

The Global Observing System for Climate

Data Sources for Essential Climate Variables

GCOS Secretariat, WMO
XXX



WMO



INTERNATIONAL
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FOR SCIENCE



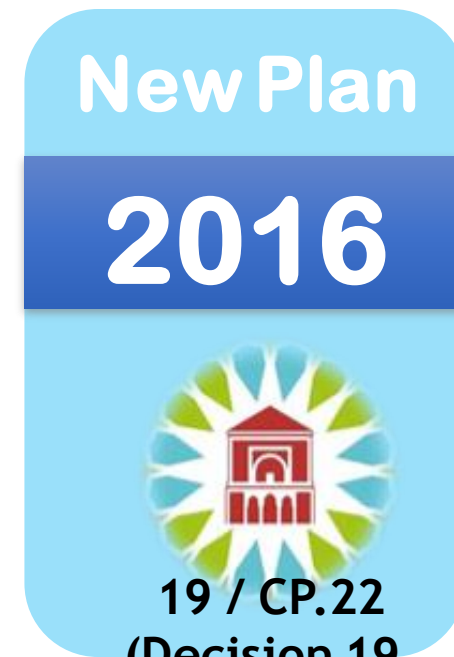
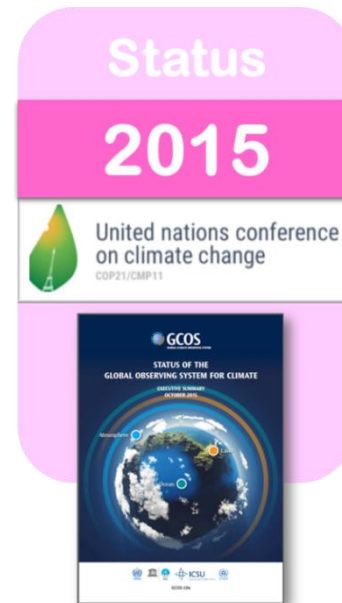
Driving the Global Climate Observation Agenda

GCOS follows a 3 phase approach driven by users:

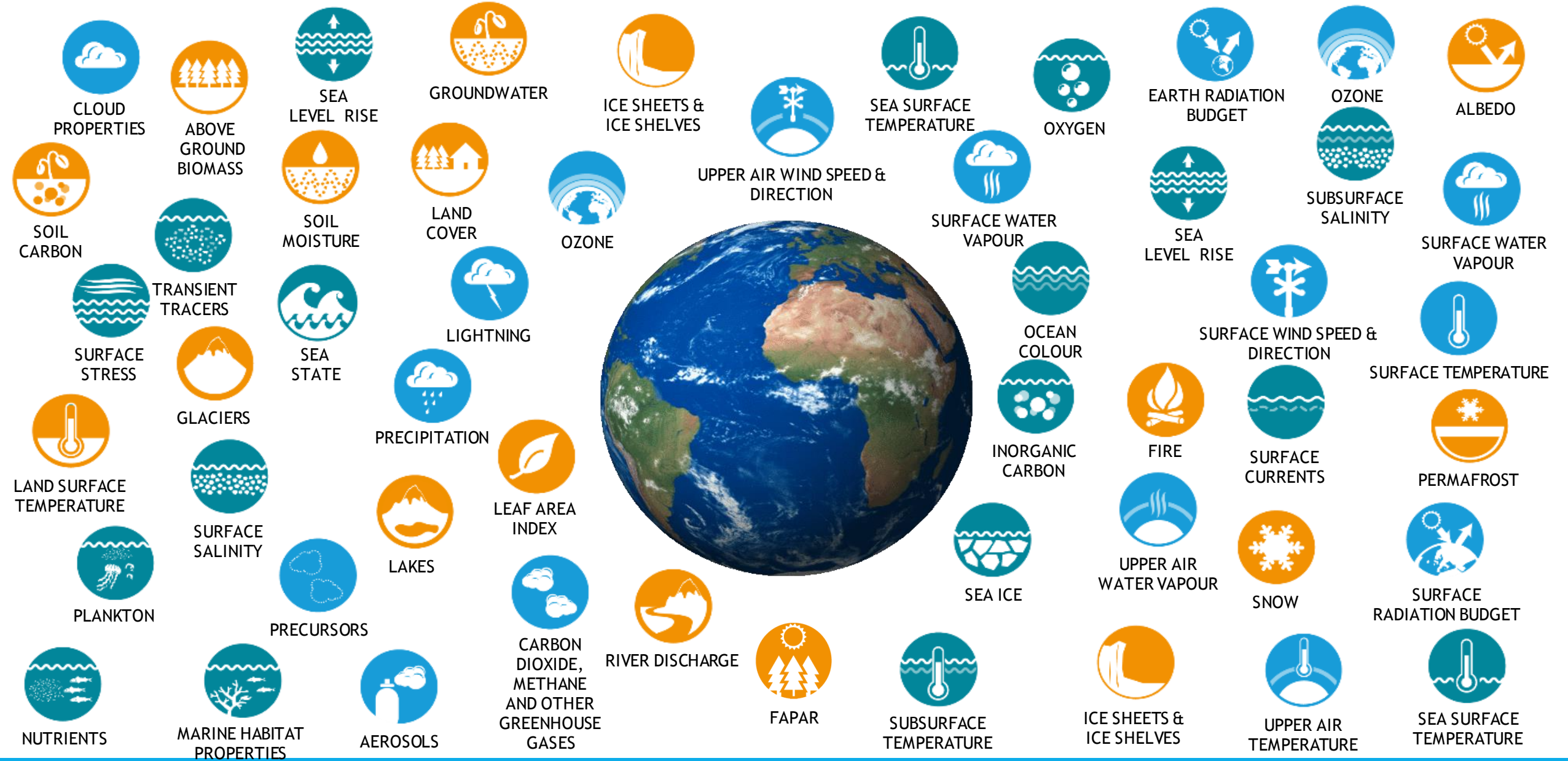
Identify/Review Essential Climate Variables (ECVs) through science panels

Regular review of how these ECV are observed

Develop plans to ensure continuity and improvement of observations



19 / CP.22
(Decision 19,
COP-22, Marrakech, Morocco)



GCOS specifies 54 Essential Climate Variables (ECV) that are key for sustainable climate observations

“What is ECV data and where can I find it?”

In short:

Precipitation is an ECV,
BUT not all precipitation observation data
fulfill the requirements to be an ECV

→ Data Sources need review
against certain criteria



1. **Worldwide coverage**
2. **Free and open access**
3. **Quality controlled with documentation**
4. **Include Metadata**
5. **Considered by the appropriate GCOS Science Panel Experts**

ECV-Data Source

→ **Established by GCOS Scientific Panels**

- Each ECV has one or several ECV Stewards as point of contact for communities
- They established initial lists of a limited number of relevant key datasets for each ECV

ECV Stewards

- Consult with their communities
- Keep data lists up to date
- Review new suggestions



Gridded In Situ Data:

- Climatic Research Unit (CRU) land surface air temperature data set (CRUTEM4)
- Japan Meteorological Agency (JMA) Global Temperature
- Hadley Centre Climatic Research Unit global historical surface temperature (HadCRU4)
- National Oceanic and Atmospheric Administration (NOAA) Global Temperature
- Berkeley Earth Surface Temperature
- Gridded Temperature And Precipitation Climate Extremes Indices (Climdex Data)
- Gridded Night Marine Air Temperature (HadNMAT2) Global Temperature

In Situ Data:

- Integrated Surface Database (ISD) of the National Centers for Environmental Information (NCEI) of the National Oceanic and Atmospheric Administration (NOAA)
- International Comprehensive Ocean-Atmosphere Data Set (ICOADS)
- Antarctic Meteorological Research Center (AMRC) and Automatic Weather Station (AWS) program
- READER (REference Antarctic Data for Environmental Research)
- Global Historical Climatology Network Daily (GHCN-Daily) of the National Centers for Environmental Information (NCEI) of the National Oceanic and Atmospheric Administration
- Hadley Centre Integrated Surface Database (HadISD)

