

New GAW ET-ACMQ

Herman G.J. Smit & ET-Members

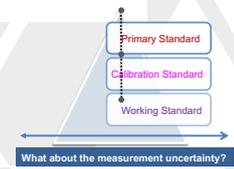
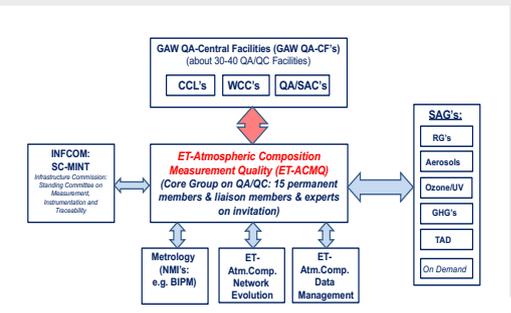
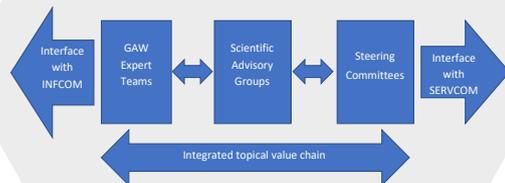
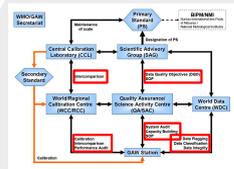
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EPAC-SSC 2021

Virtual Meeting (8,9 & 10 Feb. 2021)

- Objectives of the new team
- Workplan
- Topics to address to EPAC-SSC





GAW/ET-ACMQ: Objectives



Bridging the QA/QC efforts in the different observation networks through:

- **Standardization and Harmonization** of common QA/QC components in the different observation networks of GAW:
 - >>>> What do we have? and What can we improve?
- **Monitoring and Evaluation of QA/QC** of the measurements done in the different observation networks: Develop and establish a common QA/QC Evaluation framework (using e.g. templates for protocols etc.)
 - >>>> Quality assessed and documented data in the different data centers
- **Interacting with other QA/QC Bodies:** GAW (ET's and SAG's) & WMO-INFCOM & Metrology & other observational networks (e.g. ACTRIS, NDACC, ICOS, GRUAN etc.)

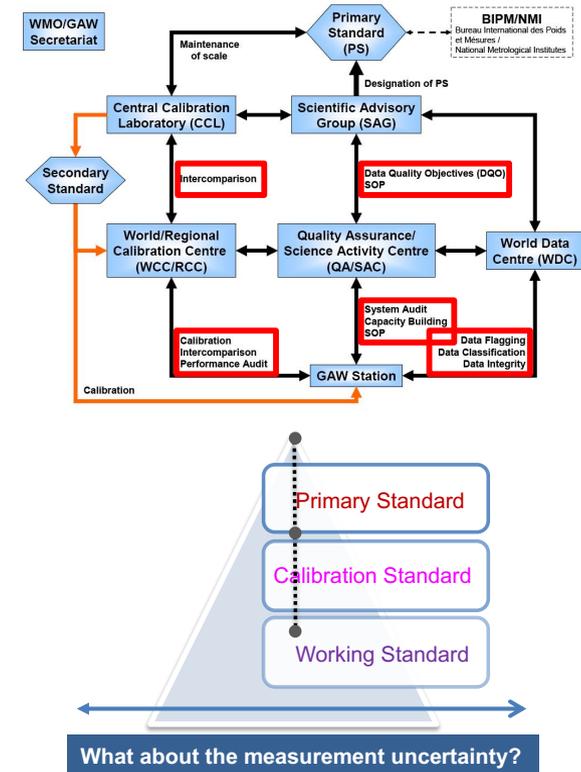
2020: ToR's ET-ACMQ formulated and established (approved by EPAC-SSC)

Bridging the QA/QC efforts in the different observation networks

- **Standardization and Harmonization of common QA/QC components in the different observation networks:**
 >>>> What do we have and where we want to go to?

