GROUP ON EARTH OBSERVATIONS

Earth Observations in support of SDG monitoring frameworks

Douglas Cripe, GEO Secretariat

United Nations/Pakistan/PSIPW 4th International Conference on Space Technology for Water Management

26 February-2 March 2018

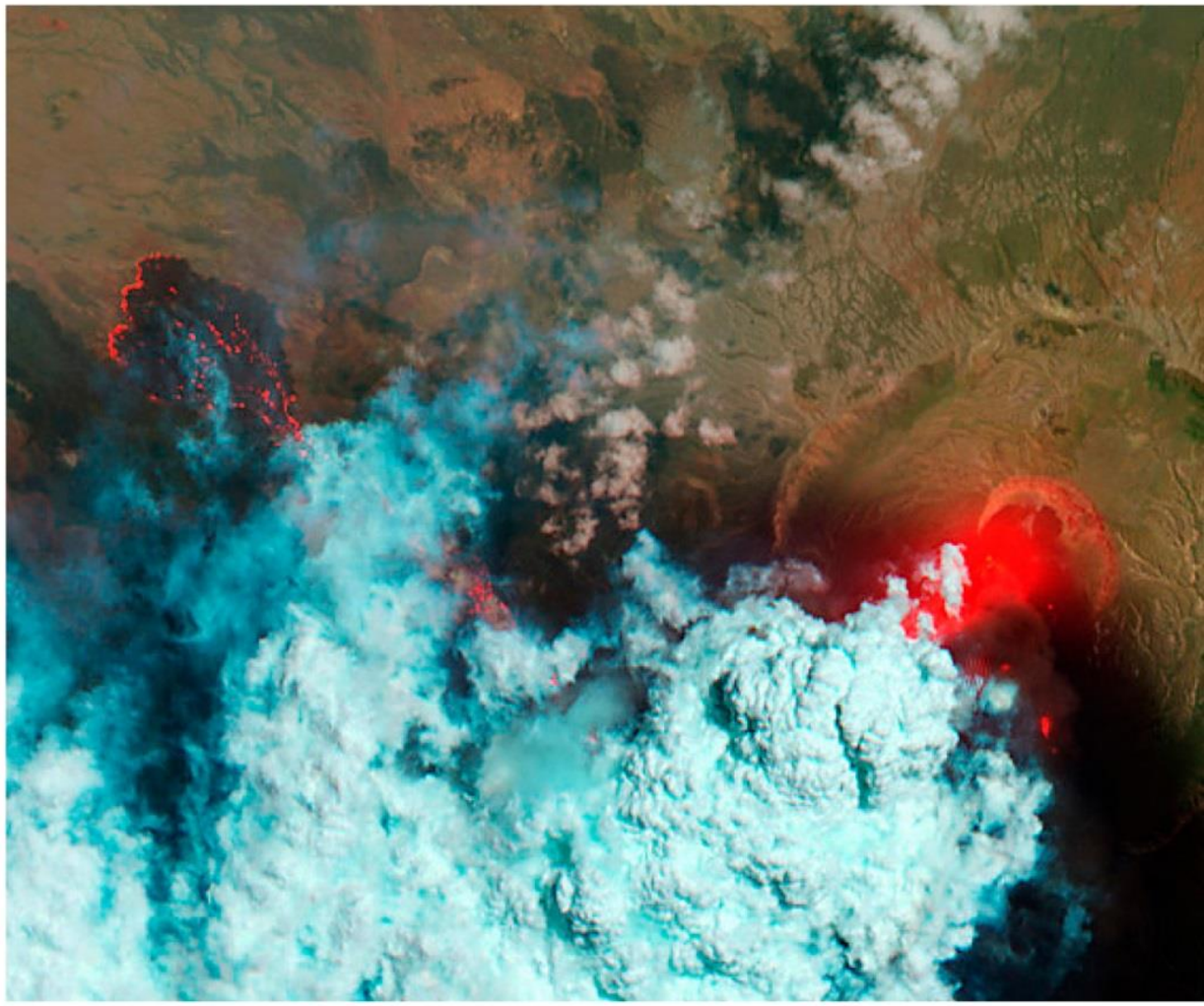
Islamabad, Pakistan

Earth Observations

Observations in, on and around the Earth

What is Earth Observation?

