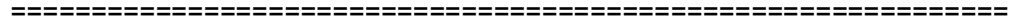


WORLD METEOROLOGICAL ORGANIZATION



GLOBAL SPACE-BASED INTER-CALIBRATION SYSTEM

EXECUTIVE PANEL

SIXTH MEETING

3-4 June 2009

College Park, MD, USA

FINAL REPORT



SUMMARY REPORT OF THE SIXTH GSICS EXECUTIVE PANEL

1. Introduction and welcome

The sixth meeting of the GSICS Executive Panel was held on 3 and 4 June 2009 in College Park, MD, USA, in the premises of the Earth System Science Interdisciplinary Centre of the University of Maryland.

The Chairman, M. Goldberg, welcomed the Panel Members and other invited participants (Annex 1). The agenda was adopted (Annex 2)

The Chairman presented his report on the overall status and progress of GSICS, emphasizing the excellent cooperation that has developed among GSICS Members. He noted that GSICS was starting to interact with the user community through the SCOPE-CM (see Section 13.c) and ISCCP projects, and highlighted the importance of the planned GSICS User Workshop to further expand this user relationship.

It was underlined that a two-way relationship was expected to develop between GSICS and the NWP community, since NWP could take advantage of GSICS correction but also provide its own estimation of instrument bias.

2. Report from the GSICS Coordination Centre (GCC)

A status report was presented for the GSICS Coordination Center (GCC), which highlighted progress regarding GSICS outreach, as well as completed and open GCC milestones.

The report was opened by the GCC Director Dr. Fuzhong Weng, who briefed the Executive Panel members about his interaction with the Global Precipitation Measurement (GPM) mission XCal Team at their May 18-19 2009 meeting in Ann Arbor, MI. According to F. Weng, and GPM Project Scientist Dr. Arthur Hou, there is great interest for the GPM XCal Team to collaborate with GSICS regarding microwave sounder cross calibration. F. Weng also presented an end-to-end analysis of an SSM/I Total Precipitable Water Path product, which improved substantially as a result of inter-calibration of the SSM/I data. He wrapped up his portion of the GCC report with a discussion of the NOAA-19 instrument check out, and the collaboration with EUMETSAT regarding NOAA-19 Microwave Humidity Sounder instrument biases.

GCC Deputy Director, Dr. Bob Iacovazzi, Jr., presented the GCC efforts toward 2008 2009 milestones, as well as open action items for 2009. He presented NOAA's instrument performance monitoring web sites for POES and GOES satellite instruments. He also provided an update regarding implementation of the GSICS Procedure for Product Acceptance. This update mainly described progress regarding defining the GSICS Correction product, as well as implementation of the hierarchical ATBD, parameter and file naming conventions, and data presentation homogeneity. A summary of initial comments regarding the CEOS Quality Assurance Framework for Earth Observations (QA4EO) was provided to the group as a discussion point. Furthermore, it was reported that two GSICS Quarterly articles, authored by NIST, focused on estimating uncertainty of GSICS inter-calibration products, and a new GSICS Quarterly Asian Correspondent, Dr. Yuan Li of CMA, was chosen. The GCC open action items for 2009 mainly surrounded development of the GCC web site. Most outstanding milestones continue to be worked and are in process.

Action EP 6.1: GRWG to define what should be the key factors that need to be displayed in the GSICS Instrument Monitoring web sites.

Action EP 6.2: GCC to communicate to the users community (through GCC web site) the findings related to GOES-13 calibration and spectral response functions.

It was noted that, GCC should publish such relevant information on a regular basis and through an e-mail list server or other appropriate means.

3. Brief updates from the Processing and Research Centres (GPRCs)

a. NOAA

The NOAA GPRC activities were reported as part of the GCC report.

b. EUMETSAT

EUMETSAT provided an update on their work on the GSICS project. It was noted that good progress had been made and that main parts of the work had been presented at the joint meeting of the GSICS Research Working Group and the Data Working in Tokyo in January 2009. As specific item J. Schmetz presented the work of Tim Hewison and others on the hierarchical ATBD and on a study that EUMETSAT has placed with the Met Office. In this study the NWP assimilation system is used as a framework for making double-differencing analyses of IASI and Meteosat SEVIRI data. This study also provides insight into NWP bias corrections and whether GSICS could provide results that lessen the bias corrections.

