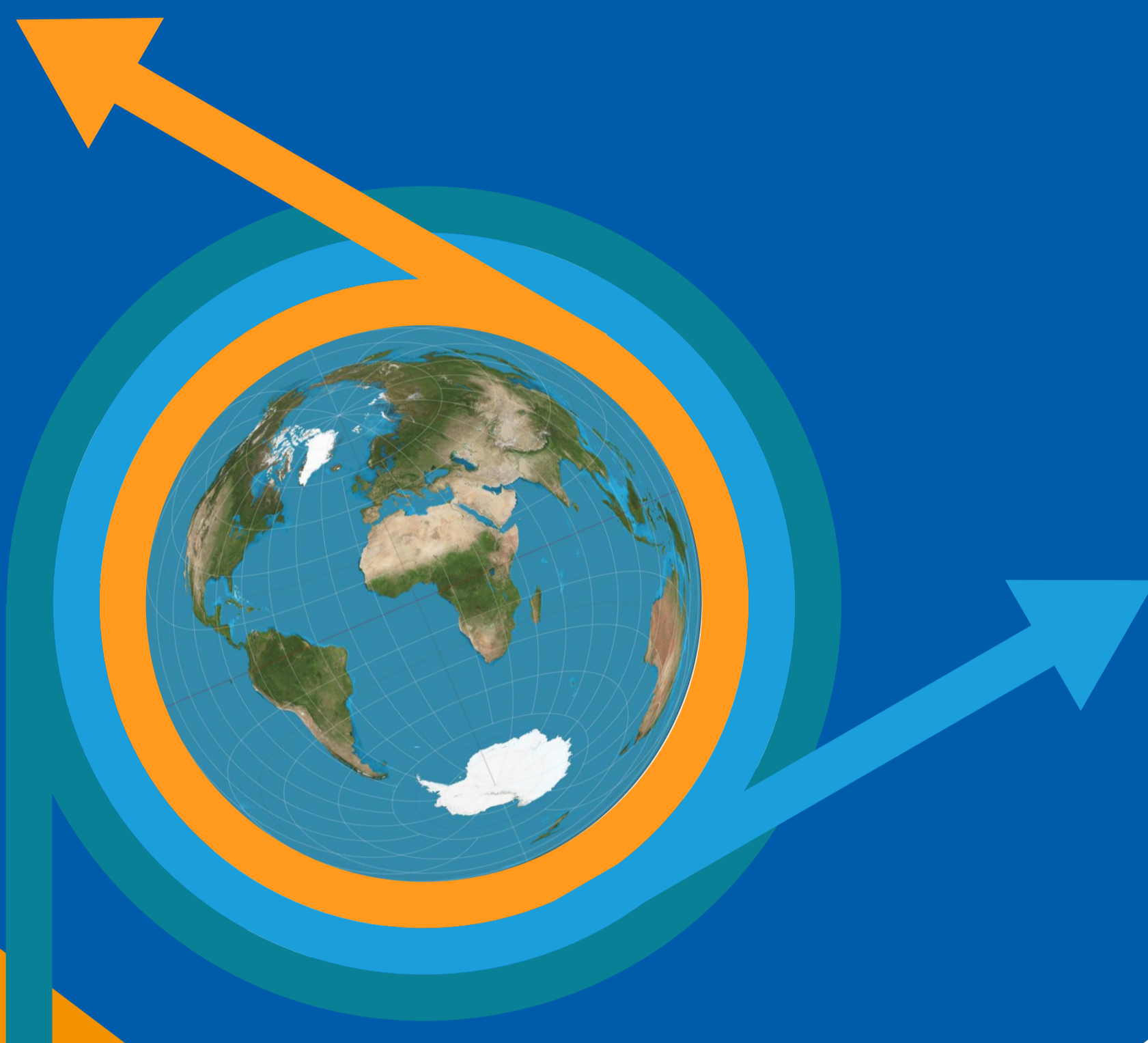




# GLOBAL CLIMATE OBSERVING SYSTEM

## KEEPING WATCH OVER OUR CLIMATE

**GCOS** is the authoritative global source of information and advice for planning and development of the Global Climate Observing System, its networks and data management. It is the authoritative source reference for formulating requirements for space and in situ climate observations.



### GCOS ACTIVITIES

Addressing needs for climate monitoring, climate prediction, adaptation and mitigation, UNFCCC and IPCC assessments.

Advocate for free and open access to relevant data.

Ensure that climate observations are enhanced and continued into the future.

