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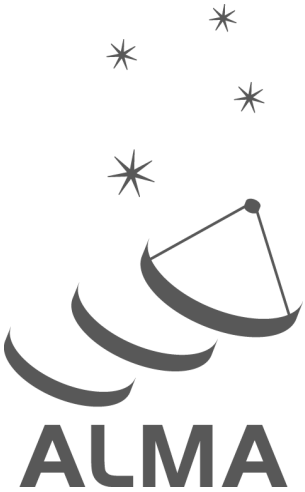
ALMA User Satisfaction Survey 2016



www.almascience.org

ALMA, an international astronomy facility, is a partnership of Europe, North America and East Asia in cooperation with the Republic of Chile.

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**. Helpdesk tickets will be directed to the appropriate ALMA Regional Center at ESO, NAOJ or NRAO.

Revision History:

Version	Date	Editors
1.0	October 2016	María Díaz Trigo
1.1	November 2016	Erik Müller

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Erik Muller, 2016, ALMA user satisfactory survey 2016, ALMA

Contents

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Chapter 1

Executive summary

This document summarizes the results of the Cycle 4 ALMA user satisfaction survey which was opened on 22nd of September, 2016, and closed on October 24, 2016. The survey addressed many stages of ALMA: from proposal development, SB generation, Helpdesk, data delivery, reduction and processing. The User Survey of 2015, for Cycle 3 focussed on science portal, Helpdesk, proposal call, preparation and submission, while the user survey of 2014 for Cycle 2 covered science portal, help desk, proposal call, preparation and submission, as well as Archive and proposal review.

New to this survey is the function of PI-generated SBs, and the PI-operated SnooPI interface.

This survey also explicitly captured feedback from all users of ALMA data, regardless of their being a PI, Co-I or not. The survey was sent to all Principal Investigators (PI) and co-Investigators (co-Is) from Cycles 2 and 3 and 4, a total of 7379 users. Valid responses were received from 297 users, compared to 536 users in Cycle 3, 417 users in Cycle 2 and 365 in Cycle 1. Thus, the response rate is 4% for this survey, compared to 15% 10% and 9% for the Cycle 3, 2 and 1 surveys. A lower response rate this Cycle, relative to other Cycles may be a consequence of 'survey fatigue', or that the majority users are not PIs and/or regular users, who don't feel an urgent need to give feedback to ALMA. It's worth noting that a 'mini-survey' was released almost immediately following the Cycle 4 proposal deadline, from 7th-25th - although this was issued to (243) PIs who had submitted Cycle 4 proposals considered 'nonstandard', and which may have contributed to survey fatigue. It is the future intention of the survey group to conduct large surveys like this, once every two years.

The report of the results is structured as follows: each chapter corresponds to one section of the survey (included in Appendix C). For each chapter a short overview of the results is first given, followed by the detailed statistics and the user comments. The statistics were computed for the whole sample, by Executive and by expertise level. The respondents are also regrouped into three demographics: 'student', 'post-doctorate' and 'other', to check the significance of user experience level. Overall, 17% of respondents to the Cycle 4 survey were students, and 16% were post-doctorate. The groupings of student/post-doctorate/other is made on the basis of the value entered by the respondent into 'years since PhD'. While the statistics are complicated by small populations, the breakdown of student/post-doctorate/other in other past surveys are reasonably consistent with the Cycle 4 survey: student respondents to surveys in Cycles 2, 3 and 4 represent 18%, 22% and 17%, and post-doctorates represent 16%, 18% and 16%.

This year, experience in single dish and interferometric were combined into experience in the radio/submm

domain, whereas in previous surveys they were split. The questions in the survey manifest in two different ways: the first type of question is answered by 'Yes' or 'No'. The second type of question asks for a rating between 1 and 5 for a particular statement, where '1' always corresponds to the most positive answer (e.g. 'totally agree' or 'very good') and '5' to the most negative one (e.g. 'totally disagree' or 'very poor'). For purposes of clarity, in the overview preceding each chapter we considered answers 1-2 as 'above-average', 3 as 'average' and 4-5 as 'below-average'. Both the mean and the median values have been reduced by 0.5 so that such values fall in the center of each bar at the histograms. This means that the best/worst obtainable mean and median values are 0.5/4.5 instead of 1/5.

Many of the questions in the survey are followed by a free format comment box, and all comments are presented in this report. These user comments are preceded by a number corresponding to a particular user. Although the survey is anonymous, a respondent number is assigned to allow us to relate comments about the various categories from specific users. This report does not include an analysis of all the comments by specific users, and rather simply a summary of the overall comments in each category (except for the comments in response to the last question on overall suggestions for improvement, which stand alone). The analysis does not attempt to present a unique set of recommendations for improvements to the ALMA proposal process. It should be recognized that in many cases the comments represent the opinions of a very small subset of the respondents, and in some cases completely opposing views can be found on specific issues. On the other hand it should also be recognized that some of the comments are very insightful and should greatly help our ongoing efforts to improve the user experience.

The results of Cycle 4 are compared to previous Cycles in Appendix A. This section shows relevant trends on the evolution of the user support regarding all the different aspects evaluated in more than one Cycle for whole ALMA and each Executive separately. It is also instructive to understand the differences among Executives and those aspects for which the satisfaction among Executives has converged or diverged since Cycle 0. Finally, in Appendix B we give a summary of the average ratings for all topics for the whole of ALMA and each Executive separately to allow more detailed comparisons (if needed) by the readers of this document.

The user expertise in respondents to the 2016 cycle 4 User survey is dominated by radio and mm/submm astronomers using ground-based facilities. It is interesting to note however, that 24% of the users are not submm/mm experts, and 30% are neither submm/mm nor radio experts. Moreover 28% consider themselves complete novices and 36% have no ground-observing experience at all. These numbers are similar to the previous survey (with a slight decrease of the 'non-expert submm/mm' users) and emphasize the uniqueness of the ALMA user community. This highlights the importance of taking into account non-expert users when producing user documentation and tools.

Overall, the users continued to show a relatively high level of satisfaction, generally consistent with rankings given in response to the Cycle 3 user survey. On a scale of 1 to 5 (1 being best and 5 being worst), the overall satisfaction across all ALMA regions was generally rated $\sim$2 or better for all topics (note that we have subtracted 0.5 from the real mean, i.e. the final mean runs between 0.5 and 4.5, for plotting purposes). The highest rate was given to communications with contact scientists for SB preparation, with an average rate of 1.05, followed by Quality of F2F support and the ALMA data quality with average rates of 1.11 and 1.28, respectively. The lowest rate was given to usefulness of the Proposal review panel-Science assessment and SnooPI SB follow up, with average rates of 2.16 and 2.19, respectively (see Table B.1), although it must be borne in mind that SnooPI is the newest application for ALMA users, and they are relatively unfamiliar with it. CASA's usability was similarly ranked poorly across all Executives, at 2.16, and with smaller dispersions than the ranks for SnooPI, and this result is consistent with a large number of comments for improved access, transparency and completeness of CASA documentation.

Producing data that satisfies its users is arguably the most important goal of the ALMA Observatory, and that the ALMA science data quality is regarded highly amongst all ALMA services is a major achievement. General satisfaction of users is spread somewhat throughout the Executives, though EU rates more ALMA services more highly than EA and NA. This is a slight shift from the previous survey where EA users generally did not rate any ALMA services the highest among Executives.

Respondents again indicate widespread satisfaction with the science portal, with around 91% considering it complete. There is some scatter amongst the Executives, and 13% of EA respondents indicate the SP is incomplete, in contrast to only 7% of respondents from EU and NA, which is largely consistent with previous cycles.

Helpdesk was shown to be of increasing importance in the survey. All Executives and all demographics experienced similarly large increases; NA and EU doubled their use of Helpdesk, and EA increased usage by more than a factor of three relative to Cycle 2 usage rates. Post-doctorates are the most prolific users of Helpdesk, with 66% making use of that resource. It's worth pointing out that the number of respondents to the Cycle 4 survey decreased significantly, and perhaps the demographic most used to interacting via Helpdesk were more ready also to contribute to the survey. It may also be the case that the new obligations for PI-generating the SBs themselves naturally led to greater demands with Helpdesk. The rankings for Helpdesk slipped slightly relative to previous Cycles, but not significantly within the statistical errors. Quality of support provided at ARC/Node face to face was largely consistent with previous surveys, and was the second best scoring item in the Cycle 4 survey.

The improvements in rankings for Archive usability by the respondents are significant in this survey, relative to the last time respondents were queried in Cycle 2. Mean respondent ranking for Archive in Cycle 3 is $\sim$1.9 (compared to $\sim$3.4 in Cycle 2), with a slightly better rank in EA and EU ($\sim$ 1.8) than in NA ($\sim$ 2.0). Students and post-doctorates also ranked archive usability slightly better($\sim$ 1.7) than 'other' ($\sim$ 1.9).

SnooPI was the new tool in ALMA's toolbox, replacing the Project Tracker as the PI's' project tracking tool. While it met some resistance from the users, who have yet to familiarise themselves with the operation and function of the application, SnooPI was still regarded as "above average" in general, with all mean scores better than 2.2. It's worth bearing in mind that only 40% of respondents had yet experienced SnooPI. Respondents most often commented and compared SnooPI to project tracker, suggesting some of the functionality of Project Tracker (PT) be exported into SnooPI.

ALMA's primary product; science data, was rated well by respondents. The ALMA data (ie. before calibration/processing) was the 3rd best scoring in the survey. This survey saw the majority of data being processed by pipeline, and support for delivered packages had $\sim$ 80% approval. Data product quality was generally ranked around 1.3 (i.e. 'above average'), and notably, users most often commented on the lack of access to calibrated data in measurement set format.

The proposal review process was generally ranked relatively poorly (although, still in the regime of 'above average'), at around 2.2, consistently between the Executives, however there is some evidence for an improving trend since Cycle 0. Many respondents pointed out they felt the consensus reports were inadequate or did not

correlate with the awarded grade, or that the grades awarded seemed too random.

Phase 2 generation by PIs was also a new feature to Cycle 4, and while the process was ranked well for its ease and smoothness of process with 1.8, it seems to have left a few respondents unclear to its purpose; some respondents pointing out it was simple enough to be automated, and others suggesting the amount and complexity of the data to be checked and processed by them was too large.

The contact scientists were ranked the best out of all metrics in the Cycle 4 user survey, at 1.05.

Chapter 2

Users profile

The Cycle 4 users survey generated 297 responses, almost half of which (49%) come from EU. NA and EA contribute 23% and 28%. The response rate for Cycle 4 is lower relative to that from other years and cycles (455, 346, 417 and 536) for Cycles 0-3, and the relative contributions from NA are much lower than previous Cycles, while the EA contribution is increased slightly, where rates for Cycle 3 are 47%, 32%, 21%; for EU, NA and EA and for Cycle 2; 46%, 32%, 23%.

In terms of user-expertise, submissions from the three populations; student, post-doctorate and 'other' (> 3 yrs) fluctuate through the past cycles for all three Executives, though they are generally within, or close to 10 percentage points of each other. EA seems to have experienced a significant decrease (by half) in survey responses from post-doctorates, relative to earlier Cycles 2, 3, 4: (21%, 20%, 10%). The other Executives have experienced marginal reductions in their student fractions relative to Cycle 3 (EU; 21.5% -> 13.7%; NA; 23.3% ->16.2%) with concomitant increases in post-doctorate submissions in NA (16% ->22%) and in 'other' in EU (61% -> 70%).

The EA Executive hosts the highest number of student submissions (23%), NA hosts the highest number of post-doctorate submissions (21%), and EU hosts the highest number of submissions from 'other' (i.e. more experienced researchers; 69.9%). These contribution levels should be borne in mind in the following pages.

Expertise in radio/sub-mm is now amalgamated into interferometer+single dish though even considering this slight reorganisation of data, respondents in NA and EU appear to be, on average, improving their expertise in radio/sub-mm with respect to previous cycles. EA continues with levels of expertise similar to previous cycles, and this might be a reflection of the dominance of "student" respondents in that Executive. All demographics (students, post-doctorates and 'other') show a general increase in radio/sub-mm expertise, relative to previous cycles.

The responses for observational expertise continue to be dominated by sub-mm for all expertise demographics, with 37% of the respondents, radio is the next largest expertise group in EA and NA, though second-place is held by infra-red at EU. Students and post-doctorates show more equal distribution expertise amongst the alternatives than do 'other'.

The fraction of respondents that are radio novice is generally unchanged through Cycle 2, 3, 4; 35,% 32%,

Table 2.1: User's experience level

	Students	Postdocs	Other	Total
Years since PhD	0	up to 3	>3	
ALL	16.8%	15.8%	67.3%	297
EA	22.9%	9.6%	67.5%	83
EU	13.7%	16.4%	69.9%	146
NA	16.2%	22.1%	61.8%	68

Table 2.2: Sub-mm/mm and Radio novices

	Cycle 4	Cycle 3		Cycle 2		Cycle 1	
		Single dish	Interferometric	Single dish	Interferometric	Single dish	Interferometric
ALL	82 (27.6%)	143 (26.7%)	132 (24.6%)	102 (24.5%)	97 (23.3%)	70 (19.2%)	88 (24.1%)
EA	36 (43.4%)	35 (31.0%)	31 (27.4%)	26 (27.4%)	22 (23.2%)	22 (25.3%)	23 (26.4%)
EU	36 (24.7%)	66 (26.3%)	62 (24.7%)	49 (25.8%)	48 (25.3%)	32 (20.4%)	39 (24.8%)
NA	10 (14.7%)	42 (24.4%)	39 (22.7%)	27 (20.5%)	27 (20.5%)	26 (21.5%)	36 (29.8%)
Students	18 (36.0%)	45 (38.5%)	42 (35.9%)	25 (33.8%)	25 (33.8%)	18 (26.5%)	19 (27.9%)
Postdocs	13 (27.7%)	30 (31.6%)	24 (25.3%)	20 (30.8%)	16 (24.6%)	9 (12.9%)	9 (12.9%)
Other	51 (25.5%)	68 (21.0%)	66 (20.4%)	57 (20.5%)	56 (20.1%)	43 (18.9%)	60 (26.4%)

31%, and the fraction of respondents without experience in ground-based observational methods is also largely consistent; 36%, 32%, 36% (Cycles 2, 3 and 4). The responses to this survey seem to have a relatively lower representation from the space-based observational community, down to 15% from 25%, and each executive sharing similar reductions in representation from respondents among the space-based-observational community.

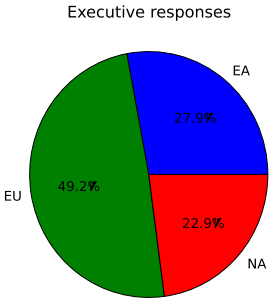
Table 2.3: Main areas of expertise (per wavelength)

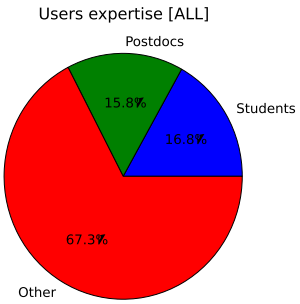
	Gamma-ray	X-ray	UV optical	IR	Sub-mm mm	Radio	Non-expert in sub-mm/mm	Non-expert in sub-mm/mm nor radio
ALL	9	26	83	104	206	131	72 (24.2%)	91 (30.6%)
EA	5	9	23	22	53	40	24 (28.9%)	30 (36.1%)
EU	2	11	44	61	105	52	36 (24.7%)	41 (28.1%)
NA	2	6	16	21	48	39	12 (17.6%)	20 (29.4%)
Students	0	0	10	14	35	21	13 (26.0%)	15 (30.0%)
Postdocs	2	4	17	16	31	20	11 (23.4%)	16 (34.0%)
Other	7	22	56	74	140	90	48 (24.0%)	60 (30.0%)

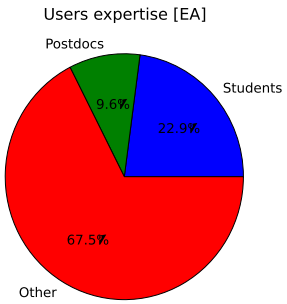
Table 2.4: Main areas of expertise (observation techniques)

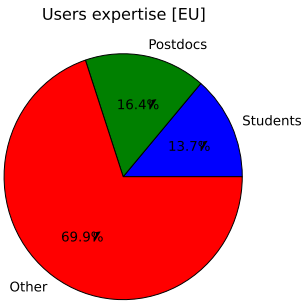
	Ground-based	Space-based	Theory/modelling	No ground-based observational expertise
ALL	189	60	54	108 (36.4%)
EA	53	10	13	30 (36.1%)
EU	86	37	27	60 (41.1%)
NA	50	13	14	18 (26.5%)
Students	35	6	12	15 (30.0%)
Postdocs	27	11	9	20 (42.6%)
Other	127	43	33	73 (36.5%)

2.1 Results




Users expertise [ALL]
Postdocs
15.8%
Students
16.8%
67.3%
Other


Users expertise [EA]
Postdocs
9.6%
Students
22.9%
67.5%
Other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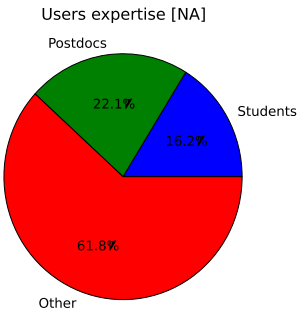
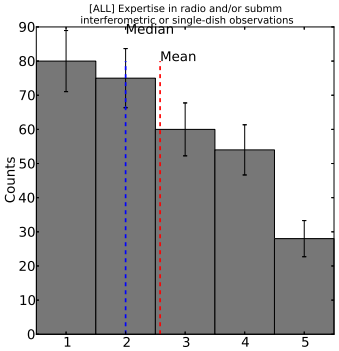
Postdocs
16.4%
Students
13.7%
69.9%
Other


Users expertise [NA]
Postdocs
22.1%
Students
16.2%
61.8%
Other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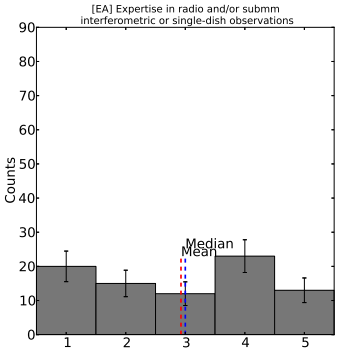
interferometric or single-dish observations
Median
Mean
Counts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Mean
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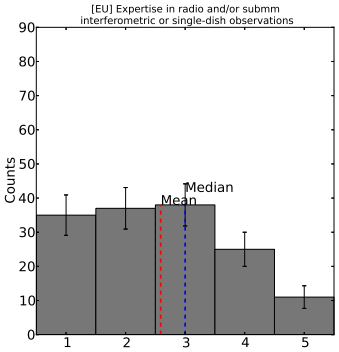
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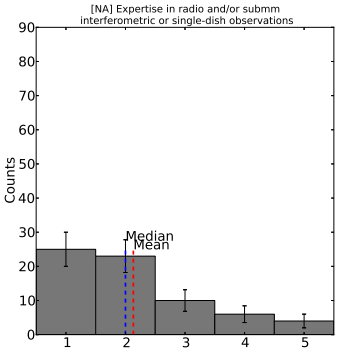
Mean
Counts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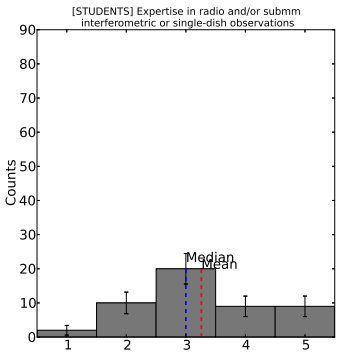
Mean
Counts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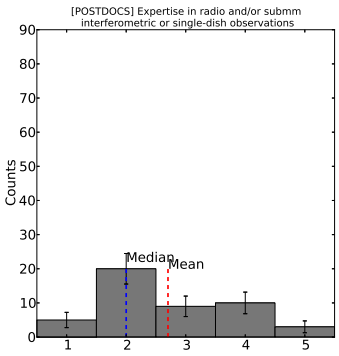
Median
Mean
Counts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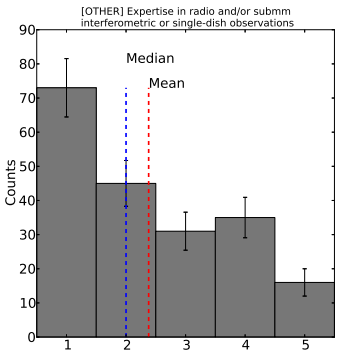
Median
Mean
Counts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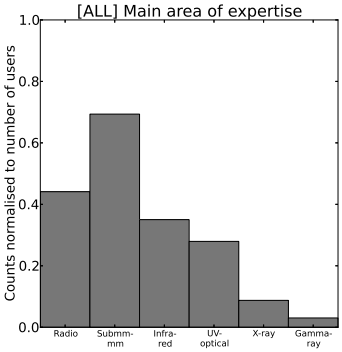
Median
Mean
Counts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0.2
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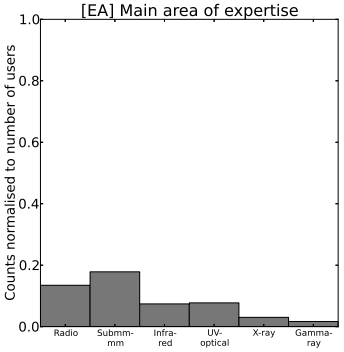
Radio
Submm-mm
Infra-red
UV-optical
X-ray
Gamma-ray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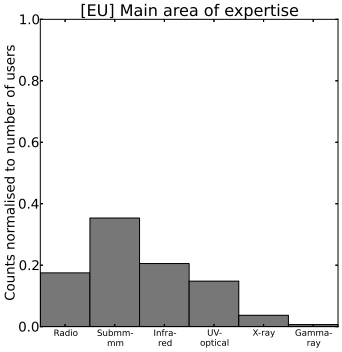
X-ray
Gamma-ray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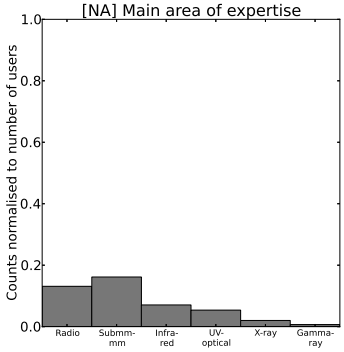
UV-optical
X-ray
Gamma-ray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Submm-mm
Infra-red
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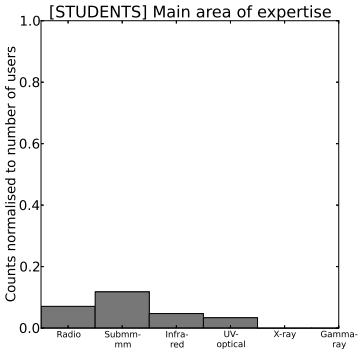
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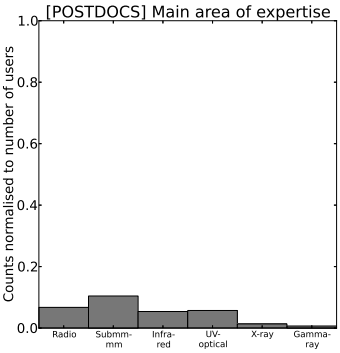
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Infra-red
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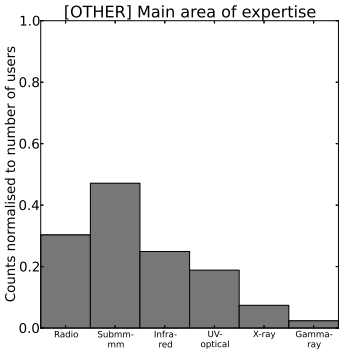
X-ray
Gamma-ray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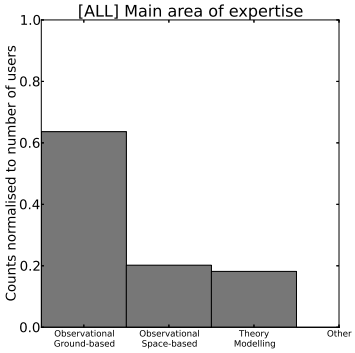
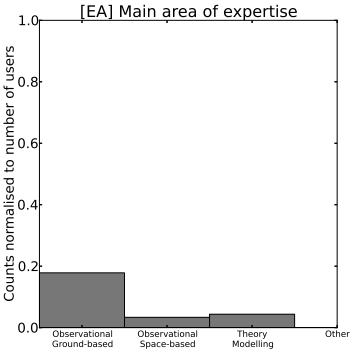
X-ray
Gamma-ray


[ALL] Main area of expertise
Counts normalised to number of users
1.0
0.8
0.6
0.4
0.2
0.0
Observational Ground-based
Observational Space-based
Theory Modelling
Other


[EA] Main area of expertise
Counts normalised to number of users
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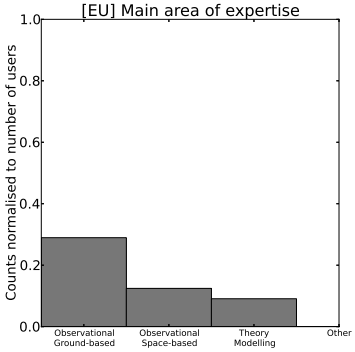
0.4
0.2
0.0
Observational Ground-based
Observational Space-based
Theory Modelling
Other


[EU] Main area of expertise
Counts normalised to number of users
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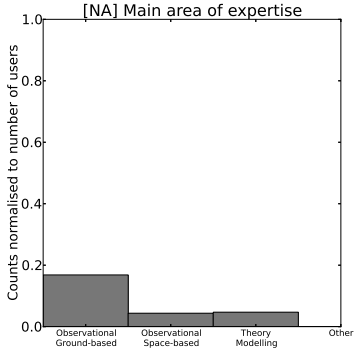
0.6
0.4
0.2
0.0
Observational Ground-based
Observational Space-based
Theory Modelling
Other


[NA] Main area of expertise
Counts normalised to number of users
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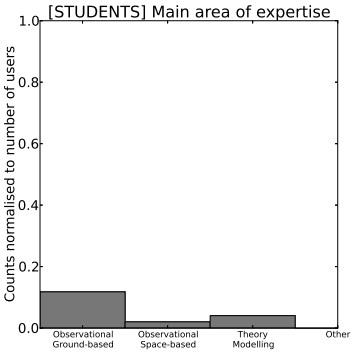
0.0
Observational Ground-based
Observational Space-based
Theory Modelling
Other


[STUDENTS] Main area of expertise
Counts normalised to number of users
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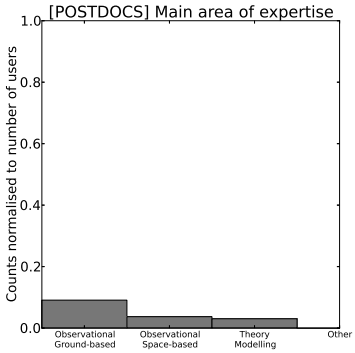
0.6
0.4
0.2
0.0
Observational Ground-based
Observational Space-based
Theory Modelling
Other


[POSTDOCS] Main area of expertise
Counts normalised to number of users
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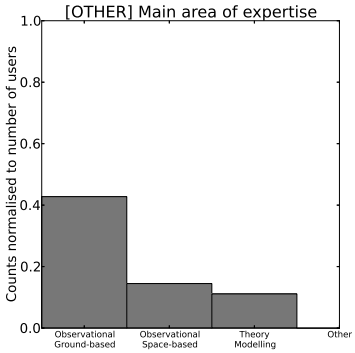
0.6
0.4
0.2
0.0
Observational Ground-based
Observational Space-based
Theory Modelling
Other


[OTHER] Main area of expertise
Counts normalised to number of users
1.0
0.8
0.6
0.4
0.2
0.0
Observational Ground-based
Observational Space-based
Theory Modelling
Other

Chapter 3

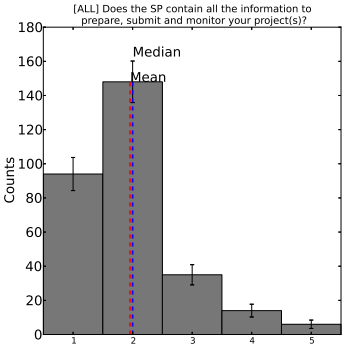
Science portal experience

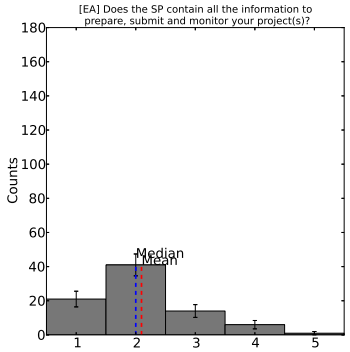
Throughout the ALMA respondents, around 91% regard the science portal as complete. There is some scatter amongst the Executives, where 13% of EA respondents indicate the SP is incomplete, in contrast to only 7% of respondents from EU and NA. This is slightly poorer relative to Cycle 2 user survey (the Cycle 3 survey did not canvass the issue on "completeness"), which showed agreement across the Executives of around 6-7% of respondents across all Executives indicated it is incomplete.

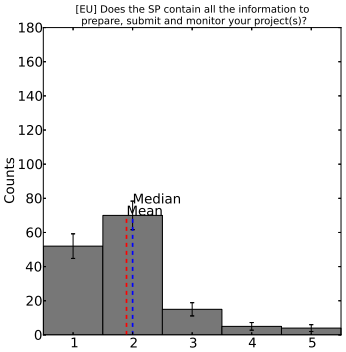
The respondent rank for the 'SP containing all information to prepare, submit and monitor observations' is more uniform across all Executives and demographics, with a mean rank of ∼1.5, which is largely unchanged since the previous survey. Similarly, the ranking of 'dissemination of information' and 'simplicity of navigation' are largely invariant across Executives, with a median and mean of ∼1.5 and 2 respectively, and through student/post-doctorate/other demographics. The ranking is also consistent relative to the Cycle 3 survey, but showing a slight improvement by ∼0.5 ranking points relative to the Cycle 2 survey. Ranking for 'how easy can you find the information in the ALMA science portal is also invariant across Executives, again with a median and mean of ∼1.5 and 2.0 respectively, with a very slight improvement ranking from EA relative to Cycle 3 (now with a median and mean rank of ∼2.5 and 2.0 respectively).

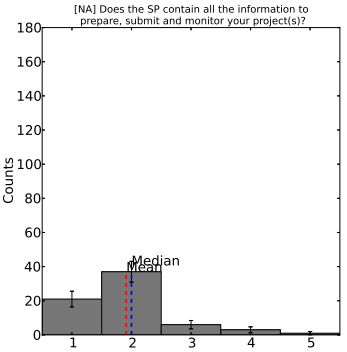
Among the 18 comments regarding absent/incomplete or out of date, the most frequent were requests for better configuration information (5 comments), and this was also a common theme in the 'general comments' section. The 36 general comments additionally included suggestions to improve the distribution of documentation to a higher "click depth" or direct links, and generally described difficulties in locating necessary and important information and documents.

3.1 Results


[ALL] Does the SP contain all the information to prepare, submit and monitor your project(s)?
Median
Mean
Counts


[EA] Does the SP contain all the information to prepare, submit and monitor your project(s)?
Median
Mean
Counts


[EU] Does the SP contain all the information to prepare, submit and monitor your project(s)?
Median
Mean
Counts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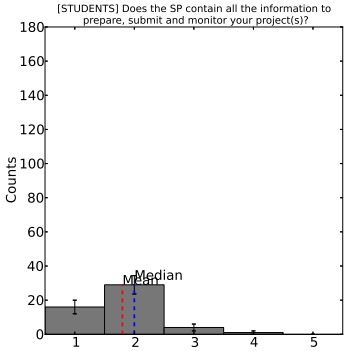
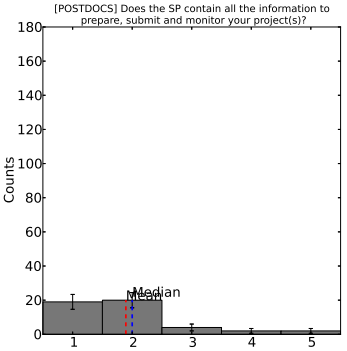
Median
Mean
Counts


[STUDENTS] Does the SP contain all the information to prepare, submit and monitor your project(s)?
Median
Mean
Counts


[POSTDOCS] Does the SP contain all the information to prepare, submit and monitor your project(s)?
Median
Mean
Counts

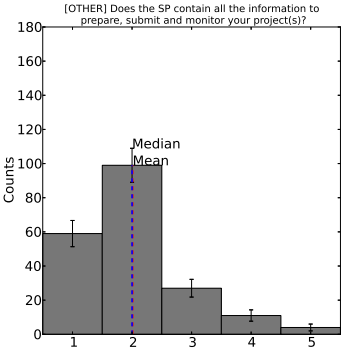
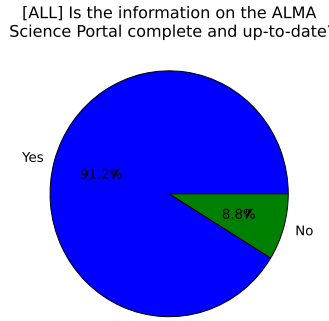
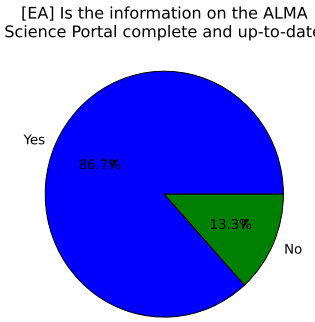
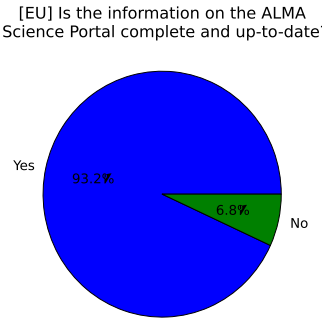

[OTHER] Does the SP contain all the information to prepare, submit and monitor your project(s)?
Median
Mean
Counts

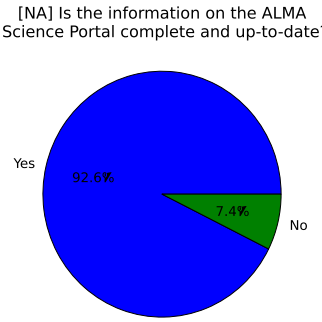
Table 3.1: Is the information on the ALMA Science Portal complete and up-to-date?

