

The Group on Earth Observations (GEO) to 2025

Latin America Geospatial Forum (LAGF) GEOSS in the Americas

Barbara J. Ryan
Director, GEO Secretariat

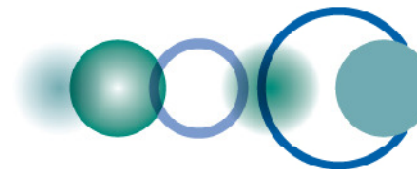
25 September 2014
Mexico City, Mexico





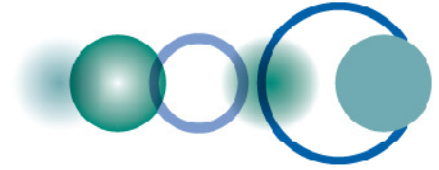
GEO Vision

To realize a future wherein decisions and actions, for the benefit of humankind, are informed by coordinated, comprehensive and sustained Earth observations and information.



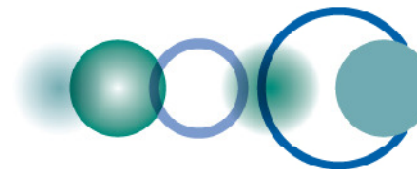
A Global, Coordinated, Comprehensive and Sustained System of Observing Systems





GEO Objectives

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



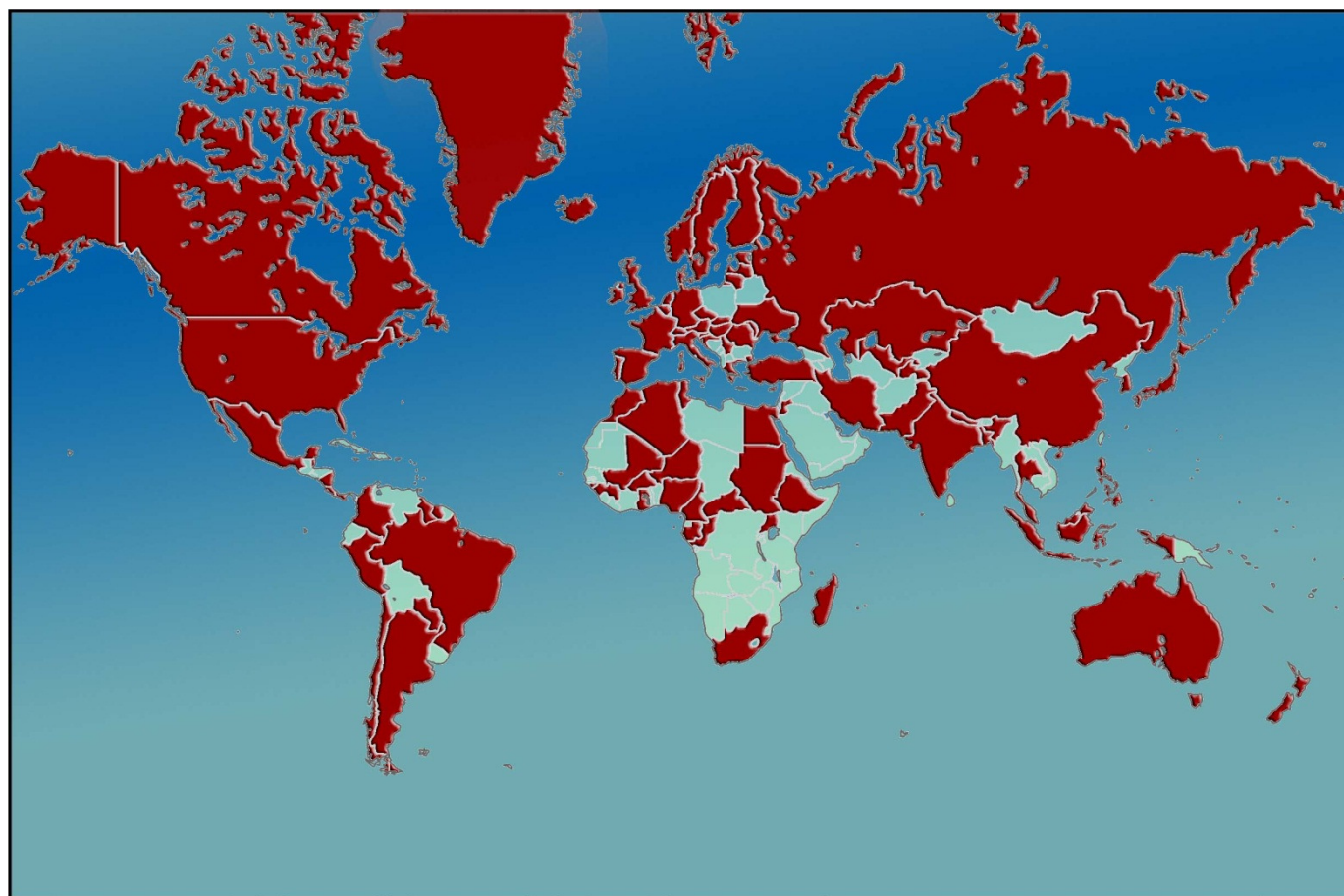
Created in 2005, to develop a Global Earth Observation System of Systems (GEOSS) to enhance decision making in nine Societal Benefit Areas (SBAs)

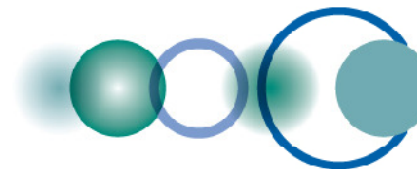
GEO today:

94 Members

77 Participating

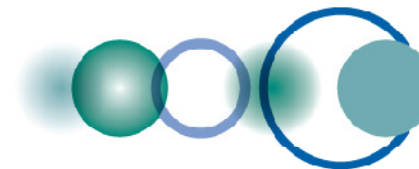
Organizations





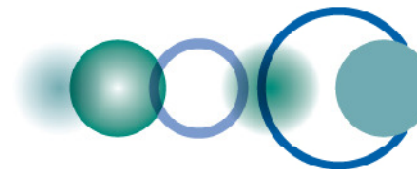
Americas Caucus

- **Argentina**
- **Bahamas**
- **Belize**
- **Brazil**
- **Canada**
- **Chile**
- **Colombia**
- **Costa Rica**
- **Honduras**
- **Mexico**
- **Panama**
- **Paraguay**
- **Peru**
- **United States**