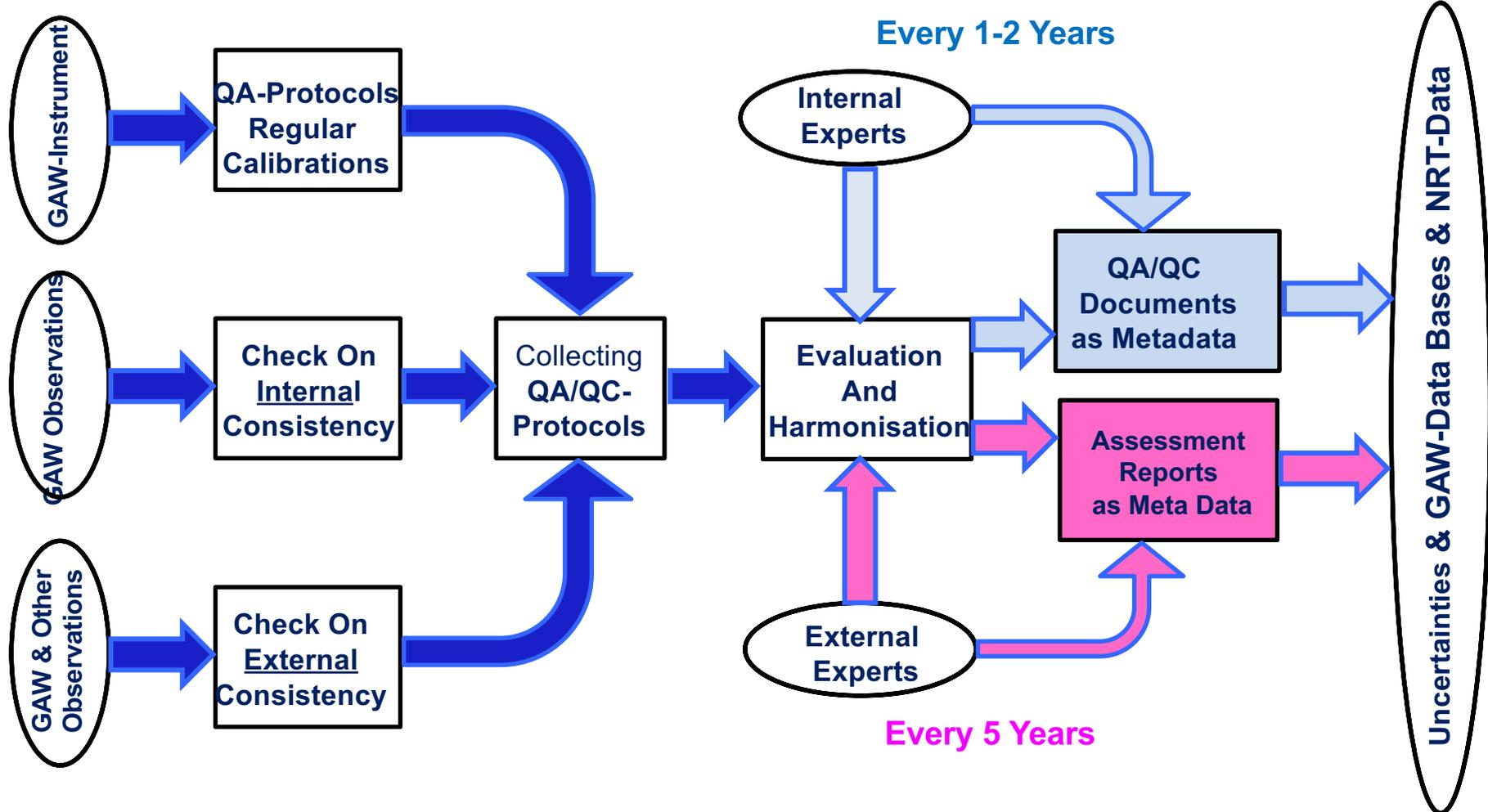
General questions to address:

- Have quality assurance principles outlined in the GAW Implementation Plan been uniformly applied to all observational components?
- Have the DQOs been defined in the similar way?
- What are the gaps in implementation or availability of common practices for standardization/harmonization/global comparability/ sustained traceability of GAW observing variables?



