

Global Geodetic Observing System (GGOS)
Fourteenth Meeting of the Steering Committee
Hotel Westin (Market Street), San Francisco, Ca, USA
Sunday, December 14, 2008, 9:00 to 14:30

Minutes (Version 0.2)

Written by

Hans-Peter Plag

(Version of 2009- 1-10 19: 9).



Participants:

Markus Rothacher, GFZ (*Chair, GGOS Steering Committee*)
Hans-Peter Plag, NBMG (*Vice-chair, GGOS Steering Committee*)
Susanna Zerbini, University of Bologna (*Executive Committee*)
John LaBrecque, GSFC (*Invited Participant*)
Michael Sideris (*IAG President*)
Gerhard Beutler, UNIBE (*IAG Past President*)
Harald Schuh, University Vienna (*Substitute Delegate, IVS*)
Yoichi Fukuda (*Member, IAG Executive Committee*)
Chris Rizos (*Delegate, Commission 4*)
John Dow, ESA (*Delegate, IGS*)
Richard Wonnacott (*Guest*)
Richard Gross, JPL (*Chair, Science Panel*)
Erricos Pavlis, JCET/UMBC (*Delegate, ILRS*)
Mike Craymer, NRCAN (*Substitute Delegate, Commission 1*)
Larry Hothem (*Guest*)
Sandra Verhagen (*Guest*)
Gilles Tavernier, CNES, Toulouse (*Delegate, IDS*)
Zuheir Altamimi, IGN (*Delegate, Commission 1*)
Hermann Drewes, DGFI (*Chair WG on Conventions*)
Dirk Behrend, GSFC (*Delegate, IVS*)
Corinna Kroner, University Jena (*Substitute, GGP*)
Michael Pearlman, Smithsonian (*Executive Committee; Chair, GGOS WG Network and Communications*)
Bernd Richter, BKG (*Chair, GGOS WG Data and Infrastructure*)
Chopo Ma, GSFC (*Executive Committee; Delegate, IERS*)
Reiner Rummel, Technical University Munich (*Science Panel*)
Ruth Neilan, JPL (*Vice-Chair, GGOS Steering Committee*)
C.K. Shum, Ohio State University (*GEO Committee representative*)
Mike Bevis (*Guest*)
Srinivas Bettadpur, University of Texas (*Guest*)
Tilo Schoene, GFZ (*Guest*)
Graham Appleby, NERC Space Geodetic Facility (*Substitute, ILRS*)
Gary Johnston (*GGOS SC Member at Large*)
James Park (*GGOS SC Member at Large*)
Pascal Willis (*Guest*)
Mark Tamisiea, POL (*Substitute, PSMSL*)
Felicitas Arias (*Delegate, BIPM*)
Steve Kenyon (*Substitute, IGFS*)
Carey Noll, GSFC (*GEO Committee Representative*)

Agenda:

- 1 (09:00 - 09:05) Welcome and Discussion of Agenda**
- 2 (09:05 - 09:10) Minutes of SC13**

The draft minutes of SC13 are available as [../scm13/minutes_sc13.html](#) and [../scm13/minutes_sc13.pdf](#) . Draft minutes of the GGOS Retreat 2008 are available at [../scm13/minutes_R2008.html](#) and [../scm13/minutes_R2008.pdf](#) . The minutes of these two colocated meetings will not be discussed in any detail. The participants are asked to identify necessary changes and/or corrections.

3 (09:10 - 09:30) Action Item Status

The list of action items from previous SC meetings is available as [ailist.php](#) and [ailist.pdf](#) .

Concerning AI GGOS-SC13-9, a letter from the CEOS Co-Chairs has been received, which is available as [../../sci/sc14/CEOS_Letter_GGOS_19-11-08.pdf](#) .

4 (09:30 - 10:00) Brief Reports from the GGOS Chairs

The Chairs will report on:

- Markus Rothacher: Report on activities since the SC13: The Chair's report will make reference to a list of GGOS milestones, which is available as [../../ggos_milestones.php](#) . GGOS has received a letter from Gruenreich and Rummel proposing a conference on the future of the IAG Services. The letter is available at the internal SC page.
- Hans-Peter Plag: Report on GEO activities and GEO-V. Two key documents discussed at the GEO-V Plenary are the [../../wgs/geo_relations/geo_v_output/12_2009-2011 Work Plan.pdf](#) and the [../../wgs/geo_relations/geo_v_output/10_Strategic Targets GEOSS Implementation by 2015.pdf](#) . GEO Members and Participating Organizations are invited to comment on the Strategic Target document by 31 January 2009.
- Ruth Neilan: Report on ICG meeting

After the Chairs' reports, Reiner Rummel will briefly introduce the proposed conference on the future of the IAG Services.

5 (10:00 - 10:15) Outreach and User Linkage WG

For the Outreach and User Linkage WG, the charter will be discussed and candidates for the WG Chair considered. The draft charter is available as [../../wgs/user_linkage_outreach/Charter_v04_hpp.doc](#) .

GGOS also received an invitation to nominate a representative for the "i₆JB GIS at the Ad hoc Committee on Risk and Disaster Management; i₆". The relevant documents are available at the [../../sci/](#) . The person to take this role should also be representative to IUGG's Commission on Geophysical Risk and Sustainability (GeoRisk). This role is currently filled Hermann Drewes.

6 (10:15 - 10:45) ITRS: Towards an international standard?

