Global Space-based Inter-calibration System (GSICS)

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GSICS Data Management Working Group (GDWG)

GSICS Research Working Group (GRWG)

Joint Meeting

5 – 8 March 2012

Beijing, China

Final Report

Participants in the Joint meeting of the GSICS Data Management Working Group and GSICS Research Working Group, CMA/NSMC, Beijing, China, March 2012

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Part I: Report of the Joint Sessions

I.1   Monday, 05 March 2012

Agenda	
Topic	Presenter / Discussion Lead
Welcome	Aleksandar Jelenak / Tim Hewison
Welcome	Naimeng Lu
Status and future plan of Fengyun meteorological satellites	Peng Zhang
Group photo	CMA
Agree agenda and minute taking	Aleksandar Jelenak
Report of Exec Panel and WMO guidance	Jérôme Lafeuille
GRWG report: Review of actions and web meetings	Tim Hewison
GDWG report: Review of actions and achievements	Aleksandar Jelenak
Status of the GSICS data servers	Peter Miu
GCC report: Review of actions and GCC website structure and content	Fangfang Yu
CMA GPRC report: GSICS activities and strategy plan in CMA	CMA
NOAA GPRC report	NOAA
JMA GPRC report	JMA
EUMETSAT GPRC report	EUMETSAT
KMA GPRC report	KMA
CNES GPRC report	CNES
GSICS products: Catalogues, inter-operability, reprocessing, versions	Tim Hewison
Product acceptance procedure: Way forward	Fangfang Yu
Unified website for GSICS bias monitoring and additional metadata requests	Peter Miu
Brief for working groups	Tim Hewison / Aleksandar Jelenak

These presentations – and those from other sessions – are available on the GSICS Development Wiki: https://gsics.nesdis.noaa.gov/wiki/Development/20120305

The Joint Meeting of the GSICS Research and Data Working Groups was opened by J. Lafeuille (WMO) who welcomed the participants and thanked NSMC for hosting the meeting. The two Working Group co-chairs, A. Jelenak (NOAA) and T. Hewison (EUMETSAT), also welcomed the participants and again thanked NSMC. The meeting is the 6th session of the Data Working Group (GDWG06) and the 7th session of the Research Working Group (GRWG07). T. Hewison presented the proposed agenda and the high level meeting objectives (consistent documentation, road map to operational products, product distribution, requirements for version control and archiving, GSICS bias monitoring plots, instrument event logs). He also stressed the importance of communication between GSICS partners, as e.g. through regular web meetings and interaction with other groups working on (inter-) calibration.

It was decided that M. Koenig would take the minutes for both the Joint Session and the GRWG while A. Jelenak would be the minute taker for the Data Working Group.

N. Lu then welcomed the group on behalf of NSMC, followed by P. Zhang who reported on the status and the future plans for the Fengyun (FY) satellites: The current polar system is in its second generation (FY-3A and 3B), while the geostationary system is still in its first generation. The geostationary satellite FY-2F was launched recently, is currently commissioned and is expected to become operational in April 2012. The second geostationary generation is planned for 2015 and will carry a hyperspectral IR sounder and a lightning mapper, together with an improved imager. Concerning the polar system, the FY-3 series (FY-3C to 3F) is expected to cover at least the next 15 years, with some instruments being improved and new ones added, including IR hyperspectral sounding, UV hyperspectral sensor, and radio-occultation sounder.

J. Lafeuille reported on the last two Executive Panel meetings: the EP-10 held in Geneva, 6-8 June 2011, and EP-11 in St. Petersburg on 02 October 2011.

Highlights of EP-10 were:
- Participation of IMD
- A number of scientific and technical points as e.g. the midnight blackbody and straylight problems on GOES and MTSAT or the shift of the MODIS IR13.9 channel
- Request to GPRCs to draft an evaluation of GEO-LEO IR correction uncertainty
- Support to central bias monitoring web site
- Stressing the importance of a centralised event monitoring log
- Clarification of the role of GCC running the baseline algorithm for reference vs. the GPRCs running the operational, optimized GSICS algorithms for delivery to the users
- Interactions of GSICS and CEOS-WGCV with complementary roles, GSICS focussing on inter-calibration issues while the strength of WGCV is more on pre-flight calibration, cal/val sites and field campaigns
- Recognition by WMO and CGMS of inter-calibration and reference instruments as key elements of the Global Observing System
- Communication and user outreach

EP-11 was just a short half-day meeting before CGMS-39. Highlights of this meeting were:
- Participation of ROSHYDROMET reporting on Russian Federation activities
- Request to move existing GSICS products to pre-operational and operational status
- Scope for collaboration on microwave conical scanners

- Feedback from the 3rd GSICS User Workshop (in September 2011)
- Call for nominations of EP vice chair
- Need to better communicate on GSICS in publicizing "GSICS principles"
- Need to enhance product accessibility (e.g. Product Access Guide)

In conclusion, WMO sees GSICS as a key element in the global observing system as it has made outstanding achievements. We have now to bring GSICS products to a fully operational status , together with providing more visibility to GSICS activities and products.

T. Hewison delivered the report on GRWG, briefly reviewing actions and past web meetings. He stressed the importance of standards – for calibration, data formats, filenames etc. He mentioned the special issue of IEEE TGRS (GSICS & WGCV-IVOS group collaboration). About 45 manuscripts were submitted, with a target publication date of March 2013. T. Hewison, X. Wu and X. Xiong are three of the guest editors of this special issue.

EP-11 stressed the importance of a clear statement on GSICS principles, to be available on the WMO GSICS website. A first draft of such principles was submitted to EP and is seen as a good basis. The draft was discussed with GRWG and GDWG on Day 4 of this meeting.

Concerning actions and recommendations, GDWG05_05R, GDWG04_05R, GDWG05_38, GDWG05_42, EP06_01 GRWG06_02R are addressed in this present meeting.

Outstanding action EP10_11 was closed by participation in QA4EO in November 2011. Action EP10_17 (regarding navigation accuracy) is to be revisited with IVOS.

T. Hewison gave an overview of the web meetings held since GRWG06, where participation (despite the time zone problem) is highly appreciated. A total of 11 web meetings were held since GRWG05, and the respective presentations are accessible through the GSICS wiki. As some centres have problems with the currently used Centra tool, it is recommended that:

Number	Text
JOINT07_01R	GDWG is encouraged finding a common web meeting tool

A tool is needed to assign and track actions from web meetings and other meetings.

Number	Title	Actionee	Due Date
Action JOINT07_01	Review existing action tracking tool for usability and global accessibility	GDWG, lead by Aleksandar Jelenak	01 May 2012

T. Hewison also summarised the top-level aims of this GSICS meeting: solar band issues, re-analysis products strategy including reprocessing activities. For the IR, LEO-LEO products, migrating references and midnight calibration issues need to be discussed. Important is a strategy of how to define NWP as inter-calibration tool.

A. Jelenak presented an update on the GDWG, summarizing the status of actions and the main achievements.

P. Miu reported on the status of and future plans for the GSICS Collaboration Servers. Such servers are currently implemented at EUMETSAT (fully operational), NOAA (operational and redundancy node for the servers network), CMA (in testing mode), i.e. a true network is starting to be realised. The presentation summarised which datasets are currently available on these servers. The WMO file naming convention is followed for these products. P. Miu also mentioned a number of planned and initiated activities, where details would be discussed during this GSICS meeting at a later session.