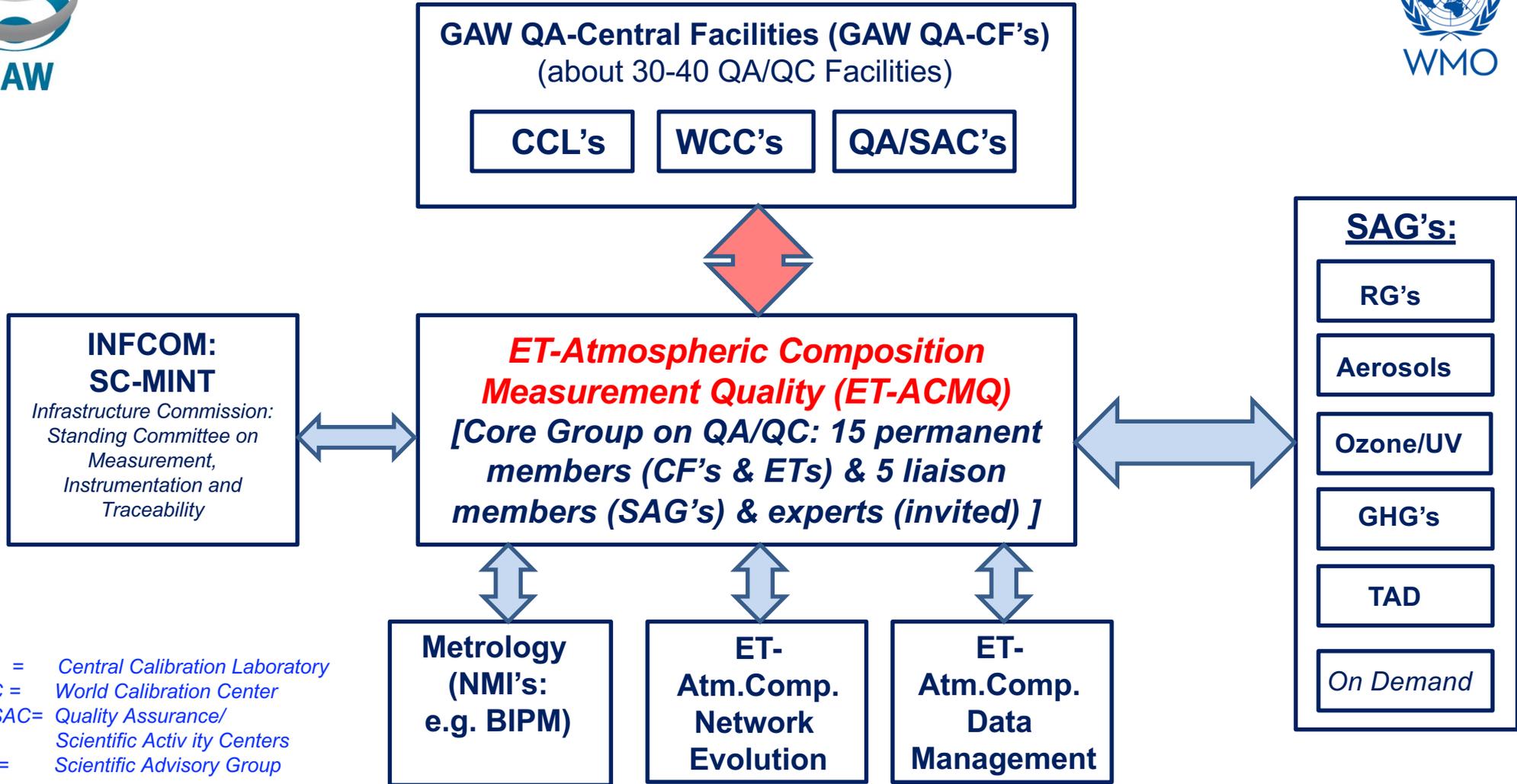
➤ **2020 Inventory: Among the different classes of measured variables there is a rather inhomogeneity >>> Need for harmonisation by ET-ACMQ**

Monitoring and Evaluation of GAW-QA/QC: Concept of Framework





Interaction ET-ACMQ within GAW & WMO Infrastructure



CCL. = Central Calibration Laboratory
 WCC = World Calibration Center
 QA/SAC= Quality Assurance/ Scientific Activity Centers
 SAG= Scientific Advisory Group