77 Participating Organizations





A broad Commercial Sector spans the entire information value chain

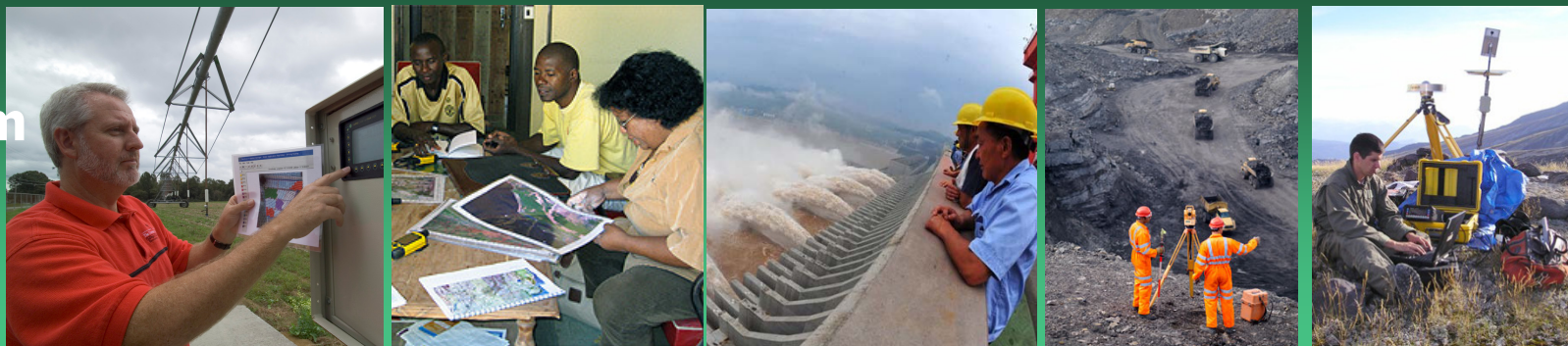
Data providers

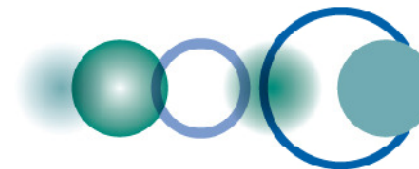


Value-Added providers



Downstream users

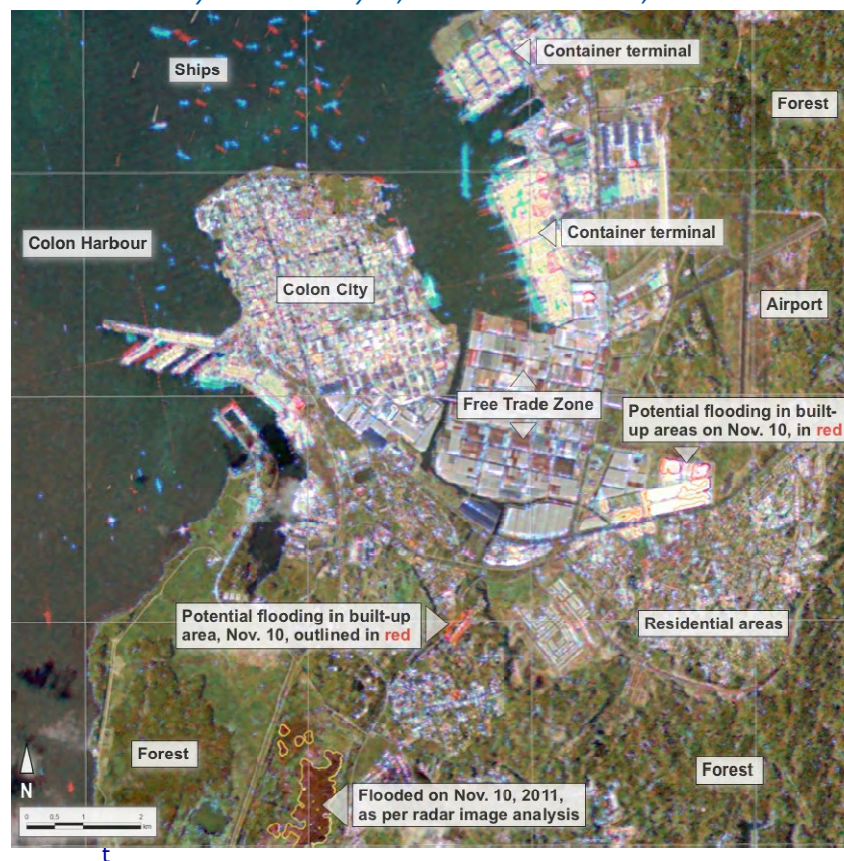


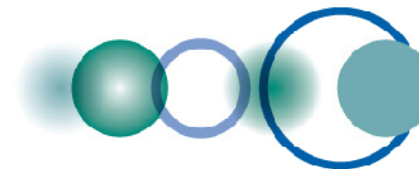


Near-Real-Time Warning & Response (Canada, USA, CEOS, CMO)

- * GEO Flood Caribbean Disaster Pilot (CSDP)
- * Full cycle of disaster management
- * Rapid mapping for emergency management
- * Merging of optical (RapidEye) and radar satellite data (RADARSAT-2)

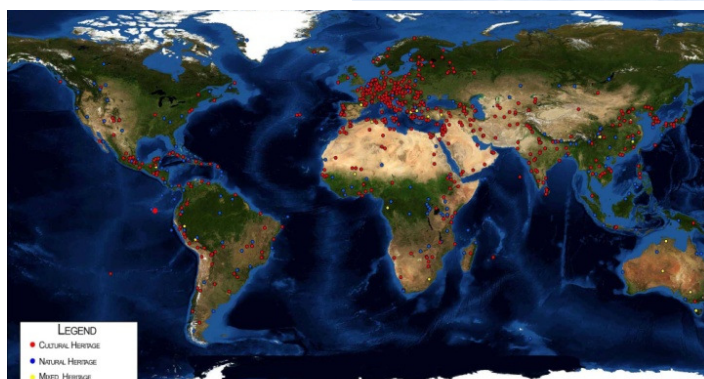
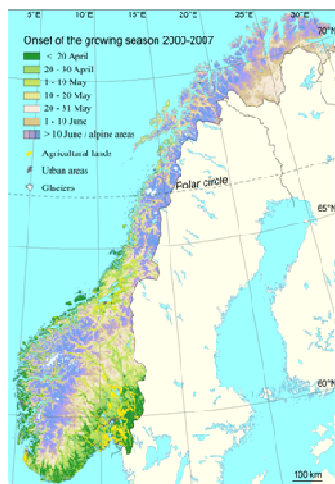
Post heavy-rainfall analysis, Panama Canal area, 10 Nov 2011



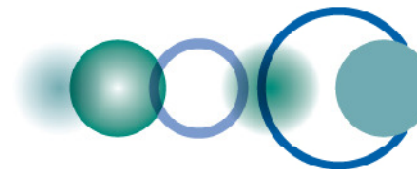


Ecosystem Classification & Mapping

(Australia, Austria, Brazil, Canada, China, EC, Italy, Paraguay, USA, RCMRD, UNESCO)

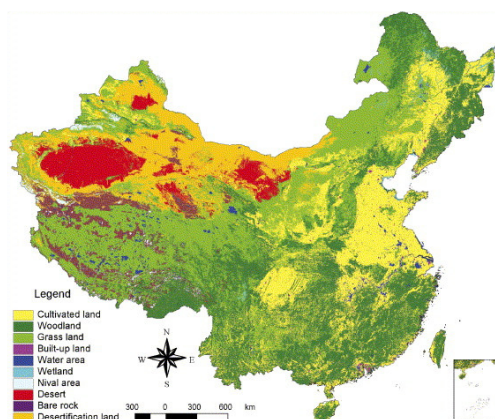


- * SHARE mountain stations operational
- * All ecosystem mapping data available; DataCORE
- * New maps of growing season
- * Atlas of 40 Chinese World Heritage Sites
- * Decision-making support: ABCC program

