

ГЛОБАЛЬНАЯ СИСТЕМА
НАБЛЮДЕНИЙ ЗА КЛИМАТОМ
НЕУСТАЙНО СЛЕДИМ ЗА КЛИМАТОМ

SYSTÈME MONDIAL
D'OBSERVATION DU CLIMAT
NOUS VEILLONS SUR LE CLIMAT

النظام العالمي
لرصد المناخ
لنضع المناخ نصب أعيننا

全球气候观测系统
密切监视气候

SISTEMA MUNDIAL
DE OBSERVACION DEL CLIMA
SIEMPRE VIGILANDO EL CLIMA

GLOBAL CLIMATE
OBSERVING SYSTEM
KEEPING WATCH OVER OUR CLIMATE

4.1 GCOS main outputs: ECVs, Status Report and Implementation Plans

31st Session of the GCOS Steering Committee

Geneva, 2-5/07/2024

Sabrina Speich



**GLOBAL CLIMATE
OBSERVING SYSTEM**

KEEPING WATCH OVER OUR CLIMATE



Supported by the European Union

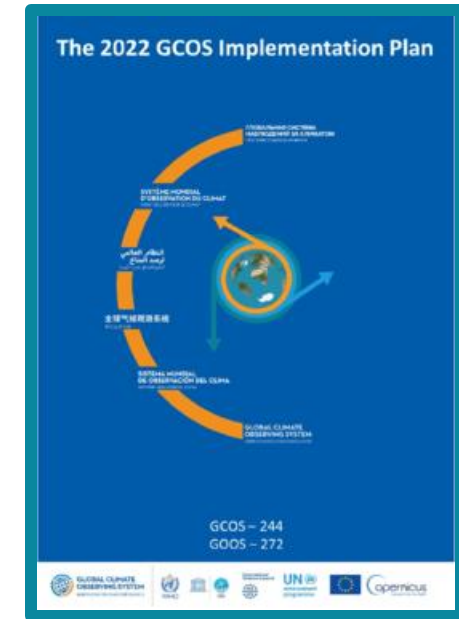
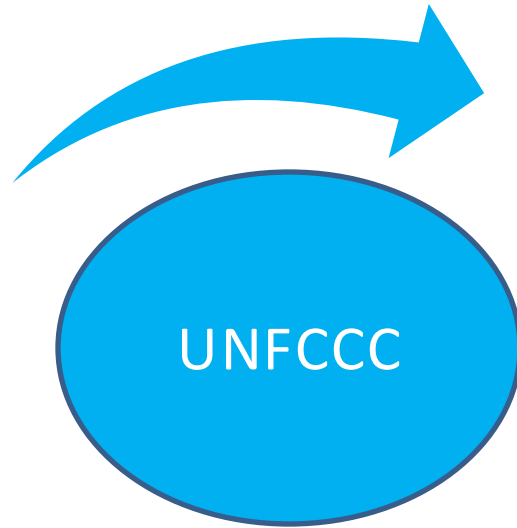


GCOS: main activities and outputs

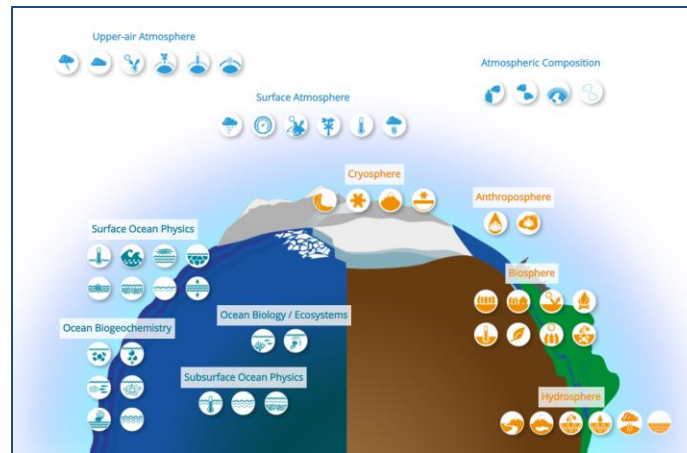
- Cycle of 5 years



Assess if the Status of the observing system meets those requirements
(GCOS Status Report)



Propose actions to improve the observing system for climate
(GCOS Implementation Plan)



Identify what we need to measure
(ECV requirements)

Essential Climate Variables (ECVs)

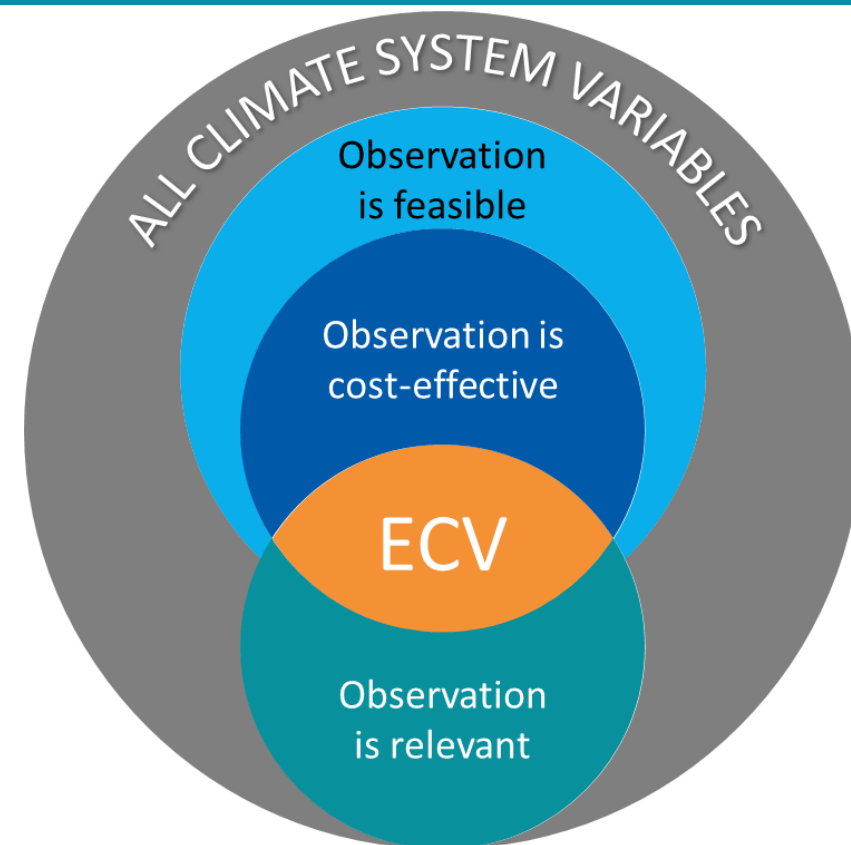
Essential Climate Variables (ECVs)

- are physical, chemical or biological variables that critically contribute to the characterization of Earth's climate.
- are not stand-alone variables; they are part of a wider concept.
- are founded on climate science and observational capability and infrastructure.

