

Updates on Earth Observation applications in key sectors



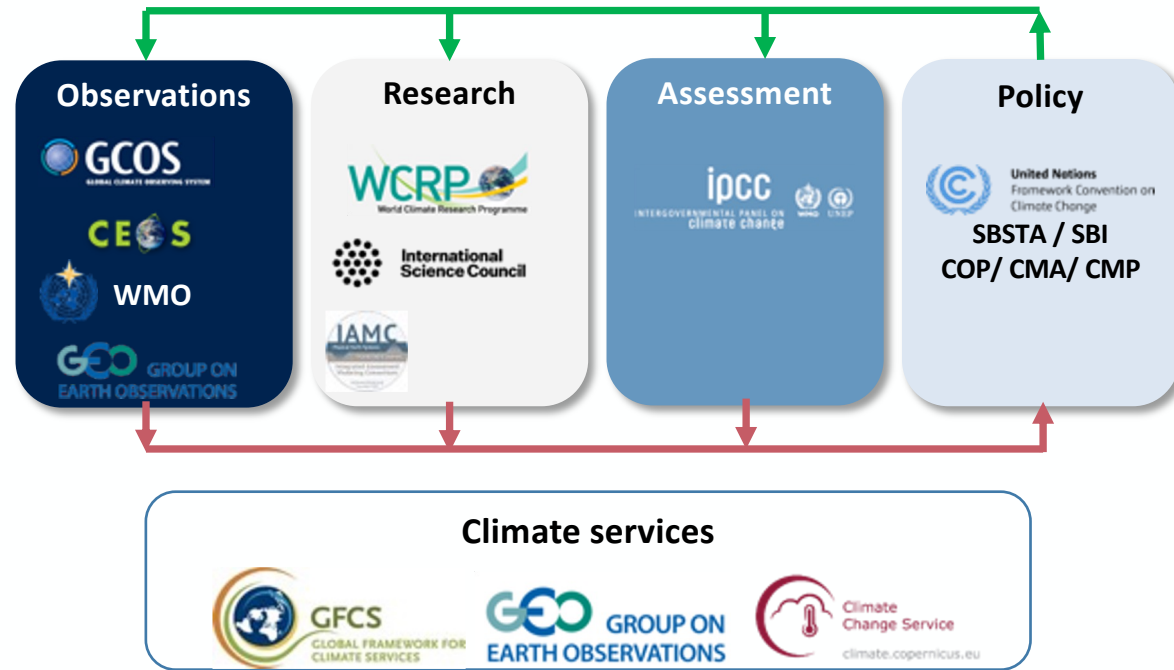
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UNOOSA UN/Austria Symposium 2022

Session 1 “Space application for Climate Action: current status”

Role of Earth observations in the UNFCCC

At the
foundation of
international
climate policy



Article 4: Commitments

Article 5: Research and Systematic Observation



United Nations
Framework Convention on
Climate Change



Focus Areas

GEO works to improve the availability, access, understanding and use of Earth observations for the benefit of society.

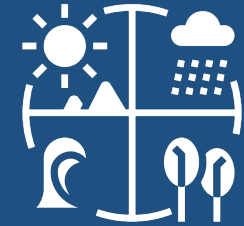
1

Sustainable Development



2

Climate Action



3

Disaster Risk Reduction



4

Urban Resilience (newest work)





Supporting National Adaptation Plans and action

- GEO supplemental technical guidance helps LDCs and other developing countries to **integrate climate science Earth observation information, data, tools into their NAPs**
- Multiple challenges and sectors for NAPs: coastal zones, water management, health, etc... **GEO guidance will cover different sectors based on the experience of GEO initiatives**