A position paper considering the pros and cons of an international standard for the global geodetic reference system based on ITRS is available as draft [../../sci/sc14/Formal international recognition of ITRS_V04.doc](#) .

7 (11:00 - 11:30) GGOS Components: Results of the CfPs

The proposals received so far are available at the internal SC page (see [../../sci/](#)). The proposal have been evaluated by a panel of five evaluators, and some of the evaluations are also available at the internal page. A summary of the evaluation will be given at the SC14 by C.K. Shum.

8 **(11:30 - 11:35) Decision on the GGOS Portal**

9 **(11:35 - 11:40) Decision on the GGOS Bureau for Standards and Conventions**

10 **(11:40 - 11:45) Decision on the GGOS Bureau for Networks and Communication**

11 **(11:45 - 12:15) GGOS ToRs**

The IAG Executive Committee is asked to comment on the ToR and indicate potential future modifications.

12 **(12:15 - 12:30) GGOS 2020 Book**

Final comments on the GGOS 2020 Book will be made prior to submission of the book for publication. The Beta version of the book to be published by Springer is available as [../.../ggos2020/ggos2020_beta.pdf](http://.../ggos2020/ggos2020_beta.pdf) .

13 **(13:15 - 13:40) The GGOS 2020 System: Strategy, Plan and Implementation**

The schedule and practical details of the preparation of the GGOS 2020 Strategy document and the progress towards a GGOS Work Plan and Implementation Plan will be presented.

14 **(13:40 - 14:00) GGOS IAG Interactions: Communication and Collaboration**

Both GGOS SC and IAG EC are asked to express their consideration concerning communication between these two committees and potential collaboration.

15 **(14:00 - 14:15) Next SC Meetings, Workshops, and Symposia Sessions**

A detailed Meeting Plan for 2009 is available as [../.../sci/ggos_meeting_plan_2009.php](http://.../sci/ggos_meeting_plan_2009.php) .

16 **(14:15 - 14:25) Any other business**

17 **(14:25 - 14:30) Summary of Action Items**

(09:00 - 09:05) Welcome and Discussion of Agenda

Markus Rothacher opened the Steering Committee meeting and welcomed all participants. He went through the agenda, and asked for any changes or additions. The additions requested were under AOB:

- Felicitas Arias asked to get 5 minutes for relations of BIPM.
- John LaBrecque asked for the opportunity to make a statement concerning station performance.

(09:05 - 09:10) Minutes of SC13

The draft minutes of SC13 were made available as [../scm13/minutes_sc13.html](http://.../scm13/minutes_sc13.html) and [../scm13/minutes_sc13.pdf](http://.../scm13/minutes_sc13.pdf) . The minutes were not discussed in any detail. The participants were asked to identify other necessary changes and/or corrections. The minutes were accepted without any request for changes.

(09:10 - 09:30) Action Item Status

The list of action items from the last SC meeting and Retreat was available as [ailist.html](http://.../ailist.html) and [ailist.pdf](http://.../ailist.pdf) , and this list also included the open action items from previous meetings.

Markus Rothacher briefly went through the action items from the last Steering Committee meeting, stating initially that most AIs were closed. None of the AIs were discussed in detail. Markus Rothacher mentioned that most of the AIs were done.

Action items from other previous meetings were not discussed.

(09:30 - 10:00) Brief Reports from the GGOS Chairs

- Markus Rothacher presented the GGOS Chairs' report (see [presents/2008_1214_rothacher_etal_ggos_report.pdf](#)). He summarized the activities since SC13, which focused mostly on the new components of GGOS, revised ToRs, numerous GEO activities, and the preparation of meetings and workshops. Most of the activities involved the full GGOS Executive Committee, which had in total 13 telecons since SC13.

He reviewed the new components of GGOS and the time schedule for the calls for proposals and the submission and evaluation of proposals. The most important changes of the ToR, which needed to be adapted to the new structure of GGOS, included a revised mission statement, the elimination of the vision statement, better definition of the role of the new components, and a revised composition of the Steering Committee.

He also reviewed the status of the GGOS 2020 book, which is to be published by Springer Verlag. The draft version of the book was made available to a small review panel of IAG under the lead of Michael Sideris and they are scheduled to provide their comments to the lead editor, Hans-Peter Plag, shortly after the SC14. Concerning the GGOS 2020 Strategy Document, he reviewed the plan, which as a first step requires to define the table of contents, and to distribute the work. Michael Sideris pointed out that the Writing Team for the Strategy was already defined.

With respect to the GGOS Working Groups, Markus Rothacher mentioned that C.K. Shum was chairing the WG on Satellite Missions, while currently no chair for the WG on Outreach and User Linkage was identified. For this latter WG, a new charter had been drafted, and this charter was to be discussed under TOP 5.

Markus Rothacher also listed some of the meetings where GGOS was represented and some of the scientific sessions organized by GGOS representatives. Finally, he listed some of the next steps, including the urgent need to find a solution for the GGOS Coordination Office and the Bureau for Satellite Missions.

- In his report on the GEO activities and GEO-V, Hans-Peter Plag summarized the activities in 2008 and discussed the future activities (see [presents/2008_1214_plag_ggos_geo.pdf](#)).

He mentioned two key documents discussed at the GEO-V Plenary, i.e. the GGOS Work Plan 2009-2011 (see [../../wgs/geo_relations/geo_v_output/12_2009-2011 Work Plan.pdf](#)) and the GEO Strategic Targets (see [../../wgs/geo_relations/geo_v_output/10.Strategic Targets GEOSS Implementation by 2015.pdf](#)), and he pointed out that GEO Members and Participating Organizations are invited to comment on the Strategic Target document by 31 January 2009.