The discussion stressed the importance of a product guide and a central product catalogue, possibly even including the level 1 data. Also the need for cooperation on the CF conventions was stressed.

F. Yu provided the GCC report. The GCC encountered a transition period due to staff changes, with F. Yu taking over as Deputy Director from B. Iacovazzi. The attendees thanked Bob for his invaluable contributions over the many years of service to GSICS. As an example of the GCC baseline algorithm results, F. Yu showed the midnight calibration issues of GOES and MTSAT. Four issues of the GSICS Quarterly were completed, which are now available through the new GSICS mailing service (registration through http://gsics.wmo.int). In 2011, GCC supported the Users' Workshop, the two EP meetings and the monthly web meetings. User feedback, notably from ISCCP, also stressed the importance of a product catalogue. GCC action review showed that work on the actions/recommendations GDWG04_11R, EP03_06, EP08_02, EP08_12 EP09_01, EP09_06, GRWG05_08, GRWG06_23, JOINT06_03 are ongoing. First versions of event logs are available for some instruments. 2012 goals are to establish the GSICS baseline algorithm coordination, further support user community, issue the quarterly newsletter, and provide meeting support.

R. Roebeling presented the work of the recently-established EUMETSAT satellite event working group. He first recalled the respective CGMS and GSICS recommendations. EUMETSAT has set up this working group to address the respective actions and to act as a link between relevant groups. It is noted that an extensive technical event logging already exists and has to be adapted to a scientific type of usage. The presentation showed examples of the EUMETSAT logging systems for the geostationary and low earth orbit programmes. A number of typical events, interesting to the science users, were identified, together with some general recommendations (e.g. time format, acronym explanation). EUMETSAT is working on a web-based User Notification Service, which can be seen as a model for the GSICS event log. A number of events were proposed that should be included in the instrument event log, where the events can be platform, instrument or processing level based. The GPRCs should agree on the user requirements, the types of events to log, on the logging procedure, and on the reporting interface. Events should be also noted in the level 1 metadata. Specific details of the event logs were discussed in the joint session of Day 3.

F. Yu reported on user feedback, specifically the feedback received by ISCCP. External users generally give positive feedback on data availability and on applying the GSICS correction. Impact validation is still an open issue. Internal users see GSICS as a very powerful tool for instrument monitoring. A strong user requirement comes from SCOPE-CM, mainly regarding historical datasets to obtain consistent and readily usable level 1 datasets. Also the relevance of NWP bias monitoring is noted by users. In summary, users see the GSICS effort as useful as it addresses the essential needs. F. Yu specifically reported on the ISCCP feedback received in November 2011. In response, a dedicated teleconference was held on 15 November 2011. Concerns are mainly on obtaining the products from different sites, with

different formats, with sometimes difficulty to find information on how to apply the correction – basically again highlighting the need of a central product catalogue and further format harmonisation. A central catalogue structure was outlined by WMO.

Number	Title	Actionee	Due Date
Action JOINT07_02	Propose a functionality for a central GSICS product catalogue	GDWG, lead by Aleksandar Jelenak	01 May 2012
Action JOINT07_03	Decide on the actual contents of the catalogue and provide a respective Users' Guide	GDWG, lead by Aleksandar Jelenak	01 May 2012

X. Hu delivered the GPRC report from CMA. In January 2012, the GSICS GEO-LEO inter-calibration has become the operational calibration for FY-2E, application to FY-2D will follow soon. Historical FY-2D/2E data will be recalibrated based on inter-calibration with IASI and AIRS. The same operational setup is also planned for FY-2F/2G/2H. The available time series of the calibration coefficient and the monitored bias show a number of interesting features. CMA also does regular monitoring of the double differences between FY-2 and IASI/AIRS. Also FY-3B IRAS is inter-calibrated to IASI following GSICS principles. Shown was also the CMA work concerning the ground based calibration sites used for the solar band calibration (for MERSI on FY-3). Inter-calibration of these bands is done with MODIS and to some extent also with GOME, based on the DCC method. The future plan is to use the same reference instruments for the GEO-LEO and the LEO-LEO inter-calibration, supported by a direct comparison (GEO-GEO and LEO-LEO) of the monitored instruments.

X. Wu delivered the NOAA GPRC report. The presentation covered the operational status, the current satellite services and the emerging new programme (NPP). A retro-processing and recalibration of the GOES archive as of 2003 is ongoing. He specifically showed the effect of the changed SRF on the 13.3 micron channel of GOES-12. The GSICS instrument performance monitoring also played an important role in the recalibration of the Metop-B AVHRR. The GOES midnight stray light problem was illustrated; the implemented correction was tested using GSICS principles. X. Wu also showed some first results of the new Suomi-NPP satellite. NPP carries the hyperspectral sounder CrIS, which has exceptionally low noise and is seen as a potential reference instrument. NPP and Aqua, due to their only 15-minute time difference, have more opportunities for pseudo-SNOs, not confined to only high latitudes. In the discussion it was noted that CrIS also provides the opportunity to indirectly compare Metop-A IASI to Metop-B IASI (which will never have SNOs).

A. Okuyama delivered the GPRC report from JMA. An interesting result was the increased number of successfully assimilated clear sky radiances from MTSAT after the GSICS correction was applied. Another user feedback concerned the (missing) GSICS information on diurnal changes of the bias (affecting the SST product). The GSICS near real-time correction for MTSAT-2 has been available on the EUMETSAT server since Feb 2012. The next JMA satellite, Himawari-8, is planned for 2014 and will carry a 16-band (ABI like) imager. An open science question is the calibration of the NIR bands. JMA is conducting a reanalysis of GMS-5, corrected for the known SRF error, also having an overall positive effect on NWP.

T. Hewison provided the GPRC report from EUMETSAT. He gave a short overview over the EUMETSAT space segment, especially focussing on the upcoming launches of Metop-B and Meteosat-10. The EUMETSAT GSICS team will provide commissioning support, e.g.

through inter-calibration with IASI, validate potential SRF changes and perform the SEVIRI solar channel calibration. Inter-calibration activities for Sentinel-3 will start in 2012 (for the SLSTR instrument), following the established GSICS principles. Current GSICS activities for the Meteosat IR bands are the routine provision of GSICS corrections, bias monitoring, uncertainty analysis and ice contamination issues; for the solar bands the DCC and lunar calibration methods are being developed while the (heritage) SEVIRI solar channel calibration scheme is reviewed. Another activity concerns the recalibration of the Meteosat archive (back to 1982) with a target accuracy of < 1K, through inter-calibration with HIRS. Update on action GRWG06_17, concerning time overlaps of different Meteosats, was given: Meteosat data availability is described in an Excel file, it is planned to make this file available on line.

B. Lee from KMA gave the GPRC report from KMA (on behalf of D. Kim). The COMS satellite was briefly introduced (concerning channels and observation schedule). As of January 2011, COMS has been inter-calibrated with IASI/AIRS (for the IR bands, where the results for IASI show much less scatter); the presentation showed some examples of the results and some initial findings. Also shown was the layout of the bias monitoring web site. The COMS moon observations are used for the solar band calibration within KMA's Moon Processing System, showing a <4% accuracy over the past year.

