

GEO & the SDGs

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Group on Earth Observations

Our priorities

What are GEO's priorities?


GEO's global priorities include supporting the UN 2030 Agenda for Sustainable Development, the Paris Agreement on Climate Change, and the Sendai Framework for Disaster Risk Reduction.





SDGs and Earth Observation

United Nations A/RES/70/1

 **General Assembly** Dist.: General
21 October 2015

Seventieth session
Agenda items 15 and 116

Resolution adopted by the General Assembly on 25 September 2015
[without reference to a Main Committee (A/70/L.1)]

70/1. Transforming our world: the 2030 Agenda for Sustainable Development

The General Assembly
Adopts the following outcome document of the United Nations summit for the adoption of the post-2015 development agenda:

Transforming our world: the 2030 Agenda for Sustainable Development




Preamble

This Agenda is a plan of action for people, planet and prosperity. It also seeks to strengthen universal peace in larger freedom. We recognize that eradicating poverty in all its forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable development.

All countries and all stakeholders, acting in collaborative partnership, will implement this plan. We are resolved to free the human race from the tyranny of poverty and want and to heal and secure our planet. We are determined to take the bold and transformative steps which are urgently needed to shift the world on to a sustainable and resilient path. As we embark on this collective journey, we pledge that no one will be left behind.

The 17 Sustainable Development Goals and 169 targets which we are announcing today demonstrate the scale and ambition of this new universal Agenda. They seek to build on the Millennium Development Goals and complete what they did not achieve. They seek to realize the human rights of all and to achieve gender equality and the empowerment of all women and girls. They are integrated and indivisible and balance the three dimensions of sustainable development: the economic, social and environmental.

The Goals and targets will stimulate action over the next 15 years in areas of critical importance for humanity and the planet.

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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 & the SDGs

Priority Engagement Area

Earth observations play a major role in achieving the SDGs.



Earth observations are used for monitoring goals, targets, and indicators, tracking progress and helping Member States and custodial agencies make decisions and ongoing adjustments.

GEO is instrumental in integrating Earth observation data into the methodology of measuring and achieving the SDGs.

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Priority Engagement Area

What is GEO's role in the SDG landscape?

Application of Earth observations and geospatial information within the SDG Indicators is led by the UN Working Group on Geospatial Information (WGGI) and Committee of Experts on Global Geospatial Information Management (UN-GGIM)

GEO works as a UN-GGIM partner and participates in the WGGI, providing expert input on Earth observations for SDGs.

GEO's contributions are provided to the UN Statistical Commission via UN-GGIM and WGGI.



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Priority Engagement Area

Global partnerships for SDG progress

The global development community is mobilizing SDG data for better results. Population data, assisting census processes, and translating SDG data for community action are fast moving areas of action for 2018

GEO is working with the Global Partnership for Sustainable Development Data (GPSDD) and others, focusing on capacity development at national and subnational levels.





	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										



EARTH OBSERVATIONS FOR THE
SUSTAINABLE DEVELOPMENT GOALS

GEO Initiative:

Earth Observations for the Sustainable Development Goals (EO4SDG)

EO4SDG is a GEO Initiative working to organize and realize the potential of Earth observations and geospatial information to advance the UN 2030 Agenda.

EO4SDG is currently focused on addressing four SDGs:



www.eo4sdg.org

@EO4SDG

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Priority Engagement Area



Clean Water and Sanitation

GEO is working with UN Environment to refine methods for indicators on water extent, water quality, aquatic ecosystem health, water security, and human settlements in relation to water. This work includes helping to create a set of reproducible, scalable tools for use by national governments to report on aquatic ecosystems.

Pilot activities focus on the provision of Earth observations-based products and accompanying documentation, including how the products may be used by countries to report on SDG 6 indicators.

Piloting Use of Earth Observations for Monitoring Water-Related Ecosystems

6 CLEAN WATER AND SANITATION



Earth Observations for Water & Sanitation

GEO is partnering with UN Environment to help countries develop the capacity to monitor and report on SDGs 6.6.1, “*Change in the extent of water-related ecosystems over time*”, and 6.3.2, “*Percentage of bodies of water with good ambient water quality*”.

