

Arecibo Proposal Disposition and Telescope Scheduling Procedures*

2014 January 23

1 Introductory Note

In this latest version of the document describing telescope proposal procedures, there are no major changes compared to the previous version (dated 2013 July 31).

2 Proposal procedures

2.1 Common peer review (no “skeptical reviews”)

We aim to identify the most promising projects among all being proposed, and to then schedule and do all that we can to make those successful. We do this through transparent peer review, and we no longer have the skeptical review procedure that was in place until 2012. Instead, at a given deadline, all submitted proposals are evaluated uniformly by the same set of reviewers in each area — e.g., all pulsar (P) proposals are reviewed by all of the “pulsar reviewers”; all “radio astronomy” (A) proposals are reviewed by all of the (non-pulsar) “radio astronomy reviewers”, and so on. Using the grades/ranking and comments from those reviewers, the ASAC (Arecibo Scheduling Advisory Committee) makes final determinations.

*To the extent that existing documentation concerning proposals and scheduling (e.g., on Arecibo’s web pages) is inconsistent with these guidelines, this document takes precedence. In time we will ensure consistency.

2.1.1 No prior preference for survey projects

There is no prior preference given to survey/consortium versus other types of proposals, and within the set of survey/consortium proposals there is no assumed prior “equal status”. Time allocation will be fundamentally determined by peer review and telescope schedule pressure, which varies greatly as a function of LST and day/night.

2.2 Meaning of proposal grades

However much time is required to complete an entire project, *at each proposal deadline users will be making a specific time request for that semester, or in some cases for 1 year*. An A grade will mean that whatever time is approved by the ASAC *for that semester (or in some cases for 1 year)* will be scheduled that term, and if that proves impossible, it will be scheduled during the next possible term. If it is not scheduled by then, it will expire. A B grade will mean that up to a certain amount of time is tentatively approved *for that semester*. We expect that many B proposals will be scheduled at least in part during the semester for which they are tentatively approved. But if they’re not, they will expire altogether (i.e., no B-rated time will be carried over to another semester). It’s also possible, for example, that a proposal will have some time approved with a grade of A, and some with a grade of B.

To be more explicit, here is the meaning of the grades for Arecibo proposals:

- “A” projects will have the highest scheduling priority. They will be considered for scheduling for up to one term beyond that for which time is approved. In other words, if for some reason (e.g., equipment failure) we cannot schedule the approved A time for the requested semester, we will aim to schedule it during the next relevant semester (which may be up to one year later, e.g., if a particular LST is required at night).
- “B” projects have the next highest scheduling priority. They will be considered for scheduling for only one semester. We expect that several of these projects can receive a significant portion of their granted observing time. We recommend that the project team consider visiting Arecibo to increase the chances of having their B project scheduled¹. Proposers should care-

¹We believe that in general it is good for projects, for the team members involved (in particular students), and for the observatory to have researchers do a significant portion of the project work

fully consider whether a project requires resubmission in order to achieve all goals.

- “C” projects won’t be scheduled. Proposers are invited to submit a revised proposal at the next deadline.

2.3 Proposing one year at a time

Some projects are naturally “one-year projects”. For instance, some astronomy projects require night time observing. For this reason, in an hypothetical example requiring a total of 50 hours, it may be that the observers can only use 10 hours in the Spring semester, and 40 hours in the Fall, for a project that is one coherent whole. In that case we would encourage the users to submit a proposal for 50 hours at the September deadline, specifying clearly that only 10 hours can be done in the Spring term and that the remaining 40 hours are requested for the Fall.

Another example: newly discovered pulsars require a full-year span to obtain timing solutions. It makes no sense to allocate time for 6 months and entertain the notion that time for the second semester will not be allocated — in such a case, the first 6 months of time would have been wasted. In such an instance, it would make sense to request time for the full year.

For other time-critical projects (including some driven by seasonal climatology) it also makes sense to request observations straddling semesters.

In all those instances, we encourage the users to carefully describe, justify, and request time over a 1-year interval – and to be explicit about how much time is being requested for each of the two semesters.

Proposals can also be submitted and accepted more than 1 year in advance of scheduling, where additional planning is required (e.g., for spacecraft encounters, or for projects involving complex multi-telescope campaigns).

