

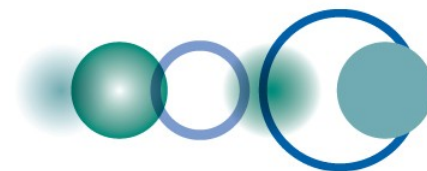
# The Global Earth Observation System of Systems (GEOSS)

## India 2014 Geospatial Forum

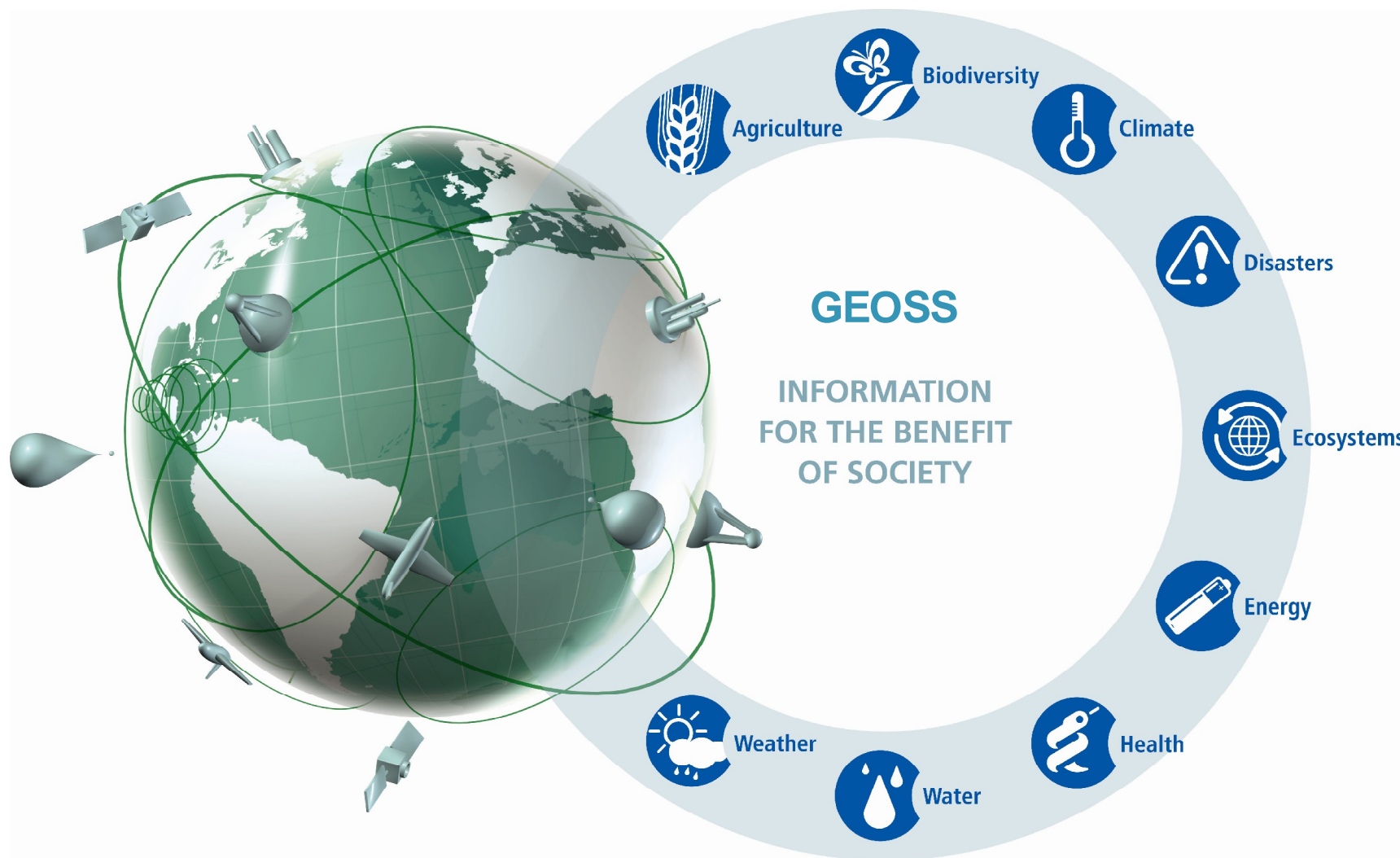
Barbara J. Ryan  
Director, GEO Secretariat

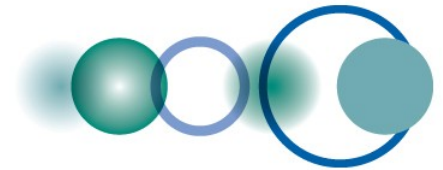
Hyderabad, India  
5 February 2014





# A Global, Coordinated, Comprehensive and Sustained System of Observing Systems





**Created in 2005, to develop a coordinated and sustained  
Global Earth Observation System of Systems (GEOSS) to  
enhance decision making in nine Societal Benefit Areas  
(SBAs)**