UN Environment, in its custodian role, is examining ways to distribute developed methods and products to countries, in support of SDG monitoring and reporting.



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Sustainable Cities and Communities

Sustainable urban development requires effective monitoring of urban sprawl and the relationship between land consumption and population growth. GEO is supporting countries to achieve Target 11.3 by making available Earth observation resources that enable the monitoring of urban extent and the built-up footprint of cities. GEO also supports scaling of successful EO methods to enable country-to-country sharing of knowledge and relevant information, including lessons learned.

Air pollution also impacts cities around the world, and GEO is working to ensure data on air quality is available to decision makers around the world. Fine particulate matter concentrations over cities are estimated by numerical modeling, integrating satellite data and in situ data. Data is critical for policy decision making on air quality management in urban areas.

Colombia: DANE Pilot Project

Monitoring Land Consumption and Population Growth



In Colombia, the National Administration Department (DANE) has launched a pilot project using Earth observations to examine SDG11, Indicator 11.3.1: Ratio of land consumption to population growth

DANE developed a method that incorporates freely available Landsat images with population data measure the ratio between land consumption and population growth in more than 130 cities and 4 metropolitan areas.

GEO is collaborating with DANE and GPSDD to help scale this method to other countries in the region.



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Life below Water

Advances in Remote Sensing technology, combined with in-site Earth observation data, now allows for real-time assessment of ecosystem health and the monitoring of water quality in water systems around the world.

GEO initiatives GEOGLOWS and Oceans and Society: Blue Planet are working to coordinate action across the GEO Work Programme and wider GEO community to improve monitoring of freshwater and marine ecosystems, respectively.

The Marine Biodiversity Observation Network (MBON) is focusing on strengthening understanding of marine biodiversity, and developing marine technologies and EO products that can be employed to assess and monitor biodiversity and life in the oceans and the processes that affect it.

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Life on Land

GEO works with the UN Convention to Combat Desertification (UNCCD) and the United Nations Food and Agriculture Organisation (FAO) as they develop methods for monitoring degraded land through use of Earth observations techniques.

Land degradation may result from numerous causes specific to a particular location, making it difficult to fully capture the condition of the land using a single indicator. GEO is providing advice and expertise to the UN process to replace current multiple proxy indicators with a new indicator based on Earth observation techniques.

In addition, GEO's Global Forest Observations Initiative (GFOI) continues to provide all countries with satellite data coverage, methods and guidance to facilitate reporting on efforts to reduce deforestation and forest degradation.

GEO Land Degradation Neutrality

Proposed GEO Work Programme Initiative



Earth Observations for Land Degradation

GEO is partnering with UNCCD to help countries develop the capacity to monitor and report on SDG 15.3.1: *“proportion of land that is degraded over total land area”*

The GEO Land Degradation Neutrality Initiative will interact other activities in the GEO Work Programme, including GEOBON (biodiversity), GEOGLAM (agriculture), GFOI (forests), and EO4SDG (SDGs).



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Priority Engagement Area

GEO is contributing to SDG processes in areas where Earth observations play an especially important role:



