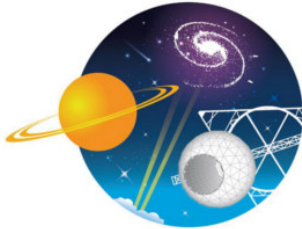


Arecibo Observatory Observing Proposal Submission System



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Information About Experiment Proposals and Policies for the High Frequency (HF) Facility

Use of the HF Facility at Arecibo Observatory (AO) is available on an equal, competitive basis to all scientists from throughout the world to pursue research in atmospheric sciences, and radio communications. Observing time is granted on the basis of the scientific merit and broader impacts of the proposed project. Potential users of the facility should submit a proposal describing their desired observations or experiment, the scientific justification, and the broader impact for these. The procedures for submitting proposals, the mechanics of evaluation, and the life-cycle of these proposals, are outlined below.

Up-to-date information about the status of the telescope and available instrumentation is obtainable at the [Arecibo Observatory website](#). Publicly-available information for currently scheduled proposals can be found on the [web](#). This includes title, abstract, first author, time requested, and instrumental setup.

The following policies are related to the HF Facility but are in common agreement with the general policies for the general use of the telescope.

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1. DEADLINE FOR SUBMISSION

There will be deadlines to submit regular proposals along the year. However, short or urgent proposals are welcomed anytime. The "Call for proposals" with the appropriate deadlines will be announced through the Observatory web page and general emails to the HF user data base and to the CEDAR-GEM community. The Calls will be made at least one month in advance of the deadline.

The Observatory reserves the right to invite other proposals for specific purposes at any time.

2. PROPOSAL SUBMISSION

- Standard HF proposals for a given deadline are accepted between the publication of the "Call for Proposals" for that deadline and the deadline itself.
- The cover sheet must be filled in completely, and submitted through the [web-based form](#).
- The scientific and outreach abstracts should each not exceed 150 words.
- The proposal body, containing the scientific and technical justification, must not exceed the limits for the type of proposal being submitted (3 pages for regular proposals) including figures, but excluding references and target list. This should be in the form of a PDF file and should be uploaded via the website.

A proposal is composed of two parts: the cover sheet, and the proposal body (containing the scientific and technical justification).

The cover sheet portion of the HF proposal must be submitted via a web-based form and consists of a title, abstract, author contact information, time and HF experiment and diagnostics. After filling in all the specified information, you may preview the form to check for completeness and accuracy.

The proposal body must be submitted separately as a PDF file. This should be uploaded using the same [web-based form](#) as the coversheet. The total size should not exceed 2MB. Please do not send compressed (e.g. g-zipped) files. If you have problems uploading your file, please contact us.

3. REQUIRED PROPOSAL CONTENTS

3.1 Cover Sheet

The web cover sheet must be filled out completely and submitted successfully prior to uploading the rest of the proposal. The cover sheet includes:

- The amount of time requested (in hours).
- An abstract, no more than 150 words in length, clearly summarizing the scientific objectives of the proposed research.
- An outreach abstract, no more than 150 words in length, describing the proposed research in a manner that would be comprehensible to the general public.
- Whether on-site or in absentia observing is being requested.
- Any time, or other, constraints for the experiments, including the best time of the year and time of the day to perform the experiments, and a description and time table of the HF mode that you want to use.
- The AO diagnostic instrument that you want to use (ISR, optical, or other RF)
- A description of auxiliary diagnostic equipment that belong to other users but needed for the project.
- Users are strongly encouraged to contact appropriate staff members to ensure availability of this equipment and to discuss the resources needed (including staff effort) to support it (see below).
- A description of user-provided special equipment, if any, to be brought to the Observatory.

3.1.1 Observing Time

On the cover sheet, you are asked to specify the requested observing time for the coming period. If your project cannot be completed in that single period, you can also ask for time up to one more year (the time request(s) must be justified in the body of the proposal). In the case of a project that is planned to continue beyond one year, you must estimate the remaining time required to complete the project.

On the cover sheet, you are also asked to specify the observing time requested in either AST (Atlantic Standard Time = UT - 4 hours), or UT, and specify the number of observing days required for each time slot. Describe constraints as succinctly and completely as possible. The time requested and its distribution must be supported in the scientific justification part of the proposal.

