The
GROUP ON EARTH OBSERVATIONS
(GEO)

GEO Secretariat
dcripe@geosec.org
What is GEO?

GEO is an intergovernmental organization working to improve the availability, access and use of Earth observations for the benefit of society.
A SHARED VISION
TO REALIZE A FUTURE WHERE
DECISIONS AND ACTIONS,
FOR THE BENEFIT OF HUMANKIND,
ARE INFORMED BY
COORDINATED, COMPREHENSIVE AND SUSTAINED EARTH
OBSERVATION INFORMATION AND SERVICES.
COORDINATED GLOBALLY, REGIONALLY, NATIONALLY & LOCALLY

COMPREHENSIVE ACROSS DOMAINS, NETWORKS & PLATFORMS

SUSTAINED OVER TIME
Why does open data matter?

Societal benefits arising from Earth observations can only be fully achieved through the open sharing of data, information, knowledge, products and services.
LANDSAT SCENES DOWNLOADED FROM USGS EROS CENTER (CUMULATIVE)

Before open data policy: 53 scenes / day
After open data policy: 5,700 scenes / day

ANNUAL ECONOMIC BENEFIT
USA......................$1.7 billion
International.....$400 million
Global total.......$2.1 billion

FREE AND OPEN DATA POLICY

@GEOSEC2025
www.geoportal.org
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.
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.
### Initiative Co-Chairs

- **Eduardo De La Torre**  
  Mexico/INEGI

- **Chu Ishida**  
  Japan/JAXA

- **Lawrence Friedl**  
  USA/NASA

- **Argyro Kavvada**  
  USA/NASA-BAH

- **Marc Paganini**, ESA

---

**Table:**

<table>
<thead>
<tr>
<th>Number</th>
<th>Goal Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No poverty</td>
</tr>
<tr>
<td>2</td>
<td>Zero hunger</td>
</tr>
<tr>
<td>3</td>
<td>Good health and well-being</td>
</tr>
<tr>
<td>4</td>
<td>Quality education</td>
</tr>
<tr>
<td>5</td>
<td>Gender equality</td>
</tr>
<tr>
<td>6</td>
<td>Clean water and sanitation</td>
</tr>
<tr>
<td>7</td>
<td>Affordable and clean energy</td>
</tr>
<tr>
<td>8</td>
<td>Decent work and economic growth</td>
</tr>
<tr>
<td>9</td>
<td>Industry, innovation and infrastructure</td>
</tr>
<tr>
<td>10</td>
<td>Reduced inequalities</td>
</tr>
<tr>
<td>11</td>
<td>Sustainable cities and communities</td>
</tr>
<tr>
<td>12</td>
<td>Responsible consumption and production</td>
</tr>
<tr>
<td>13</td>
<td>Climate action</td>
</tr>
<tr>
<td>14</td>
<td>Life below water</td>
</tr>
<tr>
<td>15</td>
<td>Life on land</td>
</tr>
<tr>
<td>16</td>
<td>Peace, justice and strong institutions</td>
</tr>
<tr>
<td>17</td>
<td>Partnerships for the goals</td>
</tr>
</tbody>
</table>

---

**Positioning geospatial information to address global challenges**
6.6.1 WATER
11.3.1 POPULATION
15.3.1 LAND

http://eo4sdg.org
Twitter: @EO4SDG
Pilot project using EO 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 to investigate the relationship between land consumption and population growth in the Barranquilla Metropolitan Area (MA) in northern Colombia.

Next steps

EO and statistical data to address other aspects of SDG 11 Indicator 11.7.1 - Average share of the built-up area of cities that is open space for public use for all. Also use Earth observations for informing the next census.

Continue to work with EO4SDG and GPSDD: Global Partnership for Sustainable Development Data

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.
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.
GEO supports disaster resilience by increasing coordination of Earth observations to forecast and prepare for disasters, to reduce damage and to better manage and recover from disasters.
Disaster Resilience

Disaster-related Data for Sustainable Development: Sendai Framework Data Readiness Review 2017

Section 2.2

The GEOSS Common Infrastructure (GCI) presently brokers more than 165 open data catalogs and information systems, comprising over 400 million data and information resources.

- **35 languages**
- **5000 contributing organizations**
- **200,000 keywords**
- **400,000,000 open EO data resources**
Ecosystem: Supply-chain model

Data/information is the new “oil”
GEOSS supply-chain SECO

From GCI to GEOSS Platform

- Human Computer Interface (HCI)
- Harmonization capacity
- Storage capacity
- Computing capacity

- GEO Flagships & Initiatives
- GEO Community Portals
- Other Apps

- GEO OSS Common Infrastructure

- GEO Regional Data Hubs

- Datacubes & Satellite data Analytics systems

- Data systems

- Thematic/International Federation systems

- Upstream
- Midstream
- Downstream

@GEOSEC2025
www.earthobservations.org
Ecosystem: Supply-chain model

GEOSS Work Program

Resource Providers

GCI/GEOSS Platform

UPSTREAM

Sourcing
Quality Check

Harmonization, Quality Assessment, Ranking, Enrichment

Warehousing
Transformation

MIDSTREAM

Intermediate Users

DOWNSTREAM

Distribution
Retailing, Corporate selling

Users uptake
Feedbacks

Final Users
Target 6.3 By 2030, improve water quality by reducing pollution, illuminating dumping and minimizing the least hazardous chemicals and materials, halving the proportion of untreated waste water and substantially increasing recycling and safe reuse globally.

POPULATION DENSITY OVERLAID ON UNTREATED WASTEWATER LEAKING TO THE ENVIRONMENT, ETHIOPIA SUB NATIONAL

Integrating data from Earth observations and geospatial information with national surveys to monitor the impact of untreated wastewater on the population. The map on the left shows the extent of leakage of wastewater, excreta and grey water, with areas in red denoting extensive pollution. The map on the right integrates all data and shows where there is high impact, i.e., high leakage in densely populated areas.
**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)
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.

Effective reporting of progress requires the use of multiple types of data.
EO and geospatial information are often continuous in spatial and temporal resolutions, thus capture the sustainability of development.
EO and geospatial information, which include satellite, airborne, land- and marine-based data, as well as model outputs, can significantly expand monitoring capabilities at local, national, regional and global levels, and across sectors.
Exploiting various data sources, including EO and geospatial information, reduces cost of monitoring SDGs and associated Targets and Indicators.
EO and geospatial information to measure and monitor progress towards achieving the SDGs will provide developing countries and regions with increased capacity to acquire, analyze, and utilize these data for other policy-making purposes.
Integrating all of these data represents a quantum leap in how we monitor and track development and advance the well-being of our societies.
Open data policies!
Thank You

Communicate and Collaborate with GEO:

@GEOSEC2025
www.earthobservations.org