

# ALMA Users' Policies



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ALMA, an international astronomy facility, is a partnership of ESO (representing its member states), NSF (USA) and NINS (Japan), together with NRC (Canada), MOST and ASIAA (Taiwan), and KASI (Republic of Korea), in cooperation with the Republic of Chile. The Joint ALMA Observatory is operated by ESO, AUI/NRAO and NAOJ.

## User Support:

For further information or to comment on this document, please contact your regional Helpdesk through the ALMA User Portal at [www.almascience.org](http://www.almascience.org). Helpdesk tickets will be directed to the appropriate ALMA Regional Center at ESO, NAOJ or NRAO.

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# 1 Purpose and Scope

This document defines the long-term core policies for use of the Atacama Large Millimeter/submillimeter Array (ALMA) and ALMA data by the science community. Cycle-dependent implementation parameters and procedures are detailed in the Call for Proposals documents for each cycle: the cycle announcement, the Proposer's Guide and the Technical Handbook. In case of conflict between the Call documents and the Users' Policies, the latter takes precedence, unless explicitly indicated otherwise. All ALMA users are subject to the Users' Policies described here and in the Call documents. Violation of these policies by a user may result in sanctions against scientific project(s) under evaluation or execution in which they are involved.

## 2 ALMA Users

Unauthenticated users on the ALMA Science Portal (unregistered users, or users who are registered but have not logged in) have access to ALMA non-proprietary data, documentation, tools, and the ALMA Helpdesk Knowledgebase articles listing solutions to common questions and problems.

Registering with ALMA confers all authenticated users additional privileges such as participating in ALMA proposals, accessing their proprietary data, following up the progress of their projects and accessing the ALMA Helpdesk.

### 2.1 Registering with ALMA

Anyone can register for an ALMA user account. Each user may only have a single ALMA account, which is identified by a unique, user-selected username. This username is permanent: a user may not change their username after completing the registration process. To prevent the accidental creation of two accounts with a different username by a single user, the Science Portal issues a warning if it detects such an attempt.

To register, a user must provide their full name, a valid email address, and the country of their affiliation or the country of residence (for users not affiliated with a scientific institution). The Observatory has experienced that often ALMA official notifications end up in the spam folder of users' emails that belong to commercial servers, such as Gmail or Yahoo!. The Joint ALMA Observatory (JAO) reserves the right to refuse any complaint about not receiving email notifications from users entering such email addresses in their user profile.

Users are responsible for ensuring that their profile is correct (e.g., email address, affiliation), both at the time of proposal submission and throughout the cycle. Users are requested to contact ALMA staff through the ALMA Helpdesk if they encounter problems or to de-activate duplicate profiles. It is strongly encouraged to de-activate duplicate profiles.

## 3 User Support

The ALMA Regional Centers (ARCs) and ARC nodes provide user support. For further information, see the associated Guides to the ALMA Regional Centers available at the ALMA Science Portal: <https://almascience.org/documents-and-tools#arcguides>.

The country specified in the user's profile defines which ARC will provide support as follows. Users from a country within the three Executives (EA, EU or NA) are automatically and compulsorily assigned to the ARC of their Executive for support. Users from Taiwan may elect either the EA ARC or the NA ARC as their ARC for

support. Users outside the three ALMA Executives, including Chilean users, may choose any Executive ARC as their ARC for support. In the case of Large Programs, the supporting ARC may change from the Principal Investigator (PI) to one of the Co-Principal Investigators (Co-PIs) under mutual agreement between the PI, Co-PIs and the ARC Managers. If a PI changes affiliation between Executives, the supporting ARC for observing programs that have yet to be started will be transferred to the supporting ARC in the new Executive. For programs that have already started, the supporting ARC will remain unchanged.

Questions should be submitted to the supporting ARC through the ALMA Helpdesk. Any potentially sensitive information communicated to ALMA staff submitted to the ALMA Helpdesk regarding the user or proprietary project details can only be accessed through a secured database accessible by the user themselves, ARC-affiliated or JAO staff.

The ARCs are the interface between ALMA users and the JAO for all communications. Users should always contact the supporting ARC for issues related to any project, including project execution, proposal submissions or change requests.

Only in case of urgent questions regarding the execution of Target of Opportunity (ToO, see the [Principles of the ALMA Proposal Review Process](#) for a definition of proposal types) projects or special observing campaigns (e.g., VLBI) may the PI be in contact with designated JAO staff. In this case, the communication proceeds via the ALMA Helpdesk at a dedicated department.