In the second part of the EUMETSAT presentation J. Schmetz addressed various points for discussion by the Executive Panel. Inter alia those points included:

- i) The users workshop in Bath planned for September 2009,
- li) An update to the terms of reference for the working groups including a proposal to have vice-chairs for the two working groups,
- lii) A recall of the need to provide a 'best estimate' for the GSICS correction, i.e. The need to make the results from the different gprcs consistent in order to have an acceptable and simple product for the users,
- lv) A recall that the easy access to spectral response functions etc. Has not been achieved yet, noting that such fundamental information is highly demanded from users,
- V) Finally he discussed that GSICS had been requested to comment on the GRUAN operations plan and the pertinent link to GSICS.

Those points were addressed again later in the meeting and various pertinent actions have been placed.

Action EP 6.3: GRWG (F. Wu and T. Hewison) to complete the definition of a consensus GSICS Correction for each geostationary satellite (as a starting point), prepare a description of this GSICS correction, and illustrate it by a test data set. Deadline: 30 June 2009

Action EP 6.4: GRWG (F. Wu) to send an early draft of this description to a few beta-testers (ISCCP, ...) for comments in advance of the GSICS user workshop. Deadline : 31 August 2009

Action EP 6.5: GRWG to consider the possible recommendations to GRUAN regarding coordinated radio-sondes and satellite observations (involving D. Tobin et al.) and report to Executive Panel Members. Deadline: 31 July 2009

Jo. Schmetz mentioned the potential support through data from IASI validation campaigns.

c. CMA

A report from CMA was presented on behalf of P. Zhang. It was noted that CMA was performing routine intercomparison of FY-2C and FY-2D against AIRS. This allowed identifying a bias in the current operational calibration, which is based on a comparison with AVHRR (for IR 1 and 2) and HIRS (for IR 3). Results are available on a website currently in Chinese language. The Panel welcomed the progress achieved by CMA.

d. JMA

T. Kurino reported on the status of JMA GPRC activities. He indicated that, in addition to the radiance correction factors, JMA was now routinely issuing regression coefficients for the direct calculation of “corrected radiance” as a function of the MTSAT digital count. He also pointed out the advantage of regression along the major axis.

He reported that JMA was recalibrating GMS and GOES-10 against AIRS for the period starting in September 2002. This leads to significant improvements, as can be seen on GMS-GOES-10 composite images. Discussion arose on the effect of scene temperature.

Action EP 6.6: GRWG to investigate the scene temperature dependence of the bias.

e. CNES

D. Renault reported that a dedicated budget line was open at CNES in 2009 for GSICS activities, thus allowing to subcontract some systematic well-defined tasks (i.e. AIRS-IASI intercomparisons) and to progress faster. Nevertheless, CNES manpower available for GSICS activities remains limited.

He then reported on clarifications, responses and proposals given by CNES for the use of the SADE database during the GRWG–GDWG meeting in January 2009. He also reported on the progress of the regular AIRS-IASI intercomparisons performed by CNES and LMD.

CNES finally detailed its contributions to the GSICS 2009 Operations plan and proposed to host the next annual GRWG-GDWG meeting in Toulouse (Southern France) on 9-10-11 February, 2010.

The Panel thanked CNES for the developments that enabled making SADE database available and adding two new sites. The Panel encouraged CNES to consider the addition of a third site in order to have one site in the GOES field of view and two sites in Asia to support calibration of the 4 geostationary satellites. (MTSAT-1R, FY-2D,E, COMS)

f. KMA

A report was presented on behalf of D. Kim. It was noted that KMA was executing the routine intercalibration of MTSAT-1R against AIRS as well as IASI to prepare for COMS. The results are currently available on a test website. KMA also reported the results of the desert site selection for the vicarious calibration of GEO satellites in East Asia. Two targets (Australian Simpson desert and Chinese Tengger desert) were chosen by the analysis.

g. NASA

J. Butler presented a report on NASA activities.

4. Report from the working groups

The two working groups had a joint meeting in Tokyo, Japan on 28 to 30 January 2009, followed by several virtual meetings, either joint or separate.

a. Outcome of GDWG-3 and status of related actions

On behalf of V. Gaertner, J. Schmetz reported that the GDWG had made very good progress on its action plan with an active communication among its members through web meetings, teleconferences, e-mail correspondence, and the implementation of a WIKI.

A file naming convention has been adopted, in accordance with the general WMO file naming convention for the GTS, which guarantees unique filenames. The NetCDF format has been selected and a NetCDF format implementation document has been developed. EUMETSAT has implemented and put into operation in May 2009 the first collaborative GSICS Data and Product Server. The GSICS websites have been expanded and are accessible through a unique entry page: <http://gsics.wmo.int>. Other servers are expected to be implemented later by the other partners. Related documentation is available. A question was raised about intellectual property rights for GSICS products.