Concerning GEO Committee meetings, he reported that GGOS was represented in all meetings of the ADC and UIC, and in most STC meetings. However, none of the representatives to the CBC took part in any of the meetings of this committee.

Concerning the Task AR-07-03, he reported that the Task team members include a number of GGOS/IAG representatives. In the 2009-2011 Work Plan, this task is still included as Sub-Task DA-09-02c. He also pointed out that so far no specific contributions has been made from GGOS representatives to the Task DI-06-02 (which in 2009 will be a sub-task of DI-09-02).

Hans-Peter Plag emphasized the need to increase the activity level of GGOS representatives in the GEO Committees and Tasks. In this respect, he referred to the invitation from CEOS to contribute to CEOS Working Groups. He presented a list of the so-called 'Subsidiary Groups' of CEOS and asked for nominations of GGOS representatives to these groups. Names of potential representatives voiced by Steering Committee members included Juergen Mueller and C.K. Shum for the Working Group on Calibration and Validation (WGCV), and Srinivas Betadpur for the Working Group on Information Systems and Services (WGISS). It was agreed: ***Action Item GGOS-SC14-1: All SC members to nominate representatives of GGOS to the CEOS Subsidiary Groups. Responsible: Steering Committee, Deadline: 2009-01-31.***

Michael Sideris reported that at the last IUGG Executive Meeting, GGOS was discussed. He informed the SC that the President of IHS expressed interest in working with GGOS.

- Ruth Neilan reported on the Third <http://www.unoosa.org/oosa/SAP/gnss/icg.html> Meeting held on December 8-11, 2008 in Pasadena. The Secretariat of ICG is provided by <http://www.unoosa.org/>. The whole meeting was video-recorded and will be made available on the web. The meeting brought together most groups involved in providing and using GNSS. All major stakeholders were there, including national representatives of the countries providing GNSS.

A GGOS exhibit was organized on the basis of the exhibit already shown during the GEO-IV meeting in Cape Town, South Africa, in November 2007. GGOS was also highlighted by Chris Rizos and John Dow as well as a presentation by Michael Pearlman. Chris Rizos added that these presentations made a strong point concerning reference frames and time reference, and that these issues will be recognized in the joint statement.

ICG has several working groups. John Dow summarized the work in WG 4 on standards. A first recommendation was on setting up several working groups. As a result of this recommendation, a WG on Geodetic Reference Frames, and a WG on Time Reference were set up. A third WG on Standards was not set up but the issue of standards was rather left to the first two groups. A recommendation on a fourth WG on retroreflectors was taken note of but the wording was that the provider should decide.

Felicitas Arias emphasised the need to be present at such meetings and to educate the participants with respect to the geodetic contributions. This was supported by John LaBrecque, who noted the need to educated on the maturity of the services, He stated that for example the GNSS operators were not aware of the status of ILRS.

(10:00 - 10:15) Outreach and User Linkage WG

Markus Rothacher summarized the status concerning the GGOS WG on Outreach and User Linkage. He pointed out that a modified charter had been drafted (see [../././wgs/user_linkage_outreach/Charter_v05.doc](http://www.unoosa.org/oosa/SAP/gnss/icg.html)), which emphasized a high-level character of this WG.

Gerhard Beutler asked whether this modification was a reaction on the fact that no proposal for the Coordination Office (CO) was submitted. Markus Rothacher explained that the WG was existing

from the start of GGOS, with the first chairs having been Bjorn Engen and then Bente Lilja Bye. After Bente Lilja Bye had left, no new chair for the WG had been identified. Bernd Richter identified a potential overlap between the tasks of a CO and this WG. Hans-Peter Plag commented that in his opinion, the CO would focus more on the internal coordination of the activities of IAG Services and GGOS components and also on practical details of the outreach, while the development of a strategy for education and outreach to the outside world would more be a task of the whole geodetic community and thus better be handled in the frame of a working group. John LaBrecque voiced the concern that too much structure could result in too little science.

It was also mentioned that the IAG Outreach Branch had suggested a chair for the WG and it was asked why this suggestion was not followed. Both Markus Rothacher and Hans-Peter Plag clarified the situation by explaining that this proposal was strongly focused on organizational aspects of the outreach and user linkage, and that these activities should be covered by the future CO, while the more strategic work, which was not addressed by the proposal, might fit better into a working group.

After considerable discussion, Markus Rothacher made the suggestion to first consider the CO, and then decide on the need and form of a community-based effort for outreach. No decision was made on the Charter or a chair of the Working Group on Outreach and User Linkage.

Michael Sideris pointed out that GGOS also received an invitation to nominate a representative for the *JB GIS at the Ad hoc Committee on Risk and Disaster Management*. The relevant documents were made available at the [.././././sci/](#). It was emphasized that the person who would take this role should also be the GGOS representative to IUGG's *Commission on Geophysical Risk and Sustainability (GeoRisk)*. This role is currently filled by Hermann Drewes. Markus Rothacher mentioned that Hans-Peter Plag is already representing GGOS to the *Joint Steering Committee of GARS and the IGOS Geohazards Theme*, but Hans-Peter Plag commented that he would not be able to add further duties to his already considerable involvement. John LaBrecque volunteered to be the representative of GGOS to the *JB GIS at the Ad hoc Committee on Risk and Disaster Management* and GeoRisk. Another suggestion was to ask Ken Hudnut of USGS. After some discussion, it was agreed that Ken Hudnut would be asked to represent GGOS in these committees together with John LaBrecque.

