



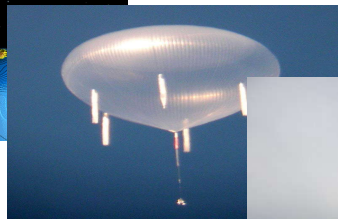
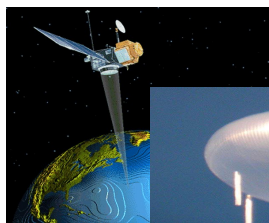
Public Health Surveillance Group on Earth Observations (GEO)

**OGC Health Summit
Dublin, 21 June 2016**

**Douglas Cripe
GEO Secretariat**



Observations – In, On, Around the Earth





GEO, the Group on Earth Observations

An Intergovernmental group with 103 Members and
95 Participating Organizations



U.S. Department of State, Washington, DC
July 21, 2013

Mexico City Declaration



We, Ministers, GEO Members and Participants attending the Group on Earth Observations (GEO) Mexico City Ministerial Summit:

- 1. Confirm** that full and open access to Earth observation data, information and knowledge is crucial for humanity as it faces unprecedented social, economic and environmental challenges at global, regional, national and local levels.
Recognize that Earth observation data and the information and knowledge derived from those observations are fundamental for identifying and implementing solutions, monitoring progress and measuring impacts.

Mexico City Declaration



10. Reaffirm support for GEO's Data Sharing Principles, and the expansion of standards-based open access to data, information and knowledge. **Resolve** to pursue the implementation of the GEO Data Sharing and Data Management Principles to the extent permitted by national laws and policies. **Acknowledge** the contribution of national and international open data initiatives in accordance with GEO Data Sharing Principles. **Call upon** the global Earth observations community to make, to the largest extent possible, Earth observation data available and accessible through the GEOSS.



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





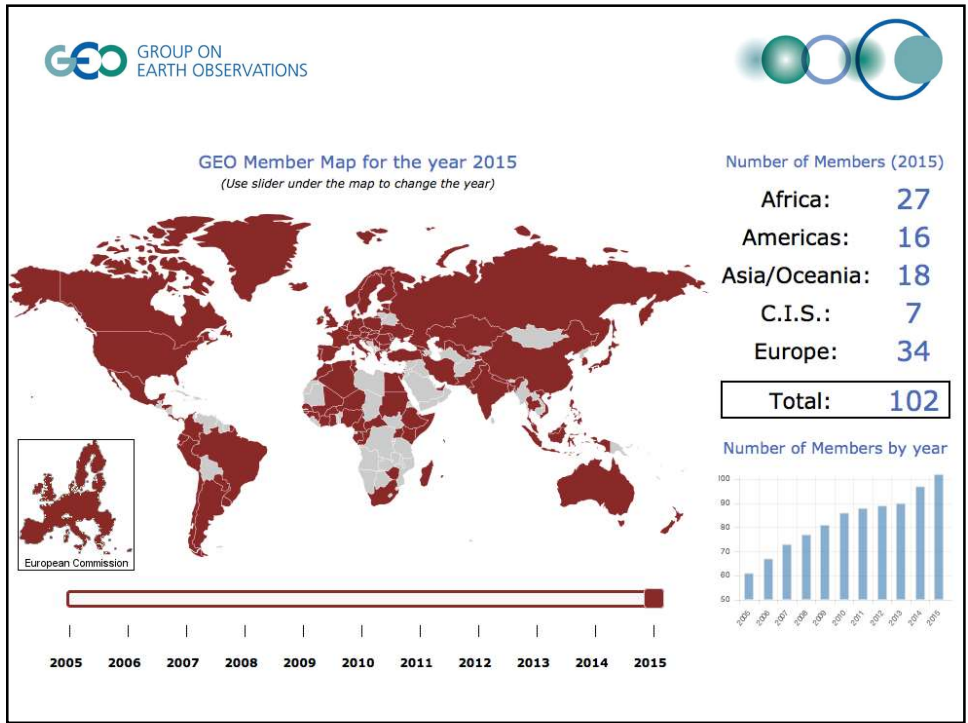
GEO Vision

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



GEO Objectives

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





Global Earth Observation System of Systems (GEOSS)

“Technology is a valuable tool that has the potential to transform the way we work, can deliver cost efficiencies, increase transparency, and make the work of an organization more relevant to what is happening around the world in real time.