Action EP 6.7: GCC to include on the GSICS web site an intellectual property statement including that use of GSICS data is subject to proper credit being given to GSICS. Deadline: 31 August.

Action EP 6.8: GCC should improve accessibility of Spectral Response Functions on the GSICS web site. Deadline 31 August

b. Outcome of GRWG-4 and status of related actions

F. Wu highlighted that the GRWG has a large membership with some recent changes of key personal. Among the most significant achievements, he mentioned the conceptual definition of the "GSICS correction", and the near completion of a first Algorithm Theoretical Baseline Document (ATBD) for GEO-LEO infrared channel comparison. Work is on-going to finalize the definition and algorithm for the GSICS correction, the harmonization of result presentation, and the use of visible targets from the CNES SADE database, and the preparation of the GSICS User Workshop.

5. Discussion on the outcome of the Working Groups

The two working groups and their chairpersons were thanked for their substantial progress.

6. Review Terms of Reference of the Executive Panel, GDWG and GRWG

The Panel recalled action 4.12 regarding possible update of the Implementation Plan and/or the production of a strategy plan. It was agreed that GSICS should eventually develop the following set of reference documentation:

Title	Typical size	Indicative Lifecycle	Comments
GSICS Implementation Plan	15 pages	5 years	Reference documents for the participation into GSICS
GSICS Strategy	5 pages	5 years	Long term vision
Science Plan	15 pages	5 years	Initially reviewed by the EP as a draft "priority plan"

Operations Plan	3-4 pages	annual	Living document, with status updated for each EP meeting
Science Progress Report	3-4 pages	annual	Maintained by GRWG, includes a table of relevant research actions by members
Terms of Reference of EP, GDWG, GRWG	1 page/group	5 years	Possibly an annex to IP

It was agreed that the contents of the IP should be reviewed in order to avoid duplication with the new documents (Strategy, Science Plan).

The Panel discussed the role of the EP, GDWG, GRWG and the GCC and acknowledged that the tasks of GRWG had expanded towards providing scientific and technical advice on methodological aspects, and reviewed its TORs in this respect, as attached in Annex 3.3. The functions of GCC had also evolved with increased emphasis on the following tasks:

- Compile and monitor progress of operations plan
- support procedures for product acceptance
- maintain GSICS Roster
- communication to users : quarterly newsletter
- GCC web site

It was agreed that the relevant sections of the IP should be updated accordingly in order to properly reflect the functions of the various GSICS components. Furthermore, the Panel discussed the membership and chairmanship of the EP, GDWG and GRWG and agreed that chairpersons should be, as a rule, appointed on a 3-year renewable basis, and should be supported by vice-chairs. The Panel acknowledged the excellent leadership provided by the current Chairs and thanked them for enabling the progress achieved by their respective groups. It agreed that T. Hewison should be invited to serve as vice-chair of the GRWG and that possible GDWG Vice-chairs should be proposed.

Action EP 6.9: J. Lafeuille to draft an updated outline of the Implementation Plan in accordance with the documentation plan recommended by EP-6.

Action EP 6.10: F. Weng and R. Iacovazzi to propose updates to the function description of the GCC for appropriate inclusion in the IP.

7. User feedback on the GSICS Information, Services and Product Roster

The Panel was informed that the Roster had been communicated to GCOS Secretariat and the GCOS/WCRP AOPC as well as to the SCOPE-CM Executive Panel for feed-back, however no comments had been received yet. It will be communicated to WGCV. GSICS was also introduced at the ECMWF hosted IASI Science Workshop. It was expected that the User Workshop would be the main opportunity to seek feedback from the potential user community about planned and potential GSICS deliverables.

Action EP 6.11: C. Cao to present the GSICS Information, Products and Services Roster to the WGCV and ask for feedback

8. Plans for end-to-end evaluation

An end-to-end evaluation was agreed by EP-5 as part of the 2009 Operations Plan, and was further described in the GSICS Pilot project for WIGOS. Targeted end users are the climate community through ISCCP and SCOPE-CM, and NWP/Reanalysis community. These evaluations should be major items for presentation and discussion at the planned GSICS User Workshop. The Panel discussed potential topics for such an evaluation (Bias reduction through corrected SRF, etc.)

It was agreed that, in advance of the User Workshop, a preliminary evaluation would be performed by NOAA and EUMETSAT, based on tests data sets of MSG and GOES and including a calculation of the resulting bias reduction and impact on key products (CSR, TPW,...). This should be reported at the workshop and serve as a model for end-user evaluation.

