

WDAC - WCRP Data Advisory Council

Coordination and synergies between the various observational and data analysis efforts across the WCRP program

- To advise JSC and coordinate with WCRP Projects and Working Groups
- To promote research
 - Sustained observations and data from process studies across the WCRP
 - Improvement in the processing and reprocessing of climate data
- **To promote assessment of**
 - **Observations and derived products to support climate research**
 - **Gaps in the global observing system**
 - **Climate-data products, including those from reanalyses**
- To promote development of
 - Mechanisms for archival, access and analysis of data
 - Standards for product generation, including reanalyses

WCRP Data Advisory Council 5th Session

7-8 April 2016, Asheville, North Carolina USA

in conjunction with the GCOS AOPC* session

**Atmospheric Observation Panel for Climate (of the Global Climate Observing System)*



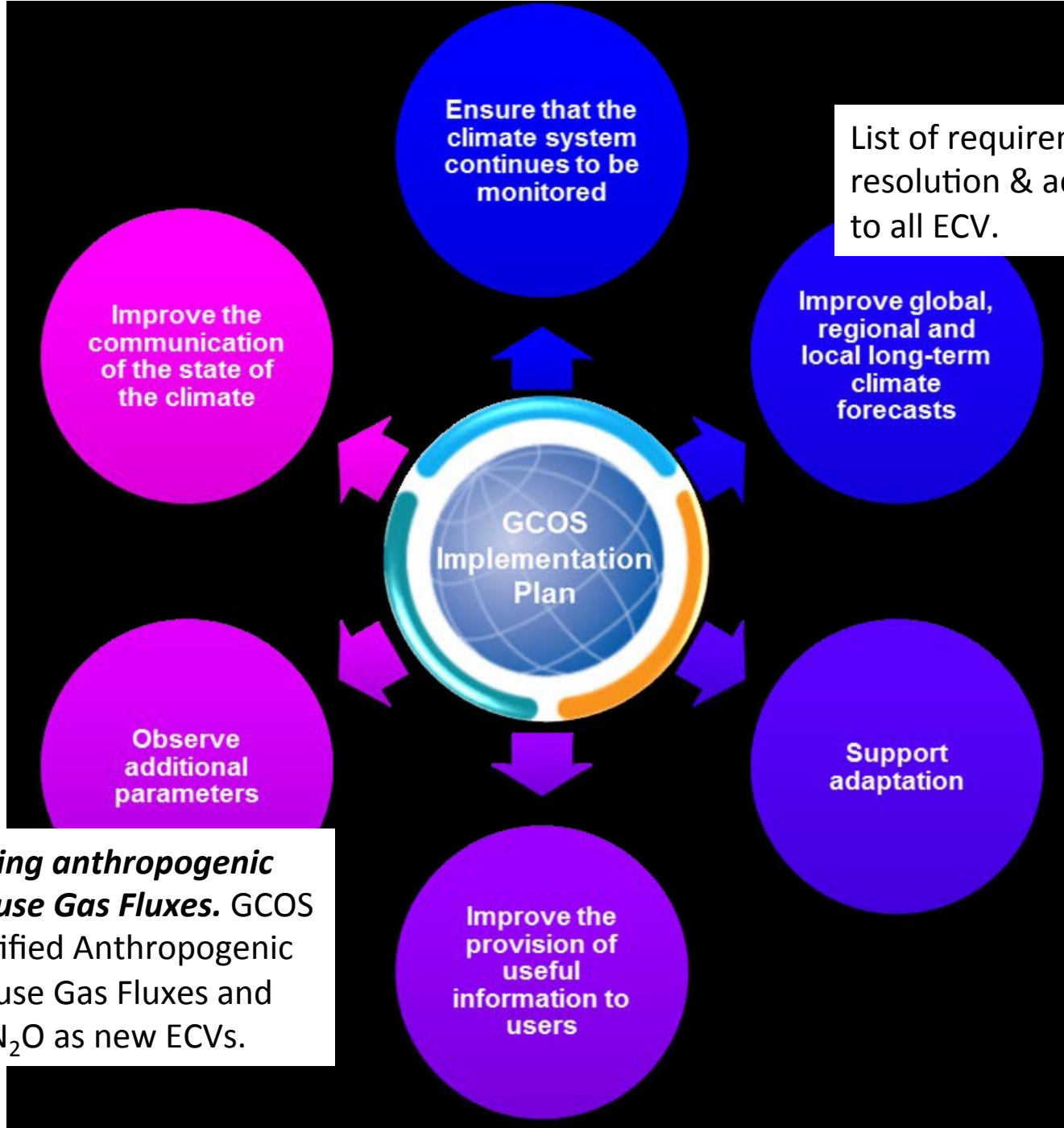
GCOS Implementation Plan

(http://unfccc.int/files/science/workstreams/systematic_observation/application/pdf/gcos_ip_10oct2016.pdf)

‘ ... This implementation plan addresses the **climate monitoring needs** that come from a wide range of related sources. While this plan is primarily aimed at the needs of the UNFCCC and the scientific assessments that underpin it, other needs are considered where relevant ...’