When used **effectively**, technology can accelerate progress toward development goals in **health, food security, climate change, energy and environmental sustainability**”.



GEO promotes a Broad Open Data Policy

EO Information Flow: El-Nino related issues for Eastern Africa and increasing cases of Cholera

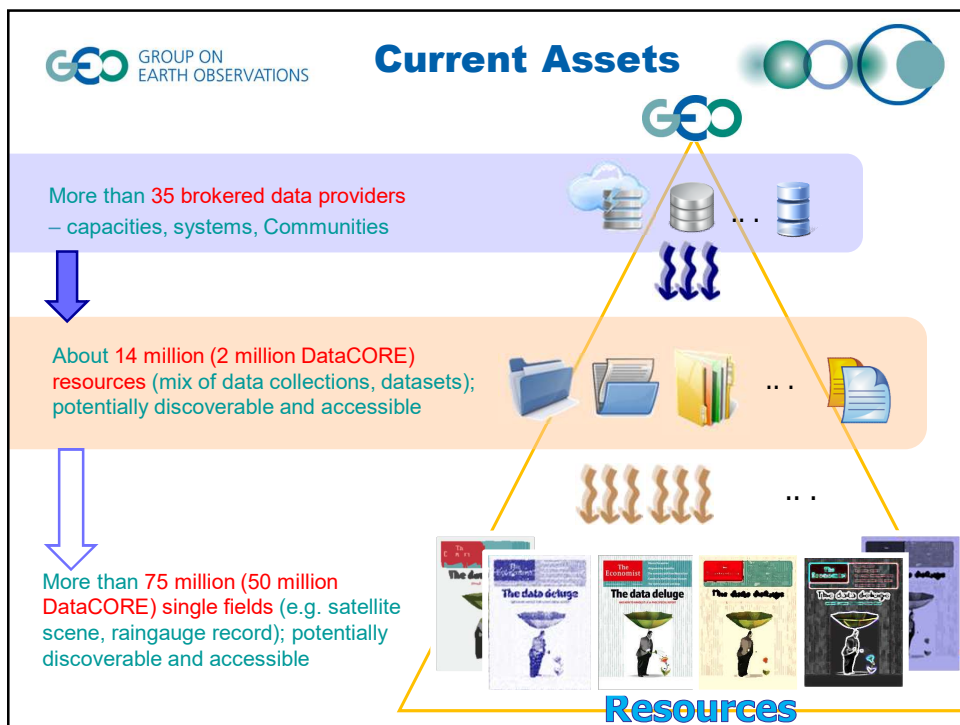
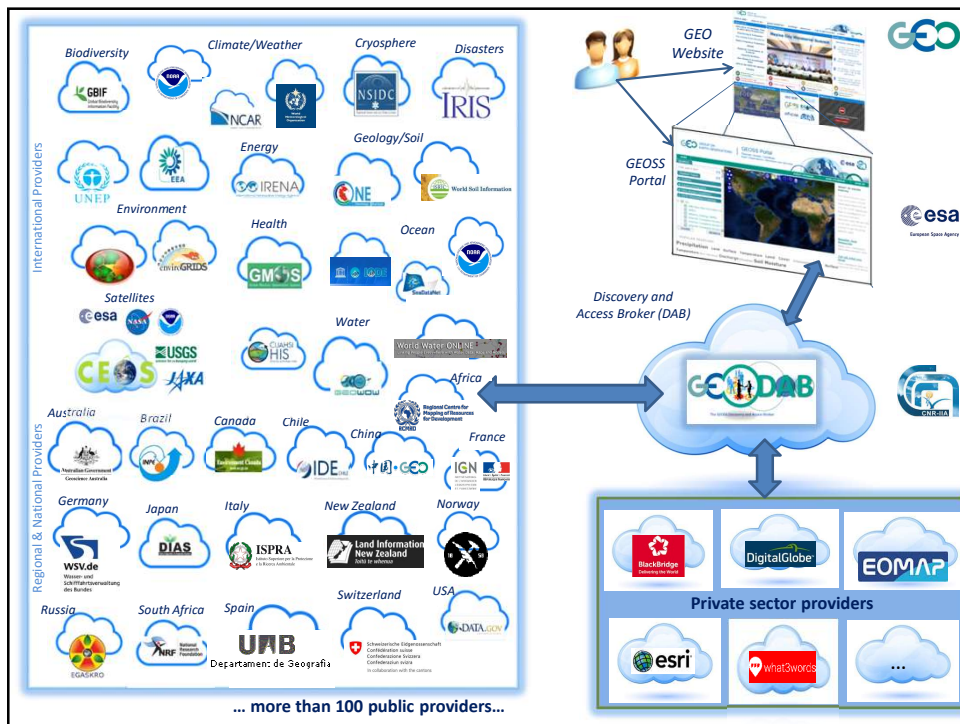
- Scientific reports
- Long-term series of climate, meteorological, hydrological data
- Population / Human settlement
- Agriculture
- Land Use
- Wetlands
- Infrastructure