Action EP 6.12: M. Goldberg to finalize a list of potential topics for an end-to-end evaluation. Deadline 30 June.

Action EP 6.13: M. Goldberg to communicate to ISCCP (W. Rossow), ECMWF (T. McNally), JCSDA (L.P. Riishojgaard) the suggested topics and the expectations from GSICS (type of outcome, schedule) regarding an end-to-end evaluation

Action EP 6.14: M. Goldberg and J. Schmetz to organize a preliminary evaluation of the impact of GSICS Correction of GOES and MSG data on some key products, for presentation at the User Workshop. Deadline: 21/09/09

9. Status of outstanding actions or previous EP meetings

The EP reviewed the status of outstanding actions from previous meetings and agreed to close actions 3.4, 4.3, 4.11, 4.14, 4.17, 5.1, 5.2, 5.4, 5.5, 5.6, 5.9 that were successfully completed, while actions 3.6, 4.10, 4.12, 4.13, 4.15, 5.3, 5.7 and 5.8 were still on-going, as summarized in Annex 4.

The Panel agreed new actions related to circulating the Roster to WGCV and to review the latest version (v3) of QA4EO.

10. Review of the 2009 Operations Plan

The Panel welcomed the updates proposed by GCC whereby GRWG and GDWG actions were included in appropriate sections of the operations plan, with the understanding that if the list includes tasks and sub-tasks, the different levels should be identified.

Action EP 6.15: R. Iacovazzi and J. Lafeuille to finalize the updated operations plan for publication on the GSICS web site

11. WGCV QA4EO

G. Stensaas presented an overview of the progress towards a data quality assurance strategy to facilitate interoperability in the GEO context.

The Panel expressed full support to the overall goals pursued by this QA4EO to enhance data availability, accessibility, suitability and reliability. It acknowledged the efforts made by WGCV to develop a set of guidelines. The Panel furthermore appreciated the positive response given to GSICS by WGCV in developing a version 3 that addressed the concerns expressed by GSICS.

The Panel wondered about the adequacy of the QA4EO to cover all the domains covered by GEO, which would require the involvement of a broader community and raises a question of governance. J. Lafeuille indicated that WMO had provided preliminary comment on version 2 of the QA4EO with reservations regarding its applicability to both space and surface-based observation, and recalled the standardization achieved by CBS and CIMO.

The Panel took action to review and comment version 3 of the QA4EO, and welcomed the invitation to contribute to the forthcoming QA4EO workshop in Antalya, Turkey.

Action EP 6.16: J. Lafeuille to circulate to Panel Members the GSICS comments on QA4EO formulated by M. Goldberg and the response made by WGCV

Action EP 6.17: G. Stensaas to circulate v3.0 of QA4EO with track changes.

Action EP 6.18: Panel members to review QA4EO v 3.0 and comment by end of July 2009.

The Panel considered that the potential interest of applying GSICS approach to Landsat data should be further investigated.

Action EP 6.19: M. Goldberg to investigate relevance of GSICS to Landsat data.

Action EP 6.20: WGCV (G.Stensaas, C.Cao) and GSICS (J. Lafeuille, R. Iacovazzi) to discuss attendees list and agenda for the QA4EO workshop.

12. Pre-launch characterization of instruments

R. Datla presented draft guidelines for pre-launch characterization of instruments.

The Panel congratulated R. Datla for these comprehensive guidelines. It was clarified that these guidelines were specifically addressing optical instruments (UV, VIS, NIR, IR), and were presented in response to the Executive Panel, which should be reflected in the title. Similar guidelines should be developed, in due time, for microwave radiometers. Panel members were invited to review the guidelines off-line in more depth. It was also recalled to seek endorsement of WGCV on these guidelines.

Action EP 6.21: Panel Members to review the DRAFT Guidelines for pre-launch characterization of optical instruments and provide their comments to R. Datla by 31 July 2009

Action EP 6.22: R. Datla to seek feedback from WGCV by 31 July 2009.

13. Relationship with other relevant organizations and projects

13.a Global Precipitation Mission (GPM) intercalibration plans

A. Hou presented the GPM mission concept and status with emphasis on the intercalibration approach pursued by the International Intersatellite Calibration Working group (X-CAL). He noted that X-CAL had set a challenging goal since Brightness Temperatures bias of 0.1 K would have an impact of 0.1 mm/h for retrieved precipitation rate products.