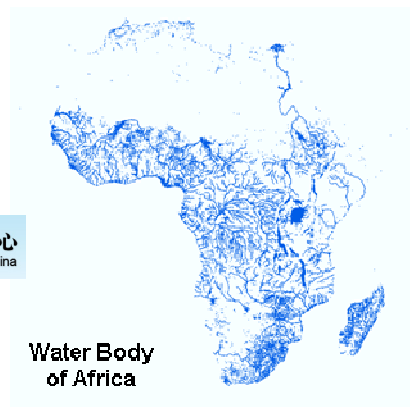


Advanced Land-Cover Products

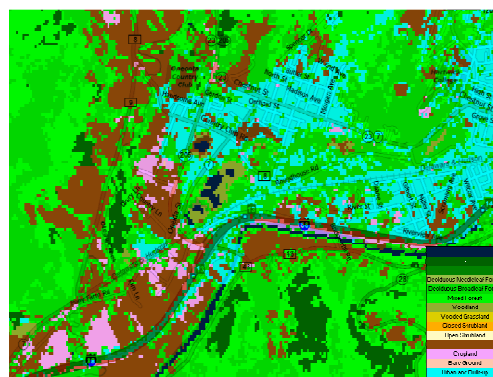
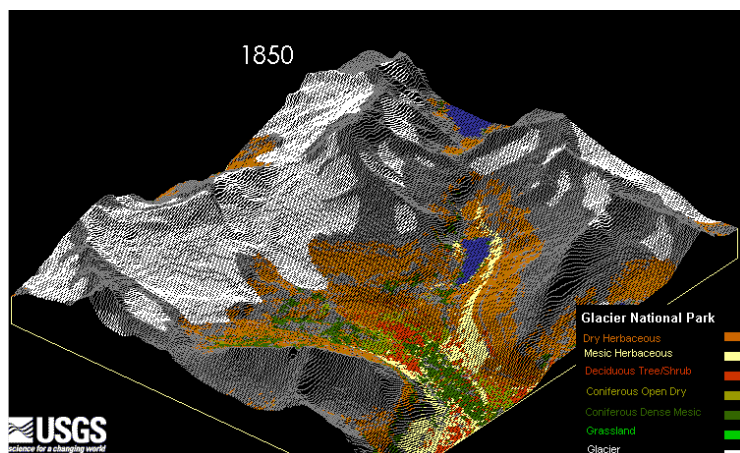
(Canada, China, EC, Greece, Japan, Netherlands, Nigeria, Spain, Sweden, UK, USA, Spain, EEA, ESA, GTOS, ISPRS)



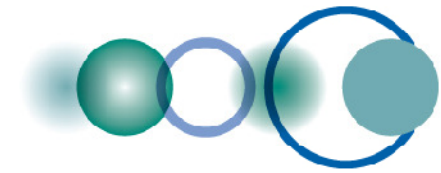
国家基础地理信息中心
NGCC National Geomatics Center of China



- * Global 30m products
- * Major land cover types (eg. wetland)
- * Independent validation databases
- * Global Land Cover Portal
- * Growing int'l consensus

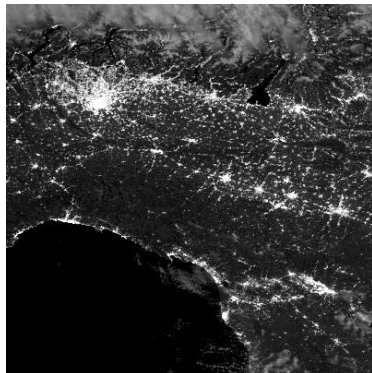


GOFC-GOLD GLOBAL OBSERVATION OF FOREST
AND LAND COVER DYNAMICS



Global & Local Urban Footprints

(China, EC, Germany, Greece, Italy, Pakistan, USA)

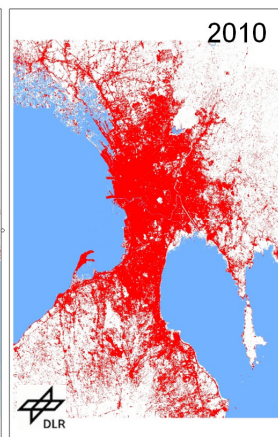
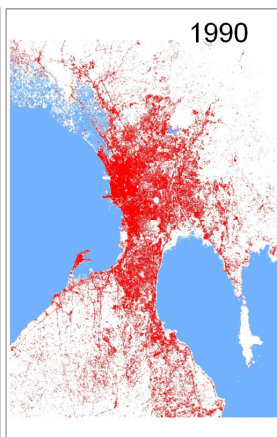
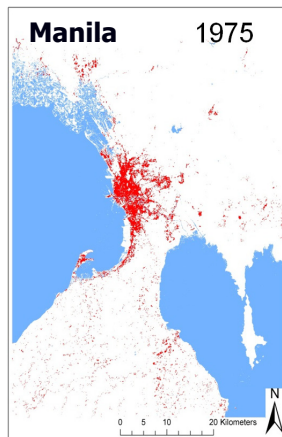


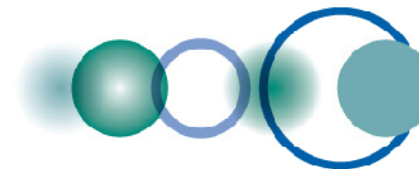
- * 35-yr evolution of 26 mega-cities

- * Global night-time lights for 2012

- * Urban Heat Island patterns

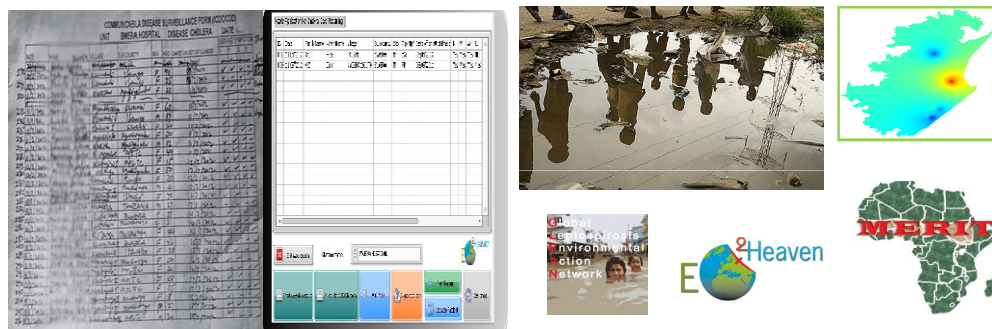
- * Over 3'700 cities mapped using ASTER (15m)



