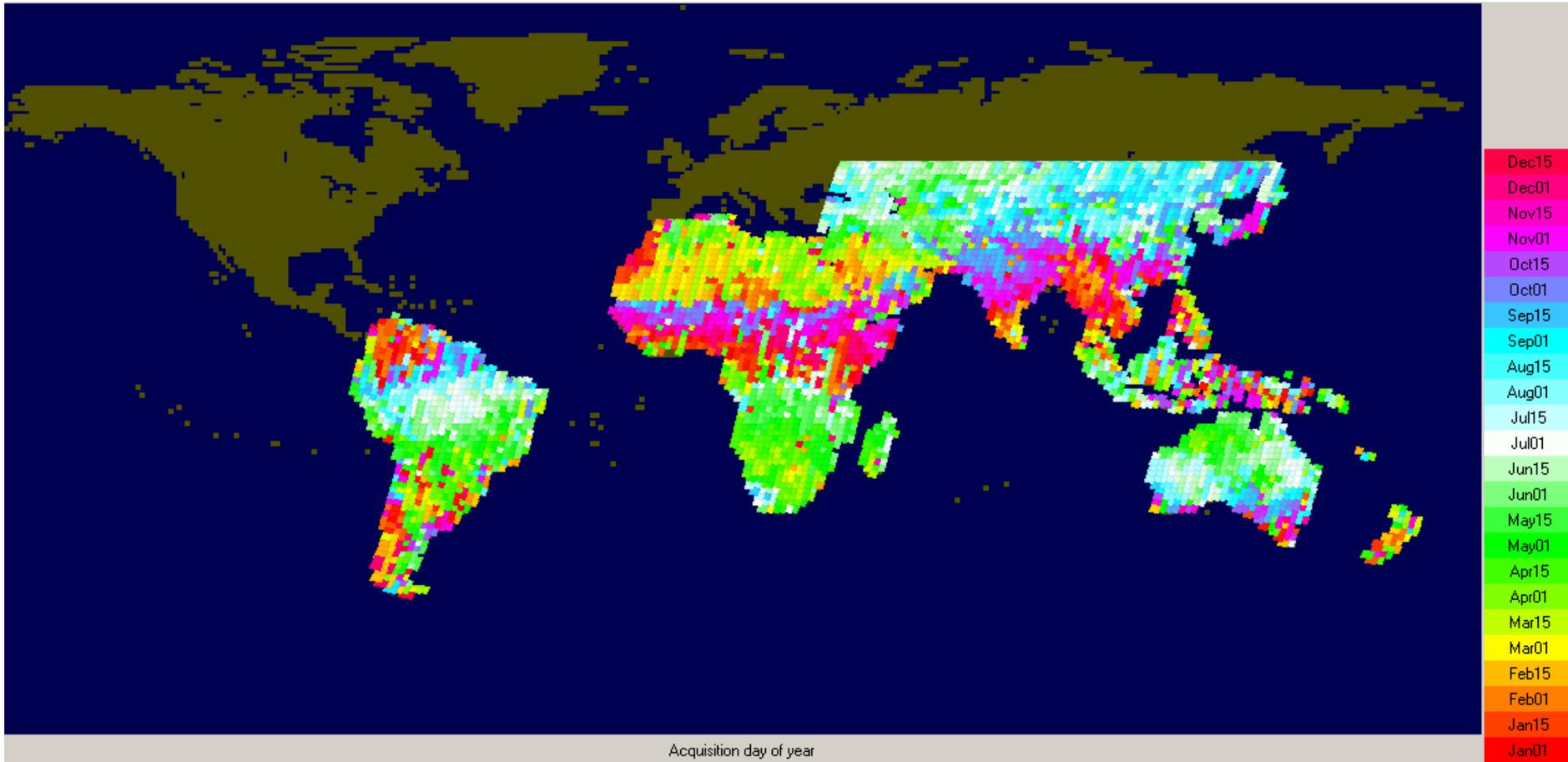
Southern Hemisphere & Central Asia selections now complete

