



Global Space-based Inter-calibration System



## **GSICS EXECUTIVE PANEL**

### **THIRTEENTH SESSION**

Lugano, Switzerland, 4 November 2012

## **FINAL REPORT**

## FINAL REPORT OF GSICS EP-13

### 1. Opening of the meeting

A short session of the GSICS Executive Panel was held in Lugano, Switzerland on Sunday 4 November on the occasion of the 40<sup>th</sup> CGMS meeting. The agenda is in Annex 1, the list of participants is in Annex 2. Working documents and presentations can be found on the meeting web page: <http://www.wmo.int/pages/prog/sat/meetings/GSICS-EP-13.php>

Mitch Goldberg, Chairman of the Executive Panel, welcomed the participants and underlined that GSICS had now gained some maturity after six years of existence. He emphasized the benefit of GSICS for capacity building since it fosters the development of consistent intercalibration best practices across all its members.

### 2. Quick overview of outstanding actions from EP-12

The Panel did a quick overview of the status of actions and noted that the following actions were successfully completed and closed:

- Action 12.2 to update the GSICS Procedure for Product Acceptance GPPA with exempt clauses (See updated GPPA on the wiki)
- Action 12.8 on GCC to seek involvement of GSICS users who registered as betatesters
- Action 12.12 to invite climate community representatives at the GSICS Users Workshop
- Action 12.13 to encourage nomination of candidates to serve as vice-chair
- Action 12.16 to document the Jaisalmer test site and include it in the USGS catalogue
- Action 12.19 to circulate a questionnaire on the Vision for GSICS
- Action 12.23 to explore holding a GSICS session during the NOAA Satellite Conference (actually merged with the GSICS User Workshop)
- Action 12.24 regarding an introduction to GSICS in the special issue of IEEE TGRS.

The Panel agreed to close Action EP-11.03 “ to facilitate discussions with ECMWF and ROSHYDROMET/SRC Planeta (A. Uspensky ) to explore potential monitoring of MTVZA-GY data to help characterizing sensor anomalies” since no progress had been done since EP-12.

The remaining outstanding actions are listed in Annex 4.

The GRWG Chairman presented his report (by teleconference) highlighting in particular:

- the complexity of performing the uncertainty analysis.
- the need to further investigate the range of day/time/angle conditions to be taken into account in GEO-LEO IR intercalibration to account for the diurnal cycle
- preparations underway for IASI-A/IASI-B comparison by double difference technique (since they are on the same orbit with opposite locations)
- solar channel calibration with reference to MODIS
- assessment of desert sites with CEOS/WGCV/IVOS
- use of lunar model
- recalibration of archive data
- preparation of a special issue on satellite instrument intercalibration for the IEEE Transactions on Geoscience and Remote Sensing (60 papers proposed)
- Instrument event monitoring website development

- Potential benefit of collaboration with GRUAN
- Need to share GSICS responsibilities and leadership among GSICS members

**Action EP 13.1:** Tim Hewison and Gyanesh Chander to negotiate with IEEE the fee to make papers openly accessible on line.

**Action EP 13.2:** NOAA, WMO, and possibly other GSICS members to consider funding the open accessibility of several selected GSICS papers in the IEEE special issue.

The Panel discussed the following GSICS statement about collaboration with GRUAN:

*The GSICS Executive Panel sees potential for mutual benefits of GRUAN and GSICS activities. The EP wishes to stress that the benefit is clearly mutual. Therefore coordinated activities in specific areas are recommended.*

*For example, GRUAN measurements could provide improved input data for radiative transfer simulations of the high-resolution radiance spectra at the top-of-the-atmosphere, that can then be compared with hyperspectral satellite measurements (e.g. AIRS and IASI). Differences between measured and calculated spectra should in principle be the same for all GRUAN stations under the assumption that the satellite measurements are stable (this is a very valid assumption) and that GRUAN stations have the same bias errors (this is to be shown). Thus, GSICS would provide via the hyperspectral satellite measurements a ‘travelling reference standard’ for GRUAN stations. It is understood that the realisation of such benefits requires coordination between GSICS and GRUAN, for instance the launching of radiosondes sufficiently close to a satellite overpass.*

**Action EP 13.3:** To circulate and finalize among EP members the proposed GSICS statement about collaboration with GRUAN

**Action EP 13.4:** To coordinate with GRUAN the communication of the GSICS statement on collaboration with GRUAN and follow-up actions.

The Panel supported the view that lead responsibilities of GRWG activities should be distributed among GSICS participating organizations to ensure that all GSICS members from any region of the world feel fully involved and engaged in the progress of GSICS. It agreed that such sharing of responsibilities could be based on technical areas, and could be a way to give greater responsibility to the co-chairs in particular.

