Ground-Based Observations for Gaia: Writing guidelines for GBOG proposals

prepared by: E. Pancino, U. Heiter, Y. Frémat, C. Soubiran, M. Altmann, A. Bragaglia
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Abstract

This document presents guidelines for the writing of proposals dedicated to the Ground-Based observations necessary for the Gaia data processing. Common proposal titles, introductions, scientific justifications and various suggestions for strengthening the technical justifications are included in the document.

Contents

1 Acronym List

The following table has been generated from the on-line Gaia acronym list:

Acronym	Description
CU	Coordination Unit (in DPAC)
DPAC	Data Processing and Analysis Consortium
DPACE	Data Processing and Analysis Consortium Executive
GBOG	Ground-Based Observations for Gaia (DPAC)
ToR	Terms of Reference
WG	Working Group

2 Introduction

Several teams within the DPAC are involved in ground based observing programmes, to acquire auxiliary data necessary for the Gaia data processing. All the information about these observing programmes should be centralized by the GBOG Working Group. As described in the GBOG Terms of Reference Document (Soubiran et al., GAIA-CD-PL-LAB-CS-004, in preparation), the GBOG is in charge of coordinating the inter-CU ground-based observational effort for Gaia, which concerns all observations necessary to the data processing of Gaia or its validation (see also Soubiran 2006, GAIA-C8-TN-LAB-CS-001).

At the GBOG M03 in Bordeaux, on 19-20 February 2008, the GBOG members agreed to prepare proposals according to certain guidelines, that are presented in this document. These guidelines are intended to help the investigators to improve their proposals, to homogenize all the GBOG proposals and to make the GBOG coordination efficient and visible

2.1 Proposal Categories

The observing proposals that are written by DPAC members in various CUs can be schematically divided in the following categories:

- **Coordinated GBOG proposals.** These are proposals that require direct coordination by the GBOG and its members, and that *should conform to* the guidelines presented in this document. They can be either inter-CU proposals or programmes that are submitted to big, international observatories such as ESO, differents programmes applying to the same instrument or different programmes with targets (fields) in common.
- **Standalone GBOG proposals.** These are proposals that do not require direct GBOG coordination, because they are carried out by a single CU and/or presented to national facilities. These proposals *can benefit* from these guidelines.
- **Non-GBOG (i.e., non-DPAC) proposals.** These are proposals prepared *outside* the DPAC effort (even if by DPAC members), presented as scientific proposals that would benefit from Gaia data or that would complement Gaia data. These proposals are not concerned by the present guidelines and in particular, they *should not* use official GBOG statements, such as the common title structure or the various standard sentences that would make the TAC perceive the proposal as an official GBOG/DPAC proposal.

3 Proposals Coordination

To ensure the coordination, the GBOG maintains in its wiki pages a list of all the DPAC ground-based observing proposals, both *coordinated* and *standalone*, and the proposals themselves are

stored on the GBOG svn. It is responsibility of the CU representatives within the GBOG to make sure that the list is periodically updaetd with *all* proposals from their CU. When writing proposals, the co-authors and their CU representatives within the GBOG agree to:

- **Follow guidelines.** The present guidelines, agreed by all GBOG members, should be followed, when relevant.
- **Exchange information.** Coordinate all proposals, especially the *coordinated* ones, in terms of time planning, number of requested nights, cross-references among proposals, and so on.
- **Provide proofreading.** Read and comment constructively each other's text, especially for *coordinated* proposals, to improve quality and coordination.
- **Open access to the data.** When allowed by the TAC, all kinds of GBOG/DPAC ground based proposals should renounce the raw data proprietary time, or make it as short as possible.

4 Text Structure

The guidelines presented in this Section concern the text organization of the proposal, both to ensure good quality justifications of Gaia as the scientific case of the DPAC proposals, and to present a common, easily recognizable structure to all TACs around the world.

- **Common title structure.** As agreed on the GBOG M02 in Paris, on 8-9 March 2007, all DPAC ground-based proposals, both *coordinated* and *standalone*, will begin their title with the common sentence: *"Ground-based observations for Gaia's calibrations: ..."*.
- **Standard sentence in the abstract.** The abstract of the proposal should always contain a sentence that puts the proposal in the framework of the Gaia general DPAC ground-based effort. An example of such sentence can be: *"This proposal is part of the official coordinated European effort to gather the necessary ground-based observations for the preparation of the Gaia space mission."*.
- **Scientific introduction (for pure calibration proposals).** A common introduction should be used, imposing Gaia as the main scientific case of these proposals that otherwise might appear less appealing in terms of immediate scientific return. Additional scientific outcomes -if any- should be listed as side benefits. Typical such introductions, that have passed the judgement of various TACs, can be found on the GBOG wiki pages under the Section *"Proposal coordination"*.
- **Scientific introduction (for proposals with additional scientific outcomes).** These proposals have an additional, immediate scientific outcome to strengthen the case,

besides the needs of Gaia. This science case should then be used as one of the main strengths of the scientific justification alongside the Gaia needs. The part concerning Gaia should still conform as much as possible to the examples found on the GBOG wiki pages under the Section *"Proposal coordination"*.