B. Fougnie presented the GPRC report from CNES. CNES activities are ranging to cross-calibration over desert sites, lunar calibration, Rayleigh scattering, IASI/AIRS cross-calibration, dealing with Metop-B/IASI, and to the SADE database (some topics were covered in more detail by specific talks in the GRWG breakout session). A number of papers on these activities were submitted to the special issue of IEEE-TGRS. The cross-calibration over desert sites is a fully operational method for low earth orbit satellites. MSG-SEVIRI was recently introduced into the same processing. The individual steps in the cross-calibration process were described. The SADE database will hold all satellite data gathered over the desert sites, and the database will be opened in May 2012. Access will be freely available through the CNES website (actual access to data requires a password, i.e. a pre-registration with CNES). The intention is to have the database updated with the latest version of the respective satellite data.

T. Hewison recalled that most of the issues regarding the need for a product catalogue, inter-operability and versioning were already covered in previous presentations, notably in the GCC report, so no further discussion happened on this topic.

J. Lafeuille highlighted that users may not be fully aware that the "GSICS correction" does not provide calibration coefficients but only a correction to be applied to the operational calibration coefficients. He raised the question whether, once the GSICS correction will be declared operational, it ought to be incorporated in the operational calibration (as some users believe it is already the case). Three possible options were discussed:

- Option 1: Set the operational calibration to the GSICS reference (the GSICS correction would then tend to be zero).
- Option 2: Keep the operational calibration unchanged in the level 1 data and provide the GSICS correction separately;
- Option 3: Keep the original calibration unchanged and, in addition, within the same level 1 data stream, provide modified calibration coefficients calculated in applying the GSICS correction to the operational calibration (This would combine options 1

and 2 and leave the user with the option to use either the corrected or the uncorrected calibration).

All GPRCs commented on this:

- EUMETSAT: Plan is to follow option 3, but from a user perspective they could also follow option 2, as the original calibration and the GSICS correction will be provided as before
- JMA: Option 2 is currently done (for GEO IR)
- CNES: Main focus is on cross-calibration; preference is option 2
- NOAA: Option 2 is preferred for GEO IR, option 1 for VIS
- KMA: Option 2 preferred
- CMA: Approach is option 1 because of technical constraints (the GSICS calibration is the only calibration; approach may change for the next GEO generation with better onboard calibration)

The discussion led to the agreement to allow different approaches within GSICS but to make a clear distinction between the different methods; it must be ensured that versions are correctly tracked through the datasets. This proposal will be reported to the Executive Panel for confirmation.

F. Yu summarised the status of the product acceptance procedure with its current stages demonstration / pre-operational / operations. She also summarised what background information is needed for each status. T. Hewison encouraged every GPRC to start the product acceptance for the relevant phase. Discussion was on reasons for the slow progress here: Especially the external review process was identified as a problem area. The discussion led to the following action:

Number	Title	Actionee	Due Date
Action JOINT07_04	Review the GPPA, suggest some streamlining in order to accelerate the acceptance process and make a recommendation to EP	F. Yu (GCC), all GRWG through a web meeting	01 May 2012

P. Miu then gave a demonstration of the online tool for the generation of bias monitoring plots. The plots are generated in real time from the data stored on the GSICS data and products server. The plots are interactive and allow zoom functionality and direct read out of individual corrections. The group discussion raised a number of questions for the respective requirement discussion on Day-2 (e.g. dynamic conversion to brightness temperatures).

I.2   Tuesday, 06 March 2012

Agenda	
Topic	Presenter / Discussion Lead
Data and Products Servers – requirements for archiving	Tim Hewison / Peter Miu

Unified bias monitoring – additional metadata requirements	Tim Hewison / Peter Miu

T. Hewison and P. Miu showed the setup of the EUMETSAT GSICS Server to start the discussion on the requirements for archiving. It was agreed to

− Archive different versions and make all versions available to users
− Provide a 60 days rolling archive of the intermediate product (individual collocations)
− Provide a 30 day rolling archive (or longer, depending on the needed smoothing period) of the original level 1 data

This was followed by a discussion on the requirements of the bias monitoring tool. The following points were raised:

− There is a need to allow for conversion to brightness temperatures resp. reflectances, i.e. the metadata have to provide the necessary coefficients for this conversion.
− The startup page should show a default plot, e.g. one year of time series, and to provide some sensible defaults for the configuration, and provide the functionality to save a given configuration.
− It was clarified that the shown application will just need access to the THREDDS server, but servlet code can also be given out for further development.
− There is a need to not only show the reanalysis corrections but also the near-real time data, possibly both on one screen or combined in one plot.
− The wish was expressed to directly plot the calibration coefficients (slope and offset). The problem is that the original coefficients are not included in the files.
− Start and end date for the time series should be included (end date could e.g. be the current date by default).
− The shown slider for the "radiances" should be changed to brightness temperatures / reflectances; a default should be provided for each view.
− Possibility to shorten the legend should be explored.
− NOAA/CMA showed their type of colour plots, which are seen as quite useful; realisation within the current tool is not directly possible but the feasibility to produce such plots should be tested.

A slightly controversial point was the "User Feedback" possibility; the group could not agree whether this is really necessary.

I.3 Wednesday, 07 March 2012

Agenda	
Topic	Presenter / Discussion Lead
Instrument Event Logs Requirements	Rob Roebeling

R. Roebeling provided a brief introduction to the topic. Issues to be discussed within the group are based on Recommendation CGMS 39.12 and the respective GSICS recommendation. The following questions were raised:

- Which events should be logged?
- What kind of reporting interface should be used and how should it be presented?
- How can traceability and uniformity be ensured?
- Is the proposed split between platform/instrument/processing level adequate?

D. Doelling added in the discussion that valuable information is available (on paper) through ISCCP and that GSICS should help conserving this data record.

The group agreed that the starting point should be to use the operator's log and extract the calibration relevant events from that. There is currently no data model available for such type of event logging, so it was suggested to use the ISO standard as a starting point and to work with OGC, where both NOAA and EUMETSAT are represented, on a sensor related metadata standard.

JMA added as an additional point that they would not be able to provide all data as their imager was bought from a US company. Specifically this comment led to the following action:

Number	Title	Actionee	Due Date
Action JOINT07_05	Report on what events can be made available from a legal point of view	All GPRCs, activity lead by R. Roebeling	31 May 2012

R. Roebeling provided an update of his presentation, taking into account the points raised during the discussion, on Day 4 of the meeting, where the resulting actions were recorded.

I.4   Thursday, 07 March 2012

Agenda	
Topic	Presenter / Discussion Lead
CLARREO	Dave Doelling
WMO preliminary proposal for an absolute calibrated reference payload on ISS	Jérôme Lafeuille
Representation of GSICS in GHRSST	XingMing Liang
Representation of GSICS in other fora	Tim Hewison
Update on satellite event log	Rob Roebeling
2012 GSICS User Workshop	Tim Hewison
GSICS Principles	Tim Hewison
Web meetings in 2012	Tim Hewison
Date and place of next meeting	Tim Hewison

D. Doelling presented the current status of the CLARREO project, including the science study accomplishments. Evaluations of hosting the instrument on existing platforms identified the ISS as a possible platform. It would take 3-5 years to get the instrument flight ready. As the IR version is more mature this could serve as a demonstration project.