ECV datasets provide the empirical evidence

- to understand and predict the evolution of climate,
- to guide mitigation and adaptation measures,
- to assess risks,
- to enable attribution of climatic events to underlying causes,
- to underpin climate services.

SOURCE: Bojinski et al. 2014



ECVs should meet these principles

Free and Open, data is openly available to all users

Transparent, methods and assumptions are clear, with standardised metadata, where poss.

Accurate, climate data needs high accuracy to distinguish small trends from larger annual variab.

Useful, there should be a clear demand from users

Timely & Long-term, aim to maintain and/or develop long-term climate data records

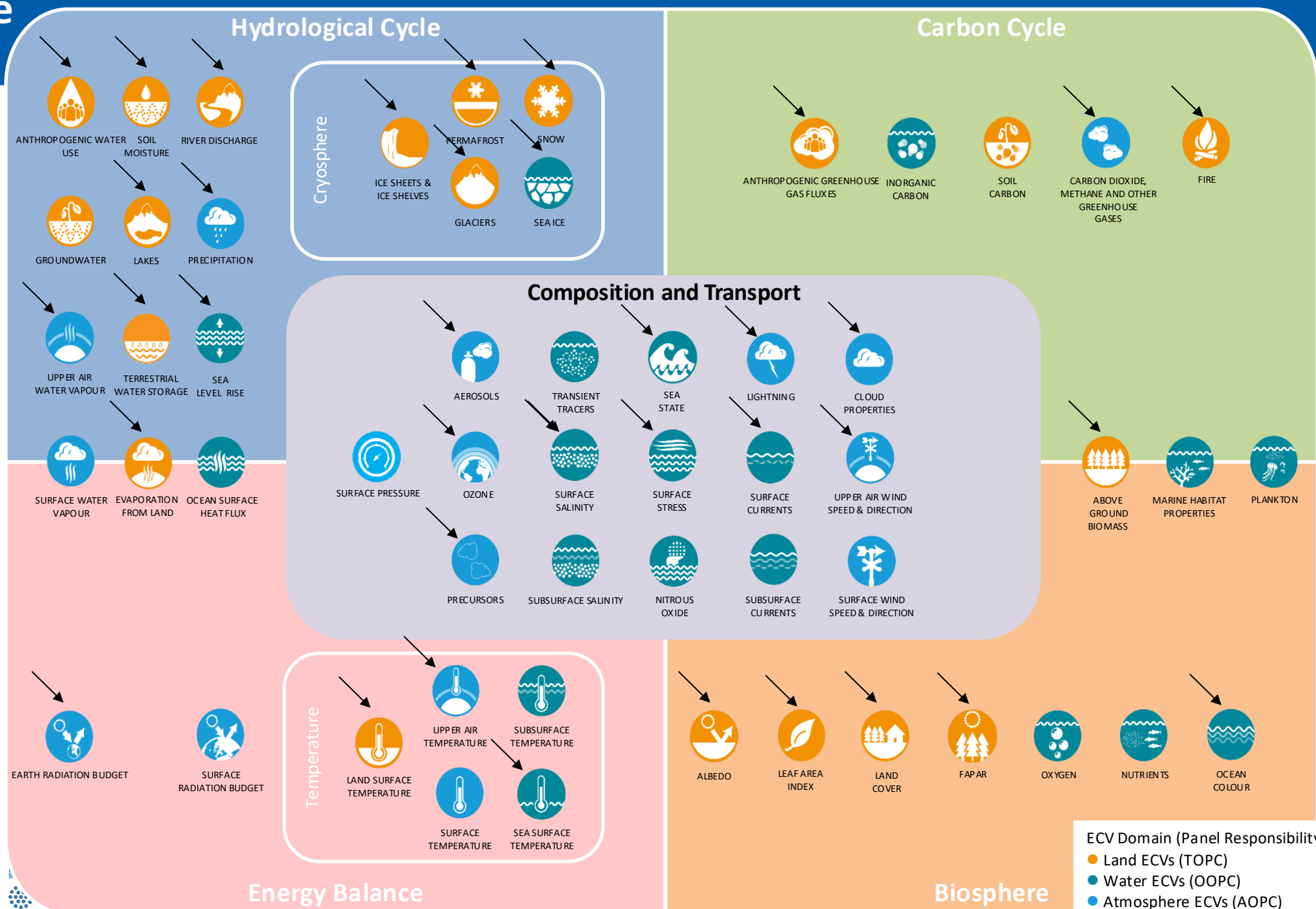
Based on best **available science**

Essential Climate Variables - ECVs

55 ECVs - 37 can be measured from space

ECVs aim to monitor the climate system as a whole, covering the interlinked Earth's energy balance and the carbon and water cycles.

