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GEO: an intergovernmental body that promotes open Earth Observation data availability, access and use



Observations in, on and around the Earth



NASA image by Jeff Schmaltz, LANCE/EOSDIS Rapid Response



104 National Governments





106 Participating Organisations





Societal Benefit Areas





Landsat Scenes Downloaded from USGS EROS Center (Cumulative)





Landsat Scenes Downloaded from USGS EROS Center (Cumulative)





Commitment to use EO for policy



Ministerial Declaration, GEO Plenary XII, Mexico City, 2015

"Affirm that GEO and its Earth observations and information will support the implementation of, inter alia, the 2030 Global Goals for Sustainable Development, the Sendai Framework for Disaster Risk Reduction 2015-2030, the United Nations System of Environmental and Economic Accounts, and the United Nations Framework Convention on Climate Change."



Disaster Resilience (Sendai Framework)



UN World Conference on Disaster Risk Reduction 2015 Sendai Japan The Sendai Framework includes language recognizing that Earth observations have a clear role in Disaster Risk Reduction. **GEO's Data Access for Risk Management** (**GEO DARMA**) is building a framework for the integration of Earth observation technologies into Disaster Risk Reduction.

The GEO community is working closely with UNISDR on the Global Platform for Disaster Risk Reduction (GPDRR) and with UNECE/UNESCAP on Disaster Statistics and Geospatial Information.



Disaster Resilience

Initiativ	Community Activities								
IN Data access for Risk Manageme ► Ivan Petitevill	MA	CA EO for Disaster Risk Management ▶ Ivan Petiteville / Kerry Sawyer							
IN GEO Geohazard Supersites and № ► Stefano	L)	CA Global Flood Risk Monitoring ▶ David Green							
IN	C	CA	CA						
Global Wildfire Information System	Space an	d Security	ty Chinese Tsunami mitigation sys						
▶ Jesus San-Miguel-Ayanz	▶ Sergi	o Albani	► WEN Ruizhi						
IN	CA								
GEO Human Planet Initiative	Geohazards, Land Degradation and Environmental Monitoring								
► Martino Pesaresi	► Isabel Pino								
IN			CA						
Global Drought Information System (GDIS) Glo			Global Flood Awareness System (GloFAS)						
► Will Pozzi			► Fredrik Wetterhall						



Climate Change (Paris Agreement)



Source: GEOCARBON project



UN Agenda 2030 (Sustainable Development)



- GEO working closely with UN-GGIM, notably through the Working Group on Geospatial Information (WGGI) under the Inter Agency Expert Group (IAEG) of UN Statistics Division;
- GEO initiative in service of Agenda 2030 EO4SDGs;
- GEO is an EO Anchor Partner for the Global Partnership for Sustainable Development Data (GPSDD).



Earth Observations: Goals, Targets and Indicators

Alignment of the SDGs with specific types of Earth observation and geospatial information "products".

SUSTAINABLE DEVELOPMENT GOALS	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 Gean 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										Ĩ
14 Life below water										
15 Life on land										
16 Peace, justice and strong institutions										
17 Partnerships for the goals										



EO case studies: Agenda 2030



GEO is instrumental in integrating use of Earth observation data into the methodology of measuring and achieving Sustainable Development Goal Indicators.

This brochure gives graphic illustration of the types of EO data sets and images available which means decision-makers can not only use data to identify the status they need to report, they can visualize the solution, too.

https://www.earthobservations.org/documents/publications/201703 geo eo for 2030 agenda.pdf



Decision tree on usage of EO data for National Statistical Organisations



https://www.earthobservations.org/documents/publications/201703_geo_eo_fo r_2030_agenda.pdf P30



Integration of EO & statistical data to report on SDGs [Indicator 68: Ratio of land consumption & population growth rates]



USE OF SATELLITE IMAGES TO CALCULATE STATISTICS ON LAND COVER AND LAND USE: PILOT PROJECT REPORT FROM DANE (National Statistics Office of Colombia)





Target 6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes. Indicator 6.6.1 Change in the extent of water-related ecosystems over time.

GLOBAL MANGROVE WATCH – MAPPING EXTENT AND ANNUAL CHANGES IN THE GLOBAL MANGROVE COVER



Left: Mahakam delta, East Kalimantan. L-band SAR temporal composite. Red areas indicate mangrove loss. Right: Corresponding mangrove change map, showing 2010 extent in green and changes between 1996 and 2010 in red (losses) and blue (gains).

Mangroves are of critical importance as breeding and nursery areas for birds, fish and shellfish and play an important role in the regulation of freshwater, nutrients and sediment inputs into the marine coastal waters. They provide coastal protection from storms and as more organic carbon is produced than degraded they constitute significant pools for carbon sequestration, categorized as forests within the UNFCCC REDD+ scheme. The Ramsar Convention on Wetlands, together with UN Environment, is supporting the development and implementation of this SDG Indicator.





