

Committee on Earth Observation Satellites
First meeting of the IGOS
Strategic Implementation Team,
Irvine California 6-7 February 1997

The CEOS Working Group on Calibration and Validation response to the IGOS related recommendations from Genève and Canberra.

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Recommendations

The 10th CEOS Plenary Meeting, held in Canberra endorsed the concept of an Integrated Global Observing Strategy (IGOS) and the modification of the CEOS Terms of Reference to authorise broader participation by CEOS Affiliates and Observers. These endorsements are now reflected in the short (3 year) and long term plans of the CEOS Working Group on Calibration and Validation (WGCV). WGCV was also encouraged by Plenary to address Cal/Val recommendations from the IGOS related *In Situ* Observations meeting of September 1996 in Genève. These were that

1. The Global Observing Systems should co-ordinate their participation in CEOS through the Space Panel to optimise input to the Members for their planning of validation campaigns.
2. The Global Observing Systems Space Panel (GOSSP) should develop a scheme for identifying priorities in validation issues.
3. On the basis of these priorities WGCV should consider developing pilot project (s) to address issues such as measurement protocols, test regimes and data management.
4. CEOS should consider enhancing the activities of WGCV to address strategically important calibration and validation of satellite products.

Following Genève recommendation 1, the GOSSP held a first meeting (again in Genève) in October 1996. Recommendations from this meeting relevant to the CEOS Cal/Val WG included:

1. Continue global AVHRR data acquisition and provide overlap with new satellites.
2. Continue maintenance of accurate knowledge of post-launch sensor calibration, especially for active AVHRR sensors and for Landsat.
3. Initiate a global validation programme in respect of Leaf Area Index (LAI) and of Fractional Photosynthetically Active Radiation (FPAR).

With reference to recommendation III GOSSP requested

1. Endorsement of the project by CEOS-WGCV.
2. Co-operation in the definition of the overall structure
3. Co-operation in the organisation of an international team to carry out the programme.

These recommendations formed the focus for WGCV's latest meeting, WGCV12, hosted by DARA and DLR-DFD at Oberpfaffenhofen, Germany 4th to 6th December,

1996.

WGCV Response

Genève In Situ meeting

WGCV agrees fully with **recommendation 1**. At WGCV12 no affiliates were represented until the final day of the meeting. Greater involvement is welcomed.

Recommendations 2 and 3 are largely paralleled by recommendations made in the WGCV's Strategic Vision Document; firstly, that WGCV should form ad hoc groups with common interests in the validation of specific parameters and encourage inter-comparison of parameters derived from different instruments; secondly that WGCV should compile a list of validation data sets and activities which should receive priority.

WGCV accepts that the GOSSP should play an important role in establishing priority lists for validation (recommendation 2), but does not accept that GOSSP is the only voice in this respect; all affiliates, observers and members should work together in the framework of WGCV to identify such a list. Any validation exercise of any size has a very high cost. Co-ordination of affiliate / observer needs with current members plans can, and will, reduce this cost.

WGCV has identified a series of pilot projects (recommendation 3). These involve collaboration between members, observers and affiliates represented at WGCV12. This list considers existing activities. Algorithms and methodologies for derivation of different parameters of interest are at different levels of maturity. The WGCV12 list includes those where there is general consensus concerning algorithm / methodology (for parameter derivation, not of course for validation...this is still the unknown territory).

Seven pilot projects will be used to analyse issues such as accuracy requirements, measurement and sampling protocols, test site(s), data management requirements and implications for all CEOS participating organisations. Parameters include:

1. Visible/Near-Infrared (VIS/NIR) Top-of-Atmosphere reflectance as measured by a range of existing sensors. These are a critical first step to creation of derived parameters such as Leaf Area Index
2. Sea Surface Temperature (SST) validation, again from a range of sensors. This builds on previous WGCV projects cross calibrating SST measuring sensors, and intercomparison of SST generation algorithms. The validation study will concentrate on an analysis of measurement and sampling issues, mainly related to *In Situ* observations.
3. Digital Terrain Model generation and comparison from Optical and Microwave sensors. This is based on a current WGCV pilot project.
4. Use of Microwave data for derivation of Wind Speed
5. Use of Microwave data for derivation of Significant Wave Height
6. Use of Microwave data for derivation of Wave Frequency
7. Use of Microwave data for derivation of Wave Direction

Again pilot projects will concentrate on product validation, not on product derivation.

First results of the seven pilot projects will be presented at WGCV13, which will be held in Shanghai 3rd to 5th September 1997.

Recommendation 4 was fully accepted. WGCV12 concluded that validation will form a focus for our work over the next three years.

Genève GOSSP meeting

Recommendation I is a current WGISS activity, and was re-endorsed at the 10th CEOS Plenary.

Recommendation II is being addressed by NOAA and EDC with information published on the Web.

Following **recommendation III**, WGCV agrees to endorse the plans, however WGCV will not actively define strategies or organise international teams concerning this activity at this time. The WGCV asks that the GOSSP experts concerned with LAI and FPAR measurements examine the measurement, sampling and test site implications on validation of these products, and present these at the next WGCV meeting. WGCV members will then be in a position to consider inter-agency collaboration, for example in the form of provision of imagery or access to national test sites and or test site data sets. This activity should follow the model of the International Ocean Colour Co-ordination Group (IOCCG) established by CEOS. As with the IOCCG the WGCV will continue to exchange information and WGCV members will likely participate independently in the GOSSP LAI evaluation process.

Full WGCV12 minutes are available from the Cal/Val home page. The URL is <http://wgcvceos.org>

Conclusions

The new work plan represent a significant expansion of WGCV activity concerning validation.

The seven pilot projects are being implemented by the four existing WGCV sub groups.

The WGCV has a long history of collaboration between its members of all categories. The endorsement by the 10th Plenary of the modification of the CEOS Terms of Reference to authorise broader participation by CEOS Affiliates and Observers is warmly welcomed, especially as WGCV has reaffirmed its commitment to validation activities. Greater participation in WGCV by Observers and Affiliates can only result in better matching of Space data users' needs and the products from the data providers.

WGCV activities could be enhanced even further, such that the pilot projects are extended to cover some of the less well defined "parameters". There is a particular paucity of information concerning validation of many space derived global terrestrial observations. Leaf Area Index, as requested by the GOSSP is a case in point. It would be difficult to accommodate this within the current four sub-groups, though the IOCCG model for involvement within the working group has great merit.

The WGCV is a well established forum for the establishment and review of Cal/Val plans. Providing the membership of the working group is adequate (and currently Affiliates are under represented) then WGCV will prove able to define cost effective plans for creation of accurate and appropriate higher level products from Space data.

The proposed seven pilot projects along with the proposal for an IOCCG like LAI

initiative will act as a test bed for some of the issues raised in the current definition of the IGOS, and should highlight problems (if any) in the implementation of the concept.

<http://www.wgcveos.org>