J. Lafeuille provided further updates on the WMO proposal for an absolute calibrated reference payload on the International Space Station (ISS) in the context of the Human Space Technology Initiative of the United Nations (UN-HSTI) promoted by the Office of Outer Space Affairs (OOSA) in Vienna. Responding to a sollicitation from OOSA, WMO is proposing a CLARREO-type mission on the ISS, in view of benefits in the area of improved climate monitoring, improved NWP and related weather warnings, and improved reliability for hazard mapping and disaster damage assessment. A potential advantage of placing the instrument on ISS is the fact that, if the ISS is operated nominally, the instrument could be regularly replaced and brought back to earth, which is a unique opportunity to compare pre- and post-flight calibration. The ISS option would pave the way to a free-flying and sustained mission and should not be regarded as a replacement of a full mission. This proposal is supported by a broad community.

The discussion led to the following action and recommendation:

Number	Title	Actionee	Due Date
Action JOINT07_06	Make the WMO preliminary proposal on a CLARREO type instrument on the ISS available to all GPRCs	Jérôme Lafeuille	31 March 2012

Number	Text
JOINT07_02R	All GPRCs to seek support for the WMO preliminary proposal on a CLARREO type instrument on the ISS in time for the related workshop in June 2012; feedback should be provided to J. Lafeuille by end of April 2012

The next block of topics dealt with the representation of GSICS in other international fora.

X. Liang presented the GHRSST (Group for High Resolution SST) project. High quality SSTs are retrieved from multiple sensors and obviously heavily rely on a good sensor calibration.

GRWG sees the GRHSST community as an important user of GSICS products, which could help in the user review process.

Number	Text
JOINT07_03R	GRHSST is invited to review one or more of the current GSICS GEO IR products and to provide feedback to GRWG, POC is XingMing Liang.

Number	Title	Actionee	Due Date
Action JOINT07_07	Invite GRHSST to a web meeting, where Tiejun Chang will present his inter-	Tim Hewison and Teijun Chang	01 August 2012

	calibration work on AVHRR and where GRWG can seek feedback from GRHSST		

T. Hewison reported on the GSICS interaction with CEOS-WGCV (IVOS, microwave group, QA4EO). He specifically mentioned the special issue IEEE TGRS: Authors and reviewers are encouraged to complete the entire review cycle in a timely manner to ensure publication in March 2013

It was agree that CNES should provide a progress report on WGCV with focus on desert sites and Rayleigh scattering, through a web meeting or by the 2013 GRWG meeting

Number	Title	Actionee	Due Date
Action JOINT07_08	Provide a progress report on the WGCV focus on desert sites and Rayleigh scattering, preferably by a web meeting in 2012	B. Fougnie	2013 GRWG

T. Hewison also reported on the possible links GRUAN (GCOS Reference Upper Air Network): The recommendation on this (GRWG06_02R) is still valid, as the group agreed that the largest impact of GRUAN would be to provide high quality data to validate the impact of GSICS Corrections on level 2 products – particularly temperature and humidity profiles retrieved from sounding channels. T. Hewison will represent GSICS in the upcoming GRUAN workshop.

R. Roebeling then provided the latest update on the satellite event log (as a follow-up of the relevant topic on Day 1). The following list serves as a starting point for events to be logged:
  − Straylight
  − Decontamination
  − Missing data
  − Changing operation mode
  − Repositioning satellite nominal position
  − level 1 algorithm corrections
  − Calibration coefficient change (unless already in metadata)
  − Patch temperature change
  − Damage events
  − Others (clock changes, operator mistakes, …)

Following constraints should be observed:
  − Agreement on similar definitions
  − Reduce use of acronyms
  − Adopt international standards where possible and applicable (ISO, OGC)

The following actions were identified:

Number	Title	Actionee	Due Date
Action JOINT07_09	Check and provide comments to provided shortlist of instrument events to be	All GPRCs	2013 GRWG

	logged		
Action JOINT07_10	Propose an event logging procedure including standards	R. Roebeling and P. Miu	2013 GRWG
Action JOINT07_11	Propose a web based interface for event logging for GSICS	R. Roebeling and P. Miu	2013 GRWG

T. Hewison reported on the plans for the 2012 GSICS Users' Workshop: Then workshop will be held during the EUMETSAT satellite conference in Sopot, Poland (03-07 September 2012; the Workshop is tentatively planned for the afternoon of 04 September. Participants to the Workshop are not required to register for the EUMETSAT conference, but should register to the Workshop with T. Hewison. The following agenda items were agreed:

- Presentation on the GSICS Data Management
- Update on event log for user information and user feedback
- Implementation of DCC algorithm
- Update on GSCIS developments concerning microwave sensors
- Preliminary results on Metop-B IASI
- Meeting between relevant climate groups (SCOPE-CM, GCOS) and GSICS (to be arranged outside the workshop)

The last point led to the following action:

Number	Title	Actionee	Due Date
Action JOINT07_12	Invite the relevant representatives of the climate community (e.g. SCOPE-CM)	Tim Hewison	30 June 2012
Action JOINT07_13	Invite someone from IASI TEC to update on recent findings of Metop-B IASI	Tim Hewison	30 June 2012

T. Hewison also pointed out the possibilities to show dedicated posters at the workshop. GCC is willing to take up more responsibility for the user workshop (organising/chairing) in the future. Possible other venues for future users' workshops were discussed, e.g. Asia-Oceania-Pacific Conference (AOPC). Users should be informed on the upcoming Workshop:

Number	Title	Actionee	Due Date
Action JOINT07_14	Inform GSICS community on 2012 GSICS Users' Workshop via the GSICS notification service	Aleksandar Jelenak and Fangfang Yu	31 March 2012

T. Hewison then presented the draft statement on the GSICS Principles, and the group suggested a number of changes which are reflected in the updated statement.

Action JOINT07_15	Update the Statement on GSICS Principles and circulate to all GPRCs for further iterations in time for the next EP meeting	Tim Hewison	31 March 2012

The next discussion item was on future web meetings. The following topics were identified:
- GPPA updates (chaired by Fangfang Yu)
- Update on the instrument event log (chaired by Rob Roebeling and Aleksandar Jelenak)
- GRHSST project and Teijun Chang's presentation on AVHRR (chaired by Tim Hewison)
- Desert and Rayleigh scattering methodology (chaired by Bertrand Fougnie, possibly two separate sessions)
- Follow-up on DCC method, including new MODIS data availability (chaired by Dave Doelling)
- SCIAMACHY data availability (chaired by Dave Doelling)
- Follow-up on lunar calibration (chaired by T. Hewison)
- Preparation of 2012 Users' Workshop (chaired by Tim Hewison)
- Functional requirements for plotting (chaired by Peter Miu)
- Using datacasting webfeed protocol as distribution service (chaired by Aleksandar Jelenak)
- Resolving the differences between NWP and GSICS bias monitoring (T. Hewison)

At the end of the meeting, it was decided to hold the next Joint GDWG and GRWG meeting in Williamsburg (hosted by NASA) around the end of March 2013. It was also agreed that the 2013 meeting should last 4.5 days. The first day could be a mini-conference where attendants could give a presentation of their choice on inter-calibration.

T. Hewison, A. Jelenak, and J. Lafeuille closed the meeting, thanking CMA for their hospitality and for the excellent arrangements made to support this successful meeting.