**Action EP 13.5:** GRWG to distribute responsibilities according to technical areas in advance of the GRWG meeting in March 2013, and inform the Executive Panel.

The panel discussed whether private companies would be eligible to become a GSICS Member. It was recalled that GSICS was established by WMO and CGMS, and its founding members are therefore the governmental satellite operators who are members of CGMS and designated by the WMO Member States to contribute to the WMO Global Observing System. These GSICS Members are often maintaining active collaboration links with a number of partners e.g. research institutes or industry, and may wish to be

accompanied by such partner when participating in a working group meeting. Such a participation is expected to be mutually beneficial.

The Panel adopted the following view:

- Any of the GSICS Members participating in GSICS working groups can propose to the WG chair to extend the invitation to experts from a partner organization (including e.g. from research or industry) for a WG meeting.
- The status of GSICS Member, and e.g. the GSICS Executive Panel membership, is limited to CGMS satellite operators.

Furthermore, the Panel recalled the statements approved at the 11<sup>th</sup> session whereby:

- GSICS intercalibration products are delivered to users through free and open access, adopting community standards.
- GSICS products are public and may be used and redistributed freely. Any publication using GSICS products should acknowledge both GSICS and the relevant data creator's organization.

### **3. Transitioning GSICS to operations**

The Panel stressed the need to bring GSICS intercalibration to a fully operational stage. It pointed out the need to extend GSICS activities to the new and forthcoming satellite systems, e.g. Suomi-NPP/VIIRS, GOES-R/ABI, Himawari/AHI. It was emphasized that the benefit of collaboration within GSICS was not only the delivery of improved calibration but also the shared knowledge on the calibration process and measurement traceability.

The status of GSICS activities may be varying according to the organizations. EUMETSAT noted a separation between GSICS activities and their satellite operations. JMA highlighted that the calibration requirements depend on the users. In CMA calibration development and operations were performed by the same team.

All GSICS Members were encouraged to consider GSICS procedures, once they have reached the pre-operational status, as part of their routine satellite operations.

### **4. Vision of GSICS for the next 5 to 10 years**

On the Vision for GSICS in the next 5 to 10 years, some feedback was provided by:

- GRWG (F. Wu, T. Hewison, D. Doelling)
- CMA/NSMC (Lu Feng)
- NOAA/NESDIS (A. Iगतov)
- Utah University/Space Dynamics Laboratory (D. Scott)

These inputs broadly confirmed the current scope and priorities of GSICS, but also suggested to pay particular attention to specific points including:

- Establishing reference standards.
- Engaging to serve the needs of climate monitoring and climate change detection.
- Processing historical data sets.
- Ensuring on-line availability of GSICS products.
- Seeking global recognition, e.g. in promoting some showcase applications.

**Action EP.13.6:** GSICS Executive Panel to iterate on the draft Vision, taking into account the feedback received.

## **5. Managing GSICS**

The Panel discussed the role of the Executive Panel, the organization of Panel meetings, with a view to ensure broad international participation in GSICS and further improve the way GSICS is doing business.

It recalled an outstanding action (EP 12.13) to encourage EP members to volunteer as EP vice-chair in advance of this EP session. In spite of these encouragements, no member had volunteered to-date. It was stressed that every EP members could qualify to become a vice-chair, and that a nomination from Asia would contribute to the geographical balance of GSICS. This shall be recalled by the GSICS Chairman in his report to CGMS-40.

In the discussion, Dr Ashok Kumar SHARMA accepted to serve as vice-chair. The Panel welcomed this offer. It was agreed to wait until early 2013 in order to give the opportunity to other members to also nominate a candidate, after what the Panel would confirm the designation of the vice-chair.

## **6. GSICS statement to CGMS (within the reshuffled CGMS agenda)**

The Panel noted the proposed GSICS Chairman's report to CGMS ([CGMS-40 WMO-WP-23](#)) and approved it.

## **7. Any other business and conclusion of the meeting**

The Panel recalled that the next Joint GRWG-GDWG meeting would be held on 5-7 March 2013 in Williamsburg, USA, upon invitation by NASA, preceded by a one-day scientific seminar, and that the next GSICS User Forum would be held on the morning of Monday 8 April 2013 in College Park, in conjunction with the NOAA Satellite Conference.

Noting that the 41<sup>st</sup> CGMS meeting would be held in Japan during the week from 8 to 12 July, the Panel considered it would be very beneficial to hold the next GSICS Executive Panel session on 14 and 15 July in Japan, if agreeable by JMA. JMA noted that this would fall on a national holiday but indicated its readiness, in principle, to host this meeting in Tokyo at those dates subject to confirmation. The Panel thanked JMA.

**Action EP 13.7:** JMA, in consultation with WMO, to confirm the possibility to host the 14<sup>th</sup> GSICS Executive Panel session, tentatively on Monday 15 and Tuesday 16 July 2013.

