Minutes of the seventh GBOG meeting

teleconf held on 3 June 2010

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Contents

1 Opening the teleconfrence

It has been decided during GBOG M06 (GAIA-CD-MN-LAB-CS-007) that the GBOG WG will meet only once a year, and the usual second yearly meeting would be held as a teleconference. GBOG M07 has therefore been held as a teleconference using the Marratech server in Cambridge.

As a first experiment, it has been only partially successfull: W. Thuillot could not connect due to software problems (it is difficult to install Marratech on certain Windows OS versions). E. Joliet has expressed his perplexities and asked that from now on, only physical meeting are held, and no teleconferences. However, no decision has been taken to reverse the strategy yet: next meeting will be held in Nice in autumn this year, followed most probably by a teleconf in spring in 2011. If the next teleconf will be as problematic as M07, we will rediscuss the matter.

1.1 Participants

G. Clementini (CU7), OABO - Bologna
U. Heiter (CU8), Uppsala University
E. Joliet (CU1), ESAC
E. Pancino (CU5), OABO - Bologna
G. Seabroke (CU6), Mullard - London
R. Smart (CU3), OATO - Torino
C. Soubiran (CU6), LAB - Bordeaux

1.2 Agenda

Introduction - C. Soubiran
CU3 status report by R. Smart
CU4 status report by W. Thuillot
CU5 status report by E. Pancino
CU6 status report by C. Soubiran
CU7 status repost by G. Clementini
CU8 status report by U. Heiter
Discussion topics:
The 2–4 m telescopes roadmap document
Data archiving and the Joliet questionnaire
Should we publish te ESO GBOG report in Livelink?

1.3 Meeting introduction by C. Soubiran

C. Soubiran opened the meeting by welcoming G. Seabroke as a new representative for CU6, substituting C. Alliende Prieto. Notable events since the last GBOG meeting are:

- We wrote the report for ESA-ESO to describe the status of the observing programmes and our future needs. We got a good feedback from ESO on it. We have to make it available on the wiki.
- The ASTRONET - OPTICON recommendations were published with no mention of our preparatory activities, except a recommendation to ESA to take in charge the GBOT programme. However there is no budget at ESA for this and DPAC agreed years ago to do it.

2 Status of activities

Each representative gave a presentation consisting of a few slides. The pdf files are available at:
`http://www.rssd.esa.int/wikiSI/index.php?title=GBOG_M07\&instance=Gaia`

2.1 CU1 status report by E. Joliet

ESAC allocated ∼4 TB for GBOG data storage. The mechanism of putting data here is still not decided but as soon as E. Joliet will get interest to put data here, he will decide and propose how to interact – mainly sftp/scp with a username login. Also, monitoring of the data uploaded will be enabled, strictly GBOG, reusabale data and/or shared data among CUs to centralized the data and backing it up. See also the discussion Section.

2.2 CU3 status report by R. Smart

R. Smart presented the CU3 report discussing the Ecliptic Pole Catalog, IGSL and various observational programs. There were a few questions regarding the use of IGSL, it was repeated and emphasized that all external catalogs should be matched to the IGSL before the mission starts. It is difficult to see the advantage of not matching before the mission and there are many disadvantages to matching directly to the GAIA observations during the mission.

2.3 CU4 status report by W. Thuillot

William could not participate to the teleconference due to technical problems, but he sent us a few slides that are available at the Wiki address above.

2.4 CU5 status report by E. Pancino

DU17, the development unit dedicated to flux based science alerts, is proceeding with the algorithms and pipeline programming. The first tests of a preliminary version of the flux alerts pipeline are ongoing with GOG data. No ground based observation activities are planned yet in detail.

DU13, the development unit dedicated to the building of the Gaia spectrophotometric standard stars (SPSS) grid is proceeding with the ground based campaigns:

- The main campaign dedicated to spectroscopy and absolute photometry – based on EFOSC2@NTT, DoLoRes@TNG, and CAFOS@CAHA – is proceeding, with 50% of the spectra already secured, and 50% of the absolute photometry night points obtained. Data reduction protocols are being finalized, with NTT data presently under pre-reduction, and a total of 10% of the observed data pre-reduced.
- The auxiliary constancy monitoring campaign – based on BFOSC@Loiano, LaRuca @SPM, ROSS@REM, CAFOS@CAHA, and DoLoRes@TNG – is also proceeding, with 75% of the short term (1-2 hours) variability data obtained, and 95% of the SPSS being monitored for long term (3 years) variability. The data reduction protocols are also being finalized. Pre-reductions are done for 10–20% of the gathered data, and lightcurves are being prepared for 5% of the short term variability data.
- In total, we have submitted proposals to six telescopes since 2006, and have been awarded a total of $\simeq$220 nights – $\simeq$30 per semester, on average – while we expect to complete our observations in another $\simeq$140 nights until 2013, approximately.