Earth observation is the gathering of information about physical, chemical and biological systems in, on, and around the Earth.



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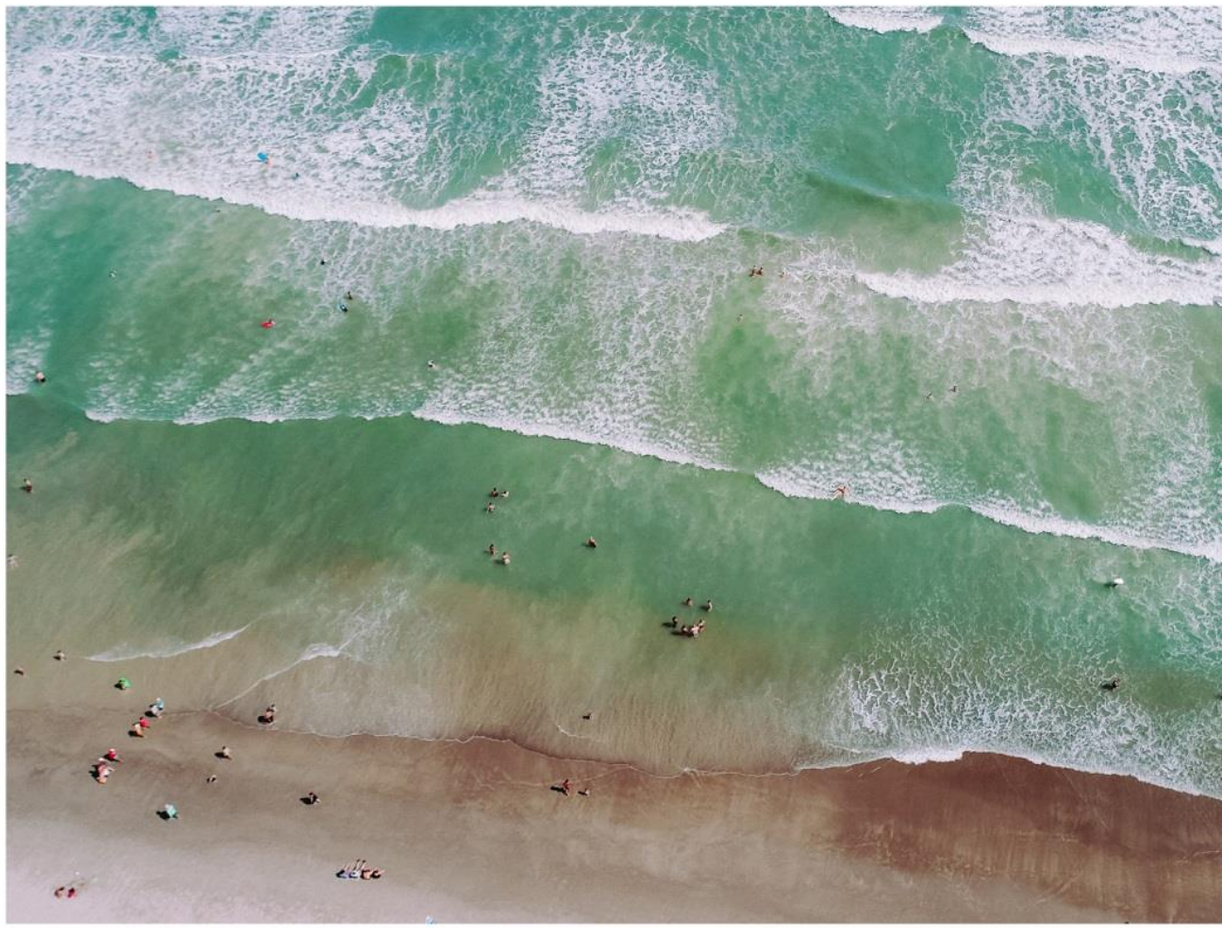
Earth Observations

Observations in, on and around the Earth

Why are Earth observations important?

Earth observations are crucial for informed decision making on a myriad of issues that affect human well-being, the environment and the economy.



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An overview

What is GEO?

GEO is an intergovernmental organization working to improve the availability, access and use of Earth observations for the benefit of society.