**PROVISIONAL AGENDA**

- 1. Opening of the meeting**
  - 2. Quick overview of outstanding actions from EP-12**
    - Input from Members
    - Input from the working groups
    - General guidance on progress of actions
  - 3. Transitioning GSICS to operations**
    - How to enable integration of GSICS products into users' operations?
    - How to integrate GSICS production into the agencies' operational scheme?
    - How to integrate GSICS activities into the agencies' operational priorities?
  - 4. Vision of GSICS for the next 5 to 10 years**
    - Feedback from User Workshop participants
    - Exchange of views of Panel Members
  - 5. Managing GSICS**
    - Role of the Executive Panel, Panel meetings
    - Ensuring broad international participation in GSICS leadership
    - How can we improve the way we are doing business?
  - 6. GSICS statement to CGMS (within the new CGMS agenda)**
    - GSICS report to WG II
    - GSICS input to the high-level priority plan
  - 7. Any other business and conclusion of the meeting**
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## LIST OF PARTICIPANTS

CMA	Feng	LU	
EUMETSAT	Johannes	SCHMETZ	
EUMETSAT	Tim	HEWISON	(teleconference)
IMD	Ashok Kumar	SHARMA	
JAXA	Kazuo	UMEZAWA	
JMA	Yukihiko	KUMAGAI	
JMA	Hironobu	YOKOTA	
JMA/MSC	Hiroshi	KUNIMATSU	
JMA/MSC	Toshiyuki	KURINO	
KMA	Dohyeong	KIM	
NOAA	Mitch	GOLDBERG	(Chair)
Roscosmos	Kirill	BORISOV	
Roscosmos	Yuri	GEKTIN	
Roscosmos	Ivan	MOSKATINIEV	
Roshydromet	Vasily	ASMUS	
Roshydromet	Alexey	RUBLEV	
Roshydromet	Alexander	USPENSKYI	
Roshydromet	Vladimir	ZAGREBAYEV	
WMO	Jérôme	LAFEUILLE	

### SUMMARY OF ACTIONS AND DECISIONS FROM EP-13

**Action EP 13.1:** Tim Hewison and Gyanesh Chander to negotiate with IEEE the fee to make papers openly accessible on line.

**Action EP 13.2:** NOAA, WMO, and possibly other GSICS members to consider funding the open accessibility of several selected GSICS papers in the IEEE special issue.

**Action EP 13.3:** To circulate and finalize among EP members the proposed GICS statement about collaboration with GRUAN. [*The GSICS Executive Panel sees potential for mutual benefits of GRUAN and GSICS activities. The EP wishes to stress that the benefit is clearly mutual. Therefore coordinated activities in specific areas are recommended.*]

**Action EP 13.4:** To coordinate with GRUAN the communication of the GSICS statement on collaboration with GRUAN and follow-up actions.

**Action EP 13.5:** GRWG to distribute responsibilities according to technical areas in advance of the GRWG meeting in March 2013, and inform the Executive Panel.

**Decision on GSICS Membership:**

- Any of the GSICS Members participating in GSICS working groups can propose to the WG chair to extend the invitation to experts from a partner organization (including e.g. from research or industry) for a WG meeting.
- The status of GSICS Member, and e.g. the GSICS Executive Panel membership, is limited to CGMS satellite operators.

**Action EP.13.6:** GSICS Executive Panel to iterate on the draft Vision, taking into account the feedback received.

**Decision on the designation of an EP vice-chair:** The Panel welcomed the offer of Dr Ashok Kumar SHARMA to serve as vice-chair. It agreed to confirm the designation of the vice-chair early 2013.

**Action EP 13.7:** JMA, in consultation with WMO, to confirm the possibility to host the 14<sup>th</sup> GSICS Executive Panel session, tentatively on Monday 15 and Tuesday 16 July.