The Panel noted that X-CAL activities were of direct relevance to GSICS and recommended to investigate further how GSICS could assist in the intercalibration of sounding channels.

Action EP 6.23: M. Goldberg and F. Weng to investigate with A. Hou how GSICS activities could assist GPM X-CAL in the intercalibration of microwave sounders.

13.b NCEP

Following a presentation given by NCEP, the Panel recognized the role of NCEP as an example of user of GSICS products through the use of GSICS intercalibrated MSU data in the reanalysis project of NCEP and GMAO that demonstrated that biases between analysis and MSU datasets had been reduced significantly.

13. c SCOPE-CM

The Sustained Coordinated Processing of Environmental Satellite Data for Climate Monitoring (SCOPE-CM) is the new name for the Regional Specialized Satellite Centres for Climate Monitoring (RSSC-CM). M. Goldberg is representing GSICS at the SCOPE-CM Executive Panel and introduced GSICS in order to inform SCOPE-CM projects of the availability of GSICS results and to seek feedback on their needs terms of satellite data calibration.

13.d GRUAN

The Panel recalled that Action 4.15 from the fourth Executive Panel meeting in November 2008 was still open. The point was discussed under agenda item 3, following EUMETSAT's report.

14. Publications and outreach

The BAMS article is being finalized with addition of a section on GSICS Correction. A list of GSICS related publications is regularly published by R. Iacovazzi in the GSICS quarterly.

15.GSICS user workshop

The Panel discussed the preparation of the GSICS User Workshop planned to be held during the EUMETSAT Meteorological Satellite Conference in Bath, United Kingdom in September 2009. It was emphasized that this workshop would be an important milestone, as it was the first opportunity to seek direct feedback from the potential user community.

Action EP 6.24: M. Goldberg, as GSICS EP Chair, to issue the invitation for the GSICS User Workshop by mid-June 2009 in consultation with EUMETSAT and WMO

16. Involvement of new members

The Panel renewed its wish to expand GSICS Membership and wished that space agencies such as ESA, ISRO and JAXA could join GSICS in the future, and recommended that a presentation on GSICS be given at CEOS SIT-24 and/or the CEOS.

Action EP 6.25: M. Goldberg to give a presentation on GSICS at CEOS SIT-24 and/or CEOS Plenary 24.

17. Summary of actions and way forward

The Panel agreed on the list of actions as summarized in Annex 5.

18. Any other business

No other business was discussed.

19. Date and place of next meetings

The 7th meeting is scheduled for Friday 30 October 2009 in Jeju island, Republic of Korea.

20. Closure of the meeting

The Chairman thanked the participants and closed the session at 16:34.

ANNEX 1: AGENDA

DAY 1

1. Introduction and welcome
 - Introductory remarks
 - Review and adoption of agenda
 - Chairman's report
2. Report from the GSICS Coordination Centre (GCC)
3. Brief updates from the Processing and Research Centres (GPRCs)
 - a. NOAA
 - b. EUMETSAT
 - c. CMA
 - d. JMA
 - e. CNES
 - f. KMA
 - g. NASA
4. Report from the working groups
 - h. Outcome of GDWG-3 and status of related actions
 - i. Outcome of GRWG-4 and status of related actions

Lunch Break

5. Discussion on the outcome of the Working Groups
6. Review Terms of Reference of the Executive Panel, GDWG and GRWG
7. User feedback on the GSICS Information, Services and Product Roster
8. Plans for an end-to-end GSICS evaluation
9. Status of actions from previous Executive Panel meetings

DAY 2

10. Review and update (if relevant) of the 2009 Operations Plan
11. WGCV Quality Assurance Framework for Earth Observation (QA4EO)
 - Break*
12. Other areas of collaboration with WGCV
 - j. Pre-launch characterization of instruments
 - k. Other topics
13. Relationship with other relevant organizations and projects
 - Global Precipitation Mission (GPM) intercalibration plans

- NCEP Reanalysis Use of InterCalibrated Satellite Data
- SCOPE-CM (former R/SSC-CM) network
- GCOS / GRUAN
- WCRP/GEWEX ISCCP
- Commission for Instruments and Methods of Observation (CIMO)
- Discussion

Lunch break

- 14.** GSICS outreach activities
 - l. GSICS websites
 - m. Participation in conferences and other relevant events
 - n. GSICS publications (science plan ?)
- 15.** GSICS user workshop
- 16.** Involvement of new members
- 17.** Summary of actions and way forward
- 18.** Any other business
- 19.** Date and place of next meetings
- 20.** Closure of the meeting