## **4 ALMA Proposal Preparation and Submission**

This section details policies that govern proposal preparation and submission and time assignment.

### **4.1 Eligibility and responsibility**

Any registered user may submit ALMA proposals. All registered users agree to act according to the ALMA policies and procedures, as defined in this document and in the [Proposal Call documentation](#). In particular, all users accept the limitations of the observing capabilities and operational restrictions applicable for the cycle for which they submit a proposal.

Each proposal must identify a single individual who will serve as PI. A single individual is understood as a single person. Proposals submitted by a consortium are not permitted. Instead, a person within the consortium should submit the proposal and act as PI and any other consortium members will act as Co-Investigators (Co-Is) or Co-PIs (if the proposal type allows them). The PI (or their designee in some cases - see below) is the official contact between ALMA and the proposing team for all proposal correspondence. The PI(s), Co-PIs and all Co-Is are responsible for ensuring that their respective user profiles are correct (e.g., email address, affiliation). Proposals may include any number of Co-Is and, for Large Programs, Co-PIs. Additional rules, described at [http://www.das.uchile.cl/alma\\_crc/das\\_alma\\_crc.html](http://www.das.uchile.cl/alma_crc/das_alma_crc.html), apply for qualification to use the Chilean share of ALMA time.

By submitting a proposal, the PI takes full responsibility of its contents. The PI is responsible for ensuring that all Co-Is and Co-PIs have agreed to be included on a proposal. Including an ALMA user as Co-I or Co-PI in a proposal without their consent may lead to the proposal being canceled. Co-I and/or Co-PI names cannot be added to or be withdrawn from the proposal after the proposal deadline.

The PI responsibilities as described above may only be transferred to Co-PIs or Co-Is in the case of emergencies (e.g., sickness), status change (e.g., retirement) and approved leave (e.g., parental, military, see Section 8.4.4). These responsibilities may not be transferred for non-urgent circumstances (e.g., sabbatical or science leave, vacations). Requests to transfer PI responsibility should be sent to the ALMA Helpdesk.

The PI may grant the following privileges on a project basis to one or more ALMA registered users:

- Access to proprietary data (see Section 8.4);
- Triggering of ToO proposals;
- Email notification of state changes to an approved project.

These privileges are granted through the user profile “Project Delegation” interface accessible through the ALMA Science Portal.

PIs, Co-PIs, and Co-Is may all track the progress of their proposals via the Snooping Project Interface (SnooPI) and are entitled to receive help from, or discuss project details with, ARC staff.

## 4.2 Proposal Time Assignment

Proposal types and the policies related to the time allocation are described in the [Principles of the ALMA Proposal Review Process](#), available through the ALMA Science Portal. There may be cycle-dependent limits on the time allocated for proposals of different types (e.g., Large Programs). These are described in the Proposer’s Guide for each cycle.

## 4.3 Proposal submission: Phase 1

Proposals are generated and submitted using the ALMA Observing Tool (OT). This is known as the “Phase 1” process. The capabilities and most of the observing mode restrictions in the proposal call documentation are built into the OT. If inconsistencies exist, the Proposer’s Guide takes precedence. If a user finds such an inconsistency, it should be reported through the ALMA Helpdesk. ARC and JAO staff will take the appropriate actions to resolve the inconsistency.

Only proposals that conform to the prescribed format, i.e., that are submitted through the OT released for the specific cycle, that comply with the advertised technical constraints and restrictions (including proposal anonymity), and that are successfully submitted into the ALMA Archive before the submission deadline will be considered. It is strongly discouraged to intentionally modify the source coordinates in the OT at Phase 1 with the purpose of obscuring the true positions of target sources. The JAO reserves the right to reject proposals that do not comply with the guidelines to anonymize the proposals for the dual-anonymous review process (see the [Proposer’s Guide](#)).

The final proposal submission deadline is firm. It is the responsibility of the PI to ensure that their proposal has been successfully submitted into the ALMA Archive through the ALMA OT by the deadline. Proposals submitted after this deadline will not be accepted except for Director’s Discretionary Time (DDT) proposals as described below. A proposal can be submitted any number of times to the ALMA Archive until the submission deadline. When a proposal is submitted multiple times, previous versions are overwritten. Multiple submissions of the same proposal using different regional affiliations (see Section 6.4) are not allowed. If such proposals are detected, the first submitted version will be considered, and the remaining proposals will be ignored.

