



Environmental Monitoring Programs

- Group on Earth Observations (GEO)
- European Space Agency (ESA)

Espen Volden
GEO Secretariat
Seconded from ESA

SCERIN-2 Krakow, Poland 9-10 June 2014







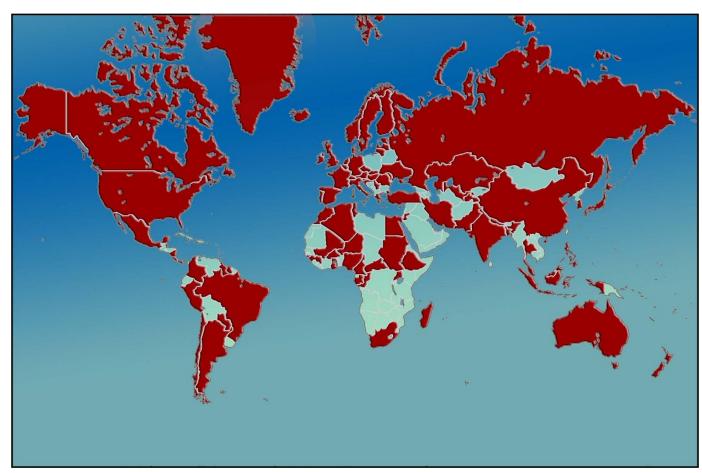
Created in 2005, to develop a coordinated and sustained Global Earth Observation System of Systems (GEOSS) to enhance decision making in nine Societal Benefit Areas (SBAs)

GEO today:

90 Members

77 Participating

Organizations







77 Participating Organizations































































EUMETNET



















































EUMETSAT





















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

Enabling a System of Systems ≥USGS ClearingHouse **IDDE** horizons



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



Current Assets



About 20 brokered data providers – capacities, systems, communities



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

Contain

More than 65 Million (50 Million GEOS)
Data Core) Discoverable and potentiall accessible granules (e.g. satellite scene raingauge record)













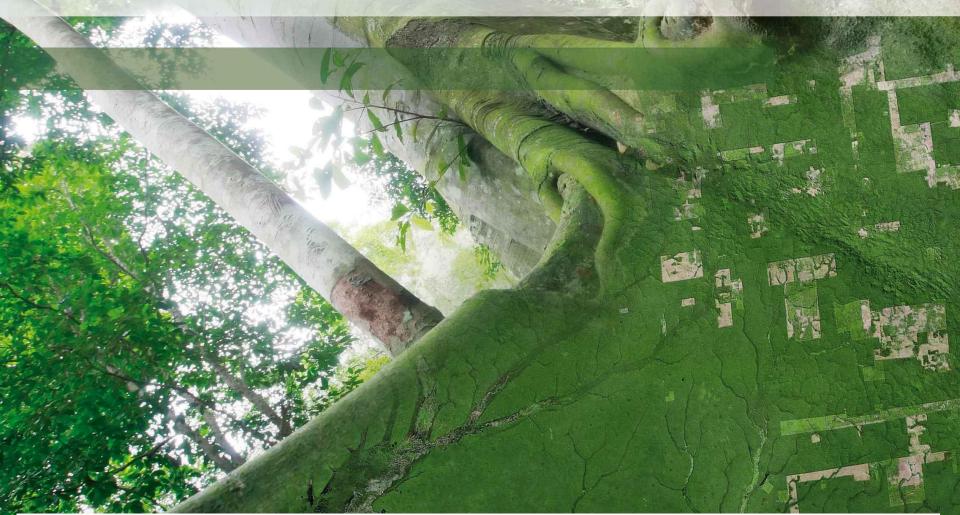






Resources

The Global Forest Observations Initiative





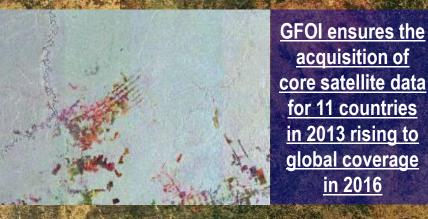




Department of the Environment







GFOI reviews
and promotes
research and
development
needed to
implement
national forest
monitoring

Review of Priority Research & Development Topics

RSD related to the use of Remote Sensing of Mathematic Format Manifestory

Version 1.0 December 2013



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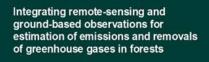


GFOI provides
capacity building in
coordination with
others such as UNREDD. It supports the
use of satellite and
ground data to monitor
forests, estimate

carbon stocks and

greenhouse gas

emissions



Methods and Guidance from the Global Forest Observation Initiative

Edition 1.0 January 2014







GFOI Methods and Guidance report:

Use of Satellite and
Ground data for
national forest
monitoring and
estimation of carbon
stocks and greenhouse
gas emissions

Consistent with IPCC
Guidelines and
UNFCCC requirements
as agreed in November
2013 in Warsaw.