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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.

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SPACE-BASED
OBSERVATIONS

IN SITU
OBSERVATIONS

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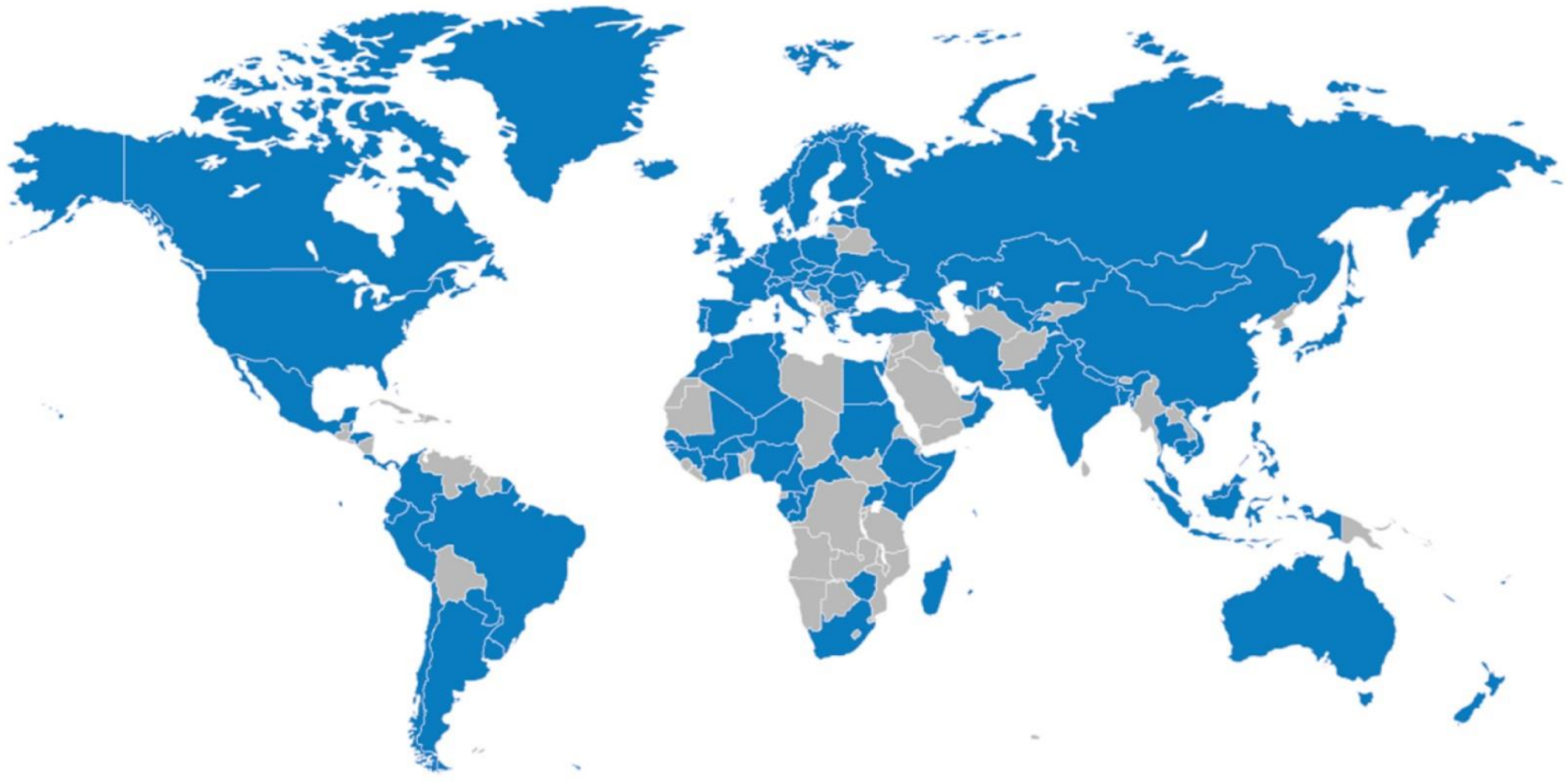
105 Member Countries



Africa: **27** - Asia/Oceania - **21**, Europe: **34** - C.I.S: **7** - Americas: **16** **Total: 105**

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115 Participating Organizations

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Our work

What does GEO do?