Proposals accepted in previous cycles for which observations have not been completed by the proposal deadline can be resubmitted for consideration in the current cycle call for proposals. If the resubmitted proposal is accepted and one or more Science Goals (SGs) were successfully completed (i.e., successful QA2) or started at the time of the Cycle start, the relevant SGs of the resubmitted proposal will be timed out and the observations will continue in the SG from the previous Cycle.

DDT proposals do not have a specific submission deadline and can be submitted at any time. Accepted DDT proposals shall remain in the observing queue for 12 months from the date of proposal acceptance, irrespective of ALMA Cycle. DDT proposals are not overwritten when resubmitted during the proposal submission process i.e., the first submission is the final one.

## **5 ALMA Proposal Selection**

ALMA proposals other than DDTs are subject to international peer review. Reviewers are either appointed by the JAO, or automatically selected in the case of the distributed peer review.

### **5.1 Duplications**

Duplicate observations of the same location on the sky with similar observing parameters (frequency, angular resolution, coverage, and sensitivity) are not permitted unless scientifically justified. Detailed criteria of what constitutes a duplicated observation are specified in Appendix A.

It is the responsibility of the proposers to check the proposed observations against the previously executed programs in the Archive and accepted grade A programs to avoid duplicate observations. It is allowed to propose observations that duplicate previous Cycle observations if there is no way to know about them by the proposal deadline. Any proposed duplicate observation must be justified in the proposal. The proposal reviewers or the JAO will determine if the justification for the requested duplicate observation is sufficient.

Duplicate observations may result among proposals submitted within the same cycle. In general, the higher ranked proposal will be given priority, but regional shares may be considered for closely ranked proposals. The final decision of which proposal is awarded time will be determined when the observing queue is formed, which factors in the share of time available to each region.

The JAO may consider the amount of time duplicated between the two proposals when determining whether or not a proposal is descoped. The proposal that stands to lose the proposed duplicate observation will not have access to the data from the other proposal until the proprietary period has expired.

There may be cases where more than one DDT, Time Critical or ToO programs are triggered on the same object nearly simultaneously. Should such a situation arise, the ALMA Head of the Department of Science Operations (DSO) will take the final decision on which program will be observed. Typically, the program with the better grade will have higher priority in the queue. Other factors will also be considered, including the requested observing frequency and the prevalent weather conditions, and which project triggered the observation first. In these cases, all relevant PIs will be notified of their priority in the queue. If multiple proposals trigger on a time-variable object, duplication rules will not apply.

## 5.2 Descoping

Projects may be descoped only for compelling scientific or technical reasons. This includes duplications with existing data or metadata available at the time of proposal deadline or with a higher-ranked project from the same cycle. A project descoping based on duplication will only be made if this is clearly stated in the notification of proposal review results to PIs. Descoping cannot add Science Goals (SGs) to a proposal. The observatory will not change parameters for a subset of targets within a SG (e.g., removal of one spectral window or changing the correlator setup or requested resolution and sensitivity for a subset of targets within a SG). If a change request is submitted and in the subsequent duplication checking the observation is then found to duplicate any portion of another active project in the same cycle, then the change request will be denied and target will be descoped from the project making the change request. The descoping will take place irrespective of the relative rankings of the projects.

## 5.3 Proposal Assessment

Each proposal is assigned a letter grade as a result of the proposal review process as described in the [Principles of the ALMA Proposal Review Process](#). Grades A, B and C will be assigned based on scientific rank, Executive balance, and scheduling feasibility. Proposal grades indicate the scheduling priority, with proposals with A grades having the highest priority and proposals with C grades having the lowest. All other proposals will not have Phase 2 Scheduling Blocks (SBs) generated (see Section 6.1) and may not be considered for scheduling at the telescope.

The ALMA Observatory may declare any type of observation that does not conform to the advertised capabilities technically infeasible at any stage of the Proposal Review Process or during “Phase 2” (see Section 6.1). The final decision on project feasibility will be taken by the ALMA Head of DSO based on the advice from a small standing committee consisting of staff at the JAO. PIs of proposals found to be infeasible will be notified by email with a description of the technical issue.