- US archive data being processed at EROS
- IC selection lists are being submitted to stations

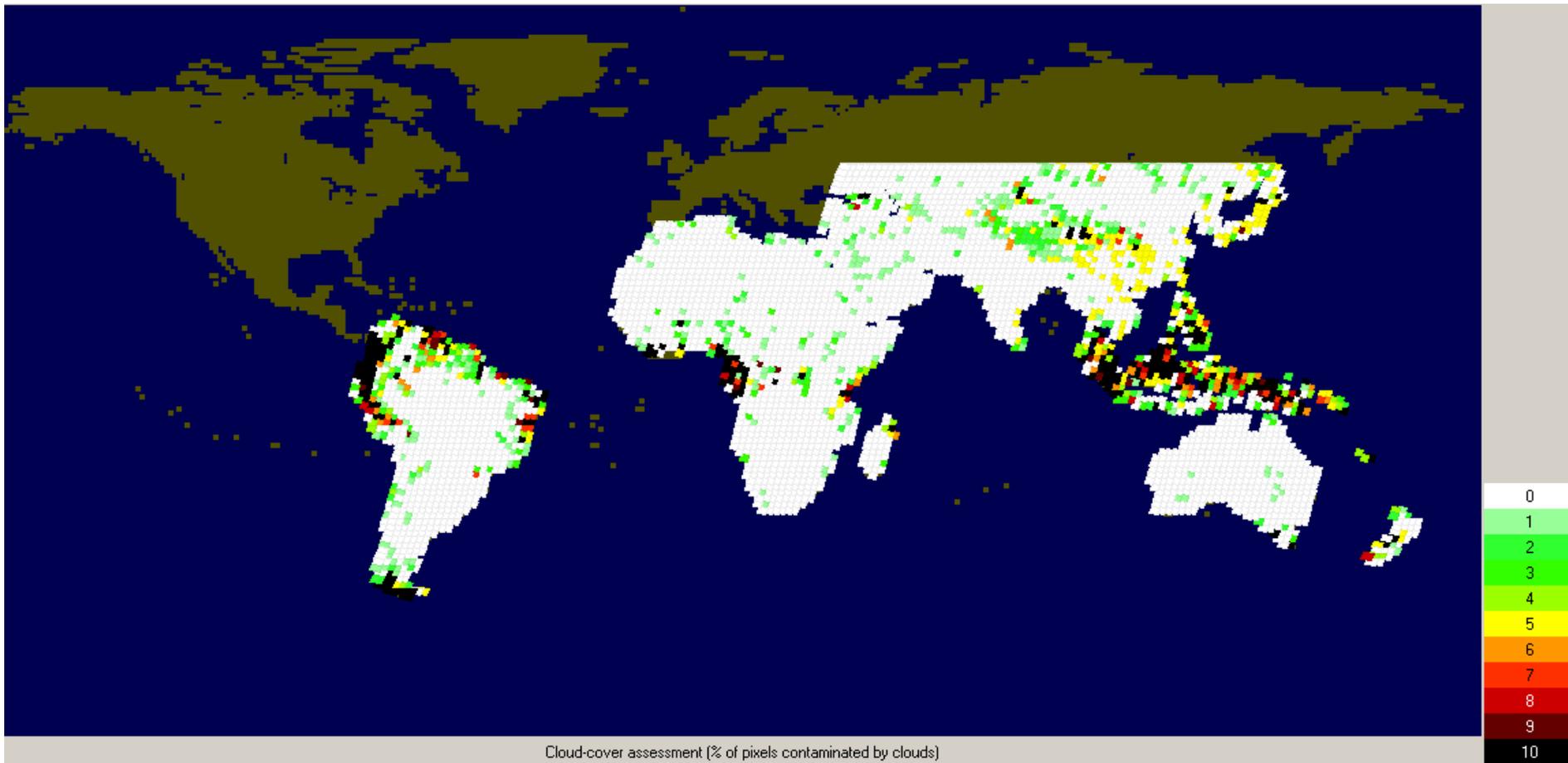
Northern Hemisphere selections begin in September 2011