2.4 Long-term projects/surveys

By way of example, a large, multi-year project must justify its overall case in the initial proposal. But if the project is expected to require 1000 hours of telescope time over 10 semesters (say, with an uneven distribution across the Spring and

on-site. We thus intend to encourage such a presence. The implementation details remain a work in progress, but we ask that interested members of B-rated projects contact us at jschmelz@usra.edu after the results of a proposal round are released.

Fall terms), at a given deadline the proposers are strictly requesting (and, if approved, the ASAC is awarding) time *for at most the coming year* (e.g., 30 hours for the next Spring semester and 70 hours for the next Fall semester). At future relevant deadlines, the full proposal is to be resubmitted, with a description of progress seamlessly integrated into the text², new telescope time requested (in this example, perhaps another 100 hours, perhaps more or less), and the reviewers and ASAC, based in part on the progress of that project, and being able to compare this request with all the other proposals being submitted at that deadline, will make their recommendations and determinations.

The ASAC may award some telescope time to a multi-semester proposal for the first semester under consideration (with either a grade of A or B), and not award any time for the second semester (C grade). This could happen for a variety of reasons: for instance, there could be specifically identified issues with the proposal (e.g., data already collected have not been analyzed, or show some problems); in that case the ASAC may in effect request that the proposers address these concerns and resubmit the proposal for consideration in future terms. But it could also be that a proposal is simply not ranked high enough to merit pre-allocating time for the second semester, even if no specific problems are identified (because to do otherwise might preclude more promising proposals, submitted at the next opportunity, from being scheduled). In such a case the users should consider modifying their proposal to make it more compelling before resubmitting.

3 Dynamic telescope scheduling

Some of our users have expressed a desire to see “dynamic telescope scheduling” implemented at Arecibo. This means different things to different people, and it means something different for the Green Bank Telescope and a telescope like Arecibo, where work is done in three different disciplines, and where both Earth and space weather may be a factor. We are considering what we can do to improve matters in this area, but in the meantime we remind our users that if they have “unusual” scheduling constraints, they should talk to us about the detailed requirements. This very much starts with the submitted proposal: be as detailed

²The first time that a large/long-term proposal is submitted, the scientific case will naturally occupy a large fraction of the text, and there will be no progress report; in subsequent submittals, a description of the progress may take up considerable space, and the scientific case may have to be abridged — it should still be self-contained and substantial enough, however, for reviewers, including possibly new reviewers, to be able to judge the merits of the entire project.

as you can be in your description and justification of ideal scheduling constraints (e.g., if you “want to use the telescope within seven days of a new moon *and* when the weather is clear”, say so, but also give us a sense of what “clear weather” means, and how we all might determine that). We really want to help!

4 Proposal evaluation criteria

4.1 Intellectual merit

In reviewing the proposals we aim to consider, as always, the intellectual merit of the project. Users are strongly urged to consider that some of the reviewers/ASAC members are *not* experts in the area of the work being proposed. A good proposal will clearly explain what is being proposed, how it is to be carried out, but also why it addresses a scientifically important question, in a manner that is comprehensible to a non-expert in the sub-field.

4.2 “Broader impacts”

Beyond intellectual merit, we wish to pay closer attention to “broader impacts” of the work being proposed. One clear, but by no means sole, example is the educational and public outreach components. For instance, currently we are often aware of graduate student participation in a project. But we may not know the details, and there’s potentially a big difference between having a few graduate students “involved” in a project, and having some students for whom the project is a central component of their PhD theses. It will be to the advantage of proposers whose projects contain very significant student participation (at any level) or outreach to provide details. Broader impact is not a requirement for proposal approval, but if there is any it may make a significant difference, and it will be advantageous to describe it clearly.

4.3 Productivity

It sometimes comes to pass that a project is awarded significant amounts of telescope time, but years later no publication has resulted from it. We’ll want to know the outcome of the most recent projects led by the PI(s) of a *newly* proposed project. This can consist of a list of publications, and/or a brief (few sentences)

explanation of the status of the project(s). This should be included as the last section of the proposal before the References. For now we are not making this more explicit (e.g., how many projects should be addressed?), but it is a requirement for past PIs. Our intent is to reward productivity.