PIs or designated reviewers of proposals that are assessed through the distributed peer review process have to submit their ranks and reviews by the time of the Stage 1 review deadline. If this deadline is not met, the proposal on which the reviewer is acting as the designated reviewer will be rejected (see the [ALMA Proposal Review Process Guidelines](#)).

## 5.4 Outcome

An email notification will be sent to the PIs that will include the consensus report from the ALMA panel review or the complete reviews from the ALMA distributed peer review process, and the assigned letter grade. The outcome of the proposal selection process is final.

In case of questions about details in the ALMA review report(s), the PI may submit a request for clarification through the ALMA Helpdesk. However, in no case will such a request lead to a revision of the grade assigned to the proposal based on the scientific assessment.

## 6 Preparation and Execution of ALMA Observations

This section details policies that govern the preparation, execution, and quality assessment of approved projects.

### 6.1 Observation preparation: Phase 2

All Phase 2 material (including Phase 2 SGs and SBs) is generated automatically by the ALMA Observatory, i.e. PIs no longer need to submit Phase 2 SGs. PIs should therefore be particularly careful when submitting their Phase 1 proposals. In case of changes needed to scheduled projects, PIs should consult with their supporting ARC via the Helpdesk, who will determine whether the Phase 2 Group can implement the change directly or whether a change request is needed (see Section 7).

There is no deadline by which changes can be requested for scheduled projects, however it remains the responsibility of the PI to ensure that all user-supplied information is correct by the time of project execution.

ALMA staff may modify scheduled projects for technical reasons (e.g., to improve the efficiency of the observational setup). If such technical modifications (e.g., moving slightly the spectral windows from the band edge) affect the scientific output of the project in any way, the PI will be contacted to approve the changes.

### 6.2 Observation scheduling

Science observations will be scheduled taking into account many factors including, for example, weather, proposal grade and Executive balance (see Section 6.4), and will be executed by ALMA operations staff. The individual SBs of approved projects will remain in the observing queue until one of the following three criteria are met:

1. The data are determined to meet the user specified criteria (see Section 6.3).
2. The potential scheduling period has ended (one observing season for grade B and C projects, two observing seasons for grade A projects, and 12 months for DDT projects).
3. There are no more 12-m Array configurations planned for the rest of the scheduling period that match the SB angular resolution requirements or time constraints have expired.

If a project has been observed for more than twice the originally estimated time, further executions may be deprioritized (see Section 6.3).

### 6.3 Quality Assurance, project completion and carry-over

The quality assurance criteria and outcomes (Pass, Fail, Semi-pass) are described in the Quality Assurance chapter of the [Technical Handbook](#). Data that have no scientific value (e.g., no valid data or cannot be calibrated or exported) are marked QA0 Fail. Data that do not pass the QA0 criteria do not count against project completion or regional time shares, are not available to PIs, and do not show up in archival searches. Data marked as QA0 Semi-pass will not be used in the generation of PI science products and do not count against the PI or regional time shares, but the raw data follow the same access rules and proprietary periods as QA0 Pass data (see Section 8.4.1) and do show up in archival searches.

QA2 is performed on the data that result from all executions of an SB (called an ObsUnitSet or OUS). A special case is constituted by an OUS that has been already observed for more than twice the originally estimated

time and still does not pass QA2. In this case, the region where the QA2 assessment was performed will report on how much time was already spent, how much additional time is anticipated to be needed to complete the OUS, and whether the additional time is thought to be useful for that OUS. Based on this, the ARC manager at each region will take the decision to mark the corresponding OUS as QA2 Fail and have it placed back into the observing queue or as QA2 Semi-pass and have the data products delivered to the PI. QA2 Semi-pass data have the same proprietary period as other data deliveries (see Section 8.4) and count against regional shares (see Section 6.4).

SBs from Grade B and C projects that have not been started or completed by the end of the cycle and have not been accepted as a resubmission in the new cycle will be removed from the observing queue. Grade A proposals that have not been completed at the end of the cycle in which they were submitted will be carried over to the next cycle. At the end of the second cycle in the observing queue, Grade A proposals will also be removed from the observing queue unless a resubmission has been accepted for the upcoming cycle.