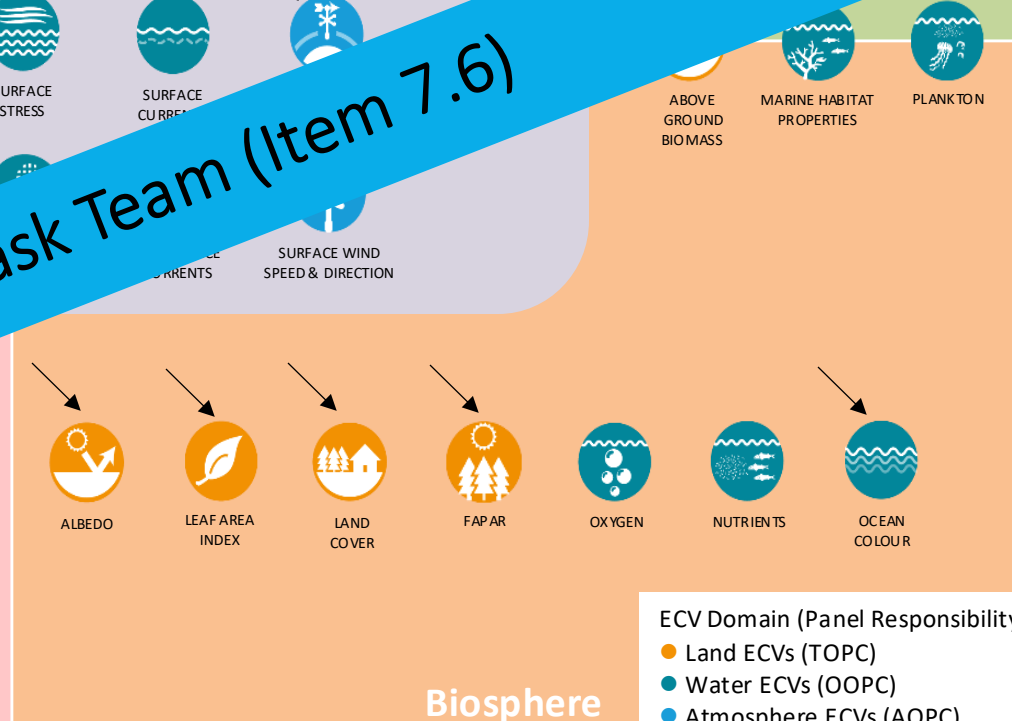
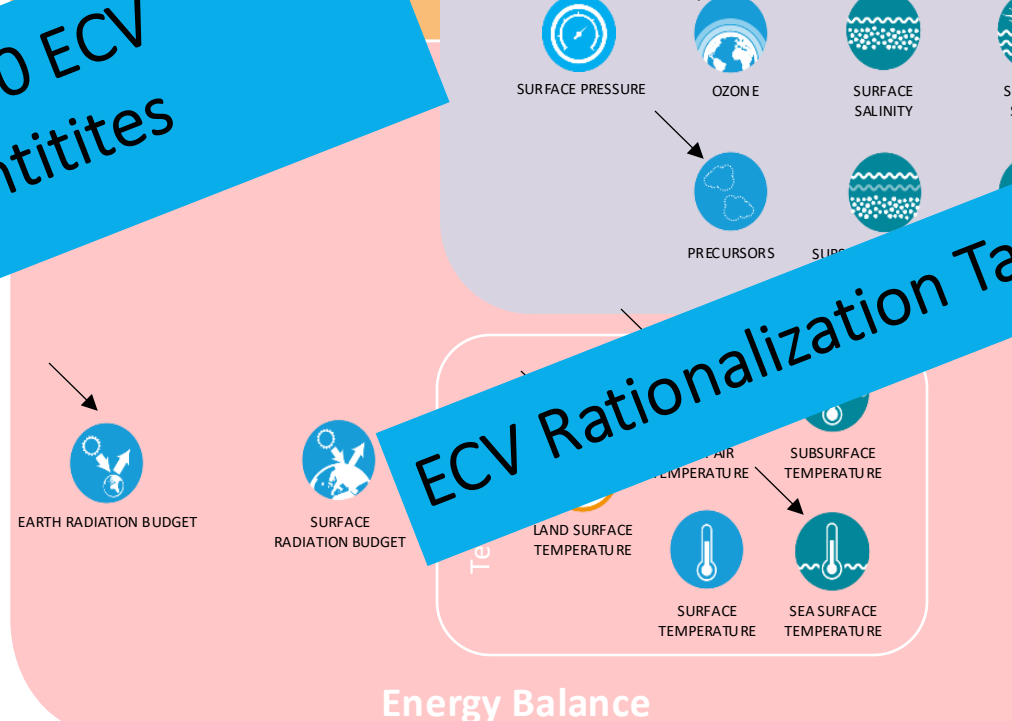
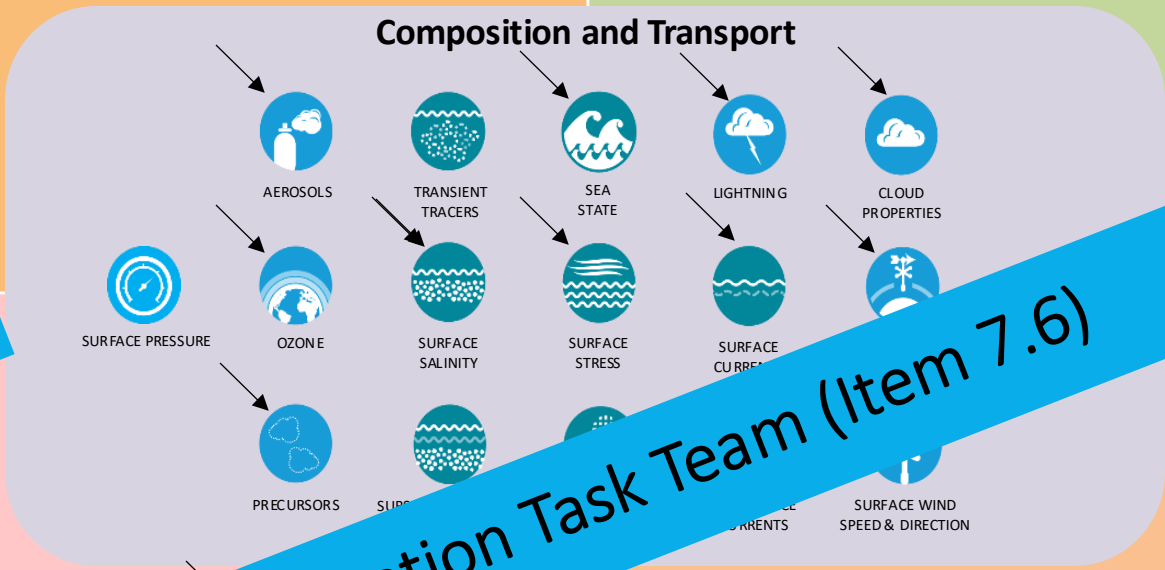
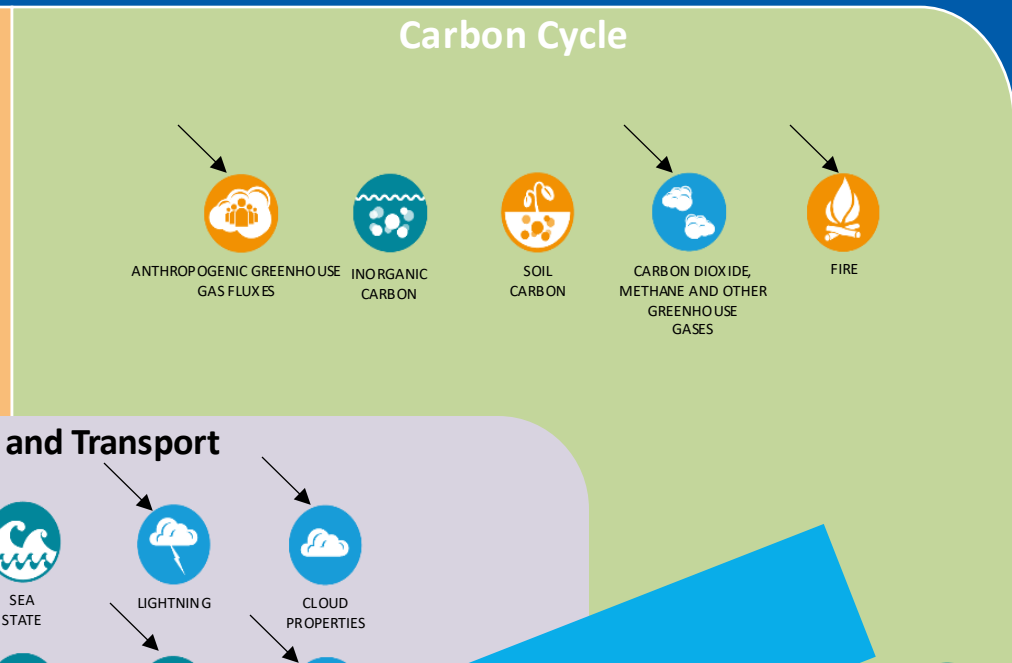
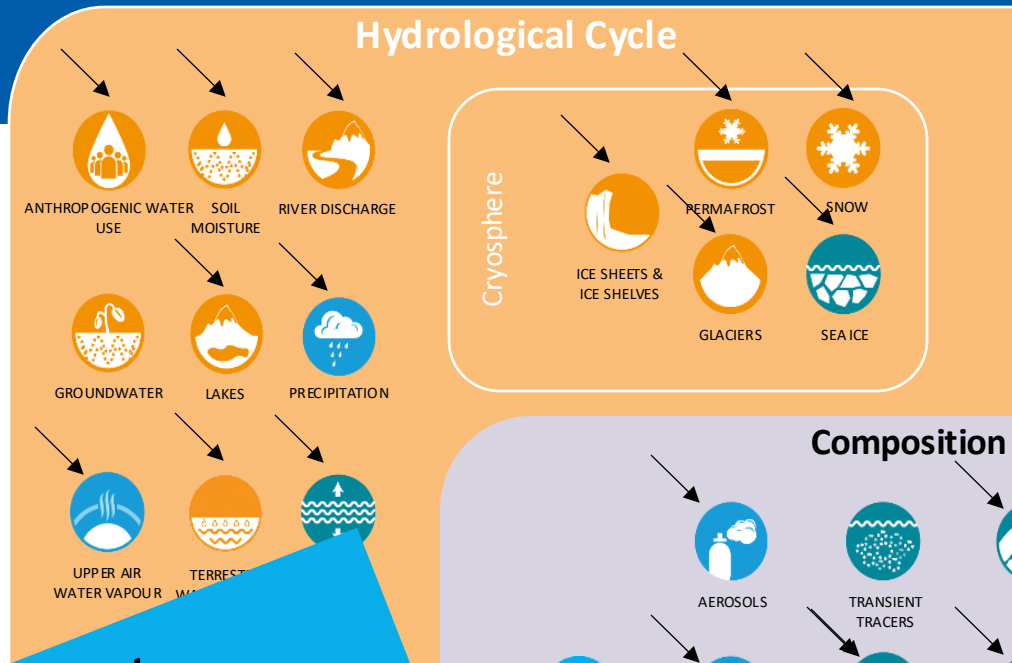
Biosphere is very important for the carbon and water cycles while many variables cover composition and transport that impact all aspects of climate change