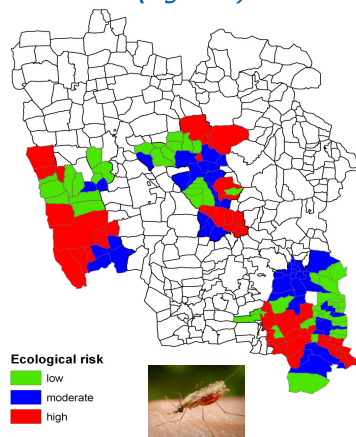


Tools for Health Decision-Making

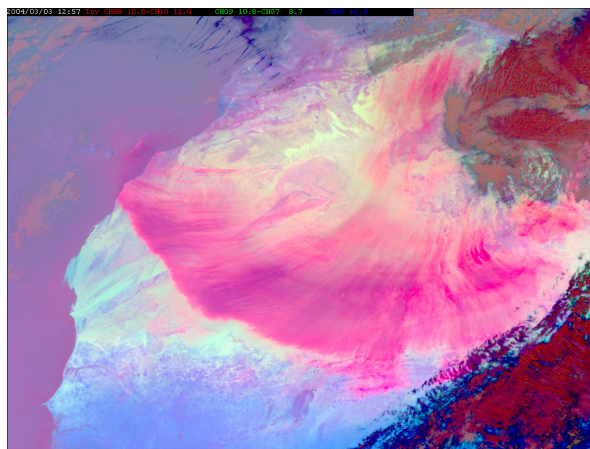
(Brazil, EC, France, India, Germany, USA, ACMAD, WHO, WMO)



Cholera (Uganda)

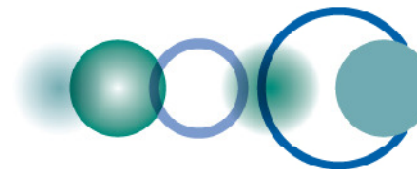


Malaria (India)



Dust Storm, IR (Sahara)

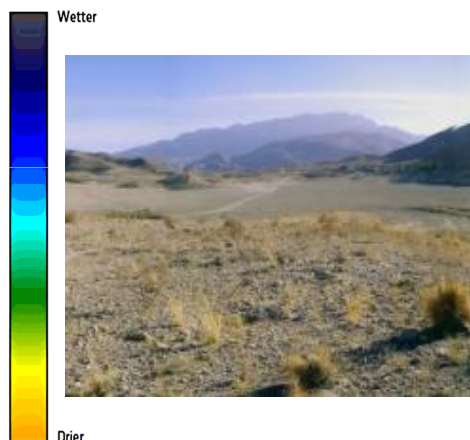
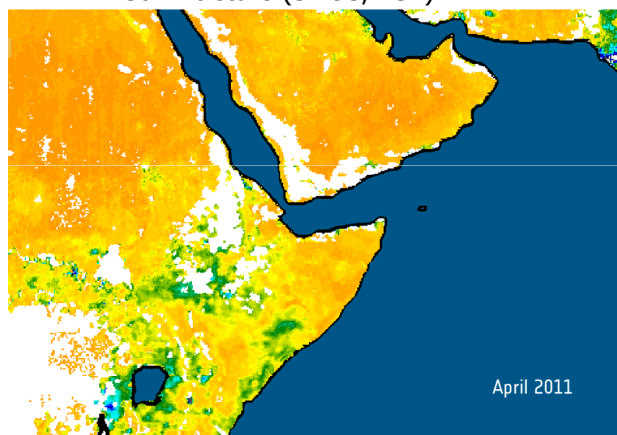
- * Mobile phone App for cholera-patient tracking
- * High-risk zones
- * Sand & dust forecasts
- * Meningitis predictive model
- * Tests in Benin, Togo, Nigeria
- * Reactive and preventive vaccination



Actionable Water Information

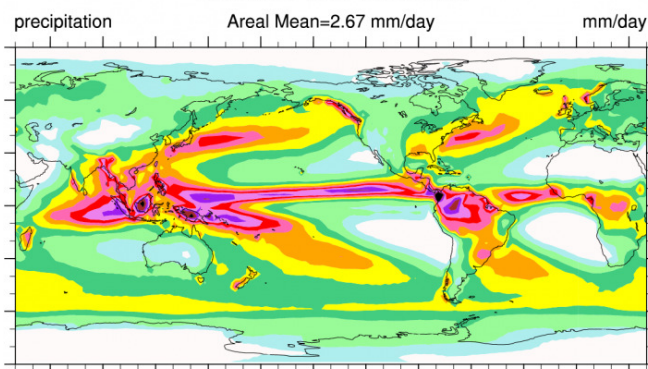
*(Austria, EC, Germany, Japan, USA,
CEOS, ESA, WCRP, WMO)*

Soil Moisture (SMOS, ESA)



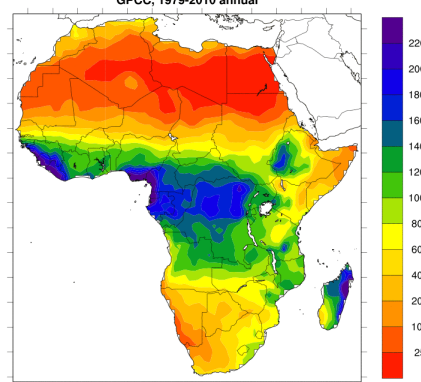
- * Global high-res precipitation datasets 1979-2010
- * New SMOS products & soil moisture datasets 1978-2010
- * Satellite data validation

TRMM GPCP: 1979-2010

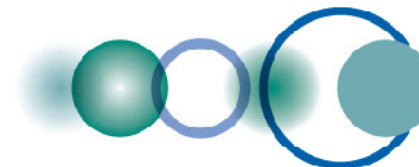


Precip
mm/day

GPCC, 1979-2010 annual



- * Global Drought Information System underway
- * Asian/African Water Cycle Initiative

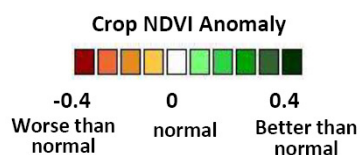
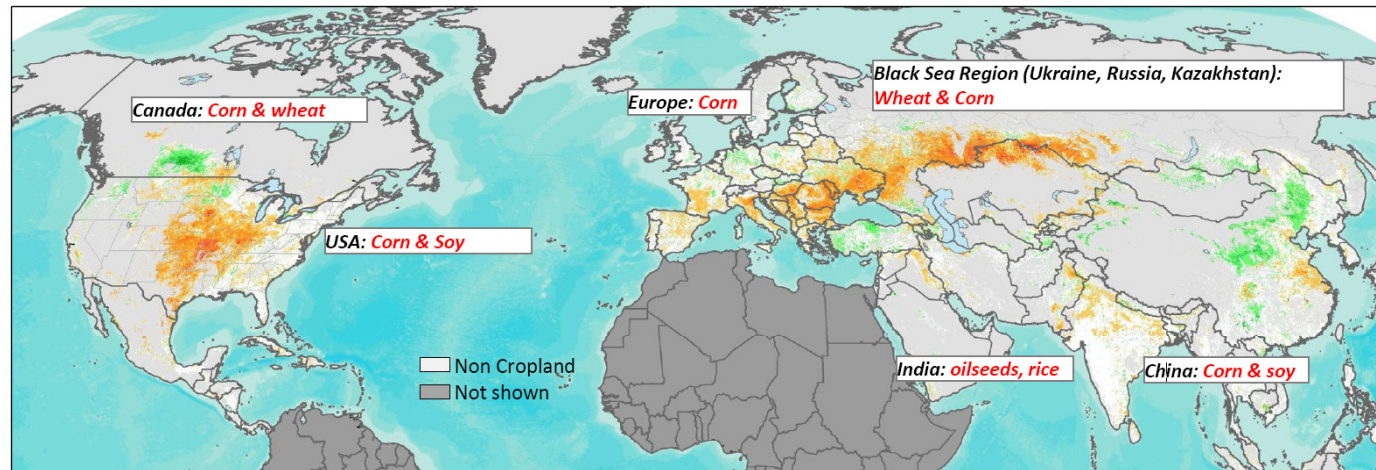