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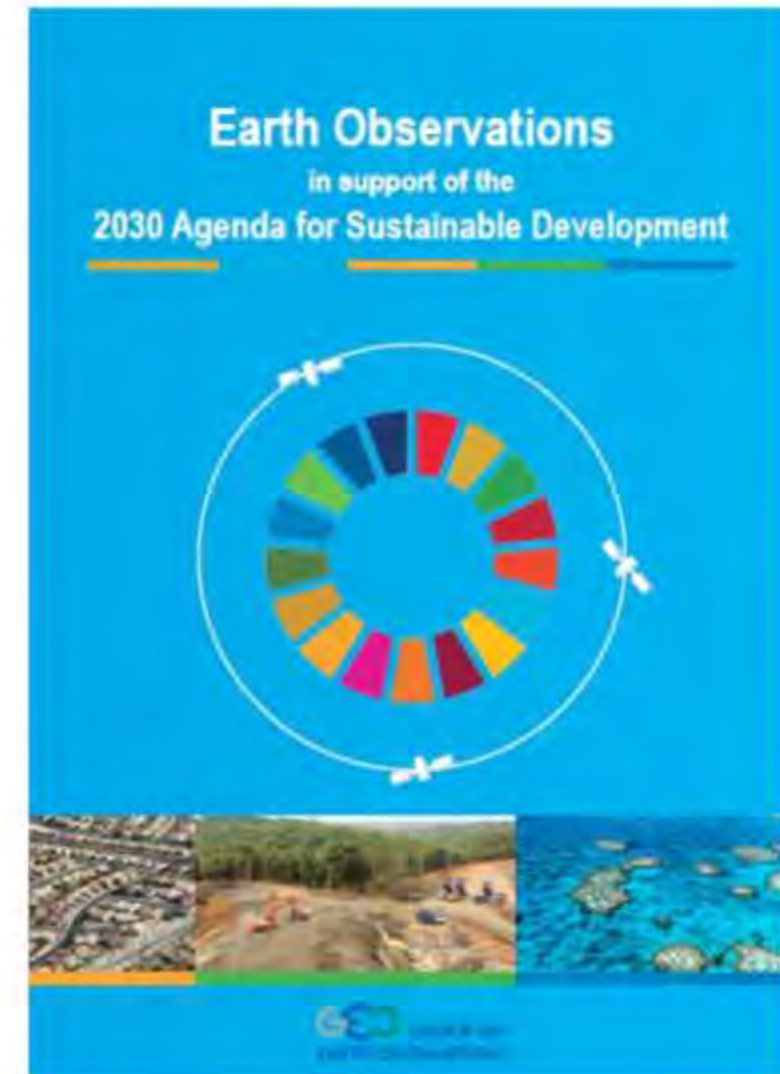
Priority Engagement Area

EO case studies

GEO is instrumental in integrating Earth observation data into the methodology of measuring, monitoring and achieving the SDG Indicators.

This brochure gives graphic illustrations of EO data allowing decision-makers to help identify the status of conditions they need to report, as well as visualize solutions.

https://www.earthobservations.org/documents/publications/201703_geo_eo_for_2030_agenda.pdf



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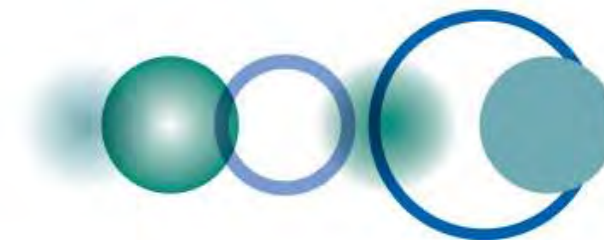
Zero Hunger

Earth observations are crucial for measuring the extent of degraded land and identifying common land classification approaches, as well as for monitoring and forecasting agricultural production.

GEO is working with United Nations Food and Agriculture Organization (FAO) and other partners to integrate Earth observations into the monitoring framework for SDG2.

GEOGLAM, GEO's agricultural monitoring flagship, is assisting FAO to identify global coverage indicators of food crops, in order to fight food insecurity.

GEO, CEOS, and the GPSDD are working with national governments toward the development and deployment of a regional African Data Cube - time series multidimensional (space, time, data type) stack of spatially aligned pixel ready for analysis - with a focus on SDG 2.