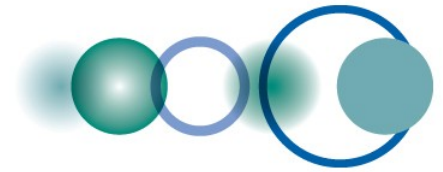
**GEO today:**

**90 Members**

**77 Participating**

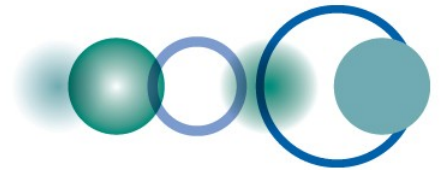
**Organizations**





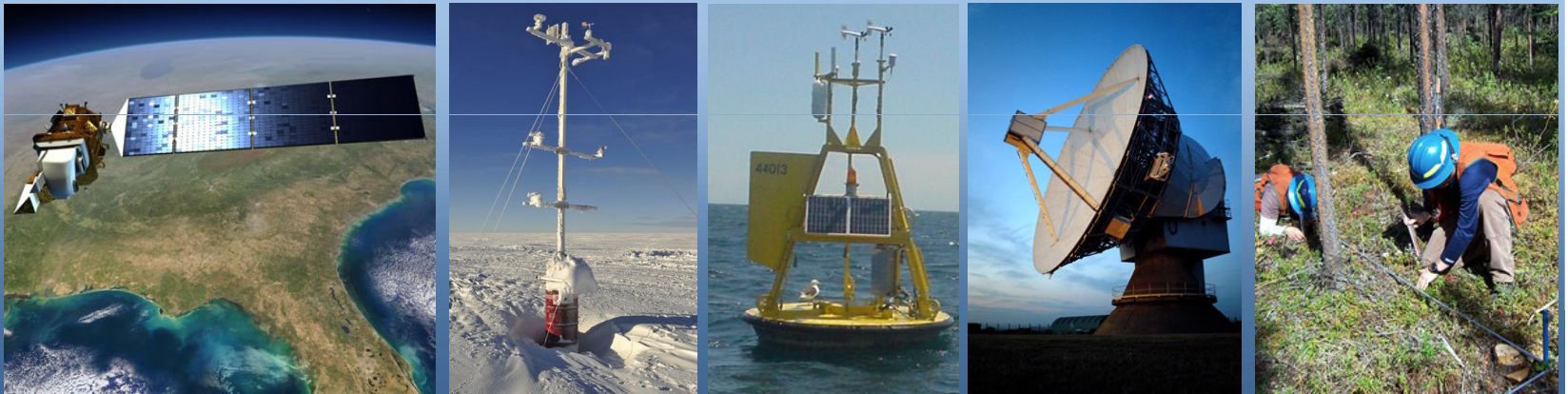
# 77 Participating Organizations





## A broad Commercial Sector spans the entire information value chain

### Data providers

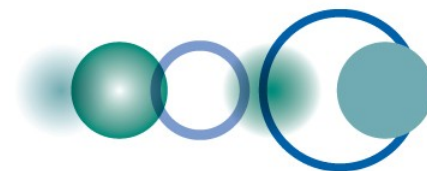


### Value-Added providers



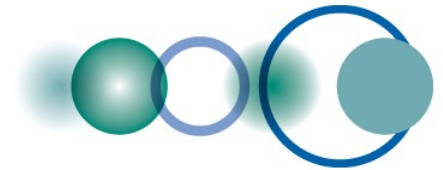
### Downstream users



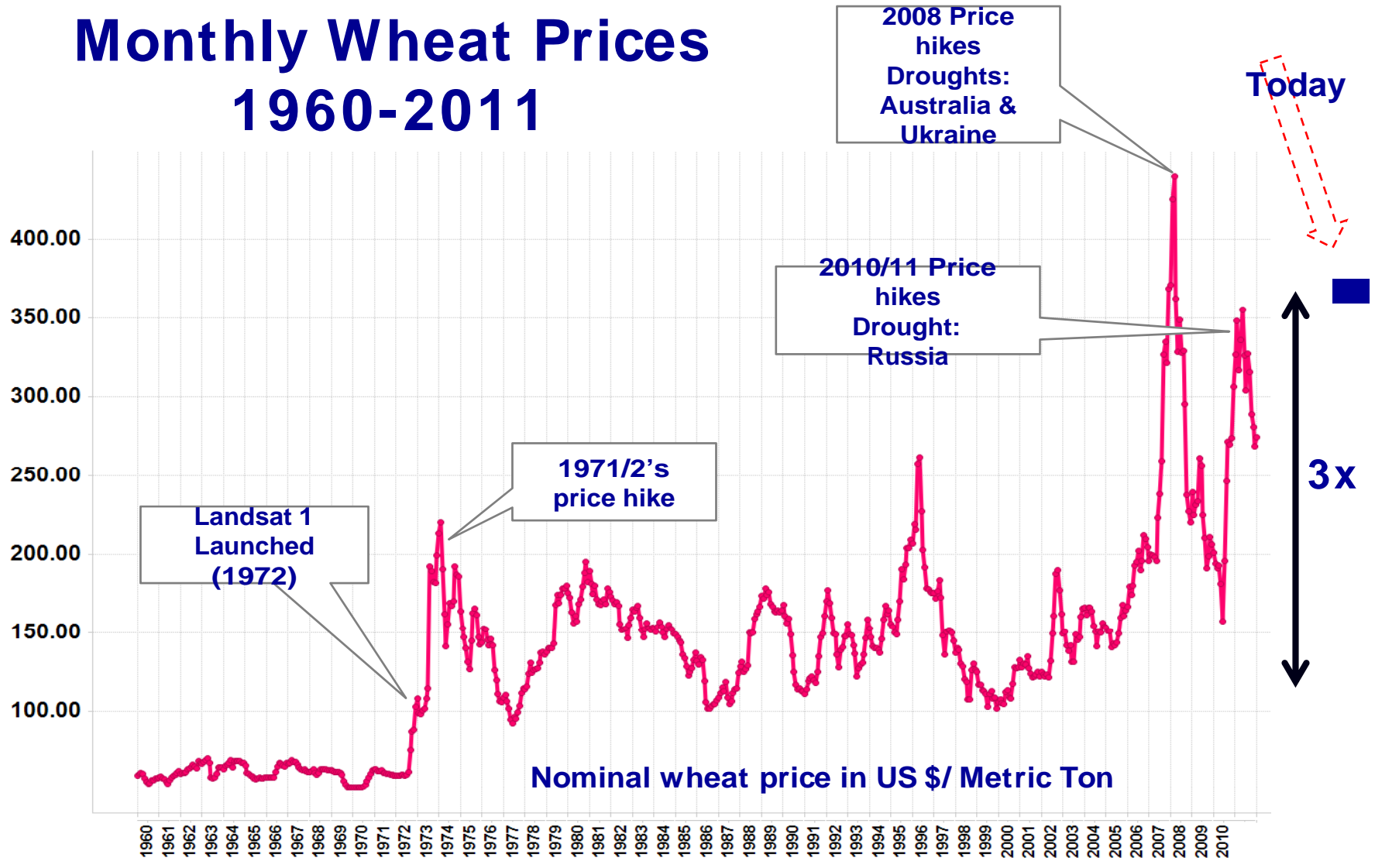