Crop Information for Decision-Making

(Canada, China, EC, France, Japan, Kazakhstan, India, Mexico, Russia, USA, CEOS, FAO)



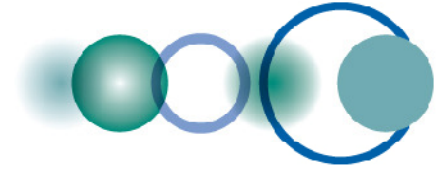
Northern Hemisphere NDVI Crop Anomaly, August 13th, 2012



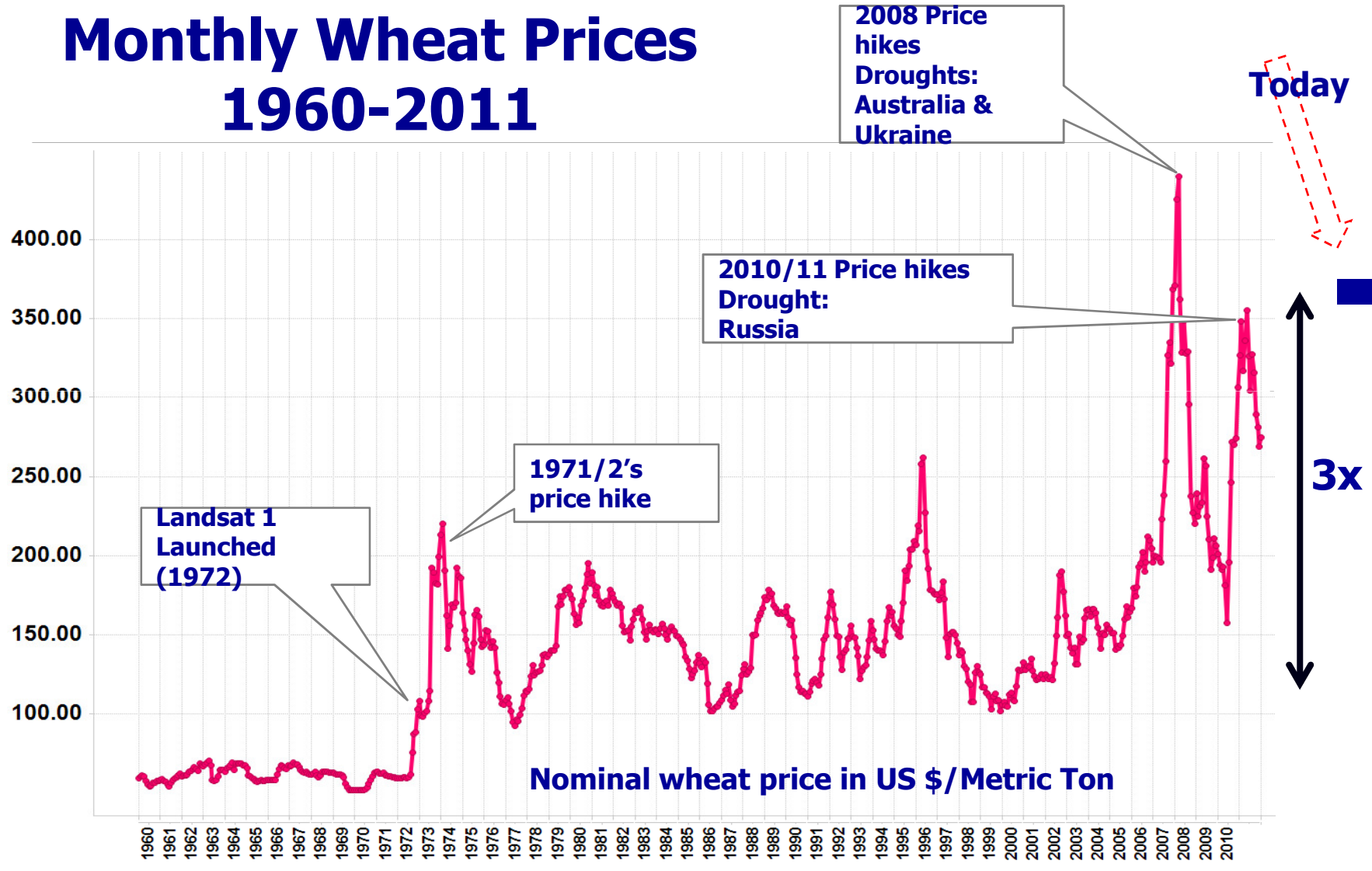
Observed highlights:

- 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



Monthly Wheat Prices 1960-2011



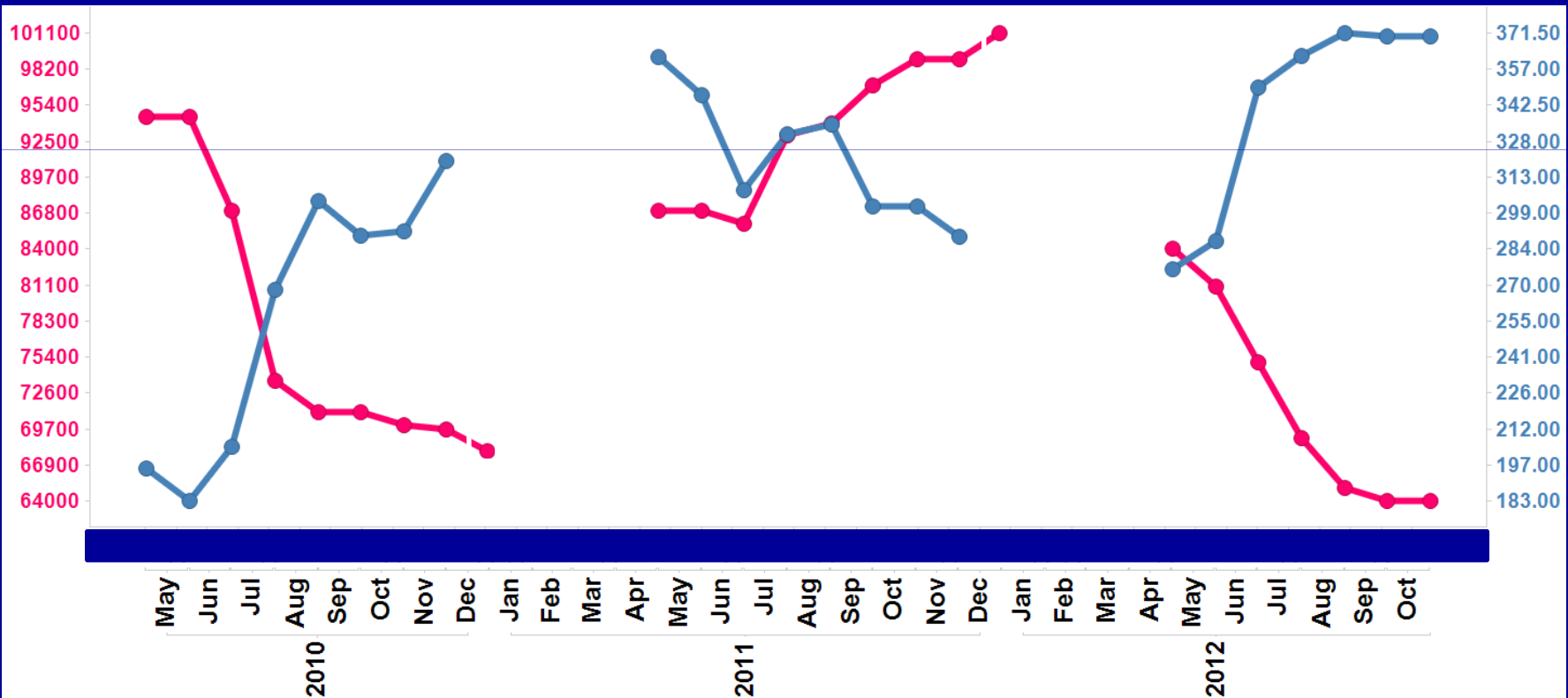


Making the case for improved crop forecasts

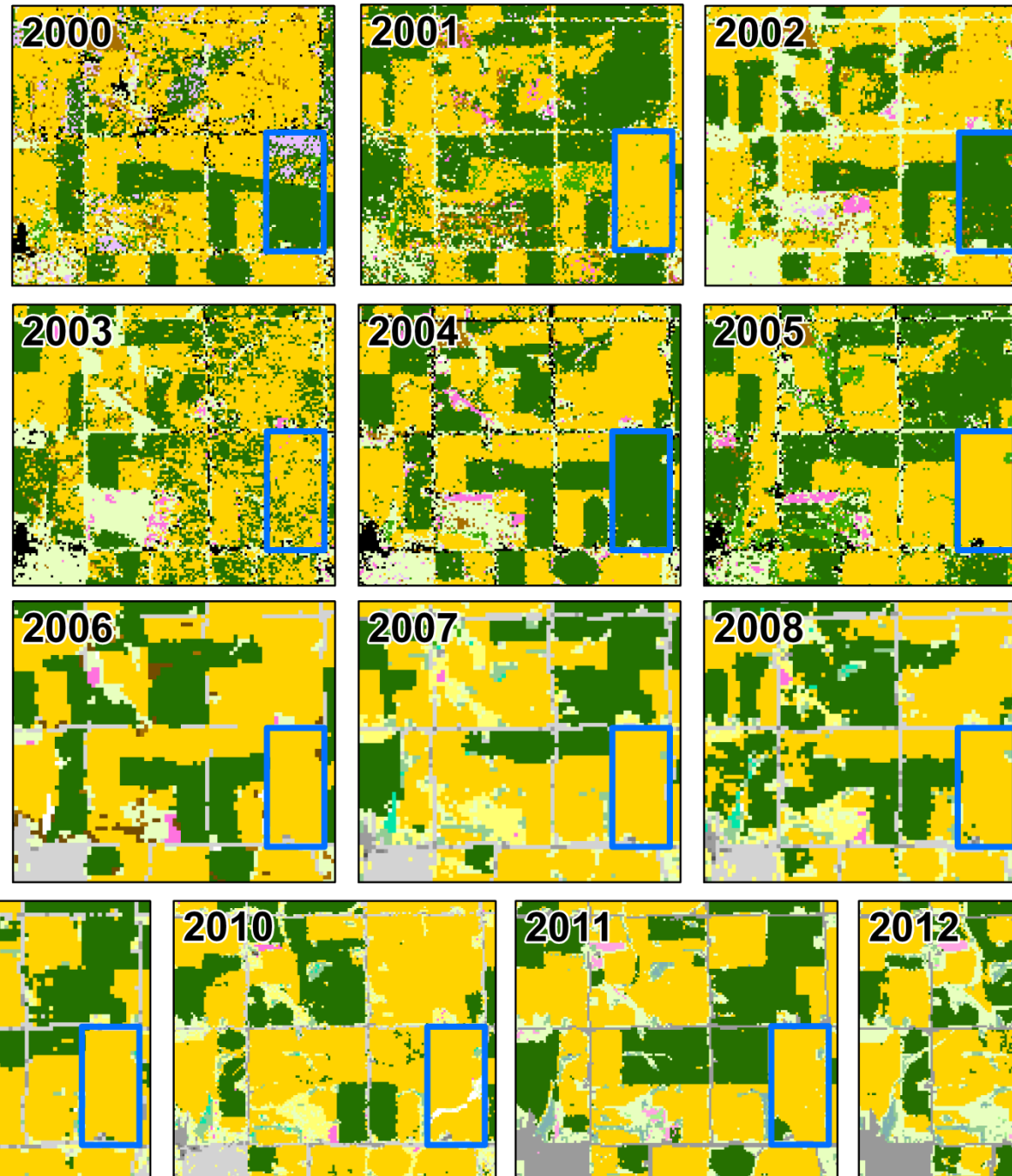
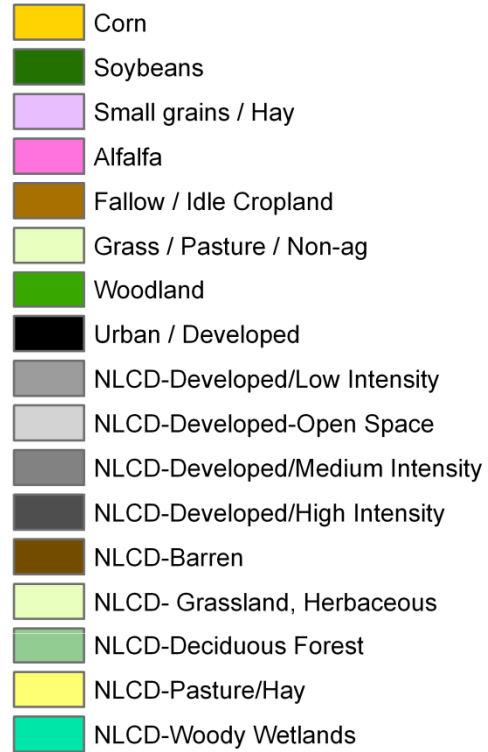
Aggregation of Wheat Production Forecasts from Main Wheat Export Countries vs. International Market Price 2010-2012

Production Forecasts (1,000 MT)

Price (\$/Ton)