GEO's 105 Members governments and 118 Participating Organizations work together to develop and implement Earth observation programmes and initiatives that solve global environmental problems.

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Data Sharing

Open Data for the Benefit of Humankind

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.

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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.

SUSTAINABLE DEVELOPMENT GOALS

UN World Conference on Disaster Risk Reduction
2015 Sendai Japan

PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11

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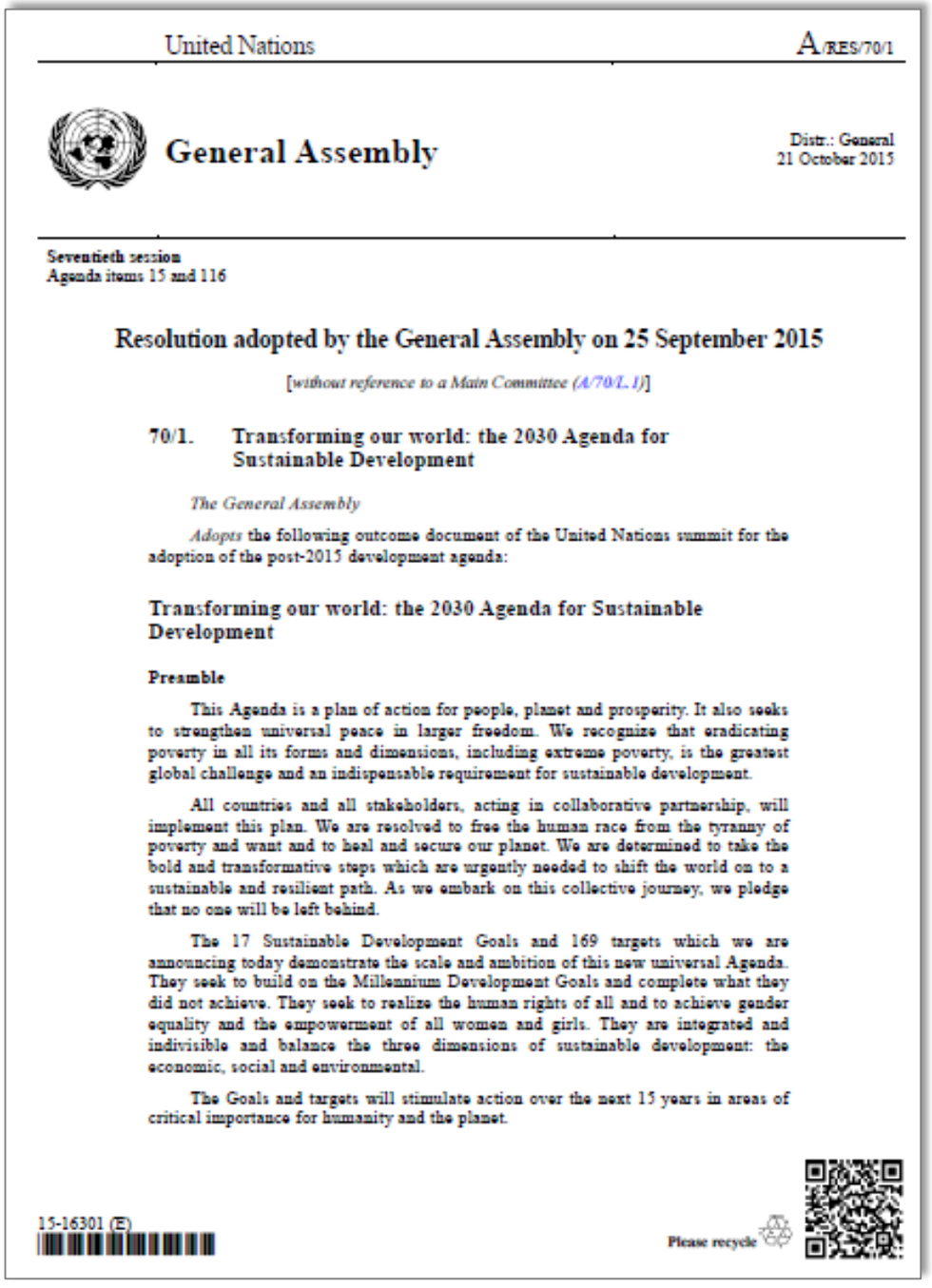
SDGs and Earth Observation



United Nations A/RES/70/1

General Assembly

Distr.: 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.