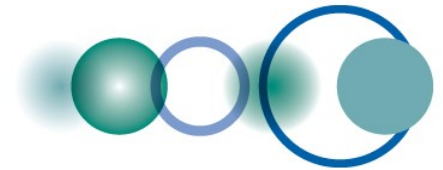
# GEO Objectives

- Improve and Coordinate Observation Systems
- Advance Broad Open Data Policies/Practices
- Foster Increased Use of EO Data and Information
- Build Capacity



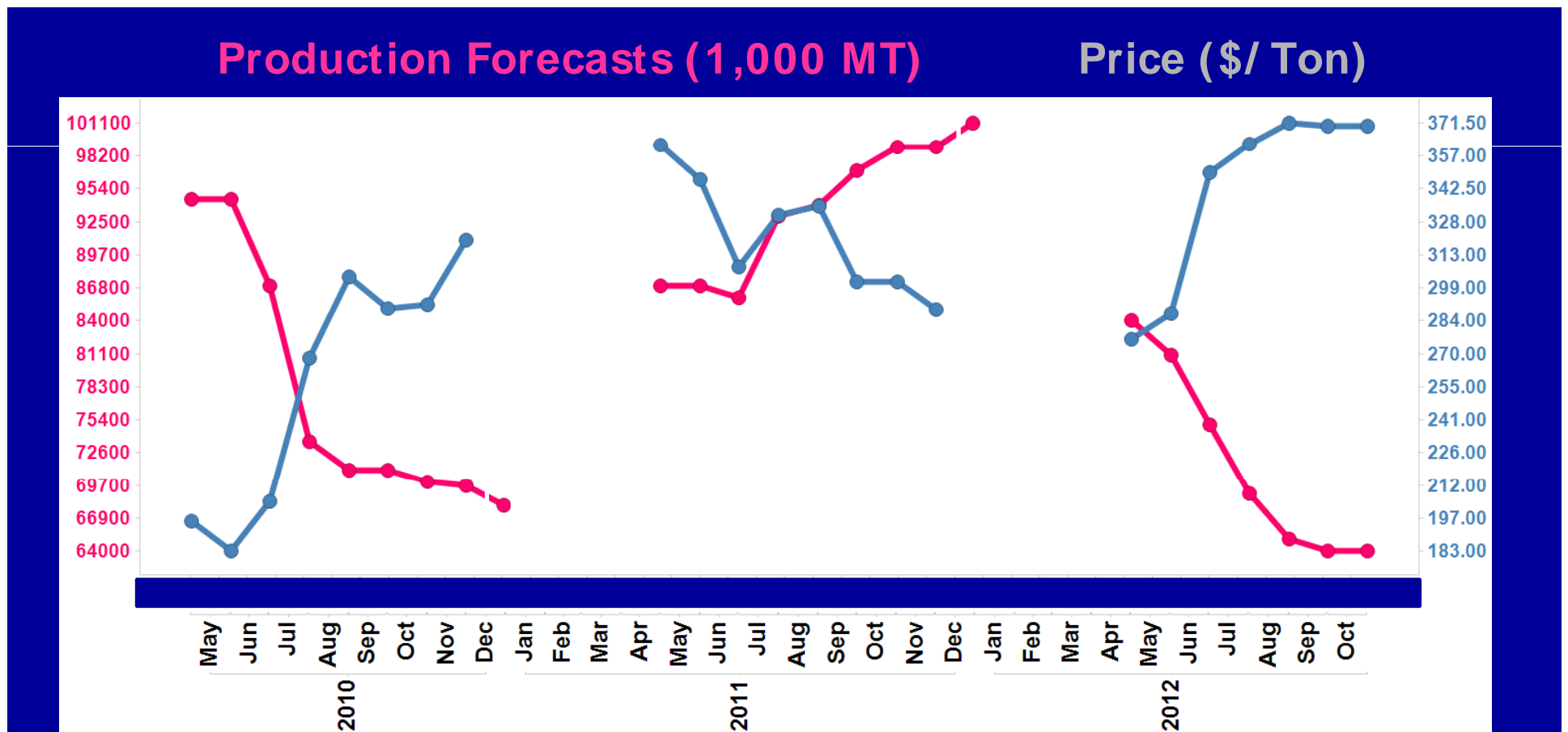
# Monthly Wheat Prices 1960-2011





# Making the case for improved crop forecasts

Aggregation of Wheat Production Forecasts from Main Wheat Export Countries vs. International Market Price 2010-2012



