

ALMA Regional Center Taiwan (ARC-T)

Cycle 3 Proposal Results

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On Wednesday 12th August 2015, the results of ALMA Cycle-3 proposals were announced. The Taiwan-ARC has collected and analysed the results relating to ALMA users in Taiwan. We present the analysis of the results in the following sections.

ALMA-Taiwan Cycle 3 Grades

The ALMA Proposal Review Committee (APRC) and the ALMA Review Panels (ARP) reviews every proposal and eventually assigns a final grade. An explanation of the grading scale is as follows:

Grade A: The proposal is assigned the highest priority of execution. If it is not completed by the end of Cycle 3, its execution will continue in Cycle 4, but only using up to 20% of the available Cycle 4 12m-Array time.

Grade B: The proposal was assigned the highest priority of execution. However it will not be carried over to future cycles, even if the observation is only partially completed by the end of Cycle 3.

Grade C: The proposal is assigned as a lower priority filler project that would only be observed if the conditions do not allow any higher priority projects to be executed. This ensures the observing queue can be occupied at all times.

Grade U: The proposal is unlikely to be observed.

Grade O: The proposal is rejected as there is a duplication with another higher-ranking project.

For Cycle 3, Taiwan users submitted a total of 79 proposals, of which 7 received grade A, 16 grade B, 14 grade C, 40 grade U, and 2 grade O.

The proposal results are visualised in Figure 1. We consider grades A and B as successful, and grade C as a filler project.

In terms of the number of proposals per grade compared to the total number of ALMA-Taiwan submitted proposals, ~9% are grade A, ~20% grade B, ~18% grade C, and ~51% grade U. See Figure 2 for these results visualised in a pie-chart.

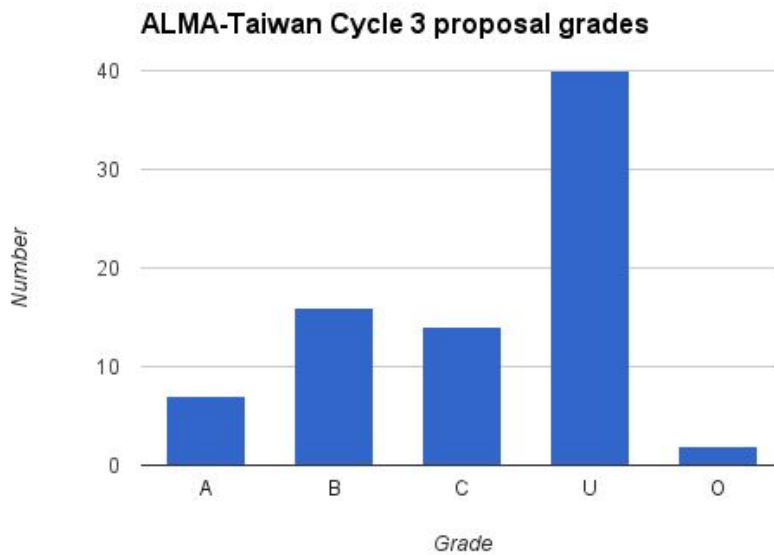


Figure 1: The number of ALMA-Taiwan proposals versus their assigned grade. There are 7 grade A, 16 grade B, 14 grade C, 40 grade U, and 2 grade O.

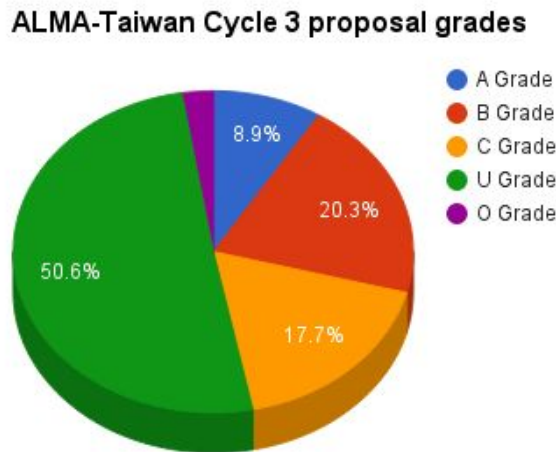


Figure 2: ALMA-Taiwan Cycle 3 proposal grade totals in terms of the total number of ALMA-Taiwan proposal submissions. Nearly 30% of the total number of submitted Cycle 3 proposals were successful.

In total, 23 proposals are successful (grades A and B), and 14 are filler projects (grade C). Amongst the successful proposals, 5 grade A and 3 grade B proposals are resubmissions of successful projects from previous Cycles.

See Table 1 for a list of all successful grade A and B ALMA-Taiwan Cycle 3 projects.

