



ESO/UC-94  
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# EUROPEAN ORGANISATION FOR ASTRONOMICAL RESEARCH IN THE SOUTHERN HEMISPHERE

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Users Committee 43 <sup>rd</sup> Meeting, Garching April 29-30, 2019	For Review
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## **ESO Responses to Recommendations**

**from**

**42<sup>nd</sup> Users Committee**

This document is for **ESO INTERNAL USE**

After the 2019 UC meeting: **PUBLIC**

Distribution to Users Committee, their colleagues with a need-to-know, and their supervisors is authorised.

**Users Committee is invited to review this document**

## UC42 RECOMMENDATIONS

The UC has collected the users' opinion about several topics and in general regarding their experience in their use of ESO facilities and interaction with ESO. The UC is glad to report a high level of satisfaction of the community, and acknowledges ESO's efforts to maintain the highest standards. Based on the users' feedback and on the discussions during the UC42 meeting, the UC recommends ESO:

### High Priority

**UC42.R01:** to consider starting the **1-year proprietary period of a normal programme run** at the time that that run is declared completed or terminated (rather than on an OB- per-OB basis, as it is the current practice). The rationale behind this recommendation is to allow successful PIs to be able to analyse and publish their complete datasets without the risk of partial results being published in advance by the community. Explore if this same recommendation can be applied to ALMA, although the UC understands that ESO cannot take a unilateral decision in this respect.

**Note:** *this recommendation does not apply to large programmes and ESO public surveys.*

#### Reply:

The proprietary period is regulated in the Science Operations Policies. The new document will be presented to the UC at the meeting. The proposed text on data rights reads: "ESO may grant a proprietary time to the Principal Investigator for the science data acquired for an observing programme. This may include data products produced by ESO (Section **Error! Reference source not found.**). The length of the proprietary time is set by the Director General and communicated in the Call for Proposals. The proprietary period starts when the raw data are made available to the Principal Investigator. Extensions of the proprietary period may be granted by the Director General in special situations. After expiration of the proprietary time all related information (e.g. the proposal abstract, observation logs) become publicly available."

The reason behind this formulation is to give some flexibility to changing situations. We still feel that data protection is important, and that it should not stifle competition.

ALMA has adopted as a policy that the proprietary time starts from the moment that an MOUS (which can be compared to an OB) is delivered to the user. The reasoning is that ALMA wishes to enable archival research and promote swift publication of results. There is currently no evidence that users are disadvantaged in any way by this policy, and hence changing to a model where proprietary time starts at project completion is not a priority.

**UC42.R02:** to provide **ALMA** PIs with **calibrated measurement sets** (MS) and keep them for at least a month. This will speed up the process of re-obtaining final science images in the cases that this is necessary.

#### Reply:

We have followed the advice from the UC and have implemented a scheme that provides access to calibrated measurement sets to PIs. Currently, it works on a per request basis as we have to perform a full analysis of the resources needed to offer this service per default.

**UC42.R03:** to provide the **OPC** a structured feedback form with guiding questions to fill in in order to produce their reports. The aim of this recommendation is to improve the quality and usefulness of the OPC feedback. Some possible questions could be: *Is the programme competitive compared to other works in this area? Can the science goals be achieved with the proposed observations? Is there any scope for discovery and new ideas?*

Reply:

As of P102 we are instructing the OPC and Panels to provide their feedback in a structured way (Strengths, Weaknesses, Timeliness, Impact). However, because of the limitations of the current system, it is not possible to enforce it in a consistent way at the feedback form level. This topic was discussed with the OPC during the 103th meeting. The OPC is in favour of a structured approach but would like to have a better/different definition of the fields to be used. The deployment of a structured comment form is under discussion for the new Phase 1 system. This may include a mechanism by which the PIs can evaluate the usefulness of the comments they received, and feed this back to ESO.

**UC42.R04:** to investigate making the **new P1 tool** available to the community before the ETC is integrated to it, in order to speed up the new P1 tool release. Users have been requesting a new P1 tool since several years now. The integration with the ETC will be welcome, but is not urgent. Therefore, the UC considers that the release of the new P1 tool should happen at the earliest possibility, and not produce any extra delay due to the ETC incorporation.