A complete description of DU13 observation can be found at:
http://yoda.bo.astro.it/wiki/index.php/Main_Page,
with the credentials guest (username) and gubana (password).

2.5 CU6 status report by C. Soubiran

Status of ground-based observations in the first semester of 2010:

- on SOPHIE : 5 nights in March, 93 spectra, new observer, bad weather. Still 200 stars to observe in the North to complete the pre-launch programme. Should be finished by end in 2011A.
- on NARVAL : 2 nights in service mode along the semester, dedicated to NEP, 34 stars, 10 stars were not found (pointing problem?)

- on CORALIE 1.5 nights in April, 63 measurements, bad weather

Other activities in CU6:

- First paper of a series to be submitted soon, presenting the list of 1420 RV-std candidates. 2nd paper in preparation with the RV measurements. 3rd paper foreseen on AZP and KZP.
- Delay to update the CU6-CU8 database, to analyse the NARVAL spectra (masks missing)
- Work in progress on Carbon stars observed with NARVAL.
- Trainee to work on the asteroid data.

2.6 CU7 status report by G. Clementini

The CU7 network of small/medium size telescopes offered to contribute to the validation of flux alerts. A letter of intent for the participation to the Alert system validation was prepared and given to the CU5 Alert system people in November 2009.

A number of observing projects are going on with the final purpose of validating the algorithms that the CU7 is developing for the classification of the variable sources. In this context:

- Analysis is in progress on existing data-bases to follow period changes in selected sample of Classical Cepheids.
- Spectra in the wavelength region covered by the RVS were obtained for 15 bright Galactic Miras using a 2m Coude spectrograph at the Ondrejov Observatory (CU7 network). Analysis is in progress.
- Observations of short period pulsators were obtained in December 2009 and March 2010 with the 1.2 m Belgian Mercator telescope in Canary Islands (CU7 network), in order to probe the capabilities of validating Gaia discoveries in the short period domain.
- K-band photometry of RR Lyrae stars and Cepheids, in the Gaia South eclipsing pole calibrating field, was obtained as part of the VISTA VMC survey and combined with visual-band light curves from EROS II and OGLE III surveys, in order to construct multiband PL relations of RR Lyrae stars and Cepheids.

Observatory	Telescope	Instrument	N*	Resolution	Wavelength range
ESO	3.6m	HARPS	18	120000	380 to 690 nm
La Palma	3.6m TNG	SARG	4	100000	360 to 1000 nm
La Palma	3.6m TNG	SARG	10	164000	410 to 1000 nm
Pic du Midi	2.0m TBL	NARVAL	15	80000	370 to 1050 nm

*N ... number of stars observed

Table 1: Observations of candidate benchmark stars.

2.7 CU8 status report by U. Heiter

2.7.1 Benchmark stars

Observations of bright, well-known stars have been obtained for testing and improving model spectra used for the general stellar parametrizer. High-resolution optical/near IR spectra of about 30 candidate benchmark stars of FGK-type have been obtained, which completes this programme. Archive spectra are available for about 10 additional stars. For several stars, spectra from two or three different instruments are available, which allows to assess systematic differences between instruments. Table 1 gives an overview of the observations.

In addition, we have completed an observing programme (two semesters, PIs Heiter and Önehag) with the infrared spectrograph CRIRES, to establish a set of benchmark stars in the M dwarf region. Data have been obtained for 16 M-type dwarf stars, half of which are in binary systems with companions of earlier type (FGK-type dwarfs). The spectra cover selected wavelength intervals in the J band at $R = 50000$. The stars span a range of metallicities (± 0.5 dex around solar). Data reduction and analysis is in progress.