Part II: Report on the GRWG Session

II.1 Tuesday, 06 March 2012

Agenda	
Topic	Presenter / Discussion Lead
Using multiple references: documenting differences between Metop-A IASI and Metop-B IASI	Tim Hewison / Bertrand Fougnie
Using multiple references: Diurnal cycle using AIRS and IASI	Fangfang Yu
Towards operational GEO-LEO IR products	All
Lessons from MODIS calibration and characterisation and traceability statement from MODIS	Xiaoxiong Xiong
MODIS level 1b calibration updates and data product collections	Xiaoxiong Xiong
Inter-calibration of IR sounders	Fangfang Yu
Discussion	All
Bias analysis and correction of Metop-A/AVHRR IT channel using AVHRR-IASI inter-comparison	Tiejun Chang
Vicarious calibration of IR bands in CMA	Yong Zhang
IASI cross-calibration with AIRS, IASI-B and CrIS	Bertrand Fougnie
EUMETSAT DCC implementation	Sébastien Wagner
NOAA's implementation of DCC	Fred Wu, Fangfang Yu
DCC method implementation in FY-3/MERSI	Lin Chen
JMA's solar calibration approach	Yuki Kosaka
Rayleigh scattering improvements	Bertrand Fougnie
Roadmap for GSICS products for GEO-LEO solar channels	Dave Doelling

Infrared inter-calibration products

T. Hewison provided an introduction into the topic of multiple/changing references: This is an important topic as any reference instrument will have a finite lifetime. The strategy is to have a transfer function between two references, including the respective uncertainty and error propagation. The specific IASI problem between Metop-A and Metop-B is that the orbit characteristics do not allow a direct comparison of the two IASI instruments, so that e.g. a geostationary instrument could be used as a transfer.

The introduction was followed by a presentation by B. Fougnie on the activities concerning Metop-A and Metop-B IASI and the Cal/Val plans for Metop-B IASI. An important aspect is that a common part of the swath, with ~50 min time difference, exists in the tropics, so that a direct comparison is possible over temporally stable and spatially homogeneous scenes. After the Cal/Val period, CNES will be able to provide their results of a transfer function between the two IASIs which can serve as a baseline for the GSICS activities.

F. Yu then presented the NOAA results on combining IASI and AIRS as a reference for GOES; specifically to tackle the GOES midnight calibration problem.

The two presentations were followed by a round table discussion on the way forward for each GPRC concerning the GEO-LEO IR products, summarised in the table below.

GPRC	GEO-LEO IR plans
EUMETSAT	Meteosat product is based on the IASI night time overpass, there is confidence that the product is applicable over the entire diurnal cycle; pending staff resources EUMETSAT expects to obtain pre-operational status for this product by mid 2012
NOAA	Root cause of the diurnal cycle problem needs to be found; GSICS demonstration status, noting the present deficiency, can be done by mid 2012
JMA	Similar diurnal cycle as for GOES observed for MTSAT, correction approach is similar to NOAA. JMA already has demonstration status, pre-operational status can be obtained by end 2012
CMA	Straylight problem during equinox needs to be corrected for, and GSICS documentation still needs to be written. Demonstration status could be reached by mid 2012
KMA	Plan to submit work to GPPA to enter the demonstration phase

The discussion was followed by two presentations by X. Xiong on the work done for MODIS: One presentation dealt with the lessons learnt. Important aspects here are:
- The calibration team needs to work in close cooperation with the vendor and the science team
- Calibration efforts need to be sustained over the entire instrument lifetime
- Documentation and test data recordings are needed

On the specific problem of the solar diffuser, the found design error was eliminated in VIIRS. The VIIRS anomaly investigations also profited from the methodologies and tools developed for MODIS. X. Xiong's second presentation dealt with the updates of the MODIS level 1b calibration and data products. A new MODIS collection is released after a major calibration update and is issued by the entire science team. The current collection 5 will be followed by collection 6 in April/May 2012. The discussion led to the following action:

Number	Title	Actionee	Due Date
Action GRWG07_01	Circulate to GSICS the traceability document on the MODIS solar calibration presented at the CALCON conference with the addition of the	Xiaoxing Xiong	31 March 2012

	estimated uncertainty between pre-flight and flight operation		

The discussion was followed by further science presentations on IR inter-calibration:

F. Yu presented her report on the inter-calibration of the GOES IR sounder. This product is in GSICS demonstration mode, and it is not certain when pre-operational status can be sought.

T. Chang presented his extensive inter-calibration work, comparing AVHRR on Metop-A to IASI. In summary, this analysis shows that the inter-calibration provided an excellent tool to analyse reasons for a bias and to correct accordingly.

Y. Zhang presented the vicarious calibration of IR bands at CMA. Shown are the China calibration sites (Dunhuang Gobi desert for VIS/NIR, Lake Qinghai for IR). Instrumentation on the sites was shown. In addition, ocean buoys and ship measurements are used for vicarious calibration; preliminary results for FY-3A MERSI were described. The re-analysis of historical FY-2C/D/E data archive is planned, according to the standard GSICS procedure by comparing with AIRS.

B. Fougnie reported on the IASI cross-calibration plans with Metop-B IASI, AIRS and CrIS. Comparisons of IASI and AIRS show that the two instruments are very close and very stable; some small dependency on scene temperature was found. Concerning IASI on Metop-B, the plan is to use the track overlap at lower latitudes with ~50 min time difference for homogeneous and temporally stable targets. The respective tool for this will be ready and validated in April 2012, the actual data analysis will start in ~Aug 2012.

The science presentations were followed by a round-table discussion on the GSICS strategy for IR LEO-LEO products:
- CMA: Tool for MERSI developed, but no routine processing done, MERSI and VISSR can probably be routinely processed in ~3 months, could be considered for GSICS product acceptance later
- EUMETSAT: HIRS–IASI on Metop-A routinely done, could be pushed forward within the next year (to obtain demonstration status)
- NOAA: no clear plan is yet available, but will be clear in about 6 months

Development of inter-calibration products for channels in the reflected Solar-band

The next session dealt with inter-calibration of solar channels, notably the DCC method, and recent developments in this field.

Via Centra, S. Wagner from EUMETSAT reported on the progress made with the EUMETSAT DCC method and how this method will be used to extend the current operational MSG SEVIRI Solar band Calibration Concept (SSCC). He also highlighted some suggested improvements to the current outline ATBD.

F. Yu presented NOAA's implementation of the DCC method. DCC results for GOES-10 are shown, which are in line with other vicarious results.

L. Chen showed the CMA activities on the DCC method applied to FY-3/MERSI. He showed effects of stratospheric aerosol and also angular effects. Derived degradation of the MERSI channels was shown, instrument is found to be most stable in NIR.

Y. Kosaka from JMA reported on JMA's solar calibration approach. (using the cloud-free ocean, cloud-free land, liquid cloud, DCCs as calibration targets in a combined way), together with RTM calculations. JMA would like to compare the DCC results with D. Doelling's work.

B. Fougnie reported on the recent improvements on the Rayleigh scattering method, a method which is possible for blue to red solar bands. Improvements concern the applied SeaWiFS climatology based on 9 years instead of only 1 year and on the use of updated SeaWiFS calibration. CNES plans to assess the full error budget of this method – a layout of the plan was presented together with some first estimates. The Rayleigh method is applied to MERIS, MODIS, PARASOL, VGT, HRG/SPOT5, Pleiades, and MSG. First MSG results also show a consistent 6% offset to the official calibration. The discussion led to the following action:

Number	Title	Actionee	Due Date
Action GRWG07_02	Provide an (outline) ATBD on the Rayleigh scattering method	CNES	31 July 2012 (for LEO, GEO later and not before end of 2012)

As a last presentation of the day, D. Doelling presented his view of a roadmap for GSICS products for GEO-LEO solar channels. His talk gave an extensive characterisation of the DCC method for calibration, notably on the impact of the IR threshold temperature, spatial standard deviation and ADM, he showed regional DCC frequency maps, compared DCC SCIAMACHY spectra to data obtained for other types of clouds, and finally compared Hyperion and SCIAMACHY DCC spectra.