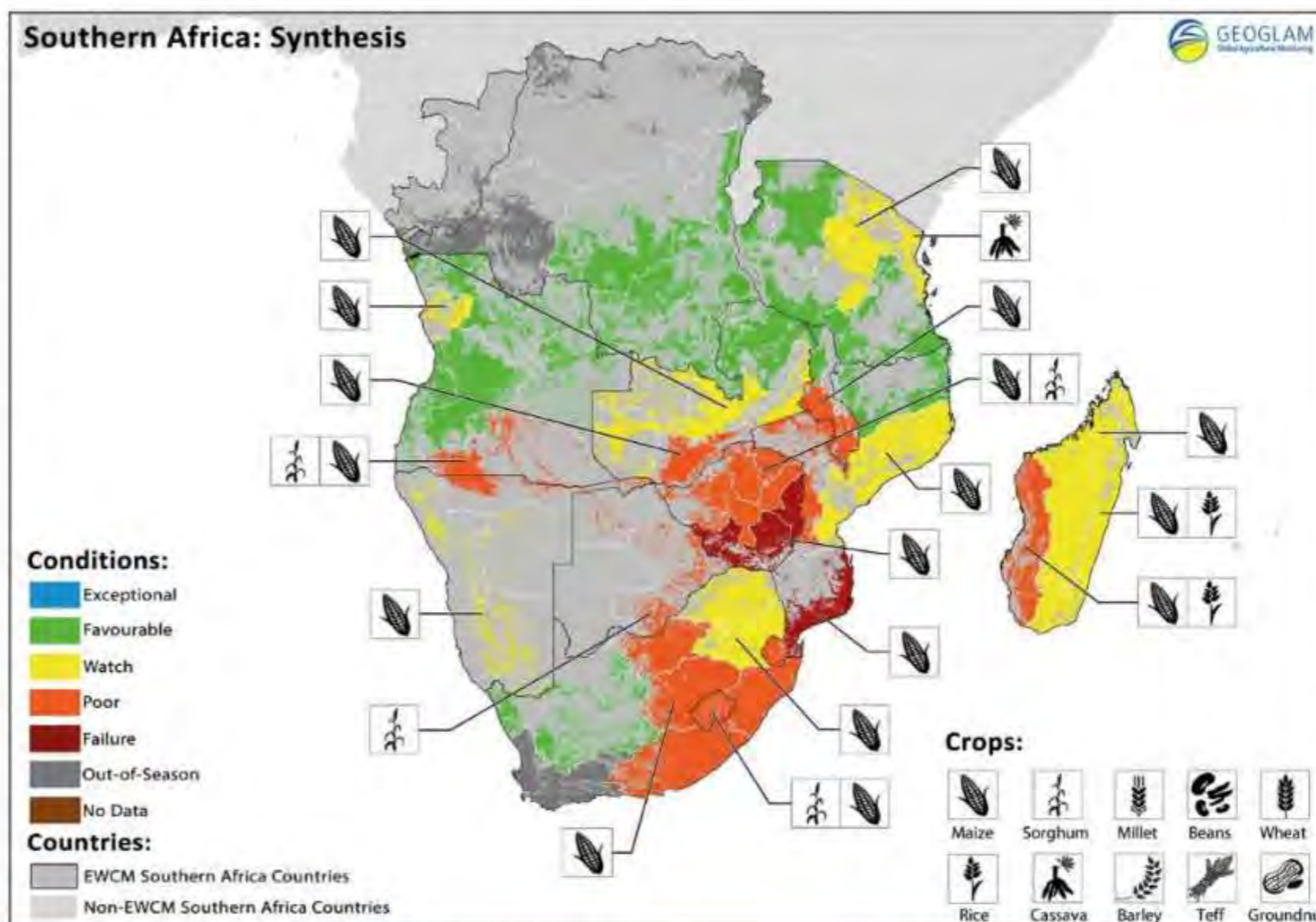


Target 2.c Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility.

MONITORING CROP CONDITIONS WITHIN COUNTRIES AT RISK OF FOOD INSECURITY

Crop condition map synthesizing information for all Early Warning Crop Monitor (EWCM) crops. Crop conditions over the main growing areas are based on a combination of national and regional crop analyst inputs along with Earth observation data. Crops that are in other than favourable conditions are displayed on the map with their crop symbol.

“Development planning and SDG outcomes can be visualized with maps.” (CIESIN)



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Good Health and Well-being

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.

Through GEO, countries around the world are working together to monitor air quality and haze caused by forest fires, yellow sands, and air pollution through Earth observations.

Disaster Risk Reduction

DRR Indicators for SDGs 1, 11 and 13



Aligning disaster-related SDGs with the Sendai Framework for Disaster Risk Reduction.