***Rolling processing through 2011...anticipate complete data set available by end of year***

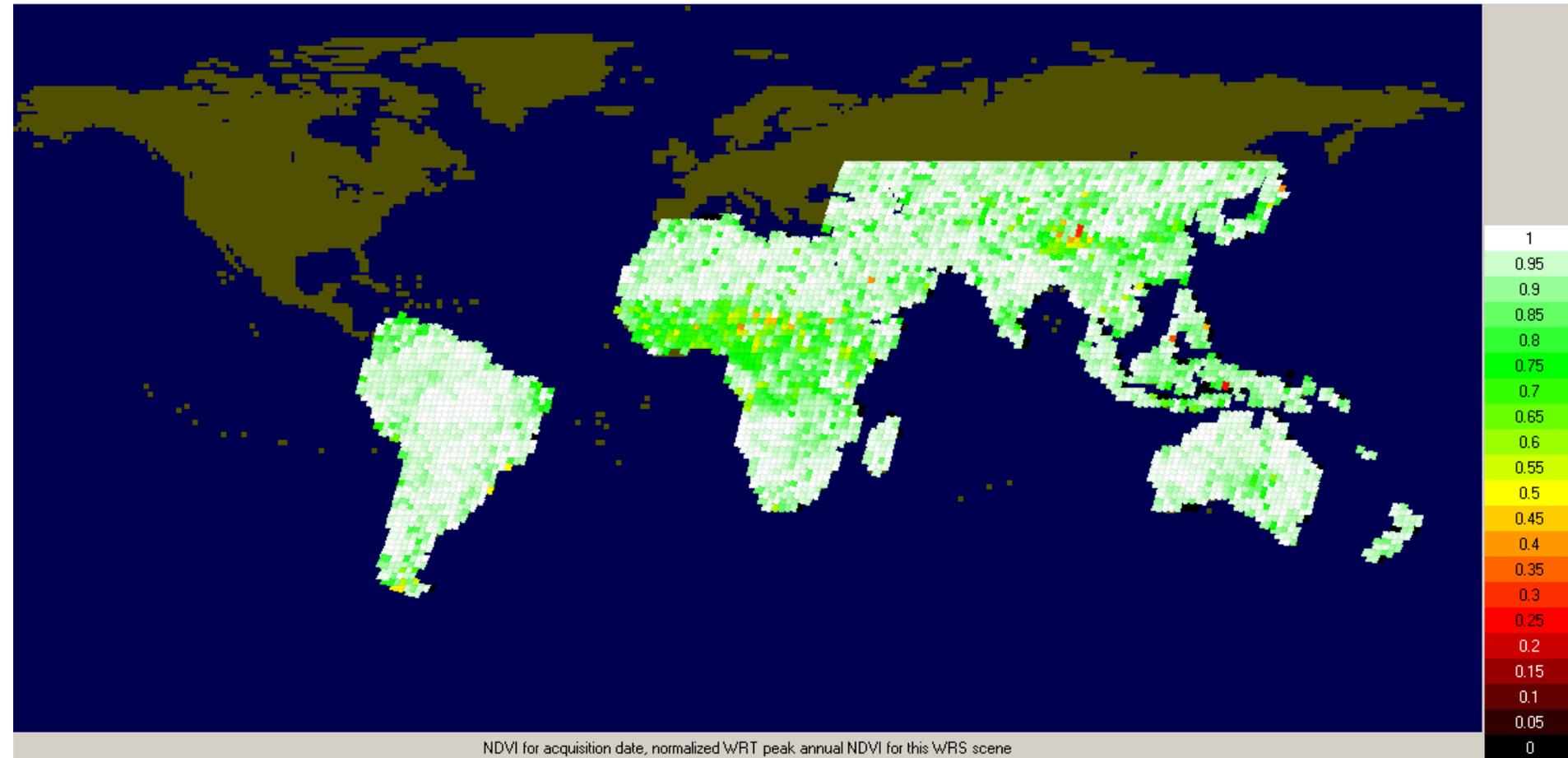