Crop Information for Decision-Making

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



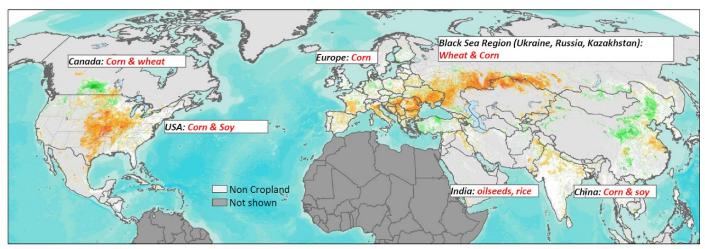


Crop NDVI Anomaly

normal

Better than





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

of G20 Action
Plan on Food
Price Volatility

Draft space strategy

GEOGLAM Crop Monitor in AMIS Market Monitor GROUP ON EARTH OBSERVATIONS **Crop Monitor** Crop Monitor is developed for AMIS* by GEOGLAM. It summarizes is Satellite-Based Vegetative Growth Anomalies depicts crop arowina rea NDVI is an indicator of photosynthesis often used for monitoring croplands. These anomaly images compare the NDVI for September 27th 2013 to the average NDVI for the same date from 2000-2012 harvest is in regions of the four AMIS crops. No. 13 -November 2013 2 prospects ar than average vegetation. Admi drought redu low for the vegetative. Red-Vegetative to prospects for Reproductive to Maturity, Black-Crop Monitor is developed for AMIS by GEOGLAM*. It summ sustained a crops based on regional expertise and analysis of satellite data, a Argentina o November significant c Market Monitor earlier than Satellite-Based Vegetative Growth Anomalies expected to season. Per the Balkans Based on Normalized Difference Vegetation Index (NDVI yield prosp No.11 - September 2013 www.amis-outlook.org conditions te from 2000-2012, over the main growing region: on than average, green indicates higher than Crop Monitor* The Market Monitor is a product of the September Agricultural Market Information System (AMIS), a Rice: Gro Crop Monitor is developed for AMIS by GEOGLAM*. It summarizes latest conditions (as of November 28th) for AMIS crops G20 initiative to provide information, analysis and moisture a short-term supply and demand forecasts. It covers conditions December though the in the sout Satellite-Based Vegetative Growth A Satellite-Based Vegetative Growth Anomalies season rice conditions an Based on Normalized Difference Vegetation Crop Monitor (As of 28 August) hased on the Normalized Difference Vegetation Index (NDVI) condition. In NDVI is an indicator of photosynthesis often used for monitoring croplands. These anomaly images compare the not significan NDVI is an indicator of photosynthesis often used for monitoring croplands. These anomaly images compare condition This is the first GEOGLAM Crop Monitor developed for AMIS*. It summarizes latest crop conditions for AMIS temperatures NDVI for November 28th, 2013 to the average NDVI for the same date from 2000-2012, over the main growing NDVI for August 28th 2013 to the average NDVI for the same date from 2000-2012, over the main growing region regions boos crops based on regional expertise and analysis of satellite data, ground observations, and meteorological data, regions of the four AMIS crops. Orange to red indicates less green vegetation than average, green indicates higher of the four AMIS crops. Orange to red indicates less green vegetation than average, green indicates higher the conditions aft than average vegetation. Administrative unit outline colours indicate crop growth stage; Blue = Planting to early and was conducted by experts from alobal, national and regional monitoring systems. For each of the four average vegetation. Administrative unit outline colours indicate crop growth stage: Blue-planting to ex that sown ar vegetative. Red = Vegetative to reproductive (generally the most sensitive crop growth period). Purple = crops, a paragraph summarizing current conditions is provided, accompanied by a satellite-based indicator egetative. Red-Vegetative to Reproductive (generally the most sensitive crop growth period). Puri Reproductive to maturity. Black = Areas out of season. Note: only AMIS countries are highlighted. map. Each map depicts crop yeartative growth anomalies from August 28th (relative to a 12 year gyerage) Reproductive to Maturity, Black-areas out of season. Note: only AMIS countries are highlighted growing cond third largest over the main crop growing regions within AMIS countries of the east were endo Wheat: Prospects are favourable in the Northern Hemisphere. Winter wheat harvest is complete and spring wheat is Africa, over in late-maturity to harvest stages. In the US, Canada, Russia and Kazakhstan spring wheat conditions are good though final yields will depend on favourable weather in the coming month. Crops in the Southern Hemisphere are in early-vegetative to reproductive stages and conditions are mostly favourable. In Australia overall conditions are average to above-average but rainfall in the next month will be critical as there is some concern over dry conditions in parts of the country. In Argentina conditions are good although additional moisture is needed. In Brazil frosts caused some significant crop damage and there is some concern over excessive wetness. In South Africa winter harvest almo wheat conditions have improved since July, following widespread precipitation nrocherte are crop is progr Maize: General conditions are good. In the US approximately half of the maize is in good to excellent condition and in spite of dry weather and rising temperatures in August, a bumper production is expected largely due to increased reduced in fa planted area. In Canada, conditions are favourable and yields are expected to be average to above average. In the EU, prospects are good except in northern Italy, Hungary, Austria, Slovenia and Croatia where there is concern due to late sowing and dry and hot conditions. In Russia, current yield prospects are favourable despite low soil moisture in been harvest the south. In China, India, Mexico and Ukraine conditions are generally good. In Brazil the second maize crop the following partners (in harvest is almost complete and it is expected to be favourable ARES/DA/CSIRO (Australia) an), ASIA RICE, IKI (Russia) Rice: Growing conditions are favourable. The monsoon season in South and Southeast Asia has mainta SDA FAS/ USDA NASS (US) moisture across most of the region. In India, conditions are favourable as monsoon rain. In Thailand, precipitation has been widespread, though there is some concern over local **Operational GEOGLAM Global Crop Condition** favourable conditions were maintained in Vietnam and the Philippines with some conce flooding. In China, good moisture conditions were maintained in the North China Plain t over flooding in the northeast and excess moisture in the southwest. Meanwhile, south beta release (2013). Crop conditions and above normal temperatures raise concern. In Japan, conditions are mo-Assessments published monthly within the Soybeans: Growing conditions are favourable. In the US, about half of the crop is in goo although prolonged dry conditions in the Midwest are raising concern. In China, condition North China Plain and in the Northeast production regions. In India, conditions are favo **G-20 AMIS Market Monitor Bulletin**



