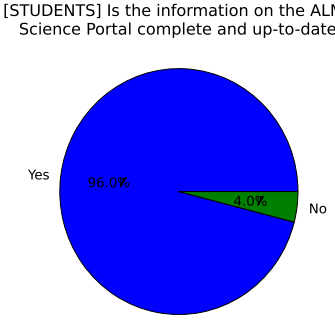
	YES	NO	Total
ALL	271	26	297
EA	72	11	83
EU	136	10	146
NA	63	5	68
STUDENTS	48	2	50
POSTDOCS	41	6	47
OTHER	182	18	200

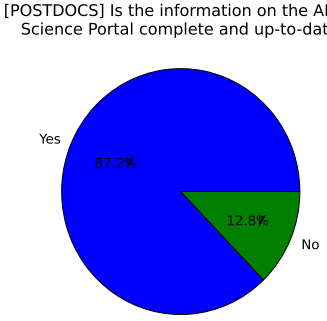


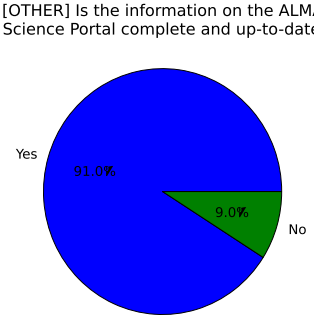




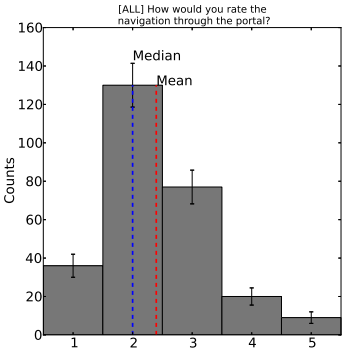


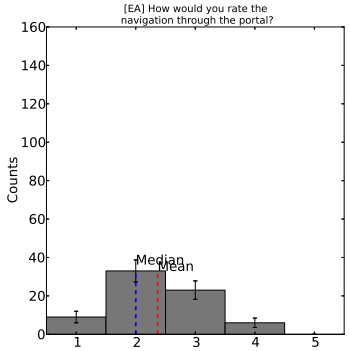


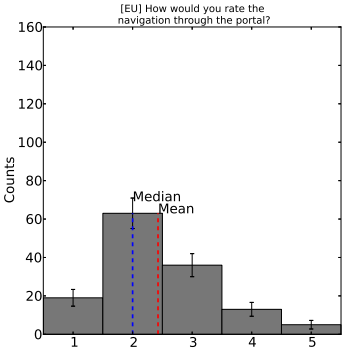


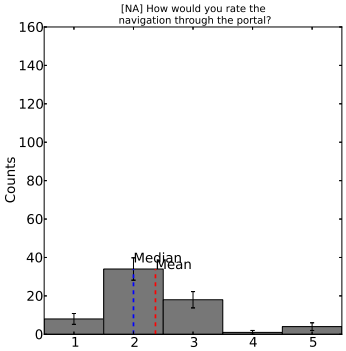


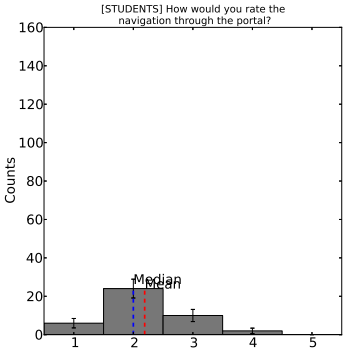
3.2 Information that you think is incomplete and/or out-of-date

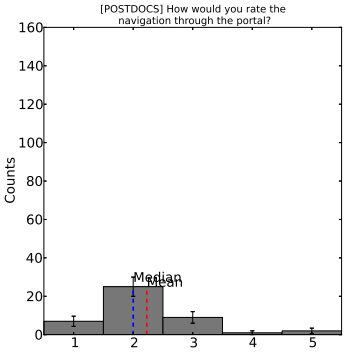


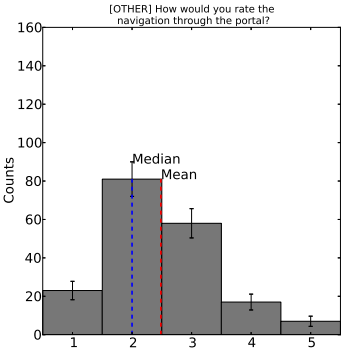


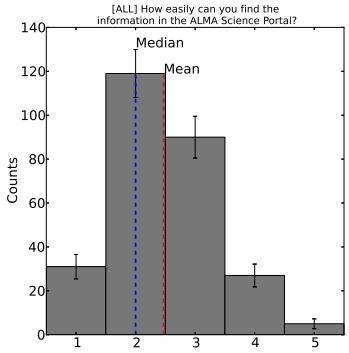


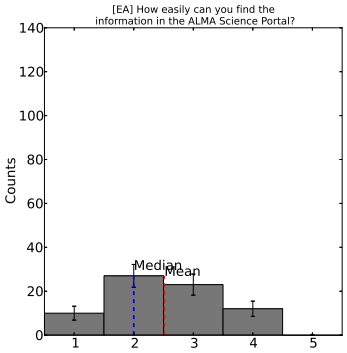


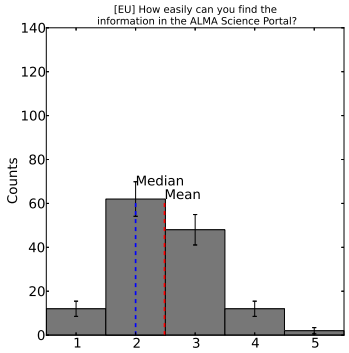


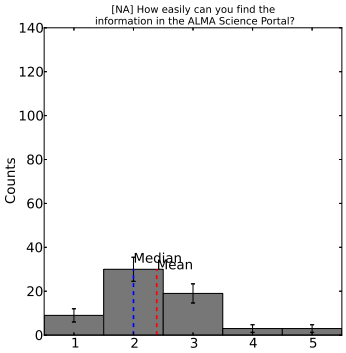


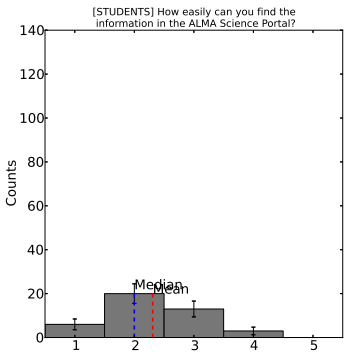


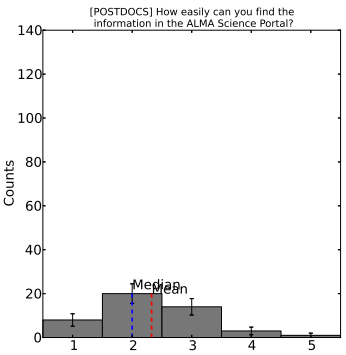

[ALL] How easily can you find the information in the ALMA Science Portal?
Median
Mean
Counts

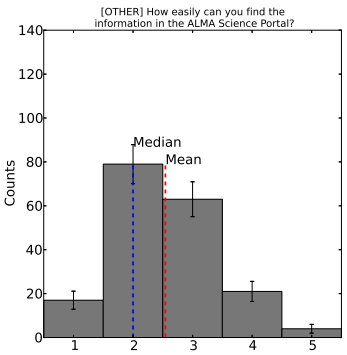

[EA] How easily can you find the information in the ALMA Science Portal?
Median
Mean
Counts

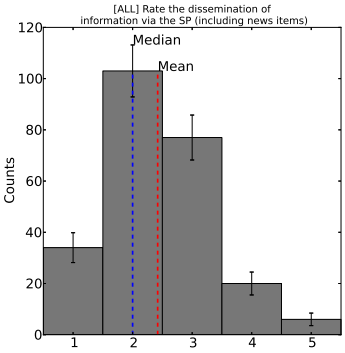

[EU] How easily can you find the information in the ALMA Science Portal?
Median
Mean
Counts

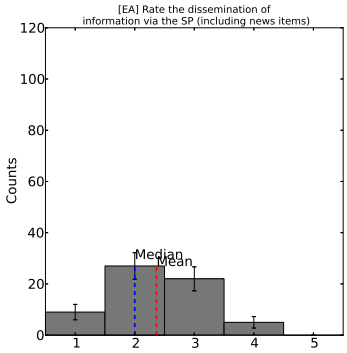

[NA] How easily can you find the information in the ALMA Science Portal?
Median
Mean
Counts

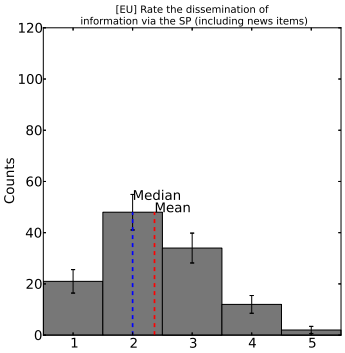

[STUDENTS] How easily can you find the information in the ALMA Science Portal?
Median
Mean
Counts

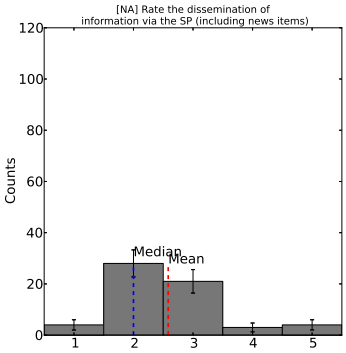

[POSTDOCS] How easily can you find the information in the ALMA Science Portal?
Median
Mean
Counts

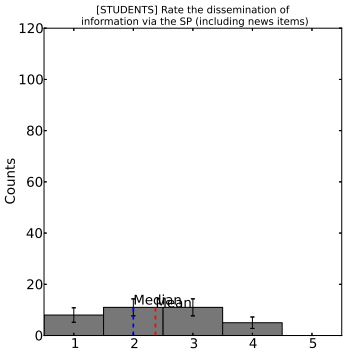

[OTHER] How easily can you find the information in the ALMA Science Portal?
Median
Mean
Counts

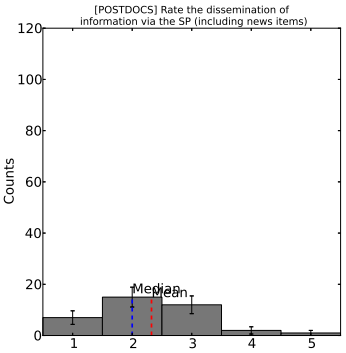

[ALL] Rate the dissemination of
information via the SP (including news items)
Median
Mean
Counts
0
20
40
60
80
100
120
1
2
3
4
5

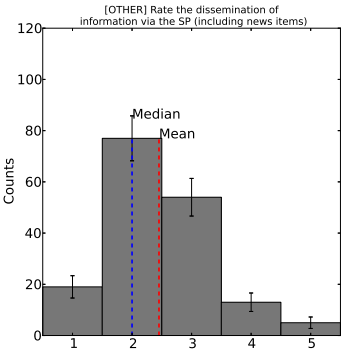

[EA] Rate the dissemination of
information via the SP (including news items)
Median
Mean
Counts
0
20
40
60
80
100
120
1
2
3
4
5


[EU] Rate the dissemination of
information via the SP (including news items)
Median
Mean
Counts
0
20
40
60
80
100
120
1
2
3
4
5


[NA] Rate the dissemination of
information via the SP (including news items)
Median
Mean
Counts
0
20
40
60
80
100
120
1
2
3
4
5


[STUDENTS] Rate the dissemination of
information via the SP (including news items)
Median
Mean
Counts
0
20
40
60
80
100
120
1
2
3
4
5


[POSTDOCS] Rate the dissemination of
information via the SP (including news items)
Median
Mean
Counts
0
20
40
60
80
100
120
1
2
3
4
5


[OTHER] Rate the dissemination of
information via the SP (including news items)
Median
Mean
Counts
0
20
40
60
80
100
120
1
2
3
4
5

Chapter 4

Helpdesk experience and face-to-face support

Use of Helpdesk increased substantially from Cycle 3 to Cycle 4 (32% -> 53%), with the most significant increases relative to Cycle 3 driven by the EU (45% -> 55%), and by the student population (46% -> 54%). All Executives and all demographics experienced similarly large increases, although EA access to Helpdesk more than tripled (14% -> 47%), Helpdesk use in NA and EU approximately doubled (23% -> 57%) and 24% -> 52%). While the increases in use of Helpdesk are global, there is still an outstanding disparity in Helpdesk use, between EA and NA/EU, which may reflect differences between the Executives, in the way scientific information is disseminated. Post-doctorates are the most prolific users of Helpdesk, with 66% accessing Helpdesk.

The use of Knowledgebase articles also increased between Cycle 3 and Cycle 4, though more marginally: 47% -> 51%. Cycle 4 respondent ranking of the quality of the Knowledgebase articles is similar to that from Cycle 3, with a mean value approximately 2.0.

While the use of the Helpdesk increased significantly in Cycle 4 relative to Cycle 3, mean rankings for other metrics were generally the same ($\sim$ 1.8 and $\sim$2.0). "Quality of Helpdesk replies", "response time of Helpdesk replies" and "did you find the Helpdesk easy to use" usually ranked at 1.5 or better, and this was the case also in Cycle 3. There is little variation between the Executives, other than NA ranked slightly higher on "did you find the Helpdesk easy to use" and EU ranked higher on "quality of Helpdesk replies". Students and post-doctorates generally thought the quality of Helpdesk replies was better than did 'other', and post-doctorates in particular ranked "did you find Helpdesk easy to use" better than the other demographics (less than 1.0, versus $\sim$1.1 and $\sim$1.5 for students and 'other' respectively).

This year we asked respondents generally about their attendance to an ARC/Node (the respective questions are addressed in chapter 6 of the Cycle 3 survey). The vast majority (82%) did not visit an ARC/Node. EU hosted $\sim$10% of respondents, while NA and EA hosted 2% and 5% respectively (bear in mind the respondent ratio amongst the Executives is 49%, 23% and 28% for EU, NA and EA respectively, and so the attendance percentage at ARC/Node, normalised by respondent fraction is 20, 9 and 18 for EU, NA and EA). The ranked quality for Face to Face support is generally unchanged between Cycle 4 and Cycle 2 (1.05, and 1.11) - noting there is no comparable ranking made in the Cycle 3 user survey.

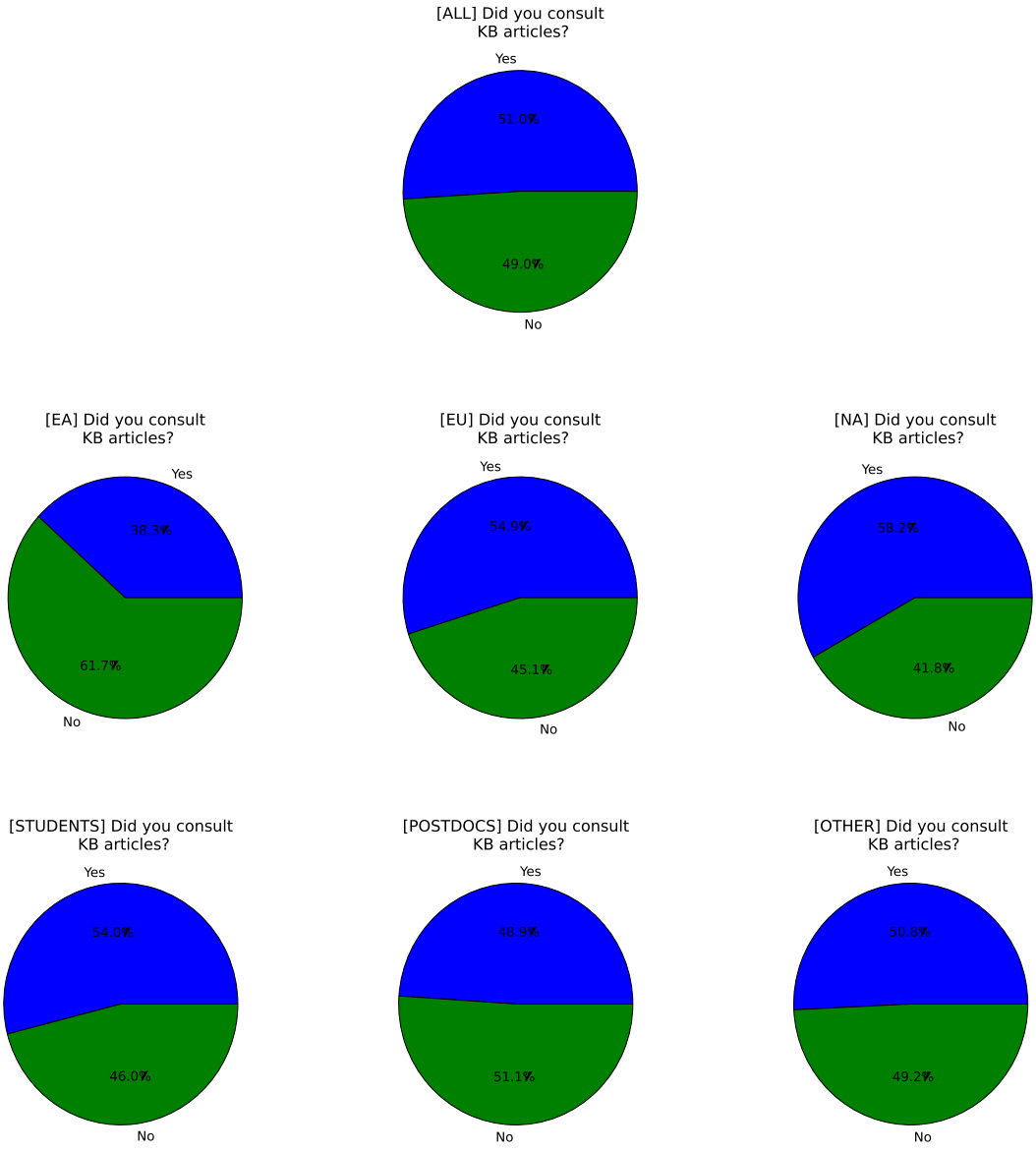
Respondents frequently commented the Knowledgebase articles were not usefully detailed. A number of

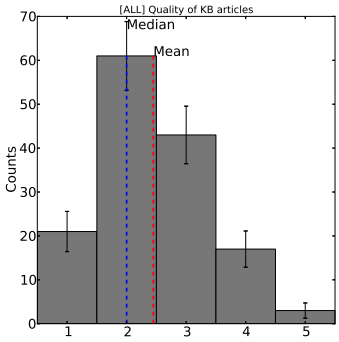
other respondents expressed dissatisfaction with the varied quality and experience from their Helpdesk contact.

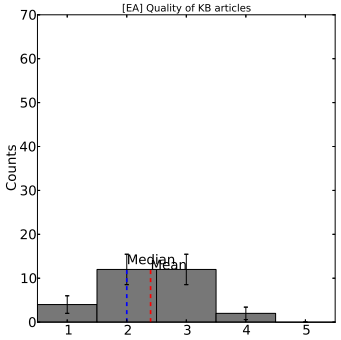
Table 4.1: Did you consult KB articles?

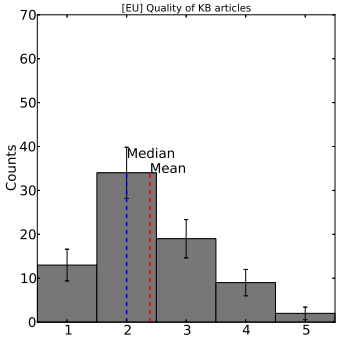
	YES	NO	Total
ALL	149	143	292
EA	31	50	81
EU	79	65	144
NA	39	28	67
STUDENTS	27	23	50
POSTDOCS	23	24	47
OTHER	99	96	195

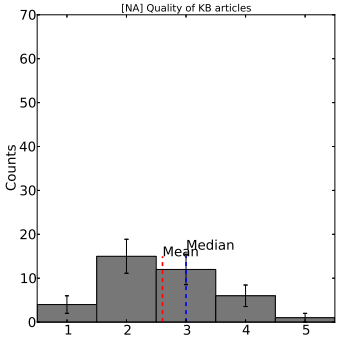
4.1 Results

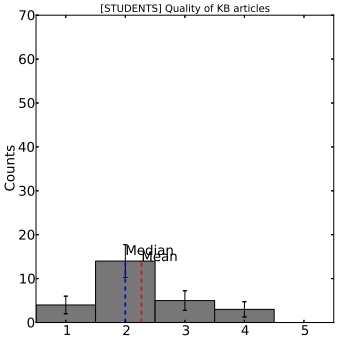


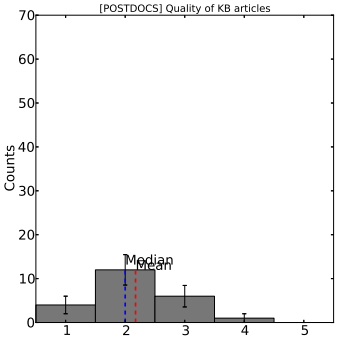

[ALL] Quality of KB articles
Median
Mean
Counts


[EA] Quality of KB articles
Median
Mean
Counts


[EU] Quality of KB articles
Median
Mean
Counts


[NA] Quality of KB articles
Median
Mean
Counts


[STUDENTS] Quality of KB articles
Median
Mean
Counts


[POSTDOCS] Quality of KB articles
Median
Mean
Counts

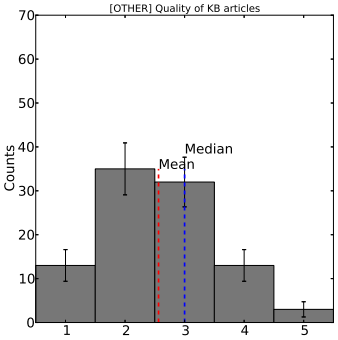
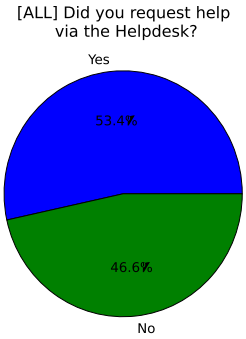
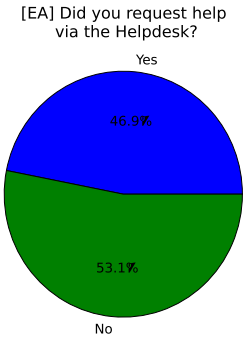
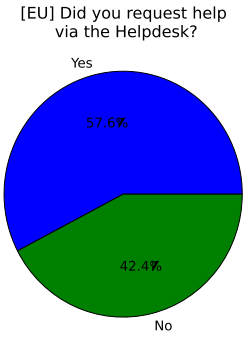

[OTHER] Quality of KB articles
Median
Mean
Counts

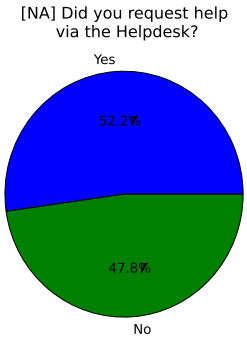
Table 4.2: Did you request help via the helpdesk?

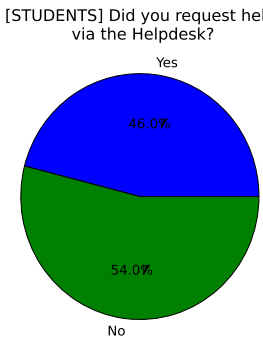
	YES	NO	Total
ALL	156	136	292
EA	38	43	81
EU	83	61	144
NA	35	32	67
STUDENTS	23	27	50
POSTDOCS	31	16	47
OTHER	102	93	195

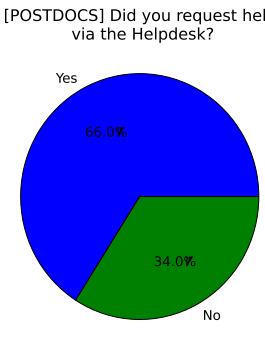


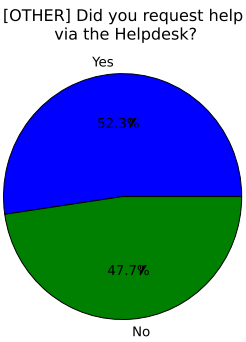


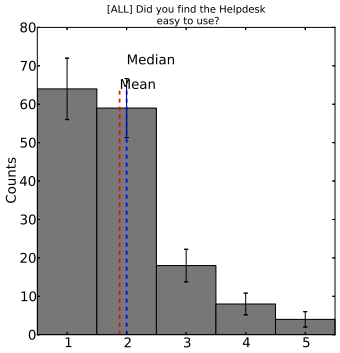


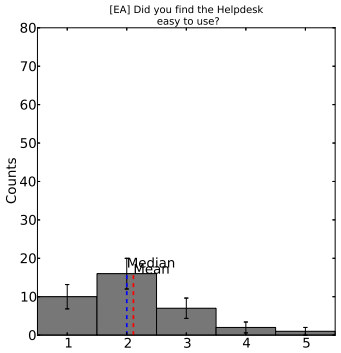


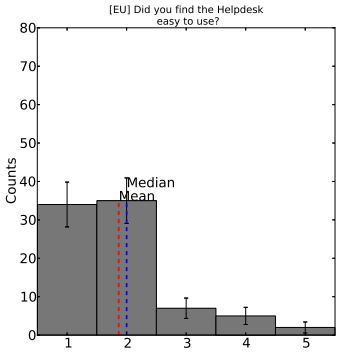


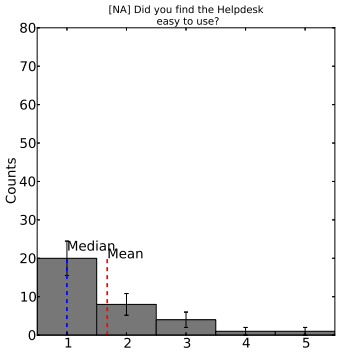


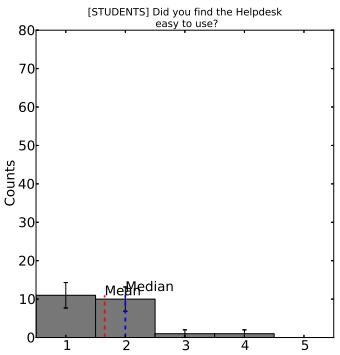


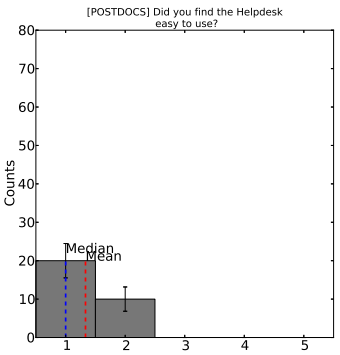

[ALL] Did you find the Helpdesk easy to use?
Median
Mean
Counts

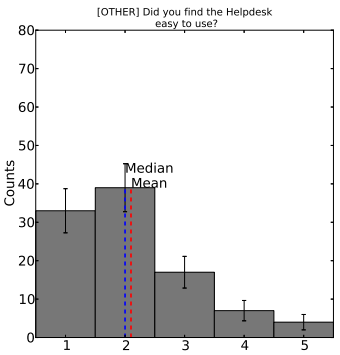

[EA] Did you find the Helpdesk easy to use?
Median
Mean
Counts

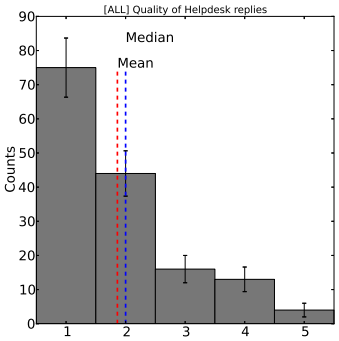

[EU] Did you find the Helpdesk easy to use?
Median
Mean
Counts

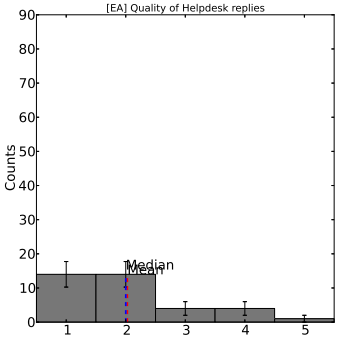

[NA] Did you find the Helpdesk easy to use?
Median
Mean
Counts

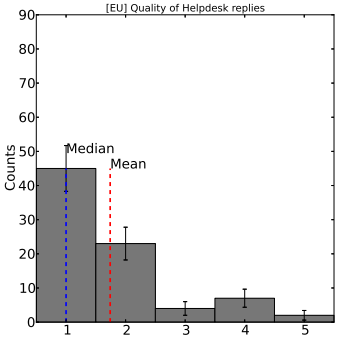

[STUDENTS] Did you find the Helpdesk easy to use?
Mean
Median
Counts

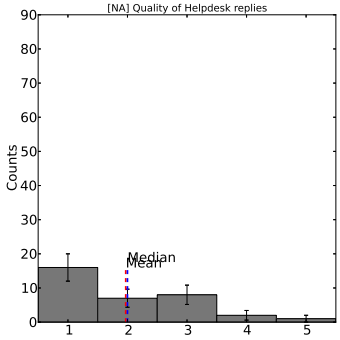

[POSTDOCS] Did you find the Helpdesk easy to use?
Median
Mean
Counts

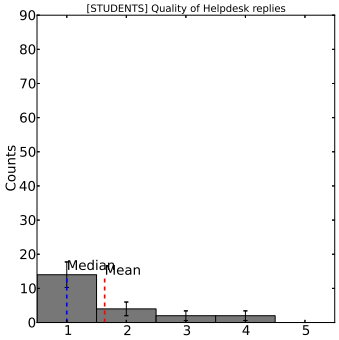

[OTHER] Did you find the Helpdesk easy to use?
Median
Mean
Counts

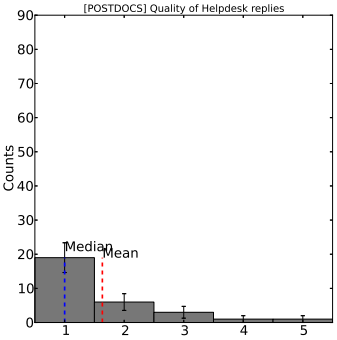

[ALL] Quality of Helpdesk replies
Median
Mean
Counts

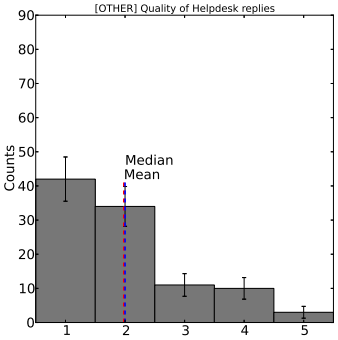

[EA] Quality of Helpdesk replies
Median
Mean
Counts

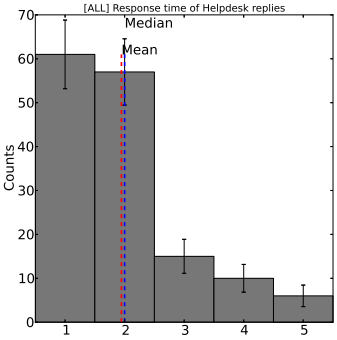

[EU] Quality of Helpdesk replies
Median
Mean
Counts

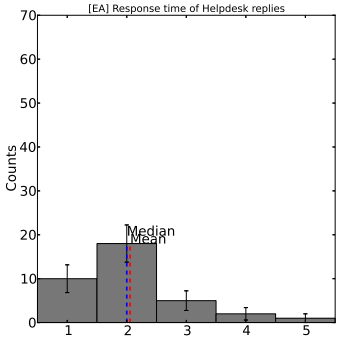

[NA] Quality of Helpdesk replies
Median
Mean
Counts

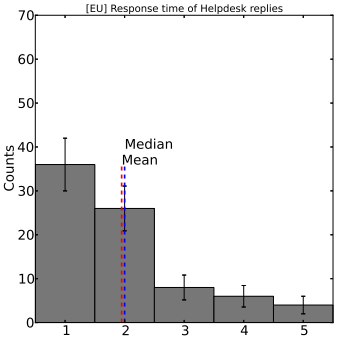

[STUDENTS] Quality of Helpdesk replies
Median
Mean
Counts


[POSTDOCS] Quality of Helpdesk replies
Median
Mean
Counts


[OTHER] Quality of Helpdesk replies
Median
Mean
Counts


[ALL] Response time of Helpdesk replies
Median
Mean
Counts


[EA] Response time of Helpdesk replies
Median
Mean
Counts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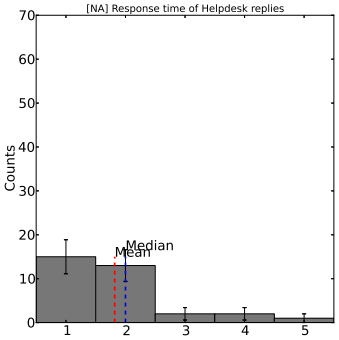
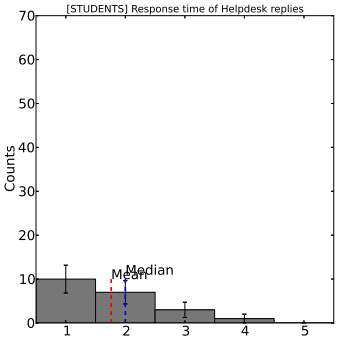
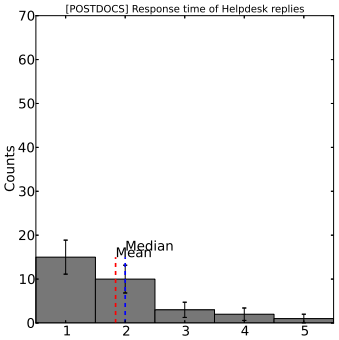
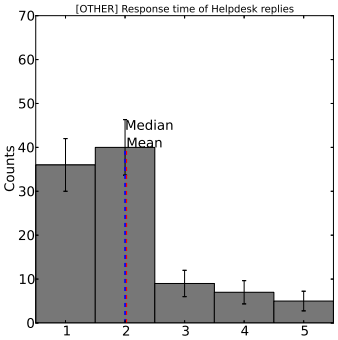
Median
Mean
Counts