ECV Domain (Panel Responsibility):

- Land ECVs (TOPC)
- Water ECVs (OOPC)
- Atmosphere ECVs (AOPC)

Essential Climate Variables - ECVs

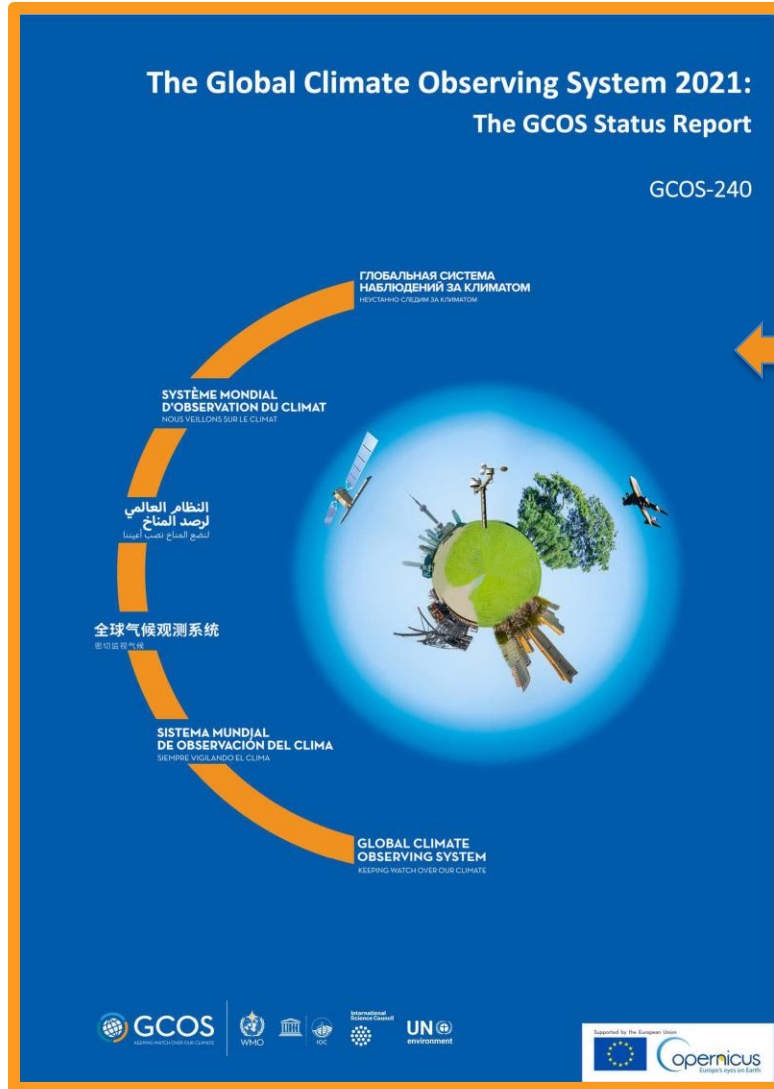


55 ECVs and 200 ECV products/quantities

ECV Rationalization Task Team (Item 7.6)