As the DCCs are used as transfer standards, this work is seen as very important and as good foundation for the method. It was again pointed out during the discussion that the DCC method's main advantage is to monitor an instrument's stability and to a lesser extent to provide an absolute calibration. All GPRCs will implement the method in 2012. One identified problem concerned MODIS data (access, data amount). D. Doelling was willing to accept the following action:

Number	Title	Actionee	Due Date
Action GRWG07_03	Extract the tropical DCCs from the MODIS archive and make that data available to all GPRCs, data issues to be discussed with the Data Working Group	Dave Doelling and Aleksandar Jelenak	30 June 2012

II.2   Wednesday, 07 March 2012

Agenda	
Topic	Presenter / Discussion Lead
Using the moon for sensor calibration inter-comparisons	Xiaoxiong Xiong
A new cross-calibration approach for different thermal emissive bands in FY-2 satellite with on-orbit lunar observations	Qiang Guo
Brief report on GMS-5 lunar calibration by ROLO model	Yuki Kosaka
Application of ROLO model to Meteosat/SEVIRI	Tim Hewison / Sébastien Wagner
Characterisation of calibration sites with Pleiades images with a specific focus on the moon	Bertrand Fougnie
Statement of requirements for lunar model interface	All
CRCS sites and global sites calibration	Ling Sun
Inter-comparison methodologies and applications to AVHRR, ETM+, MODIS and VIIRS	Xiaoxiong Xiong
SCIAMACHY/GOME2 as inter-calibration reference	Rob Roebeling
SCIAMACHY-Aqua/MODIS+GEOs strategy for LEO-LEO solar band inter-calibration	Dave Doelling
Strategy for LEO-LEO solar band inter-calibration	All
EUMETSAT recalibration of Meteosat archive using HIRS	Rob Roebeling
Consideration on IR inter-calibration for historical GEOs	Arata Okuyama

The Moon as an inter-calibration reference

The session started with a number of science presentations regarding the work done using the moon for sensor calibration: X. Xiong showed applications to the solar bands of MODIS, SeaWiFS and VIIRS, Q. Guo presented an application to inter-band comparisons for FY-2 thermal bands. Y. Kosaka delivered a short report on the GMS-5 lunar calibration results and on JMA's future plans in this field. T. Hewison reported on the current status and future plans at EUMETSAT concerning lunar calibration. The last presentation on this topic was given by B. Fougnie on the special observations that are available from Pléiades, which offer the special opportunity to extend the observations beyond the 90° phase angle as they are available from the commonly used ROLO model (ROLO = Robotic Lunar Observatory).

The presentation session was followed by a group discussion on special GSICS requirements for lunar observations and specifically to ROLO. The group agreed on the following recommendation on the requirements:

Number	Text
GRWG07_01R	The Executive Panel are invited to take note of the great potential of the contribution from USGS concerning lunar observations, taking into account that – GRWG recognise the unique benefit of lunar observations – GRWG recognise the key role of ROLO in lunar calibration – GRWG greatly appreciate the support provided by T. Stone (USGS) – For lunar calibration to become sustainable, it is necessary to routinely compute lunar irradiances from ROLO results for each instrument relevant to GSICS, accounting for spectral response, geometry, etc., and compare these with that instrument's integrated observations of the moon – GRWG enthusiastically welcomed the concept suggested by USGS to develop an internet-based technology to provide a service to perform this function

LEO-LEO inter-calibration of channels in the reflected Solar-band

The next session covered other inter-calibration activities in the solar bands. S. Ling reported on the calibration of FY-3 MERSI solar bands using ground sites, including the specially equipped Donhuang desert sites and other global sites, and on results using SNOs with MODIS. X. Xiong then gave a comprehensive overview of inter-calibration techniques like SNOs and ground targets. R. Roebeling showed the EUMETSAT results on a comparison of Metop-A AVHRR and Metop-A GOME-2, where GOME-2 has the big advantage of resolving the entire spectrum. D. Doelling continued on the same topic of using hyperspectral data for solar bands and focussed on SCIAMACHY measurements, compared to Meteosat-8/9 and GOES-11.

The discussion on these presentations resulted in the following three actions:

Number	Title	Actionee	Due Date
Action GRWG07_04	Clarify the availability of SCIAMACHY data with ESA and KNMI and report back to GRWG	Rob Roebeling and Jérôme Lafeuille	30 April 2012
Action GRWG07_05	Enquire about lunar observations obtained with SCIAMACHY	Rob Roebeling	30 April 2012
Action GRWG07_06	Extract ray-matched SCIAMACHY data (for geostationary satellites) from archive and make the dataset available to GRWG, liaise with GDWG on format issues	Dave Doelling and GDWG	31 December 2012

Archive Recalibration

The next session focussed on strategies for recalibrating historical datasets. R. Roebeling reported on the need for well calibrated and consistent historical satellite data for climate analysis purposes. He specifically reported on the EUMETSAT plans on how to use the HIRS instruments as a calibration transfer for all historical Meteosat data. A. Okuyama presented JMA's comments and concerns on this general strategy, as e.g. regarding the use of a radiative transfer model, the need of a fast model applicable to all satellite platforms, and possible inter-band biases within a given model.

The presentation and the following discussion on a strategy for the recalibration products led to the following actions:

Number	Title	Actionee	Due Date
Action GRWG07_07	Investigate use of IASI observations for creating spectral band conversions for broad-band instruments and consider respective requirements; report back to GRWG	Tim Hewison	30 September 2012
Action GRWG07_08	Present the NWP bias monitoring for ATSR and MODIS in the next GRWG meeting in 2013	XingMing Liang	2013 GRWG
Action GRWG07_09	Invite A. Heidinger to give a presentation on the possibility to use the AVHRR Patmos-X dataset to support archive recalibration	Tim Hewison	31 December 2012

II.3   Thursday, 08 March 2012

Agenda	
Topic	Presenter / Discussion Lead
Using double differences in MICROS for cross-sensor consistency check	XingMing Liang
Radiance dependence in NWP results	Tim Hewison
Extending MICROS methodology into reflective bands	XingMing Liang
Double difference – Impact of SRF difference	Fangfang Yu
GSICS Strategy for NWP bias	All
Calibration summary for FY-3 microwave sensors	Songyan Gu

Numerical Weather Prediction models as inter-calibration tools

The first part of this GRWG session dealt with inter-calibration through NWP double differencing. X. Liang gave the first presentation on the MICROS system and its use for cross-sensor consistency checking in IR. Routinely monitored sensors are NOAA16 to NOAA-19 AVHRR, Metop-A AVHRR, while MSG, Terra/Aqua MODIS and VIIRS are in testing or preparation mode.

T. Hewison presented results of the NWP bias monitoring statistics, covering the IR channels of MSG, some selected IASI and AIRS channels, HIRS IR channels, AATSR IR channels, plus a number of microwave instruments. Bias data were provided over 1-2 years by the UK Met Office. Noteworthy is the found radiance dependent bias.