ANNEX 2: LIST OF PARTICIPANTS**Executive Panel Members**

Butler, James	NASA	James.J.Butler@nasa.gov
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Goldberg, Mitchell (Executive Panel Chair)	NOAA	Mitch.Goldberg@noaa.gov
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	KMA	
Lafeuille, Jérôme	WMO	JLafeuille@wmo.int
Renaut, Didier	CNES	Didier.Renaut@cnes.fr
Schmetz, Johannes	EUMETSAT	Johannes.Schmetz@eumetsat.int

Representatives of other GSICS components

Iacovazzi, Bob (GSICS Coordination Center (GCC) Deputy Director)	NOAA	Bob.Iacovazzi@noaa.gov
Weng, Fuzhong (GSICS Coordination Center (GCC) Director)	NOAA	Fuzhong.Weng@noaa.gov
Wu, Xiangqian (GRWG Chair)	NOAA	Xiangqian.Wu@noaa.gov

Invited participants

Cao, Changyong (GSICS rep to WGCV)	NOAA	Changyong.Cao@noaa.gov
Hou, Arthur (GPM Project Scientist)	NASA	Arthur.Y.Hou@nasa.gov
Kalb, Mike (NESDIS/STAR)	NOAA	Mike.Kalb@noaa.gov
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Zou, Cheng-Zhi (STAR Reanalysis)	NOAA	Cheng-Zhi.Zou@noaa.gov

ANNEX 3: TERMS OF REFERENCE

Annex 3.1

Terms of Reference of the Executive Panel (Draft Version 2)

1. Provide overall guidance for the GSICS;
2. Monitor and evaluate the performance of the GSICS, including the activities of the GSICS Coordination Centre (GCC), GSICS Processing and Research Centers (GPRC), Calibration Support Segments (CSS), GSICS Research Working Group (GRWG) and the GSICS Data Working Group (GDWG);
3. Conduct annual progress reviews of the GSICS;
4. Nominate the chairpersons of the WRWG and GDWG among the designated members of these groups , on a 3-year renewable basis;
5. Prepare an annual report to the CGMS and the Director, WMO Space Programme, on the status and accomplishments of the GSICS;
6. Organize workshops and sessions at scientific meetings to advance the objectives of GSICS and publicize the program's achievements;
7. Develop and implement mechanisms for obtaining feedback from users of GSICS results;
8. Prepare the GSICS Annual Operating Plan;
9. Revise the GSICS Implementation Plan as necessary.

The Executive Panel will agree on its Rules of procedure.

**Terms of Reference of the
Data Management Working Group (GDWG)**

1. Develop a detailed plan for implementing the data management activities of the GSICS
2. Specify formats and procedures for exchange of data between the satellite agencies, the GSICS Processing and Research Centers, and the GSICS Coordination Center
3. Develop specifications for GSICS data archive and access systems
4. Oversee and coordinate the data management activities of the GSICS
5. Establish and maintain cooperation with the research programs at the GSICS Processing and Research Centers and assist with their data management activities, as appropriate
6. Convene at least annually, and more frequently if appropriate.
7. Provide the GSICS Executive Panel with a report on GSICS data management activities including recommendations as appropriate. Submit report three weeks prior to the annual meeting of the GSICS Executive Panel, and present it to the Panel.

Annex 3.3

Terms of Reference of the Research Working Group (GRWG)

Draft Version 2

1. Advise the EP on scientific and technical questions related to the technical specifications of GSICS products
2. Foster the development of intercalibration science with a view to practical implementation in GSICS operations in order to advance the GSICS overarching goal of ensuring the comparability of satellite measurements
3. Contribute to the development of applications of satellite intercalibration through cooperation with the user community
4. In cooperation with, and with input from the GSICS Processing and Research Centres (GPRC) and other contributing parties, maintain a spreadsheet summarizing the status of research projects supported under the GSICS Distributed Research Component
5. Organize annual workshop to review the GSICS research programme; Recommend to the GSICS Executive Panel topics for scientific workshops and sessions at scientific meetings to advance the objectives of GSICS
5. Provide the GSICS Executive Panel with a Report on GSICS planned scientific activities and accomplishments, including recommendations as appropriate. Submit report three weeks prior to the annual meeting of the GSICS Executive Panel, and present it to the Panel.