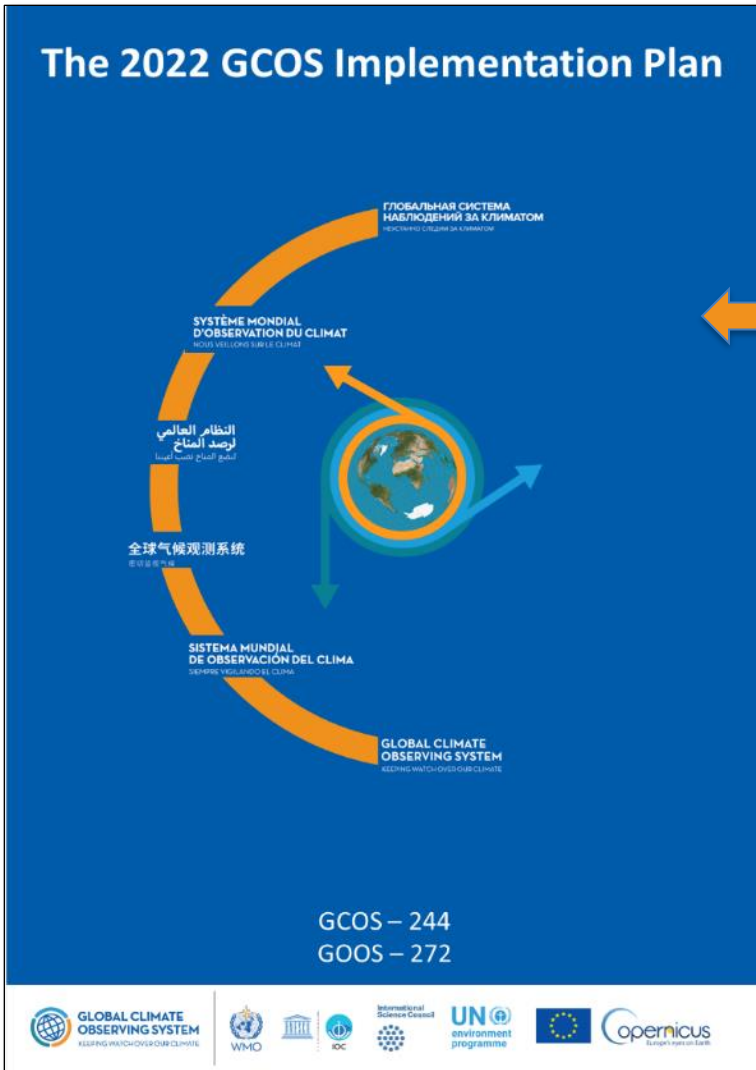
ECV Domain (Panel Responsibility):
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 ● Water ECVs (OOPC)
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The GCOS Status Report

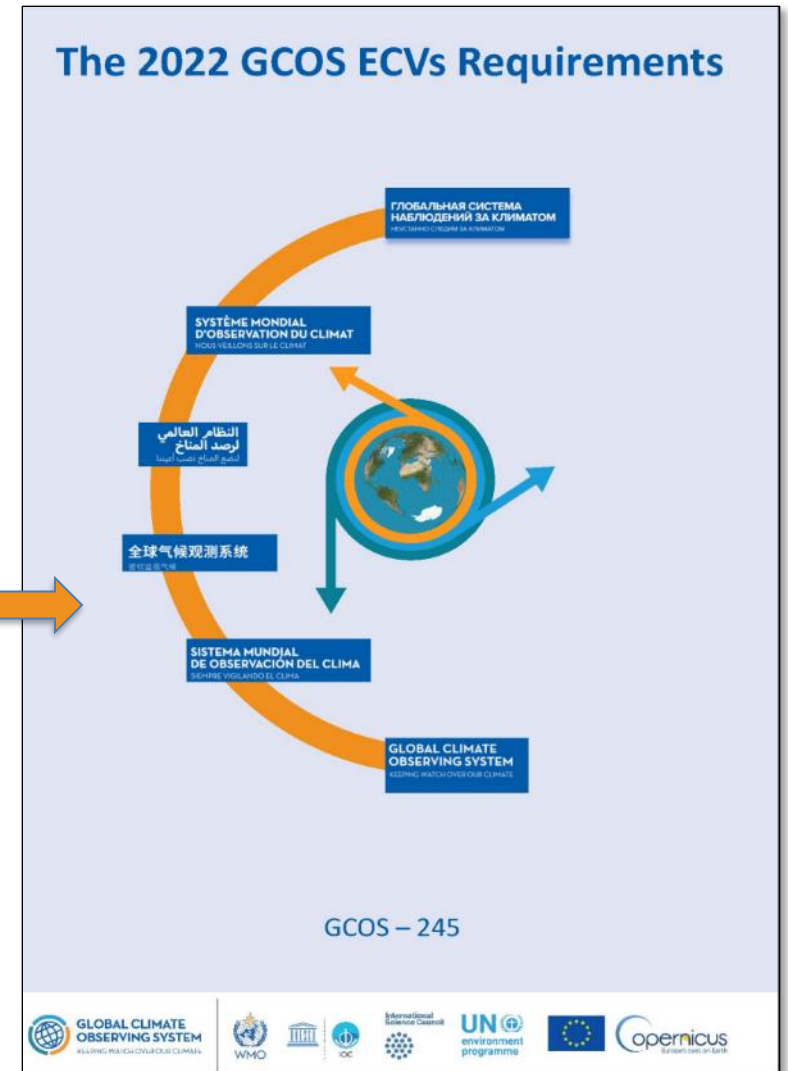


- **Published every \cong 5 years**
- **Submitted to UNFCCC**
- **Assessment of the fitness for purpose of the global observing system for climate.**
- **The assessment focuses on the ECVs – observational gaps**
- **It also assesses how much progress has been accomplished for each of the Actions presented in the previous Implementation Plan**

