

# Does the 2022 GCOS Implementation Plan respond to user needs such as from IPCC

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- Every 5 years, Implementation Plans are prepared to address gaps and improvements in the observing system. This will be the fourth such plan and submitted to the UNFCCC before COP27
- It provides guidance to the component observing systems that contribute to global climate monitoring e.g. WMO, GOOS, WGClimate, Global Terrestrial Networks ...



# Successful delivery and use of climate services depends on all elements in the value chain working properly

Climate-related infrastructure – must be designed and managed globally

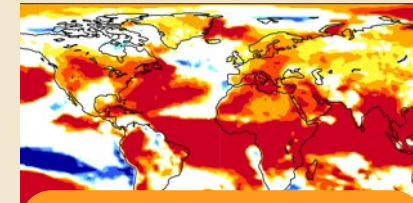
GCOS address observations and data exchange but is informed by the needs of the whole value chain



Observations from the entire globe



International exchange of observations



Global climate modelling

**GLOBAL ACTIVITIES**

**LOCAL ACTIVITIES**

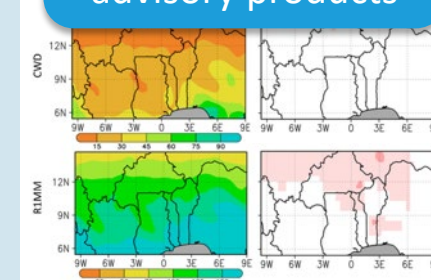
Effective decision making and action



Delivery of climate services



Local Data Processing, forecast, warning and advisory products



Last-mile activities undertaken at regional, national and local level

# Producing the GCOS Implementation Plan

DIFFERENT FROM GCOS  
IP 2016

More targeted at observing  
systems (including Space  
Agencies)

Shorter and more concise:  
only 31 actions

Actions more integrative,  
cross-domain

Explicit attention to the  
earth cycles

Updated set of 54 ECV  
Requirements by panels (A,  
O, T)

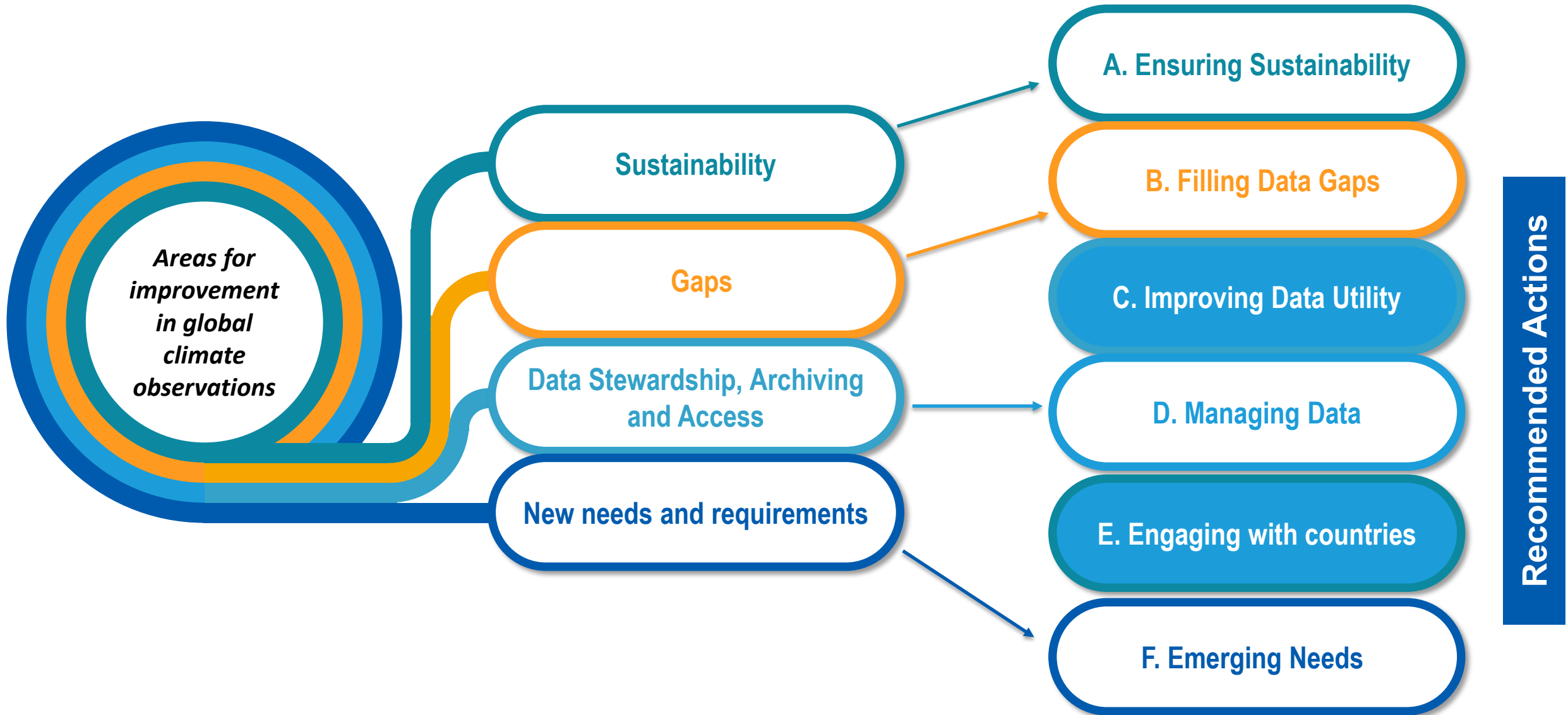
Preparation of  
draft with  
contributions  
from expert  
panels, invited  
experts, GCOS  
Editorial Board