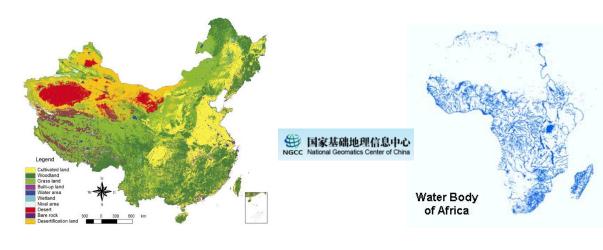






Advanced Land-Cover Products

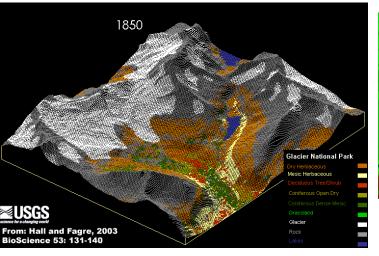
(Canada, China, EC, Greece, Japan, Netherlands, Nigeria, Spain, Sweden, UK, USA, Spain, EEA, ESA, GTOS, ISPRS)



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









GEO X Plenary & Ministerial Geneva 13 -17 January 2014

We, the Ministers and Participants assembled at the GEO Ministerial Summit in Geneva, Switzerland, on 17 January 2014:

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4. Renew the mandate of GEO through 2025 ... and agree to develop the work of GEO through 2025 in line with the recommendations put forward by the GEO-X Plenary as the foundation for shaping GEO through 2025.

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Espen Volden evolden@geosec.org



http://www.earthobservations.org





Backup Slides





The GEO community spans the entire information value chain

Data providers











Value-Added providers







Downstream users







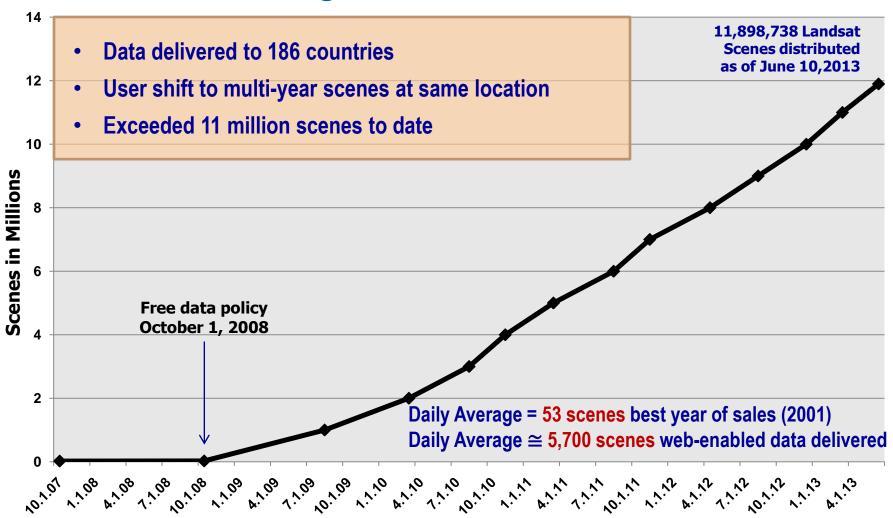








Increasing Demand for Landsat Data







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