Reanalysis Data

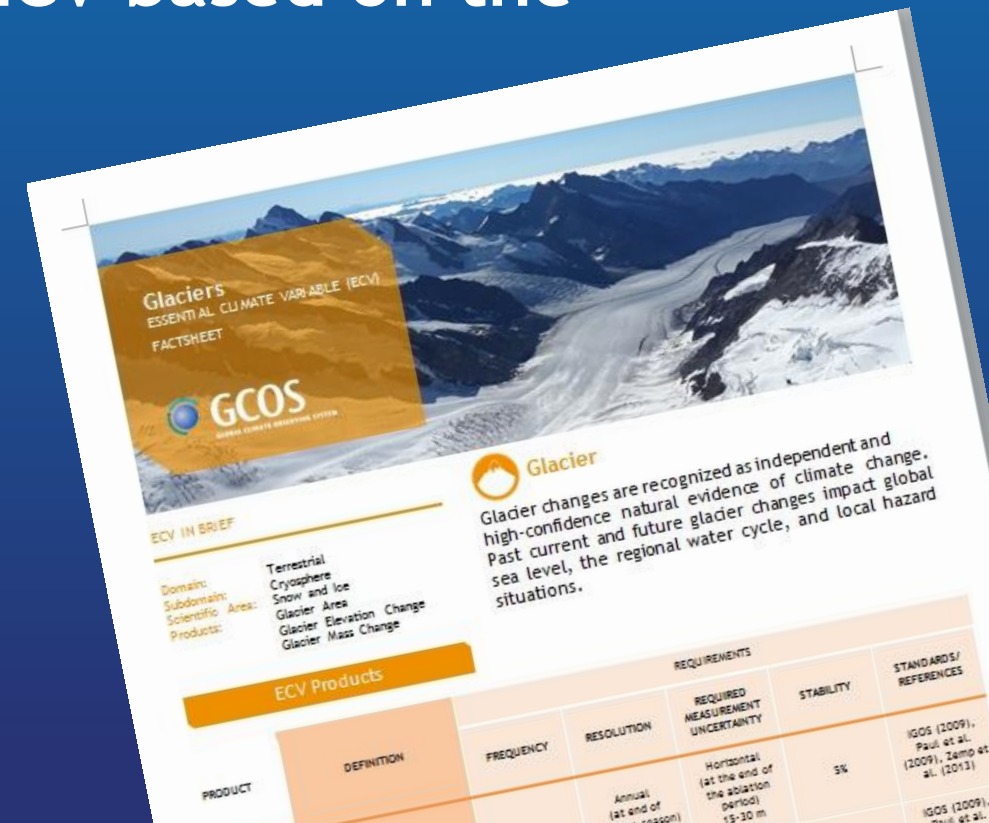
- REANALYSIS.ORG (Inventory for Reanalysis)

Satellite Data :

- Satellite ECV Inventory by the CEOS/CGMS Working Group on Climate (WGClimate)

- Released on GCOS website
- Data sources used for ECV factsheets (released soon)
- GEO is establishing a interface for ECV based on the GCOS list of ECV data sources

→ **Trusted**
→ **Accessible**
→ **Sustainable**



ToR International Coordination Data Catalog Ad hoc Expert Group:

“2) Propose a draft catalog of about 10 pre-identified trusted data sets for global access in support of operational climate monitoring:

- Temperatures, (obs based, reanalyzes, satellite based)*
- Precipitation*
- Sea Ice*
- Sea Level*
- Ice-sheets*
- Glaciers*
- Climate Indices*
- Crowd-sourced data sets*
- Hydrology (optional)”*



→ GCOS suggests to use the ECV data lists