Public  
review  
and  
revision by  
experts

Publish report  
following  
approval by  
Steering  
Committee and  
Editorial Board

Supported by GCOS Secretariat

# Themes for action identified in the GCOS IP



# IP Actions with relevance for Space Agencies

Theme A: Ensuring Sustainability

Action A2: Address gaps in satellite observations likely to occur in the near future

Action A3: Prepare follow-on plans for critical satellite missions

Action B1: Development of reference networks (in situ and satellite Fiducial Reference Measurement (FRM) programs)

Action B3: New Earth observing satellite missions to fill gaps in the observing systems

Action B5: Implementing global hydrological networks

Action B6: Expand and build a fully integrated global ocean observing system

Action B7: Augmenting ship-based hydrography and fixed-point observations with biological and biogeochemical parameters

Action B9: Improve estimates of latent and sensible heat fluxes and wind stress

Action B10: Identify gaps in the climate observing system to monitor the global energy, water and carbon cycles

Theme B: Filling Data Gaps

# IP Actions with relevance for Space Agencies

## Theme C: Improving Data Utility

Action C1: Develop monitoring standards, guidance and best practices for each ECV

Action C2: General Improvements to Satellite Data Processing Methods

Action C5: ECV-specific Satellite Data Processing Method Improvements

## Theme D: Managing Data

Action D4: Create a database of co-located in situ cal/val observations and satellite data for quality assurance of satellite products

Action F1: Responding to user needs for higher resolution, near real time data

Action F2: Improved ECV satellite observations in polar regions

Action F3: Improve monitoring of coastal and Exclusive Economic Zones

Action F5: Develop an Integrated Operational Global GHG Monitoring System

## Theme F: Emerging needs



GCOS should meet the needs for, inter alia, ... *monitoring the impacts of and response to climate change ... data for application to national economic development* .  
 GCOS Adaptation Task Team **GATT**.

## GCOS partners participating in GATT:

- UNFCCC Research & Systematic Observation, Least Developed Countries Expert Group
- WCRP
- Copernicus

- GATT**
- 3 WG
  - Engagement with relevant stakeholders
  - Analysis of risks assessment from NAPs
  - Experts interviews
  - Definition of 3 case studies
  - Info synthesized in a Matrix

GCOS is concerned with global climate observations: in what form (data, products, information?) and at which scales (local, national, regional) can global observations support adaptation decision making?

MATRIX: connecting ECVs with Sectors and Adaptation needs

SECTOR <sup>1</sup>	IMPACT AREA	Adaptation System	GCOS EXAMPLE CASE STUDIES	USER(S)	PURPOSE	BROAD SUITABILITY OF GCOS ECVS
Forests	Forest growth and productivity					
	Forest disturbance		Wildfire management (See Case Study 2)	Forest managers, carbon accountants	Management and protection of forests, people and infrastructure e. National emissions inventory	?
	Range shift					

**Case Study: Wildfire**

Application	(ECV)	Products	Variable type climate (C); human (H); ecosystem	For?/of? adaptation	temporal (units)	Resolution needed spatial (units)	Resolution available temporal (units) spatial (units)	PLATFORMS
FIRE DETECTION	Fire	active fire maps	C	For	2016IP) -- 6 hours at all latitudes from polar-orbiting and 1 hour from geostationary	0.25-1 km (polar); 1-4 km (geo) (IP 2016 p. 289; 5% error of commission 10% error of omission Based on per-fire comparisons for fires above target threshold of 5 MW/km <sup>2</sup> equivalent integrated FRP per pixel (i.e. for a 0.5 km <sup>2</sup> pixel the target threshold would be 2.5 MW, for a 9 km <sup>2</sup> pixel it would be 45 MW).	daily (24 h) (?); (2016IP) -- 6 hours at all latitudes from polar-orbiting and 1 hour from geostationary	1-km pixels that are burning at the time of overpass under relatively cloud-free conditions MODIS & VIIRS
		burnt areas	C	For	IP2016 p 289 24 hr	30m ; 15% (error of omission and commission), compared to 30-thermal infrared Geostationary and moderate to high-resolution optical systems continuity required. Daily detection of burnt area with horizontal resolution of 250 m and accuracy of 15% FRP horizontal resolutions of 1 km to 0.25 km, time resolution of 30 minutes, with accuracy of 25%; SEE p. 212-213 IP2016 good		WGClimate GOFC regional networks, GFMC ESA CCI GFED Copernicus LPDAAC GOFC regional networks, GFMC
		fire radiative power	C	For	FRP, Watts)			



Thank you

<https://gcos.wmo.int/en/gcos-status-report-2021>

<https://apps.ipcc.ch/comments/gcos/fod/register.phpgl>



**GLOBAL CLIMATE  
OBSERVING SYSTEM**

KEEPING WATCH OVER OUR CLIMATE



WMO



IOC

International  
Science Council



Supported by the European Union



**Copernicus**  
Europe's eyes on Earth