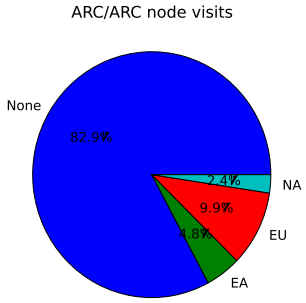

[NA] Response time of Helpdesk replies
Median
Mean
Counts

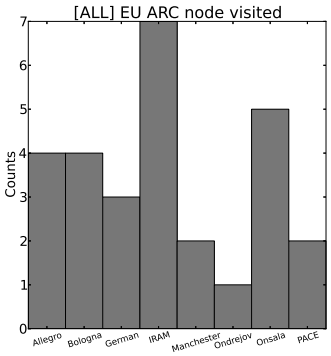

[STUDENTS] Response time of Helpdesk replies
Median
Mean
Counts

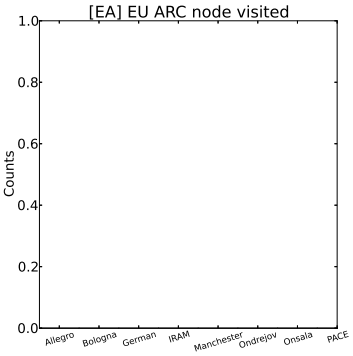

[POSTDOCS] Response time of Helpdesk replies
Median
Mean
Counts

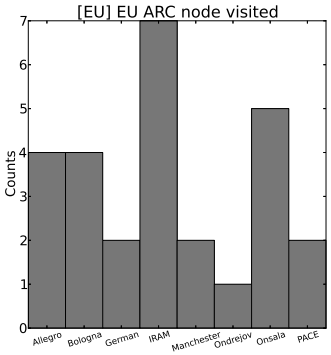

[OTHER] Response time of Helpdesk replies
Median
Mean
Counts

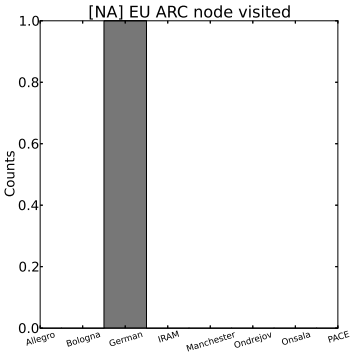
4.1.1 Which ARC/ARC Node did you visit?

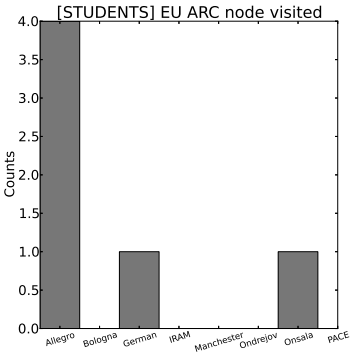


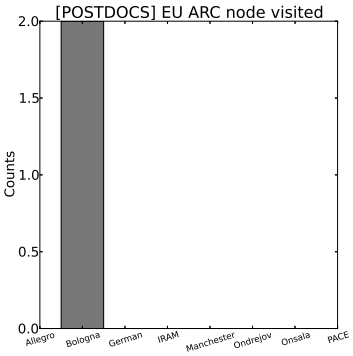

[ALL] EU ARC node visited
Counts
Allegro
Bologna
German
IRAM
Manchester
Ondrejov
Onsala
PACE

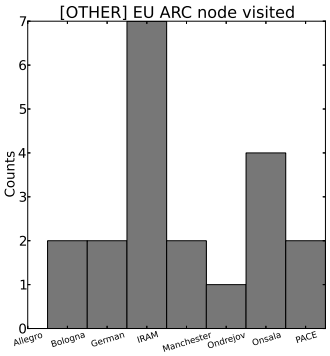

[EA] EU ARC node visited
Counts
Allegro
Bologna
German
IRAM
Manchester
Ondrejov
Onsala
PACE

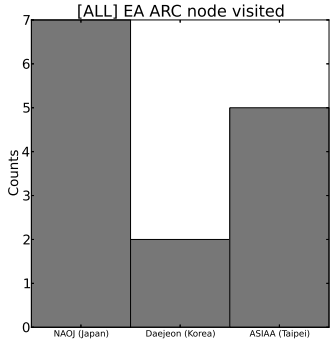

[EU] EU ARC node visited
Counts
Allegro
Bologna
German
IRAM
Manchester
Ondrejov
Onsala
PACE

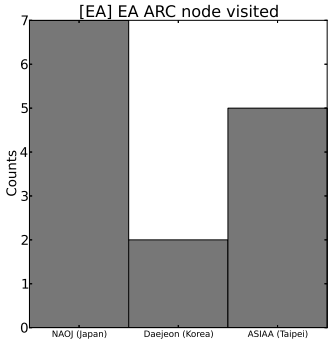

[NA] EU ARC node visited
Counts
Allegro
Bologna
German
IRAM
Manchester
Ondrejov
Onsala
PACE


[STUDENTS] EU ARC node visited
Counts
Allegro
Bologna
German
IRAM
Manchester
Ondrejov
Onsala
PACE


[POSTDOCS] EU ARC node visited
Counts
Allegro
Bologna
German
IRAM
Manchester
Ondrejov
Onsala
PACE


[OTHER] EU ARC node visited
Counts
Allegro
Bologna
German
IRAM
Manchester
Ondrejov
Onsala
PACE


[ALL] EA ARC node visited
Counts
NAOJ (Japan)
Daejeon (Korea)
ASIAA (Taipei)


[EA] EA ARC node visited
Counts
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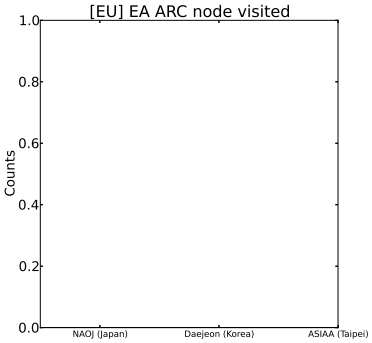
Daejeon (Korea)
ASIAA (Taipei)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Counts
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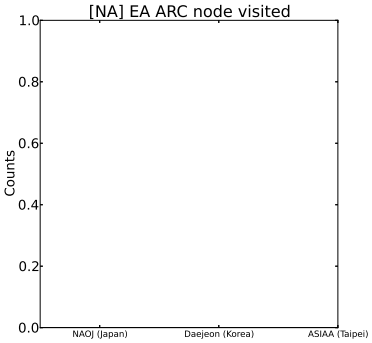
Daejeon (Korea)
ASIAA (Taipei)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Counts
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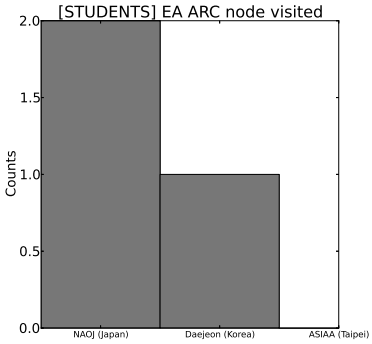
Daejeon (Korea)
ASIAA (Taipei)


[STUDENTS] EA ARC node visited
Counts
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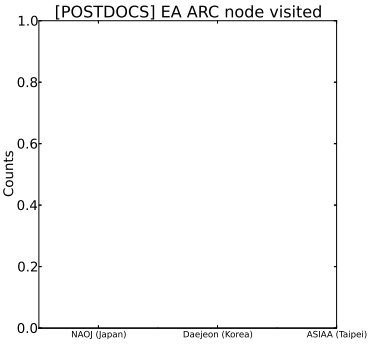
Daejeon (Korea)
ASIAA (Taipei)


[POSTDOCS] EA ARC node visited
Counts
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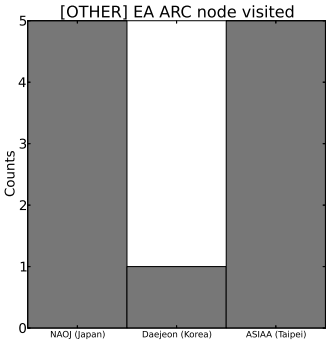
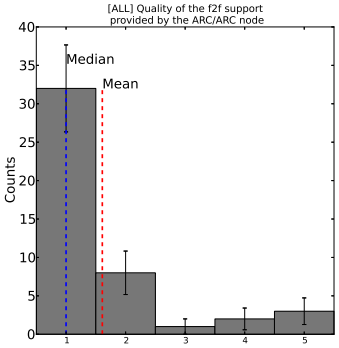
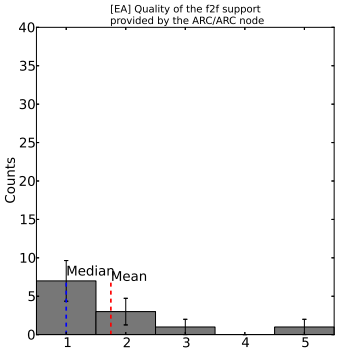
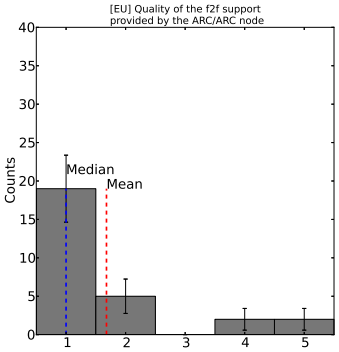
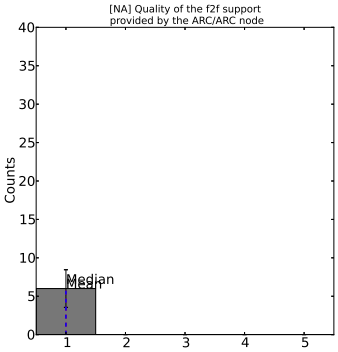
Daejeon (Korea)
ASIAA (Taipei)

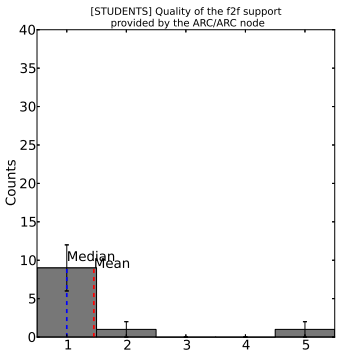

[OTHER] EA ARC node visited
Counts
NAOJ (Japan)
Daejeon (Korea)
ASIAA (Taipei)

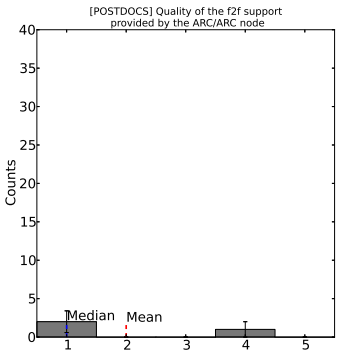

[ALL] Quality of the f2f support
provided by the ARC/ARC node
Median
Mean
Counts

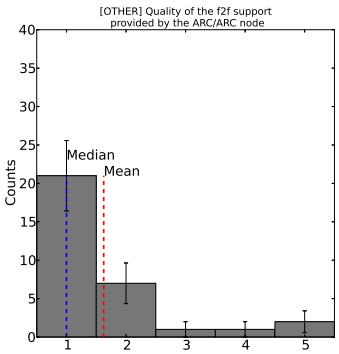

[EA] Quality of the f2f support
provided by the ARC/ARC node
Median
Mean
Counts


[EU] Quality of the f2f support
provided by the ARC/ARC node
Median
Mean
Counts


[NA] Quality of the f2f support
provided by the ARC/ARC node
Median
Mean
Counts


[STUDENTS] Quality of the f2f support
provided by the ARC/ARC node
Median
Mean
Counts


[POSTDOCS] Quality of the f2f support
provided by the ARC/ARC node
Median
Mean
Counts


[OTHER] Quality of the f2f support
provided by the ARC/ARC node
Median
Mean
Counts

Chapter 5

ALMA Science Archive

The Cycle 4 survey reinstated the questions focusing on Archive which were last issued in the Cycle 2 survey. Note that the Cycle 4 survey went into substantially greater detail in obtaining feedback and guidance from the users than did the Cycle 2 survey. The improvements in rankings for Archive usability by the respondents are significant, the mean value is now ∼1.9 (compared to ∼3.4 in Cycle 2). The mean ranking for the Archive was slightly better in EA and EU (∼ 1.8) than in NA (∼ 2.0). Students and post-doctorates also ranked Archive usability slightly better(∼ 1.7) than 'other' (∼ 1.9).

Note that this section is targeted at both PIs and archival users i.e. anyone who accesses ALMA data for any purpose. There is some selection effect here, since an archival user is not required to reveal their ALMA identification. As there may be some archival users who do not have an ALMA identification, they did not have an opportunity to return input to this section.

Approximately 60% of respondents indicated they used the Archive to search and/or download data. This is approximately double the fraction of respondents who indicated they used the Archive in the Cycle 2 survey. The 60% fraction is very consistent within 3 percentage points, across all Executives and demographics.

Approximately 30% of respondents suggested additional fields for querying, ranging from molecular rest frequencies (approximately 1/3 of the suggestions), configurations, and co-Is, to publication-based searches.

Forty-Four percent of respondents nominated 'additional tools' to be included in the Archive, and it seems the post-doctorate demographic was exceptionally responsive to this question, where 59% provided suggestions. Approximately 20% of suggestions referred to some kind of quick-look facility for both image and spectra, other frequent suggestions included providing a target list (2), provide image footprint data (2), and providing calibration data (requests for calibration data were also made in response to other questions in this part of the survey).

Input for additional data was also canvassed and was provided by 42% of respondents. Post-docs were not as obliging this time, and provided only 17% of suggestions. Again, suggestions here were dominated by appeals for calibrated data (i.e. Measurement set), comprising almost half the suggestions, and also again, requests for quick-look images featured a number of times (note that there is some complexity and overlapping in the respondents' replies to "additional products", "additional tools" and "additional fields", in that often answers

provided in one section are more appropriately included in another).

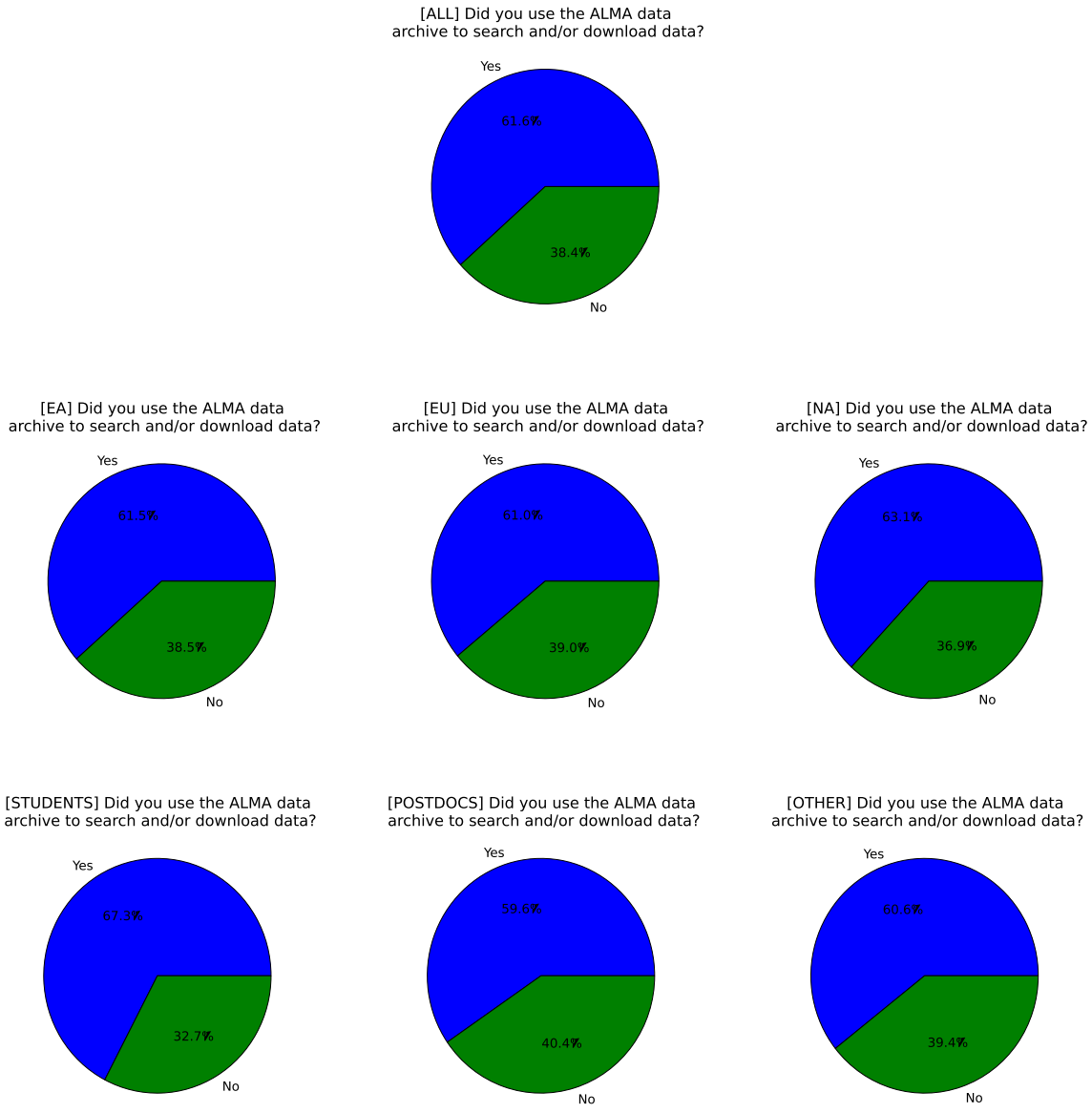
Difficulties in downloading data were encountered in about 30% of cases. This was roughly consistent across the Executives, within a few percentage points. Interestingly though, students seemed to have much more success in downloading data, encountering problems only 17% of the time. Post-doctorates and 'other' researchers had similar probability of encountering problems, at around 67%. In fact these kinds of rates are slightly better than the rates found during Cycle 2, where 35% of respondents reported difficulty in downloading data.

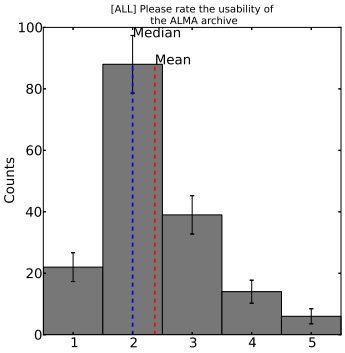
Comments regarding download problems reported slowness in about 25% of cases, and simply stalling/failing in about 32% of cases. There were no strong themes present in the "general comments", although there were a number of comments regarding a lack of intuitiveness of the interface.

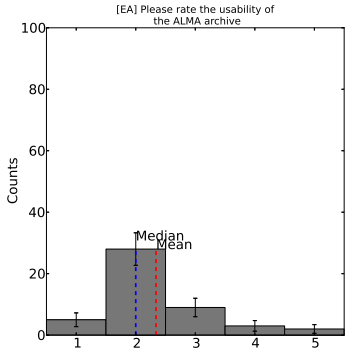
Table 5.1: Did you use the ALMA data archive to search and/or download data?

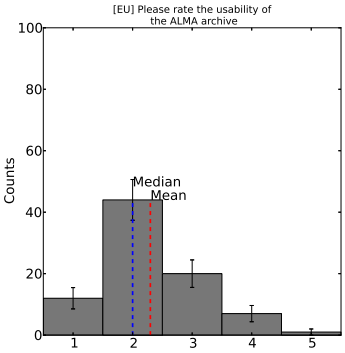
	YES	NO	Total
ALL	175	109	284
EA	48	30	78
EU	86	55	141
NA	41	24	65
STUDENTS	33	16	49
POSTDOCS	28	19	47
OTHER	114	74	188

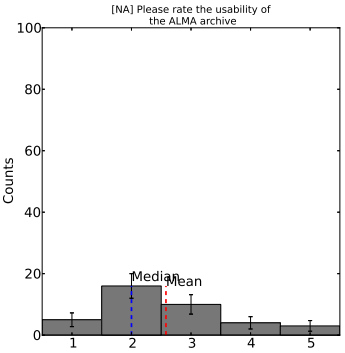
5.1 Results

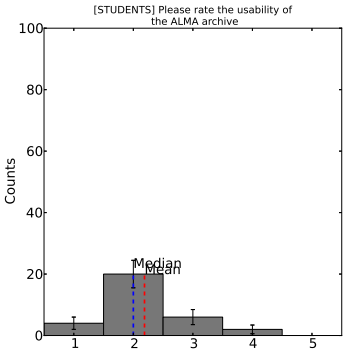


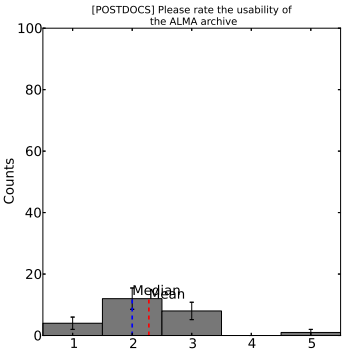

[ALL] Please rate the usability of the ALMA archive
Median
Mean
Counts
0
20
40
60
80
100
1
2
3
4
5


[EA] Please rate the usability of the ALMA archive
Median
Mean
Counts
0
20
40
60
80
100
1
2
3
4
5


[EU] Please rate the usability of the ALMA archive
Median
Mean
Counts
0
20
40
60
80
100
1
2
3
4
5


[NA] Please rate the usability of the ALMA archive
Median
Mean
Counts
0
20
40
60
80
100
1
2
3
4
5


[STUDENTS] Please rate the usability of the ALMA archive
Median
Mean
Counts
0
20
40
60
80
100
1
2
3
4
5


[POSTDOCS] Please rate the usability of the ALMA archive
Median
Mean
Counts
0
20
40
60
80
100
1
2
3
4
5

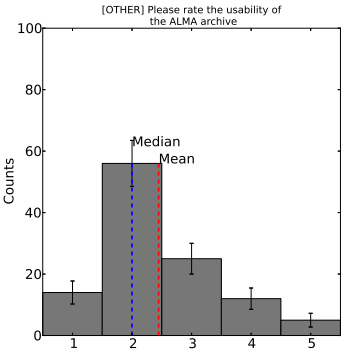

[OTHER] Please rate the usability of the ALMA archive
Median
Mean
Counts
0
20
40
60
80
100
1
2
3
4
5

Table 5.2: Are there specific additional fields you would want to query on?

	YES	NO	Total
ALL	29	75	104
EA	6	19	25
EU	16	39	55
NA	7	17	24
STUDENTS	3	13	16
POSTDOCS	3	15	18
OTHER	23	47	70

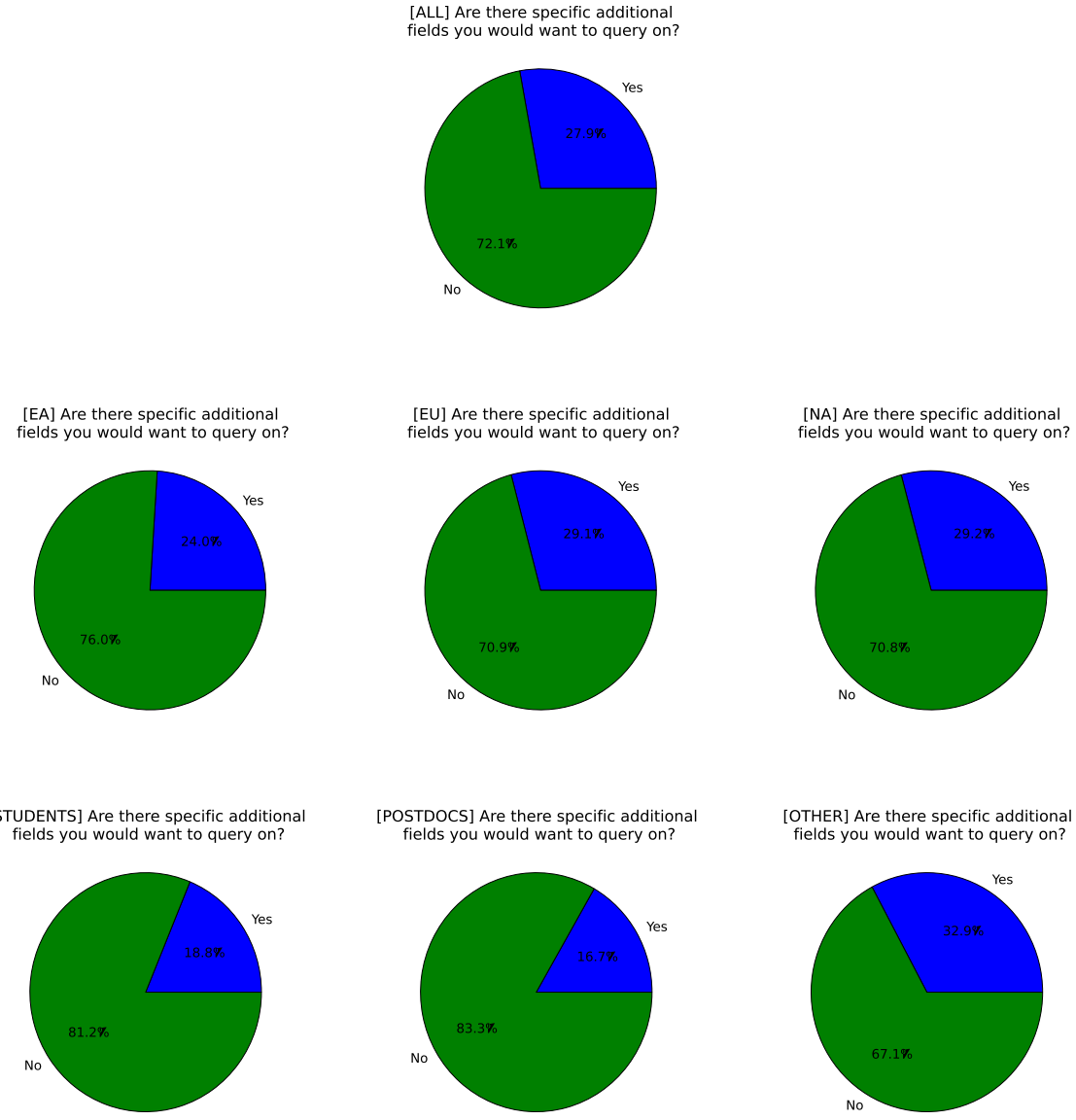
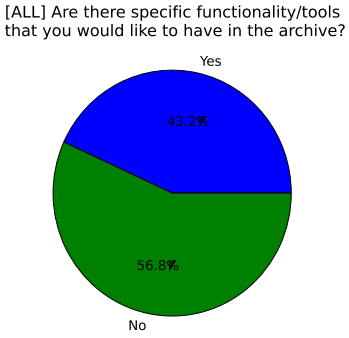
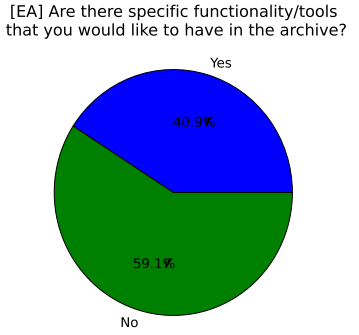


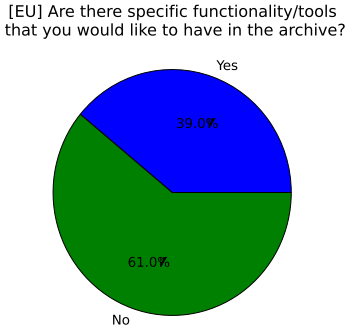
Table 5.3: Are there specific functionality/tools that you would like to have in the archive?