Project Code	Grade	PI	Category	Resubmission
2015.1.00035.S	A	Hanyu Liu	Galaxies	Yes
2015.1.00037.S	A	Chin-Fei Lee	ISM	Yes
2015.1.00121.S	A	Kazushi Sakamoto	Galaxies	
2015.1.00147.S	A	Yu-Nung Su	ISM	Yes
2015.1.00500.S	A	Sheng-Yuan Liu	Circumstellar	Yes
2015.1.00546.S	A	Shih-Ping Lai	ISM	Yes
2015.1.01018.S	A	Hsi-Wei Yen	ISM	
2015.1.00024.S	B	Chin-Fei Lee	ISM	
2015.1.00149.S	B	Hanyu Liu	Galaxies	
2015.1.00410.S	B	Ya-Wei Tang	Circumstellar	
2015.1.00415.S	B	Kenneth Wong	Cosmology	
2015.1.00418.S	B	Vivien Chen	ISM	
2015.1.00551.S	B	Shigehisa Takakuwa	ISM	
2015.1.00889.S	B	Ya-Wen Tang	Circumstellar	
2015.1.00890.S	B	Kazushi Sakamoto	Galaxies	Yes
2015.1.00992.S	B	Vivien Chen	ISM	
2015.1.01003.S	B	Paul Ho	ISM	Yes
2015.1.01096.S	B	Wei-Hao Wang	Cosmology	
2015.1.01170.S	B	Keiichi Asada	Galaxies	
2015.1.01225.S	B	Lihwai Lin	Galaxies	
2015.1.01409.S	B	Patrick Koch	ISM	Yes
2015.1.01525.S	B	Tien-Hao Hsieh	ISM	
2015.1.01549.S	B	Nagayoshi Ohashi	Circumstellar	

Table 1: Full list of successful grade A and grade B ALMA-Taiwan Cycle 3 proposals. The science category of each proposal is also listed. Resubmissions of successful projects from previous cycles are indicated in the final column.

ALMA-Taiwan Cycle 3 Percentile distribution

As well as the grade, every user is informed of their percentile result ranked within one of five levels rated amongst all proposals worldwide. The five levels are: top 10% (or first decile), 10-20% (or second decile), 20-40% band, 40-70% band, and 70-100% (or bottom 30%).

For ALMA-Taiwan Cycle 3 proposals, there were 10 proposals ranked in the top 10%, 12 in the 10-20% decile, 7 in the 20-40% band, 44 in the 40-70% band, and 6 in the 70-100% band. These results are visualised in Figure 3. A little over half the proposals fall within the 40-70% band.

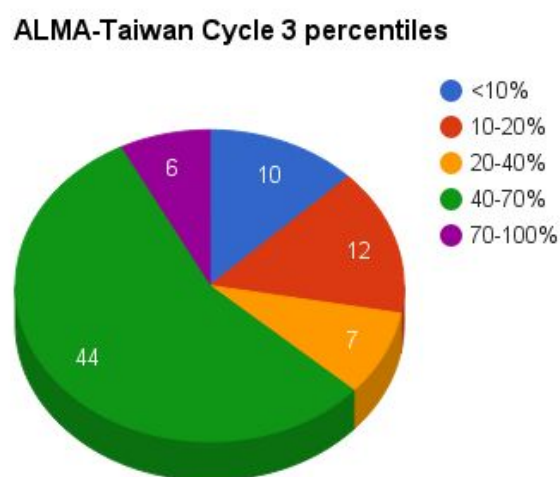


Figure 3: Percentiles of ALMA-Taiwan Cycle 3 proposal results visualised on a pie-chart.

In terms of percentages to the total number of submitted ALMA-Taiwan Cycle 3 proposals in each percentile, they are as follows:

~13% in Top 10%, ~15% in the 10-20% decile, ~9% in the 20-40% band, ~55.5% in the 40-70% band, and ~7.5% in the 70-100%.

A breakdown of the grade versus percentile level is shown in Table 2. All grade A proposals are in the top 10% decile. The majority of grade B proposals are in the 10-20% decile. The two 20-40% band proposals in grade B are resubmissions. In grade C all except one are in the 40-70% band. In grade U, 4 proposals are in the 20-40% band, of which 2 are new proposals and 2 are re-submissions. For grade O (duplication with a higher ranking project), one project is in the 40-70% band and one in the 10-20% decile.

Grade \ Percentile	<10%	10-20%	20-40%	40-70%	70-100%
A	7	0	0	0	0
B	3	11	2	0	0
C	0	0	1	13	0
U	0	0	4	30	6
O	0	1	0	1	0

Table 2: A breakdown of grade versus percentile of the ALMA-Taiwan Cycle 3 proposals.

Reasons for Grade U

Each PI receives a report from the review panel listing their proposal strengths, weaknesses, suggestions for improvement, and an overall evaluation. For the unsuccessful grade U proposals, we asked ALMA-Taiwan users to provide us with a brief summary of the reason. Out of the 40 grade U projects, 19 users responded to this request.

In general, the majority of proposals were deemed unsuccessful for not conveying a convincing enough science case to the reviewers to warrant an observation. The other main reason appears to be technical where the reviewers believe the technical setup would be unable to observe the proposed science case.