Action Item GGOS-SC14-2: Markus Rothacher will follow up that Ken Hudnut will be asked to represent GGOS together with John LaBrecque in the *JB GIS at the Ad hoc Committee on Risk and Disaster Management* and IUGG's GeoRisk. **Responsible: Markus Rothacher, Deadline: 2009-01-15.**

(10:15 - 10:45) ITRS: Towards an international standard?

Pascal Willis presented the main points discussed in the position paper prepared by Claude Boucher, which considers the pros and cons of an international standard for the global geodetic reference system based on ITRS. The position paper is available as [.././././sci/sc14/Formal international recognition of ITRS_V04.doc](#), and the presentation is available as [presents/2008_1214_boucher_willis_itrs.pdf](#)).

The main findings reported in the position paper are:

- ITRS is formally adopted in science community;
- Several Communities of Practice have not accepted ITRS and use other descriptors for their reference systems and frames, which leads to potential confusion;
- ITRS realizations are currently based on scientific groups with no formal inter-governmental guarantee.

The position paper then lists three proposals for steps towards a more consolidated situation:

1. Establish an ISO standard endorsing ITRS as the unique preferred terrestrial reference system;
2. Establish an international/intergovernmental governing structure with the task to ensure appropriate realizations of this frame;
3. Ensure proper terminology with respect to ITRS and its realizations, including other realizations than ITRF.

Pascal Willis then continued to discuss the three proposals in more details. Concerning proposal 1, he mentioned, among other points, the need to link this activity with existing ISO TCs; the fact that an ISO country would have to provide the secretariat and that Claude Boucher has already undertaken steps to ensure that France would provide the necessary resources; and the importance of international support from organizations like IAG, GGOS, BIPM, and others.

Proposal 2 focused on governance and considered three different options, namely to create a body related to an existing UN organization, to create a body under an inter-governmental agreement; and to create a body under an ad hoc international agreement, for example in the frame of GEO.

Proposal 3 addressed the issue of interoperability, particularly with respect to other realizations than ITRF. For WGS84 it was proposed to view this as a cover name of a specific realization of ITRS and for that agreement of major organizations having adopted WGS84 should be sought. Regional systems such as ETRS89, which are already linked rigorously to ITRS should not cause any problems.

In the subsequent discussion of Proposal 1, it was argued that going for a new standard might take considerable time, and several participants asked to consider short-cut through amendments to existing standards. Hans-Peter Plag made the point that there is a trade-off between maximum visibility for ITRS and the time needed to achieve the goal of having ITRS featured in a standard. Zuheir Altamimi supported this view and pointed out that IAG is developing ITRS as a scientific system, and this should remain as such. He emphasized the need for IAG to keep the overall control over ITRS. Any standard should be connected to improving the conditions for ensuring the infrastructure necessary for the realization.

In response to that, Felicitas Arias explained the scope of a standard using UTC as an example. Here, the standard defines UTC, while different realizations to access UTC get a stamp from BIPM. In the case of ITRS, the standard would define ITRS and specify ITRF as the tool to access. Hans-Peter Plag added that in the standard, there would only be rules for the realization of ITRS but no specific realization would be favoured. Zuheir Altamimi stated that in this case, a legal body would be required to give the stamp to any realization that would be consistent with the standard. Felicitas Arias emphasized the important fact that the standard would be on ITRS and that a realization would have to be accepted by an appropriate body. Bernd Richter suggested that TC211 could be the body to give the stamp.

Felicitas Arias suggested to form a working group to consider all different options and make a proposal to the Steering Committee on how to proceed. She estimated that the establishment of an ISO Standard on ITRS might take three years, but she considered this a short time. Zuheir Altamimi added that a mandate should be given to Claude Boucher to form this working group and to develop the idea of a standard further. Markus Rothacher summarized the discussion by stating that there was consensus that proposal 1 should be further developed.

With respect to the second proposal, there were questions from several participants concerning the origin of the idea of creating a body associated with an existing UN organization. Hans-Peter Plag explained that this route had been opened more than two years ago with discussions of somehow linking GGOS to either UNEP or UNESCO. Relevant options had been discussed by Markus Rothacher and Hans-Peter Plag with representatives of UNEP and UNESCO. E-mail inquiries to both agencies led UNEP to state that they consider it more appropriate to link GGOS to UNESCO. UNESCO's reply was very positive with specific suggestions of how a potential link could be explored. It was then decided to delay the process until the GGOS 2020 Book would be available as a basis for further discussions.

Concerning the second option of proposal 2, Felicitas Arias informed the meeting that there was some related discussion going on at BIPM. BIPM has several sections, which are ruled by committees. These committees are created by the International Committee for Weights and Measures (CIPM). The CIPM holds its General Conference every four years, and at these conferences votes on recommendation. Previous contacts of geodesy to the CIPM resulted in misunderstandings and a close down of the dialog. Felicitas Arias stated that the situation is very different today and recommended that an attempt should be made to get geodesy back on the agenda of the next General Conference in 2011.

Markus Rothacher asked what the role of BIPM would be, and who would get the visibility and credits for the ITRS. He cautioned that this avenue through BIPM would have to be considered carefully to ensure that credit for ITRS remains with IAG .