GEO is working to support the Sendai Framework and to address disaster-related goals, targets and indicators of the 2030 Agenda:

- 3 SDGs
 - 1: End poverty in all its forms everywhere
 - 11: Make cities and human settlements inclusive, safe, resilient and sustainable.
 - 13: Take urgent action to combat climate change and its impacts
- 4 SDGs Targets
- 11 SDGs indicators



Target

Goal / Target



GEO & Climate Change

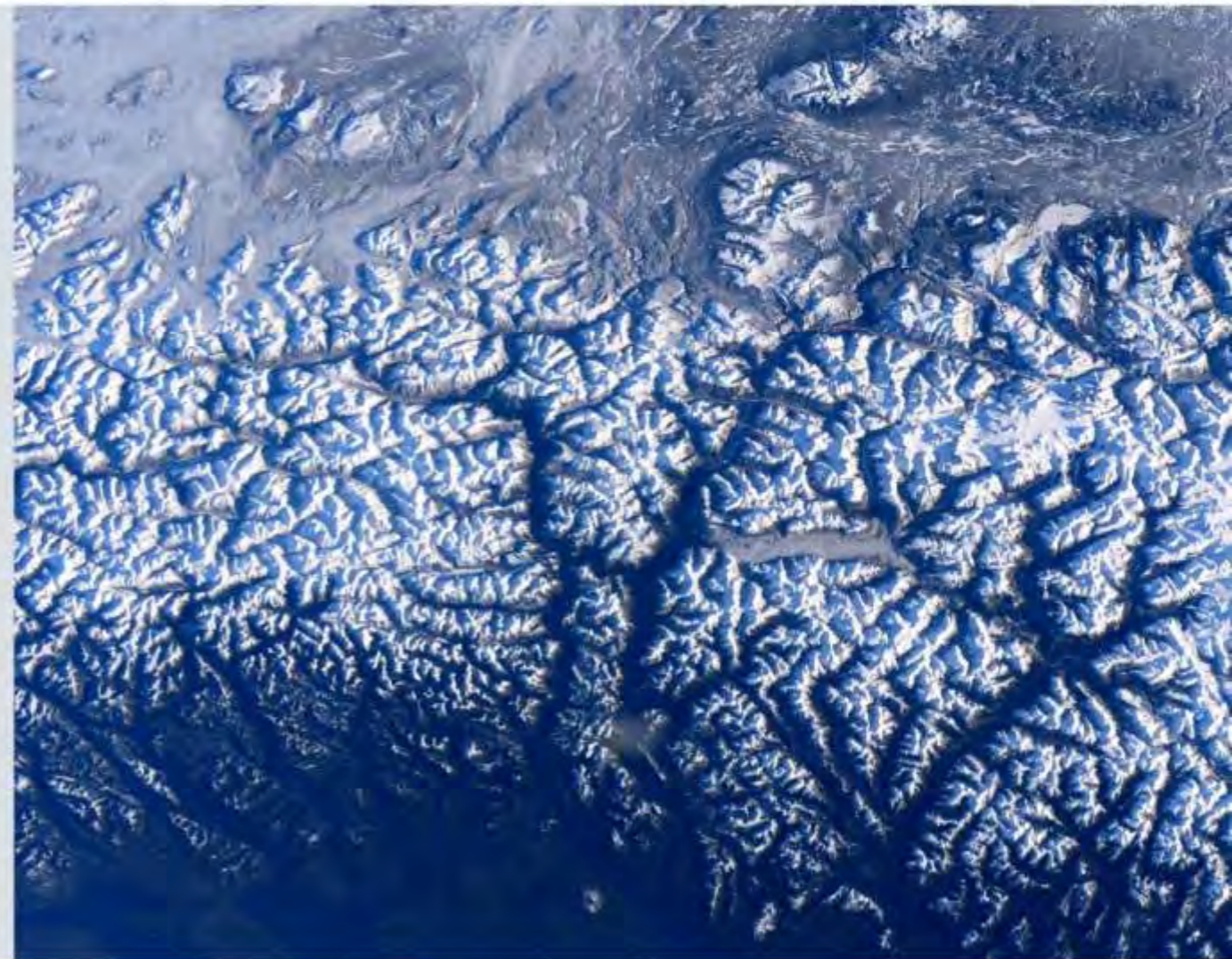
Priority Engagement Area

Climate change and its impacts cut across all areas of GEO's work.