The GCOS Implementation Plan and ECVs Requirements

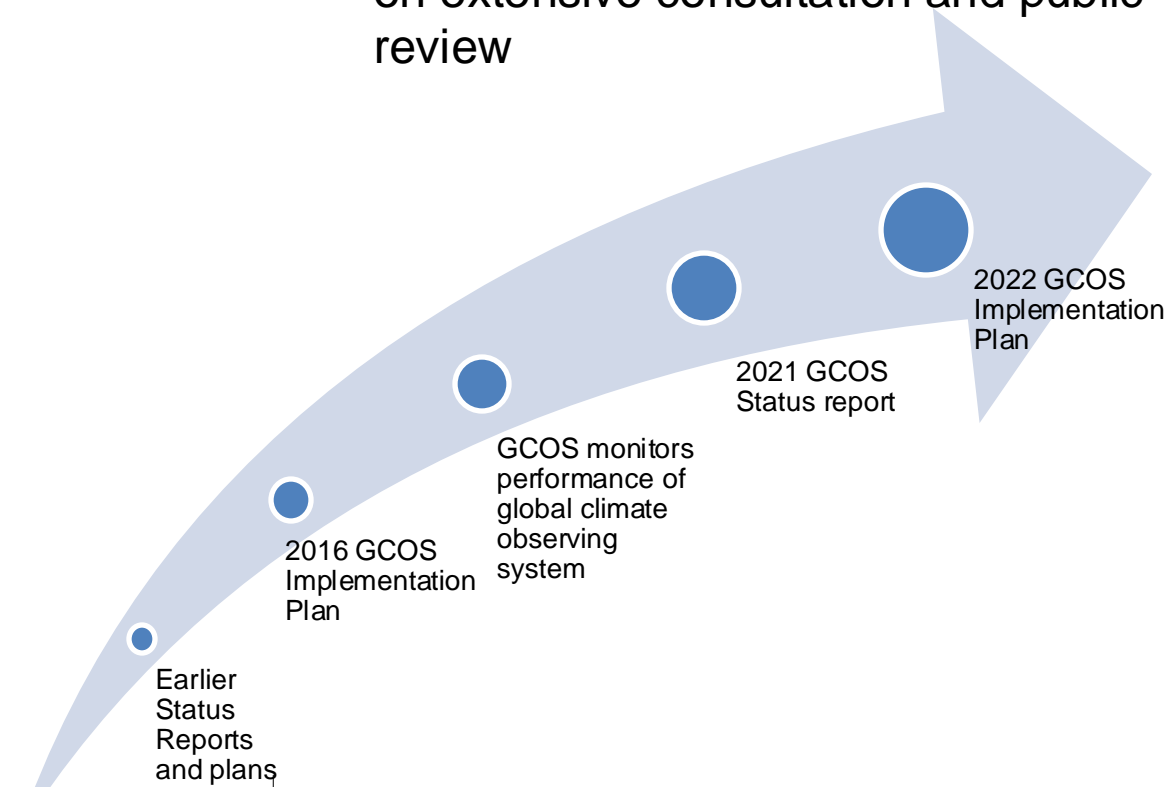
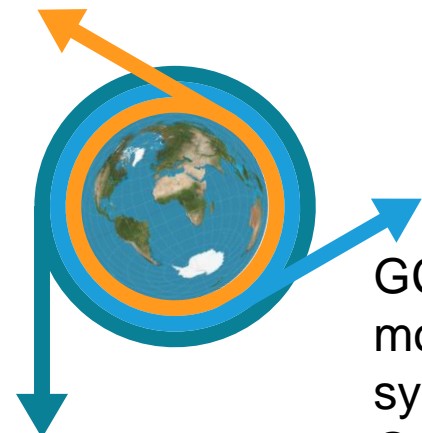


- Published every $\cong 5$ years
- Submitted to UNFCCC
- Actions for addressing gaps and improvements of a fit for purpose Global Climate Observing System
- Published jointly with the 2022 GCOS IP
- Provides the observational requirements for 55 ECVs (and more ECV products)