15-16301 (E)

Please recycle

***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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GEO & the SDGs

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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GEO & the SDGs

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.

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EARTH OBSERVATIONS FOR THE SUSTAINABLE DEVELOPMENT GOALS

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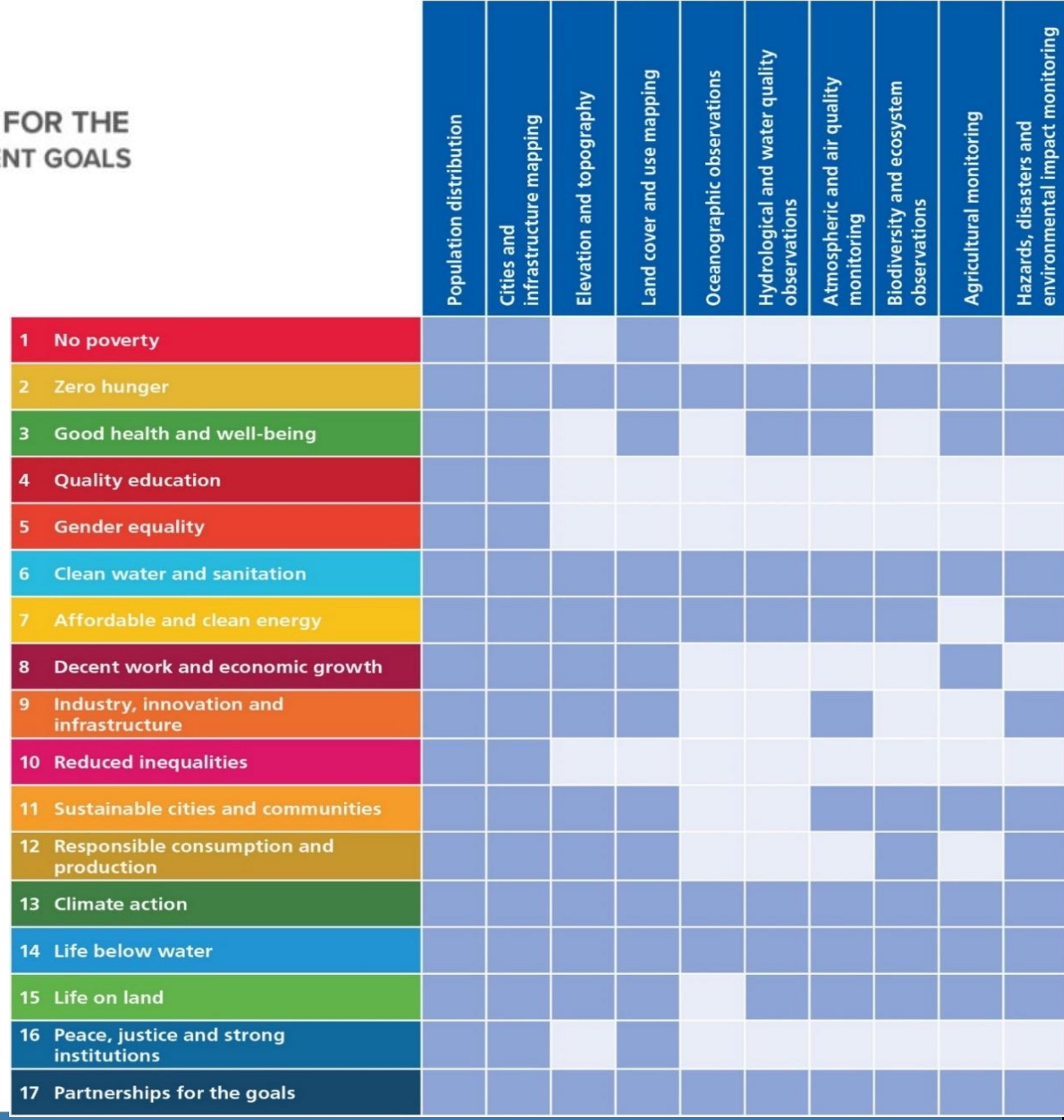
USA/NASA

Executive Secretary
Argyro Kavvada
USA/NASA-BAH

Marc Paganini, ESA



UN-GGIM | United Nations Secretariat
Global Geospatial Information Management

Positioning geospatial information to address global challenges

ggim.un.org

6.6.1 WATER
11.3.1 POPULATION
15.3.1 LAND

http://eo4sdg.org
Twitter: @EO4SDG

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Piloting Use of Earth Observations for Monitoring Water-Related Ecosystems

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.