SCAN ME:  
Implementation Plan



### The 2022 GCOS Implementation Plan

This Plan is arranged around six themes

Theme	Actions
<b>ENSURING SUSTAINABILITY</b>	While existing observations need to be continued the plan identifies actions to address the continuity of ground-based and satellite observations that are currently at risk.
<b>FILLING DATA GAPS</b>	Gaps identified in the 2021 GCOS Status report need to be filled particularly in Africa, South America, Southeast Asia, the deep ocean and polar regions.
<b>IMPROVING DATA UTILITY</b>	Many climate observations are currently underexploited because of the lack of consistency in their processing and usability. This theme looks at how the original observational data is transformed into user-relevant information.
<b>MANAGING DATA</b>	For each ECV the longest possible time series needs to be preserved and made available in perpetuity. Recognised global data repositories that are well-curated, provide free and open access to data and are sustainable are needed.
<b>ENGAGING WITH COUNTRIES</b>	Many climate observations are made by national bodies. GCOS can help by linking these national efforts into the global system, providing information on observing needs, promoting needs for support and access to global information.
<b>EMERGING NEEDS</b>	Needs for climate data are evolving. The GCOS Expert Panels have already identified several areas where emerging needs arising from response measures such as adaptation and mitigation need to be addressed in the short term.

### Why is a new Implementation Plan needed?

Despite their great successes, global climate observations are not yet complete. The 2021 GCOS Status Report on the Global Climate Observing System identified several areas of concern.

For example, in situ observations for almost all the ECVs are consistently deficient over certain regions, most notably parts of Africa, South America, Southeast Asia, as well as the ocean and in particular in the deep ocean and polar regions, a situation that has not improved since the 2015 GCOS Status Report. Satellite observations have gaps in coverage (e.g. High latitudes) and lack guaranteed continuity.

IP Actions	Theme	Actions	Implementing Bodies											
			WMO	NIHIS	Space agencies	GOOS	Reanalysis Centers	Global Data Centers	Research organizations	National Agencies	Parties to UNFCCC	Academia	Funding Agencies	GCOS
A: ENSURING SUSTAINABILITY	A1.	Ensure necessary levels of long-term funding support for in situ networks, from observations to data delivery	x	x						x		x	x	x
	A2.	Address gaps in satellite observations likely to occur in the near future			x									
	A3.	Prepare follow-on plans for critical satellite missions			x									
B: FILLING DATA GAPS	B1.	Development of reference networks (in situ and satellite Fiducial Reference Measurement (FRM) programs)	x	x	x				x				x	x
	B2.	Development and implementation of the Global Basic Observing Network (GBON)	x	x	x									x
	B3.	New Earth observing satellite missions to fill gaps in the observing systems			x									
	B4.	Expand surface and in situ monitoring of trace gas composition and aerosol properties		x	x				x	x				x
	B5.	Implementing global hydrological networks	x	x	x			x						
	B6.	Expand and build a fully integrated global ocean observing system	x	x	x				x	x			x	
	B7.	Augmenting ship-based hydrography and fixed-point observations with biological and biogeochemical parameters				x			x					
	B8.	Coordinate observations and data product development for ocean CO <sub>2</sub> and N <sub>2</sub> O	x		x				x	x				
	B9.	Improve estimates of latent and sensible heat fluxes and wind stress	x	x	x				x			x		
	B10.	Identify gaps in the climate observing system to monitor the global energy, water and carbon cycles							x				x	x
C: IMPROVING DATA QUALITY, AVAILABILITY AND UTILITY, INCLUDING REPROCESSING	C1.	Develop monitoring standards, guidance and best practices for each ECV	x	x	x									x
	C2.	General improvements to satellite data processing methods							x			x		
	C3.	General improvements to in situ data products for all ECVs		x	x				x	x		x		
	C4.	New and improved reanalysis products			x	x						x		
	C5.	ECV-specific satellite data processing method improvements			x	x								
D: MANAGING DATA	D1.	Define governance and requirements for Global Climate Data Centres	x						x					x
	D2.	Ensure Global Data Centres exist for all in situ observations of ECVs	x	x	x				x				x	x
	D3.	Improving discovery and access to data and metadata in Global Data Centres							x				x	x
	D4.	Create a facility to access co-located in situ cal/val observations and satellite data for quality assurance of satellite products	x	x	x					x				
	D5.	Undertake additional in situ data rescue activities	x	x								x		x
E: ENGAGING WITH COUNTRIES	E1.	Foster regional engagement in GCOS			x							x		x
	E2.	Promote national engagement in GCOS		x								x	x	x
	E3.	Enhance support to national climate observations										x	x	x
F: OTHER EMERGING NEEDS	F1.	Responding to user needs for higher resolution, real time data	x	x	x						x		x	x
	F2.	Improved ECV satellite observations in polar regions			x						x		x	
	F3.	Improve monitoring of coastal and Exclusive Economic Zones		x	x	x					x		x	
	F4.	Improve climate monitoring of urban areas	x	x							x	x	x	x
	F5.	Develop an Integrated Operational Global GHG Monitoring System	x	x							x	x	x	x