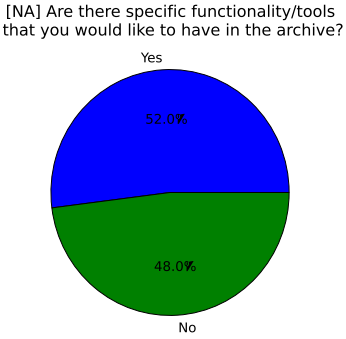
	YES	NO	Total
ALL	38	50	88
EA	9	13	22
EU	16	25	41
NA	13	12	25
STUDENTS	5	10	15
POSTDOCS	10	7	17
OTHER	23	33	56

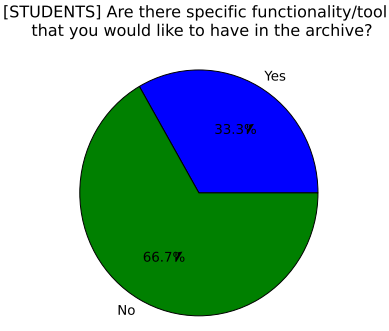
5.2 Additional fields you would want to query on

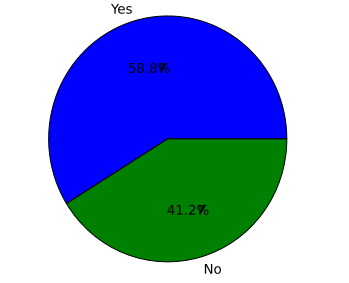












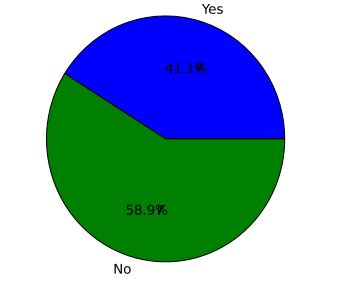
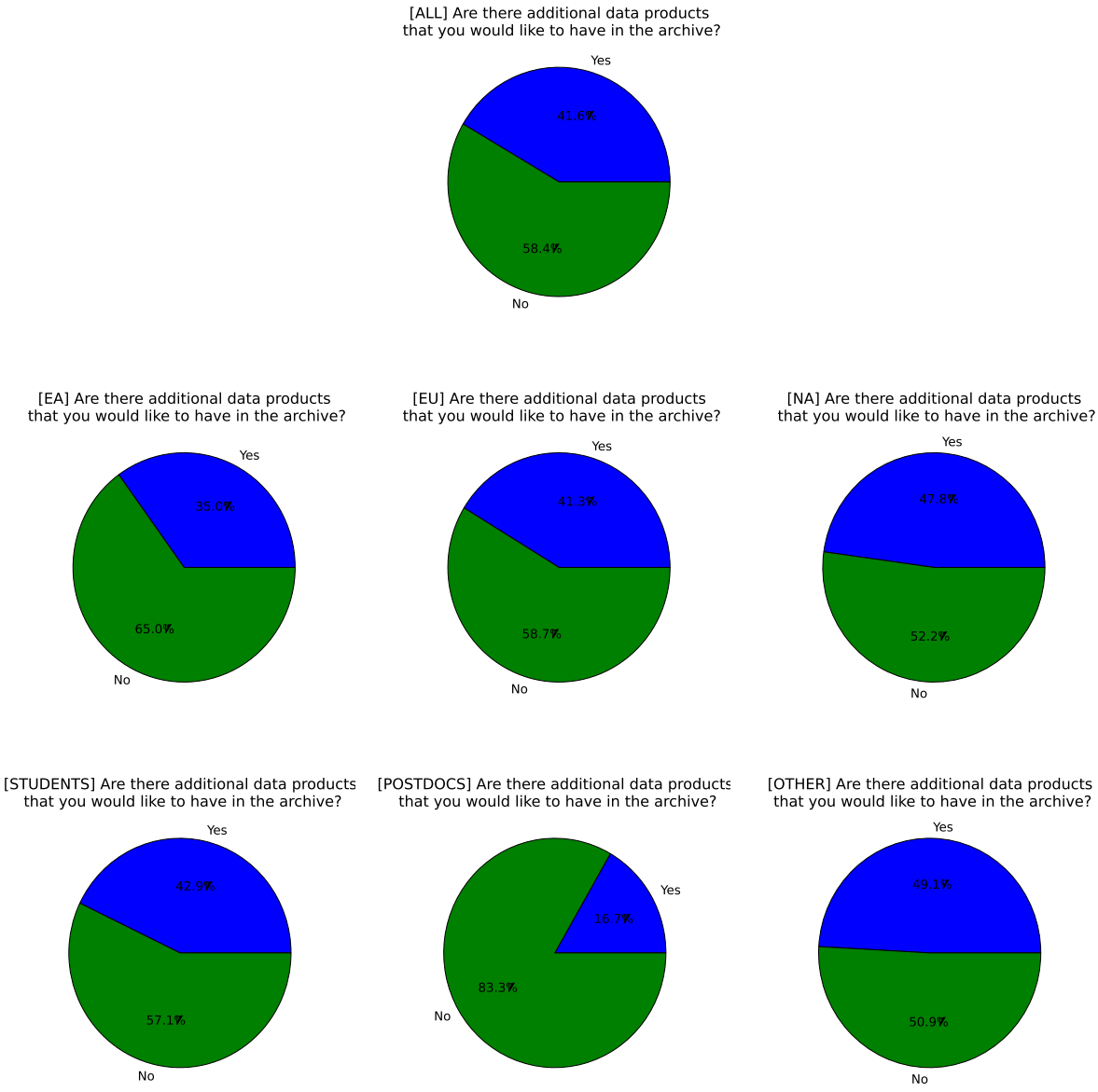


Table 5.4: Are there additional data products that you would like to have in the archive?

	YES	NO	Total
ALL	37	52	89
EA	7	13	20
EU	19	27	46
NA	11	12	23
STUDENTS	6	8	14
POSTDOCS	3	15	18
OTHER	28	29	57

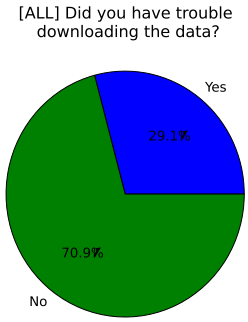
5.3 Additional tools and functionality you would want to have in the archive

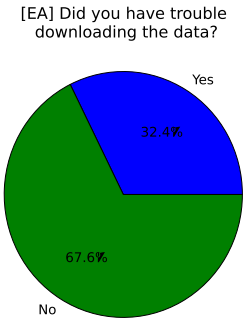


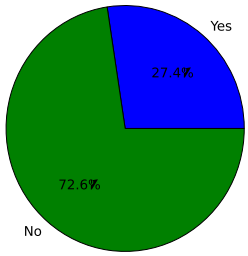
5.4 Additional data products you would want to have in the archive

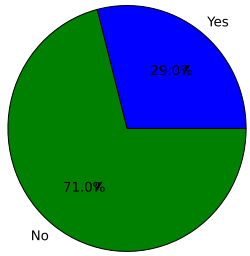
Table 5.5: Did you have trouble downloading the data?

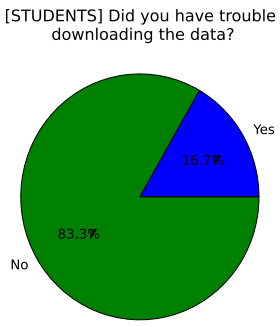
	YES	NO	Total
ALL	37	90	127
EA	11	23	34
EU	17	45	62
NA	9	22	31
STUDENTS	4	20	24
POSTDOCS	7	13	20
OTHER	26	57	83

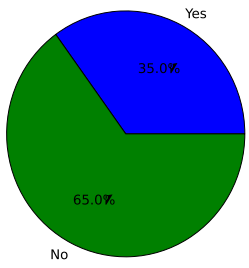


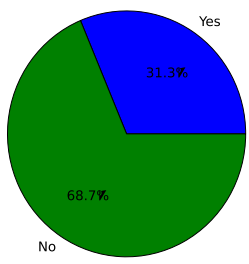












Chapter 6

SnooPI

SnooPI is a new application used for the first time in Cycle 3 and was built largely to replace the project tracker. It's not as mature as the other subsystems addressed in the Cycle 4 survey, having been introduced during Cycle 3. Forty-one percent of respondents indicated they'd used SnooPI, and this fraction was consistent across the Executives within a few percentage points, although students appeared to make slightly less use of SnooPI than the other demographics, at 23% of respondents.

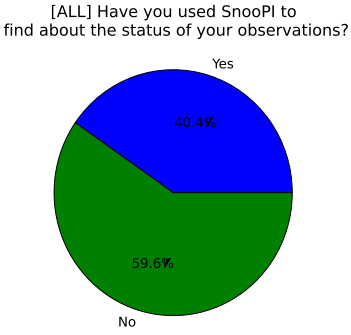
SnooPI's mean rank for "following progress and status of projects" was around 2.15, though was slightly worse in NA, at around 2.5 - this falls within the "average" ranking. Students however, seemed to find better utility in SnooPI, ranking it at around 1.6 ("above average"), compared with the ranks from Post-doctorate and 'other', of about 2.7 and 2.1 respectively. The mean ranks for "following progress and status of SBs" performed similarly.

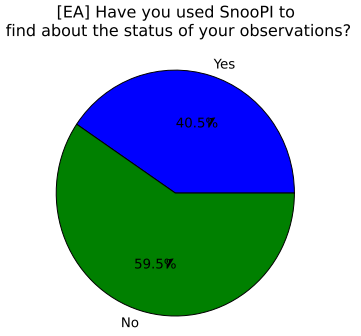
While many of the comments about SnooPI were unfavourable, they were also extremely varied and often suggested/requested completely opposite things (e.g. too much complexity, too much simplicity). Almost half of comments made direct comparisons with project tracker, suggesting the functionality of SnooPI could be improved by importing functionality from PT (and a few made the direct opposite comparison: that SnooPI was superior to PT). It's clear though, that users are yet to adjust to and fully exploit the functionality of SnooPI, especially at this stage where they currently still have a strong preference for PT.

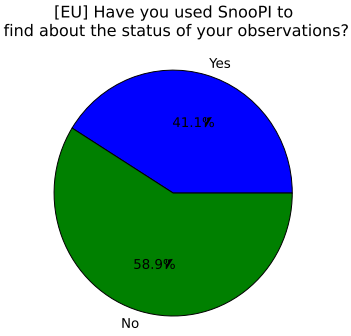
Table 6.1: Have you used SnooPI to find about the status of your observations?

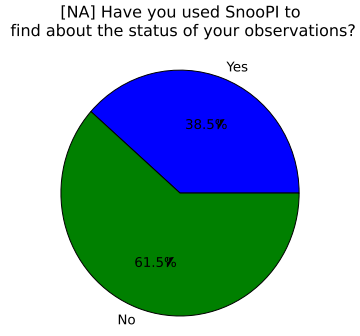
	YES	NO	Total
ALL	113	167	280
EA	30	44	74
EU	58	83	141
NA	25	40	65
STUDENTS	15	33	48
POSTDOCS	19	28	47
OTHER	79	106	185

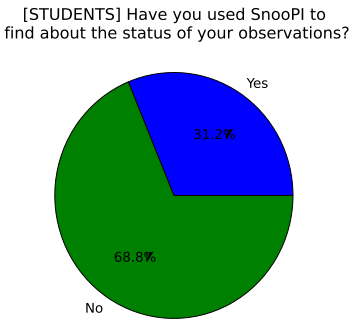
6.1 Results

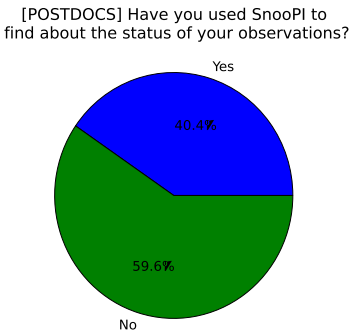


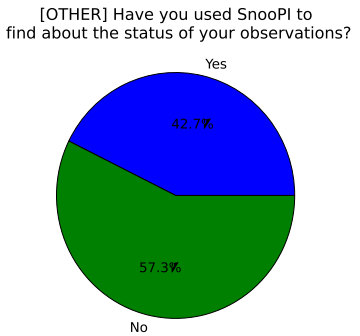


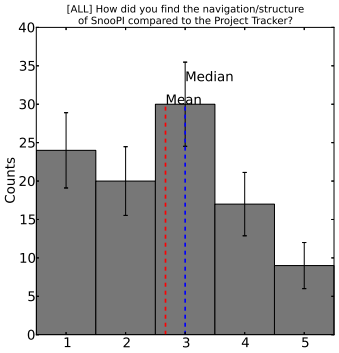


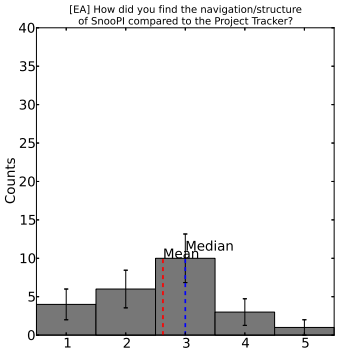


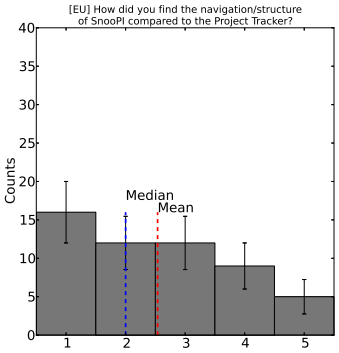


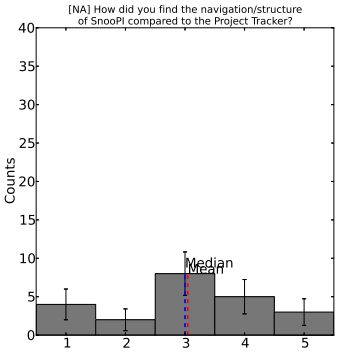





[ALL] How did you find the navigation/structure of SnooPI compared to the Project Tracker?
Counts
Median
Mean


[EA] How did you find the navigation/structure of SnooPI compared to the Project Tracker?
Counts
Median
Mean


[EU] How did you find the navigation/structure of SnooPI compared to the Project Tracker?
Counts
Median
Mean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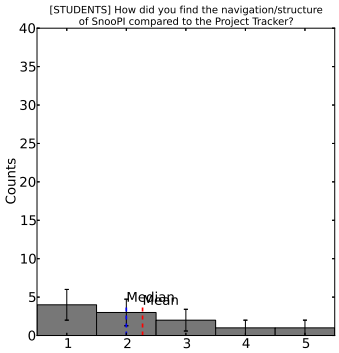
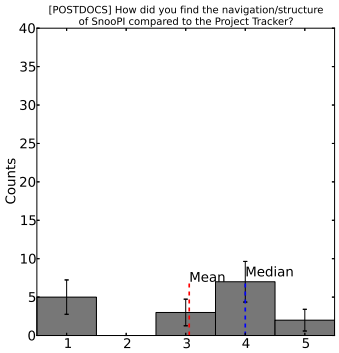
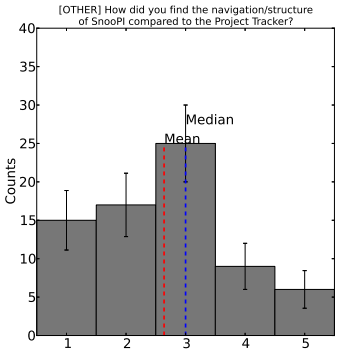
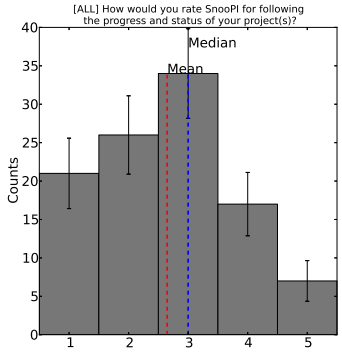
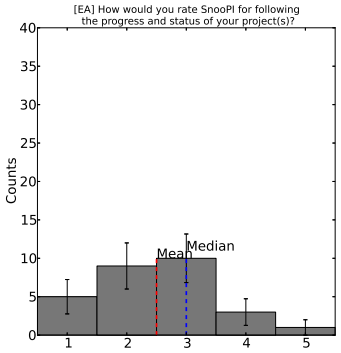
Counts
Median
Mean

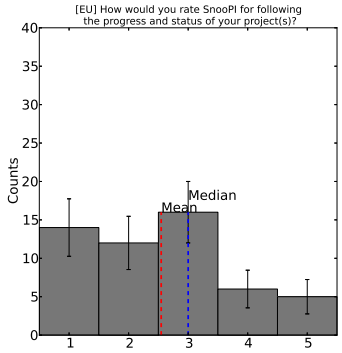

[STUDENTS] How did you find the navigation/structure of SnooPI compared to the Project Tracker?
Counts
Median
Mean

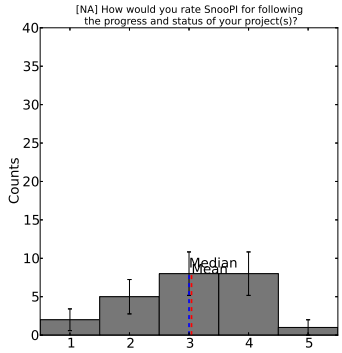

[POSTDOCS] How did you find the navigation/structure of SnooPI compared to the Project Tracker?
Counts
Mean
Median

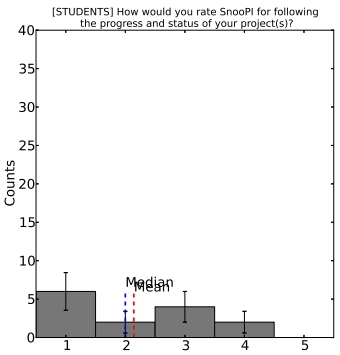

[OTHER] How did you find the navigation/structure of SnooPI compared to the Project Tracker?
Counts
Median
Mean

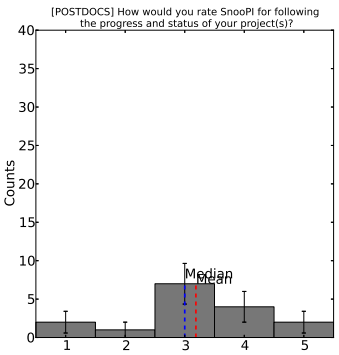

[ALL] How would you rate SnooPI for following the progress and status of your project(s)?
Median
Mean
Counts

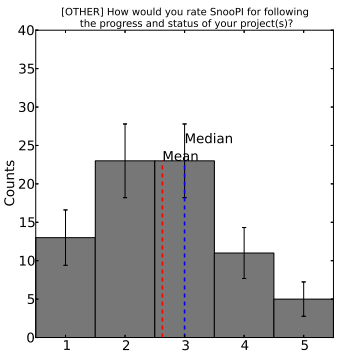

[EA] How would you rate SnooPI for following the progress and status of your project(s)?
Median
Mean
Counts

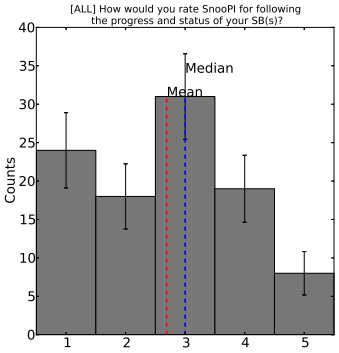

[EU] How would you rate SnooPI for following the progress and status of your project(s)?
Median
Mean
Counts

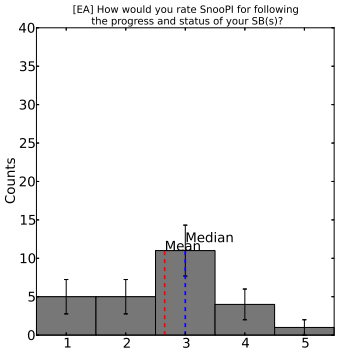

[NA] How would you rate SnooPI for following the progress and status of your project(s)?
Median
Mean
Counts

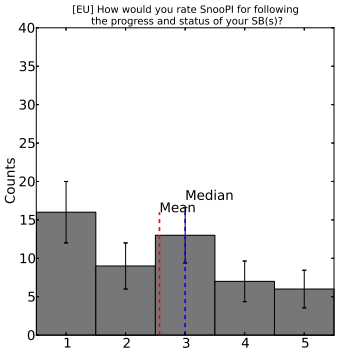

[STUDENTS] How would you rate SnooPI for following the progress and status of your project(s)?
Median
Mean
Counts

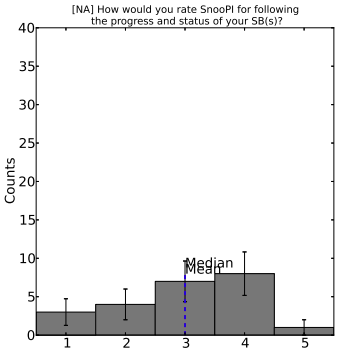

[POSTDOCS] How would you rate SnooPI for following the progress and status of your project(s)?
Median
Mean
Counts

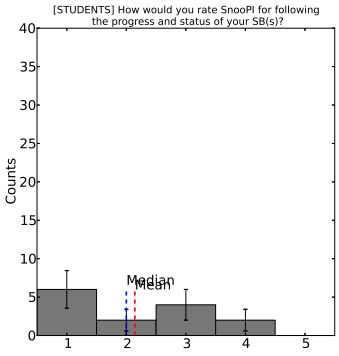

[OTHER] How would you rate SnooPI for following the progress and status of your project(s)?
Median
Mean
Counts

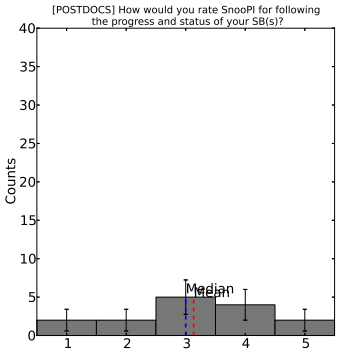

[ALL] How would you rate SnooPI for following the progress and status of your SB(s)?
Counts
Median
Mean

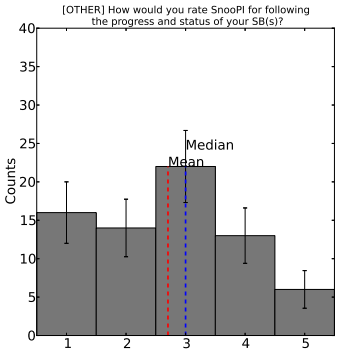

[EA] How would you rate SnooPI for following the progress and status of your SB(s)?
Counts
Median
Mean


[EU] How would you rate SnooPI for following the progress and status of your SB(s)?
Counts
Median
Mean


[NA] How would you rate SnooPI for following the progress and status of your SB(s)?
Counts
Median
Mean


[STUDENTS] How would you rate SnooPI for following the progress and status of your SB(s)?
Counts
Median
Mean


[POSTDOCS] How would you rate SnooPI for following the progress and status of your SB(s)?
Counts
Median
Mean


[OTHER] How would you rate SnooPI for following the progress and status of your SB(s)?
Counts
Median
Mean

Chapter 7

Cycle 3 Data Quality and Processing

The Cycle 3 data quality section in this survey has no counterpart in the previous survey, though it corresponds to chapter 7 in the Cycle 2 survey. Since Cycle 2, delivered data is more typically processed by pipeline: ∼78% of data received by respondents to this survey was pipeline-processed. Note also that the number of respondents to the equivalent chapter in the Cycle 2 survey is much smaller.

Support and clarity of information within the delivered data package was regarded adequate by 80% of all respondents. However EA showed more prevalent approval, where 92% of respondents indicated favourably. Post-doctorates were unanimous in their approval, although there were only seven postdoctorate respondents to this question, the ∼80% students (ten respondents) and 'other' (48 respondents) indicated approval. Even so, there were 8 comments regarding the data package, four of which indicated insufficient/inadequate information about the package.

Respondents in NA seemed less satisfied with the calibration data, with 62% approving. EU and EA were somewhat more satisfied, with 85% and 92% indicating satisfaction respectively. Comments regarding calibration data had no strong themes, though issues regarding baselining of total power data, and channel-flagging were mentioned two times each (from 11 comments in total).

NA Executive expressed relatively higher proportion of dissatisfaction in the adequacy of the imaged data of 40%, with the EA and EU Executives both expressing satisfaction of around 60% -62%. Students seemed more dissatisfied with image data, having ∼54% satisfaction, relative to 63% and 55% satisfaction for the postdoctorate and 'other' demographics. Comments in this section directly or indirectly mentioned having to repeat calibration by the PI. In some cases this was an expectation by the PI, but other users found the number of products provided was smaller than expected, they wanted to undertake selfcal, or improve cleaning themselves.

Mean quality of the data products themselves was ranked overall, as ∼1.9. Comments regarding additional products had no dominant themes. Out of the ∼13 comments, the most common request (three times) was to incorporate calibrated measurement sets.

The majority of respondents accessed the ASDM data, although the scatter is large between the Executives; 100% (14) in EA, versus 81% (26) in EU, and 75% (18) in NA. Again the populations of students and post-doctorates are small, though 100% (10) of students downloaded the ASDMs, as did 88% (7) of post-doctorates,

and 79% (41) of 'other'.

Calibration of the ALMA data is repeated by only around 16% of the respondents. That fraction is slightly higher in NA: 22%. There is virtually no variation between the student/postdoc/'other' demographics. This statistic should be considered along with the fraction of people undertaking calibration themselves (i.e. they would reply 'no' to 'did you recalibrate your data'). In fact, around 5% of people calibrate their data on their own - but this is a very small absolute number; 15 in total, spread as 2, 6, 7 among EA, EU and NA respectively. Seven out of the seventeen comments regarding the success of running scriptForPI indicated they encountered no problems, one or two others pointed out some modifications were necessary.

Slightly less than half of the respondents indicating they received ALMA data actually used any of it. Out of those who did, only 17% used all the delivered data. The survey did not query on the reasons as to why the respondents did not use any or some of their requested data.

THe ALMA pipeline documentation and quick start guide were generally ranked with a mean of around 2.0. This rank is uniform between the Executives, although post-doctorates expressed less approval, with a mean rank at around 2.3. Similar views were held regarding the pipeline log which scored a similar rank.

In terms of required hardware capability, respondents ranked the ability of their institute computers to process ALMA data with a mean of around 2.0. This was a robust mean through all the Executives, though students gave a better rank of $\sim$1.5.

Around 64% of all respondents used CASA to process their data, and while it was most often used for imaging and data import/export, post-doctorates also made relatively higher use of CASA for uv-data examination and calibration. There was little variation between Executives, though NA were slightly heavier users, at 70%. Students, postdocs and 'other', demographics were all within a few percentage points of 65% of respondents using CASA. CASA usability was ranked with a mean of $\sim$2.2, with only small variation between the Executives, although students and post-doctorates ranked CASA better (mean $\sim$2.0) than did 'other' (mean $\sim$2.3). The mean rank for CASA functionality is around 2.1. Again, the younger respondents (students; $\sim$1.6 and postdocs; $\sim$1.9) seemed to rank the CASA functionality slightly better than did 'other' ($\sim$2.3).

Comments regarding lacking documentation were the most frequent; around ($\sim$10%) indicated the documentation was inadequate or out of date. Another $\sim$10% commented that CASA was very slow.

Overall quality of ALMA data (as distinct from ALMA reduced and delivered products) was ranked highly, at about 1.3 rather consistently across the Executives, and through the student/postdoc/'other' demographics. The 26 comments about the data quality seemed generally positive, many respondents (approximately six) also pointed out large delays between data-taking and data delivery.

Table 7.1: Was the support information provided in the package useful and clear?

	YES	NO	Total
ALL	52	13	65
EA	11	1	12
EU	25	7	32
NA	16	5	21
STUDENTS	8	2	10
POSTDOCS	7	0	7
OTHER	37	11	48

7.1 Results

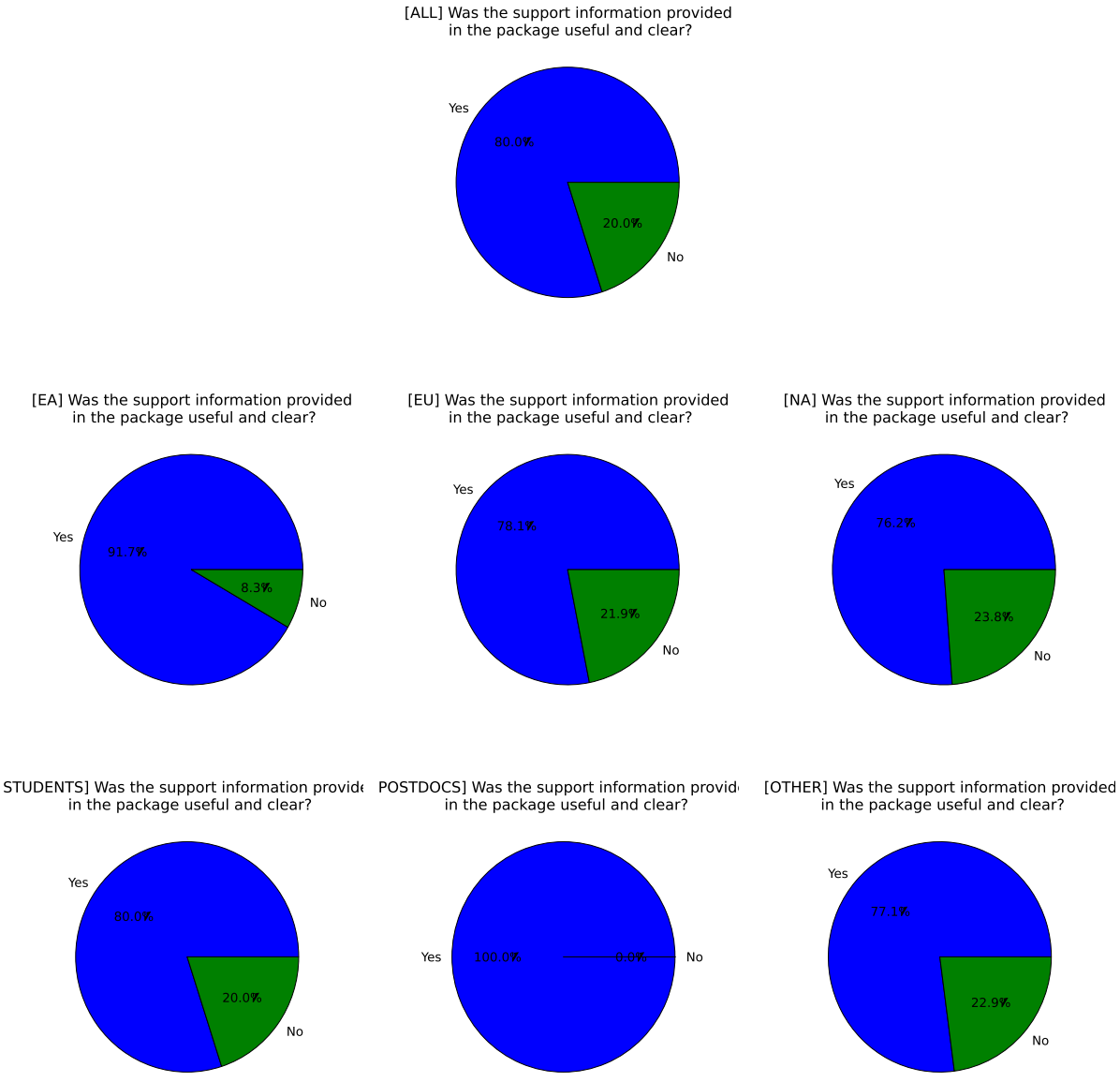


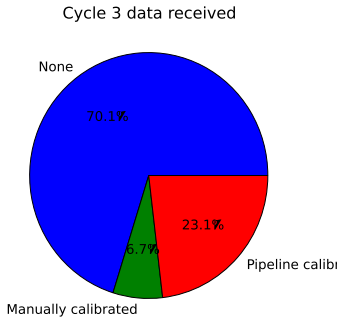
Table 7.2: Were the calibration data adequate?

	YES	NO	Total
ALL	47	13	60
EA	12	1	13
EU	22	4	26
NA	13	8	21
STUDENTS	6	2	8
POSTDOCS	5	2	7
OTHER	36	9	45

Table 7.3: Were the provided imaging products adequate?

	YES	NO	Total
ALL	33	28	61
EA	7	5	12
EU	18	11	29
NA	8	12	20
STUDENTS	4	5	9
POSTDOCS	5	3	8
OTHER	24	20	44

7.1.1 Suggestions for additional imaging or other products to be included in the delivery



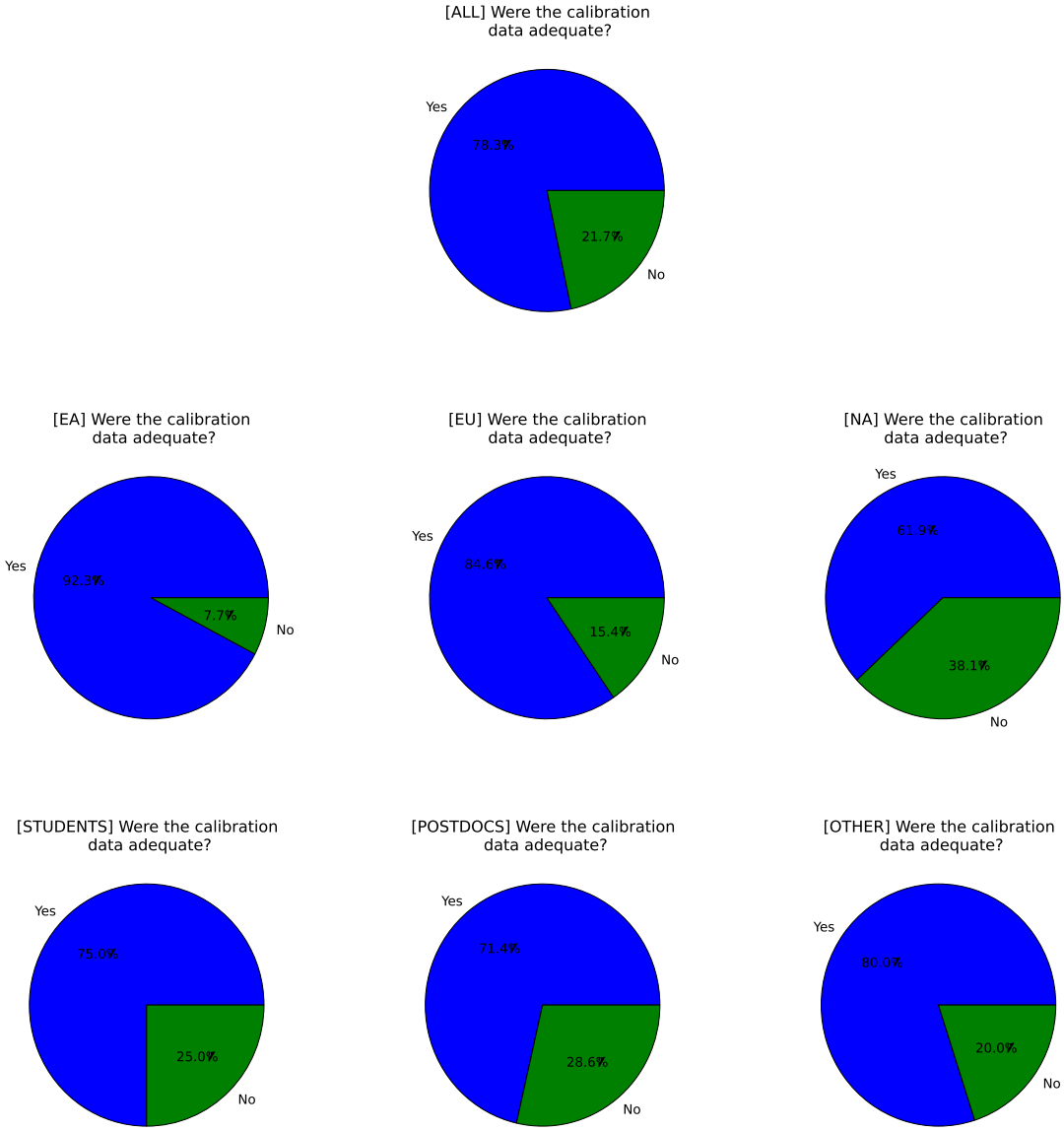


Table 7.4: Did you also download the raw data (the "ASDMs")?