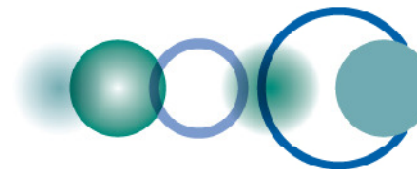


EXPLANATION



Waterloo





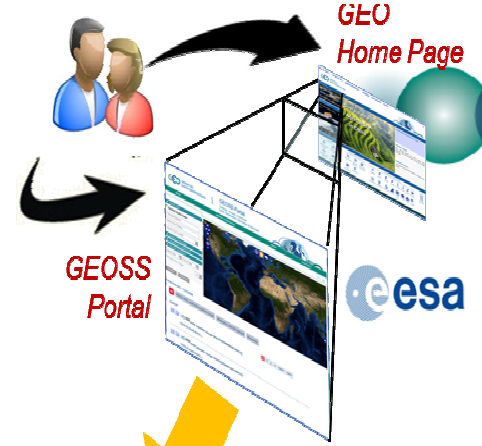
GEOSS Implementation Requires: ***Data Sharing Principles***

- **Full and Open Exchange of Data**
- **Data and Products at Minimum Time Delay and at Minimum Cost**
- **Free of Charge or Cost of Reproduction**





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

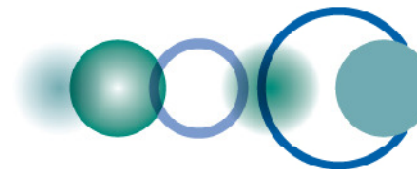


GEO Discovery & Access Broker

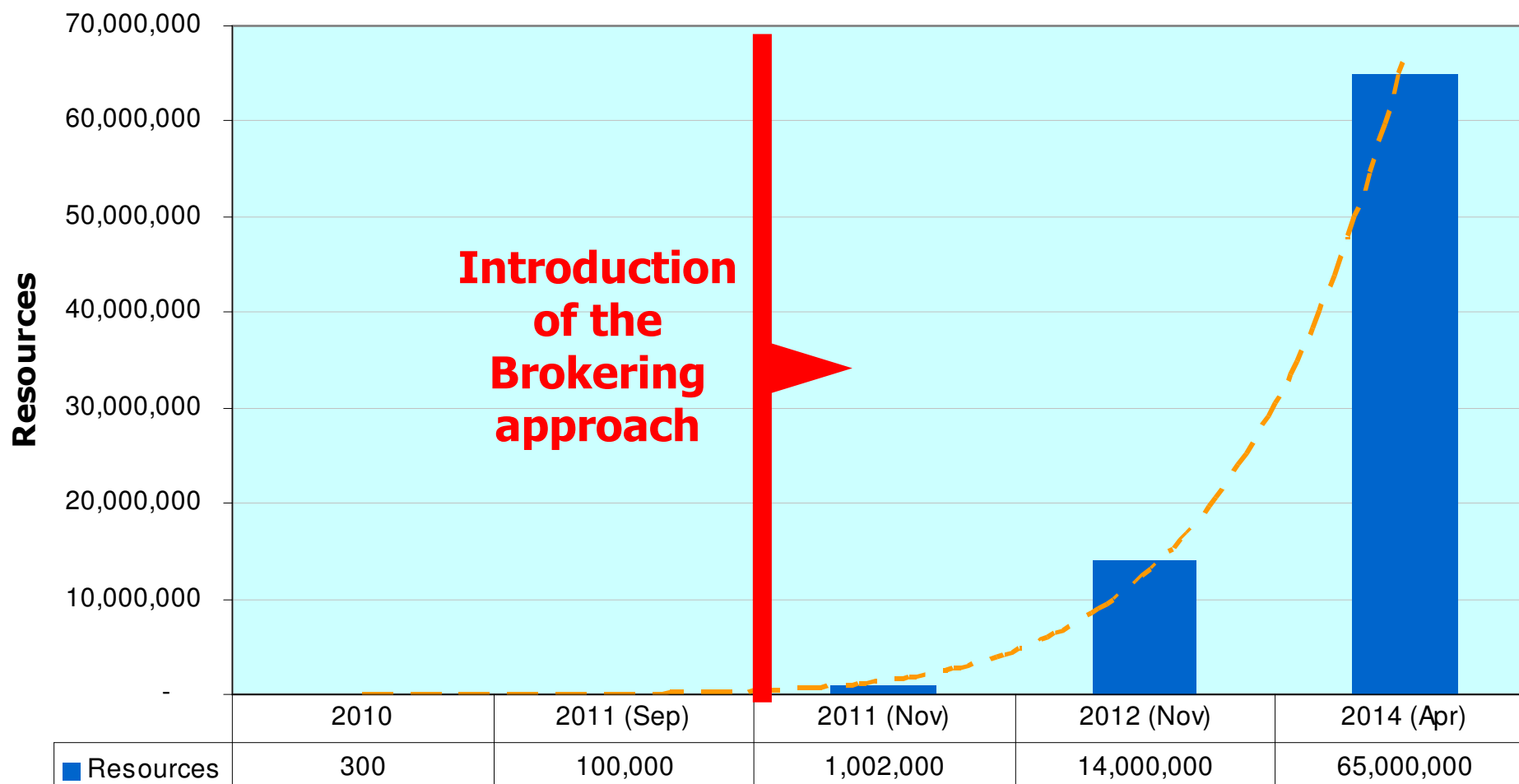


Private Sector (data, services, Apps, etc.)