# Day of Year



# Cloud Coverage

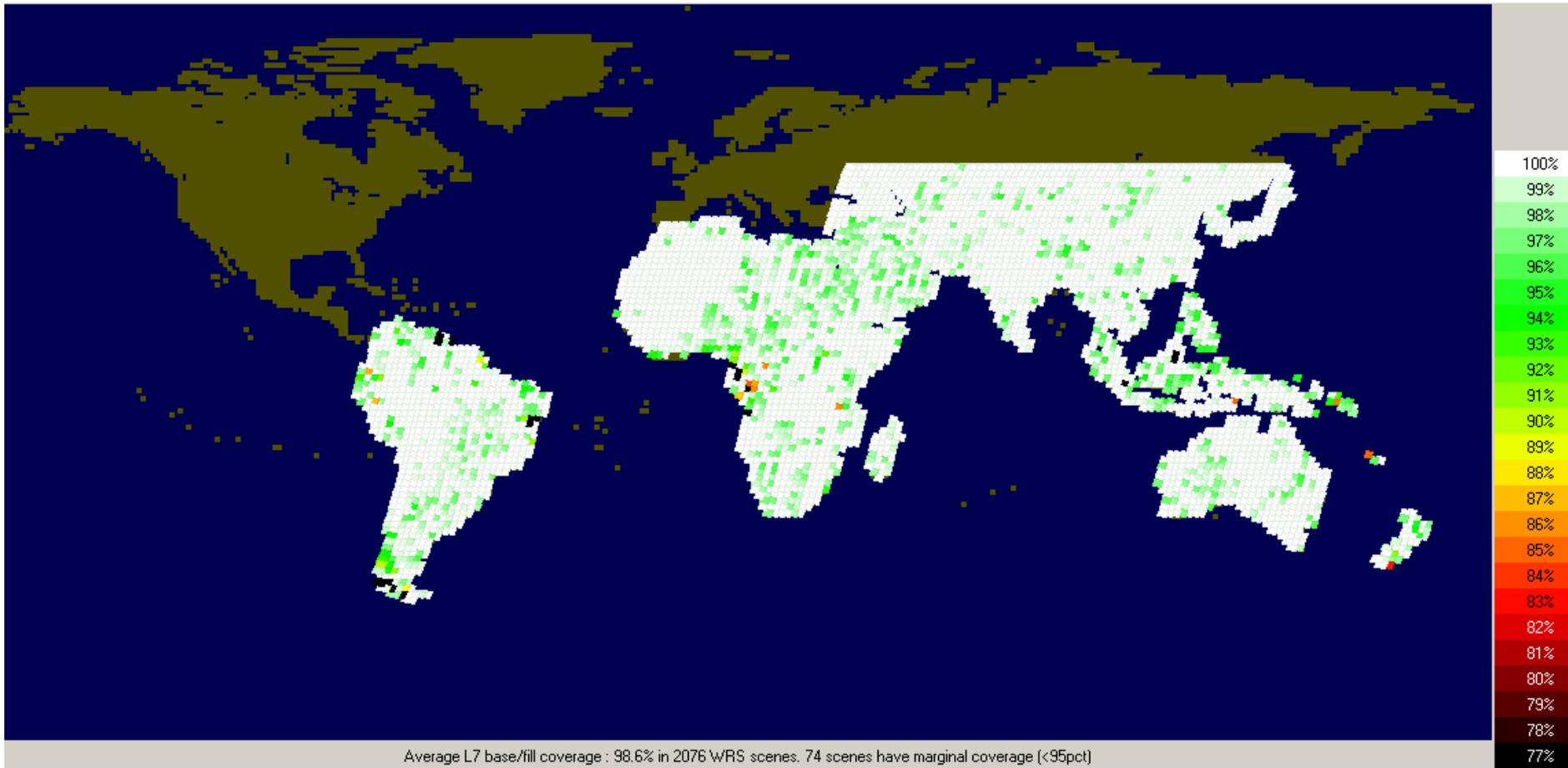


# NDVI



Once again, our highest priority is to maximize seasonal NDVI.