ANNEX 4: OUTSTANDING ACTIONS FROM EXP-3 EXP-4 AND EXP-5

N°	Action	Deadline	Status
EXP-3.4	CNES will advise GSICS on the instrument to be taken as a reference for Visible channels.	28 January 09	Completed May 2009 EP6 CLOSED
EXP-3.6	GCC (F. Weng) will prepare a presentation on absolute calibration for MW channels at GRWG-4. Comment: absolute calibration is ambitious, postpone to GRWG5, take into account presentation by A. Hou at Exp6	<u>Feb 10</u>	<u>Open</u> (See item 13.a)
EXP-4.3	J. Lafeuille to ask GPRCs to nominate a poc for operational matters	December 2008	Completed (See web) CLOSED
EXP-4.10	GCC to implement operational JMA code for MTSAT-AIRS/IASI, and adapt it to each GEO, in order to serve as GSICS baseline algorithm for comparison/benchmarking purpose plan.	August 2009	On-going Completed for MFG/MSG, MTSAT, GOES, open for FY-2
EXP-4.11	All GPRCs to perform operational (routinely sustained...) GEO-LEO intercalibration (intercomparison via common IASI and AIRS references) using possibly an optimized algorithm with respect to the baseline algorithm	August 2009	Completed by all (JMA, EUMETSAT, NOAA, KMA, CMA) CLOSED
EXP-4.12	Ex.Panel, GCC, GRWG, GDWG to review the GSICS Implementation Plan and consider the relevance of drafting an update or an additional strategy document	<u>31 March 09</u>	On-going (See item 6)
EXP-4.13	GDWG and GRWG Chairs to initiate preparation of a GSICS User Workshop in 2009 (e.g. in conjunction with EUM User Conference)	September 2009	On-going See item....
EXP-4.14	GCC to set up bi-monthly teleconference with the GPRCs poc and the 2 WG Chairs (tentatively: 11h00 UTC) (Operational pocs need to be defined)	January 2009	Done (and continuing) CLOSED
EXP-4.15	GSICS Ex Panel Members to provide comments on the Manual on Operating Practices for GRUAN sites by October 2008 (e.g. recommendation on launch schedules of radiosondes) with the aim to	<u>30 November 08</u>	Open (See item 13.e) GRWG

	forward consolidated comments to GCOS JPO by end of 2008 Comment: EUMETSAT can help with the IASI validation dataset		Chair to discuss with Dave Tobin
EXP-4.16	J. Lafeuille to ask GPRCs to nominate poc for product acceptance and inform R. Iacovazzi	December 2008	Completed (See web) CLOSED
EXP-4.17	Detailed implementation of the hierarchical ATBD structure to be finalized by GRWG High-level structure is agreed and initial implementation completed. Further developments on-going to include extension for GSICS correction	28 January 09	Completed CLOSED
EXP-5.1	NOAA to report on CLARREO project at GRWG-4	28 January 09	Completed CLOSED
EXP-5.2	CNES to report at GRWG – GDWG in January 2009 on the mechanism for requesting data from SADE database.	28 January 09	Completed CLOSED
EXP-5.3	NIST (R. Datla) and the GCC, in consultation with the CEOS WGCV, to finalize the development of guidelines for pre-launch instrument characterization.	October 2009	On-going Guidelines developed, to be reviewed and approved by ExP and WGCV (See item 12.a)
EXP-5.4	J. Lafeuille, M. Goldberg and GCC, to present a proposal for GSICS as a WIGOS Pilot Project	January 2009	Completed CLOSED
EXP-5.5	J. Lafeuille to circulate GSICS Roster to GCOS Secretariat and to R/SSC-CM for comments	December 2008	Completed GCOS (March) SCOPE (May) CLOSED
EXP-5.6	M. Goldberg to present GSICS Roster to CEOS WGCV and to IASI Workshop for comments Matter was addressed at IASI workshop and will be further discussed at User workshop New action: C. Cao to introduce WGCV to the Roster	December 2008 / May 2009	CLOSED
EXP-5.7	GDWG-GRWG to refine product and service	October 2009	On-going

EXP-5.8	<p>specification in the GSICS Roster (Current discussions on GSICS Correction, Bias, and harmonized presentation provide part of the action) All Panel members to identify the major relevant meetings where GSICS should be represented in 2009, and indicate their availability to represent GSICS when appropriate.</p>	31 December 08	On-going (See item 14.b)
EXP-5.9	<p>Panel Members to review the draft BAMS paper and send comments to M. Goldberg (Feedback received, further update being made to describe GSICS Correction)</p>	30 November 08	Completed CLOSED
EXP-5.10	<p>All Panel Members to review the CEOS WGCV Quality Assurance Framework for Earth Observation and send comments to M. Goldberg GSICS comments sent by M. Goldberg, and taken into account by WGCV in QA4EO v.3.0. New actions: - J. Lafeuille to circulate comments from M. Goldberg and response by WGCV. - Panel members to review QA4EO v 3.0 and comment by end of July 09</p>	31 December 08	Completed CLOSED
EXP-5.11	<p>J. Lafeuille to update GSICS Executive Panel Membership</p>	30 November 08	Completed CLOSED
EXP-5.12	<p>EXP-6 to be convened in Geneva (TBC) in the second quarter of 2009. (Meeting was held in College Park)</p>	28 February 09	CLOSED