Ruth Neilan and Felicitas Arias in a dialog clarified the way in which the BIPM support the various committees under the Metre Convention. Details are available at the <http://www.bipm.org> .

Markus Rothacher requested that the details of how the proposals 1 and 2 could be developed be outlined in a paper. Chopo Ma emphasized that the road chosen should have a very flexible structure. Gerhard Beutler asked to restrict the discussion to ITRS and to exclude discussions of an broader international body, which would put IAG on the spot. Michael Sideris also voiced fears that IAG could loose control and emphasized the need to keep control over the realization of ITRS.

There was consensus to set up an ad hoc Working group with the members being Claude Boucher, Felicitas Arias, Mike Craymer, Bernd Richter, Zuheir Altamimi, Larry Hothem, Johannes Ihde, Hans-Peter Plag, Steve Kenyon as well as a representative of IGS to be nominated. The proposal to ask Claude Boucher to chair this group was accepted by the Steering Committee.

The anticipated time line is to have a preliminary report with a more detailed proposal, including as description of the current background, delivered to the next Meeting of the GGOS Steering Committee.

Action Item GGOS-SC14-3: Claude Boucher will constitute and chair the ad hoc Working Group on an ISO standard for ITRS (with the working group members including all those nominated at SC14). ***Responsible: Claude Boucher, Deadline: 2009-01-31.***

Action Item GGOS-SC14-4: Claude Boucher will provide a draft report of the ad hoc Working Group on an ISO standard for ITRS to the SC15 on April 18, 2009. ***Responsible: Claude Boucher, Deadline: 2009-04-18.***

After the closure of the discussion on this topic, Reiner Rummel briefly introduced the conference on the future of the IAG Services proposed by Dietmar Gruenreich, Reiner Rummel, and Urs Hugentobler. As background, he reflected on worries about the future of GGOS and the role of the national

agencies in GGOS. At some point, GGOS would have to reach to an operational state, requiring a stable support. He stated that other observing systems are based on intergovernmental agreements. The letter by Dietmar Gruenreich, Reiner Rummel and Urs Hugentobler is proposing that relevant government agencies should discuss among themselves the role they could take. Referring to the experience in Germany, where a cooperation between BKG and universities allows for the running of the infrastructure, he proposed that such a conference could look into various options.

Markus Rothacher asked how many should attend such a meeting and who should be invited. Reiner Rummel responded that he did not discuss this with Dietmar Gruenreich before sending the letter to GGOS, but he suggested that the meeting should not be too exclusive.

Michael Sideris asked whether the proposal was to move responsibility for the services into a few main agencies, and Reiner Rummel explained that this was not the case. Gerhard Beutler considered the proposed conference a good idea, which actually was a recommendation included in the GGOS 2020 book. He suggested to invite all national mapping agencies, and to use the opportunity to "sell" GGOS to these agencies. Moreover, national funding agencies should be invited. Hans-Peter Plag supported the idea of a more inclusive conference and pointed out that there is a trade-off between a smaller conference and larger selling effect. Bernd Richter suggested to have first a meeting of a smaller group to discuss what would be possible.

John LaBrecque considered it an excellent idea to strengthen support for global networks, and added that this was also the idea behind having GGOS involved in GEO. However, he stated that the problem in gaining stable support lies at higher levels where budgets are determined. Rather than having a large meeting, he suggested it would be better to work on what is needed and to establish the components.

Reiner Rummel summarized the discussion by concluding that it would be important to have the first conference on a smaller level, with some eight to ten agencies participating. Michael Sideris emphasized the importance of the second step, i.e. a larger conference to support the national agencies in their effort for the global geodetic infrastructure. Markus Rothacher did not see that these two lines were in competition. Reiner Rummel pointed to the need of demonstrating the importance of the geodetic infrastructure and products. John LaBrecque repeated that GEO provides a framework for this demonstration. He therefore requested that decadal plans for the Services are formalized in a coordinated way and identified a lack of coordination of the work towards such plans.

Gary Johnston made the point that on the one hand, the research community is fairly stable, while on the other hand, the governmental community is far more variable. Intergovernmental agreements can improve the situation. As an example, he mentioned that for satellite laser ranging in Australia, the agreement between NASA and Australia turned out to be important as a factor contributing to a stable support.

Gerhard Beutler suggested to have kind of a master plan, which can be put on one or two page. On an invitation-only basis the main agencies could then look at this plan and come up with a recommendation. He express doubts that it would be possible to do this in a larger conference. Markus Rothacher agreed and suggested to first have a smaller meeting within the first half of 2009. and then go for a larger one later on. Bernd Richter suggested to have the smaller meeting right after the EGU meeting.

Action Item GGOS-SC14-5: Bernd Richter will report back to Prof. Gruenreich and ensure that the meeting of major agencies involved in funding of global geodetic infrastructure takes place early in 2009. **Responsible: Bernd Richter, Deadline: 2009-01-31.**

Action Item GGOS-SC14-6: The GGOS EC will follow up progress in the preparation of the meeting of major agencies and interact with the organizers of this meeting. **Responsible: Executive**

Committee, Deadline: 2009-03-31.

Hans-Peter Plag pointed out that the next Ministerial Summit on Earth Observations most likely would take place in November 2010 and informed that GEO is already preparing for this Summit. He emphasized the importance of GGOS getting involved at an early stage in this preparation. The best would be to get a demonstration project started that could be used to show-case geodetic products at the Summit. John LaBrecque supported this and stated that it would be very important to identify products that could be presented at the Ministerial Summit.