GEO GROUP ON EARTH OBSERVATIONS



GEOSS Provides Coordinated Access to Information from Various Sources





GROUP ON EARTH OBSERVATIONS **GEOSS Portal**

Discover, Access, Contribute Earth Observation Information & Services

HOME SEARCH GEOSS ABOUT GEOSS PORTAL HELP CONTACT

Focus on: Precipitation (DAB)

SEARCH: hazard
Related Topics: x

Theme: +
Country/Geography: +
Data Access Conditions: +
Earth Observation Catalog: +

Start Date: [] End Date: []

Showing list of Metadata's WMSs

ndh:ndh-cyclone-hazard-frequency-distribution DAB Complex [] Load on Map

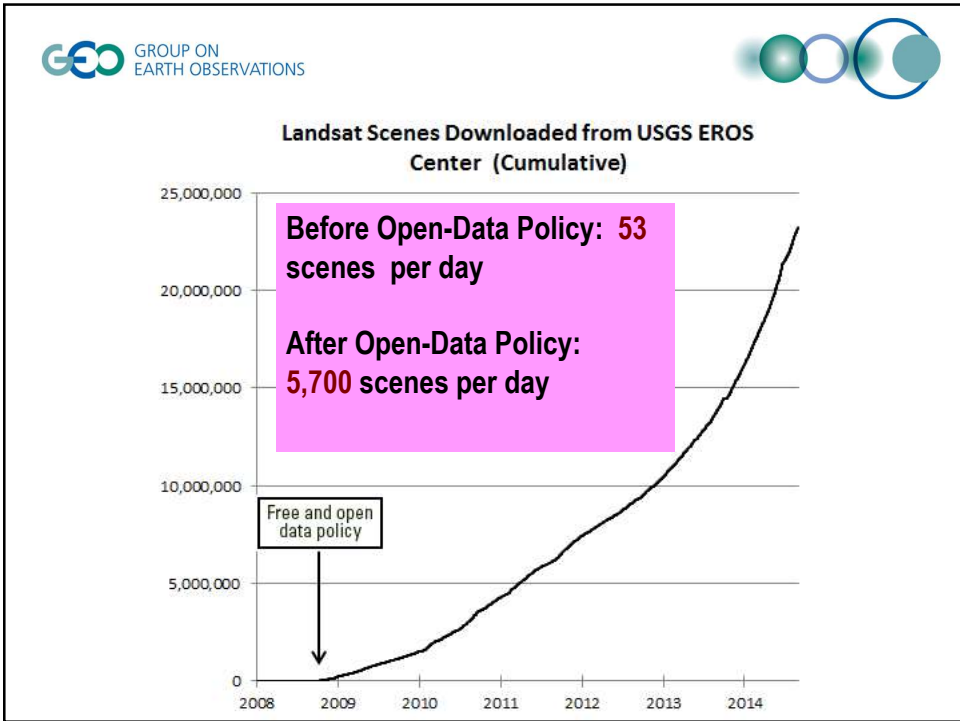
ndh:ndh-cyclone-hazard-frequency-distribution DAB Simple [] Download