3.1.2 Auxiliary Equipment

Some auxiliary equipment, such as the Photometers or SDRs, require little user interaction. Other equipment is more complex and requires detailed set-up and operation for an experiment, for example Lidars or any special configurations for the Fabry-Perot Interferometers. Users who want to utilize these instruments in their studies are strongly encouraged to contact the appropriate staff member to determine the proper configurations for observation. Because most such auxiliary equipment cannot be run unattended, an investigator or staff collaborator must be on site to conduct these observations.

3.2 Proposal body

This should be a single PDF file, uploaded via the web form. The proposal body will normally be three pages long, except for large projects (6 pages) and urgent proposals (1 page), not including references and the source list. It should be formatted for US Letter (8.5" x 11") paper, with 1" margins and font size no smaller than 11pt. The proposal body should contain the following sections:

- A Scientific Justification setting out the intellectual merit of the proposed observations. Users are strongly urged to consider that some of the reviewers and Arecibo Scheduling Advisory Committee (ASAC) members will not be experts in the specific area of work being proposed so they should aim for their scientific objectives to be comprehensible to scientists within the general field.
- A section on Broader Impacts may be included describing the broader impacts of the work being proposed, e.g. educational and public outreach components or how the work will benefit the scientific community beyond the specific science proposed, such as by making datasets available. Broader impacts are not a requirement for proposal approval, but may make a significant difference if included.
- A section on Productivity should be included containing:
 - For newly submitted proposals, summarizing results from recent projects led by the same author(s). For early-career scientists who have not yet established a track record of publications, this section may be omitted.
 - For proposals for renewal, summarizing results (if any) obtained from the project so far.
- Projects requiring ISR diagnostics and intending to record more than 1 TB of data, should include a Data Management Plan integrated into the overall proposal. This should include specific plans for the release of data once the proprietary period is over, and (for projects recording more than 1 TB of data) plans for how they will transfer the data off the data-recording machine expeditiously. This plan must take 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, and the internet bandwidth available to Arecibo.
- References should be included. These do not count towards the page limit, and should be part of the same file as the main narrative.
- If a project forms a central component of a student's thesis, or of multiple students' theses (Master's or PhD), we encourage the inclusion of a one page Thesis Summary for each student containing a summary of their thesis proposal. This does not count towards the page limit, and should be part of the same file as the main narrative.

NOTE: There is no need to repeat the author list and abstract in the proposal body as these are on the cover that is sent to the referees.

4. PROPOSAL REVIEW AND SCHEDULING

Following the submission of a proposal, the PI will be notified and provided with an identification number. If there are no obvious technical problems, the proposal will be sent to anonymous referees (not Arecibo staff) with expertise in the proposed field. The referees' recommendations serve to guide the Arecibo Scheduling Advisory Committee (ASAC) in the relative ranking of all proposals, which is used as input for the time allocation and scheduling process. ASAC contains both internal (Arecibo staff) and external members.

After the referees' reports are received, the ASAC meets and assigns a letter grade, A, B, C, or D to each proposal. A and B graded proposals are considered "approved projects". Proposers are sent the referee reports and the letter grade, as well as any specific comments or requests for clarification from the ASAC.

- Proposals with an A-grade will be put into the scheduling queue and scheduled for the time awarded during the period for which they were accepted or if that proves impossible during the subsequent semester. Special consideration with the scheduling process will be given to A-grade proposals that have a restricted timeline owing to graduate student participation or to other issues affecting the broader impact of the proposed research.
- Proposals with a B-grade will often be scheduled in the period for which they were accepted. If they are not scheduled during that period, they expire. Allocation of the full requested or allocated observing time is not guaranteed.
- Proposals with a C-grade are not considered "approved projects" but may be scheduled owing to low proposal pressure at time with lower demand during HF campaigns. They are in effect "filler" projects. C-graded proposals will only be considered for scheduling in the period for which time was originally requested.
- Proposals with a D-grade will not be scheduled.

The Observatory Director, in consultation with the Deputy Directors for the scientific fields, has final discretion in scheduling matters.

Approved projects will be assigned a staff scientist to serve as their contact "friend of the telescope" when they receive their notification from ASAC. If required, observers are encouraged to contact this person well before the start date of the observations to discuss observing details. PIs will receive automated notifications when their proposal is scheduled.