	YES	NO	Total
ALL	58	12	70
EA	14	0	14
EU	26	6	32
NA	18	6	24
STUDENTS	10	0	10
POSTDOCS	7	1	8
OTHER	41	11	52

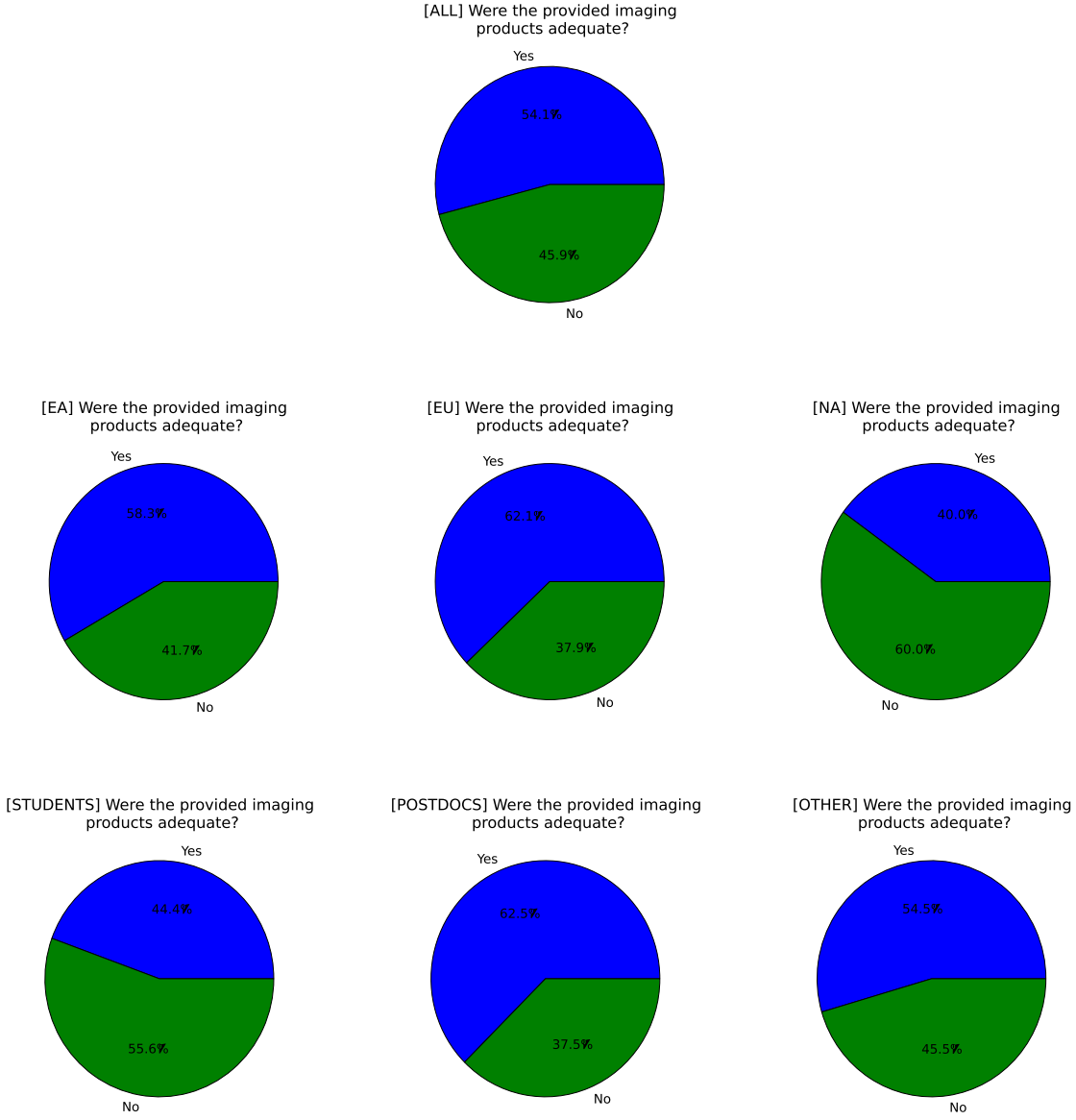


Table 7.5: Did you use scriptForPI to recalibrate your data?

	YES	NO	Total
ALL	49	248	297
EA	14	69	83
EU	20	126	146
NA	15	53	68
STUDENTS	10	40	50
POSTDOCS	7	40	47
OTHER	32	168	200

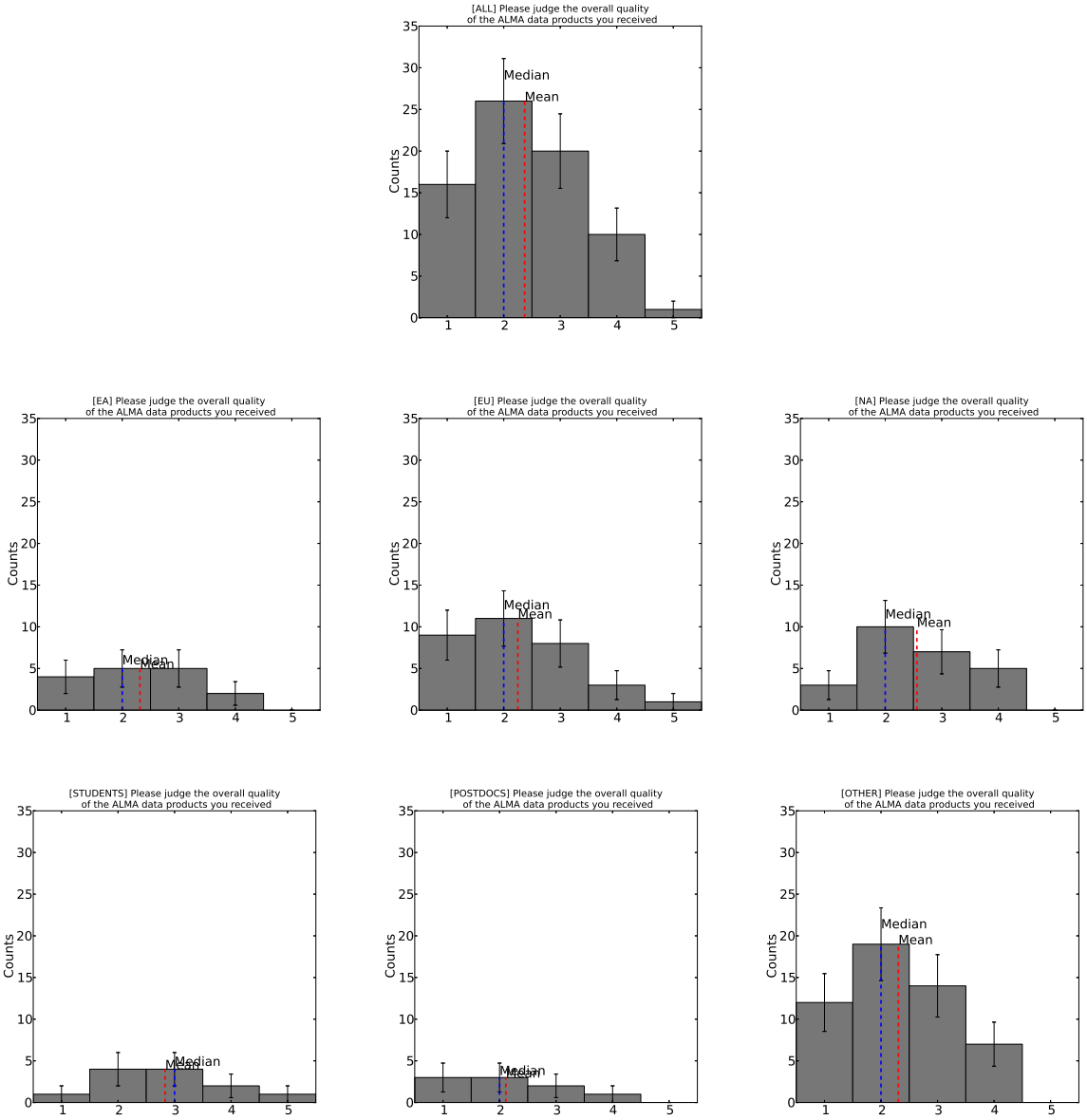


Table 7.6: Did you calibrate the data yourself?

	YES	NO	Total
ALL	15	282	297
EA	2	81	83
EU	6	140	146
NA	7	61	68
STUDENTS	1	49	50
POSTDOCS	1	46	47
OTHER	13	187	200

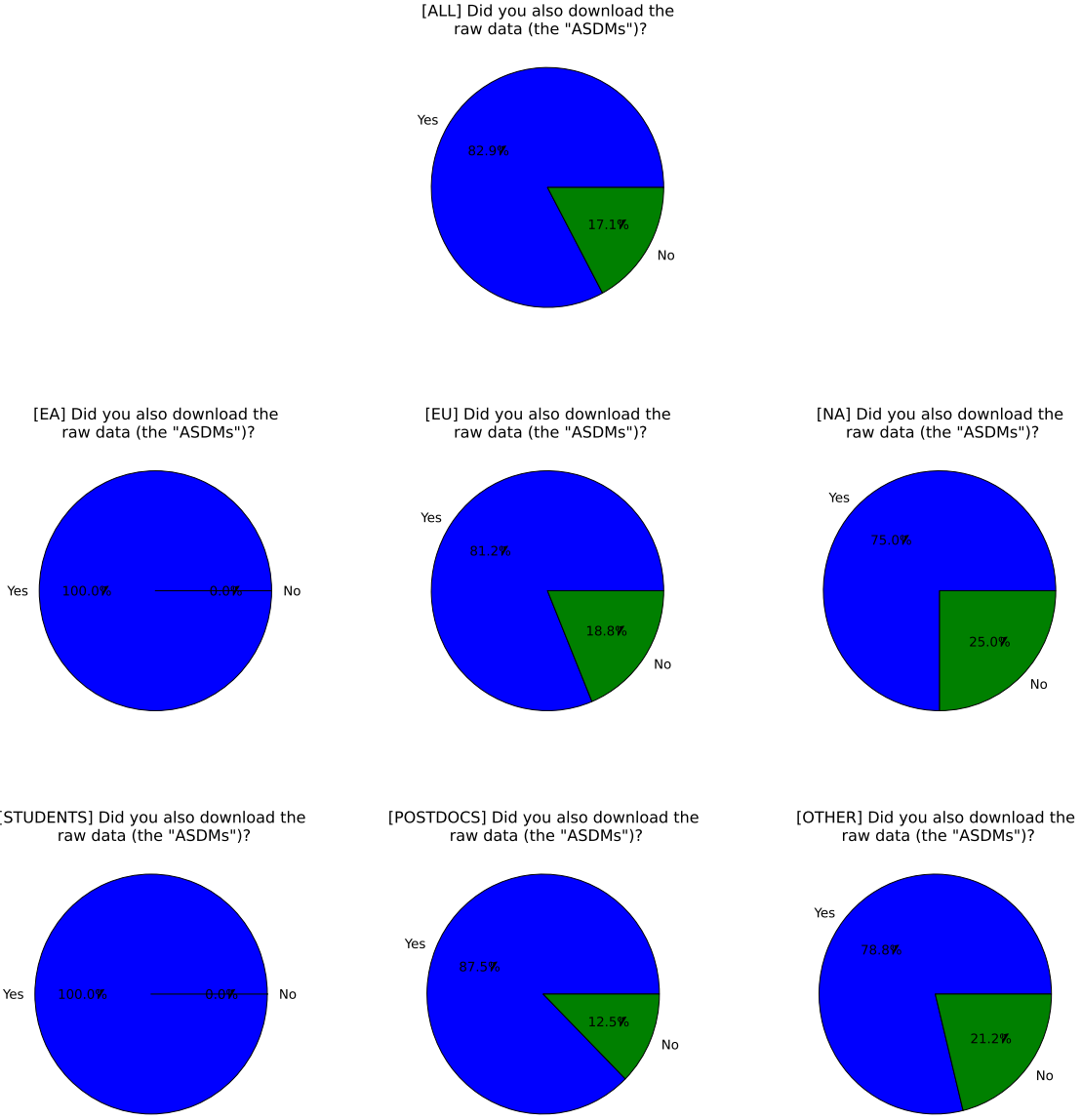
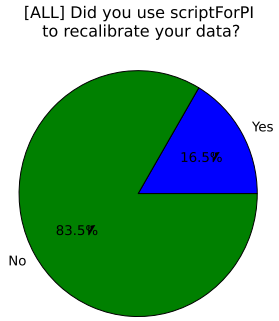
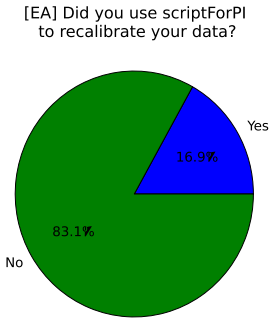
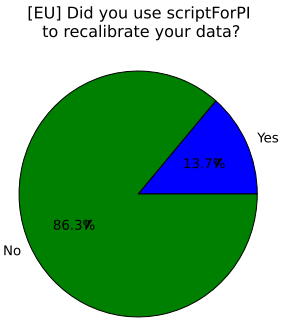


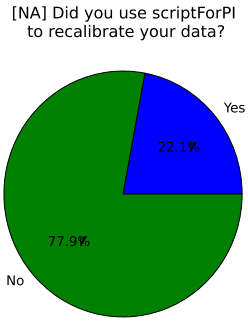
Table 7.7: Did you use CASA to process ALMA data?

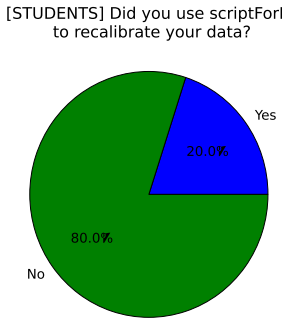
	YES	NO	Total
ALL	169	97	266
EA	44	27	71
EU	81	51	132
NA	44	19	63
STUDENTS	29	18	47
POSTDOCS	28	14	42
OTHER	112	65	177

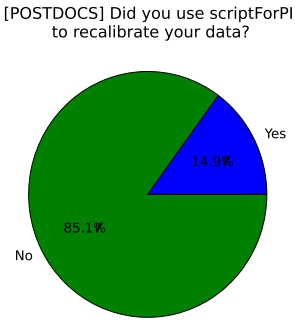

[ALL] Did you use scriptForPI
to recalibrate your data?
Yes
16.5%
83.5%
No

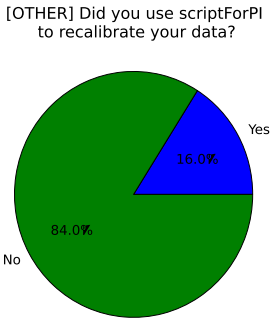

[EA] Did you use scriptForPI
to recalibrate your data?
Yes
16.9%
83.1%
No

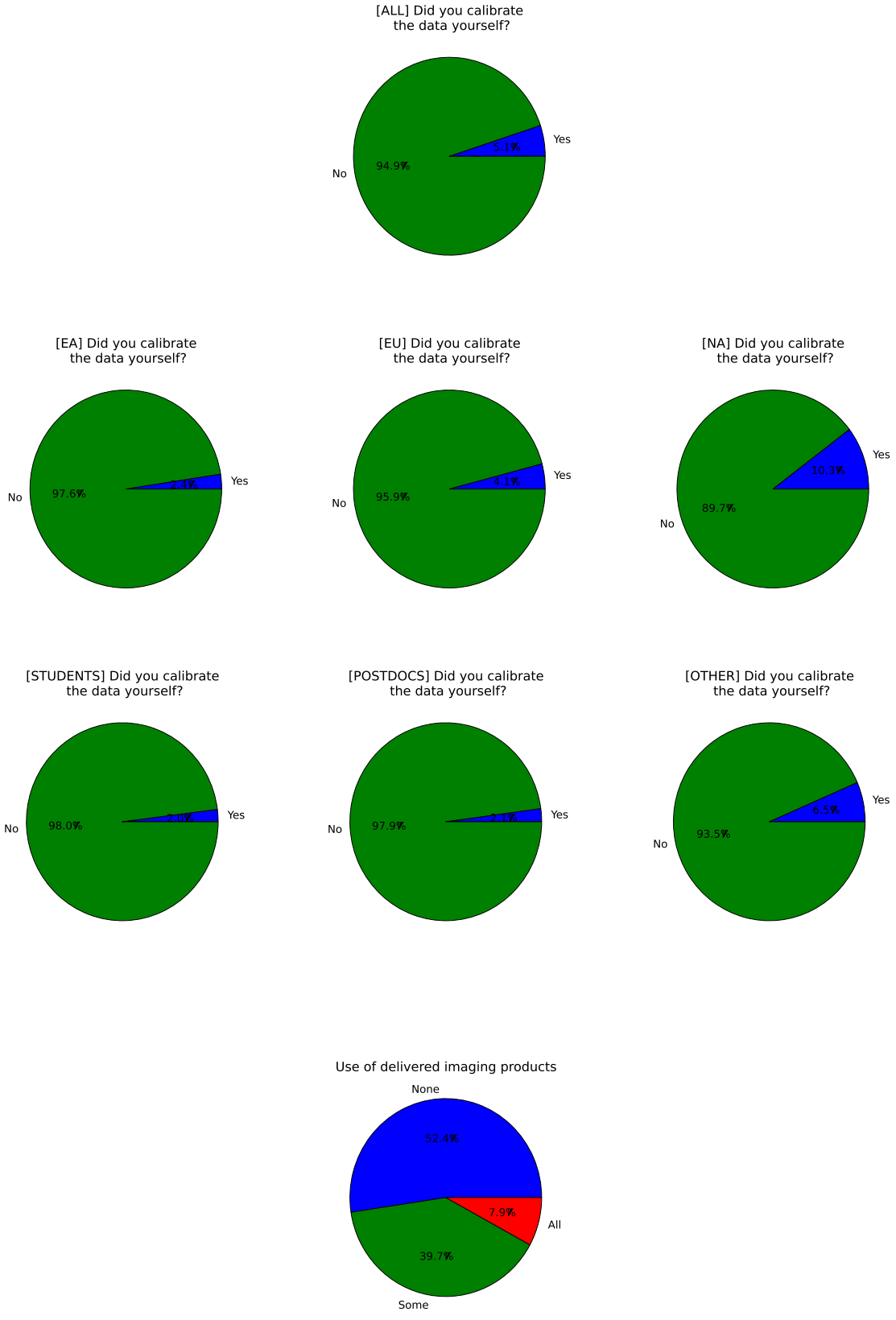

[EU] Did you use scriptForPI
to recalibrate your data?
Yes
13.7%
86.3%
No

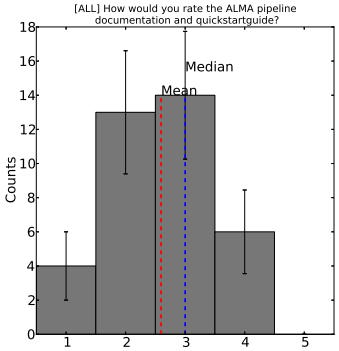

[NA] Did you use scriptForPI
to recalibrate your data?
Yes
22.1%
77.9%
No

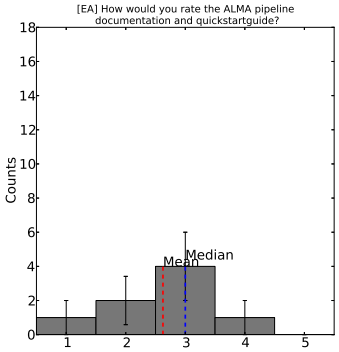

[STUDENTS] Did you use scriptForPI
to recalibrate your data?
Yes
20.0%
80.0%
No

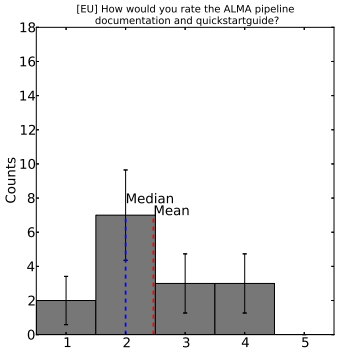

[POSTDOCS] Did you use scriptForPI
to recalibrate your data?
Yes
14.9%
85.1%
No

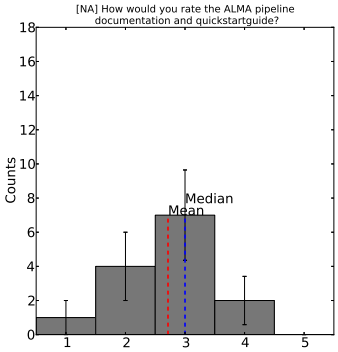

[OTHER] Did you use scriptForPI
to recalibrate your data?
Yes
16.0%
84.0%
No

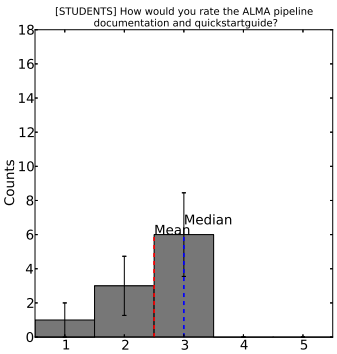

[ALL] Did you calibrate the data yourself?
Yes
No
5.1%
94.9%
[EA] Did you calibrate the data yourself?
Yes
No
2.4%
97.6%
[EU] Did you calibrate the data yourself?
Yes
No
4.1%
95.9%
[NA] Did you calibrate the data yourself?
Yes
No
10.3%
89.7%
[STUDENTS] Did you calibrate the data yourself?
Yes
No
2.0%
98.0%
[POSTDOCS] Did you calibrate the data yourself?
Yes
No
2.1%
97.9%
[OTHER] Did you calibrate the data yourself?
Yes
No
6.5%
93.5%
Use of delivered imaging products
None
All
Some
52.4%
7.9%
39.7%

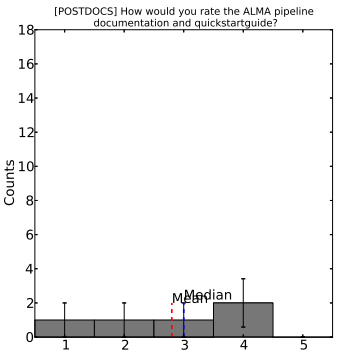

[ALL] How would you rate the ALMA pipeline documentation and quickstartguide?
Counts
Median
Mean

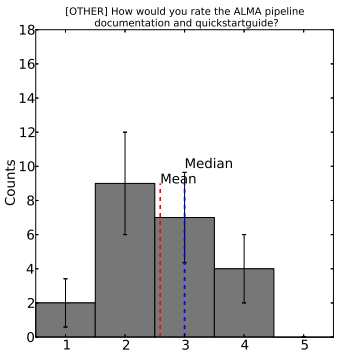

[EA] How would you rate the ALMA pipeline documentation and quickstartguide?
Counts
Median
Mean

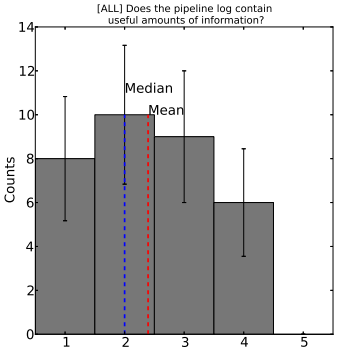

[EU] How would you rate the ALMA pipeline documentation and quickstartguide?
Counts
Median
Mean

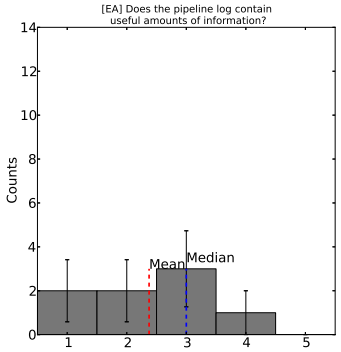

[NA] How would you rate the ALMA pipeline documentation and quickstartguide?
Counts
Median
Mean

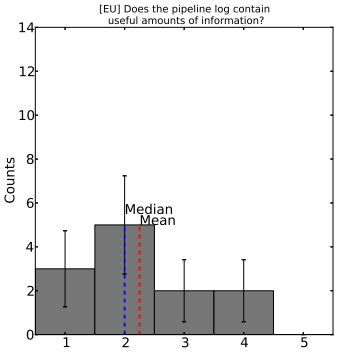

[STUDENTS] How would you rate the ALMA pipeline documentation and quickstartguide?
Counts
Median
Mean

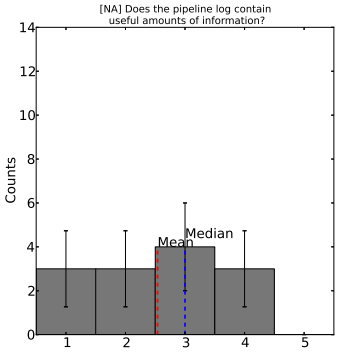

[POSTDOCS] How would you rate the ALMA pipeline documentation and quickstartguide?
Counts
Median
Mean

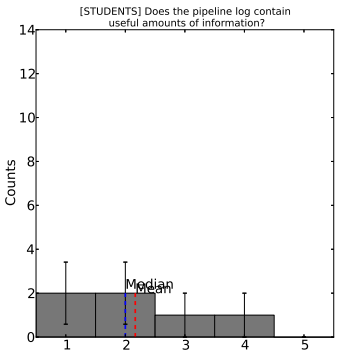

[OTHER] How would you rate the ALMA pipeline documentation and quickstartguide?
Counts
Median
Mean

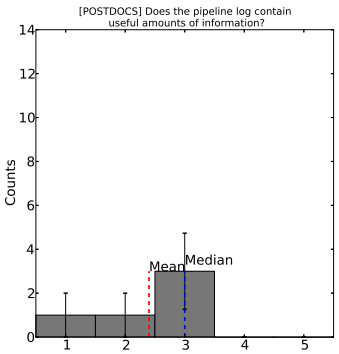

[ALL] Does the pipeline log contain useful amounts of information?
Counts
Median
Mean

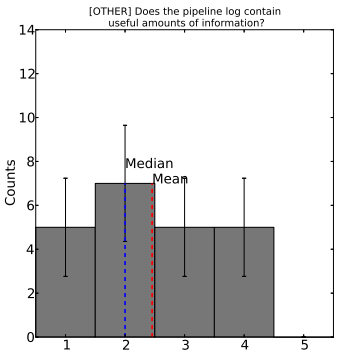

[EA] Does the pipeline log contain useful amounts of information?
Counts
Mean
Median

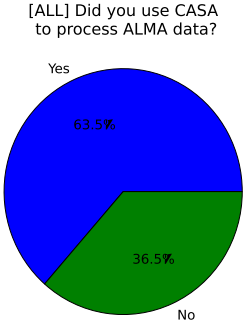

[EU] Does the pipeline log contain useful amounts of information?
Counts
Median
Mean

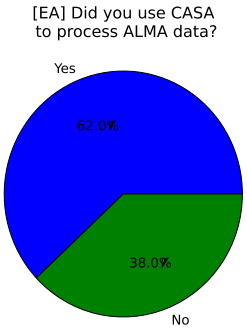

[NA] Does the pipeline log contain useful amounts of information?
Counts
Median
Mean

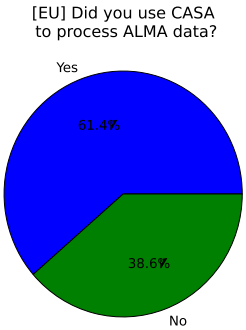

[STUDENTS] Does the pipeline log contain useful amounts of information?
Counts
Median
Mean

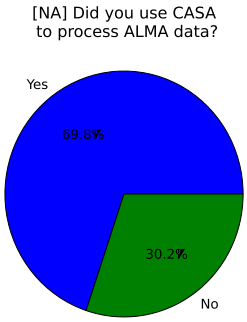

[POSTDOCS] Does the pipeline log contain useful amounts of information?
Counts
Mean
Median

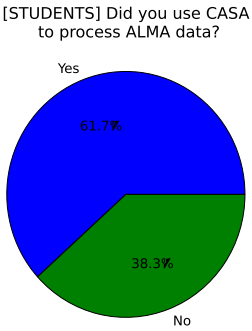

[OTHER] Does the pipeline log contain useful amounts of information?
Counts
Median
Mean

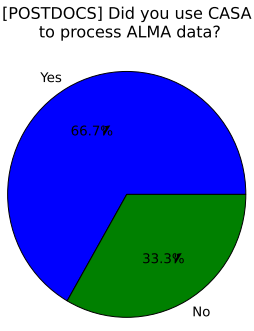

[ALL] Did you use CASA
to process ALMA data?
Yes
63.5%
36.5%
No

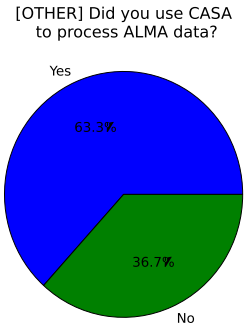

[EA] Did you use CASA
to process ALMA data?
Yes
62.0%
38.0%
No

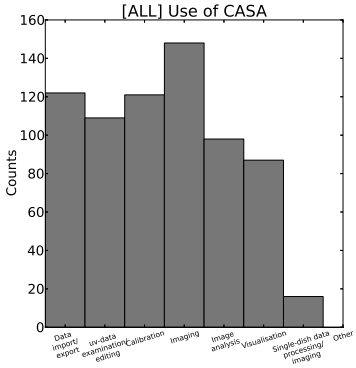

[EU] Did you use CASA
to process ALMA data?
Yes
61.4%
38.6%
No

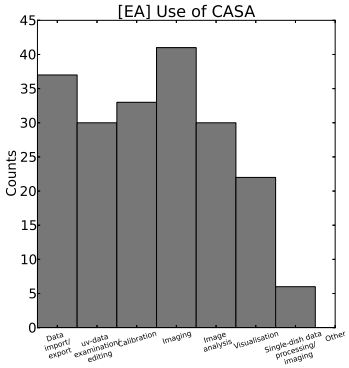

[NA] Did you use CASA
to process ALMA data?
Yes
69.8%
30.2%
No

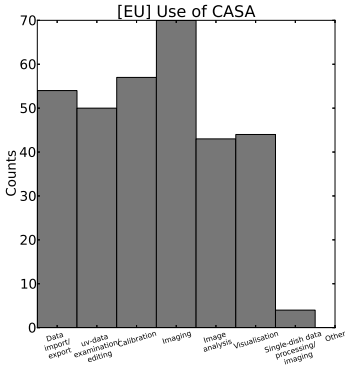

[STUDENTS] Did you use CASA
to process ALMA data?
Yes
61.7%
38.3%
No

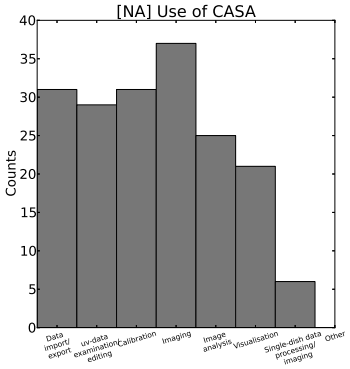

[POSTDOCS] Did you use CASA
to process ALMA data?
Yes
66.7%
33.3%
No

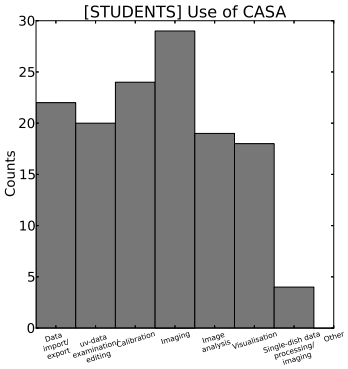

[OTHER] Did you use CASA
to process ALMA data?
Yes
63.3%
36.7%
No

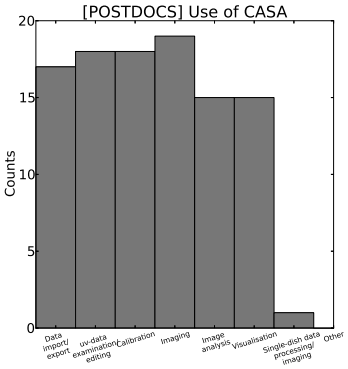

[ALL] Use of CASA
Counts
0
20
40
60
80
100
120
140
160
Data import/ export
uv-data examination editing
Calibration
Imaging
Image analysis
Visualisation
Single-dish data processing/ imaging
Other