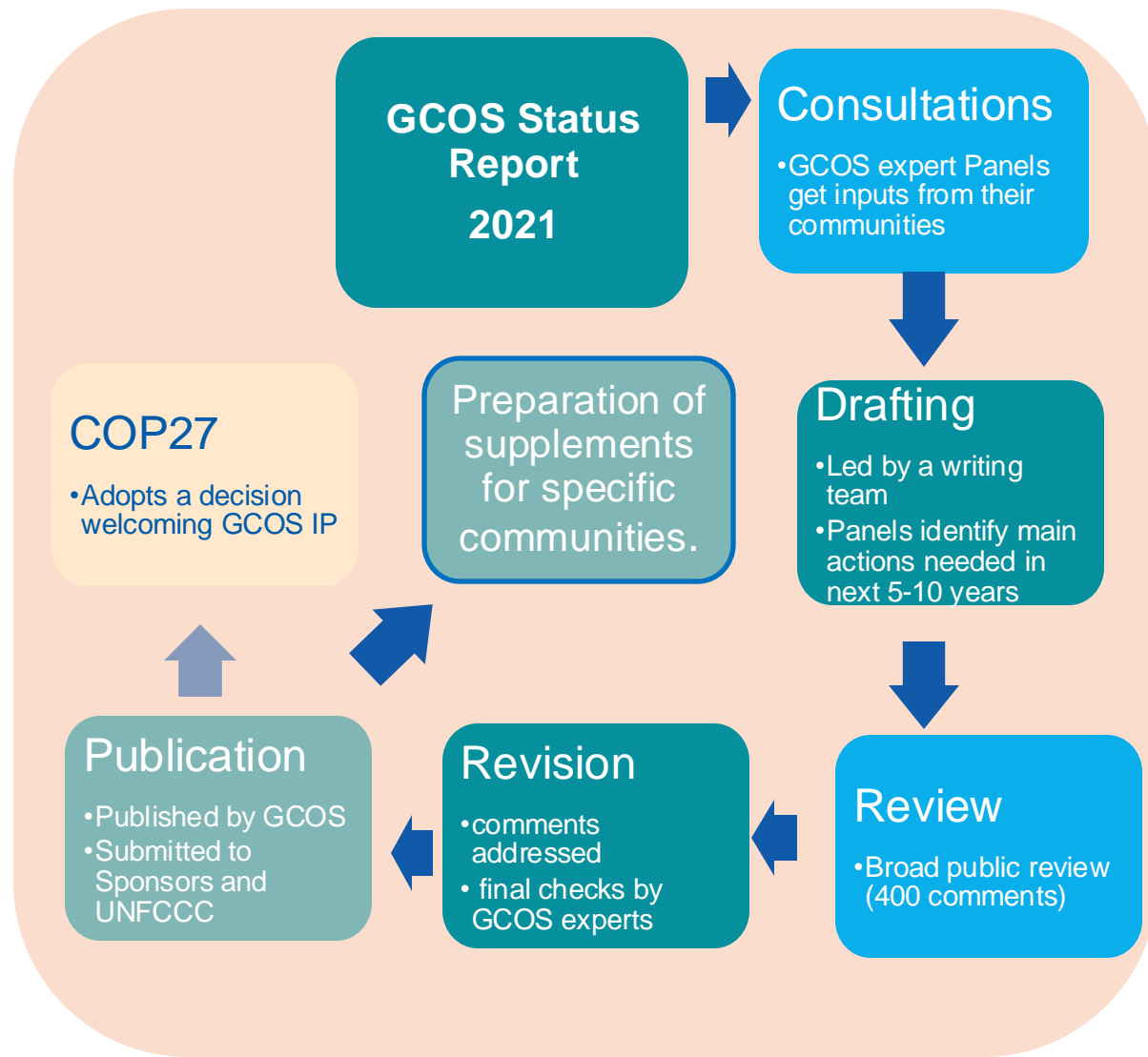


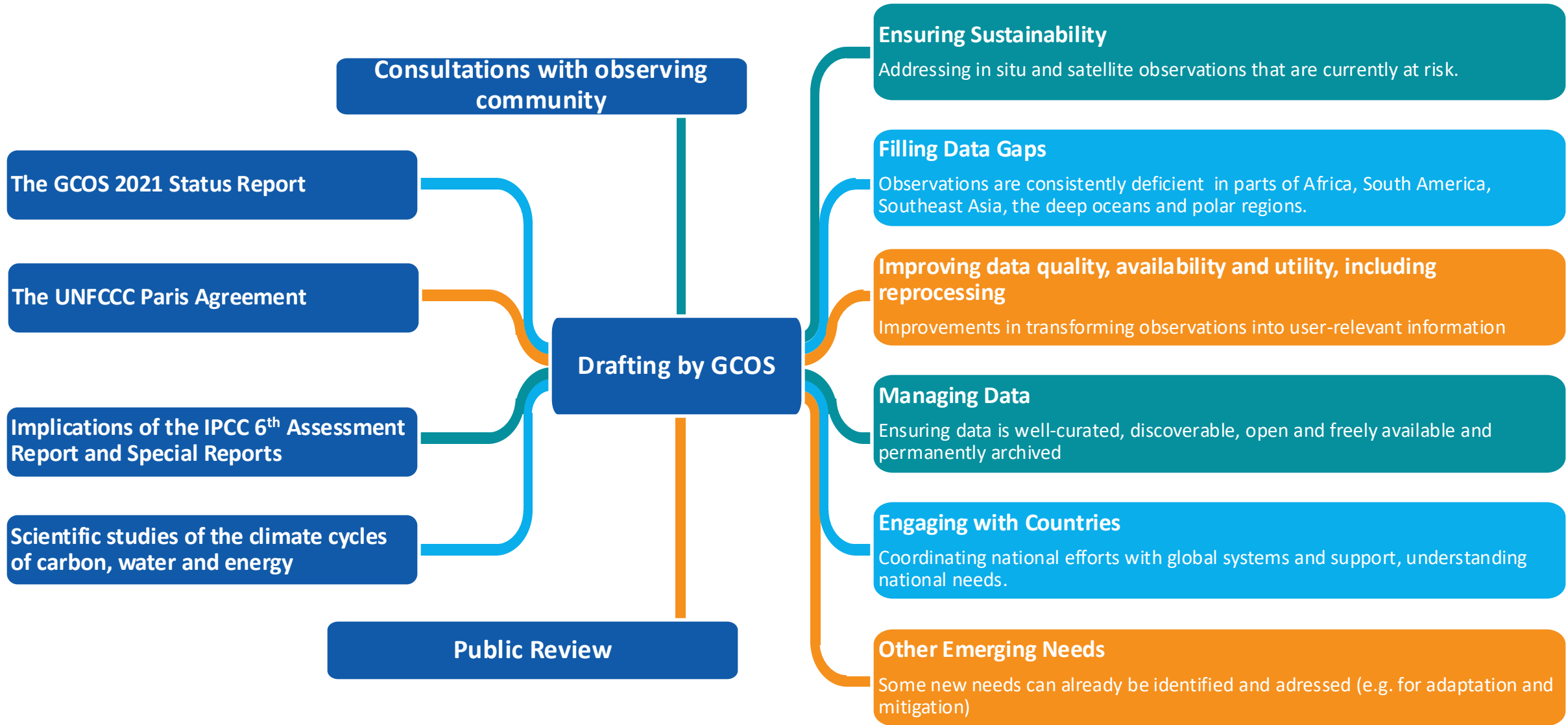
Producing GCOS Implementation Plan

GCOS has a 5 year cycle of monitoring the climate observing system → GCOS Status Reports → GCOS Implementation Plans based on extensive consultation and public review