X. Liang presented the first results of work done to extend the MICROS functionality to solar bands. Clear sky sensor ocean observations are compared to model fields, using the appropriate water leaving radiance and through proper modelling of the (large) atmospheric effects (Rayleigh and aerosol). Future work will encompass achieving consistency between satellite, model and ground truth aerosol optical depths (AVHRR and MODIS, GOCART/CRTM and NAAPS/CRT models, AERONET as ground truth) A progress report on this work may be available for the 2013 GRWG meeting.

An important discussion point was that inter-band accuracy can be well monitored through the level 2 aerosol product.

As a short discussion item, F. Yu raised the question of the impact of the spectral response on the double differences, e.g. when a GEO imager is compared to IASI and AIRS. Small corrections to SRFs can be applied through GSICS if hyperspectral measurements are available, otherwise spectral adjustment factors must be made available (which may be scene dependent). An important point here is that the respective uncertainty analysis has to be provided.

In summary: GSICS needs to further work together with the NWP community to resolve the quantitative differences in the results from NWP double-differencing and direct comparisons of pairs of instruments. This will be followed-up in a web meeting.

Inter-calibration of microwave instruments

S. Gu presented a summary on the calibration work performed for the FY-3 microwave sensors. Inter-calibration and double difference results to other satellite microwave instruments were shown together with calibration using ground targets. Future plans include the setup of a bias analysis system for MWRI, MWTS (MWTSII) and MWHS (MWHSII), and the search for a vicarious calibration method for on-orbit microwave sensors. The discussion led to the following actions:

Number	Title	Actionee	Due Date
Action GRWG07_10	Report back to GRWG on the possibility to inter-calibrate the microwave imager MRWI with one other instrument of the international constellation and to consider	Songyan Gu	2013 GRWG

	submitting this to GSICS product acceptance		
Action GRWG07_11	Follow up NOAA work regarding the microwave sounders and on the plans to submit this work to GSICS product acceptance, including review by GSICS microwave sub-group	Fangfang Yu	31 December 2012

Part III: Report of the GDWG Sessions

III.1 Tuesday, 06 March 2012

Agenda	
Topic	Presenter / Discussion Lead
Review of GCC and GPRC websites - GCC - CMA - NOAA - JMA - EUMETSAT - WMO	All
GSICS Product Plotting Software	P. Miu
GSICS Data and Product server directory structure and THREDDS configuration	P. Miu
GSICS Data Management and Sharing	Min Min
GSICS Documentation Storage	J. Lafeuille
Additions and Modifications to the netCDF and File Naming Conventions	A. Jelenak
Guidelines for Creating GSICS netCDF Files	A. Jelenak
Automated Distribution of GSICS Products to Users	P. Miu
Making GSICS products more visible to users: a GSICS Product Access Guide	J. Lafeuille/ F. Yu

Participants

Aleksandar Jelenak (NESDIS), Chairman
Peter Miu (EUMETSAT)
Jerome Lafeuille (WMO)
Arata Okuyama (JMA)
Min Min (CMA)
Liu Ting (CMA)
Daizhi Ming (CMA)
Liu Jian (CMA)
Xian Di (CMA)

The chairman opened the first session of the Data Management Working Group by welcoming all the participants and quickly reviewing the major developments since the 2011 Joint Meeting. He noted that all the main action items from the previous meeting were completed and the Working Group was providing all the required support for achieving scientific goals set out by the Research Working Group.

Review of GCC and GPRC websites

Review of the GCC website
The review of the GSICS Coordination Center's (GCC) website (http://www.star.nesdis.noaa.gov/smcd/GCC/index.php) resulted in the following action items:

Action	Who	What	Due
GDWG06_1	Min Min (CMA)	CMA to notify GCC about the URL of their new GPRC website	March 2013
GDWG06_2	KMA	KMA to report to GDWG the status of their GPRC website.	**Completed!**
GDWG06_3	GCC	Remove "During Winter 2010" from the sentence explaining the baseline analysis page is under development.	**Completed!**
GDWG06_4	GCC	Add a link to the WMO's spacecraft instrument database to the Information Info Kiosk page.	November 2012
GDWG06_5	Jerome Lafeuille	Jerome to report to GDWG chair the link to the WMO spacecraft instrument database.	**Completed!**
GDWG06_6	GCC	Link the NIST best practice guideline for pre-launch calibration document from the Publications page.	**Completed!**
GDWG06_7	GCC	Update information about the Deputy Director on the GCC Personnel page.	**Completed!**
GDWG06_8	GCC	Separate GCC personnel and Quarterly Newsletter associate editors information on the Personnel page.	**Completed!**
GDWG06_9	GCC	Add a contacts page with information who is to be contacted about GCC activities.	**Completed!**

Review of the CMA GSICS website
The Working Group reviewed the internal website, still under development. The date when the website would go live was not given. The following actions for CMA resulted from the review:

Action	Who	What	Due
GDWG06_10	CMA	CMA GPRC website to use the current GSICS logo.	March 2013
GDWG06_11	CMA	Change the text color in the menus to increase text legibility.	March 2013
GDWG06_12	CMA	Correct the text of the first sentence on the "CMA GRPC" page to read: "one of the components of the Global Observation System of the World Meteorological Organization".	March 2013
GDWG06_13	CMA	Use "Instrument Performance Monitoring" instead of "IPM" for one of the menus.	March 2013

Review NOAA GSICS website

Review of the NOAA's GPRC website (https://gsics.nesdis.noaa.gov/wiki/GPRC/WebHome) yielded the following actions:

Action	Who	What	Due
GDWG06_14	NOAA	Rework the Products information located in the left bar. Split the links to GSICS products and those links that only lead to pages with generic information: LEO-LEO, microwave imagers/sounders, etc.	March 2013
GDWG06_15	NOAA	Fix broken links to IPM pages for GOES Imagers and Sounders.	March 2013

Review of the JMA GSICS website

The review of the JMA's GPRC website (http://mscweb.kishou.go.jp/monitoring/calibration.htm) yielded no action items.

Review EUMETSAT GSICS website

Action	Who	What	Due
GDWG06_16	Peter Miu	Remove the "List of current and future low Earth orbit satellites" link and add the text "GEO and LEO" to the link above it on the EUMETSAT's GPRC home page.	March 2013

Review WMO GSICS Portal

Review of the WMO GSICS portal (http://gsics.wmo.int) did not yield any action items.

Closing Remarks of the Website Reviews

Overall impression of the participants was that the websites show the effort of the participating agencies to maintain up-to-date GSICS information. Better coordination is desirable in disseminating information about changed URLs, new logos, etc.

Action	Who	What	Due
GDWG06_17	All GPRCs	Add the link to the GSICS User Messaging Service registration page to the GPRC website.	March 2013

GSICS Product Plotting Software

Pending an extensive discussion of the plotting tool functionality during the combined GRWG-GDWG session, the discussion focused on the backend requirements for each of the THREDDS servers to support the plotting tool.

Action	Who	What	Due
GDWG06_18	Aleksandar Jelenak	Schedule a web meeting before the initial release of the bias monitoring plotting web app to discuss its functional requirements.	**Completed!**
GDWG06_19	Peter Miu	EUMETSAT to circulate all the technical documents about the bias monitoring plotting web app to GPRCs for suggestion of future features.	**Completed!**

GSICS Data and Product server directory structure and THREDDS configuration

EUMETSAT (Peter Miu) presented a document on the THREDDS server directory configuration that contains the required shell scripts to achieve the agreed structure. He will share this document and scripts so other GPRCs can use it to configure their THREDDS servers.