NAP GUIDELINES



INITIAL GUIDELINES FOR THE FORMULATION OF NAPs



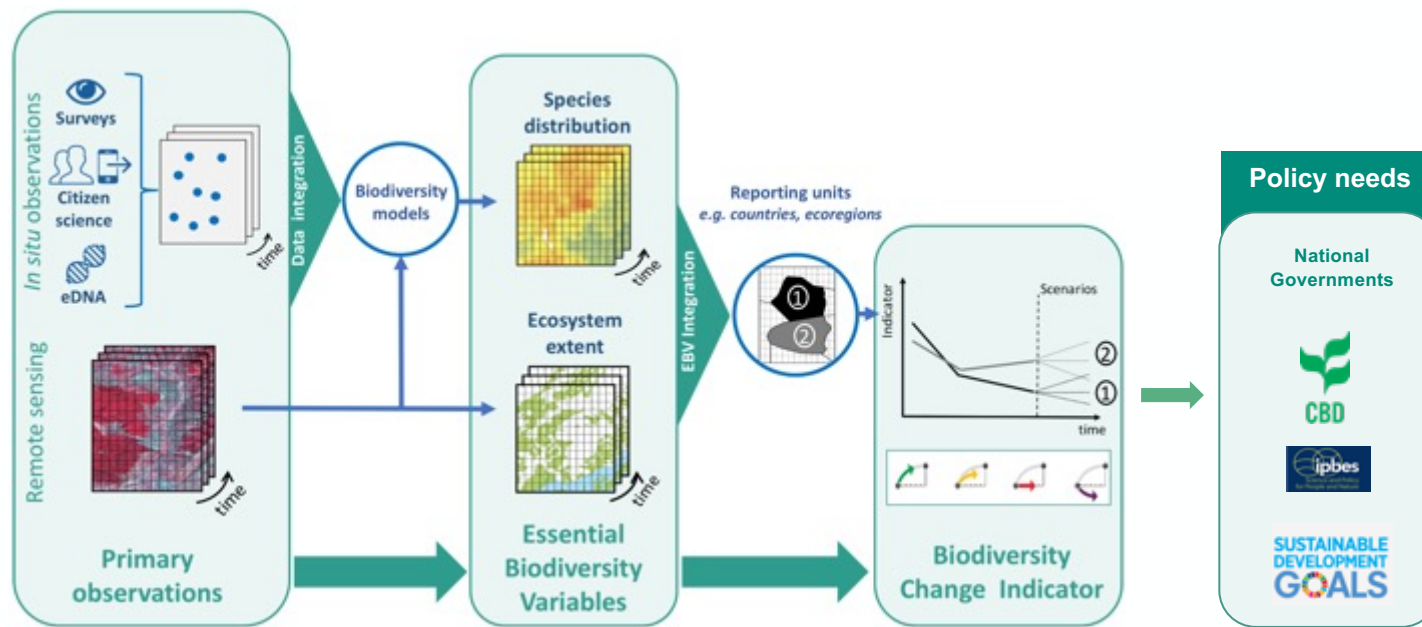
UNFCCC TECHNICAL GUIDELINES FOR THE NAP PROCESS



OTHER RESOURCE MATERIALS

Climate and Biodiversity

Global network of experts using **Earth observations** and **cutting-edge technologies** (remote sensing, DNA technologies, artificial intelligence) to understand biodiversity change and its drivers, including climate change.



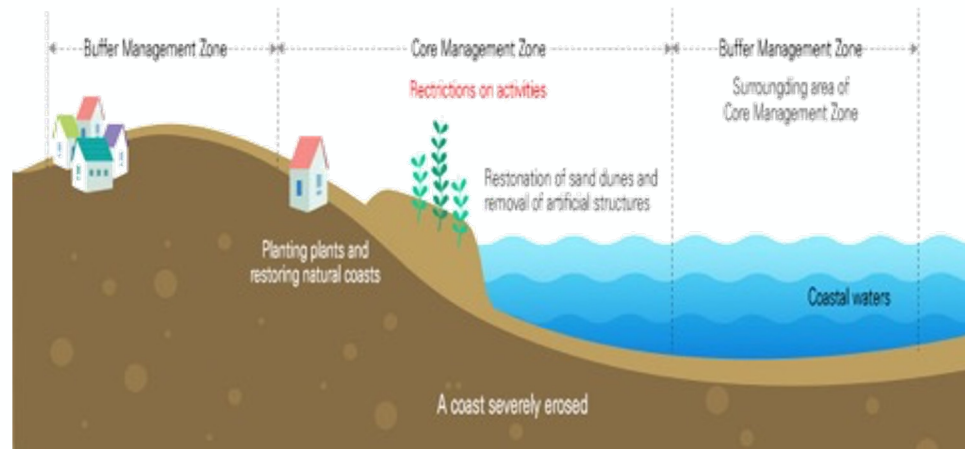
>1,900 members, >120 countries, >1,200 institutions
<https://geobon.org>