Roger Saunders – atmospheric ECVs

Measurement Domain	Essential Climate Variables (ECVs)
Atmospheric	Surface: Air temperature, Wind speed and direction, Water vapour, Pressure, Precipitation, Surface radiation budget. Upper-air: Temperature, Wind speed and direction, Water vapour, Cloud properties, Earth radiation budget, Lightning. Composition: Carbon Dioxide (CO ₂), Methane (CH ₄), Other long-lived greenhouse gases (GHGs). Ozone. Aerosol. Precursors for aerosol and ozone.



List of requirements (i.e. minimum resolution & accuracy) is extended to all ECV.

Quantifying anthropogenic Greenhouse Gas Fluxes. GCOS has identified Anthropogenic Greenhouse Gas Fluxes and oceanic N₂O as new ECVs.

3.2 Atmospheric Domain – Upper-Air

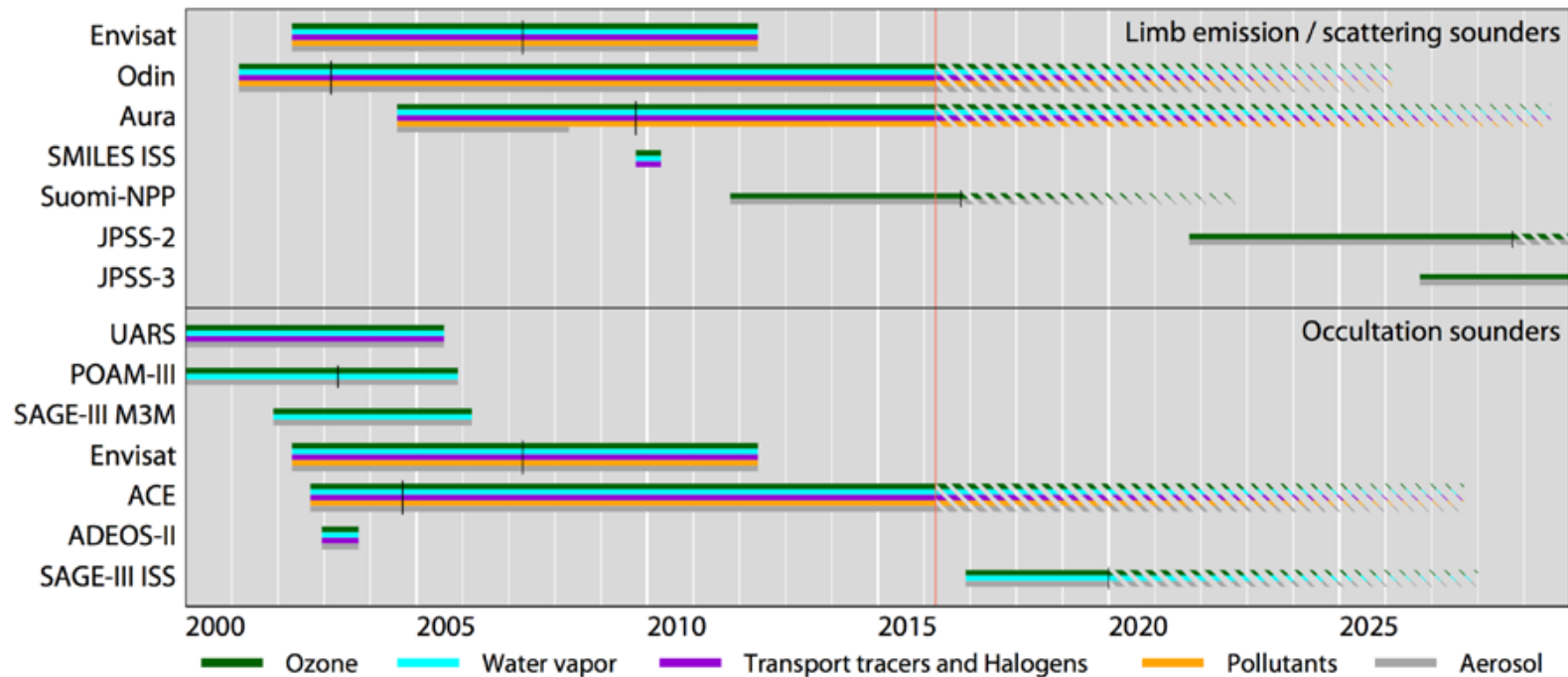
ECV – Upper-air Water Vapour

Action A23:	Measure of water vapour in the UT/LS
Action	Promote the development of more economical and environmentally friendly instrumentation for measuring accurate in-situ water vapour concentrations in the UT/LS.
Benefit	Improved UT/LS water vapour characterisation, water vapour CDRs.
Who	NMSs, NMIs, HMEI and GRUAN.
Time-frame	Ongoing.
Performance Indicator	Number of sites providing higher quality data to archives.
Annual Cost	10-30M US\$

3.3 Atmospheric Domain – Composition

Data and models have demonstrated clearly a linkage between meteorology and ozone depletion ... **Because of the close interaction between climate and stratospheric processes there is a continuing need to monitor vertically resolved atmospheric composition throughout the troposphere and stratosphere.** Being able to distinguish changes arising from a decrease in ozone-depleting substances from those due to other sources of climate forcing is essential for attributions and establishing policy for mitigations ...