ANNEX 5: LIST OF NEW ACTIONS FROM EXP-6

- Action EP 6.1 GRWG to define what should be the key factors that need to be displayed in the GSICS Instrument Monitoring web sites.
- Action EP 6.2 GCC to communicate to the users community (through GCC web site) the findings related to GOES-13 calibration and spectral response functions.
- Action EP 6.3 GRWG (F. Wu and T. Hewison) to complete the definition of a consensus GSICS Correction for each geostationary satellite (as a starting point), prepare a description of this GSICS correction, and illustrate it by a test data set. Deadline: 30 June 2009
- Action EP 6.4 GRWG (F. Wu) to send an early draft of this description to a few beta-testers (ISCCP, ...) for comments in advance of the GSICS user workshop. Deadline : 31 August 2009
- Action EP 6.5 GRWG to consider the possible recommendations to GRUAN regarding coordinated radio-sondes and satellite observations (involving D. Tobin et al.) and report to Executive Panel Members. Deadline: 31 July 2009
- Action EP 6.6 GRWG to investigate the scene temperature dependence of the bias.
- Action EP 6.7 GCC to include on the GSICS web site an intellectual property statement including that use of GSICS data is subject to proper credit being given to GSICS. Deadline: 31 August.
- Action EP 6.8 GCC should improve accessibility of Spectral Response Functions on the GSICS web site. Deadline 31 August
- Action EP 6.9 J. Lafeuille to draft an updated outline of the Implementation Plan in accordance with the documentation plan recommended by EP-6.
- Action EP 6.10 F. Weng and R. Iacovazzi to propose updates to the function description of the GCC for appropriate inclusion in the IP.
- Action EP 6.11 C. Cao to present the GSICS Information, Products and Services Roster to the WGCV and ask for feedback
- Action EP 6.12 M. Goldberg to finalize a list of potential topics for an end-to-end evaluation. Deadline 30 June.
- Action EP 6.13 M. Goldberg to communicate to ISCCP (W. Rossow), ECMWF (T. McNally), JCSDA (L.P. Riishojgaard) the suggested topics and the expectations from GSICS (type of outcome, schedule) regarding an

end-to-end evaluation

- Action EP 6.14 M. Goldberg and J. Schmetz to organize a preliminary evaluation of the impact of GSICS Correction of GOES and MSG data on some key products, for presentation at the User Workshop. Deadline: 21/09/09
- Action EP 6.15 R. Iacovazzi and J. Lafeuille to finalize the updated operations plan for publication on the GSICS web site
- Action EP 6.16 J. Lafeuille to circulate to Panel Members the GSICS comments on QA4EO formulated by M. Goldberg and the response made by WGCV
- Action EP 6.17 G. Stensaas to circulate v3.0 of QA4EO with track changes.
- Action EP 6.18 Panel members to review QA4EO v 3.0 and comment by end of July 2009.
- Action EP 6.19 M. Goldberg to investigate relevance of GSICS to Landsat data.
- Action EP 6.20 WGCV (G.Stensaas, C.Cao) and GSICS (J. Lafeuille, R. Iacovazzi) to discuss attendees list and agenda for the QA4EO workshop.
- Action EP 6.21 Panel Members to review the DRAFT Guidelines for pre-launch characterization of optical instruments and provide their comments to R. Datla by 31 July 2009
- Action EP 6.22 R. Datla to seek feedback from WGCV by 31 July 2009.
- Action EP 6.23 M. Goldberg and F. Weng to investigate with A. Hou how GSICS activities could assist GPM X-CAL in the intercalibration of microwave sounders.
- Action EP 6.24 M. Goldberg, as GSICS EP Chair, to issue the invitation for the GSICS User Workshop by mid-June 2009 in consultation with EUMETSAT and WMO
- Action EP 6.25 M. Goldberg to give a presentation on GSICS at CEOS SIT-24 and/or CEOS Plenary 24.