Action Item GGOS-SC14-7: Hans-Peter Plag will work with the GGOS Working Group on GEO Relations to identify suitable demonstration projects for the Ministerial Summit in 2010 and propose these to the GGOS EC. **Responsible: Hans-Peter Plag, Deadline: 2009-01-31.**

(11:00 - 11:30) GGOS Components: Results of the CfPs

The three proposals received in response to the CfP were made available at the internal SC page (see [../././sci/](#)). These proposal had been evaluated by a panel of five evaluators, and some of the evaluations were also available at the internal page. A summary of the evaluation was given at the SC14 by C.K. Shum (see [2008_1214_summary_reviews.php](#)). No proposal were received two components, namely the *Bureau for Satellite Missions* (BSM) and the *Coordination Office* (CO).

All three proposals were reviewed by five reviewers, who considered all proposals as excellent in terms of teams and support. Some minor comments were provided on how to strengthen the activities (see the summary report for details).

Two reviewers also provided comments on the GGOS CO and suggested that a clarification of the role of the CO might be needed. In particular, it was not clear whether the CO would be under the GGOS Chair or more an independent unit. The fact that no proposal was submitted for the BSM was considered problematic, since GGOS heavily depends on satellite missions and could hardly do without this Bureau. It was emphasized that this bureau need to be in an agency which can engage in satellite missions.

Zuheir Altamimi pointed out that there were comments on the funding for the *Bureau for Networks and Communications* (BNC) and the fact that the proposers of the *Bureau for Standards and Conventions* (BSC) might not have been involved enough in relevant on-going activities. With respect to the latter comment, Reiner Rummel informed that Urs Hugentobler was involved in the IERS Conventions, and he was also one the prime writer for the GOCE missions.

Ruth Neilan suggested that it might be important to link the BSC to ICSU's *Committee on Data for Science and Technology* (<http://www.codata.org/>).

Action Item GGOS-SC14-8: Hans-Peter Plag will make the comments of the reviewers on the Proposals for the new GGOS components available to the proposers. **Responsible: Hans-Peter Plag, Deadline: 2009-01-15.**

(11:30 - 11:35) Decision on the GGOS Portal

The proposal for the GEO Portal submitted by BKG was accepted unanimously.

(11:35 - 11:40) Decision on the GGOS Bureau for Standards and Conventions

The proposal for the GGOS *Bureau for Standards and Conventions* submitted by Forschungsgruppe Satellitengeodsie (FGS, DGFI, IAPG) was accepted with one abstain.

(11:40 - 11:45) Decision on the GGOS Bureau for Networks and Communication

The proposal for the GGOS *Bureau for Networks and Communications* was accepted unanimously.

After the decision, there was considerable discussion on the two missing components. With respect to the BSM, Reiner Rummel made it clear that there is an absolute need for such a bureau. Such a bureau should be at an institution who knows how satellite missions are being born.

John LaBrecque asked for a clarification on how would such a Bureau would function. Hans-Peter Plag reminded that the original intent was that such a Bureau would provide a link between GGOS and the agencies responsible for implementing and operating satellite mission and ensure an information flow between these two sides. Markus Rothacher supported this review of the nature of the Bureau and asked how to proceed. He stated that GGOS has a WG on Satellite Missions, which is led by C.K. Shum. He suggested that some work could be done in the frame of this Working Group and he expressed the hope that C.K. Shum would be able to initiate some activities.

Ruth Neilan expressed the opinion that the terminology of a Bureau could have resulted in not receiving a proposal since setting up a Bureau would require resources. Therefore, she supported the idea that the WG could be a better way to start these activities. Gerhard Beutler also supported this and suggested that the WG would be used to develop opportunities but requested that the WG should keep the idea of the Bureau in mind. One important point with the Bureau would be to make clear that GGOS also has infrastructure in space.

Action Item GGOS-SC14-9: The GGOS EC will follow up the development of the Working Group on Satellite Missions and investigate options for a Bureau on Satellite Missions. *Responsible: Executive Committee, Deadline: 2009-03-31.*

Concerning the CO, Markus Rothacher informed the meeting that GFZ was considering to finance a CO and that the GFZ Board was in favor. However, identifying a head for the CO was still a critical point.

Michael Sideris criticised the fact that the GGOS Portal was approved without the CO in place, and voiced the opinion that this would not make very much sense since these two components should be collocated. Markus Rothacher commented that GGOS Portal is a rather technical component, which not necessarily needs to be developed and hosted by the CO.

Bernd Richter explained that BKG will set up the web pages for the Portal but that the group behind the proposal is a technical group. Therefore, contents for the web pages will have to be based on input from others.

Reiner Rummel stated that the first question to be asked would be why not more proposals were submitted. He then analysed that only agencies can provide sufficient resources for the CO and universities are excluded from running such a component. He speculated that the limit of what agencies can fund may have been reached. Moreover, in his opinion, the CfP was not clear enough. In particular, it was not clear what the organization would get in return for operating the CO. Would the CO mainly be working inside of the GGOS and IAG community? This would not be attractive. If the CO would be responsible for outside relations, then what would the Chair and Vice-Chairs be doing?

Gerhard Beutler saw several options where the CO would focus on the outside portal or more on coordination. For him, a combination of the two options would be preferable. He requested that GGOS should actively foster options. He was critical towards the idea that the portal would be run by a technical group. The portal would be a component with a lot of opportunity.