5 Page limits

For regular proposals, the size limit is 4 pages, within which should be included References and figures as well as, if relevant, the requirements mentioned in § 4.3, § 8, and possibly § 4.2. Source lists don't count against page limits.

For large proposals, defined to be those that request more than 300 hours for the *entire* project, the size limit is 7 pages.

If a project forms the central component of students' theses (master's or PhD), we encourage the inclusion of an additional page per such student that in effect contains a summary of the thesis proposal.

In order to aid readability of proposals, they should be written in a font size no smaller than 11 pt, and with margins of no less than 1.0 inch on all sides.

6 Commensal project considerations

With commensal projects, there is in general value in being able to do much more science for marginal greater expenditure of observatory resources. We aim to continue to support current and future commensal projects, subject to the level of time allocation that they earn through the proposal disposition process, and subject also to the groups of researchers involved wishing this to continue.

Groups that aim to carry out commensal projects should coordinate at the proposal stage in the following way: each of the proposals should justify the science case and describe the *actual* observing scheme, but only the primary proposal should specify the associated observing time (i.e., the secondary project should request 0 hours in the cover sheet). All the overheads that might be associated with a commensal observing scheme need to be considered at the proposal submission stage, and it is these realistic estimates of time required to complete a project that will be considered by the reviewers/ASAC. Basically, we aim to have a realistic understanding of the implications of commensality at the proposal submission stage.

7 Who needs to (re)propose what in March 2014?

The only projects that are already guaranteed (pre-allocated) telescope time for the Fall 2014 semester are those that received an A grade for at least some Fall 2014 time based on their submissions at the September 2013 proposal deadline. As per the definition of grades above (§ 2.2), a project awarded a grade of B for the Spring semester isn't *guaranteed* that time, and in order to try to *ensure* any observing time such users should repropose.

8 Data management plan, project web pages and proprietary data periods

All large projects (those that request or have already used a combined total of more than 300 hours of telescope time), or those that record more than 1 TB of data to general purpose disks within one observing semester, must present a *data management plan* in a dedicated section integrated into the overall proposal.

In general, Arecibo data have a proprietary period of 18 months. For large projects, we want to know what are the *specific* plans for the release of data (or data products, as appropriate) once that period is over. If that period is already past, we want to see those data (or data products) released appropriately (e.g., on a web site). If that is not possible for some reason, a valid justification must be presented. These matters must be discussed in this section (which can be short, but must address the issue).

In addition, all large projects (not limited to ALFA) must have a web page (with URL indicated in this section) that at a minimum presents in clear fashion (for non participants) the aim and current status of the project (including such things as fraction completed, and results including publications) — as well as data release plans and status.

Those projects that within one semester record more than 1 TB of data to general purpose disks (which include, for instance, those on PUPPI, but not those used for VLBI experiments), *must* indicate how they will transfer the data off the data-recording machine expeditiously. This plan must be sensible, taking into account relevant limitations (e.g., the capacity of the data-recording machine, considering that other observers are likely to also want to use it; the bandwidth achievable across the internet out of Arecibo). If relevant, these matters should be addressed in this section.

9 Coversheets

The coversheets (<http://www.naic.edu/~astro/proposals/cover.html>) now contain links to some web-based tools that users should find useful (e.g., to answer such questions as “at what LST is this source visible?”, and “on what days of the year is a particular LST available at night?”). Please use these tools as needed, and in any case carefully fill out all the relevant fields of the coversheets (e.g., if you need night-time observing, don’t state that night-time is merely preferred).

10 Feedback

These procedures have been adopted after consultation with representatives from the Arecibo Observatory Users Committee and feedback from many in the user community and our external proposal reviewers. We hope that they help us to identify the most promising proposals via peer review, with continuing oversight as needed, and with scientific and educational productivity rewarded. We also expect that these procedures will lead to simplified and more responsive telescope scheduling, and more flexibility to schedule for all disciplines.

However, the procedures can always be improved. In light of experience, and your feedback (which we encourage you to provide, along with requests for clarification, to Joan Schmelz at jschmelz@usra.edu), we will revisit them as needed.