If not all of the project's OUS have been delivered as QA2 Pass or Semi-pass and there is no further opportunity to observe the project in the current cycle (e.g., because the requested configuration is no longer available) or to roll it forward into the next cycle (e.g., resubmission, Grade A), the project is terminated. If there are executions of an SB that are insufficient to pass QA2 at the termination, the QA2 state is changed from QA2 Fail to QA2 Semi-pass and the OUS is delivered to the PI.

## 6.4 Time accounting

The policies of time accounting are described in the [Principles of the ALMA Proposal Review Process](#) document.

The ALMA Observatory strives to balance the observing time among the regions over two-year periods. Balance across regions is based on the actual execution time of valid 12-m Array observations; i.e., data that are QA0 Pass and have been delivered to PIs (see Section 6.3).

All proposals will have their observing time assigned proportionally to the regions of the PI and Co-PIs (in case of Large Programs). As long as it does not exceed 5% of the total observation time of the cycle, observation time for PIs and Co-PIs unaffiliated with an ALMA partner (Open Skies projects) will be accounted to the regions, proportionally to their regional share; i.e., 10% for Chile, 22.5% for EA, and 33.75% for each of EU and NA. Any additional time required by Open Skies observations will be assigned to NA.

The affiliation in the ALMA user profile at the time of the proposal's last submission is used. For EA/NA affiliation, 50% of the time is accounted to EA and 50% to NA.

## 6.5 PI errors

The Observatory is not responsible for errors in tuning or pointing (e.g., wrong or outdated ephemerides) due to incorrect information provided by the PI. All ALMA time allocations charged to observations that are flawed due to user error will be charged to the relevant region as if the observation had been completed without errors.

Should a PI realize after observations of their project have been made that, due to an error on their part, the data do not produce the expected scientific outcome, then the observations will not be repeated. If unexecuted parts of the project are found to contain similar (or any other) errors before the project execution

has been completed, the PI should immediately submit a change request to correct those errors. This change request will be handled through the standard procedure (see Section 7).

## **7 Changes to ALMA Proposals**

After the proposal deadline, submitted proposals may not be changed prior to the completion of the review process. After the PIs have been notified of the results of the proposal review process, PIs of scheduled proposals may request changes to their project. Any major change may be made only after the approval of a PI-initiated change request, which may be motivated by recommendations made by the proposal review panel or other technical considerations for implementation during Phase 2.

A PI-initiated change request is not necessary to correct errors introduced by the Observatory (either by ALMA staff or ALMA tools) in the generation of a Scheduling Block and identified after it is submitted to the observing queue. Consultation with the PI, if required, will be handled via the respective ARC for support. Any time spent executing such erroneous SBs will not be charged against the PI observing time.

During the time the change request is under consideration, the affected project will be immediately removed from the observing queue until the change request status is resolved.

Change requests leading to duplications against ALMA proposals in the observing queue or archival observations are not allowed.

The Observatory's decision on the requested change will be communicated to the PI via the Helpdesk. Approved changes will be implemented by ARC staff in consultation with the PI.

### **7.1 Project withdrawal**

A PI may withdraw a submitted project at any time. If a PI withdraws a project prior to completion, a Helpdesk ticket should be filed so that no further observations are acquired for the project.

## **8 ALMA Data Delivery and Data Rights**

This section details policies that govern ALMA data, including proprietary times.

### **8.1 Data property**

All data taken by ALMA are jointly owned by the Parties<sup>1</sup>. Ownership shall not impact the free access to the data for use by observers and the astronomical community, according to the policies described in this document.

### **8.2 ALMA proposal data**

Proposal data include the Phase 1 materials submitted by the PI (proposal title, abstract, scientific and technical justification, and the names, institutions, and regions of PIs Co-PIs and Co-Is); the proposal grades

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<sup>1</sup> The 'Parties' are defined in the ALMA Trilateral Agreement as the NSF (National Science Foundation of the United States), ESO (European Organisation for Astronomical Research in the Southern Hemisphere) and NINS (National Institutes of Natural Sciences of Japan).

and reviews; and the Phase 2 content prior to execution, including target positions, frequency settings, and spectral window parameters.

For proposals assigned grade A or B, the project code, proposal title and abstract, and the names of the PI, Co-PIs and Co-Is will be made public soon after PIs are informed of the outcome of the proposal review process. For proposals assigned grade C, the corresponding information will be made public when the first data pass QA0.