John LaBrecque expressed support for the idea to have the CO or the GGOS Secretariat associated with the GGOS Chair. Zuheir Altamimi supported a combination of CO and GGOS Portal.

Hans-Peter Plag voiced the opinion that a small GGOS Secretariat would be necessary to support the GGOS Chair and should be located at the Chair's home institution, but for the GGOS CO he saw the need to have a more long-term perspective not associated with a chair who might change every four years.

John LaBrecque expressed the concern that a CO would constitute additional infrastructure, while Michael Pearlman supported the notion that the CO needs some permanence.

Ruth Neilan brought up the idea that the call could be modified and improved. It could also be worthwhile to consider a stronger liaison between the Services and GGOS through the directors of the Services' bureaus.

Coming back to a potential CO hosted by GFZ, Markus Rothacher explained that in this case, the CO would need to have a high visibility.

Michael Sideris asked what the process towards a CO would be, and Gerhard Beutler asked to have the problem of the CO solved within one year. Hans-Peter Plag pointed out that proposals should be available for the next SC meeting and explained that the current situation, where the day-to-day business of GGOS was very much on the shoulders of very few people, was very straining for these persons and not much longer sustainable.

Action Item GGOS-SC14-10: The GGOS EC will explore potential solutions for the GGOS Coordination Office and aim to have proposals available prior to SC15 on April 18, 2009. ***Responsible: Executive Committee, Deadline: 2009-03-31.***

(11:45 - 12:15) GGOS ToRs

Markus Rothacher reiterated the main changes of the new ToRs (see the [presents/2008_1214_rothacher_GGOS_ToR.pdf](#)). The IAG Executive Committee was originally asked to comment on the ToR and indicate potential future modifications. However, Markus Rothacher did not see the need to discuss this now. Zuheir Altamimi requested a clarification of what was considered as GGOS products. He asked whether these are the individual service products or something else. Markus Rothacher responded that this would have to wait until the next revision of the ToR would be done.

(12:15 - 12:30) GGOS 2020 Book

Hans-Peter Plag explained the situation concerning the GGOS 2020 Book, which will be published by Springer. A beta version had been made available and was under a final review by an IAG Review Panel. The individual chapters were finalized by the chapter lead authors.

Harald Schuh asked how many free copies Springer would supply and what the price of the book would be. Would there be a free on-line version? Hans-Peter Plag responded that the price was up to Springer to decide, and that he would have to check the contract in order to answer the other questions.

Michael Sideris made the point that IAG would like to see future editions of the book before they are published. Ruth Neilan pointed out that the book source was to be provided to JPL, and there the material would be freely available. Hans-Peter Plag explained that Springer would request transfer of copyright to Springer and then the material would not be available for free distribution.

(13:15 - 13:40) The GGOS 2020 System: Strategy, Plan and Implementation

Markus Rothacher presented a schedule for the preparation of the GGOS 2020 Strategy document and progress towards a GGOS Implementation Plan (see [presents/2008_1214_rothacher_GGOS_Strategy_Plan_Implementation.pdf](#)).

For the Strategy document, which focuses on politics, space agencies, and national institutions as audience, the writing team consists of Markus Rothacher, Michael Sideris, Klaus-Peter Schwarz, Chris Rizos, and the GGOS EC members. The development of a long-term implementation plan should be based on the GGOS 2020 Book and the Strategy document. However, he also identified the need for short-term implementation plans addressing a time window of two to three years each, and the need for an immediate plan for high-priority activities. He emphasized the need for tighter connection to governmental organizations and listed to main events for 2009, i.e. the conference proposed by Dietmar Gruenreich and Reiner Rummel and a workshop on future gravity satellite missions in autumn 2009.

John LaBrecque expressed the need to work towards the GEO plenary and to give input to this important body. Zuheir Altamimi suggested that the Strategy document would be made available for the conference proposed by Dietmar Gruenreich and Reiner Rummel.

Action Item GGOS-SC14-11: Markus Rothacher will work together with the co-authors of the Strategy Document and the GGOS Steering Committee to prepare the draft Strategy document prior to the meeting of the major agencies supporting the geodetic infrastructure. ***Responsible: Markus Rothacher, Deadline: 2009-03-31.***

(13:40 - 14:00) GGOS IAG Interactions: Communication and Collaboration

Markus Rothacher started his presentation by saying that a clear mutual understanding of the roles of the IAG EC and GGOS would be very important to ensure maximum synergy. He put together some general statements (see the [presents/2008_1214_rothacher_GGOS_IAG_Interaction.pdf](#)). His main point was that GGOS operates under its own ToR, which have to be approved by the IAG EC. Moreover, the GGOS Chair is appointed by the IAG EC, and the GGOS Chair is a member of the IAG EC. This should ensure sufficient coordination of GGOS activities with IAG EC guidance.

Michael Sideris reminded that some of the discussion arouse with respect to the GGOS 2020 Book. He emphasized that with respect to the Book and also other activities in the future, the principle is that what comes out of GGOS has to be looked at by the IAG. Concerning the book, he requested that the IAG logo should be on the cover, so that it is made clear that the book came out of an IAG component.

Hermann Drewes suggested that joint IAG Bureau and GGOS Executive Committee should be held in the future.

(14:00 - 14:15) Next SC Meetings, Workshops, and Symposia Sessions

A detailed Meeting Plan for 2009 was made available as [../../sci/ggos_meeting_plan_2009.php](#).

