

ACSG Cal/Val Workshop Report

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Participation

- ✓ The first GEO/CEOS cal/val workshop was attended by five atmospheric scientists from the US and Europe.
- ✓ The AC participants have extensive experience in satellite calibration and product generation, dataset evaluation and validation, and ground-based measurements.
- ✓ The combined satellite cal/val experience was in excess of 100 years.
- ✓ The unfortunate absence of WMO Global Atmosphere Watch (GAW) and Eumetsat representatives is noted.

Impressions

- ✓ The Geneva workshop was interesting and **clearly** highlighted the difference in maturity of the different communities, particularly regarding data availability, the use of best practices and harmonization, and site classification.
- ✓ As opposed to short-term mission or project driven harmonization initiatives, CEOS is the appropriate **long-term forum** for this cal/val classification effort.
- ✓ The atmospheric community has a **long established tradition** of best practices for satellite calibration, and also for ground-based measurements:
 - *International satellite instrument calibration collaboration is well established.*
 - *WMO's Global Atmosphere Watch (GAW) has in some cases 35+ years of network intercomparisons **using best practices**.*
 - *The Network for the Detection of Atmospheric Composition Change (NDACC) has well established protocols for instruments and data products going back to the 1980's.*
 - *Collaborative data sharing and data harmonization has been on-going since the 1989 NASA AASE field campaign, and now Aura-Envisat-NDACC.*

ACSG efforts

- ✓ ACSG is continuing to pursue, support and encourage the on-going community efforts regarding best practices and harmonization, cal/val infrastructure (site classification) and data sharing, by using the established channels/mechanisms.
- ✓ ACSG is specifically addressing the “quality index” of measurements to meet space-based validation needs. Some efforts are already well established:
 - *Ref. ACSG WGCV-27 recommendations for total column ozone, nitrogen dioxide.*
 - *Collaborative efforts between ESA/NASA (GECA) and NASA/NDACC on data content information and data interoperability.*
 - *Contribute to activities such as the GMES Service Element (GSE) PROMOTE validation protocols - and implement outcome when suitable.*
 - *etc.*

ACSG efforts (2)

- ✓ ACSG has informed different organizations/activities of the GEO/CEOS cal/val initiative and of the outcome from the Geneva Workshop, including:
 - *Contacted ACC Constellation Lead to identify needs/requirements.*
 - *Briefed the Head of the WMO Environmental Division (very receptive, to participate in next WS).*
 - *Communicated with Eumetsat staff (participation expected).*
 - *Briefed the NDACC Steering Committee.*
 - *Briefed ISSI working on atmospheric water vapor.*
 - *Implementing WS philosophy into ESA Generic Environment for Cal/Val Analysis (GECA) project and ESA multi-mission validation project TASTE.*
 - *etc.*

Issues to be addressed

- ✓ Practical implementation, particularly regarding uncertainty estimation of algorithms inputs (models, climatologies, constraints, assumptions) and their weight in the retrieved data product (information content actually contributed by the measurement), is unclear.
- ✓ New/recent algorithms, particularly in air quality, rely on some form of post L2 processing using models (domain filling, assimilation, etc.). How does one estimate uncertainties and information content?

Where does the process begin and/or end?

Issues to be addressed (2)

- ✓ In addition to the established AC processes - new/recent initiatives, such as the EC FP6 (and FP7), GMES, GAS WGs, WMO WIS, GCOS GRUAN, etc., with similar, uncoordinated and sometimes redundant specifications have emerged - **imposing different and competing requirements**, and often ignoring established best practices.
- ✓ Some requirements are cross-disciplinary (for example aerosols) and need to be addressed across the WGCV sub-groups.

These issues need addressing (generic) by/at the next workshop to avoid alienation/exclusion of communities.