Expert Team Measurement Quality: Candidate Members

(Approval by GAW-SSC is pending)

Candidate Members for Expert Team on Atmospheric Composition Measurement Quality (ET-ACMQ)					
Member	Family Name, First Name	Expertise	Country/Continent	E-mail	Accept
1	Redondas, Alberto	O3: TotCol (Brewer, Dobson, FTIR etc)	Spain / Europe	aredondasm@aemet.es	Yes
2	Van Malderen, Roeland	O3: Sondes (incl.Lidar, FTIR etc.-)	Belgium / Europe	roeland@meteo.be	Yes
3	Takatsuji, Shinya	GHG: CH4	Japan / Asia	takatsujii@met.kishou.go.jp	Yes
4	Hall, Brad	GHG: CO2, N2O & SF6	USA / America	bradley.hall@noaa.gov	Yes
5	Zellweger, Christoph	RG: CO & O3: Surface & GHG: CH4	Switzerland / Europe	christoph.zellweger@empa.ch	Yes
6	Wegener, Robert	RG: NOX & VOC	Germany / Europe	r.wegener@fz-juelich.de	Yes
7	Lehmann, Chris	TAD: Wet Deposition	USA/America	clehmann@illinois.edu	Yes
8	Groebner, Julian	UV & Solar Radiation	Switzerland / Europe	julian.groebner@pmodwrc.ch	Yes
9	Wiedensohler, Alfred	Aerosol Physical & Chemical	Germany / Europe	ali@tropos.de	Yes
10	Kazadzis, Stelios	Aerosol Optical Depth	Switzerland / Europe	stelios.kazadzis@pmodwrc.ch	Yes
11	Viallon, Joelle	Metrology	France / Europe	jviallon@bipm.org	Yes
12	Vacant: Member of ET-ACMQ	ET-Atm.Comp.Network Evolution			open
13	Gao Chen	ET-Atm.Comp.Data Management	NASA, USA	gao.chen@nasa.gov	Yes
14	Smit, Herman	Chair of ET-ACMQ	Germany / Europe	h.smit@fz-juelich.de	Yes
15	Netcheva, Stoyka	QA-GAW Office	Switzerland / Europe	snetcheva@wmo.int	Yes
Liaison Member					
16	Vermeulen, Alex (1)	SAG-GHG		alex.vermeulen@icos-ri.eu	
17	Carpenter, Lucy (1)	SAG-RG		lucy.carpenter@york.ac.uk	
18	Tully, Matt (1)	SAG-O3		matt.tully@bom.gov.au	
19	Stein, Ariel (1)	SAG-TAD		ariel.stein@noaa.gov	
20	Laj, Paolo (1)	SAG-Aerosols		paolo.laj@univ-grenoble-alpes.fr	
Note 1: SAG-Chairs as place holder, member to be assigned by the SAG's.					

ET-ACMQ: Involvement & Experience with INFCOM

- Membership of INFCOM/SC-MINT (Standing Committee on Measurements, Instrumentation and Traceability): *Herman Smit*
- Membership of SC-MINT/ET-QTC (Expert Team on Quality, Traceability and Calibration): *Herman Smit*
- Membership of SC-MINT/ET-MU (Expert Team on Measurement Uncertainty): *Christoph Zellweger*

Experience with INFCOM-Secretariat and participation in the above listed INFCOM-committee/teams started first in November 2020, however,

- *First impression is positive,*
- *Start of active participation in their working programmes.*
- *But we certainly need time to establish Atmospheric Composition in INFCOM*

Workplan ET-ACMQ 2020-2022 in Close Collaboration with QA-CF's

2020:

- First (web) meeting (24,25, 28 & 29 Sept.2020): Joint meeting with ALL QA-CF's
- Establish the ET-ACMQ (ToR's) and its members
- Sort out web survey 2020 plus findings of this meeting: develop workplan for 2021-2024.