Proposal metadata for Grade A proposals (for example the source positions, observation frequencies, and integration times) will become public after the proposal review process is completed. For Grades B and C proposals, metadata will be made public for each SB as soon as the first data of such SB are archived. The metadata for unaccepted proposals or unobserved proposals (or parts of it) will remain confidential.

The scientific and technical justification, figures, references, and review rankings and reviews are never made public for any proposal.

### **8.3 Observational metadata**

Observational metadata include the positional and sky coverage information, frequency settings, frequency coverage and resolution, angular resolution, *uv*-coverage, antenna lists, source and calibrator names, polarization, observation date(s) and start/end times, time on source and sampling rate, weather information and PI name. Observational metadata will be made available without restrictions when an observation that passes QA0 is archived, regardless of its grade.

### **8.4 Observational data**

Observational data include visibility data and all resulting data products.

#### **8.4.1 Observational data access and proprietary periods: QA2 access**

All OUSs that do not fail QA2 (see Section 6.3) will be made available to the PI and any ALMA users delegated by the PI (see Section 4.1). These data are subject to a 12-month proprietary period that begins when the ARC sends an email notification to the PI that the data are available. For DDT projects, this proprietary period is 6 months. The ALMA Director may grant a different proprietary period in exceptional circumstances.

Successful proposers will have exclusive access to their project's observational data for the proprietary period, after which the data will become publicly accessible.

ALMA staff will have access to observational data at all times, as necessary e.g. for technical analysis, performance tuning and supporting the PI and any ALMA users delegated by the PI. In addition, ALMA staff members formally assigned to perform project QA2 can download and reduce project data for this purpose.

Until the proprietary period expires, ALMA staff may not disclose or scientifically use ALMA observational data from projects for which they are not PI, including projects they support, without explicit recorded permission from the PI. Similarly, ALMA staff performing QA2 may not disclose any intermediate or final data reduction products of PI observations to anyone outside the ALMA/ARC network, including the project PI, Co-PIs and Co-Is, prior to data delivery. Any exceptions to this policy must be approved by the ARC Managers and informed to the Head of DSO.

### **8.4.2 Observational data access: QA0 access**

PIs can request via the ALMA Helpdesk that QA0-pass raw data should be staged for download as soon as they are available i.e. before the full QA2 products are ready. The proprietary period for the MOUS will start after the raw data from the first Execution Block (EB) in the MOUS have been made available to the PI, even if the observations continue in next the cycle as a result of a carry-over (in the case of A-rank projects) or a resubmission. Helpdesk tickets requesting assistance with raw data will be given a lower priority than other submitted tickets although will still adhere to the standard operating procedures and service level agreements of the ALMA Helpdesk (i.e. PIs will still get a reply within 48 hours but may not have the issue Resolved in that time). The release of raw data to the PIs will have no implications for the QA2 process. QA2 data will continue to be delivered to all PIs, irrespective of whether they chose to download the raw data. The proprietary time on data that have been requested at QA0 will not be changed if the associated MOUS goes on to fail QA2 i.e. the proprietary time will still be 12 months from the time the QA0 data were made available. Note that the QA0-access policy supersedes the previous stale data and early release of ToO and time critical data policies.

### **8.4.3 Problems with delivered data**

If a user finds a significant problem with the calibration or imaging data products, a Helpdesk ticket should be submitted to their supporting ARC. The Observatory will then determine if the observations or data processing need to be repeated to correct the problem. If necessary, active SBs that might be affected by the reported issue and have not yet been observed will be put on hold while the investigation takes place. Archival access may be suspended until the corrected data have been re-delivered. For issues that have little to no impact to the affected projects' Science Goals, the solution or work-around will be communicated to the user.

If all or part of the project needs to be re-observed, the relevant SBs will be placed back in the observing queue with the original priority. If necessary, corrected Phase 2 SBs will be produced and resubmitted. Re-observation will only be possible within the same Cycle, except for grade-A proposals that are carried over to one subsequent Cycle. Any exceptions to this policy will be considered on a case-by-case basis at the discretion of the Head of DSO.

When re-observed, the data will be processed through QA2 and re-delivered to the PI with the corresponding proprietary period (see Section 8.4.1). If the data need to be reprocessed rather than re-observed, these corrected data will replace the original data in the Archive.

If a problem reported by a user is determined to impact other projects, the Observatory will proactively contact the relevant PIs to describe the issues. The policies in this section will then also be applicable to the affected projects.