2.7.2 Reference stars

Reference stars in the magnitude range observed by Gaia will be used for direct calibration of the general stellar parametrizer. The main activities are to define a comprehensive set of primary reference stars with accurately known astrophysical parameters, and to gather observations for improving parameter determination. The first activity relies on the PASTEL database developed in Bordeaux[1] (Soubiran et al. 2010, A&A, 515, 111). Stars with spectral type F0 to M5 were selected within the magnitude intervals $6 < G < 10$ (about 2700 stars) and $G > 10$ (about 900 stars). These samples are characterized by a general lack of cool dwarfs with $T_{\rm eff}$ <4300 K. The bright sample is dominated by solar metallicity stars, while the faint sample is dominated by metal-poor stars. For the second activity, the strategy is to use archive spectra as far as possible, and complement with new observations when necessary. The archive search for high-resolution, high-SNR spectra is now completed. Table 2 gives the number of stars in the PASTEL selection which have at least one spectrum with $R > 40000$ (GIRAFFE: $R > 16000$) and SNR > 80

[1] http://pastel.obs.u-bordeaux1.fr/

Archive	Instrument	bright		faint	
		stars	spectra	stars	spectra
ESO	UVES	518	5362	163	2809
ESO	HARPS	249	2804	36	1309
OHP	SOPHIE	301	1875	0	0
OHP	ELODIE	538	3110	0	0
Pic du Midi	NARVAL	50	985	0	0
obspm.fr	GIRAFFE	0	0	33	111

Table 2: Number of bright and faint candidates having a spectrum available in each of the considered archives. In brackets, the total number of spectra available for them. For HARPS the S/N of the spectra is not given in the query results so that we don't know whether all the available spectra are of good quality. For GIRAFFE, we have considered the MEDUSA configurations leading to a resolution higher than 16000.

available in each archive. More details can be found in Soubiran & Heiter (Gaia technical note GAIA-C8-TN-LAB-CS-008-1, issued 9 Sep 2010).

3 Discussion topics

3.1 ASTRONET 2–4 m telescopes report

The ASTRONET final report (http://www.astronet-eu.org/) on the roadmap for 2–4 m class telescopes has been discussed by all in detail. One striking absent topic was the possible use of these telescopes to provide ground based auxiliary data for the upcoming space missions, such as Gaia, in spite of the detailed contribution by GBOG in their discussion forum. It has been decided that E. Pancino will contact Janet Drew to ask for the possiblity of including this topic into the report.

3.2 Data archiving

What we agreed, based on a general comment about DPAC tools and databases, was the following action from CU1 (E.Joliet): - to create small and light java project to show and permit to interact with database and GaiaTools library using Maindb DataModel as a proof of demo for GBOG partners and participants in order to get familiar with Gaia DataModel Object and retrieval/storage formats (mainly gbin, database). The Java code project should show how to retrieve/store Datamodel objects content from/to files/database. E. Joliet will put the reference of the project and a FAQs part so everybody can interact and answers can be read by everyone. Any suggestions are welcome!

3.3 Publication of auxiliary data

The Gaia catalogue and intermediate releases should publish, together with the data products, the auxiliary data used in the data processing. This includes the GBOG observations and will be taken in charge by CU9. One has to keep this in mind and be ready to give some input as soon as the CU9 will be created. A CU9 representative in the GBOG WG would be good.

3.4 ESA-ESO GBOG Report

The report of GBOG activities and needs, prepared for ESA-ESO, has received a good response by the ESO Director General. C. Soubiran will put the report on the GBOG Wiki together with the ESO response letter. She also proposes to prepare a Livelink document using the text of the ESO report, and all agree that it is a good idea and should be done soon.

4 Closing the teleconference

4.1 Actions for CU representatives

- All representatives should update the proposals tables on Wiki.
- E. Pancino will ask Janet Drew about the possiblity of including Gaia in the ASTRONET 2–4 m telescopes report.
- E. Joliet will prepare a small and light Java project to enable interaction with the MDB and related structures, and to show how to retrieve/store data in the space allocated to GBOG.
- C. Soubiran, to put the ESO GBOG report in the GBOG Wiki and to prepare a Livelink document containing the report.

4.2 Next meeting

The next meeting will be held in October-November 2010 in Nice, and will be organized by C. Soubiran. More info will come out soon on the GBOG Wiki pages.