2021:

- Review of the current state of the QA-CF's and give recommendations and guidance (Start: web survey 2020 plus findings of the Sept.2020 meeting).
- Preparation of new GAW Report: "GAW QA-Central Facilities 2021 (2016-2020) and the role of ET-ACMQ".
- March/April 2021: Next ET-ACMQ Web meeting: (i) to establish detailed workplan for 2021-2024; (ii) approval ToC for the new GAW Report; (iii) develop first vision for next implementation plan after 2023.

2022-2024:

Implementation of recommendations made in 2021



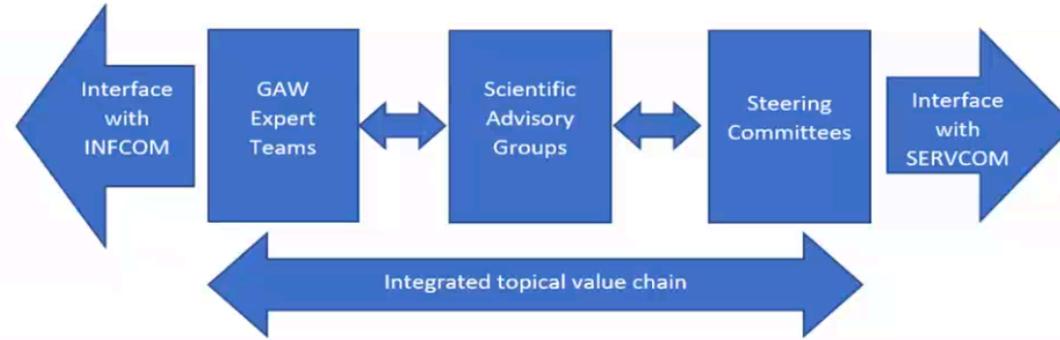
ET-ACMQ: Questions & Remarks to EPAC-SSC



- What SSC expect from ET-ACMQ in preparation of upcoming GAW-Symposium (April 2021 or so) ?
- Next GAW-Implementation Plan: How can ET-ACMQ contribute in 2021 and 2022.....?
- Should ET-ACMQ also cover for the future:
 - QA/QC-NRT data provision: Automatic QA screening tools ?
 - Use of satellite data and models (data assimilation) to screen observational data on systematic outliers (QA/QC screening): Collaboration with satellite & model community (e.g. SAG-App or ET-QTC or any other.....) ?
 - Growing interest on QA/QC of small/compact sensors ?
- Should ET-ACMQ Members stay also in SAG's beside of the existing liaison membership of a representative of each SAG: Request for advice of SSC!

Reserve Slides

Aligning the GAW Workflow within the new WMO-Organisation



GAW Expert Teams are responsible for the advances in the research infrastructure in collaboration with the thematic SAGs and its connections with Infrastructure Commission.

GAW Scientific Advisory groups facilitate research related to atmospheric composition along the value chain of science for service and connect infrastructure and service-related groups. SAGs work in close collaboration with the other research programmes within and external to WMO scientific bodies and projects.

GAW Steering Committees work on translation of science to services and work closely with the thematic SAGs and contribute to Service Commission.

Aligning the new WMO-Organisation



- Established by EC-70
- EC-70 Recommendations to Congress (Intergovernmental)
- EC-70 Recommendations to Congress for new science bodies (non-intergovernmental)