GEO makes available Earth observations in support of effective policy making for climate change adaptation and mitigation, working with partners to enhance global observation systems in order to strengthen resilience and adaptive capacity to climate-related hazards.



PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11



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Priority Engagement Area



Climate Action

Evaluating the success of climate change mitigation strategies is complicated by gaps and uncertainties in carbon cycle observations across the atmosphere, land, and oceans. These include concerns with the sustainability of observing networks, inadequacies of global coverage, lack of interoperability between monitoring systems, and often inadequate communication between different communities.

The GEO Carbon and GHG Initiative, formally launched in July 2017, is facilitating cooperation among existing carbon and GHG observing organizations, promoting interoperability between systems, and improving integration among atmospheric, terrestrial and ocean networks. The result of this effort will be a coordinated system of observations for monitoring and evaluating changes in the carbon and related cycles, including GHG emissions as they relate to human activities and their impacts on climate change. This system will provide decision makers with timely and reliable policy-relevant information.

GEO & Climate Change

Responding to the Paris Agreement

Articles 4 & 13: National Reporting

- Reported five-yearly by parties, successive reductions in emissions
- Using existing methods and guidance; not validation

Article 5: Mitigation

- Knowledge of evolution of sinks and sources

Article 7: Adaptation

- (7.6) Strengthening cooperation,
- (7.7c) Research, systematic observation

Article 10: Technology Transfer

Article 11: Capacity Development

Article 14: Global stocktaking

- in the light of equity and the best available science: 2023, 2028...

Article 15 Compliance

GEO PB Action (August 2017):

Organize a workshop on the EO response to climate change.



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Priority Engagement Area



Partnerships for the Goals

GEO is comprised of 105 Member governments and 118 Participating Organizations, all working together to ensure Earth observations underpin sound decision making in support of the 2030 Agenda.

GEO also works within other partnerships, including UN-GGIM, GPSDD and others, to promote the use of Earth observations wherever they can add value to the SDG process.

Thank You

Communicate and Collaborate with GEO:



SDG Interactions



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Oceans & Food Security

Oceans are essential for ensuring food security and meeting nutritional needs. Establishing marine protected areas could limit access to marine resources for food and nutrition security, however, fisheries and other natural resource uses generally benefit from sustainable practices and balanced conservation measures. Increased agricultural production could damage ocean health through nutrient run-off and related pollution.

Source: ICSU

SDG Interactions



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Food Security & Water

Food production is strongly dependent on and affects the quality and availability of water, because boosting agricultural production can increase water withdrawals and worsen land and water degradation.

Moreover, achieving nutrition targets requires access to clean water and sanitation. Counteracting these potential trade-offs will require sustainable agricultural systems and practices, and enhanced water governance to manage growing and competing demands on water resources.

Source: ICSU

SDG Interactions



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Climate & Health

Climate change is already having significant impacts on health. Many of these impacts are direct (such as the effects of heat stress on ability to work outside), while others are indirect and arise through climate change that promotes the spread of disease or contributes to food and water insecurity, or to mass movements of people. Failure to address the climate action goal will make achieving the health goal impossible. As well as major long-lasting health impacts, climate mitigation would have some immediate health benefits (such as through better air quality).

Source: ICSU

SDG Interactions



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Food Security & Climate

Agriculture is an important source of greenhouse gas emissions and so contributes to climate change. Conversely, climate change has wide-ranging impacts on agriculture and food security through extreme weather events as well as long-term climatic changes (such as warming and precipitation changes) and will significantly constrain the achievement of SDG2. Sustainable agricultural practices play an important role in climate adaptation and mitigation (such as improving soils and land quality, genetic diversity, and bioenergy).

Source: ICSU

SDG Interactions



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Food Security & Terrestrial Ecosystems

Healthy ecosystems provide vital services, from soil and water quality, to genetic diversity and pollination. Agriculture is a key driver impacting ecosystems. Sustainable agricultural systems and practices contribute to ecosystem health. However, increased agricultural production and productivity, if not sustainable, can result in deforestation and land degradation, jeopardising longterm food security. A careful balance is needed between achieving food for all and conserving and restoring ecosystems.

Source: ICSU