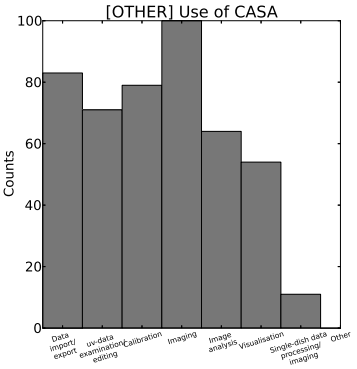

[EA] Use of CASA
Counts
0
5
10
15
20
25
30
35
40
45
Data import/ export
uv-data examination editing
Calibration
Imaging
Image analysis
Visualisation
Single-dish data processing/ imaging
Other

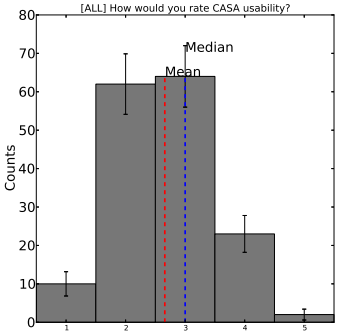

[EU] Use of CASA
Counts
0
10
20
30
40
50
60
70
Data import/ export
uv-data examination editing
Calibration
Imaging
Image analysis
Visualisation
Single-dish data processing/ imaging
Other

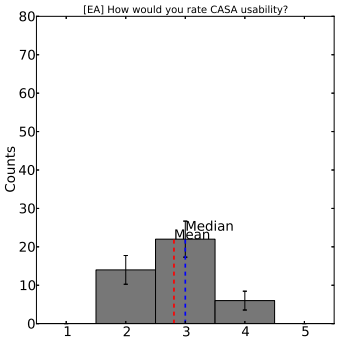

[NA] Use of CASA
Counts
0
5
10
15
20
25
30
35
40
Data import/ export
uv-data examination editing
Calibration
Imaging
Image analysis
Visualisation
Single-dish data processing/ imaging
Other

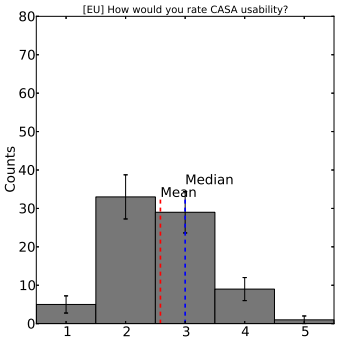

[STUDENTS] Use of CASA
Counts
0
5
10
15
20
25
30
Data import/ export
uv-data examination editing
Calibration
Imaging
Image analysis
Visualisation
Single-dish data processing/ imaging
Other

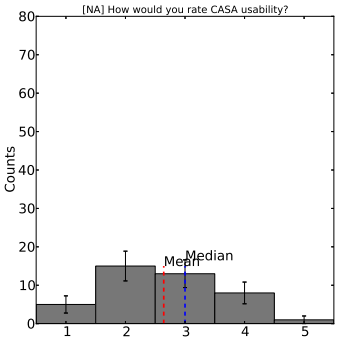

[POSTDOCS] Use of CASA
Counts
0
5
10
15
20
Data import/ export
uv-data examination editing
Calibration
Imaging
Image analysis
Visualisation
Single-dish data processing/ imaging
Other

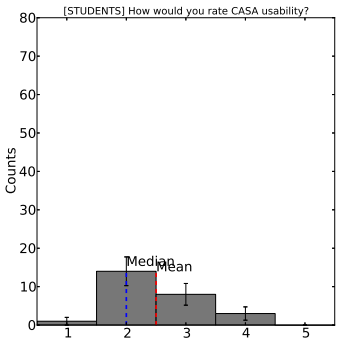

[OTHER] Use of CASA
Counts
0
20
40
60
80
100
Data import/ export
uv-data examination editing
Calibration
Imaging
Image analysis
Visualisation
Single-dish data processing/ imaging
Other

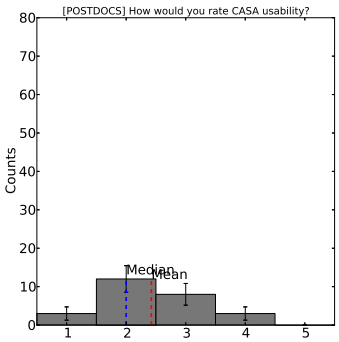

[ALL] How would you rate CASA usability?
Counts
Median
Mean

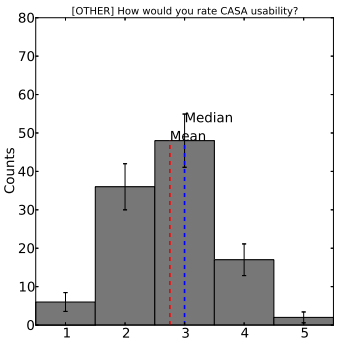

[EA] How would you rate CASA usability?
Counts
Median
Mean

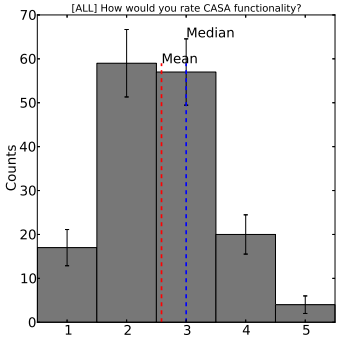

[EU] How would you rate CASA usability?
Counts
Median
Mean

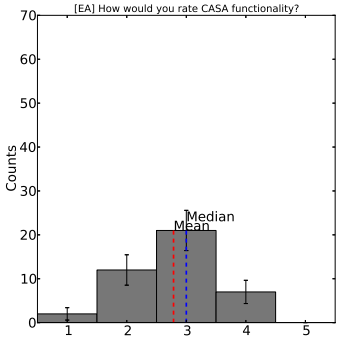

[NA] How would you rate CASA usability?
Counts
Median
Mean

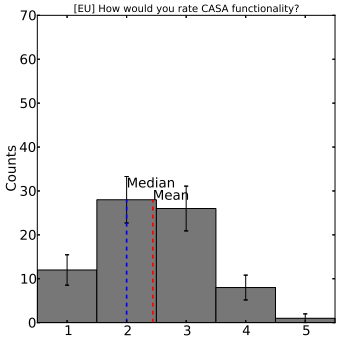

[STUDENTS] How would you rate CASA usability?
Counts
Median
Mean

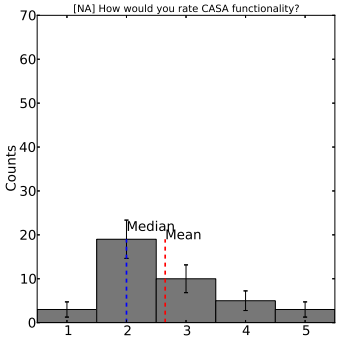

[POSTDOCS] How would you rate CASA usability?
Counts
Median
Mean

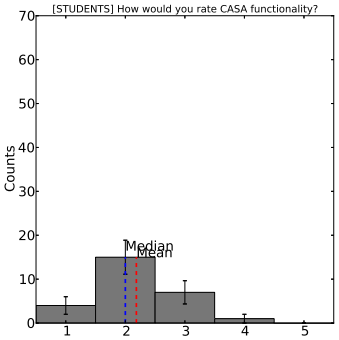

[OTHER] How would you rate CASA usability?
Counts
Median
Mean

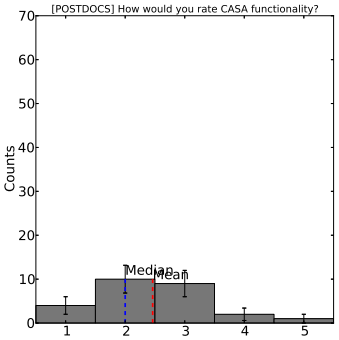

[ALL] How would you rate CASA functionality?
Median
Mean
Counts


[EA] How would you rate CASA functionality?
Median
Mean
Counts


[EU] How would you rate CASA functionality?
Median
Mean
Counts


[NA] How would you rate CASA functionality?
Median
Mean
Counts


[STUDENTS] How would you rate CASA functionality?
Median
Mean
Counts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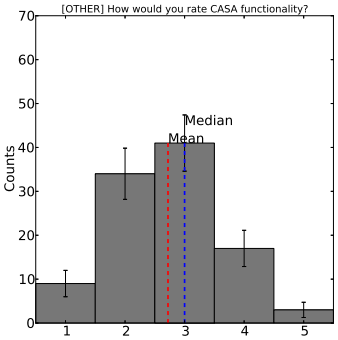
Median
Mean
Counts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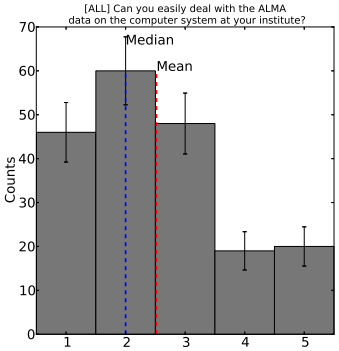
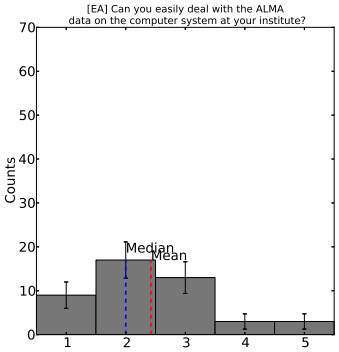
Median
Mean
Counts


[ALL] Can you easily deal with the ALMA data on the computer system at your institute?
Median
Mean
Counts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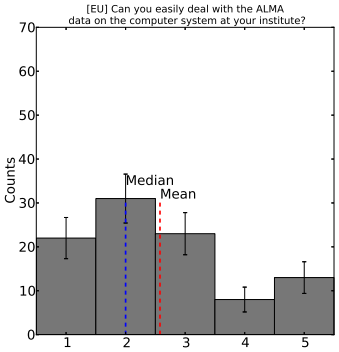
Median
Mean
Counts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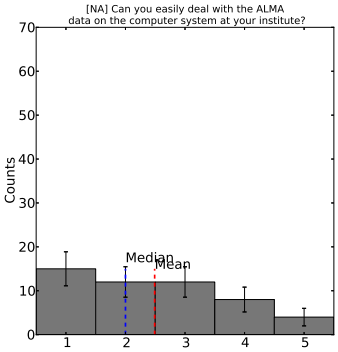
Median
Mean
Counts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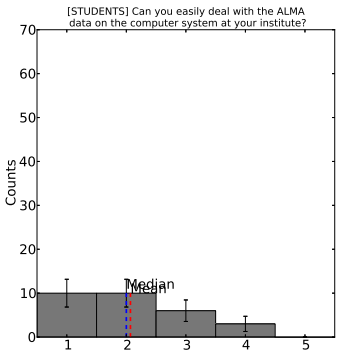
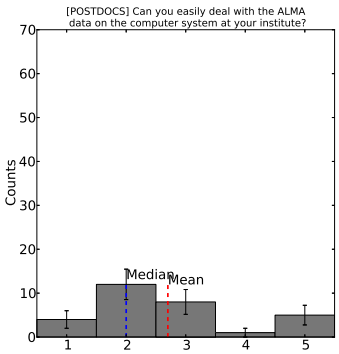
Median
Mean
Counts


[STUDENTS] Can you easily deal with the ALMA data on the computer system at your institute?
Median
Mean
Counts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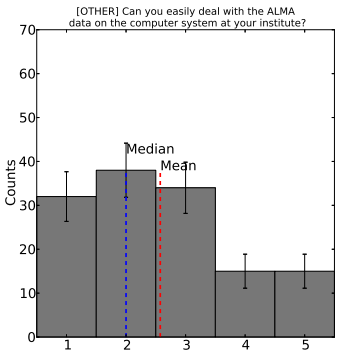
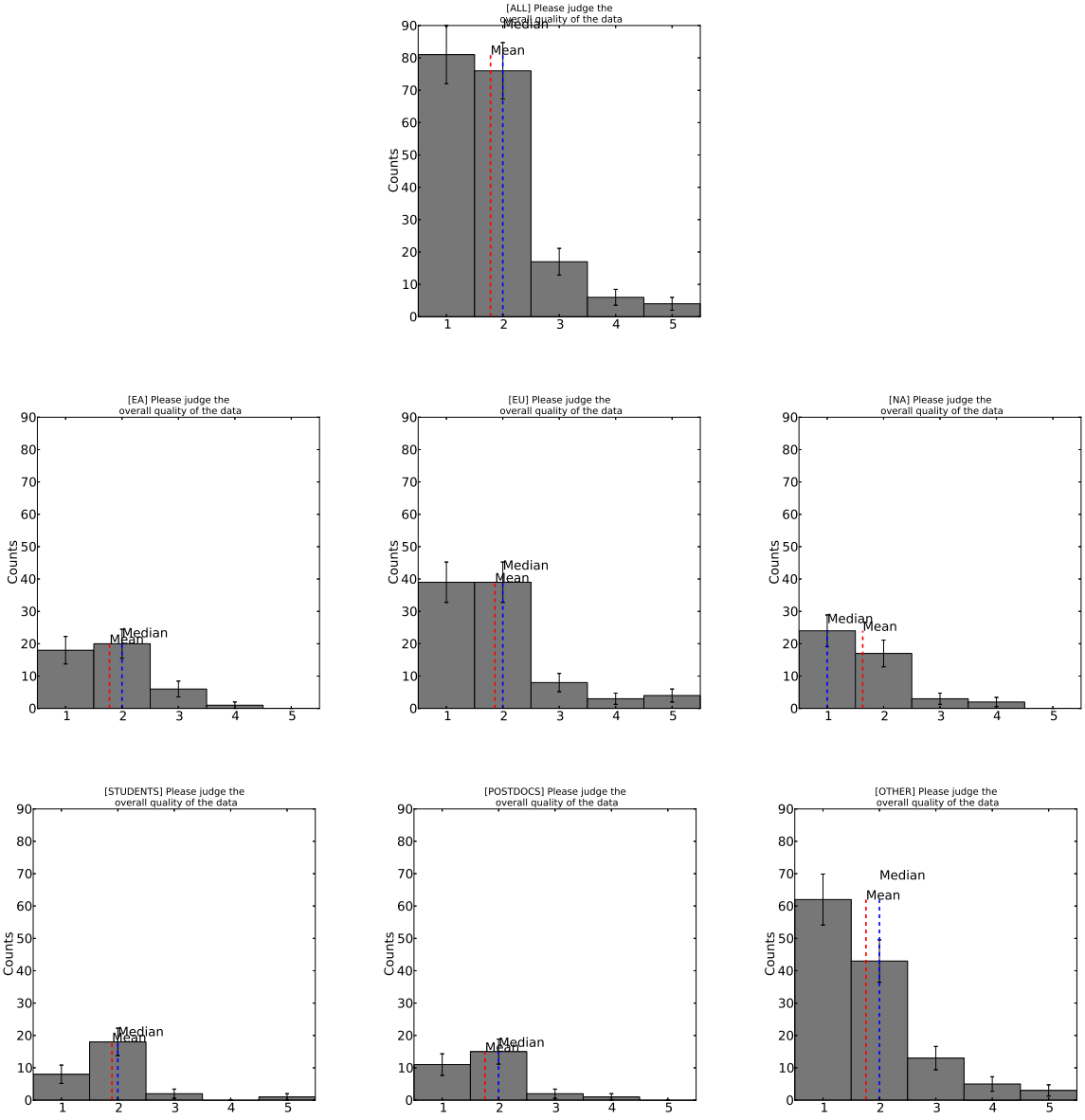
Median
Mean
Counts


[OTHER] Can you easily deal with the ALMA data on the computer system at your institute?
Median
Mean
Counts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[EA] Please judge the overall quality of the data
[EU] Please judge the overall quality of the data
[NA] Please judge the overall quality of the data
[STUDENTS] Please judge the overall quality of the data
[POSTDOCS] Please judge the overall quality of the data
[OTHER] Please judge the overall quality of the data
Counts
Median
Mean

Chapter 8

Cycle 4 Proposal Review and Review Process

The fractions of respondents who submitted at least one Cycle 4 proposal was ∼82%, consistently among the Executives. Students were the most poorly represented among respondents submitting Cycle 4 proposals, with only 71% doing so. Post-doctorates and 'other' submitted 83% and 85% respectively. Figure A.9 shows a slight improvement in the ranks for technical assessment, for Cycles 2, 3, 4, particularly for NA and EU, which improved from ∼2.5 to ∼1.6.

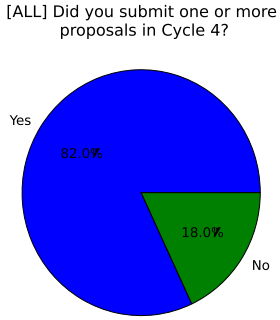
The mean rank for proposal science and technical assessments differed little between the Executives, with an ensemble rank of around 2.1 for both rankings. The student/Post-doctorate/'other' demographics also showed little departure from the mean rank and rank distribution, although the respondent numbers are low for students and post-doctorates.

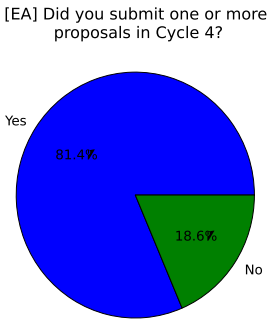
Perhaps the most common theme in the comments is the lack of consistency of TAC comments and rankings, between Cycles, and indeed, within the Cycle. On balance, the comments seem more negative than positive, a number of respondents (∼9) indicated the feedback from the review panel was either inadequate, unhelpful or even wrong. A number of respondents (∼6) commented that the quality of the TAC seems to have improved since the previous Cycle, while two or three others suggested the rankings (particularly the top few) were almost random. The issue of de-scoping was raised in at least two comments, as was the absence of percentile ranks. At least two respondents suggested explicitly that PI names should be removed from the proposal, and a few identified a perceived (or real) lack of consistency between Cycle grades.

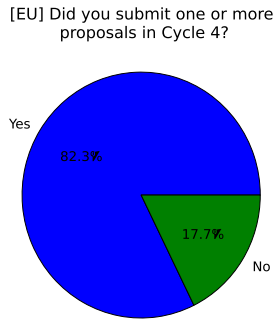
Table 8.1: Did you submit one or more proposals in Cycle 4?

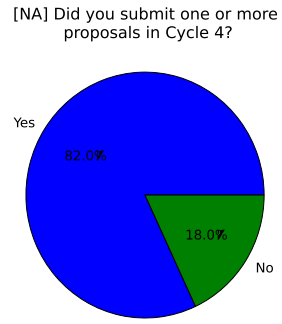
	YES	NO	Total
ALL	214	47	261
EA	57	13	70
EU	107	23	130
NA	50	11	61
STUDENTS	32	13	45
POSTDOCS	34	7	41
OTHER	148	27	175

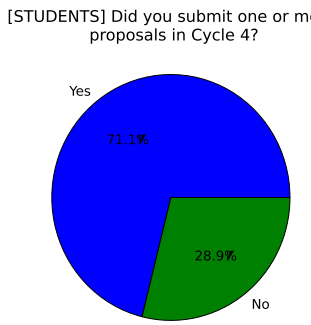
8.1 Results

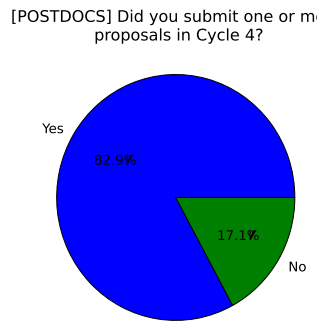


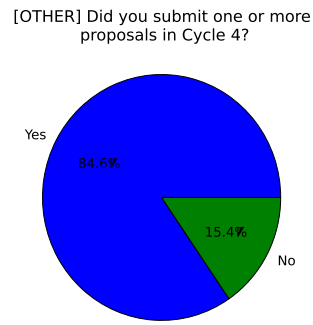


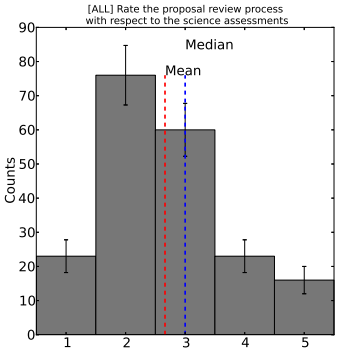


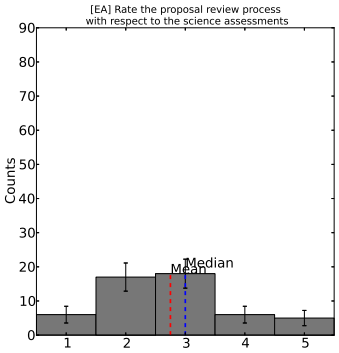









[ALL] Rate the proposal review process
with respect to the science assessments
Median
Mean
Counts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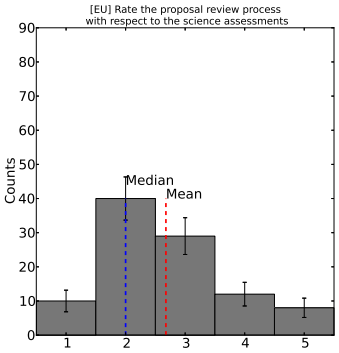
with respect to the science assessments
Median
Mean
Counts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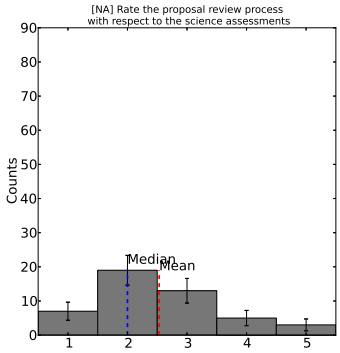
with respect to the science assessments
Median
Mean
Counts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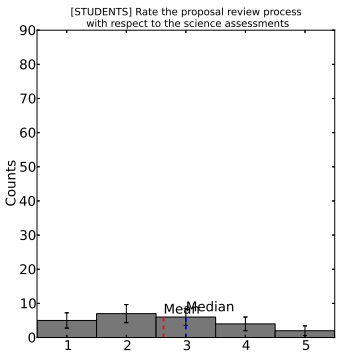
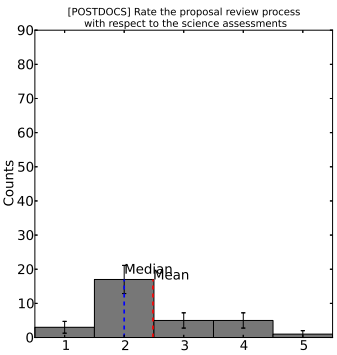
with respect to the science assessments
Median
Mean
Counts


[STUDENTS] Rate the proposal review process
with respect to the science assessments
Mean
Median
Counts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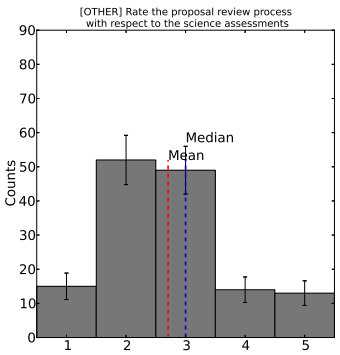
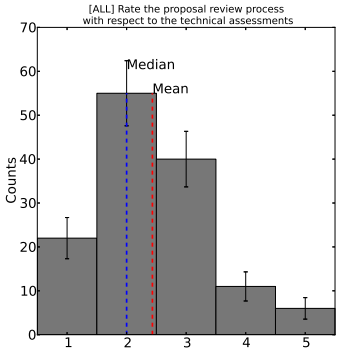
with respect to the science assessments
Median
Mean
Counts


[OTHER] Rate the proposal review process
with respect to the science assessments
Median
Mean
Counts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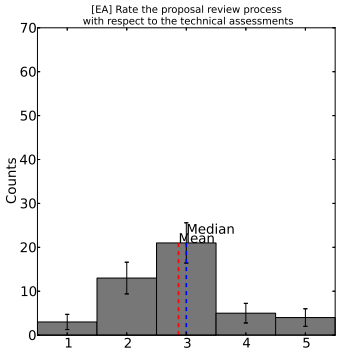
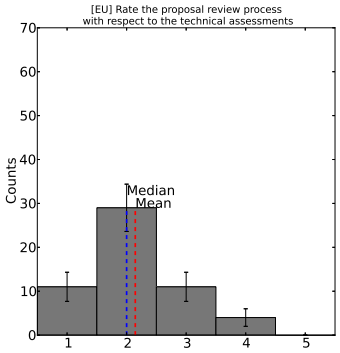
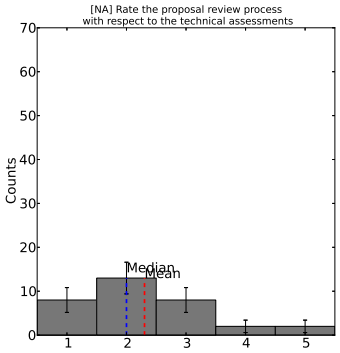
with respect to the technical assessments
Median
Mean
Counts


[EA] Rate the proposal review process
with respect to the technical assessments
Median
Mean
Counts


[EU] Rate the proposal review process
with respect to the technical assessments
Median
Mean
Counts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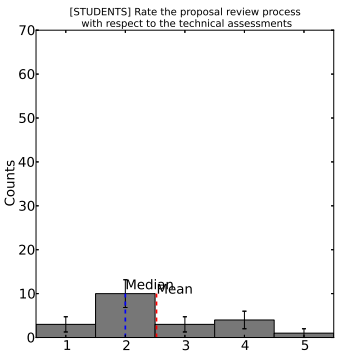
with respect to the technical assessments
Median
Mean
Counts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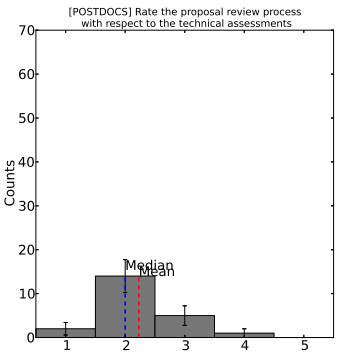
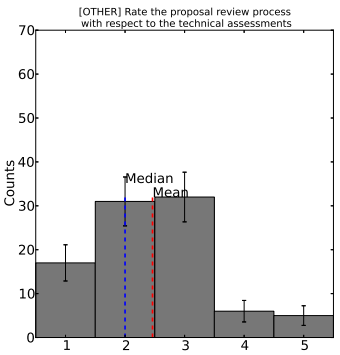
with respect to the technical assessments
Median
Mean
Counts


[POSTDOCS] Rate the proposal review process
with respect to the technical assessments
Median
Mean
Counts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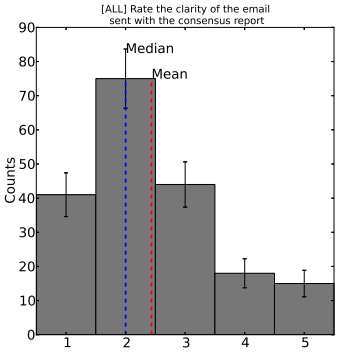
with respect to the technical assessments
Median
Mean
Counts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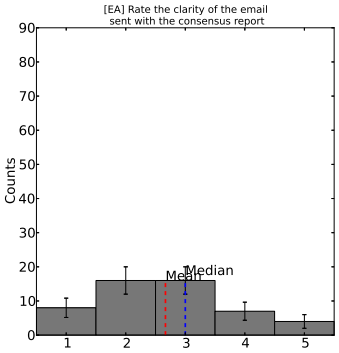
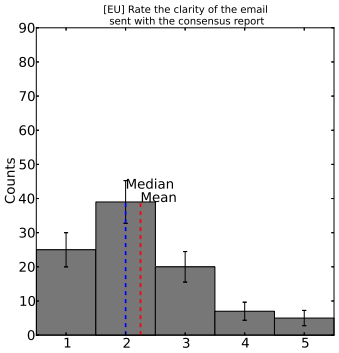
sent with the consensus report
Median
Mean
Counts


[EA] Rate the clarity of the email
sent with the consensus report
Median
Mean
Counts


[EU] Rate the clarity of the email
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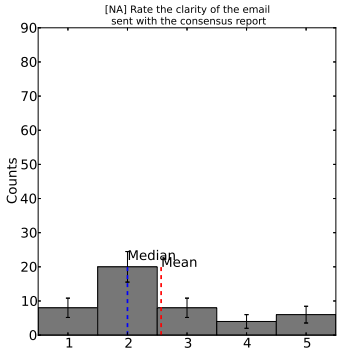
Median
Mean
Counts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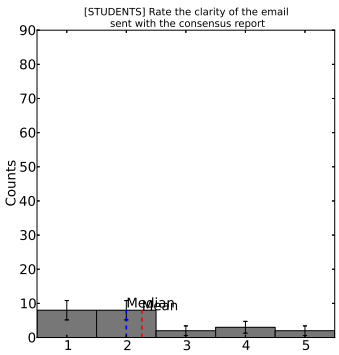
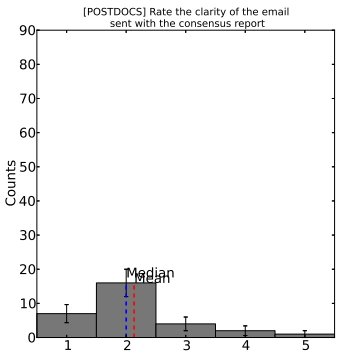
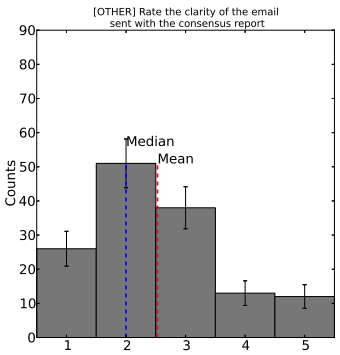
sent with the consensus report
Median
Mean
Counts


[STUDENTS] Rate the clarity of the email
sent with the consensus report
Median
Mean
Counts


[POSTDOCS] Rate the clarity of the email
sent with the consensus report
Median
Mean
Counts


[OTHER] Rate the clarity of the email
sent with the consensus report
Median
Mean
Counts

Chapter 9

Cycle 4 Phase 2 Submission Process

Cycle 4 saw the beginning of PIs generating their own schedule blocks. Generally, around half of all respondents were PIs on projects for which SBs were generated, with little departure from that fraction amongst the Executives. Only 40% of Students however, were PIs of such projects. Around 38% of respondents required support (46 out of 124) in generating SBs, with EU having 45% requiring support, and NA and EA having ∼30% requiring support. Mean ranking for communications with the contact scientists was around 1.0. This parameter was the best-ranked among all aspects included in the Cycle 4 User survey.

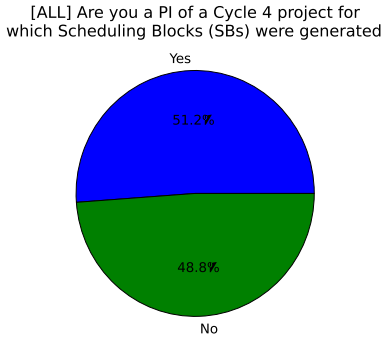
The ease and smoothness for PI-generated SBs has a mean rank of around 1.3. It is slightly poorer in EA and NA, at around 1.5. Students again ranked the ease of the process more poorly than post-doctorates and 'other'. Overall, the SB-preparation experience has a mean rank of 1.5 - again slightly poorer in EA and NA than in EU, by a few percent of a rank. Students, post-doctorates and 'other' awarded similar ranks (i.e. ∼2).

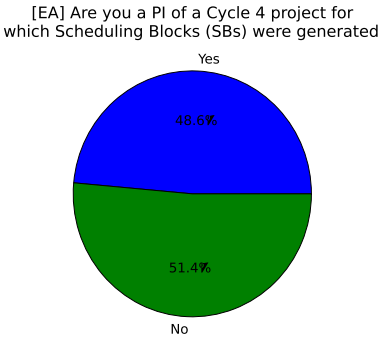
A number of comments from the respondents suggest they were a little confused about the significance/necessity of generating their SBs. Some respondents pointed out it was so trivial it was unnecessary, others suggested the amount of information generated during the process was vast, and too complex. The comments from the respondents indicates they were not fully informed about why the process was necessary and exactly how it should be completed.

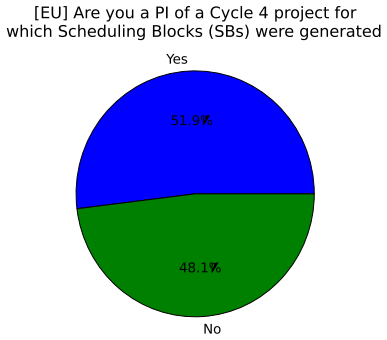
Table 9.1: Are you a PI of a Cycle 4 project for which Scheduling Blocks (SBs) were generated?