It should be emphasized that because of the special requirements of the different research areas which use the telescope, and the semi-transit nature of the instrument, scheduling is a difficult task, and may require interaction between the scheduler and the proposers to ensure the flexibility necessary to accommodate what are often conflicting demands. It is not always possible to schedule in a "linear" fashion strictly following priorities. Depending on circumstances and grades, some proposals will take longer to be placed on the schedule.

The Observatory tries to accommodate the requests and needs of its users, taking into account such factors as the necessity to coordinate projects with other experiments at other observatories, and the relation of a project to a student's career planning.

The following is a summary of the information that proposers will receive via email:

- Project identification number.
- The referee ratings and comments, plus the ASAC grade, comments, and time allocated, if any.
- The name of the Observatory staff scientist who will act as the "friend of the telescope" for the project.

Please note that PIs will only receive detailed information about their own projects, although cover sheets for all approved and scheduled projects are normally available via the Observatory web site. If there are specific reasons why cover sheets cannot be made public (e.g. confirmation follow-up of unannounced discoveries likely to attract widespread attention), the PI should discuss this with the Observatory at the earliest possible moment.

4.1 Appeals

Requests for ASAC to reconsider the grade awarded should be addressed to the ASAC chair. The final decision on scheduling remains with the Observatory Director in consultation with the relevant scientific Deputy Director.

5. PROPOSAL TYPE

On the cover sheet, you are asked to assign your proposal to one of the following categories:

5.1 Standard Proposals:

These proposals are handled by ASAC. With the exception of Short Proposals, they should be submitted for one of the standard HF deadlines.

5.1.1 Short Proposals

Observers having scientific objectives that can be accomplished in 3 hours or less of HF time are invited to submit a Short Proposal, which may be submitted at any time (proposal deadline restrictions do not apply).

The proposers should submit the cover sheet and a brief justification (one page or less). In the absence of conflict, and at the Observatory's discretion, the observation will be scheduled at the earliest convenient time.

5.1.2 Regular Proposals

These are proposals that are generally completed within a one-year period, usually in one, or a few, observing sessions. Most proposals fall in this category. The proposal body of a regular proposal may be up to 3 pages long.

5.2 Director's Discretionary Time Proposals:

This mechanism is for proposals that do not fit within the normal proposal procedure, either because of their urgency or other reasons. These proposals are handled by the Observatory Director, or on their behalf by the Deputy Director for the relevant science area, in consultation with the ASAC chair, telescope scheduler, and other relevant staff.

5.2.1 Urgent Proposals

We recognize that observing opportunities occur where the phenomena are short-lived, non-recurring, or of particular interest or urgency. In such cases, the proposers should submit the web-based cover sheet indicating that the submission is an urgent proposal, as well as providing a scientific and/or technical justification. The Observatory Director or the Deputy Director for the relevant scientific area will respond to the request.

5.2.2 Special Scientific Proposals

Users interested in obtaining access to limited amounts of telescope time for "unconventional" observing programs are invited to propose for Director's Discretionary time. For example, an "unconventional" program may be exploratory observations to assess a speculative scientific idea. Special Proposals may, at the discretion of the Director, be sent to the referees or just reviewed by the ASAC. The Observatory Director or the Deputy Director for the relevant scientific area, informed by the recommendation of the ASAC, will decide whether to award time to the proposal. At the Observatory's discretion, proposals submitted in this classification may be reclassified into one of the scientific areas and handled by ASAC if it is felt that this is more appropriate.

5.2.3 Special EPO/Time-purchase Proposals

Users interested in running educational or other programs that purchase HF and/or ISR time should contact the Observatory Director or the Deputy Director for the relevant scientific area in advance of submitting a proposal. A proposal consisting of only a cover sheet should be submitted once agreement has been reached, in order to enter the details into our scheduling system. These proposals may be submitted at any time, with the prior agreement of the Observatory.

6. IN ABSENTIA

We encourage the PI or a collaborator to be in residence during observations. However, we recognize that this may often not be possible and may sometimes be inefficient, as with routine monitoring programs. We therefore provide the option of requesting "In Absentia" observing where appropriate. New observers are highly recommended to come to the Observatory for their first session. For experiments with active configurations, users are encouraged to seek staff collaborators.