# Area Coverage

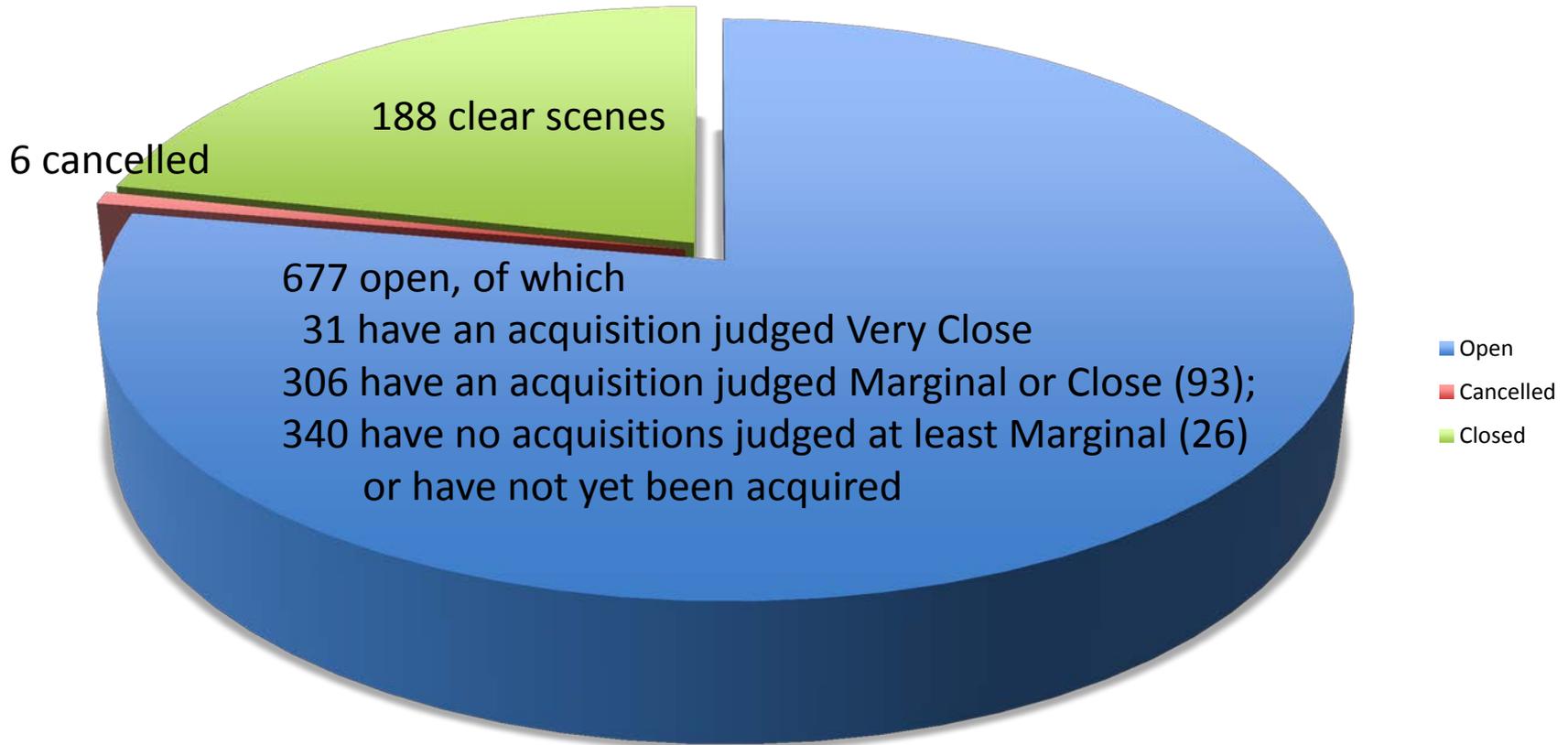


Since GLS2010 used a higher percentage of L5 compared to L7, the area coverage is much better.