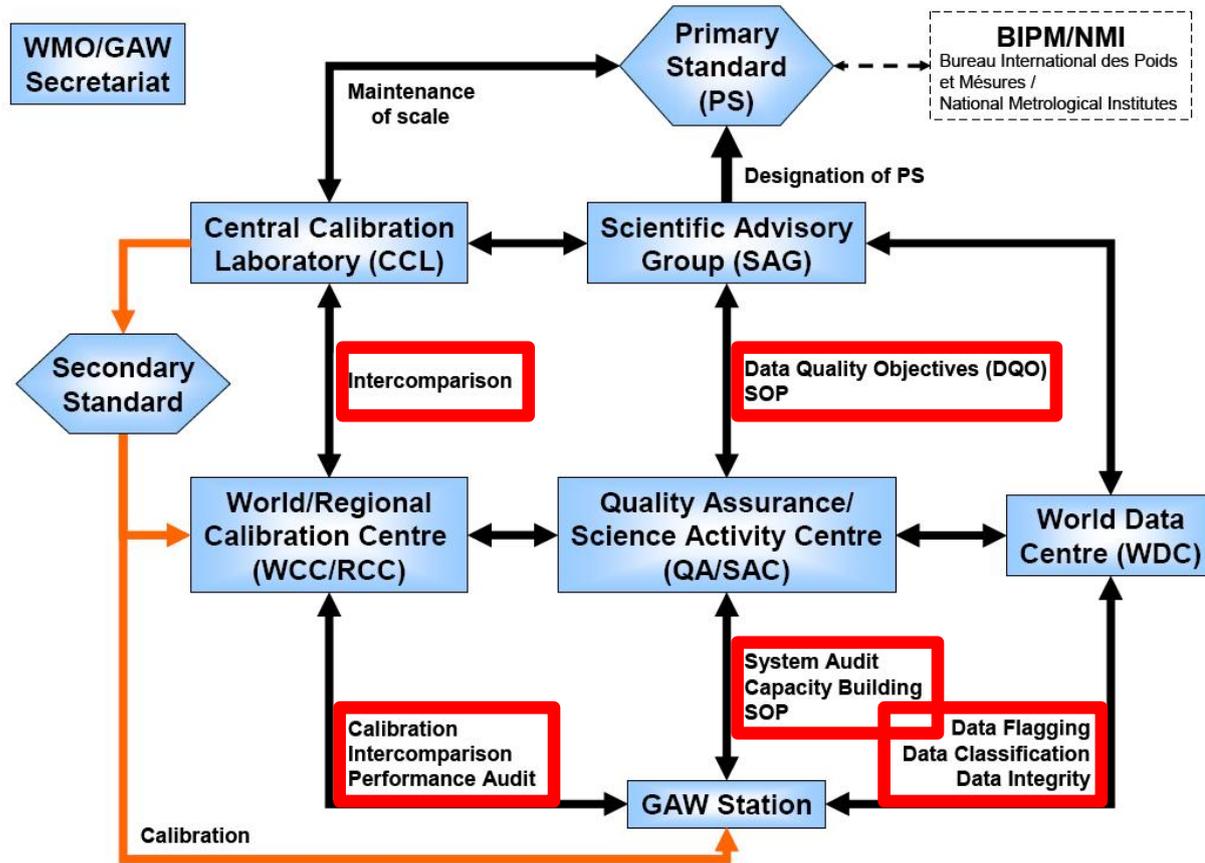


Present QA/QC-Framework of WMO/GAW

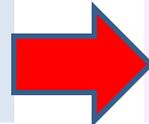


GAW-Station = Class of Measured GAW Variables:

- GHG's
- RG's
- O3
- Aerosols
- TAD
- Radiation (UV-Vis.)



QA/QC schemes for the different classes of measured variables are coordinated independently from each other



New **ET-ACMQ** also for coordination among the different classes of measured variables

ET-ACMQ: GAW-QA/QC Evaluation Concept:

To establish procedures for regular documentation and evaluation of the quality of the GAW measurements and their harmonisation through developing and testing/evaluation of:

- A harmonized QA/QC- concept based on the largest possible uniformity to achieve among the different observing systems
- QA/QC procedures and their traceability (link to Metrology)
- Tools to evaluate on internal and external consistency of the measurements.

Essentially thereby is to **obtain a full documentation** of the standard operating procedures (SOPs) and quality control procedures for each instrument, making the measured data transparently **traceable to established standards**.

The overall goal thereby should be that these procedures will be **established as an essential component of the QA/QC plan of the WMO/GAW and that they are monitored and regularly evaluated**.



Start of ET-ACMQ: First Milestones and Deliverables.



Topic	Date
Joint ET-ACMQ & QA-CF Meeting	24-29 Sept..2020
Report of the ET-ACMQ and QA-CF Meeting	Feb. 2021
Detailed Workplan 2021-2022	March 2021
Detailed ToC for new GAW-Report with assignments	March 2021
Next ET-ACMQ Web meeting	March 2021
Preparation GAW-Report	March-December 2021