Reply:

The P1 tool is designed to be deployed without the ETC, and the ETC will be integrated at a later time. In addition to this, we have now found a way to deploy the first parts of the new P1 tool (i.e. "Cycle Configuration", administrative interface to set-up a proposal cycle, and "Proposal Submission", to actually define, edit and submit a proposal) in 2019, while we keep developing the administrative back end (proposal distribution, OPC administration, etc...). Some functionalities of the new systems might not be offered immediately but would be deployed when ready.

**UC42.R05: remote users**

- to ensure accessibility to all ESO technical workshops / schools by providing remote access by default;
- to investigate ways to engage remote sites also with the hands-on aspects of workshops, supported via established technologies;
- to continue organizing ALMA tutorials and schools on data analysis (which include, e.g., combining data from different instruments).

Reply:

The new video connection system adopted by the ESO IT has improved support for remote participation using skype for business as well as connections through standard browsers (Chrome, Firefox, Safari).

The KMOS@5 workshop has offered remote access for the data reduction tutorial session, though no request was received for remote participation for the hands-on session. Only one request was received for attending several science talks.

Some events organised by the European ARC nodes offered remote participation and the experience so far is positive.

**UC42.R06: pipelines**

- to investigate ways to engage the community, as well as data centres (e.g., the SPHERE Data Centre) in the distribution of their own pipelines;
- to consider using Python as a wrapper for pipeline recipes.

The goal of this recommendation is that ESO takes the initiative to request third-parties with their own public instrument pipeline software to share the distribution of it on a dedicated ESO webpage. At the very least, ESO should have a list of all this available software on such a webpage, such that users do not have to do their individual search for all the independent software dispersed over the community.

Reply:

ESO can create a page in the ESO web that lists the software tools relevant to handling ESO data that are available in the community. The tools would remain under the full responsibility of their developers, so that: the page would provide links to the tools, but not directly hosting them; user support remains the responsibility of the external developers, since ESO does not have the means to gather enough knowledge on the tools.

The feedback from the UC on specific items to be listed there would be highly appreciated.

As for using Python as a wrapper for ESO pipeline recipes, it is noted that there is already a publicly available package readily available for users to do that (python-cpl, <https://pypi.org/project/python-cpl>). With it, ESO pipeline recipes can be called from Python, with input, calibration and output data that can be specified as FITS files or as `astropy.io.fits` objects in memory. We will include this tool in the web page described above and recommend that the UC considers broadcasting it to their constituents. Meanwhile, a project is ongoing at ESO to develop a more thorough system of Python bindings that, in addition to the ESO pipeline recipes themselves, will also allow Python access to the lower-level functions that the recipes are built on. This will fulfil both the needs of the end users as expressed in the recommendation, hence providing an alternative to the third-party software mentioned above, and the additional use case of instrument consortia to prototype ESO pipeline modules taking advantage of the flexibility afforded by Python. The expected timescale for it to be available is about 2 years, in line with the Final Design Reviews of the 1<sup>st</sup> generation ELT instruments.

Work has started on the integration of Python in the pipelines:

- evaluation and planning of the work required on the underlying CPL and HDRL code bases in order to provide Python language bindings;
- Esorex can now run Python-based recipes in a limited way.

**Important with Medium Priority**

**UC42.R07:** to consider the detailed **comments from the users** gathered through the UC Poll (see Appendix to UC report) in the development of the **new P1/P2, pipeline and archive tools**.

Precisely, the UC considers that the release of the new integrated P1/P2 tool has top priority, and should be done as soon as possible, even without waiting for the incorporation of the ETC, in order to speed up its release (see UC42.R04).

The UC acknowledges the importance of the new archive tool release planned for 2018, which is being developed in parallel to the new P1/P2 tools. As we were shown at the UC42 meeting, this new archive tool includes visualization (a feature requested by the users in previous years). However, the UC considers that further development of the archive system beyond the 2018 release is not urgent, and full priority should be given to the release of the new P1/P2 tool as from 2019.