Climate and Oceans

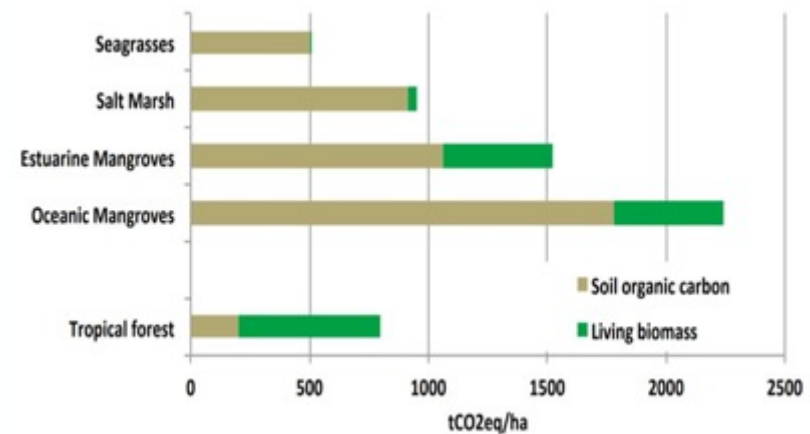
- **Inform National Adaptation Plans**

- Coastal erosion
- Saltwater intrusion
- Changes in species distributions
- Ocean acidification
- Storm surge risk assessment

- **Map Blue Carbon for Nationally Determined Contributions**



Summary of Korea's coastal erosion management zone



Total carbon sequestered per hectare habitat (Murray et al. 2011)

Climate and Mountains



Networks

GEO Mountains Inventory of In Situ Observational Infrastructure

- Interactive web map
- Datasets
- Metadata

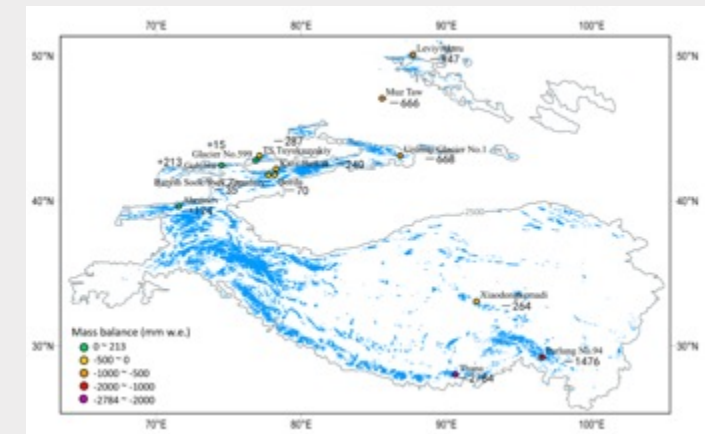
www.geomountains.org

Third Pole Regional Climate Centre (TPRCC) - Network

- Three sub-regional nodes – China (CMA), India (IMD), and Pakistan (PMD)
- Facilitated by WMO

Opportunities

- **Harmonization of climate data and information**, standardization of risk assessment methodologies
- **Advances in techniques of earth system prediction** on extreme events, to reduce impacts caused by extremes
- **Increasing demand for climate services** and greater interest of partners for capacity building on EO to improve **adaptive capacity to climate change**