Action	Who	What	Due
GDWG06_20	Peter Miu	To make changes to the THREDDS configuration files so the source/intermediate files point to their originating data server.	**Completed!**

Regarding the configuration of the THREDDS dataset pages the following features were discussed:

- Summary section should have a very basic description of the dataset, most desirable is to have text that does not require changes –ever – or very infrequently. Have the link to the ATBD document for further information. Distribution rights to read "Freely available but the user should acknowledge the data producer" (or some variation of). Add the disclaimer that the data producer bears no responsibility for using this product.
- The Access section must contain these three services: OPeNDAP, HTTPAccess, and ISO.
- All THREDDS servers will use the ncISO plugin to provide the ISO access service.
- Once the netCDF content is harmonized, the Variable section should have a full list of variables contained in the file.
- Have the "Dataset Information" link in the Viewers section, as per the NOAA THREDDS server.

Action	Who	What	Due
GDWG06_21	Aleksandar Jelenak	Remove the FTP download service from the NOAA's THREDDS server.	**Completed!**
GDWG06_22	Peter Miu	Modify the THREDDS server configuration scripts to enhance information displayed on the individual dataset pages.	**Completed!**
GDWG06_23	Aleksandar Jelenak	Ask Unidata whether it is possible to register the Bias Monitoring Plotting web application as a viewer on THREDDS dataset pages.	**Completed!**

GSICS Data Management and Sharing

CMA (Min Min) presented their FY-2 geostationary satellite series processing system which incorporates GSICS correction and their GSICS data server still under development. Because part of the processing data flow depends on the foreign data an issue was raised about the best sources for obtaining them. The ensuing discussion revealed that availability of IASI and AIRS data can be improved.

Action	Who	What	Due
GDWG06_24	Peter Miu	EUMETSAT to work with JMA and CMA to provide them with IASI Level 1C data in support of their GSICS activities.	March 2013
GDWG06_25	Aleksandar Jelenak	NOAA to work with CMA to resolve an issue with the timely availability of AIRS data in support of CMA's GSICS activities.	March 2013

GSICS Documentation Storage

Peter Miu (EUMETSAT) presented a proposal for centralized GSICS documentation storage and the need for official GSICS documentation. Aleksandar Jelenak remarked that the GSICS wiki did not prove to be a useful tool for documentation due to its restrictive requirements for obtaining and maintaining user accounts. Everyone agreed that an alternative should be sought.

Action	Who	What	Due
GDWG06_26	Aleksandar Jelenak	Develop together with GCC a protocol for naming, versioning, acceptance procedure, and storing of official but non-product related GSICS documentation.	March 2013

Additions and Modifications to the netCDF and File Naming Conventions

The current netCDF convention does not require any modification. However, given the new requirements of the bias monitoring plotting application the GRWG should provide information on what else needs to be stored in netCDF correction files.

Action	Who	What	Due
GDWG06_27	Tim Hewison	GRWG to provide GDWG with the specification what data and metadata needs to be stored in NRTC/RAC netCDF files to support conversion from radiance to brightness temperature for bias plots.	**Completed!**

For the file naming convention, the local data subcategory can be used to indicate what channels of the monitored instrument have corrections in netCDF NRTC/RAC files.

Action	Who	What	Due
GDWG06_28	Tim Hewison	Provide feedback to GDWG whether it is desirable to indicate in the file name the channels of the monitored instrument for which the corrections are applicable.	**Completed!**

Guidelines for Creating GSICS netCDF Files

The NRTC/RAC templates in the GSICS netCDF conventions will be used as a starting point in generating an NcML schema for the netCDF content. The GRWG feedback for including radiance conversion will be incorporated into the schema when available. The NcML schema will be offered to GPRCs for final round of comments with the intention that all the GSICS demo products need to adopt the new schema at the transition to the preop phase.

Action	Who	What	Due
GDWG06_29	Peter Miu	Create NcML schema that implements the NRTC/RAC netCDF template and circulate it to the GDWG/GRWG members for approval.	March 2013
GDWG06_30	Aleksandar Jelenak	Create an official GSICS document out of the Instructions on Creating File Content section of the GSICS netCDF convention.	March 2013

Automated Distribution of GSICS Products to Users

Peter Miu (EUMETSAT) provided the introduction for the discussion. The question is whether there is an interest on the GSICS level to standardize on the automatic delivery methods of GSICS products. All the participants mentioned the issue of IT security and the difficulties of generalizing automatic delivery methods. The common agreement is that the best approach is in using any type of pull requests and that anything more specific should be left for agreement between the GPRC and the particular user.

Various possible pull type delivery options to consider are: Regional Meteorological Data Communication Network (RMDCN), WMO Information Service, WMO Global Telecommunication System, and EUMETSAT File Transfer System (EFTS) Agent.

Aleksandar Jelenak showed an experimental service available from the NOAA's THREDDS server that implements a Datacasting RSS feed. The feed's URL is http://gsics.nesdis.noaa.gov/datacast/all.xml. The Datacasting protocol is based on the RSS 2.0 web feed protocol that is understood by a wide range of the feed reading software.

Action	Who	What	Due
GDWG06_31	Aleksandar Jelenak	Set up a web meeting to present in more detail how a Datacasting web feed could be used for pull distribution of GSICS products to both users and other GPRCs.	**Completed!**

III.2 Wednesday, 07 March 2012

Making GSICS Products More Visible: A GSICS Product Access Guide
Opened up with a presentation "GSICS Product Guide – Demo" by Jerome Lafeuille and Nils Hettich (WMO). The following discussion focused on what information should be gathered for each product as a mean of discovering suitable products in the catalog. Below are the parameters with possible values for some of them:

- Product type
    - Values: "Near-Real Time Correction", "Reanalysis Correction", "Instrument Bias Monitoring"
- Data producer
    - Values: "NESDIS", "EUMETSAT", "JMA"
- Maturity level
    - Values: "Demonstration", "Preoperational", "Operational"

- Algorithm type
  - Values: "GEO-LEO IR", "GEO-LEO VIS", etc.
- Monitored instrument
  - Values: "GOES-12 Imager", "GOES-13 Imager", "GOES-11 Imager", etc.
- Reference instrument
  - Values: "Metop-A IASI", "Aqua AIRS", "MODIS", etc.
- Version number
- Data start time
- Data end time
- URL of the documentation bundle
  - Compressed file combining all the documents relevant to the specific product version
  - Hosted by GCC, or mandatory for GPRCs to always maintain the URL to the file
- Data access URL
  - Points to the THREDDS catalog listing of the directory where the product files are located

Some of the above parameters will have a fixed number of known values so can be used by the catalog users to narrow down the search for the available products.

Another approach to creating a GSICS product catalog would be by harvesting the ISO 19115 metadata from the THREDDS servers. This method has the advantage of automatically being updated with the latest information. All participants agreed that this is the best approach but the required functionality cannot be supported by the GCC website. Instead, the WMO Information System and EUMETSAT Product Navigator were suggested as the possible candidates for this.

Action	Who	What	Due
GDWG06_32	Aleksandar Jelenak	Implement a GSICS product catalog on the GCC website.	**Completed!**
GDWG06_33	All GPRCs	Each GPRC to investigate how to make their NRTC products disseminated in combination with the related operational satellite data.	March 2013

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Appendix

Participants List		
Name	**Affiliation**	**Email**
Lin Chen	CMA	chenlin<at>cma.gov.cn
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