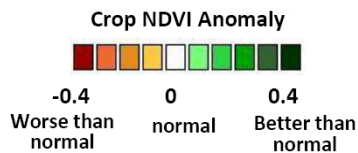
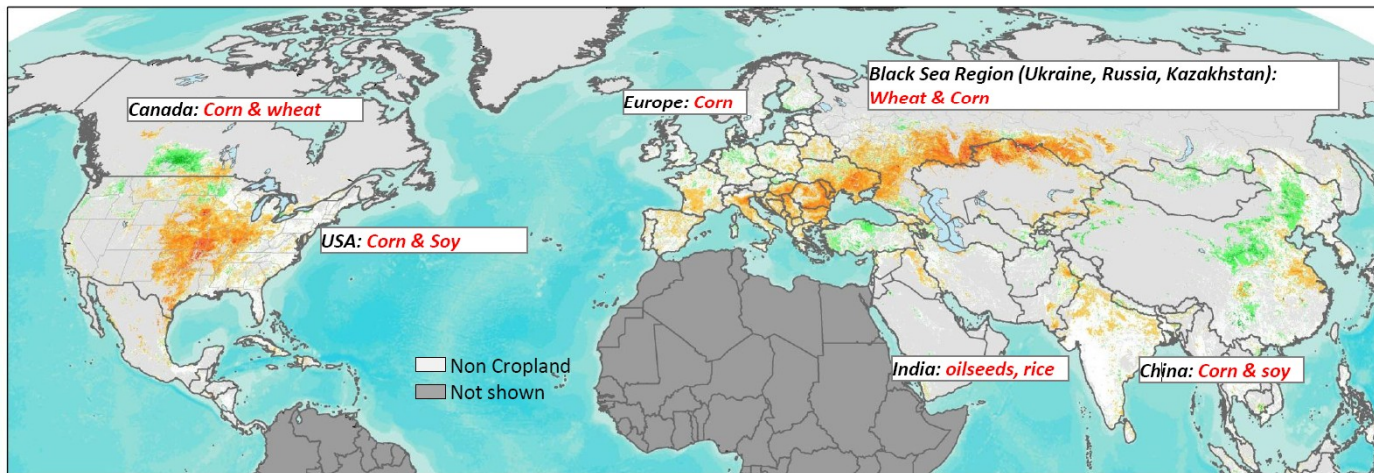




# Crop Information for Decision-Making (Canada, China, EC, France, Japan, Kazakhstan, India, Mexico, Russia, USA, CEOS, FAO)



Northern Hemisphere NDVI Crop Anomaly, August 13th, 2012



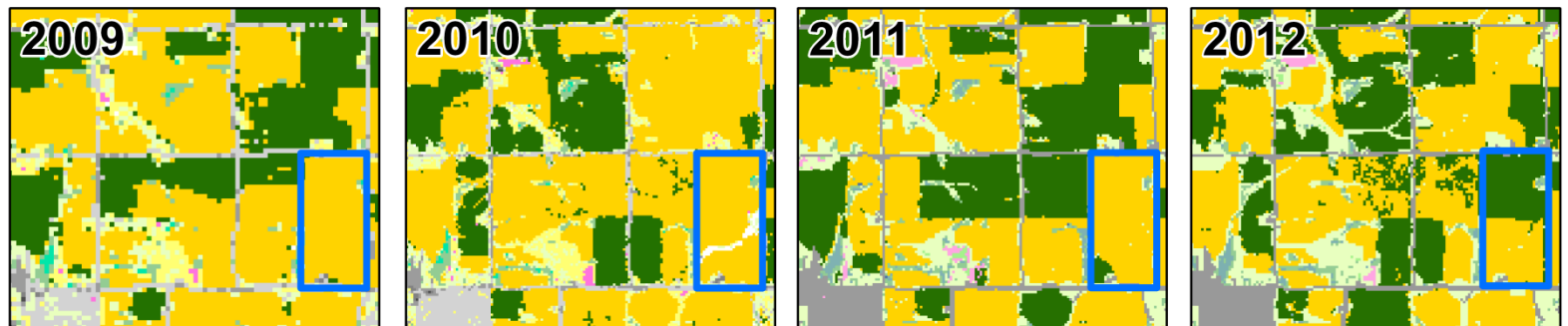
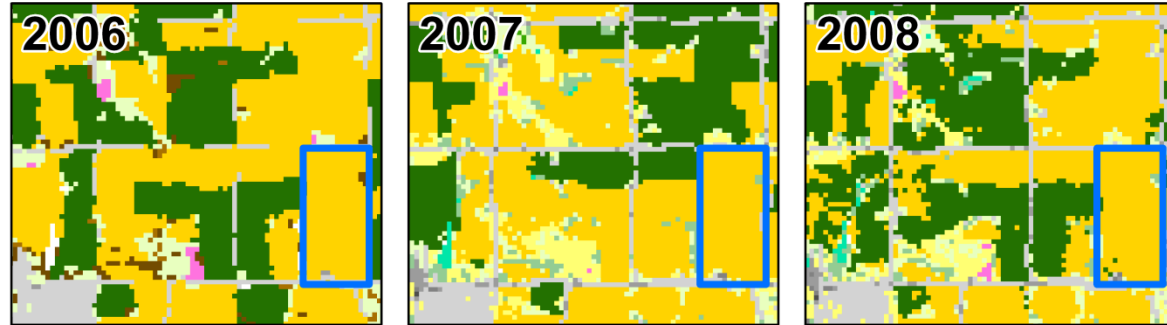
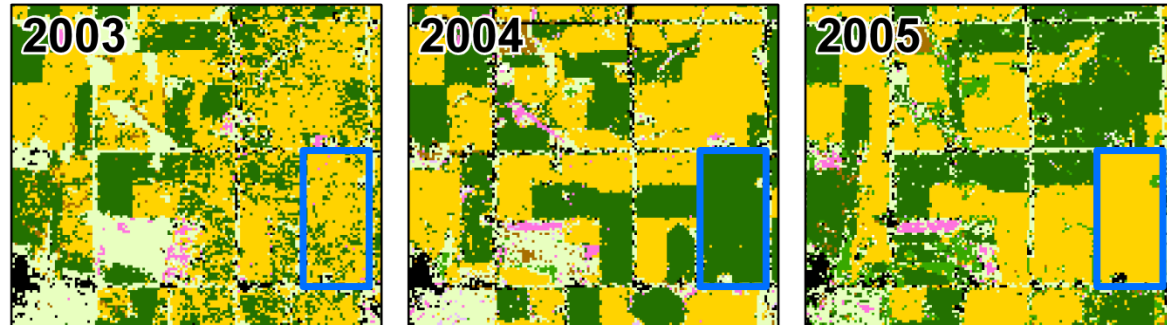
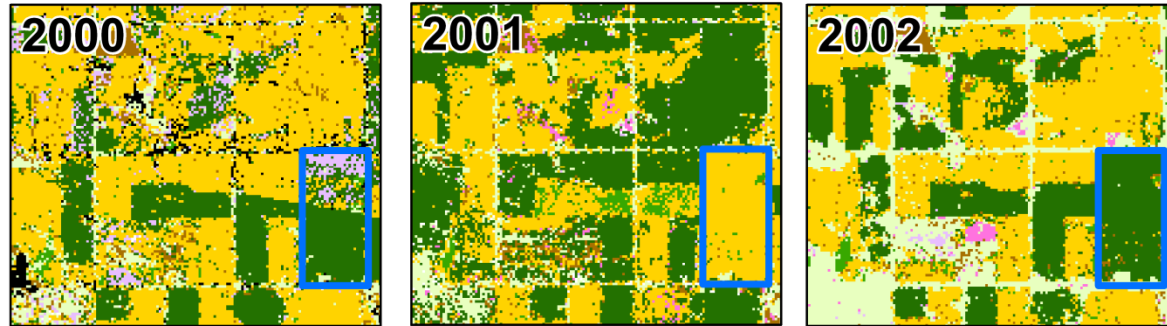
**Observed highlights:**