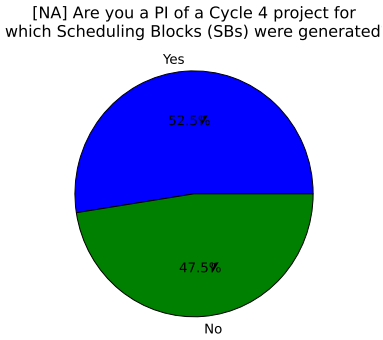
	YES	NO	Total
ALL	133	127	260
EA	34	36	70
EU	67	62	129
NA	32	29	61
STUDENTS	18	27	45
POSTDOCS	23	18	41
OTHER	92	82	174

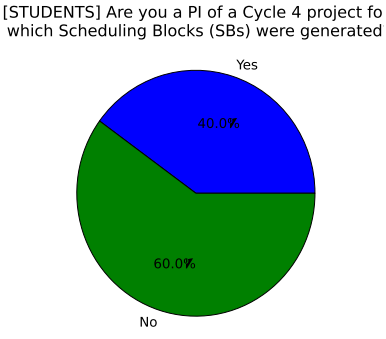
9.1 Results

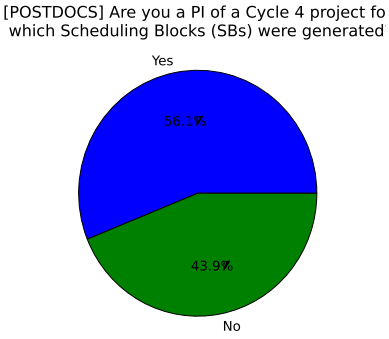


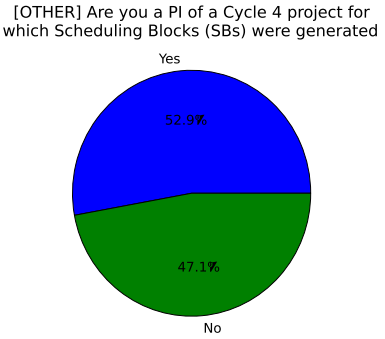


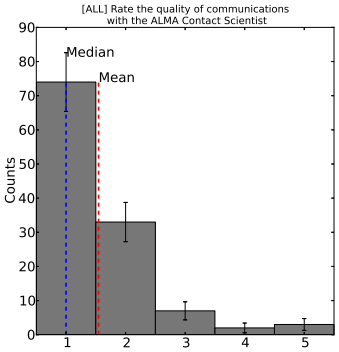


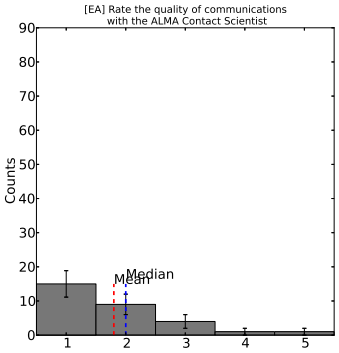









[ALL] Rate the quality of communications with the ALMA Contact Scientist
Median
Mean
Counts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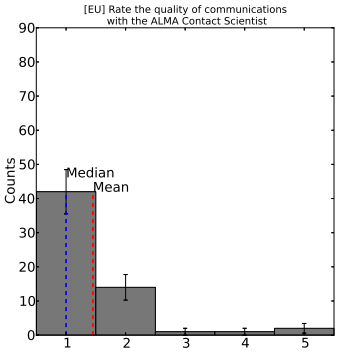
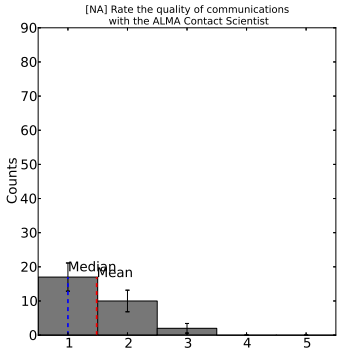
Median
Mean
Counts


[EU] Rate the quality of communications with the ALMA Contact Scientist
Median
Mean
Counts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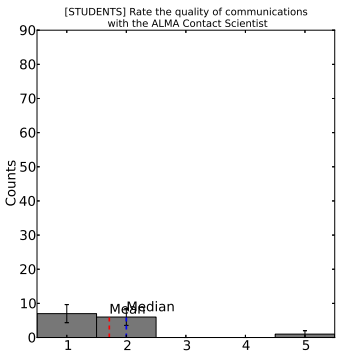
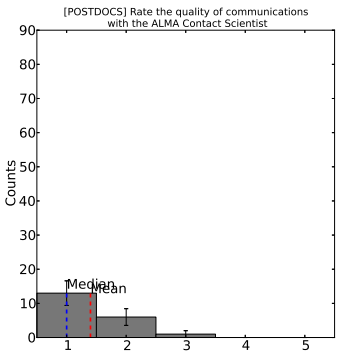
Median
Mean
Counts


[STUDENTS] Rate the quality of communications with the ALMA Contact Scientist
Median
Mean
Counts


[POSTDOCS] Rate the quality of communications with the ALMA Contact Scientist
Median
Mean
Counts

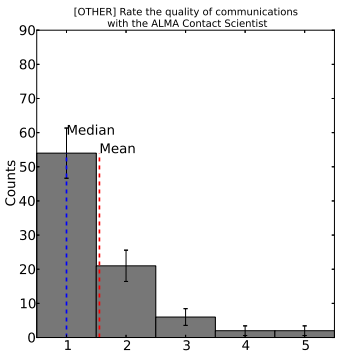
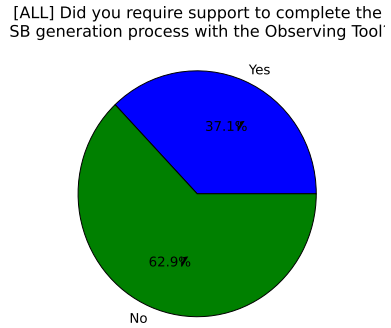
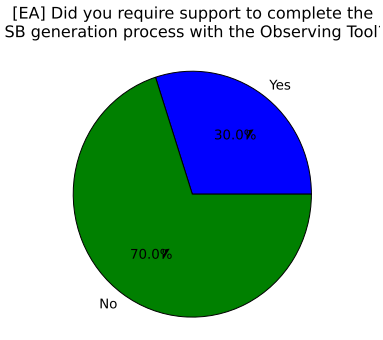
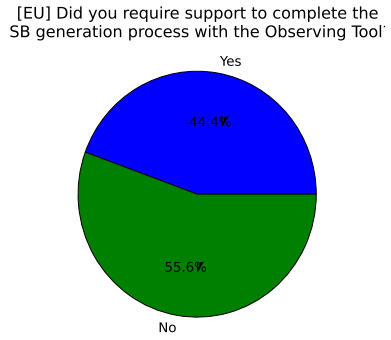

[OTHER] Rate the quality of communications with the ALMA Contact Scientist
Median
Mean
Counts

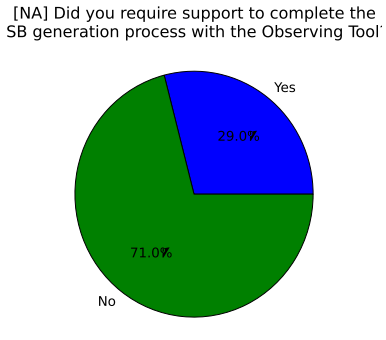
Table 9.2: Did you require support to complete the SB generation process with the Observing Tool?

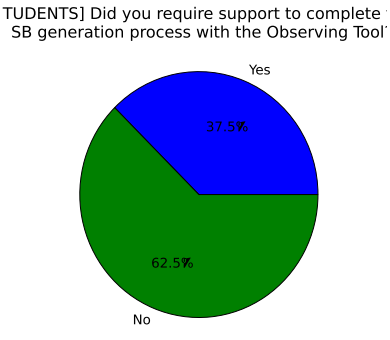
	YES	NO	Total
ALL	46	78	124
EA	9	21	30
EU	28	35	63
NA	9	22	31
STUDENTS	6	10	16
POSTDOCS	9	11	20
OTHER	31	57	88

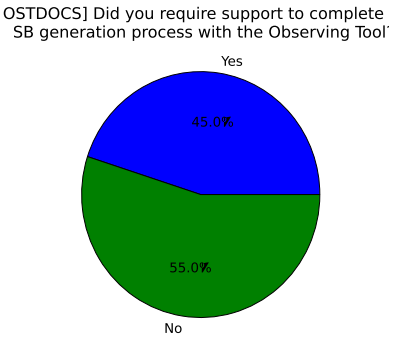


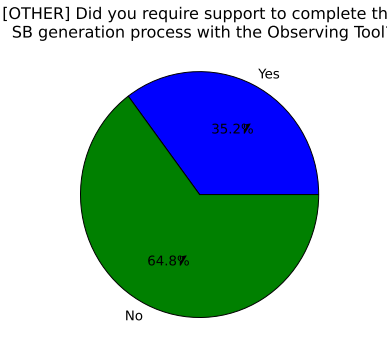


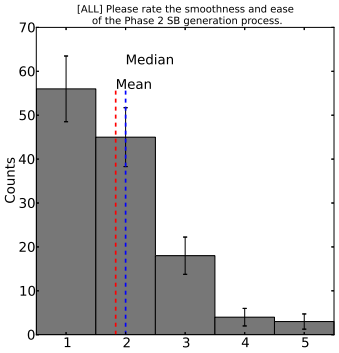


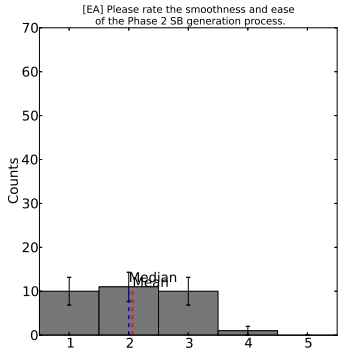









[ALL] Please rate the smoothness and ease of the Phase 2 SB generation process.
Median
Mean
Counts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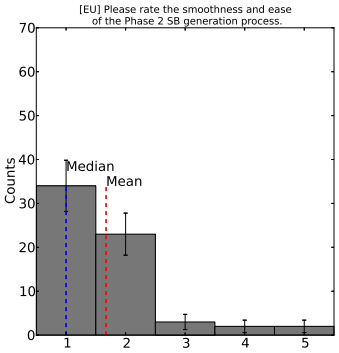
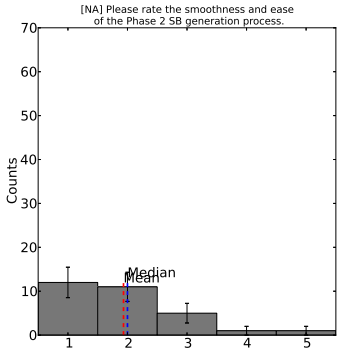
Median
Mean
Counts


[EU] Please rate the smoothness and ease of the Phase 2 SB generation process.
Median
Mean
Counts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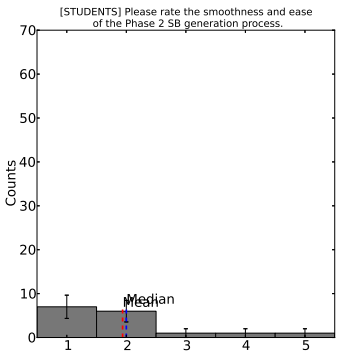
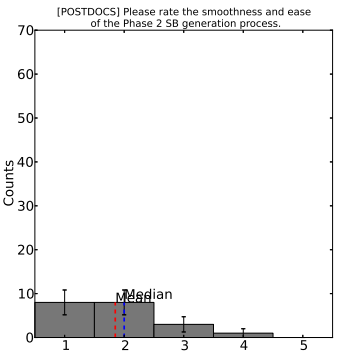
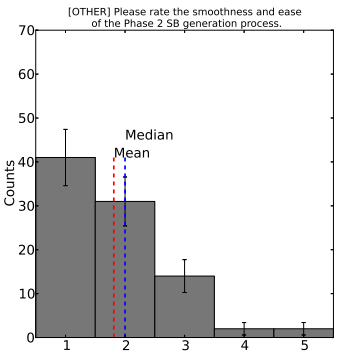
Median
Mean
Counts


[STUDENTS] Please rate the smoothness and ease of the Phase 2 SB generation process.
Median
Mean
Counts


[POSTDOCS] Please rate the smoothness and ease of the Phase 2 SB generation process.
Median
Mean
Counts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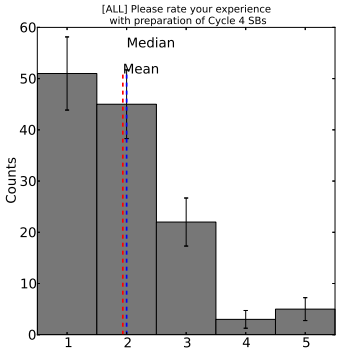
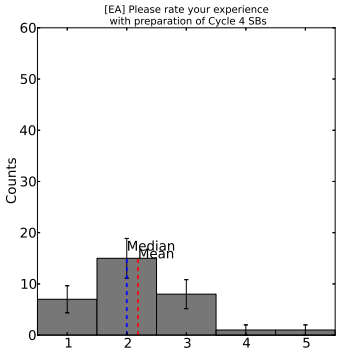
Median
Mean
Counts


[ALL] Please rate your experience
with preparation of Cycle 4 SBs
Median
Mean
Counts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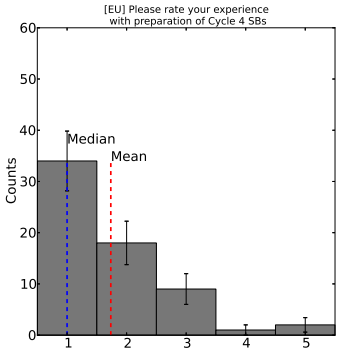
with preparation of Cycle 4 SBs
Median
Mean
Counts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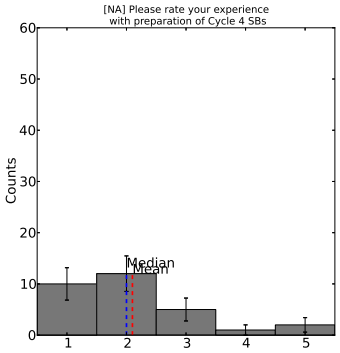
with preparation of Cycle 4 SBs
Median
Mean
Counts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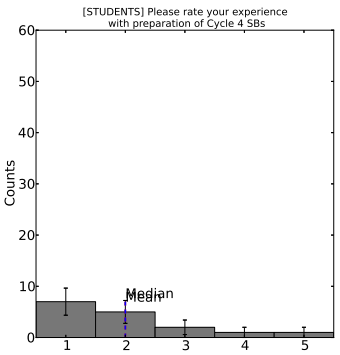
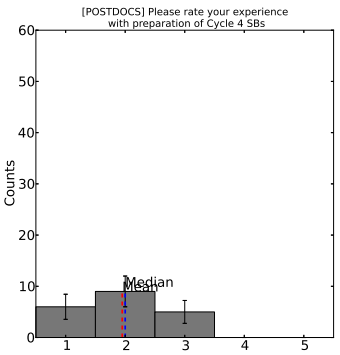
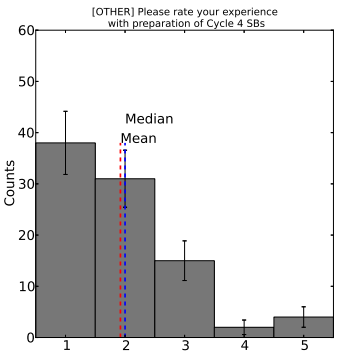
with preparation of Cycle 4 SBs
Median
Mean
Counts


[STUDENTS] Please rate your experience
with preparation of Cycle 4 SBs
Median
Mean
Counts


[POSTDOCS] Please rate your experience
with preparation of Cycle 4 SBs
Median
Mean
Counts


[OTHER] Please rate your experience
with preparation of Cycle 4 SBs
Median
Mean
Counts

Appendix A

Comparison to previous cycles

In this appendix we compare in detail the results of previous cycles with those of Cycle 4 for the questions that we posed to the users in at least two cycles. We show two plots for each question. In the left plots, circles are percentage of users that ranked a given field Above Average (AA) and squares are Below Average (BA). In the right plots, the circles are average values and the squares are the median, note the circles are often different from the squares (the difference among them can be cross-checked in the histograms). For clarity, the right plots included only the median for ALL and not for all executives, and errors are shown only for the 'ALL' values on the left plots, and on the 'mean' values on the right plots.

A.1 User profile

Since Cycle 4, single dish and interferometric expertise is evaluated jointly. However, for comparison, and until statistics are gathered in future Cycles for this joint expertise, we show the interferometric and single-dish experience separately for Cycles 1-3 and jointly for Cycle 4. There is a significant change in the community expertise in Cycle 4. Both the average and median expertise is much higher than in previous cycles and this result is remarkably different in the 3 Executives. While the EA community remains relatively unchanged, the NA community is skewed towards a very expert community, with EU lying somewhere between these two trends (see Fig. A.1).

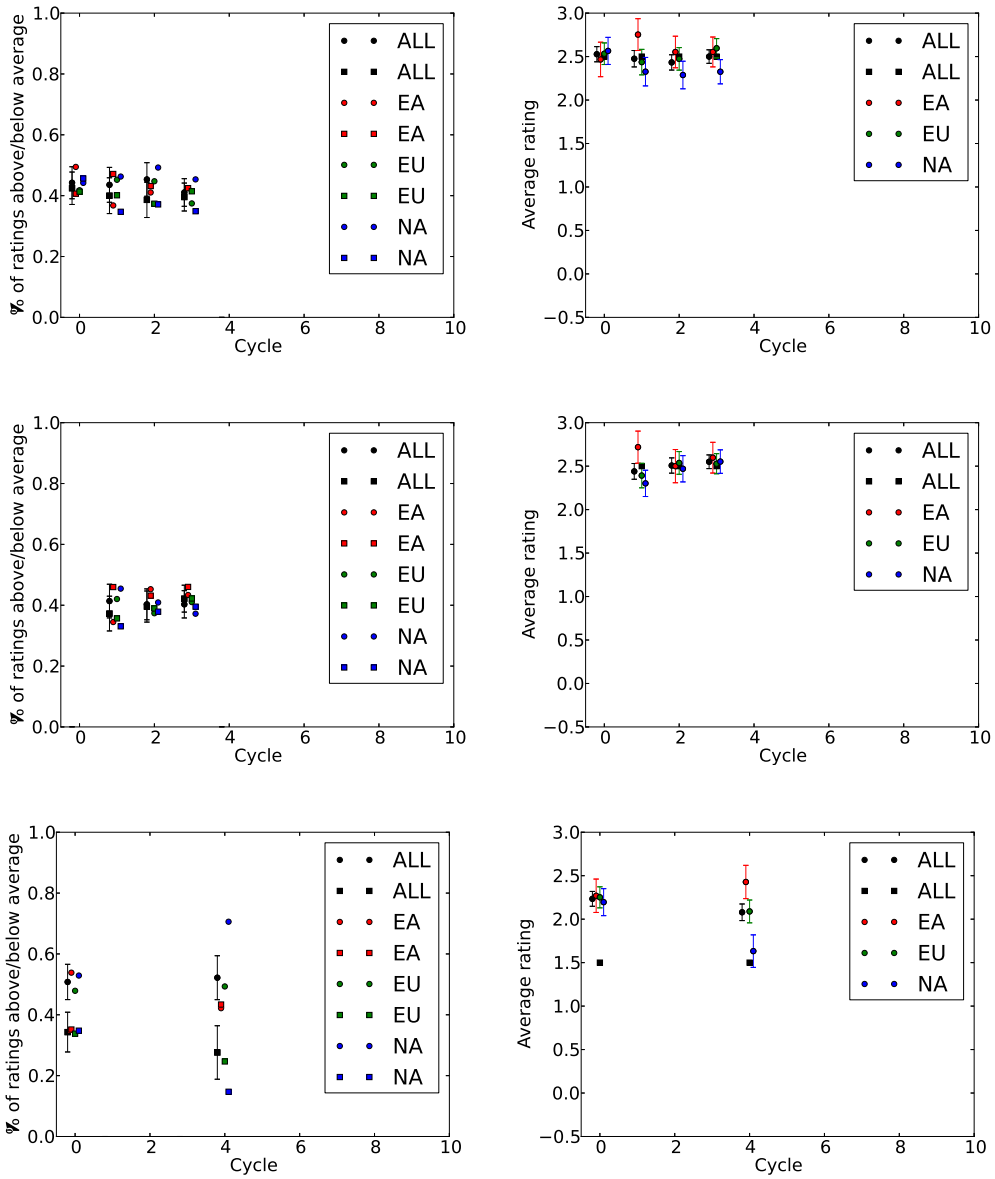


Figure A.1: User experience in radio and/or submm interferometric (upper plots) and single dish (middle plots) observations and both combined (lower plots).

A.2 Science Portal

Respondents tend to rank science portal consistently at around 1.5 for both usability and content. Both are among top-scorers in past surveys and in the Cycle 4 survey (Fig. A.2, top two rows). While there is no evidence for significant change in that ranking, there is some evidence for improvements in rankings for navigation and content since Cycle 2 (although these parameters are consistently ranked with Cycle 3 results).

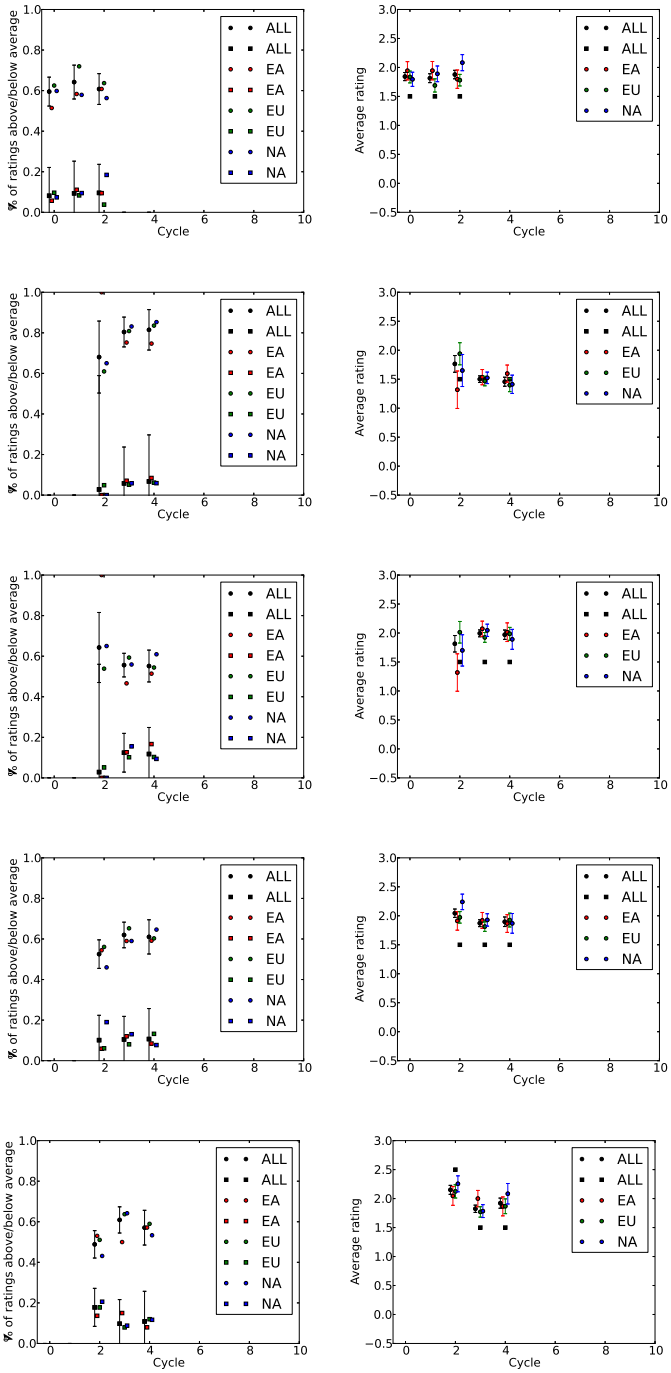


Figure A.2: Science Portal usability (upper plots), contents (upper-middle plots), organisation of documentation (middle plots), simplicity of navigation (lower-middle plots) and dissemination of information (lower plots).

A.3 Helpdesk and face-to-face support

The trend plots show some (insignificant) variation with helpdesk quality over time(Fig. A.3, top). Historically EA is the most critical in general, although EA appears to be ranking helpdesk metrics more consistently with the other ARCs in the Cycle 4 survey. Response time and usability are also consistent across cycles, with suggestions of an improvement in usability (Fig. A.3, bottom plots). Knowledgebase article rankings seem marginally worse for Cycle 4 (Fig. A.4), but still very good with a ranking less than 2. Face to Face support has improved outstandingly for NA (Fig. A.5; though within survey statistical errors) in Cycle 4, while Face to Face support is consistent with previous cycles in other ARCs.

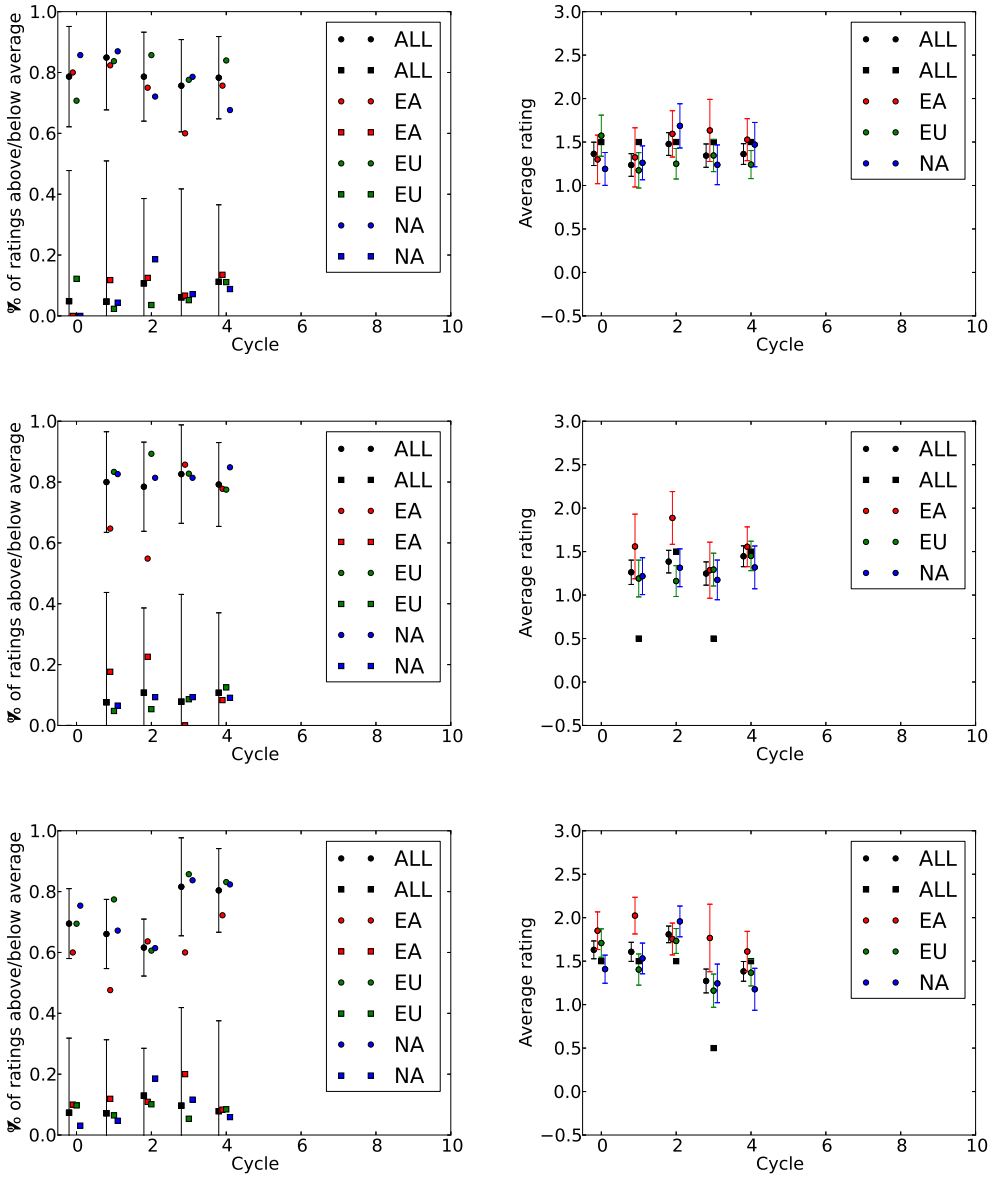


Figure A.3: Helpdesk response quality (upper plots), response time (middle plots) and usability (lower plots).

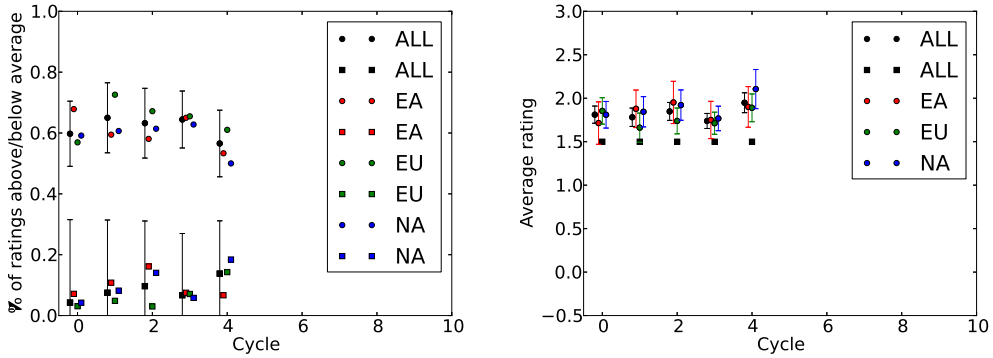


Figure A.4: Quality of the Knowledge Base articles.

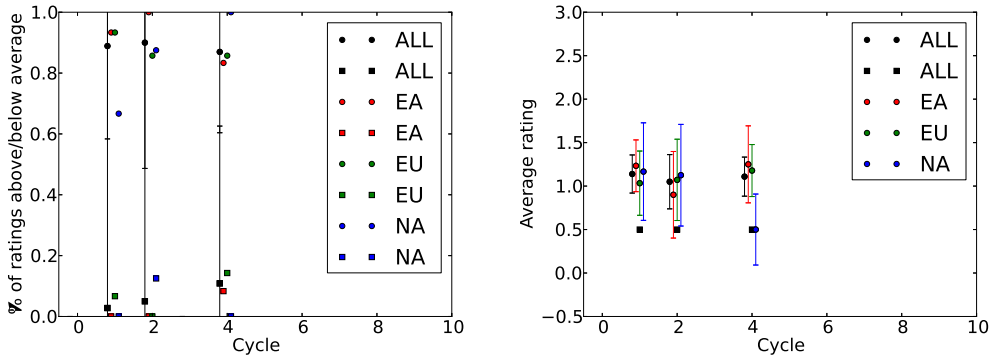


Figure A.5: Quality of the face-to-face support visit (for data reduction).

A.4 Archive

Archive usability has increased across all Executives since last time the respondents were polled, in Cycle 2 (Fig A.4), though there is an increase in the scatter of opinion.

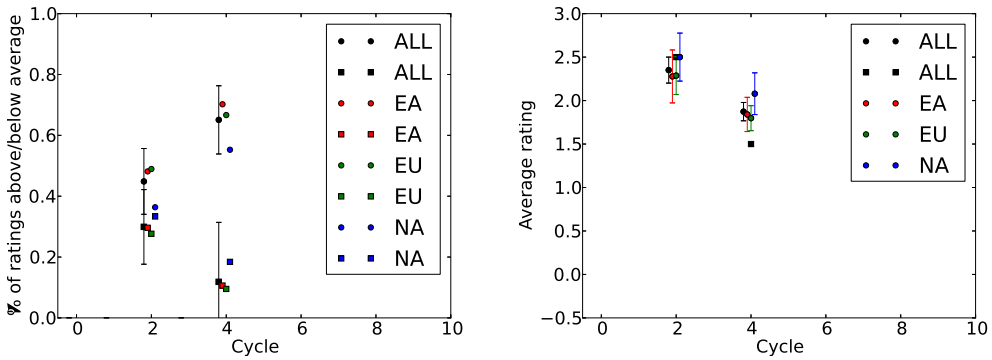


Figure A.6: Archive usability.

A.5 ALMA data

The opinions of respondents on "ALMA data" and "data products" seems much more converged in Cycle 4, than in previous cycles (Fig. A.7). The data products themselves (i.e. the FITS images) are ranked lower than that of the actual ALMA data (i.e. data in the ASDM data format). While the rankings have not changed much since Cycle 2, the rankings are more consistent between the ARCs. The same is true for CASA usability, and in Cycle 4, the scatter of opinions within the ARCs is lower for Cycle 4, than in Cycle 2 (i.e. more people approximately agree with the average ranking, see Fig. A.8).