Concerning SC15, it was agreed to hold this Steering Committee Meeting in Vienna on Saturday, April 18, from 1:00 PM - 7:00 PM at the Technical University, Vienna.

Richard Gross introduced the 2009 GGOS Science Workshop (see the [presents/2008_1214_gross_2009_WS.pdf](#)), which is scheduled to take place on June 23-26, 2009 in Helsinki, Finland as a joint DynaQlim/GGOS Workshop. Main focus will be on glacial isostatic adjustment.

John LaBrecque commented that during the GRACE Science Team Meeting, several papers on GIA were presented, and it was clear that those areas that are ice free today are not the most critical ones. The most critical issue are in the areas which are today loaded by ice. In particular, separation of present-day signals from past signals in Greenland and Antarctica are a very critical issue. Hans-Peter Plag wanted Svalbard to be added to this list because the glaciers there are melting rapidly and the uncertainty in the predicted signals due to past mass changes are hampering isolation of the present-day signal.

Concerning the GGOS Session at the IAG meeting in Buenos Aires, Hans-Peter Plag pointed out that the session is split into two parts, with the first reviewing the past progress and status of GGOS, and the second part the science of GGOS. Ruth Neilan added that there would also be a session on IAG Services, and there was consensus that these sessions need careful coordination.

With respect to SC16 and a potential GGOS retreat, Michael Pearlman asked where we would get the best attendance: in Buenos Aires or co-located with AGU? Markus Rothacher responded that it could be a good reason to hold SC16 in Buenos Aires in order to get a good GGOS session there.

Bernd Richter suggested to hold a unified Analysis Workshop every two years, maybe together with a retreat before the AGU.

The conclusion was to hold the Retreat and a unified Analysis Workshop in 2009 in the week before the Fall AGU.

(14:15 - 14:25) Any other business

Felicitas Arias reported that the time section at BIPM has been modified, and it has now a different name which should be used in the GGOS Book. The new name is 'Time, Frequency and Gravity'. She also informed that starting from September 15, 2009, there will be a new International Comparison of Absolute Gravimeters (ICAG) campaign with absolute gravimeters to provide the standards for national laboratories. This campaign is open only to member countries. However, for other participants a pilot experiments will be used. Calls have been sent out.

John LaBrecque stated that the lifeblood of GGOS is the performance of the stations. Recent looks into station performance showed that the station in Tahiti was under-performing. But station operators were surprised to see that their data were actually used. Thus, he concluded, feedback to observers is very important.

Zuheir Altamimi explained that assessment of station performance is done on a regular basis and he wanted to know what GGOS should do in addition. As an example, John LaBrecque suggested to create a prize for excellent station performance. Based on his own experience, Michael Pearlman commented that there is no substitute for a visit to a station. Whenever there was a high-level site visit, one can see an improvement of data afterwards.

Michael Sideris informed the participants that the subsequent IAG Executive Committee Meeting was also a joint meeting. Several participants responded that they were not aware of the IAG Executive Meeting being a joint meeting and that they had not received any information on that.

(14:25 - 14:30) Summary of Action Items

Action Item GGOS-SC14-1: All SC members to nominate representatives of GGOS to the CEOS Subsidiary Groups. ***Responsible: Steering Committee, Deadline: 2009-01-31.***

Action Item GGOS-SC14-2: Markus Rothacher will follow up that Ken Hudnut will be asked to represent GGOS together with John LaBrecque in the *JB GIS at the Ad hoc Committee on Risk and*

Disaster Management and IUGG's GeoRisk. **Responsible: Markus Rothacher, Deadline: 2009-01-15.**

Action Item GGOS-SC14-3: Claude Boucher will constitute and chair the ad hoc Working Group on an ISO standard for ITRS (with the working group members including all those nominated at SC14). **Responsible: Claude Boucher, Deadline: 2009-01-31.**

Action Item GGOS-SC14-4: Claude Boucher will provide a draft report of the ad hoc Working Group on an ISO standard for ITRS to the SC15 on April 18, 2009. **Responsible: Claude Boucher, Deadline: 2009-04-18.**

Action Item GGOS-SC14-5: Bernd Richter will report back to Prof. Gruenreich and ensure that the meeting of major agencies involved in funding of global geodetic infrastructure takes place early in 2009. **Responsible: Bernd Richter, Deadline: 2009-01-31.**

Action Item GGOS-SC14-6: The GGOS EC will follow up progress in the preparation of the meeting of major agencies and interact with the organizers of this meeting. **Responsible: Executive Committee, Deadline: 2009-03-31.**

Action Item GGOS-SC14-7: Hans-Peter Plag will work with the GGOS Working Group on GEO Relations to identify suitable demonstration projects for the Ministerial Summit in 2010 and propose these to the GGOS EC. **Responsible: Hans-Peter Plag, Deadline: 2009-01-31.**

Action Item GGOS-SC14-8: Hans-Peter Plag will make the comments of the reviewers on the Proposals for the new GGOS components available to the proposers. **Responsible: Hans-Peter Plag, Deadline: 2009-01-15.**

Action Item GGOS-SC14-9: The GGOS EC will follow up the development of the Working Group on Satellite Missions and investigate options for a Bureau on Satellite Missions. **Responsible: Executive Committee, Deadline: 2009-03-31.**

Action Item GGOS-SC14-10: The GGOS EC will explore potential solutions for the GGOS Coordination Office and aim to have proposals available prior to SC15 on April 18, 2009. **Responsible: Executive Committee, Deadline: 2009-03-31.**

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