In Absentia observing is intended to provide greater operational flexibility for scientists who either:

- cannot travel to AO to carry out their observations at the scheduled periods, or
- cannot stay at the AO site to complete long observing sessions

The observations will be carried out by the HF operator according to the PIs instructions. Therefore, the PI should send, well in advance, detailed and clear procedural instructions and relevant information to the email HF scientist on charge. The HF operator will initiate observing runs, communicate with investigators as necessary, and seek advice from Observatory scientific and technical staff. However, neither the operators nor other observatory staff are responsible for monitoring data quality. In Absentia observing is appropriate for observing programs that are simple and straight-forward to operate; complicated observing programs are not suitable for In Absentia observing.

In Absentia observers must provide contact information in an email to the HF scientist on charge for the person who will actually carry out the observations at least three working days before the scheduled date of observation. Contact information must be valid for the time of the observation, e.g. for observations that will be carried out from home, an office phone number is not sufficient.

7. PROPRIETY

Observers are scheduled on the telescope with the understanding that they pursue the program described in their observing request. Observers wishing to deviate from their original program, exchange time with other observers, or make use of unassigned telescope time, should seek the consent of the Arecibo Observatory Director or the Deputy Director for the relevant scientific area. In cases of emergency or last minute changes, contact the HF scientist on charge.

8. PROPRIETARY DATA RIGHTS

Experimenter will have exclusive rights to the data acquired by instruments own by the Arecibo Observatory for a period of 18 months from the end of observations on a particular object or field or the end of a particular experiment. However, proprietary rights must be specifically requested. Data for which proprietary rights have not been requested (including World Days, optical instruments, etc.) will be uploaded to the [Madrigal](#) database after processing. The PI can request an extension of this period of up to one year by writing to the Observatory Director stating the reasons for which this is requested. This

extension will be granted at the discretion of the Observatory Director in consultation with the relevant scientific Deputy Director. Scientific concepts and/or observing modes are not considered proprietary.

Note that these exclusive rights refer to the scientific use of the data; the Observatory reserves the right to use data obtained with our facilities for RFI monitoring and other data-quality and technical purposes.

The use of data from auxiliary diagnostic equipment that belong to other users is covered by the rules from the owners. The experimenter should contact the PI of the instrument to agree on the use of that data and to give appropriate credit.

9. CONFLICTS AND PRECEDENCE

If two or more proposals request time to achieve essentially the same scientific objectives, they are in conflict. In this case the ASAC has the discretion to recommend the resolution to this conflict. The Observatory Director will have the final authority in resolving conflicts.

10. ACKNOWLEDGMENT IN PUBLICATIONS

Arecibo Observatory kindly requests that papers making use of the Arecibo Observatory contain the following acknowledgment at the point in the text where the Observatory is first mentioned, preferably in the form of a footnote, or according to journal format: "The Arecibo Observatory is operated by SRI International under a cooperative agreement with the National Science Foundation (AST-1100968), and in alliance with Ana G. Mendez-Universidad Metropolitana, and the Universities Space Research Association."

Publications that use data from instruments of other users should contact the appropriate owner(s) and agree on how to acknowledge them.

11. SUPPORT FOR OBSERVER-SUPPLIED EQUIPMENT

In addition to the facility equipment provided by Arecibo Observatory, observers may bring their own special purpose equipment. We encourage such initiatives by providing space, power, and access to the IF signal, etc. Advanced arrangements should be made with the Observatory Director to guarantee a smooth installation.

If you are willing to permit unrestricted access to your equipment and provide full user documentation, it can be converted to 'facility' status; a significant benefit to all parties. The Observatory may then take over routine maintenance. Such arrangements are handled on a case-by-case basis. The technical specifications will be posted on the Observatory website and circulated by other means, so that the equipment becomes available to all who wish to use it. No co-authorship or other obligations are incurred, though professional courtesy warrants acknowledgment in publications resulting from use of such equipment.

12. OBSERVERS' FEEDBACK

In order to improve our facilities and services, we request observers who have completed an observing session to provide us with feedback about their experience.

13. CONTACTS

Observatory staff can be contacted at the following email addresses:

- Eng. Francisco Cordova (Arecibo Observatory Director): francisco.cordova (at) sri.com
- Dr. Christiano Brum (Deputy Director, Space and Atmospheric Sciences): cbrum (at) naic.edu
- Dr. Mike Sulzer (Radar head): msulzer (at) naic.edu
- Dr. Eliana Nossa (HF scientist in charge): enossa (at) naic.edu
- Dr. Chris Salter (Arecibo Scheduling Advisory Committee chair): csalter (at) naic.edu

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