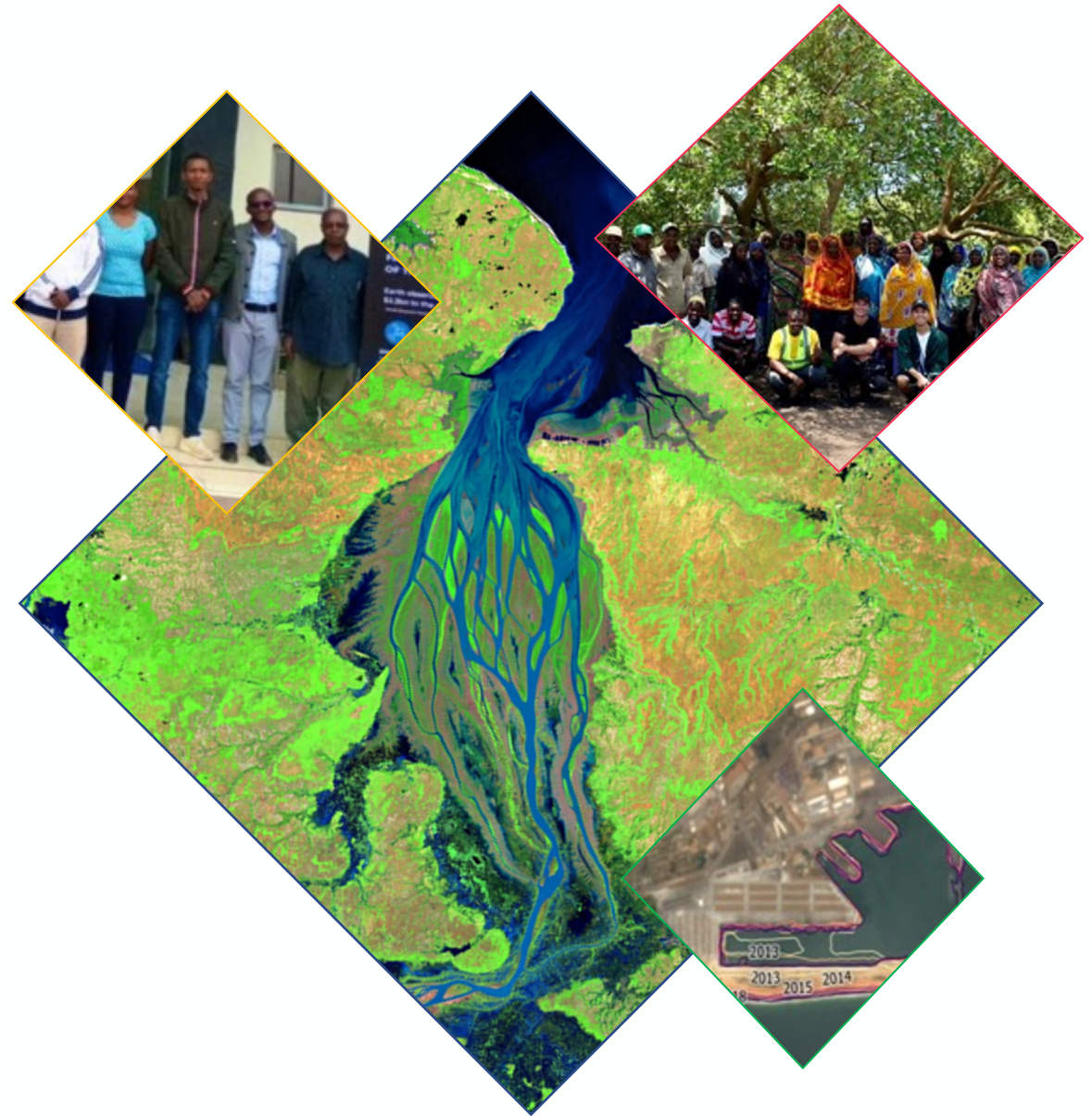
Source: WMO (2020) State of the Climate in Asia (Figure 8)

Regional focus: Africa

Digital Earth Africa is uniquely positioned to empower decision makers across Africa to take climate action.

Powered by partnerships, Digital Earth Africa provides **open, free, accessible and country agnostic** Earth observation data.