- **Technical justification & quality standards.** See Section 5 for more details that can strengthen the proposals and a for a checklist of things that should be included and/or properly justified.

- **References and citations.** Of course, citations to relevant literature papers should always be included when you make a statement. But most of the statements you will make will imply the need of citing Gaia technical or reserved documents, or Gaia webpages, or other web resources and databases. Many TAC members do not like to check websites, wiki pages, reserved documents, and so on. Nevertheless, other TAC members love the reference to well maintained websites or additional links. Therefore, we recommend to:

  – Describe briefly the content of every reserved Gaia document (even a couple of words give a better impression) and then cite it *"for more details"*;

  – Do the same with public/open websites and wiki pages;

  – Make the Gaia technical documents temporarily available to the TAC members on a web-page. The website should not be found by following other links and should be removed after the proposal has been judged;

- When a proposal is a resubmission or a continuation of another proposal to the same TAC, remember to add a short report of the work done, even if not explicitly requested by the TAC. If no work has been done, in some cases it is still a good idea to justify that explicitely.

5 Quality Standards: a Checklist

The following checklist contains a few guidelines that might sometimes appear obvious or even pedantic. But Gaia proposals sometimes require a lot of observing time, and some other times do not imply an immediate scientific return for the facilities used. Therefore, it is necessary to be extra careful in the proposal writing. In particular, every single choice made must be justified in the most *quantitative*, as opposed to *qualitative*, way possible. This will ensure the quality level expected by the TACs from such a large collaboration as the DPAC.

- **Preparations before writing the proposal.** When assembling the sample of objects to be observed, justify to yourself the amount of objects and the required S/N, i.e. the total observing time that should be requested, as well as the minimal acceptable observing conditions (seeing, transparency, etc.). This is even more true

for proposals not directly related to science, such as the majority of the GBOG proposals. TACs usually are rather benevolent to preparatory proposals of international large space missions, given the impact these missions have on astronomy in general - however they are also aware that time awarded to these will most likely not result in publications directly. Therefore they will look with greater scrutiny at the time demand. This makes it very important to assess the required time thouroughly, and limit the demand to a minimum which allows to fully ensure reaching the goal without compromise. If there is any unclarity remaining concerning time demand, sample size or S/N, the applicant should refer to the other GBOG members and seek their advice. It is of paramount importance to have these issues settled before even starting to write the proposal.

- **Calibration needs.** All Gaia proposals should always describe in a clear and concise way the general calibration needs of Gaia (see Section 4), the calibration needs of the CU (or CUs) that is proposing, and the specific goals of the proposal itself, in the framework of the general Gaia needs. These three hierarchical steps should always be clearly separated and described in the proper order. Please remeber to define what a CU is, and what are the main tasks of the CUs you are mentioning.

- **Choice of targets & need for new observations.** The need for new observations should be thoroughly justified, especially for those observing sites that maintain public data archives, such as ESO:

  – Explicitly relate the chosen type of objects to the calibration needs;

  – Describe in detail all literature searches, adding all citations;

  – Describe in detail all archive data searches, including all links;

  – Cite any Gaia document that contains more details on those searches;

  – Conclude with a sentence that reiterates the need for new observations.

- **Technical/observational aspects.** The key points concerning the technical description of the program should be clearly addressed in the relevant section of the template (read the instructions). This includes choice of site, telescope, instrument (including grism or filters), S/N and time demand (as justified to yourself, see first point). Different proposal forms have their descriptive sections organised in different ways, therefore care needs to be taken to honor the respective sections accordingly.

- **GBOG observing strategy.** Provide the framework, the GBOG coordination strategy to tackle the calibrations of Gaia, and so on. For example:

  – Use of different (complementary) sites, telescopes or instruments;

  – Inter-CU proposals presented as one single programme;

  – Presenting more than one programme at the same site;

– Choice of large or long-term programme, or of normal program status;

If appropriate, after putting the observations in the general framework and time-line of Gaia needs, you should justify the urgency or the time-line of your observing plan in detail.

6 References

Soubiran, C. 2006, GAIA-C8-TN-LAB-CS-001