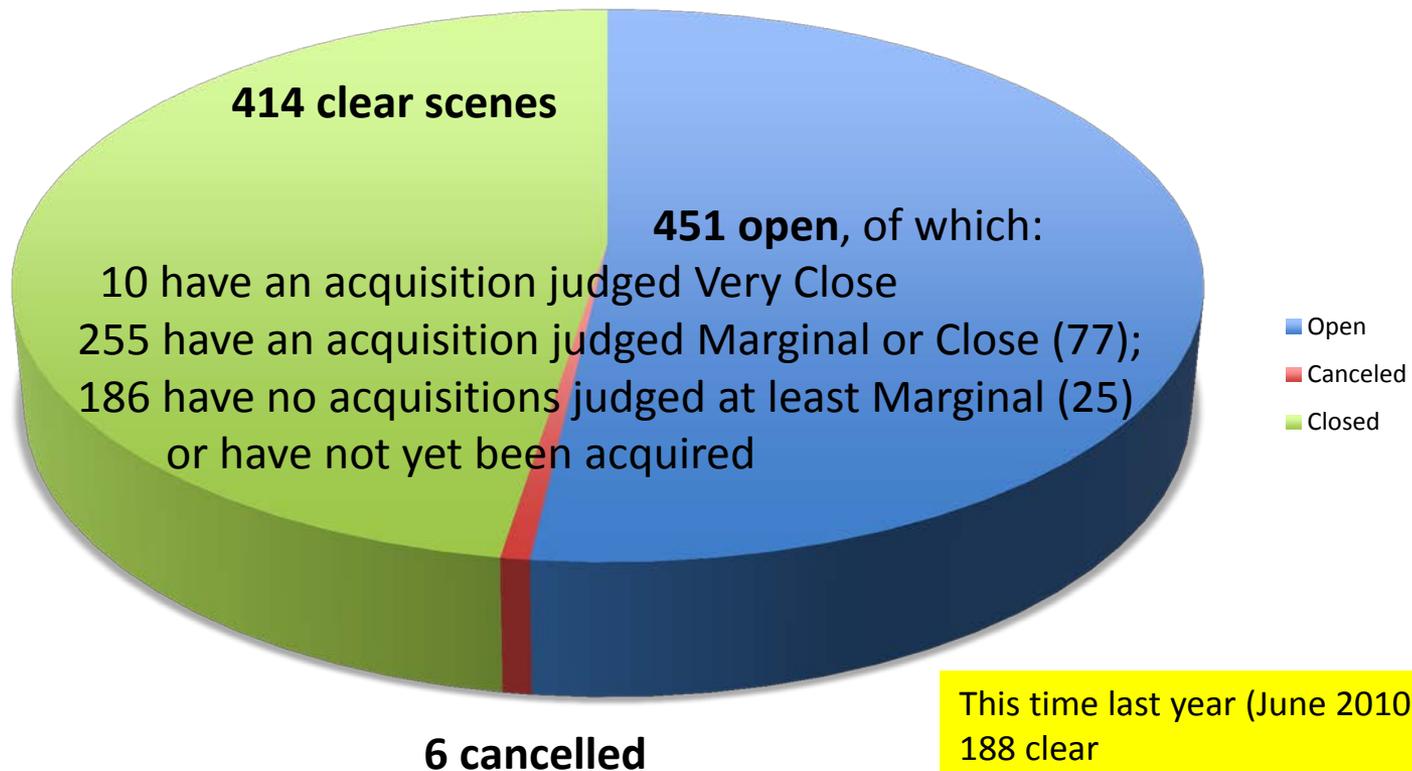
# Islands and Reefs: Background

- Using EO1 to capture small islands and reefs distant from continental land
- Monitoring acquisitions via browse imagery, closing requests as clear scenes are acquired