UN environment

EARTH OBSERVATIONS FOR THE SUSTAINABLE DEVELOPMENT GOALS

NASA

esa

JRC EUROPEAN COMMISSION

Google Earth Engine

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6 CLEAN WATER AND SANITATION

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

WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation

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.

GEO & the SDGs

Priority Engagement Area

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.

DANE Pilot Project

National Administrative Department of Statistics in Colombia

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.

http://eo4sdg.org/wp-content/uploads/2017/08/4.-Report_Pilot_Project_Colombia_v3-1.pdf

DANE Pilot Project

National Administrative Department of Statistics in 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

http://eo4sdg.org/wp-content/uploads/2017/08/4.-Report_Pilot_Project_Colombia_v3-1.pdf

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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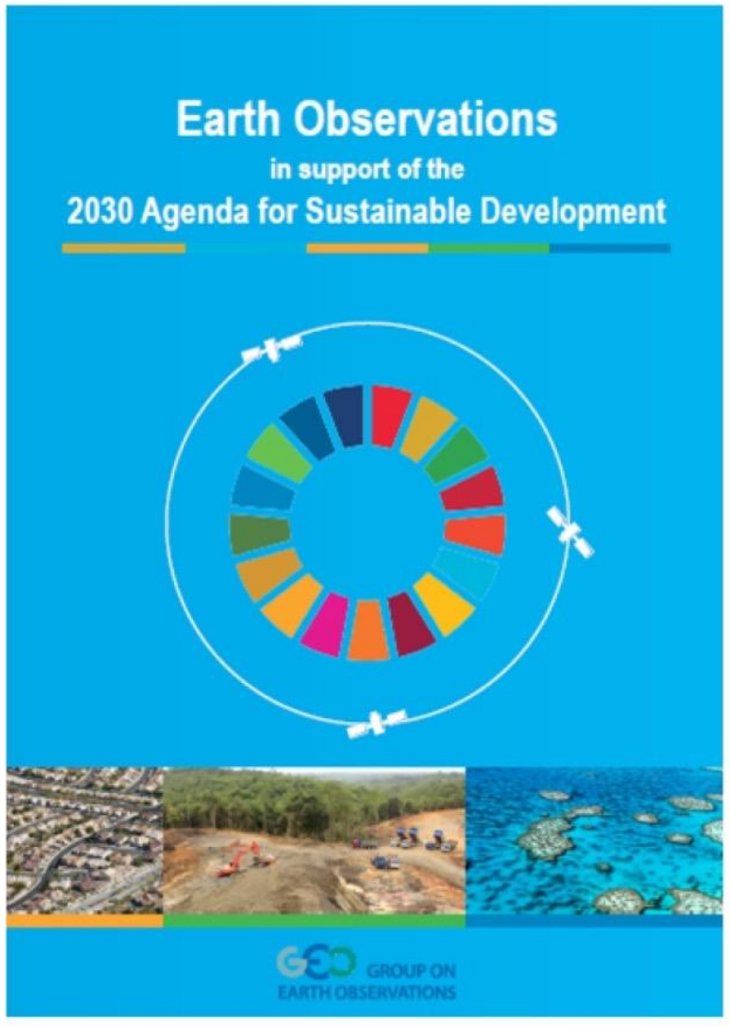
Agenda 2030

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



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.

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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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UN CLIMATE CHANGE CONFERENCE
COP21·CMP11

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GEO & Disaster Risk Reduction

Priority Engagement Area

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.