- Drought conditions persist in US, south eastern Ukraine, Russia, and Kazakhstan, with slight improvement in some areas in northern Kazakhstan
- Rains in India mitigate dry conditions

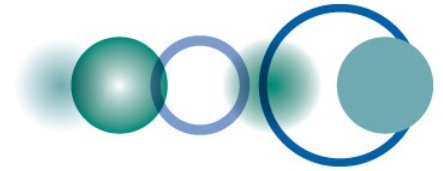
- \* GEOGLAM part of G20 Action Plan on Food Price Volatility
- \* New crop outlook
- \* Rice crop monitoring
- \* Draft space strategy

# EXPLANATION

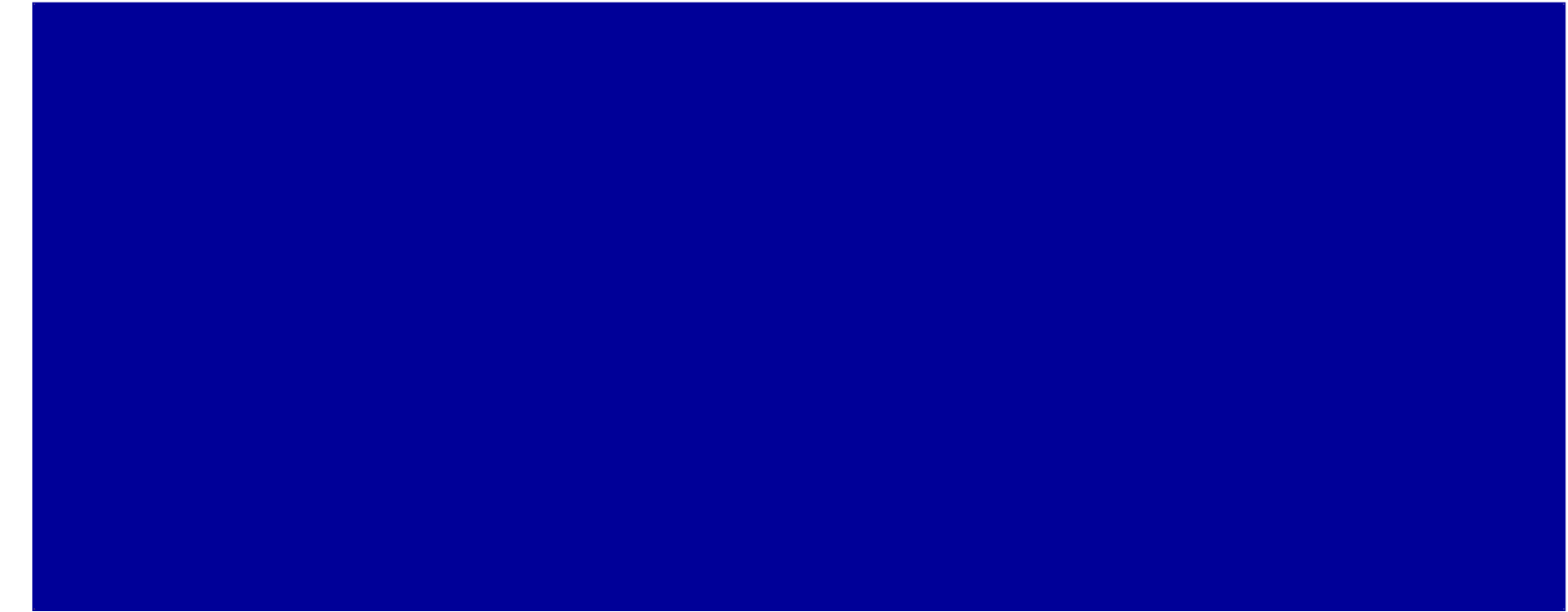
- Corn
- Soybeans
- Small grains / Hay
- Alfalfa
- Fallow / Idle Cropland
- Grass / Pasture / Non-ag
- Woodland
- Urban / Developed
- NLCD-Developed/Low Intensity
- NLCD-Developed-Open Space
- NLCD-Developed/Medium Intensity
- NLCD-Developed/High Intensity
- NLCD-Barren
- NLCD- Grassland, Herbaceous
- NLCD-Deciduous Forest
- NLCD-Pasture/Hay
- NLCD-Woody Wetlands