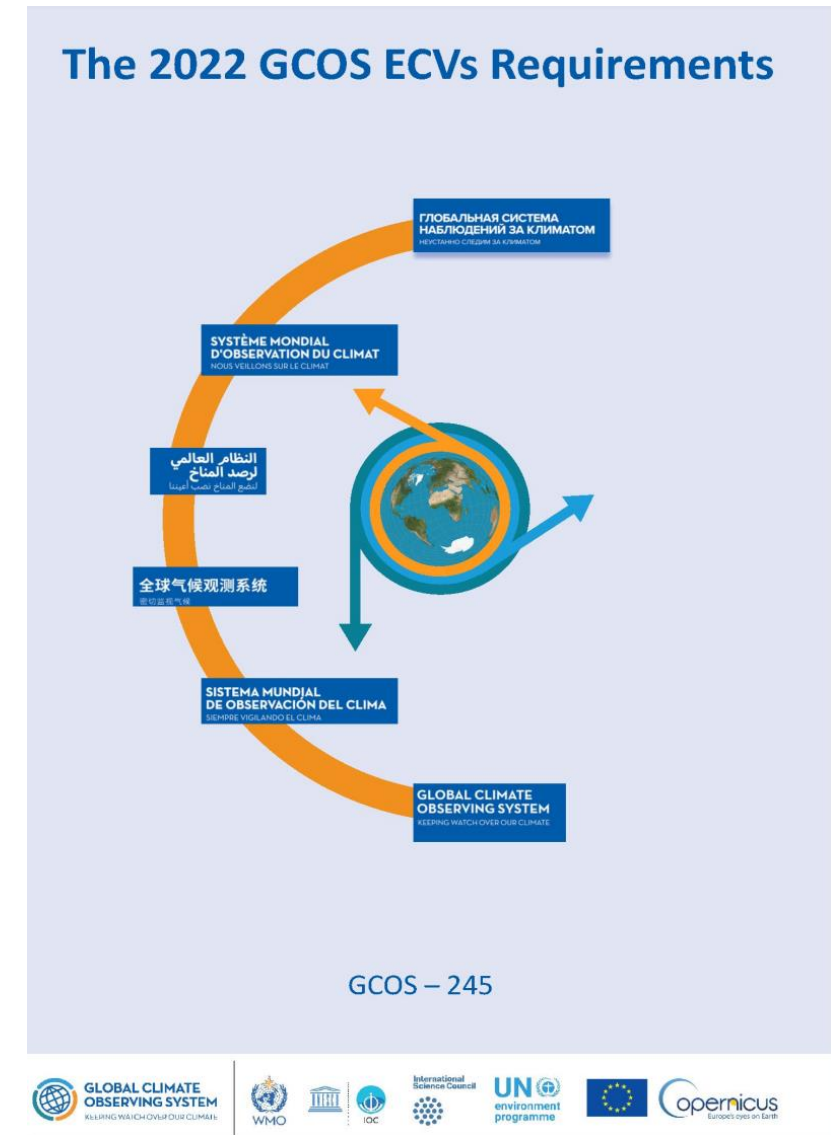
2022 GCOS Implementation Plan





ECV Requirements

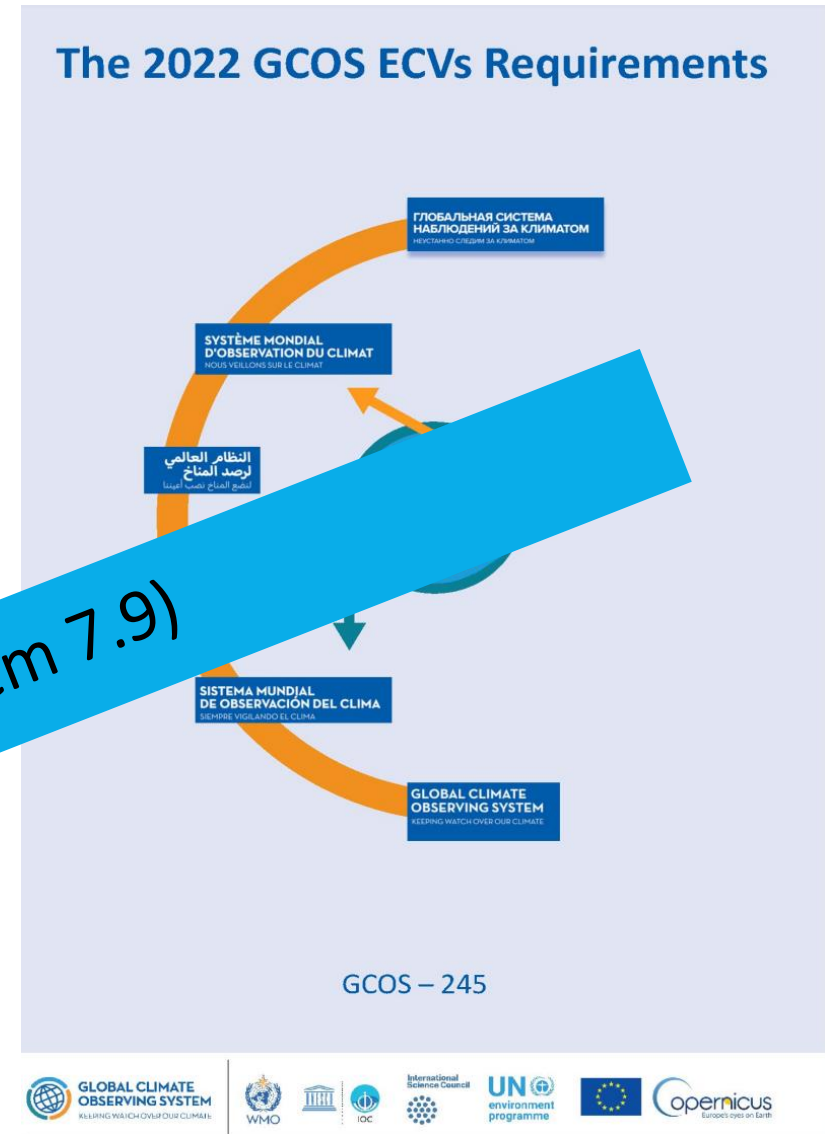
- GCOS specifies 55 ECV variables, for most of the ECVs there are one or more ECV products.
 - ECV product: measurable parameter needed to characterize the ECV.
- GCOS routinely maintain, review and revise the list of ECV product observational requirements (horizontal and vertical resolution, timeliness, stability, uncertainty..). Process aligned with the WMO Rolling Review of Requirements
- The 2022 GCOS ECV Requirements presents ECV product requirements covering all ECV products.
- Requirements were defined by GCOS expert panels members, informed by the wider community.
 - 1st public review in 2020: comments were addressed by panel members
 - 2nd public review in 2022 as part of the GCOS IP



ECV Requirements

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Addendum of GCOS-245 (Item 7.9)



Thank you



Supported by the European Union