The platform is operational and offers cost effective solutions for countries interested in setting up **independent, country-led and owned, national GHG inventory systems for biennial reporting, mitigation and adaptation.**



OBSERVATOIRE
DU SAHARA
ET DU SAHEL



Centre de Suivi Ecologique



REGIONAL CENTRE FOR
MAPPING OF RESOURCES
FOR DEVELOPMENT



Digital Earth
AFRICA

Good practices of national and global climate services



RESULTS

During Hurricanes Eta and Iota the Honduran state power company ENEE used the GEOGLOWS ECMWF Streamflow Forecast Services to direct discharge of 200 million m³ of water in the El Cajón reservoir before Iota's arrival, creating flood storage while avoiding loss of power generation or worse.



IMPACT

The Sula Valley generates about 65% of gross domestic product (GDP), representing over 50% of Honduras exports. Direct and indirect impacts on roughly 2 million people (30% of the national population) residing in rural and urban areas within the valley would have been incalculable.



VALUE

The economic losses from Eta and Iota in 2020, when compared to those from Hurricane Mitch in 1998 that had a similar impact magnitude, were about 30% less because of the flood control provided by El Cajón.

Triggering disaster finance with satellite information



RESULTS

The World Bank Disaster Risk Financing Program supported 300,000+ people to relocate in the Karamoja region of Uganda thanks to GEOGLAM (GEO's global agricultural monitoring).



IMPACT

Food security challenges, including the availability of food, related jobs and general welfare issues addressed due to GEOGLAM early warning.



VALUE

Government of Uganda realized a saving of US \$2.6 M in a single financial year, also tackled social challenges ahead of time. Money and livelihoods.

GEO Supplemental NAP Guidance / Agriculture

EO in Agriculture & Food Security

- What questions can EO answer
- What is required to implement crop monitoring system
 - Institutional framework
 - Technical framework
- How can GEO/GEOGLAM help
- What open science resources are available
- UNFCCC direction: Provide Green Climate Fund proposal “ready” language

NAP Expo Outcomes:

- Several new countries have come forward
Botswana, Lesotho, Bhutan, Djibouti, Benin,
Sierra Leone, Malawi, Sao Tome and Principe,
Central African Republic, Sudan, Burundi
- In response GEOGLAM is looking for support to work
with countries to develop GCF proposals
 - Regional basis

TABLE 1. STEPS UNDER EACH OF THE ELEMENTS OF THE FORMULATION OF NATIONAL ADAPTATION PLANS, WHICH MAY BE UNDERTAKEN AS APPROPRIATE*

ELEMENT A. LAY THE GROUNDWORK AND ADDRESS GAPS

1. Initiating and launching of the NAP process
2. Stocktaking: identifying available information on climate change impacts, vulnerability and adaptation and assessing gaps and needs of the enabling environment for the NAP process
3. Addressing capacity gaps and weaknesses in undertaking the NAP process
4. Comprehensively and iteratively assessing development needs and climate vulnerabilities

ELEMENT B. PREPARATORY ELEMENTS

1. Analysing current climate and future climate change scenarios
2. Assessing climate vulnerabilities and identifying adaptation options at the sector, subnational, national and other appropriate levels
3. Reviewing and appraising adaptation options
4. Compiling and communicating national adaptation plans
5. Integrating climate change adaptation into national and subnational development and sectoral planning

ELEMENT C. IMPLEMENTATION STRATEGIES

1. Prioritizing climate change adaptation in national planning
2. Developing a (long-term) national adaptation implementation strategy
3. Enhancing capacity for planning and implementation of adaptation
4. Promoting coordination and synergy at the regional level and with other multilateral environmental agreements

ELEMENT D. REPORTING, MONITORING AND REVIEW

1. Monitoring the NAP process
2. Reviewing the NAP process to assess progress, effectiveness and gaps
3. Iteratively updating the national adaptation plans
4. Outreach on the NAP process and reporting on progress and effectiveness

Enhancing adaptation action by indigenous peoples and local communities through Earth observations

The GEO Indigenous Alliance

Indigenous Peoples **protect 80% of the world's biodiversity**, even though they make up **less than 5% of the world's population**.



CLIMATE ACTION/
DRR



WOMEN
EMPOWERMENT/
EDUCATION



INDIGENOUS DATA
SOVEREIGNTY



FOOD SECURITY

Contact us

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GEO WEEK 2022

Global Action for Local Impact

31 October - 04 November 2022 | Accra, Ghana