### **8.4.4 Extension of Proprietary periods**

ObsUnitSets that need to have their data corrected (see Section 8.4.3) but which do not need to be re-observed will have their proprietary period extended if the proposal Science Goals are affected. To encourage PIs to check the data they receive as soon as possible, the extension of the proprietary period is granted based on the rapidity of the problem report:

- Problems reported within two months of original delivery: the full proprietary period will be reset based on the delivery date of the corrected data.

- Problems reported more than two months from the original delivery: the affected PIs will only receive an extension equal to the elapsed time between the posting of the reporting Helpdesk ticket and the delivery date of the corrected data.
- Problems reported after the proprietary period has expired: the affected PIs will receive the corrected data when available and such data will also replace the faulty products in the Archive. In this case, a new proprietary period will not be granted.

Requests for extensions will be always considered for extenuating circumstances outside the control of the PI. The most common circumstances where proprietary time extensions have been approved include parental/personal leave, sick leave, or military service. PIs may submit the request through the Helpdesk and justify that the approved leave takes significant time away from the office. Decisions on requests for an extension of the proprietary period are made by the Head of DSO. The length of the extension will be considered on a case-by-case basis based on the conditions of the approved leave. For these cases, the extension must be requested at least one month before the end of the proprietary period. An extension will not be granted if requested within 30 days before the data are scheduled to become public. Vacation, home, science, and sabbatical leaves will not be considered for an extension. The proprietary period of Large Programs will not be extended in the cases of leave described above.

## **8.5 Calibration data**

Standard calibration data are observations of calibrators needed to perform the correct calibration of the scientific data. They include the bandpass, amplitude, phase and polarization observations taken during PI observations as well as grid survey observations run by the JAO.

All standard calibration data that have passed QA2, whether generated from JAO or PI observations, have no proprietary period and will in the future be accessible separately from the ALMA archive. Until then, PIs may request the delivery of such data to the corresponding ARC via the Helpdesk. Such requests will be handled by each ARC on a best-effort basis.

## **8.6 ALMA Test and Science Verification Data**

Data obtained during commissioning, engineering tests or science verification (SV) activities will be used to characterize and develop the ALMA system, including hardware and software. The data will be released through the Science Portal, Science Archive, ALMA technical memos, or publications. Any ALMA registered user may then request such data by opening a Helpdesk ticket at the corresponding ARC. Users are advised to carefully check the characteristics of a given offered dataset at the Science Portal before requesting the raw data since often test data do not fulfil the requirements of scientific data regarding calibration.

Science Verification projects may not duplicate an approved PI or DDT proposal that is in the observing queue or during their proprietary period. If a PI proposal is approved that duplicates an SV observation planned after the proposal submission deadline, the corresponding SV project must be changed to avoid duplication. DDT proposals that duplicate an SV observation already planned and announced on the Science Portal before the submission of the former will be rejected.

## 9 Confidentiality of Information

Through the Observing Tool, any authenticated ALMA user has access to the following information: first and last name, email address, affiliation, Executive, and ALMA username of registered users. All other ALMA user information is available to only the user themselves and ARC-affiliated or JAO staff.

ALMA records the IP address and browser information of registered users logging in to the Science Portal. This information is used exclusively to track download parameters such as download speed and file size.

ALMA also records the IP address and browser information of authenticated and non-authenticated Helpdesk users. Access to this information, as well as to the contents of Helpdesk tickets, is restricted to authorized ALMA staff.

Helpdesk Knowledgebase articles will not contain any information which would identify users or reveal confidential proposal information.

## 10 Publication of ALMA Results

The following statement must be included in the acknowledgment of papers that use ALMA data:

*"This paper makes use of the following ALMA data: ADS/JAO.ALMA#YYYY.C.NNNNN.Z. ALMA is a partnership of ESO (representing its member states), NSF (USA) and NINS (Japan), together with NRC (Canada), MOST and ASIAA (Taiwan), and KASI (Republic of Korea), in cooperation with the Republic of Chile. The Joint ALMA Observatory is operated by ESO, AUI/NRAO and NAOJ."*

In this statement, YYYY.C.NNNNN.Z must be replaced by the actual project code. Here, "YYYY" denotes the year when the Call for Proposals for a given cycle is issued, "C" identifies the cycle ID during that year<sup>2</sup>, "NNNNN" is a five-digit running number and "Z" denotes the proposal type (**S**: Regular, **V**: VLBI, **L**: Large, **T**: ToO, **P**: Phased Array). A similar nomenclature is used for test observations, where "Z" denotes the type of dataset (**E**: Engineering, **CSV**: Commissioning and Science Verification, **CAL**: Calibration, **SV**: Science Verification).