Waterloo →



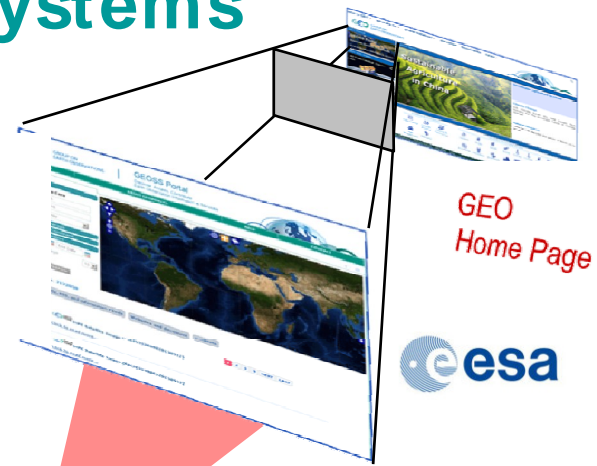
# Market Monitor



# Enabling a System of Systems



Data Providers Brokered (capacities, systems, networks, etc.)



GEO Home Page



Data Providers successfully Tested (coming soon)

# Current Assets



About **20** brokered data providers – capacities, systems, Communities



Publish

More than **7 Million** (**1.2 Million** GEOSS Data Core) Discoverable and potentially Accessible resources (mix of data collections, datasets and individual images)

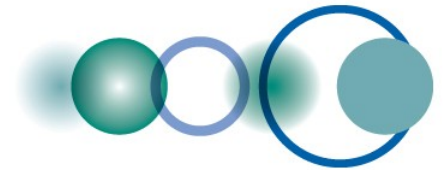


Contain [source: data providers]

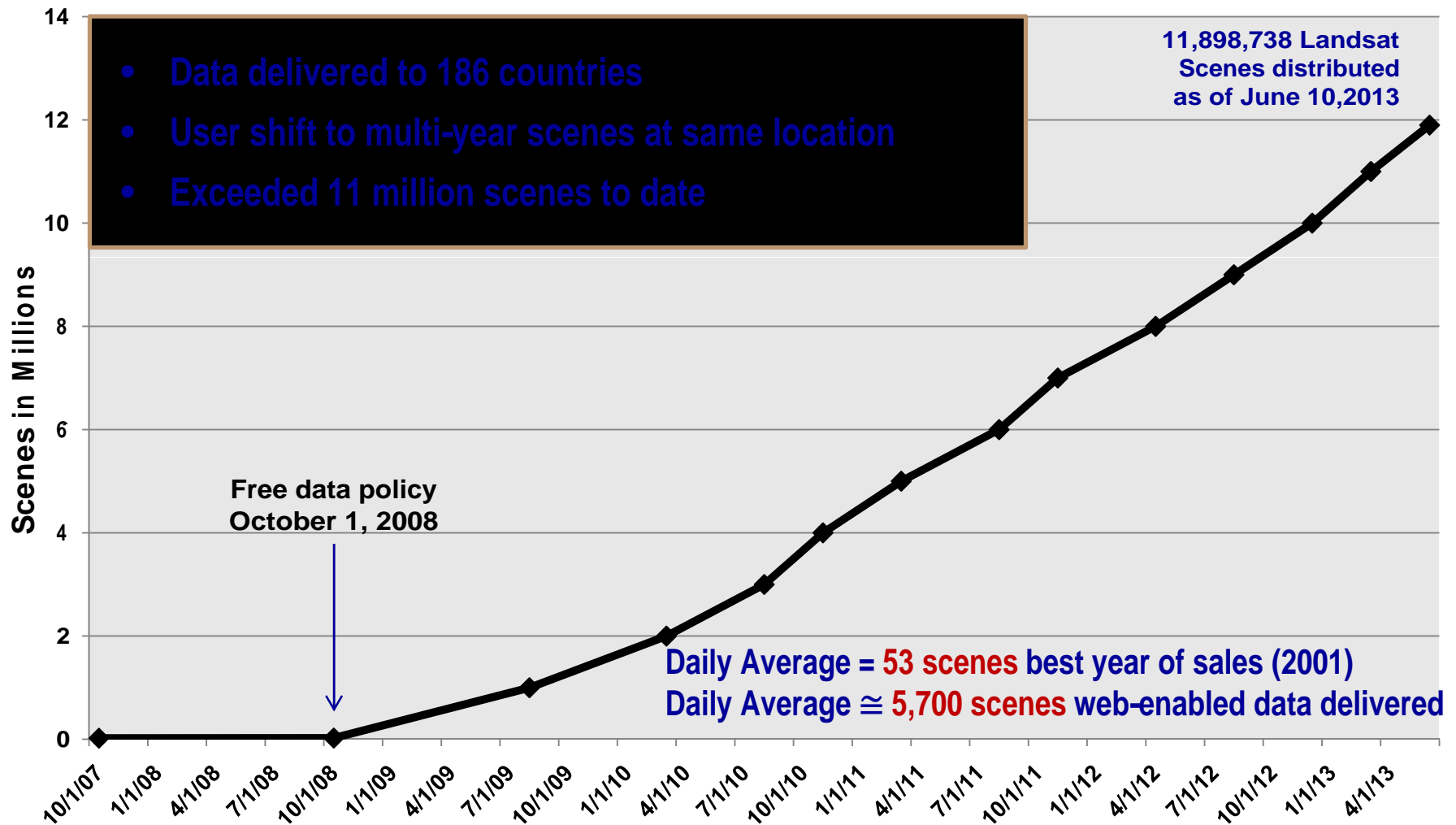
More than **65 Million** (**50 Million** GEOSS Data Core) Discoverable and potentially Accessible granules (e.g. satellite scene, rain gauge record)