## STATUS OF OUTSTANDING ACTIONS FROM PREVIOUS MEETINGS

Action or decision	Action due date	Action status
<b>Action 12.1:</b> EP Chair to establish a Task Force to review issues and propose actions towards improving accessibility of in-situ observations of test sites	(2012-11-01)	OPEN
<b>Action 12.3:</b> EUMETSAT, NOAA and JMA are urged to complete the necessary steps to submit their LEO-GEO IR product to the GPPA for pre-operational status in advance of the fourth GSICS Users' Workshop and WMO CBS.	(2012-09-01)	Now completed for EUMETSAT and NOAA, JMA in progress
<b>Action 12.4:</b> GRWG to investigate feasibility of intercalibration of reflected solar band instruments (including GOME-1, GOME-2, SCIAMACHY) with participation of ESA	(2013-03-01)	OPEN Web meeting to discuss Jan 2013
<b>Action 12.5:</b> Each GPRC to consider implementing the near real time distribution of <i>both</i> the operational calibration information <i>and</i> the corrected calibration information, as part of the L1 data formats.	(2012-09-01)	OPEN EUMETSAT: Done for MSG  NOAA: it is very time-consuming to go through the procedures required to implement the corrections at L1 data.
<b>Action 12.6:</b> WMO to convey to USGS the appreciation of GSICS regarding the provision of a lunar irradiance computation service based on the ROLO model and the expectation that this service will be maintained, will be documented in accordance with GSICS principles, and that the possibility be explored of providing the updated ROLO model itself to the community.	(2013-11-01)	OPEN
<b>Action 12.7:</b> NIST (Eric Shirley) to report on discussions on interagency R&D effort to improve the lunar model to meet the SI traceable absolute calibration accuracy goal, which should ultimately lead to an upgraded version of the ROLO lunar irradiance model.	(2012-11-01)	OPEN

<b>Action 12.9:</b> Each GPRC to implement the agreed netCDF format.	( 2012-09-01)	Done by NOAA and EUMETSAT  Others: TBD
<b>Action 12.10:</b> USGS to add the Russian Federation sites of Petergof and and Voeikovo to the USGS catalogue of worldwide test sites for sensor characterization.	(2012-06-30)	OPEN
<b>Action 12.11:</b> WGCV Chair to contact A. Uspensky to investigate suitability of Petergof and and Voeikovo test sites to support CEOS Cal/Val activities.	(2012-06-30)	OPEN
<b>Action 12.14:</b> GRWG to invite ISCCP to present their findings at next joint meeting	(2012-09-01)	OPEN Being arranged together with Dave Doelling
<b>Action 12.15:</b> NIST (Eric Shirley) to review with Raju Datla the status and need of developing a draft vocabulary, as part of a guide on uncertainty for GSICS, and report to EP-13	(2012-10-01)	OPEN
<b>Action 12.17:</b> GRWG Chair to report on GSICS traceability approach to the WGCV, with a view to seek feedback from WGCV.	(20102-10-01)	OPEN Being arranged with Greg Stensaas
<b>Action 12.18:</b> ESA (Bojan Bojkov ) to report at GRWG on its survey on the state of the art for geolocation issues, and on ESA activity on this subject	(2013-03-01)	
<b>Action 12.20:</b> WMO (Jerôme Lafeuille) to circulate the draft outline of the revised GSICS Implementation Plan as discussed by EP-12, for review.	(2012-06-15)	OPEN
<b>Action12.21:</b> All Panel members to review and comment on the draft outline of the GSICS Implementation Plan	(2012-07-31).	OPEN
<b>Action 12.22:</b> GDWG and EUMETSAT/CDWG to define a controlled vocabulary for instruments events	(2012-11-01)	OPEN Web meeting to discuss Oct 2012
<b>Action 12.25:</b> CNES and NIST to notify their new representation in GSICS.		Done by CNES  Open for NIST

<b>Actions</b>		
Action EP-8.15: The Chairman (M. Goldberg) and Secretariat (J. Lafeuille) to set-up a bi-monthly Executive Panel teleconference. (The WEBEX system is available with WMO. Recommended time slot is 11:00 UTC (Summer) or 11:30 UTC (Winter), starting on 1/08/2012)	1/08/2012	One meeting was held
Action EP-9.1: ISRO and the GCC to coordinate for the implementation of GEO-to-LEO algorithms by ISRO. (ISRO to contact Fred Wu and Fangfang Yu on NOAA side)	End 2012	Open.
Action EP-10.01: IMD (A.K. Sharma) with the assistance of GCC (Fangfang Yu) to get hold of the technical information on the GSICS Correction ATBD for GEO-LEO Infrared channels, and implement it for Kalpana.	End of 2012	Open
Action EP-10.12: GPRCs to undertake drafting an evaluation of uncertainty of the GEO-LEO Infrared product, taking advantage of the work done by EUMETSAT for its product.	September 2012	Open
Action EP-10.13: NASA to designate an expert from the NASA/JPL AIRS team to participate in GRWG activities on traceability.	August 2012	Open
Action: EP-10.18: NOAA (Mitch Goldberg) and EUMETSAT (Tim Hewison) to liaise with the SCOPE-CM Pilot Projects (1), (3) and (5) respectively, in order to better understand their needs and facilitate the finalization of the Statement of Needs.	August 2012	Open. Invite SCOPE-CM to meeting in early 2013.
Action EP-10.27: WMO (J. Lafeuille) to circulate the proposed GSICS fact sheet to Executive Panel members for comments.	October 2012	Open. See also Annex 3
Action EP-10.30: ISRO to nominate points of contacts for the GSICS working groups (GRWG and GDWG).	August 2011	Open