Total Results: 108

All Datasets Websites and documents

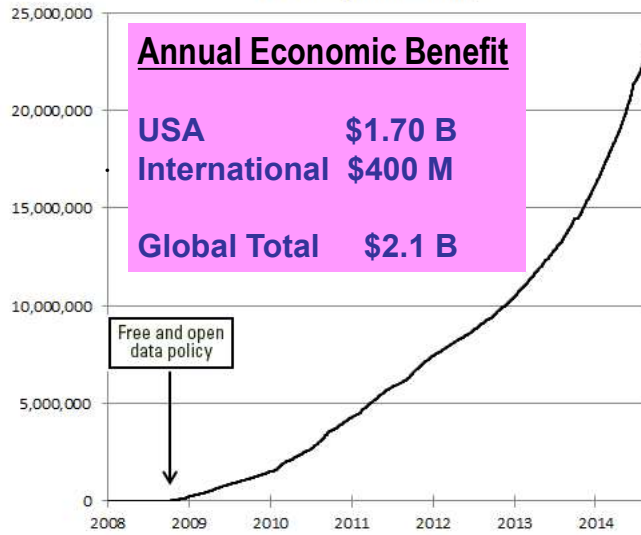
Legend

Cyclone Hazard Frequency Distribution
Global Cyclone Hazard Frequency and Distribution is a 2.5 minute grid based on more than 1,600 storm tracks for the period 1 January 1980 thro





Landsat Scenes Downloaded from USGS EROS Center (Cumulative)



GEO and SDGs



THE GLOBAL GOALS For Sustainable Development



Mexico City Declaration



2. Affirm that GEO and its Earth observations and information will support the implementation of, inter alia, the 2030 Global Goals for Sustainable Development...

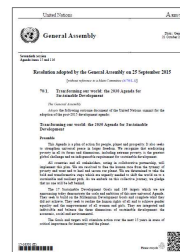
8. Call on GEO to launch a GEO initiative to leverage Earth observations to support the implementation, monitoring and evaluation of the 2030 Global Goals for Sustainable Development, building on the recent success of GEO's engagement with the United Nations on this issue.

GEO supported events to raise awareness about roles of Earth obs and geospatial to support the SDGs:

- Feb. 2015 Side Event at UN Headquarters
- April 2015 Briefing at UN Headquarters

GEO is an Anchor Partner and member of the Interim Steering Committee and Working Groups on Global Collaboratives, Data Principles and Protocols, and Data Architecture

Transforming our World: The 2030 Plan for Global Action - Article 76:
We will promote transparent and accountable scaling-up of appropriate public-private cooperation to exploit the contribution to be made by a wide range of data, **including Earth observation and geo-spatial information**, while ensuring national ownership in supporting and tracking progress.



GEO WORK PROGRAMME: GEO INITIATIVE GI-18 (DOCUMENT 15)

GEO Initiative GI-18

GEOs role in defining the indicators for the Sustainable Development Goals (SDGs) and providing support to countries in measuring, monitoring and achieving the SDGs.

Goals

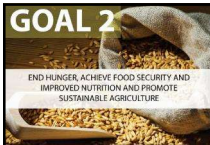
- 1) To engage with Member States, the UN Statistics Division and other partners in the development of the indicators supporting the SDG Goals and Targets to be approved by the UN Statistical Commission in March 2016.
- 2) Develop pilot projects in one or more GEO Member countries focused on integrating Earth observations with national statistical accounts to better measure, monitor and achieve the SDGs.

Earth Observations and Geospatial Information



Support to SDGs
 Direct measures of some Indicators and indirect support to others.
 Contribute to progress on the Targets, which will show up in the Indicators.

