Joint GSICS GRWG-UVSG and CEOS WGCV-ACSG Meeting

Conference Center
NOAA Center for Weather and Climate Prediction (NCWCP)
College Park - 8-9 October 2015

A joint GSICS Research Working Group UV Sub-Group (GRWG-UVSG) and CEOS Working Group on Calibration and Validation - Atmospheric Composition Sub-Group (CEOS WGCV-ACSG) meeting was held at NOAA/NCWCP, College Park, MD, on the 8th and 9th October 2015. The meeting was organised around a set of questions which form the basis of a user survey designed to assess the most appropriate focus for the GSICS sub-group activities.

The questions are listed below.

1. What internal measurements do you make to maintain your instrument's calibration in orbit? (Diffusers, stable orbits, white lights, spectral lamps, LEDs, Moon views)
2. What internal consistency methods do you use to check the calibration? (Ascending/descending -- Langley methods; Pair justification; DOAS closure polynomials; stray light correlations; wavelength scale from solar and absorption features - shift and squeeze; measurement residuals - aerosol index, reflectivity range/distribution; measurement residuals with respect to climatology)
3. What measurement characterizations are most important? (absolute radiometric, relative radiance/irradiance, wavelength scale, bandpasses, polarization, stray light, noise)
4. What external methods and measurements do you use to maintain your instrument's calibration in orbit? (SNO measurements, Ground-based products, other satellite products, reflectivity target sites)
5. What external resources, if any, are regarded as reference measurements. Does your community have any common standards to which all retrieval algorithms are tied or compared? Are there solar spectra that your community regard as the reference?
6. Does your sensor use vicarious calibration methods? If so, what adjustments are derived?

The presenters were asked to address one or more of the questions using examples from their own experiences. Instruments covered included GOME/GOME-2/SBUV(-2)/TEMPO.

The Agenda including the list of presenters and titles is included as Annex 1.

Following the presentations there was an extended discussion session focusing on the selection of useful projects based on the techniques and analysis methods presented.

Four baseline projects were selected. They are listed below:

Reference Solar Spectrum

The aim of this activity is to evaluate the available reference solar spectra and make a recommendation for a reference solar spectrum for community use.

Lead – Larry Flynn (NOAA)

White Paper on Ground-based Characterisation of UV/Vis/NIR/SWIR spectrometers

The aim of this activity is to prepare a white paper documenting best-practise for the on-ground calibration of UV/Vis/NIR/SWIR spectrometers based on in-orbit experience from relevant missions.

Lead – Rüdiger Lang (EUMETSAT)

Match-Ups and Target Sites

The aim is to produce over-pass comparisons of UV sensors for specific target sites in use by the community. As a first step summaries of methods and results for target sites currently in use will be collected.

Lead – TBC

Cross-calibration below 300nm

Devise new methods for comparison of wavelength pairs for different viewing geometries taking into account contribution function equivalence to allow radiometric performance comparisons for ozone profile wavelengths from 240 – 200 nm.

Lead Larry Flynn (NOAA).

GSICS members will also be invited to provide articles for a special issue of the GSICS Quarterly on these topics, in particular Match-Ups and Target Sites.

Co-operation between the GRWG-UVSG and the CEOS WGCV-ACSG will be actively pursued as appropriate. An obvious first area of common interest is the Reference Solar Spectrum activity.

A next GRWG-UVSG is being considered adjacent to the GSCIS Joint meeting on Research and Data Working Groups, which will be held from 29th February to 4th March 2016 at JAXA Tsukuba Space Center, Japan.

Annex 1.

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Agenda

Thursday 8 October – GSICS GRWG-UVSG Activities – Setting the Priorities

9:30 – 9:45	Introduction and Scope of the Meeting	Rose Munro (EUMETSAT)
9:45 – 10:15	GOME-2 In-Orbit Calibration (Questions 1, 4 & 5)	Ruediger Lang (EUMETSAT)
10:15 – 10:45	Long-term Calibration of 7 SBUV/2 Instruments over 30 years (Questions 2 & 4)	Matthew DeLand / Liang-Kang Huang (SSAI)
10:45 – 11:15	*Coffee*	
11:15 – 11:45	Measurement Characterisation for NOAA Missions (Question 3)	Larry Flynn (NOAA)
11:45 – 12:15	The Application of Data Driven Methods for the Monitoring of Calibration and Data Quality of Earth Observation Sensors (Question 4)	Stephen Mackin (EOSense Ltd)
12:15 – 13:45	*Lunch*	
13:45 – 14:15	Reference measurements for the TEMPO Mission (Question 5) & SAGE III Internal Consistency Methods (Question 2)	David Flittner (NASA)
14:15 – 14:45	OMPS Calibration Status (All Questions)	Colin Seftor (NOAA)
14:45 – 15:15	Calibration Status for the GOME Instrument (All Questions)	Diego Loyola (DLR)
15:15 – 15:45	*Coffee*	
15:45 – 17:30	Wrap-Up & Summary	All

Friday 9 October – Potential for Joint GSICS GRWG-UVSG and CEOS WGCV-ACSG Activities

9:30 – 9:45	Introduction	Bojan Bojkov (ESA)
9:45 – 11:45	Discussion on cooperation between GSICS GRWG-UVSG and CEOS WGCV-ACSG	All
11:45 – 12:30	Wrap-Up and Conclusions	All