In addition, publications from NA authors must include the standard NRAO acknowledgement:

*"The National Radio Astronomy Observatory is a facility of the National Science Foundation operated under cooperative agreement by Associated Universities, Inc."*

### 10.1 Naming convention of sources discovered by ALMA

If referring to sources detected for the first time in ALMA fields one should follow the naming convention **ALMA JHHMMSS.s+/-DDMMSS** (approved by IAU "Clearing House" of Commission 5 Working Group on Designations), where J indicates J2000 coordinates.

The coordinates should be truncated according to the precision in the position of the source. Typically, this should be approximately 1/10th of the size of the synthesized beam used in the discovery observation (see

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<sup>2</sup> The "C" is used to identify both regular cycles (using a single digit), and DDT cycles (using a single letter). C=1 for the first regular cycle of the considered year, C=2 for the second (if any), etc. C=A for the DDT cycle coinciding with the regular C=1 observation period, C=B for the DDT cycle corresponding to the C=2 observing period, and so on.

the ALMA Technical Handbook for details on ALMA astrometric precision). For example, for a 1" beam, declination should be given to a precision of 0.1" of arc and RA to 0.01s of time (ALMA JHHMMSS.ss+/-DDMMSS.s), for a 0.1" beam declination to 0.01" of arc and RA to 0.001s of time (ALMA JHHMMSS.sss+/-DDMMSS.ss).

## 11 Final Provisions

Any situation that is unforeseen or for which ambiguity exists in this Users' Policies document or in the associated Call for Proposals material will be referred to the ALMA Director, whose decision is final.

ALMA reserves the right to change the policies defined in this document at any time. Barring unforeseen emergencies, such changes will apply at the start of the observing cycle following the date of their introduction. These changes will be published in the users' policy document at the call for each cycle and the proposers should review the policies with each proposing cycle.

### A. Appendix: Definition of a Duplicate Observation

A proposed observation is considered a duplicate of another observation if *all* of the following conditions are met:

#### Target field location

- For single-field interferometry, the proposed position coincides within the half-power beam width of the other observation. Moving objects (e.g., Solar System objects) will be identified by name.
- For mosaic observations, more than 50% of the proposed pointings are within the half power beam width area covered by the other observation.

#### Angular Resolution

- The proposed angular resolution differs by a factor of  $\leq 2$  from the other observation.

#### Spectral windows

- Continuum: The requested sensitivity (rms) for the aggregate bandwidth is better by a factor of  $\leq 2$  from the other observation and the requested frequency is within a factor of 1.3.

– or –

- Spectral line: If the central frequency in any requested correlator window observed in Frequency Division Mode (FDM) mode is encompassed by the other observation observed in FDM mode and the sensitivity per spectral channel, after smoothing to the same spectral resolution, is better by a factor of  $\leq 2$ .

To be considered a "continuum" observation, the proposed correlator setup must contain 2 or more windows with a bandwidth  $> 1.8$  GHz.

Solar observations will not be checked for duplications.



The Atacama Large Millimeter/submillimeter Array (ALMA), an international astronomy facility, is a partnership of the European Organisation for Astronomical Research in the Southern Hemisphere (ESO), the U.S. National Science Foundation (NSF) and the National Institutes of Natural Sciences (NINS) of Japan in cooperation with the Republic of Chile. ALMA is funded by ESO on behalf of its Member States, by NSF in cooperation with the National Research Council of Canada (NRC) and the Ministry of Science and Technology (MOST) in Taiwan and by NINS in cooperation with the Academia Sinica (AS) in Taiwan and the Korea Astronomy and Space Science Institute (KASI).

ALMA construction and operations are led by ESO on behalf of its Member States; by the National Radio Astronomy Observatory (NRAO), managed by Associated Universities, Inc. (AUI), on behalf of North America; and by the National Astronomical Observatory of Japan (NAOJ) on behalf of East Asia. The Joint ALMA Observatory (JAO) provides the unified leadership and management of the construction, commissioning and operation of ALMA.