	Population distribution	Cities and infrastructure mapping	Elevation and topography	Land cover and use mapping	Oceanographic observations	Hydrological and water quality observations	Atmospheric and air quality monitoring	Biodiversity and ecosystem observations	Agricultural monitoring	Hazards, disasters and environmental impact monitoring
1 No poverty										
2 Zero hunger										
3 Good health and well-being										
4 Quality education										
5 Gender equality										
6 Clean water and sanitation										
7 Affordable and clean energy										
8 Decent work and economic growth										
9 Industry, innovation and infrastructure										
10 Reduced inequalities										
11 Sustainable cities and communities										
12 Responsible consumption and production										
13 Climate action										
14 Life below water										
15 Life on land										
16 Peace, justice and strong institutions										
17 Partnerships for the goals										



Target 2.4:
 By 2030 ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production ...

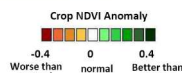
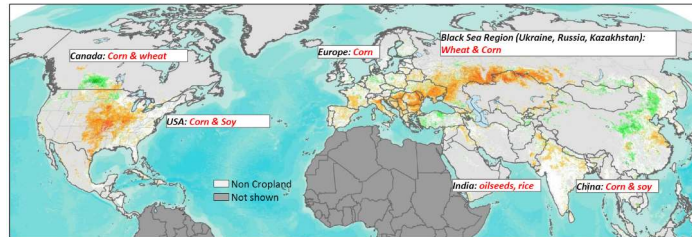
Target 2.c:
 Adopt measures to ensure the proper functioning of food commodity markets and their derivatives, and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility.

Global observations routinely provide early insights on anomalies in crop condition and aid food supply and production forecasts.

The Agricultural Market Information System includes monthly crop health estimates in the Market Monitor.



Northern Hemisphere: August 2012 Crop Conditions



- 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



Target 14.2:
By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration, to achieve healthy and productive oceans

Target 14.3:
Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels

Source: NOAA/NESDIS

Coral Reef Watch

Ecosystem-Based Management of Tropical Coral Reef Environments

NOAA Coral Reef Watch Daily 5-km Blended Geo-Polar Night-Only Sea Surface Temperatures 20 Apr 2015

NOAA Coral Reef Watch Daily 5-km Blended Geo-Polar Night-Only Degree Heating Weeks 20 Apr 2015

Sea Surface Temperature

Degree Heating Weeks

NO Data
2 0
No Data
2 0

Bleaching Alert

NOAA Coral Reef Watch Daily 5-km Blended Geo-Polar Night-Only Bleaching Alert Area 74 Max 20 Apr 2015

Bleaching Alert

No Stress Watch Warning Alert Level 1 Alert Level 2

<http://coralreefwatch.noaa.gov/satellite/bleachingskm/index.php>



Target 3.9:
By 2030 substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination



Target 11.6:
Reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality, municipal and other

Air Quality: Particulate Matter

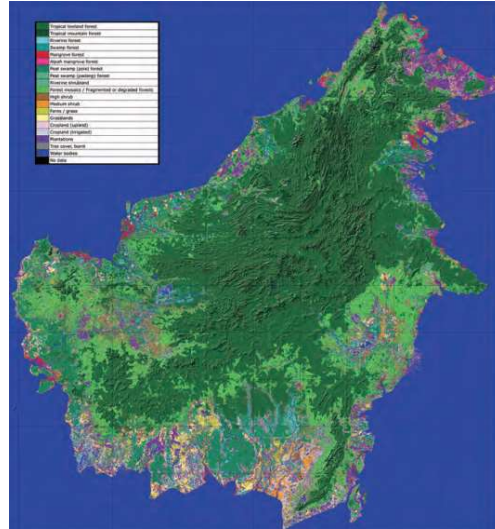
Global Annual Average PM_{2.5} Grids, 2010

Source: CIESIN



OBSERVATIONS

Land Use and Land Cover Mapping



Forest and land cover map featuring 18 classes

- Lowland forest
- Riverine forest
- Swamp forest
- Mangrove forest
- Nipah mangrove forest
- Peat swamp pole forest
- Peat swamp / Riverine shrub
- Forest mosaics
- High shrub
- Medium shrub
- Ferns / grass
- Grasslands
- Cropland (upland)
- Cropland (irrigated)
- Plantations
- Tree cover, burnt
- Water bodies
- Layover / Shadow
- No strip coverage
- Mountain forest

Source: JAXA EORC; CEOS EO Handbook. ALOS PALSAR image, 2007; Sarvision (NL)