Reply:

Detailed comments from users gathered through the UC Poll as well as via helpdesk system are analysed and considered for implementation according to projects priorities and availability of resources.

The resources used for the Archive Service system and P1/P2 are not the same, so there is no direct competition between these projects. Nevertheless, as discussed above, the plan is to release P1 to the users in 2019 (while keeping working on the administrative back-end), and the priority of Archive Service project was decreased after the first release.

Highlights from pipeline development.

- The VIRCAM pipeline was released to the public in April 2018.
- The KMOS pipeline version 2.1.0 was released in Dec 2018 and is the first pipeline to use Molecfit for the removal of telluric lines. Next in line is the X-Shooter pipeline.
- Significant work was devoted to the SPHERE pipeline since its latest public release in April 2018. The release of the new version is scheduled in 2019Q1. It will contain proper handling of IRDIS distortion data, including monitor its time evolution and the possibility to align the left and right

image without on-sky CENTER observations, plus bug fixes. While this represents yet another significant improvement, it will still not exhaust the list of features to bring it to the status as originally planned. A project plan is being prepared for that, for evaluation of a cost/benefit analysis.

**UC42.R08:** to continue improving the **ALMA completion rate** for A-ranked and DDT programmes.

Reply:

Ensuring a high completion rate of A-rated projects is one of the top priorities of ALMA science operations. Note that the Cycle 4 completion rate for A-grade projects was 86%. This is a significant improvement over Cycle 3, when it was 56%. The Cycle 5 A-grade project completion rate so far is 69%, but since Grade A projects are carried over to the next Cycle, we can only evaluate the full completion rate after two Cycles.

**UC42.R09: La Silla issues**

- to implement eavesdropping at La Silla as early as possible;
- to consider allowing for 3-night runs that share nights between the 3.6m telescope and the NTT;
- to accommodate time-critical observations;  
To the UC's understanding, all observations at La Silla are currently in VM for a minimum of three nights. According to the users, this prevents the scheduling of some programmes that require execution with a more flexible time frame.
- to ensure steady technical support for the user and also, remotely, for the support astronomer, when necessary. The goal of this recommendation is to minimise visitor mode runs being affected by a technical fault for a significant fraction of their time. When these technical faults are unavoidable, then consider compensating PIs for their observing time loss.

Reply:

- Implementation of eavesdropping in La Silla is scheduled for end 2019.
- Given the different galactic/extragalactic focus of the 3.6m and NTT telescopes, the number of science cases/programmes that would ask for shared nights between the two telescopes may not be large. Technically this can be implemented, but it will require changes in the current system, which will delay development of the other projects (most notably P1).
- Time-critical observations are already accommodated via dVM channel for La Silla, and users can submit DDT proposals. Please clarify if something else is requested.
- The current funding for La Silla 2020+ does not allow for 24/7 technical support. There is no funding to inject more resources in La Silla. Compensation for lost nights would affect scheduling and availability of observing time for some other programme.

**UC42.R10:** to provide **near-IR filter colour transformations** for all ESO instruments to a common near-IR filter set (any), such that users can combine different instrument data in a more straightforward manner.

Reply:

A preliminary analysis indicated a potentially very high effort attached to investigating and implementing the most general answer to the recommendation. We would like to encourage taking a staged approach, whereby the UC states one particular case with high importance (e.g., VIRCAM <--> HAWK-I, or whatever else) that we would start from.

**UC42.R11:** to continue investigating the **sources of bias** in the OPC / ARP grades, and consider applying possible remedies, such as those already tried by other observatories (e.g. placing PI/co-I list at the end of proposals, or hiding list of PI/co-Is overall).

Reply:

ESO proposals: As of P103 the PI has been removed from the front page of the ESO proposal form and is now listed with all cols in alphabetical order on the last page. The affiliations of all cols and their countries have been removed. Possible systematic effects (gender, countries, seniority) will be re-evaluated after some semesters (in order to get a statistically significant sample) and compared to the values published in Patat (2016). Further measures (full obfuscation of the proposing team, requested time, ...) will be considered in the future, and after HST will publish their results following the implementation of the double-blind paradigm in their proposal review procedures.