3 GOOD HEALTH

Target 11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.

Indicator 11.6.2 Annual mean levels of fine particulate matter (eg. PM2.5 and PM10) in cities (population weighted).

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

Indicator 3.9.1 Mortality rate attributed to household and ambient air pollution.

MEASURING AIR QUALITY IN CITIES AND ACROSS REGIONS



Himawari-8 geostationary satellite delivers aerosol data every 10 minutes with 5km resolution. Hot spot detection and forest fire monitoring are conducted using other low Earth orbiting satellites, together contributing to estimates of particulate matter.

Air pollution is now considered the world's largest environmental health risk. The World Health Organization (WHO) attributes 3.2 million deaths to air pollution in 2012. People living in Asia are considered most at risk. Fine particulate matter concentrations over cities are estimated by numerical modeling, integrating satellite data and in situ data. Data are critical for policy decision making on air quality management in urban areas. Monitoring air quality through Earth observations can increase cooperation between Europe, Asia-Pacific countries, and the US, and foster cooperation in monitoring haze caused by forest fires, yellow sands, and air pollution.





Target 15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests, and substantially increase afforestation and reforestation globally.

Indicator 15.2.1 Progress towards sustainable forest management.

EARTH-OBSERVING SATELLITES CAN TRACK TREE COVER EXTENT AND FOREST LOSS AND GAIN OVER TIME

The Intergovernmental Panel on Climate Change (IPCC) has reported that landuse change, dominated by tropical deforestation, make up to one quarter of human-induced CO2 emissions. Reducing Emissions from Deforestation and forest Degradation (REDD+) and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks in developing countries looks to provide financial incentive for countries to maintain and sustain forests. GEO's Global Forest Observations Initiative (GFOI) aims to provide countries with satellite data coverage in addition to methods and guidance to facilitate reporting. Further, GEO's Initiative, Earth Observations in Service of the 2030 Agenda for Sustainable Development (EO4SDGs), is currently working with, and looking for additional candidate, countries to demonstrate the added value of Earth observations and geospatial information to help track, measure, and monitor progress towards sustainable forest management, and support national-level SDG reporting.





IAASARS

Coordinating and integRating state-of-the-art Earth Observation Activities in the regions of North Africa, Middle East and Balkans and Developing Links with GEO related intiatives toward GEOSS

Thematic Areas





Commercial sector focus and launch of revised GEOSS Portal

Stephen Briggs @ESA @CEOSdotORG charts how GEO activities and initiatives can and will support #agenda2030 @GlobalGoalsUN #SDGs #GEOweek 16



GEO GEO2025 @GEOSEC2025 Nov 10

GEO XIV Plenary to be held in Washington DC, Oct 23-27, 2017; GEO XV in Japan, 2018 #GEOweek16



GEO GEO2025 (CELINECAUS Nov1

#GEOweek16 >400 participants, 20 side events, 10 exhibits and 75 attendees from commercial sector - one of the best attended ever





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GEO2025 @GEOSEC2025 Nov 9 Market for EO predicted at 3.5b by 2024, Sanjay Kumar @geoworldmedia thinks it will be much more #GEOweek16



GEO GEO2025 GEOSEC2025 North

The new look #GEOSS Portal with easy search, improved filters, base maps and intuitive navigation go to geoportal.org #GEOweek16

& ESA, ESA EarthObservation, NOAA and 6 others



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GE02025 GGE0EC2025 Nov1 Message from #space #ISS to #GEOweek16 use of #EO for the benefit of all citizens #EOhasnoBorders youtu.be /C7nmvNb1z14

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Access, visualise and download data from the GEOSS Portal <u>www.geoportal.org</u>





GEOSS Common Infrastructure (GCI)







GCI for Water

GCI for Water - Virtual Seminar 29 March 2017 14.00 – 16.00 Geneva Time (CET)

Presentation of Flagships and Initiatives under the Water SBA
Toshio Koike – DIAS (Data Integration and Analysis System)
Will Pozzi - GDIS (Global Drought Information System)
Angelica Gutierrez, GEOGLOWS (GEO Global Water Sustainability)
Steven Greb – Aquawatch (GEO Water Quality Community of Practice)
Happedo Savela – GEOCRI (GEO Cold Pegion Initiativo)

Pannele Savela – GEOCRI (GEO Cold Region Initiative)

GCI for Agriculture -Virtual Seminar GCI for Biodiversity - Virtual Seminar GCI for Climate - Virtual Seminar etc etc









For more information: www.earthobservations.org www.geoportal.org

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