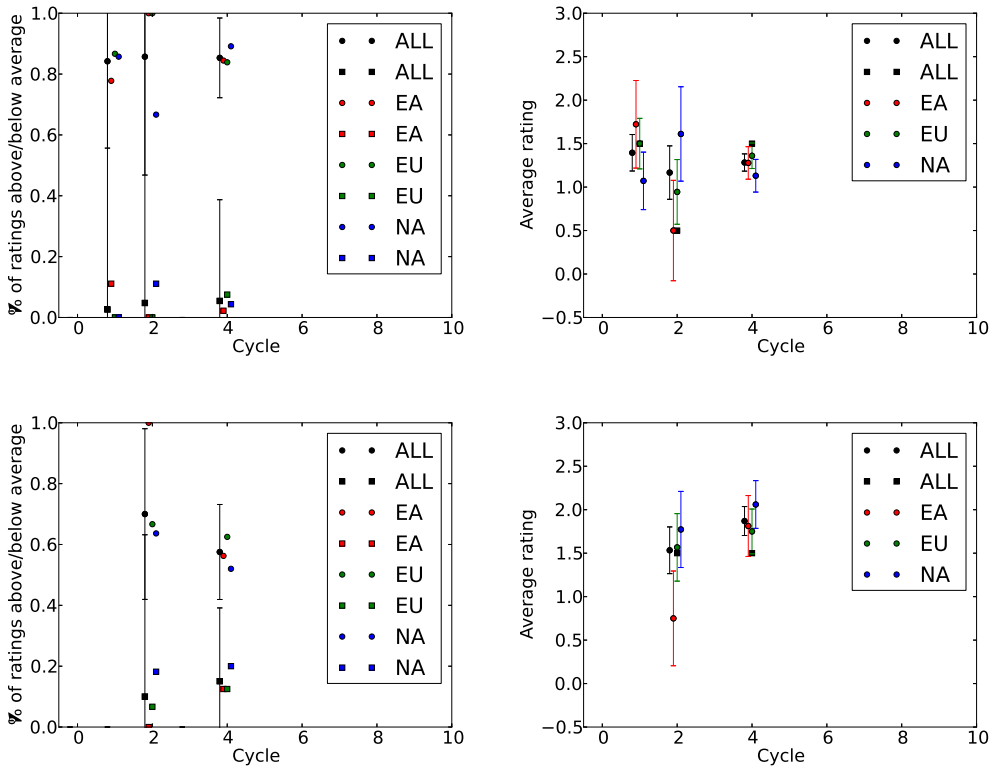


Figure A.7: Data (upper plots) and data products (lower plots) quality.

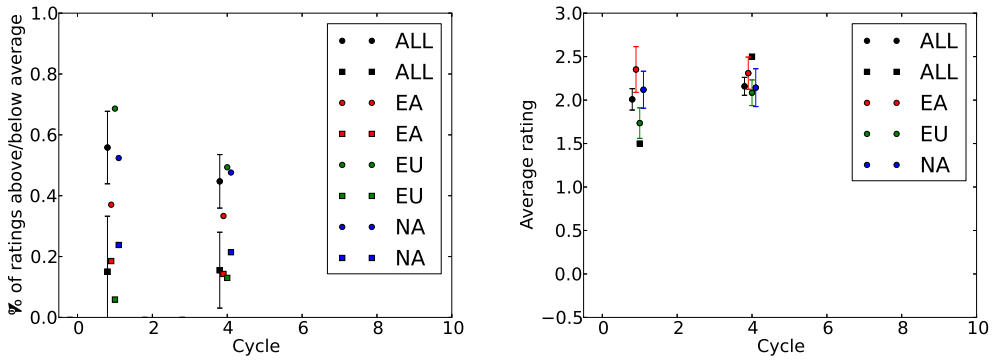


Figure A.8: CASA usability.

A.6 Proposal review process

Across Cycles 0-4, the rank for the proposal review process appears to be improving (Fig. A.9). In particular the Technical assessment has improved in ranking by around 0.5 of a ranking point since Cycle 0. The proposal review process shows evidence for the same kind of improvements in rankings, though data from Cycle 2 is absent.

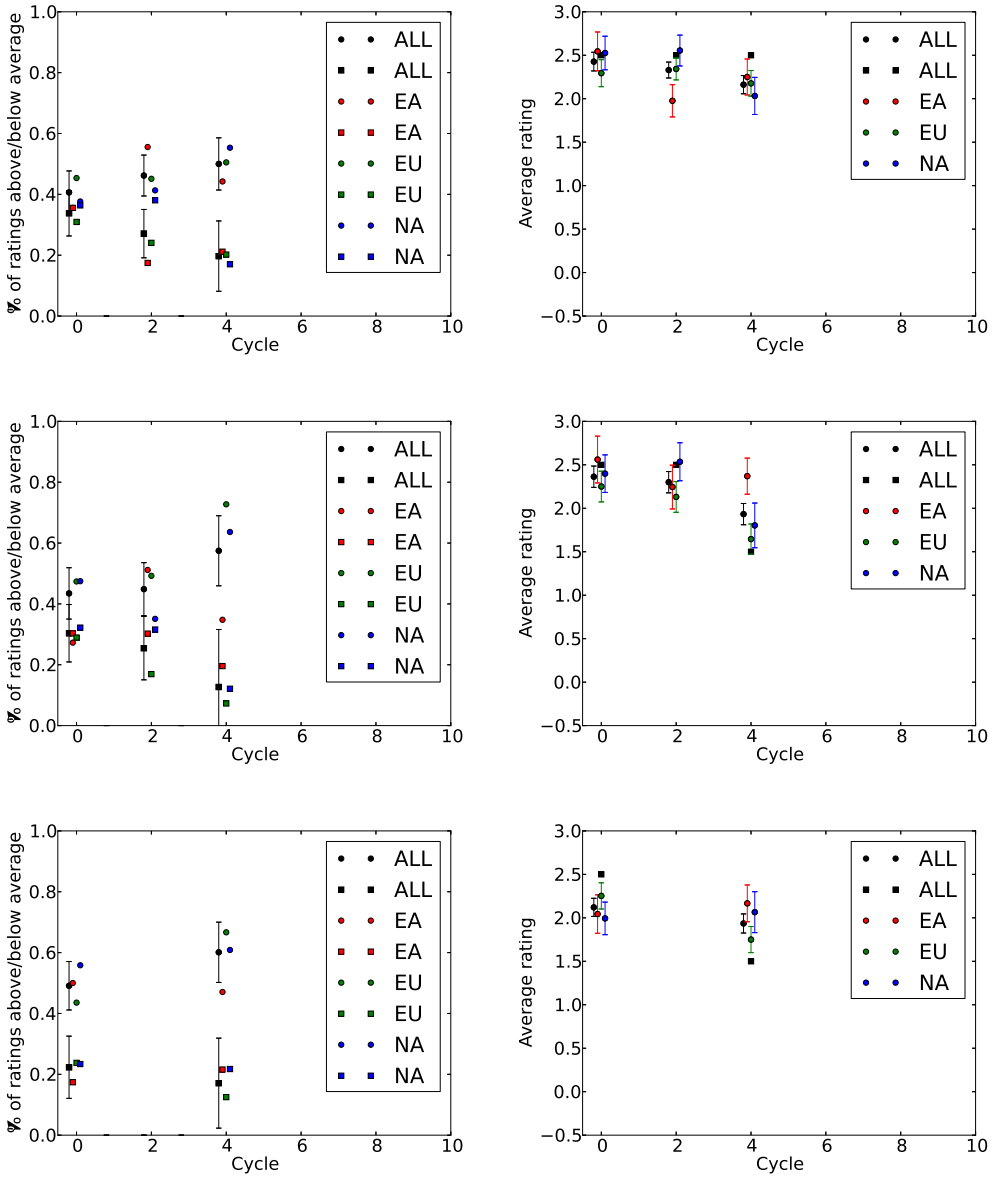


Figure A.9: Quality of the scientific assessment (upper plots) and technical assessment (middle plots) and clarity of the email reporting the results of the proposal review process (lower plots).

A.7 Phase 2

The respondents show a marginally -increasing level of satisfaction with the Phase 2 process since Cycle 2, improving steadily from around 2.0, to 1.5 since Cycle 2. There also appear to be some small gains in the ranking for ARC and Node support for SB preparation. Note the ranking for ARC support for SB preparation is now well-ranked, at around 1.1-1.2.

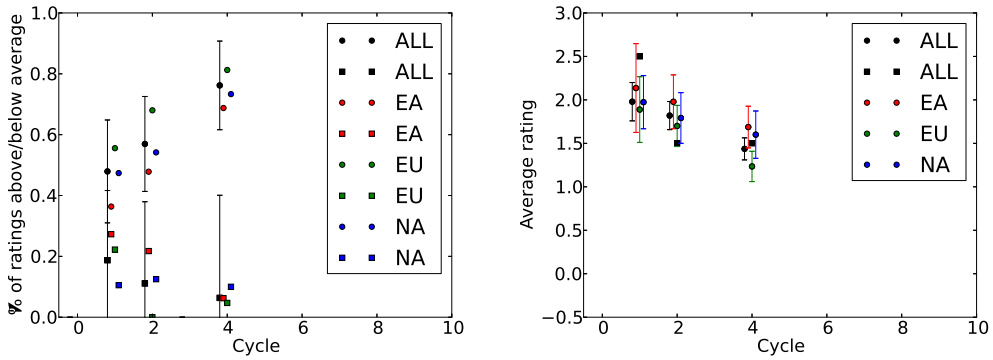


Figure A.10: Experience with SB preparation.

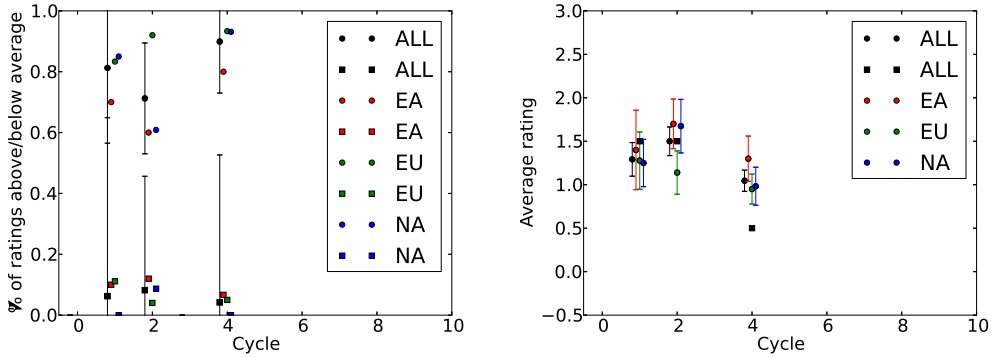


Figure A.11: Quality of the ARC/ARC nodes support for preparation of SBs.

Appendix B

Summary of Cycle 4 average rates

The following tables show a summary of all the results for this survey.

Table B.1 shows the average and median rates obtained for the different topics both for ALMA wide users and each Executive separately. It also shows in the first two columns the fraction of users that rated a given topic above average (AA) or below average (BA). The most positive rate among all executives is highlighted in bold for each topic.

Table B.2 shows the percentage of users (both for overall ALMA and each Executive separately) that answered positively or negatively to any of the questions for which only the "Yes/No" option was given. The highest rate of positive replies among executives is highlighted in bold for each topic.

While most positive responses are distributed throughout the Executives, EA has only three aspects that are rated the most positive (and another that is ranked equally with NA). NA shows six aspects regarded most positively (and another shared with EA), while EU shows 17 aspects they rank the most highly. NA is generally most dissatisfied with SnooPI, data products and pipeline, whereas EA is most dissatisfied with proposal review and Helpdesk.

Table B.1: Summary of Cycle 4 results (Part 1).

	ALL				EA		EU		NA	
	AA	BA	Average	Median	Average	Median	Average	Median	Average	Median
SP info to prepare/submit/ monitor ALMA projects	81.5%	6.7%	1.46 ± 0.35	1.5	1.60 ± 0.35	1.5	**1.40 ± 0.36**	1.5	1.41 ± 0.32	1.5
SP navigation	61.0%	10.7%	1.90 ± 0.35	1.5	**1.87 ± 0.35**	1.5	1.93 ± 0.37	1.5	**1.87 ± 0.35**	1.5
Ease for finding information at the Science Portal	55.1%	11.8%	1.97 ± 0.36	1.5	2.01 ± 0.41	1.5	1.99 ± 0.34	1.5	**1.89 ± 0.35**	1.5
SP dissemination of information	57.1%	10.8%	1.92 ± 0.36	1.5	**1.87 ± 0.36**	1.5	**1.87 ± 0.38**	1.5	2.08 ± 0.37	1.5
Quality of HD replies	78.3%	11.2%	1.36± 0.49	1.5	1.53 ± 0.46	1.5	**1.24± 0.47**	0.5	1.47± 0.54	1.5
HD response time	79.2%	10.7%	1.45± 0.44	1.5	1.56 ± 0.35	1.5	1.45 ± 0.49	1.5	**1.32 ± 0.42**	1.5
HD usability	80.4%	7.8%	1.38 ± 0.42	1.5	1.61 ± 0.38	1.5	1.37 ± 0.40	1.5	**1.18 ± 0.45**	0.5
Quality of KB articles	56.5%	13.8%	1.95±0.38	1.5	1.90±0.36	1.5	**1.89±0.38**	1.5	2.11±0.39	2.5
Quality of f2f support	87.0%	10.9%	1.11± 0.49	0.5	1.25 ± 0.53	0.5	1.18± 0.55	0.5	**0.5 ± 0.0**	0.5
Archive usability	65.1 %	11.8%	1.87± 0.34	1.5	1.84± 0.32	1.5	**1.80 ± 0.33**	1.5	2.08 ± 0.42	1.5
SnooPI navigation/structure	44.0 %	26.0 %	2.17 ± 0.53	2.5	2.12 ± 0.40	2.5	**2.04 ± 0.59**	1.5	2.55 ± 0.52	2.5
SnooPI project follow-up	44.8%	22.9%	2.15± 0.47	2.5	**2.0 ± 0.40**	2.5	2.05 ± 0.53	2.5	2.54 ± 0.43	2.5
SnooPI SBs follow-up	42.0%	27.0%	2.19± 0.53	2.5	2.15 ± 0.44	2.5	**2.07 ± 0.62**	2.5	2.50 ± 0.48	2.5
Data quality of the products	57.5%	15.1%	1.87 ± 0.43	1.5	1.81 ± 0.46	1.5	**1.75 ± 0.45**	1.5	2.06 ± 0.43	1.5
ALMA pipeline documentation	45.9 %	16.2 %	2.09 ± 0.39	2.5	2.12 ± 0.36	2.5	**1.97 ± 0.44**	1.5	2.21 ± 0.33	2.5
Pipeline weblog usefulness	54.5 %	18.2 %	1.89 ± 0.49	1.5	1.87 ± 0.47	2.5	**1.75 ± 0.46**	1.5	2.04 ± 0.52	2.5
CASA usability	44.7%	15.5%	2.16 ± 0.36	2.5	2.31 ± 0.33	2.5	**2.08 ± 0.36**	2.5	2.14 ± 0.42	2.5
CASA functionality	48.41 %	15.3 %	2.09 ± 0.37	2.5	2.29 ± 0.33	2.5	**1.94 ± 0.38**	1.5	2.15 ± 0.42	1.5
Computer resources ALMA data	54.9 %	20.2 %	2.02 ± 0.51	1.5	**1.92 ± 0.42**	1.5	2.08 ± 0.54	1.5	1.99 ± 0.56	1.5
ALMA data quality	85.3 %	5.4 %	1.28 ± 0.39	1.5	1.28 ± 0.37	1.5	1.36 ± 0.41	1.5	**1.13 ± 0.38**	0.5
PRP SA	50.0 %	19.7 %	2.16 ± 0.41	2.5	2.25 ± 0.42	2.5	2.18 ± 0.42	1.5	**2.03 ± 0.41**	1.5
PRP TA	57.5 %	12.7 %	1.93 ± 0.38	1.5	2.37 ± 0.36	2.5	**1.65 ± 0.33**	1.5	1.80 ± 0.42	1.5
PRP email	60.1 %	17.1 %	1.94 ± 0.45	1.5	2.17 ± 0.44	2.5	**1.75 ± 0.42**	1.5	2.07 ± 0.51	1.5
Comms with CS for SB prep	89.9 %	4.2 %	1.05 ± 0.38	0.5	1.3 ± 0.45	1.5	**0.95 ± 0.36**	0.5	0.98 ± 0.35	0.5
Ph2 smoothness and ease	80.2 %	5.6 %	1.33 ± 0.42	1.5	1.56 ± 0.45	1.5	**1.17 ± 0.40**	0.5	1.43 ± 0.43	1.5
Exp with SB prep	76.2 %	6.3 %	1.44 ± 0.44	1.5	1.69 ± 0.36	1.5	**1.23 ± 0.45**	0.5	1.6 ± 0.45	1.5

Table B.2: Summary of Cycle 4 results (Part 2).

	ALL		EA		EU		NA	
	Yes	No	Yes	No	Yes	No	Yes	No
Info in the SP complete and up-to-date	91.2	8.8	86.7	13.3	**93.2**	6.8	92.6	7.4
Submission of HD tickets	53.4	46.6	46.9	53.1	**57.6**	42.4	52.2	47.8
Reading of KB articles	51.0	49.0	38.3	61.7	54.9	45.1	**58.2**	41.8
Use of ALMA archive	61.6	38.4	61.5	38.5	61.0	39.0	**63.1**	36.9
Archive additional fields	27.9	72.1	24.0	76.0	29.1	70.9	**29.2**	70.8
Archive additional functionality/tools	43.2	56.8	40.9	59.1	39.0	61.0	**52.0**	48.0
Archive additional data products	41.6	58.4	35.0	65.0	41.3	58.7	**47.8**	52.2
Trouble downloading data	29.1	70.9	**32.4**	67.6	27.4	72.6	29.0	71.0
Use of SnooPI	40.4	59.6	40.5	59.5	**41.1**	58.9	38.5	61.5
Data package info useful	80.0	20.0	**91.7**	8.3	78.1	21.9	76.2	23.8
Calibration data adequate	78.3	21.7	**92.3**	7.7	84.6	15.4	61.9	38.1
Imaging products adequate	54.1	45.9	58.3	41.7	**62.1**	37.9	40.0	60.0
Download of raw data	82.9	17.1	**100.0**	0.0	81.2	18.8	75.0	25.0
Calibration with scriptForPI	16.5	83.5	16.9	83.1	13.7	86.3	**22.1**	77.9
Calibration without scriptForPI	5.1	94.9	2.4	97.6	4.1	95.9	**10.3**	89.7
Use of CASA	63.5	36.5	62.0	38.0	61.4	38.6	**69.8**	30.2
Cycle 4 proposals submitted	82.0	18.0	81.4	18.6	**82.3**	17.7	82.0	18.0
SBs generated	51.2	48.8	48.6	51.4	51.9	48.1	**52.5**	47.5
Support for OT SB generation	17.1	62.9	30.0	70.0	**44.4**	55.6	29.0	71.0

Appendix C

ALMA User Satisfaction Survey

ALMA Cycle 4 User Satisfaction Survey 2016

Welcome to the ALMA Cycle 4 User Satisfaction Survey 2016.
With this survey we kindly request your feedback with regard to the Science Portal, user support, the ALMA Science Archive, SnooPI, data processing and products, and aspects related to the ALMA Cycle 4 Phase 2 Preparation and Submission. The results of this survey represent important feedback to the ALMA Observatory, for which we thank you in advance. It will take you between 5 and 15 minutes to complete the survey.
Note: Questions that are marked with an asterisk are mandatory
There are 75 questions in this survey

C.1 About you

1 Please indicate your ARC affiliation *
Please choose only one of the following:
EA/EU/NA
Choose one of the three options: EA = East Asia, EU = Europe, NA = North America

2 Please rate your expertise in radio and/or submm observations using interferometers or single dish antennas. *
Please choose only one of the following:
1 2 3 4 5 (1: Expert ... 5: Absolute beginner)
Absolute beginner means that you have never conducted research with radio/submm data

3 Years since PhD (please enter 0 if you are a PhD or Masters student) *
Please write your answer here:

4 Please indicate your top three main areas of expertise. *
Please choose all that apply:
Gamma-ray / X-ray / UV-Optical / Infrared / Submillimeter/Millimeter / Radio / Observational, ground-based / Observational, space-based / Theory/Modelling / Other:

C.2 Science Portal

In this section we kindly ask you to answer some questions related to the ALMA Science Portal.

5 Does the ALMA Science Portal contain all relevant information to prepare, submit and monitor your ALMA science project(s)? *
Please choose only one of the following:
1 2 3 4 5 (1: Yes, absolutely ... 5: Not at all)

6 Is the information on the ALMA Science Portal complete and up-to-date? *
Please choose only one of the following:
Yes/No

if 6 == "N"
7 Please provide details about the information you think is incomplete and/or out-of-date.
Please write your answer here:

8 How do you rate the navigation through the ALMA Science Portal?
Please choose only one of the following:
1 2 3 4 5 (1: Excellent ... 5: Poor)

9 How easily can you find the information you are looking for in the ALMA Science Portal?
Please choose only one of the following:
1 2 3 4 5 (1: Very easy ... 5: Very difficult)

10 How do you rate the dissemination of the news and information from ALMA through the ALMA Science Portal?
Please choose only one of the following:
1 2 3 4 5 (1: Excellent ... 5: Poor)

11 Please enter any additional comments regarding the ALMA Science Portal here (including suggestions for information that you would like to see posted to the Science Portal)
Please write your answer here:

C.3 ALMA Helpdesk and Face-to-Face Support

In this section we kindly ask you to answer some questions related to the ALMA Helpdesk and face-to-face user support.

12 Did you request help via the ALMA Helpdesk? *
Please choose only one of the following:
Yes/No

if 12 =="Y"
13 Did you find the Helpdesk easy to use. E.g. ticket submission, follow-up on an existing ticket, searching tickets, etc.
Please choose only one of the following:
1 2 3 4 5 (1: Very easy ... 5: Very difficult)

14 Please evaluate the quality of the Helpdesk replies.
Please choose only one of the following:

1 2 3 4 5 (1: Very good ... 5: Very bad)

15 Please evaluate the response time for Helpdesk replies
Please choose only one of the following:
1 2 3 4 5 (1: Very fast ... 5: Very slow)

16 Did you consult the Knowledgebase articles available at the Helpdesk? *
Please choose only one of the following:
Yes/No

if 16 =="Y"
17 Please rate the value/quality of the Knowledgebase articles
Please choose only one of the following:
1 2 3 4 5 (1: Very good... 5: Very poor)

18 Please enter any additional comments regarding the ALMA Helpdesk here.
Please write your answer here:

19 Did you visit an ARC or ARC node for face-to-face support regarding data reduction? *
Please choose only one of the following:
EA ARC or EA ARC node / NA ARC / EU ARC or EU ARC node / None

if 19 =="EU"
20 Which EU ARC node did you visit?
Please choose all that apply:
Allegro (Leiden) / Bologna / Bonn-Cologne / IRAM (Grenoble) / Manchester / Ondrejov / Onsala / PACE (Lisbon)

if 19 =="EA"
21 Which EA ARC node did you visit?
NAOJ (Japan) / Daejeon (Korea) / ASIAA (Taipei)

if 19 =="EU","NA","EA"
22 Please rate the quality of the face-to-face support provided by the ARC/ARC node
Please choose only one of the following:
1 2 3 4 5 (1: Very good ... 5: Very bad)

23 Please add any additional comment related to the face-to-face support here.
Please write your answer here:

C.4 ALMA Science Archive

In this section we kindly ask you to answer some questions related to the ALMA Science Archive.

24 Did you use the ALMA Science Archive to search for and/or download data? *
Please choose only one of the following:
Yes/No

if 24 =="Y"
25 Please rate the usability of the ALMA Science Archive.
Please choose only one of the following:
1 2 3 4 5 (1: Very good ... 5: Very bad)

26 Are there specific additional fields you would want to query on?
Please choose only one of the following:
Yes/No

if 25 =="Y"
27 What additional fields would you like to have?
Please write your answer here:

bf 28 Is there any specific functionality or are there any tools that you would like to have in the Archive?
Please choose only one of the following:
Yes/No

if 28 =="Y"
29 What additional functionality or tools would you like to have?
Please write your answer here:

30 Do you want any additional data products to be provided by Archive?
Please choose only one of the following:
Yes/No

if 29 =="Y"
31 Please indicate any other products you would like Archive to provide.
Please write your answer here:

32 Did you have trouble downloading the data?
Please choose only one of the following:
Yes/No

if 32 =="Y"
33 Please specify the problems you had with the download
Please write your answer here:

34 Please enter any additional comments regarding ALMA Science Archive here.
Please write your answer here:

C.5 SnooPI

In this section you are kindly asked to answer some questions about SnooPI.

35 Did you use SnooPI to find out the status of your observations, if any? *
Please choose only one of the following:
Yes/No

if 35 =="Y"
36 How did you find the navigation and structure of SnooPI compared to the Project Tracker?
Please choose only one of the following:
1 2 3 4 5 (1: Much better ... 5: Much worse)
37 How would you rate SnooPI for following the progress and status of your project(s)?
Please choose only one of the following:
1 2 3 4 5 (1: Very good ... 5: Very bad)
38 How would you rate SnooPI for following the progress and status of your SB(s)?
Please choose only one of the following:
1 2 3 4 5 (1: Very good ... 5: Very bad)

39 Please enter any additional comments regarding SnooPI here.
Please write your answer here:

C.6 Cycle 3 Data Quality and Processing

In this section you are kindly asked to answer some questions about data quality and processing

40 Did you receive any ALMA data deliveries from Cycle 3? *
Please choose only one of the following:
Pipeline calibrated by ALMA / Manually calibrated by ALMA / No
Please select only one of the options

if 40 =="Pipeline", "Manual"
41 Was the support information provided in the package useful and clear?
Please choose only one of the following:
Yes/No

if 41 =="N"
42 Please provide your suggestions how the support information provided in the package can be made more useful and clear.
Please write your answer here:

43 Were the calibrated data adequate?
Please choose only one of the following:
Yes/No

if 43 =="N"
44 Please provide your feedback why the caibration was not adequate and how it can be improved.
Please write your answer here:

45 Were the provided imaging products adequate?
Please choose only one of the following:
Yes/No

if 45 =="N"
46 Please provide your feedback why the imaging products were not adequate and how the quality of these products can be improved?
Please write your answer here:

47 Please judge the overall quality of the ALMA data products you received
Please choose only one of the following:
1 2 3 4 5 (1: Very good ... 5: Very bad)

48 Please specify any additional imaging or other data products that you would like to be included in the delivery.
Please write your answer here:

49 Did you also download the raw data (the "ASDMs")?
Please choose only one of the following:
Yes/No
Please describe any problems with the download in the ALMA Science Archive section of this questionnaire.

if 49 =="Y"
50 Did you use scriptForPI.py to recalibrate your data, or did you do it on your own?
Please choose all that apply:
Used scriptforPI.py / Calibration by myself / Please select one of the options.

if 50 =="scriptForPI.py"
51 Please specify the problems you had (if any) repeating the calibration by running the "scriptForPI.py".
Please write your answer here:

52 Did you use any of the imaging products that were delivered to you?
Please choose only one of the following:
All/Some/None

if 40 =="Pipeline"
53 How would you rate the ALMA Pipeline Documentation and QuickStart Guide?
Please choose only one of the following:
1 2 3 4 5 (1: Very good ... 5: Very bad)

54 Does the Pipeline Weblog contain useful amounts of information?
Please choose only one of the following:
1 2 3 4 5 (1: Very good ... 5: Very bad)

55 Please enter any additional comments on the content of Pipeline weblog.
Please write your answer here:

56 Did you use CASA for data reduction and analysis of ALMA data? * Please choose only one of the following:
Yes/No

if 55 =="Y"
57 For which data reduction and/or analysis tasks did you use CASA? *
Please choose all that apply:
Data import or export / uv-data examination and editing / Calibration / Imaging / Image analysis / Visualisation / Single-dish data processing and/or imaging / Other:
Please select any of the options.

58 How would you rate CASA's usability?
Please choose only one of the following:
1 2 3 4 5 (1: Very good ... 5: Very bad)

59 How would you rate the functionality of CASA to perform the data reduction and analysis tasks you need.
Please choose only one of the following:
1 2 3 4 5 (1: Very good ... 5: Very bad)

60 Please describe any functionality in CASA that you would like to have implemented or improved. Please write your answer here:

61 Can you easily deal with the ALMA data on the computer system at your institute? Please choose only one of the following:
1 2 3 4 5 (1: Very easy ... 5: Very difficult)

62 Please judge the overall quality of the ALMA data. Please choose only one of the following:
1 2 3 4 5 (1: Very high ... 5: Very low)

63 Please enter any additional comments on Cycle 3 Data Quality. Please write your answer here:

C.7 Cycle 4 Proposal Review

In the section you are kindly asked to answer some questions about the Cycle 4 Proposal Review Process

64 Did you submit one or more proposals for Cycle 4 review? * Please choose only one of the following:
Yes/No

if 64 =="Y"
65 How would you rate the quality of the ALMA proposal review process in Cycle 4 with respect to the scientific evaluation of your proposal(s)?
Please choose only one of the following:
1 2 3 4 5 (1: Excellent ... 5: Very poor)

66 How would you rate the quality of the ALMA proposal review process in Cycle 4 with respect to the technical evaluation of your proposal(s)? (if applicable, not all reports include the details of the technical assessment)
Please choose only one of the following:
1 2 3 4 5 (1: Excellent ... 5: Very poor)

67 How you would you rate the clarity of the email sent with the consensus report?
Please choose only one of the following:
1 2 3 4 5 (1: Excellent ... 5: Very poor)

68 Please enter any additional comments regarding the proposal review process here.
Please write your answer here:

C.8 Cycle 4 Phase 2 Submission Process

In this section we kindly ask you to answer some questions about the Phase 2 submission process

69 Are you the PI of a Cycle 4 ALMA proposal for which Scheduling Blocks have been generated? * Please choose only one of the following:
Yes/No

if 69 =="Y"
70 How would you rate the overall quality of communications with the ALMA Contact Scientist?
Please choose only one of the following:
1 2 3 4 5 (1: Very good ... 5: Very bad)

|bf 71 Did you require support to complete the SB generation process with the Observing Tool?
Please choose only one of the following:
Yes/No
1: Very good ... 5: Very bad

72 Please rate the smoothness and ease of the Phase 2 SB generation process.
Please choose only one of the following:
1 2 3 4 5 (1: Very good ... 5: Very bad)

f73 How do you rate your experience with the Cycle 4 SB preparation?
Please choose only one of the following:
1 2 3 4 5 (1: Very good ... 5: Very bad)

|bf 74 Please describe any problems and provide any additional comments/suggestions for improvement on the SB generation process.
Please write your answer here:

C.9 Final Comments

75 Please enter here any additional comments on issues not discussed in the survey or suggestions for improvement. Please write your answer here:

Thank you very much for having completed the ALMA Cycle 4 User Satisfaction Survey 2016.

Appendix D

Acronym List

ACA: Atacama Compact Array
ALMA: Atacama Large Millimeter/submillimeter Array
ARC: ALMA Regional Centre
ASC: ALMA Sensitivity Calculator
C0: Cycle 0
C1: Cycle 1
C2: Cycle 2
C3: Cycle 3
CD: Community Days
EA: East Asia
EU: Europe
HD: Helpdesk
JAO: Joint ALMA Observatory
KB: Knowledgebase
NA: North America
OST: Observation Support Tool
OT: Observing Tool
PI: Principal Investigator
PT: Project Tracker
SB: Scheduling Block
SP: Science Portal
TAC: Time Allocation Committee
ToO: Target of Opportunity
TP: Total Power Array

The Atacama Large Millimeter/submillimeter Array (ALMA), an international astronomy facility, is a partnership of Europe, North America and East Asia in cooperation with the Republic of Chile. ALMA is funded in Europe by the European Organization for Astronomical Research in the Southern Hemisphere (ESO), in North America by the U.S. National Science Foundation (NSF) in cooperation with the National Research Council of Canada (NRC) and the National Science Council of Taiwan (NSC) and in East Asia by the National Institutes of Natural Sciences (NINS) of Japan in cooperation with the Academia Sinica (AS) in Taiwan. ALMA construction and operations are led on behalf of Europe by ESO, on behalf of North America by the National Radio Astronomy Observatory (NRAO), which is managed by Associated Universities, Inc. (AUI) and on behalf of East Asia by the National Astronomical Observatory of Japan (NAOJ). The Joint ALMA Observatory (JAO) provides the unified leadership and management of the construction, commissioning and operation of ALMA.