Similarly, for ALMA: in Cycle 7 the PI will not be identified on the front page, instead the PI name together with those of the co-Is will be shown in random order, with only first initial and last name. Fully removing the PI and co-I names from the proposals is being discussed for future Cycles.

## Miscellanea

**UC42.R12:** to improve the **OPC nomination tool** to enable the UC the visualization and modification of previous nominations.

Reply:

The tool is being modified along the lines suggested by the UC. The new version will be ready for the next round of nominations.

**UC42.R13:** to keep the UC informed about the progress on the **implementation of the TAWG's and SDMVG's recommendations**.

Reply:

An update from OPO on the implementation of the TAWG recommendations can be provided at the UC meeting in April 2019. The SDMVG recommendations are on hold, pending allocation of the necessary resources, which will require pruning elsewhere. This will be assessed during the next scientific prioritisation exercise.

**UC42.R14:** to provide statistics of triggering success and possible future improvements of the **rapid response mode (RRM)**.

Reply:

During P103 ESO plans to commission the RRM triggering for instruments that are not on the current focus. This should notably increase the acceptance rate of triggers for all programs that can accept a delay of 10-15 minutes after trigger. Statistics on past RRM trigger success will be provided in the UC meeting in April 2019.

**UC42.R15:** to consider communicating, linking and highlighting all future important updates through the **ESO Science Newsletter**. According to the users, this is their preferred and most read ESO means of communication. Also include an yearly summary of the main UC recommendations in the Newsletter.

Reply:

Important updates are announced in the ESO Science Newsletter. This now also includes the announcement of new Messenger issues with a brief summary of the topics covered. The yearly summary of the UC recommendations including ESO's answers will be published in the Newsletter close in time to the UC meeting.

**UC42.R16:** to consider enlarging **FORS2's filter set** by including SDSS's filters in the upgrade.

Reply:

This recommendation was forwarded to the team that is leading the FORS2 upgrade Phase A study.

**UC42.R17:** to consider using a **common metric to quantify image quality** (e.g., seeing, Strehl ratio) for both P1 and P2 in the new integrated P1/P2 system.

Reply: This recommendation is included in the requirements for the new integrated P1/P2 system.

**UC42.R18:** to try to make the verbosity (log) more informative when a **data reduction pipeline crashes**, such that the user can more easily identify the likely cause of the problem.

Reply:

We have started to look into possible places to improve the error handling of the pipelines. One identified place is in the manual installation of the pipelines using the *install\_esoreflex* script. In general, ESO recommends installing the pipelines using the RPM packages for Linux or MacPorts for macOS for better handling of dependencies, which also provides better logging. We are also working on the clarification of Reflex error messages and how to better expose the problem to the users.

For any specific issue of a pipeline or tool, we will appreciate if the user opens a ticket to report the problem in more detail. Please, contact [usd-help@eso.org](mailto:usd-help@eso.org) for this.

**UC42.R19:** to make clear to users which systems (i.e. EsoRex, Gasgano, etc.) different **instrument pipelines** do (or do not) work on. This information could be collected on the ESO VLT Instrument Pipeline webpage and at the beginning of each corresponding instrument manual.

Reply:

EsoRex, Gasgano and EsoReflex are front-end tools for running actual pipeline recipes and therefore all pipelines are work with them. This is explained on the ESO pipelines download page: <http://www.eso.org/sci/software/pipelines/>

Each pipeline comes with the pipeline user manual and every instrument's pipeline user manual has a dedicated section that explains how to run the pipeline recipes with EsoRex and Gasgano. Those pipelines for which EsoReflex workflows have been developed and made available are highlighted in the pipelines download page and there is a link to a dedicated EsoReflex tutorial documentation. Furthermore, Gasgano and EsoReflex user manuals provide additional information for users who wish to learn more about the graphical tools themselves and EsoRex documentation is available on the pipeline downloads webpage: <http://www.eso.org/sci/software/cpl/esorex.html>  
Please clarify which information is unclear or missing.