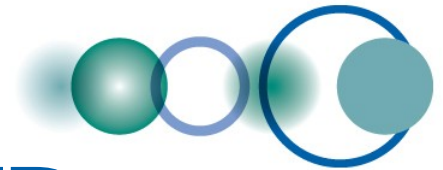


**Resources**

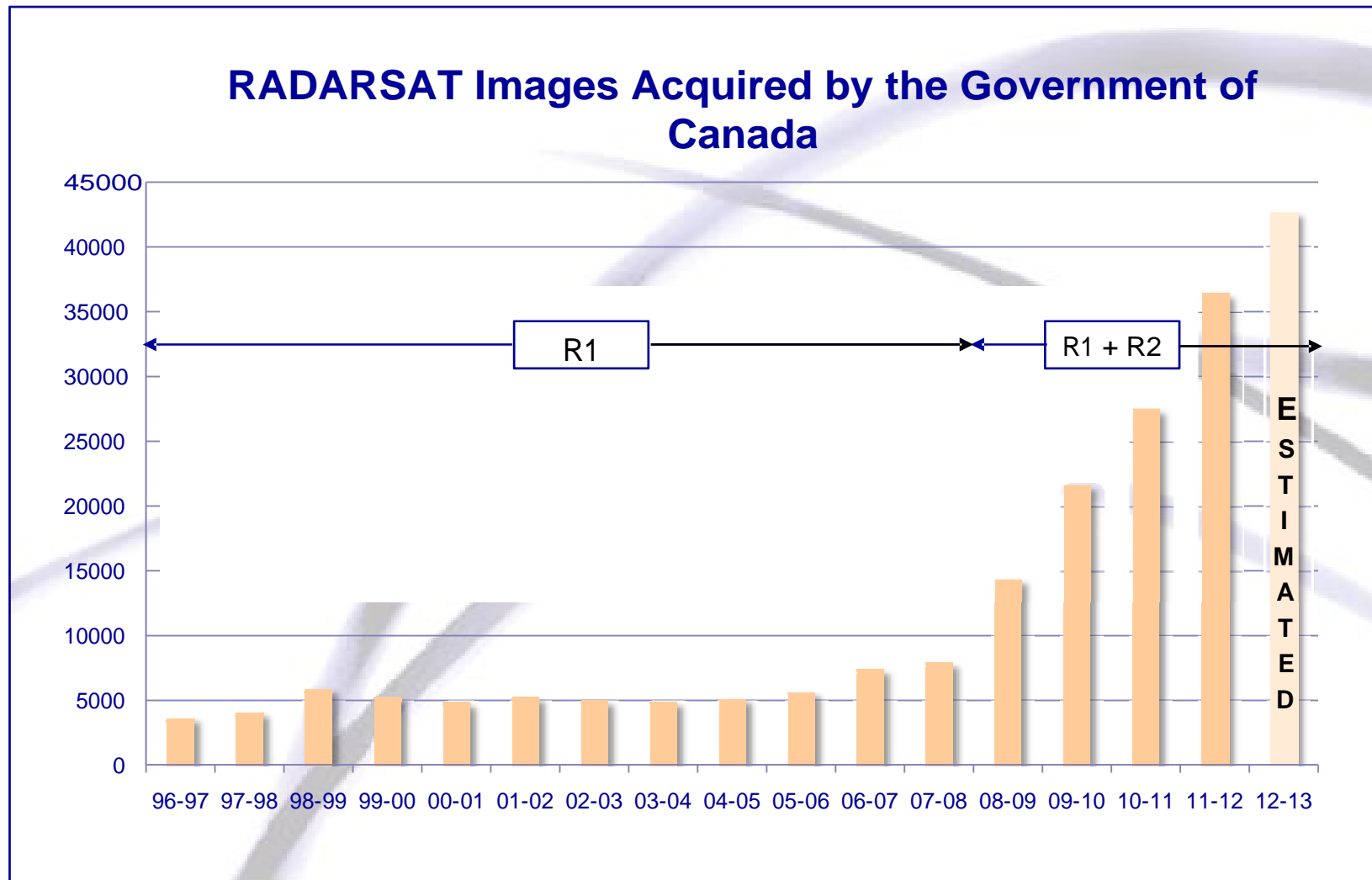


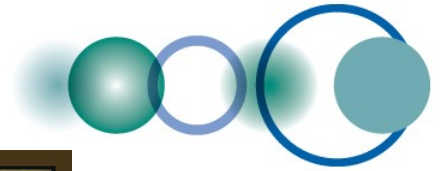
# Increasing Demand for Landsat Data





# Increasing Demand for RADARSAT Data

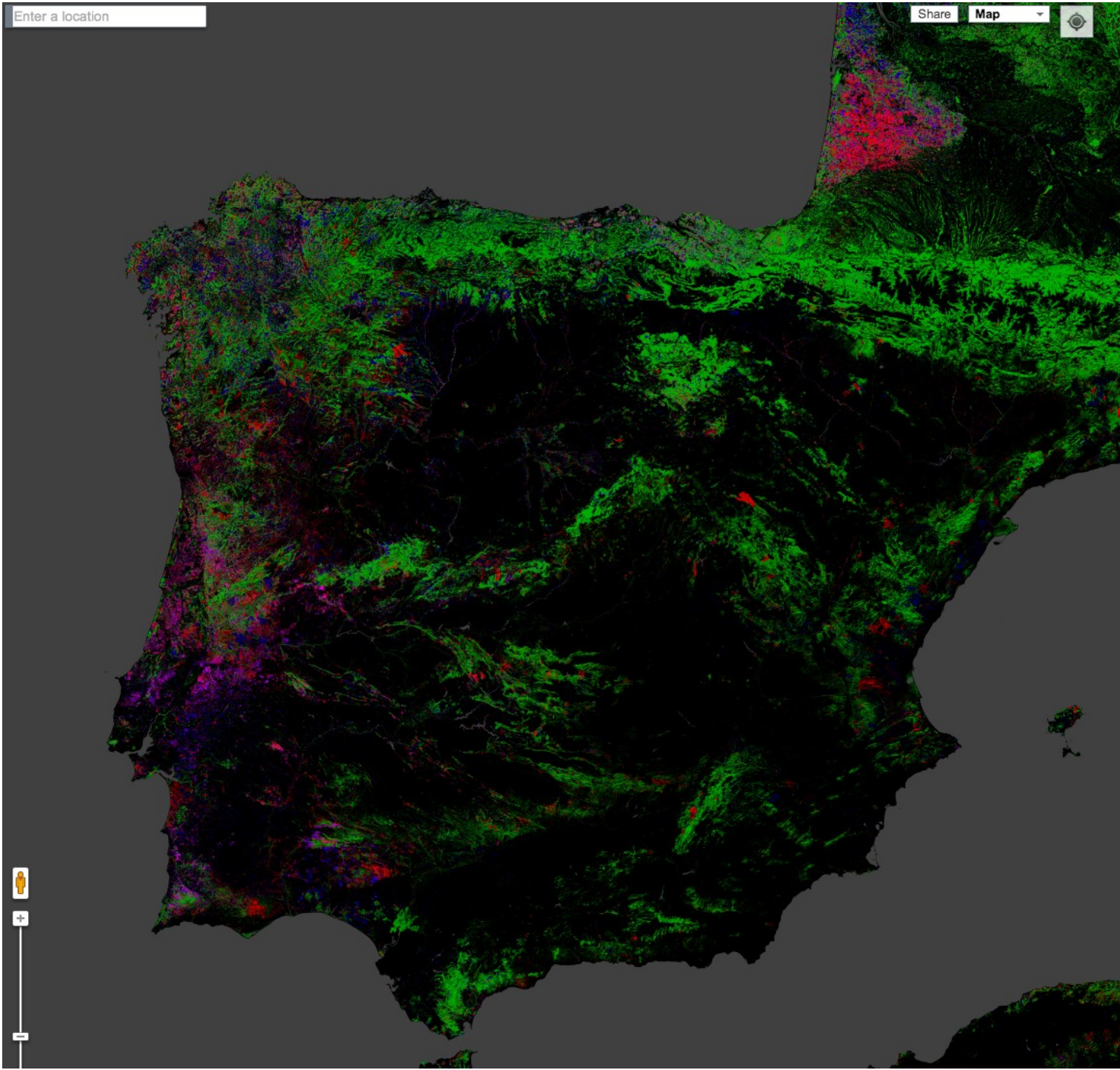




A NEW MAP OF STANDARDIZED TERRESTRIAL ECOSYSTEMS OF AFRICA







## Global Forest Change

Published by Hansen, Potapov, Moore, Hancher et al.



Results from time-series analysis of 654,178 Landsat images in characterizing forest extent and change, 2000–2012.

Trees are defined as all vegetation taller than 5m in height and are expressed as a percentage per output grid cell as '2000 Percent Tree Cover'. 'Forest Loss' is defined as a stand-replacement disturbance, or a change from a forest to non-forest state. 'Forest Gain' is defined as the inverse of loss, or a non-forest to forest change entirely within the study period. 'Forest Loss Year' is a disaggregation of total 'Forest Loss' to annual time scales.

Reference 2000 and 2012 imagery are median observations from a set of quality assessment-passed growing season observations.

[Reset to default view](#)

Data Products

Loss/Extent/Gain (Red/Green/Blue)

Legend