# Acquisition Progress: Summer 2010



# Statistics on EO1 Acquisition Progress as of 10 August 2011



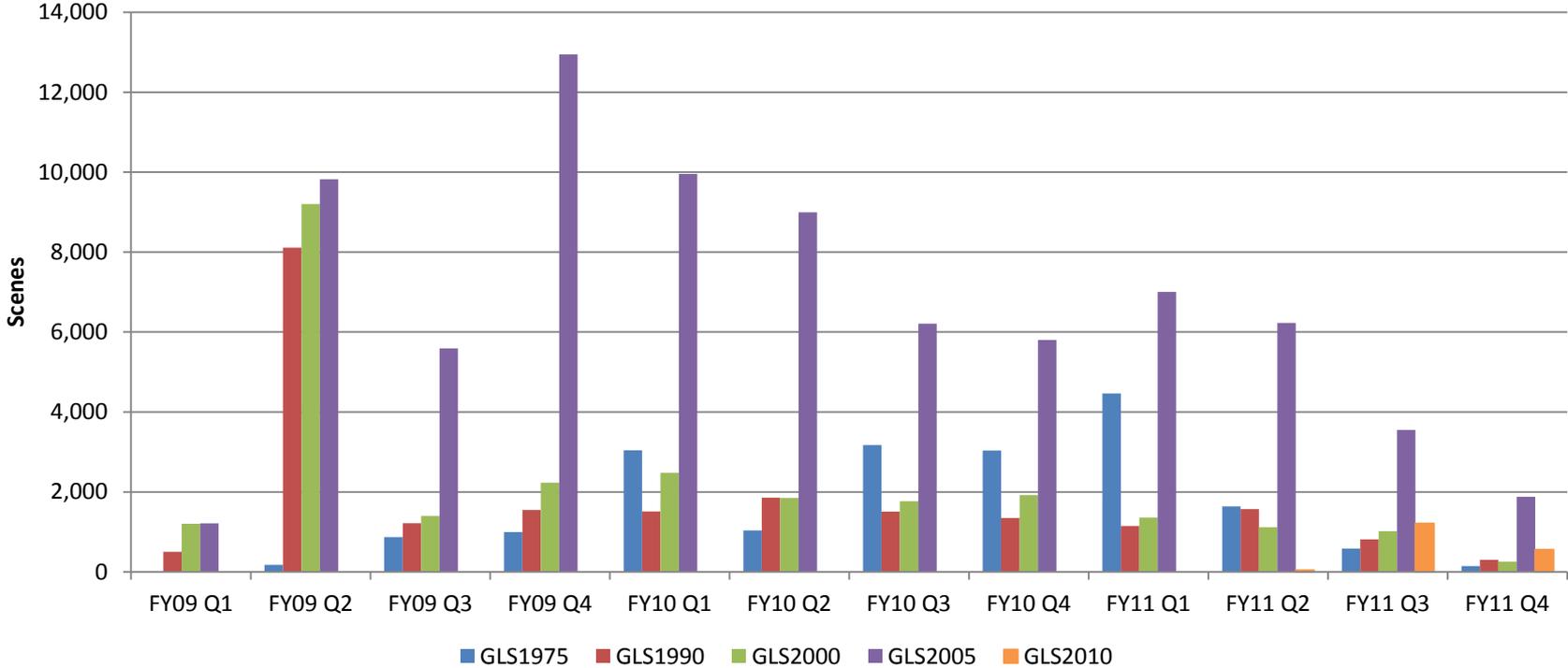
This time last year (June 2010):  
188 clear  
677 open  
340 less than marginal or not yet acquired

# GLS2010 Format & Distribution

- Format
  - Same processing applied as ‘normal’ Landsat scenes
    - L5 single scenes
    - L7 gap-filled scenes (at EROS)
    - Occasional single L7 scenes if inappropriate for gap-filling
      - Too cloudy
      - Poor gap match
- Scenes will be made available as processed
  - Single scene downloads
- Bulk distribution will be handled on external drive by user request

# GLS Distribution

Total: 147,400 Scenes



# Future Directions

## What's next...

- GLS2015 ?
- Seasonal (leaf-on, leaf-off) global coverage ?
- Prototype dense, multitemporal data collections (e.g. Sentinel-2 + LDCM + L7) ?
- Improved global LCC/LUC products (e.g. Global land use)
- Improved access tools for the archive for assembling GLS-style coverages



Thank you