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2015 Sendai Japan

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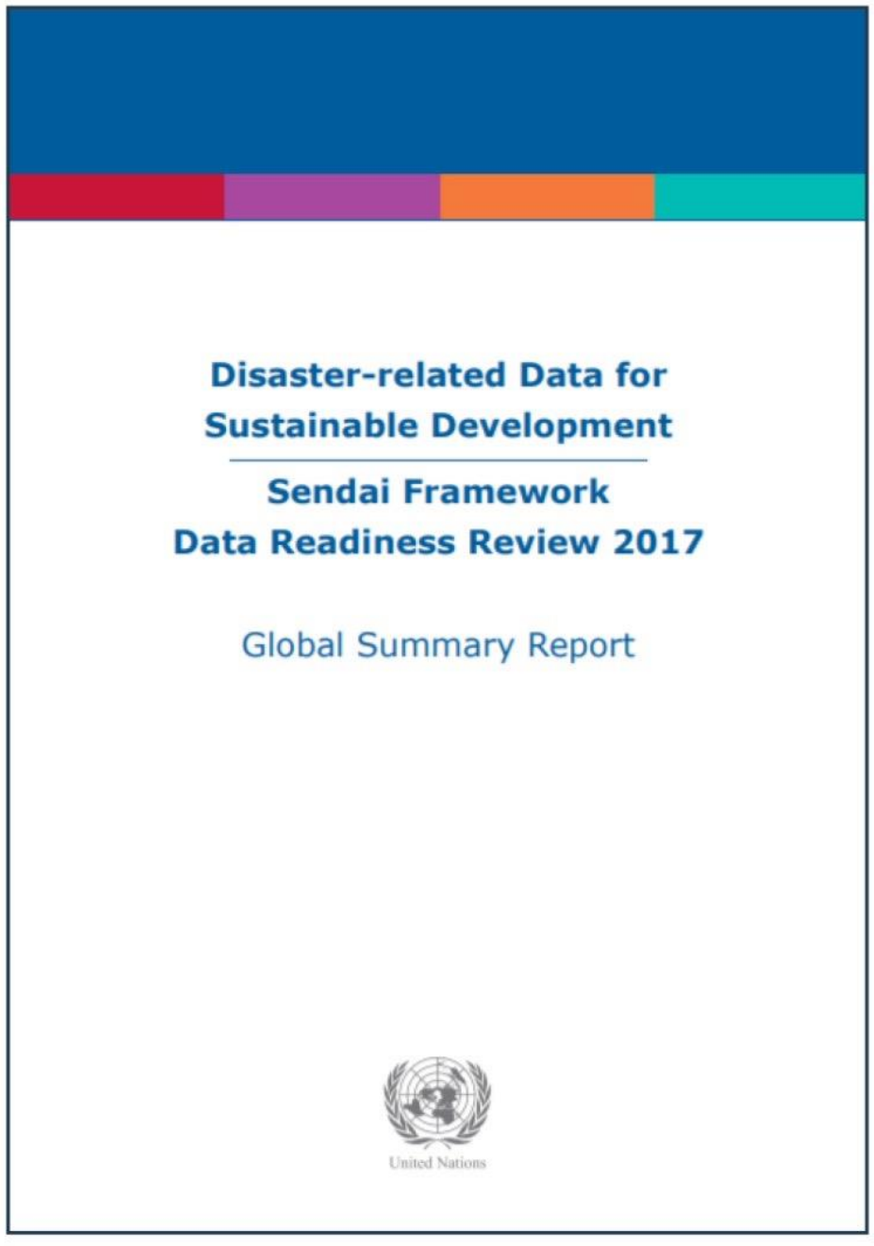
Disaster Resilience



UNISDR
The United Nations Office for Disaster Risk Reduction

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

Section 2.2

http://bit.ly/drrreport

22-26 MAY, 2017 | CANCUN, MEXICO
2017 GLOBAL PLATFORM
FOR DISASTER RISK REDUCTION

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Save the Dates

“The GEOSS Platform (r)evolution around U “
Data Providers meet Users

3rd GEOSS Data Providers workshop
2-4 May 2018 at ESA, Frascati; Italy

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Investing in GEO

Global Earth information for local solutions

GEO & SECURITY

GEO is contributing to efforts to combat food insecurity, water insecurity, and the economic, social, and evironmental costs of disasters.

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Thank You

Communicate and Collaborate with GEO:

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