- Forest Loss 2000–2012
- Forest Gain 2000–2012
- Both Loss and Gain
- Forest Extent

Background Imagery

Year 2000 Bands 5/4/3

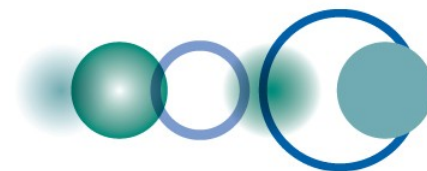
### Example Locations

Forestry and Tornado in Alabama

[Zoom to area](#)

The trail of destruction from the April 27 2011 Tuscaloosa-Birmingham tornado is clearly visible in this location. This was one of 358 recorded tornadoes during the April 25-28, 2011 tornado outbreak, the most severe in US history.

Zoom out to spot tracks from other tornadoes nearby.



## Summary

- Broad open data policies/practices essential for publically funded collections
- Economic value in downstream elements – value-added products and services
- Broader stakeholder engagement needed – particularly from the private sector for development of products and services
- National, Regional and International collaboration is essential



GEOSPATIAL  
WORLD  
FORUM 

Geneva, Switzerland  
5-9 May 2014

**Pre-Conference Workshop – Monday, May 5th**

**Geospatial Industry Forging Ties with GEOSS:  
A Value Proposition Dialogue Forum**

**Barbara J. Ryan**  
**[bryan@geosec.org](mailto:bryan@geosec.org)**

**<http://www.earthobservations.org>**