GEOSS Common Infrastructure

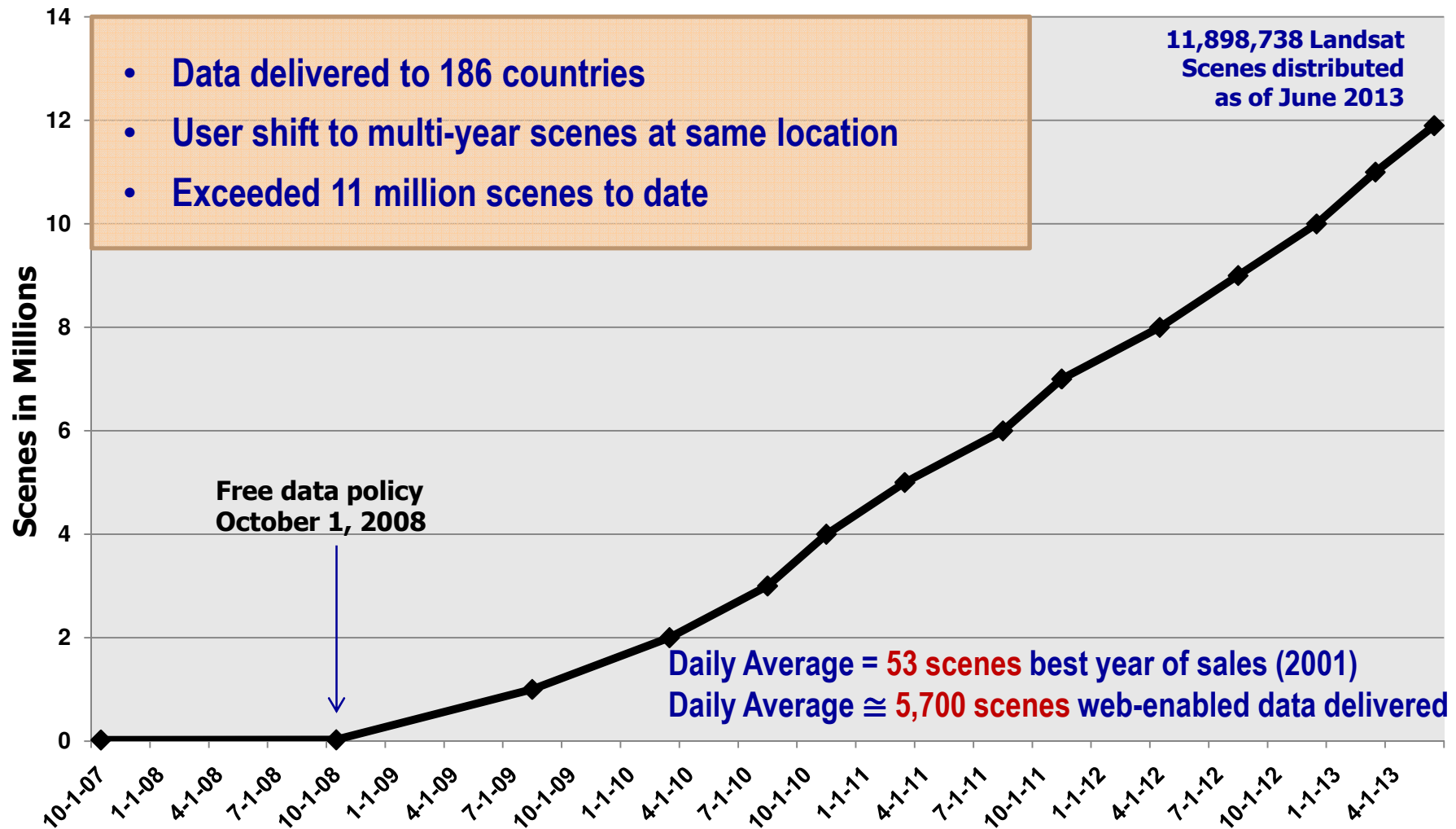


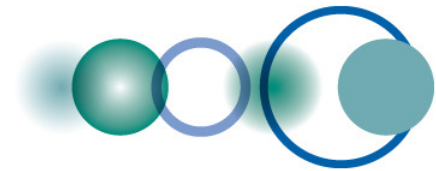
GEOSS Resources



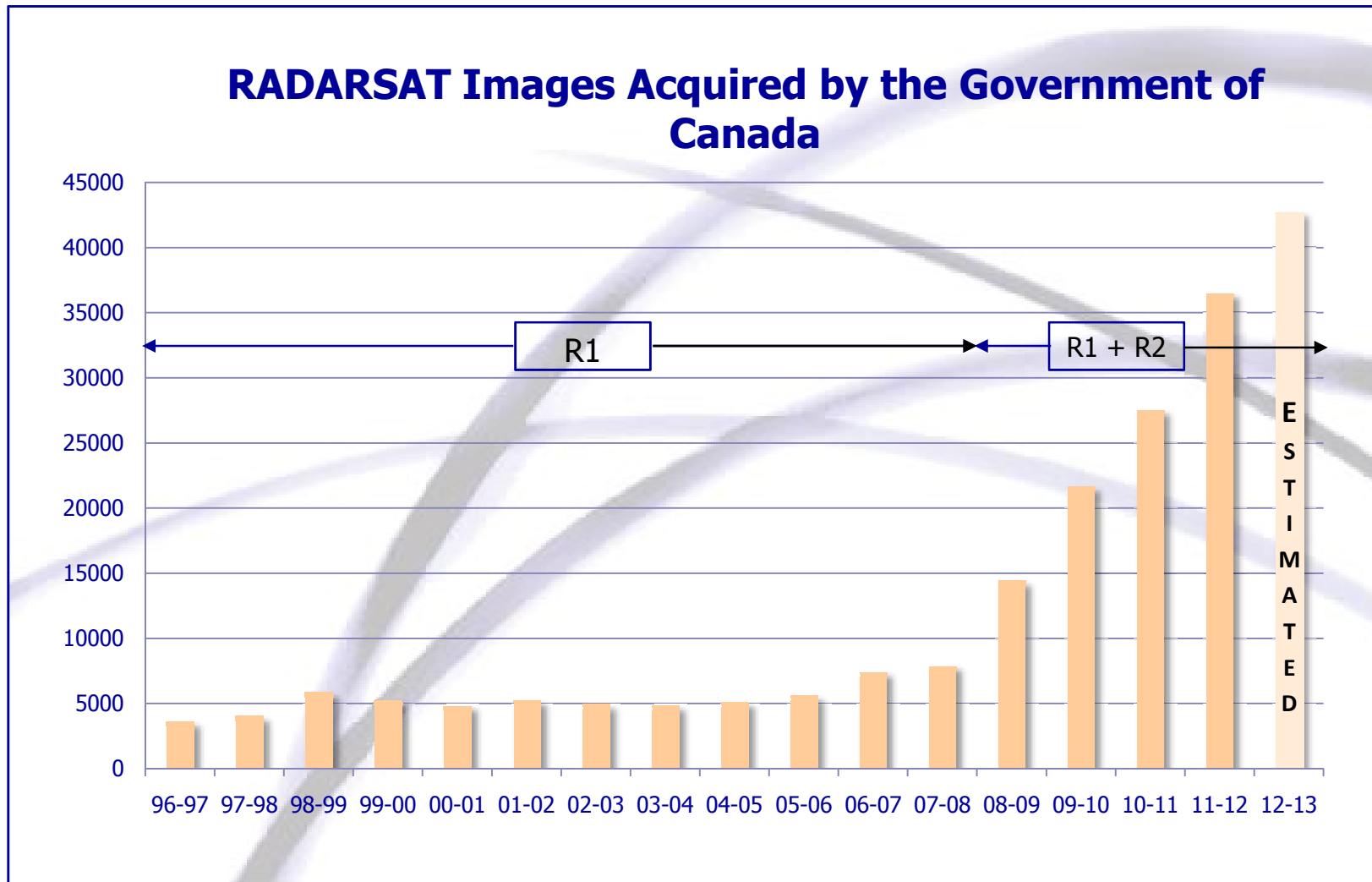


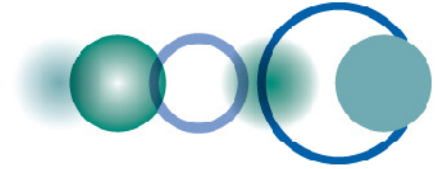
Increasing Demand for Free Landsat Data





Canada's Experience





Summary

- Broad open data policies/practices essential for publically funded collections & must be strengthened
- Economic value in downstream elements – value-added products and services
- Broaden stakeholder engagement needed, including the private sector
- Strengthen policy linkages/mandates
- National, Regional and International collaboration is essential

GEO-XI Plenary

13-14 November 2014

Libreville, Gabon

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<http://www.earthobservations.org>