Limb-sounding has demonstrated its value for providing the essential vertical resolution in concentration profiles. Such data bring significant benefit to data assimilation systems, and current data providers have worked to satisfy user needs for near real-time data delivery to operational centres. There is a potential gap in limb sounding instruments as shown in Figure 9 if space agencies don't act to fill this gap.



Action item on limb measurements

Action A30:	Water vapour and ozone measurement in UT/LS and upper stratosphere
Action	Re-establish sustained limb-scanning satellite measurement of profiles of water vapour, ozone and other important species from the UT/LS up to 50 km.
Benefit	Ensured continuity of global coverage of vertical profiles of UT/LS constituents.
Who	Space agencies.
Time-frame	Ongoing, with urgency in initial planning to minimize data gap.
Performance Indicator	Continuity of UT/LS and upper stratospheric data records.
Annual Cost	30-100M US\$

Creation of a joint CEOS/CGMS* Working Group on Climate

* Committee on Earth Observation Satellites/Coordination Group for Meteorological Satellites

Aligning the Climate Data Record activities of Space Agencies with the needs of GCOS.

Action G11: Review of CDR availability	
Action	Provide a structured, comprehensive and accessible view as to what Climate Data Records are currently available, and what are planned to exist, together with an assessment of the degree of compliance of such records with the GCOS requirements for the ECV products indicated in Annex A.
Benefit	Improve planning of satellite-derived climate data acquisition.
Who	CEOS/CGMS Working Group on Climate for records contributing to the ECV Products that are indicated in Annex A.
Time-frame	End-2016 and updated every 2 years thereafter.
Performance Indicator	On-line availability of an inventory of current and future Climate Data Records, together with an assessment of compliance with GCOS requirements.
Annual Cost	Covered by CEOS and CGMS agencies

Action G12: Gap-analysis of CDR	
Action	Establish a gap analysis process, and associated actions, to: a) address gaps/deficiencies in the current available set of Climate Data Records, and b) ensure continuity of records, and address gaps, through the appropriate planning of future satellite missions for the ECV products indicated in Annex A.
Benefit	Increase the utility of the Climate Data Records.
Who	CEOS/CGMS Working Group on Climate for records contributing to the ECV indicated in Annex A.
Time-frame	End-2017, and updated every 2 years thereafter.
Performance Indicator	Availability of Gap Analysis and Associated Action Plan.
Annual Cost	Covered by CEOS and CGMS agencies.

Actions items of WDAC

**Regarding the satellite mission gap it was decided to send a letter to CEOS/
CGMS Working Group on Climate (Michel Rixen)**

- Atmospheric composition: limb sounders
- Sea-ice/precipitation: micro-wave imagers

Nothing happened so far ...

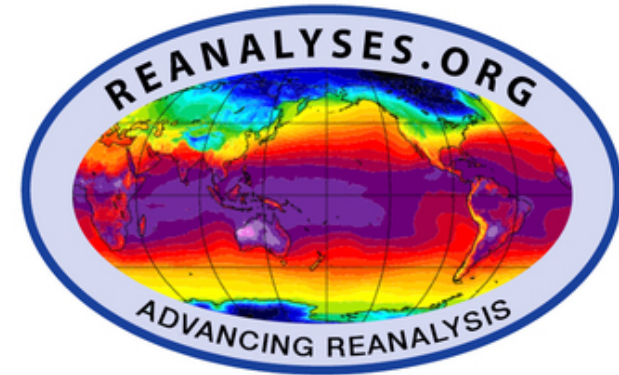
**Regarding the in-situ observing networks at risk it was decided that WDAC will
prepare a letter for JSC to WMO.**

Nothing happened so far ...

WDAC Task Team for Intercomparison of ReAnalyses (TIRA)

Develop an Intercomparison Project

- Understanding of uncertainties in reanalysis data
- Strengths and weaknesses, fitness for purpose, and best practices in the use of reanalysis datasets by the scientific community
- Communicate new developments and best practices among the reanalyses producing centers
- Enhance the understanding of data and assimilation issues leading to improved reanalyses for climate assessment



5th WCRP International Reanalysis Conference, which will be organized by C3S in fall 2017.

WCRP-GCOS International Data Prize

- Early- to mid-career researcher
- Outstanding contribution to the Earth system science community
- Achievements in data product generation, data management, data preservation, data monitoring
- Establishment of standards or infrastructure for global data repositories may be considered for eligibility
- Concrete achievements that significantly facilitate community access to well-documented data otherwise not available

Deadline 1 October 2016 -> 10 nominations

Any nominations from the SPARC community? Better advertisement necessary?