East Asian (EA) and North American (NA) time share

Taiwan users are allowed to submit for East Asian (EA) or North American (NA) observing time, or use both EA and NA time as 50-50. The majority of people usually submit for EA time as the over subscription rate in that region is lower. For ALMA-Taiwan Cycle 3 proposals, there were 67 proposals for EA time, 9 for NA time, and 3 for shared EA/NA time. Out of the successful proposals (Grade A and B), there are 18 for EA time, 4 for NA time, and 1 for shared EA/NA time. All the successful NA time projects were resubmissions.

Observing time

A project can use a non-standard observing configuration. Out of the successful Grade A and B proposals, 12 are to use standard configuration, and 11 are to use non-standard configuration.

Out of all submitted ALMA-Taiwan Cycle 3 proposals, the total observing times would have been: 353.9 hours for the 12m standard configuration array, 105 hours for the Atacama Compact Array (ACA), and 106 hours for non-standard configuration.

But in terms of the successful proposals, there is due to be 81.3 hours of observations with the 12m standard configuration, 51.9 hours with the ACA, and 52.8 hours with non-standard configuration.

Science Category

An ALMA proposal can be associated to one of five different science categories. In terms of submitted ALMA-Taiwan Cycle 3 proposals, there were 4 for “Cosmology and the high redshift universe”, 20 for “Galaxies and galactic nuclei”, 34 for “ISM, star formation and astrochemistry”, 11 for “Circumstellar disks, exoplanets and the solar system”, and 10 for “Stellar evolution and the Sun”. This information is listed in Table 3 as well as the number of successful proposals in each category. From these results, the Cosmology category has the highest success rate at 50%, and the ISM category has the most successful proposals by number. In terms of the Filler projects, the Galaxies category obtained the most.

Science category	Submitted	Successful	Success rate	Fillers
1. Cosmology and the high redshift universe	4	2	50%	2
2. Galaxies and galactic nuclei	20	7	35%	8
3. ISM, star formation and astrochemistry	34	10	29.4%	3
4. Circumstellar disks, exoplanets and the solar systems	11	4	36.4%	1
5. Stellar evolution and the Sun	10	0	0%	0

Table 3: Number of proposals submitted and successful (grade A and B) compared to their science category. The final column are the number grade C filler proposals per science category.

Cycle 3 Worldwide comparision

Worldwide, there were 401 proposals accepted out of 1578 submitted for ALMA Cycle 3. Thus the over-subscription rate is $1578/401 = 3.93$.

For ALMA-Taiwan, there are 23 successful proposals (7 grade A + 16 grade B). This means out of the 401 total accepted proposals worldwide, 5.74% are for ALMA-Taiwan.

In comparison to Cycle 2, there were 353 proposals accepted out of 1381 submitted worldwide. The oversubscription rate was $1381/353 = 3.91$. Also in Cycle 2, ALMA-Taiwan had 20 accepted proposals. Out of the total of 353 accepted proposals, ALMA-Taiwan accounted for 5.67%.

Therefore, the worldwide oversubscription rate and the Taiwan success rate is comparable between Cycle 3 and Cycle 2.

Taiwan Universities vs ASIAA

For Cycle 3, ASIAA members submitted 60 proposals as Principle Investigator (PI), and Taiwan University members submitted a total of 19 proposals as PI.

While there were 19 successful proposals from ASIAA PIs, there were 4 from Taiwanese Universities PIs, namely, 1 grade A by Shih-Ping Lai, 2 grade B by Vivien Chen, and 1 grade B by Tien-Hao Hsieh, all from National Tsing-Hua University (NTHU). See Table 4 for the list of successful Taiwan University ALMA Cycle 3 proposals. Taiwan Universities also have 4 grade C filler proposals.

Project Code	Grade	PI	Category
2015.1.00546.S	A	Shih-Ping Lai (NTHU)	ISM
2015.1.00418.S	B	Vivien Chen (NTHU)	ISM
2015.1.00992.S	B	Vivien Chen (NTHU)	ISM
2015.1.01525.S	B	Tien-Hao Hsieh (NTHU)	ISM

Table 4: List of successful Taiwan University Cycle 3 proposals and their science category.

Comparison with previous Cycles

Table 5 lists the number of submitted/accepted proposals both worldwide and in Taiwan for each cycle thus far. The total number of submitted proposals is increasing each year as ALMA becomes more well known, whilst the total number of accepted proposals is also increasing as the total observing time increases with each cycle. Similarly, the number of submitted and accepted proposals is still increasing for Taiwan, but could be approaching a saturation point.

	Total proposals submitted worldwide	Total proposals accepted	Taiwan proposals submitted	Taiwan proposals accepted
Cycle 0	919	112	45	8
Cycle 1	1133	196	56	14
Cycle 2	1381	353	73	20 (+7 filler)
Cycle 3	1578	401	79	23 (+14 filler)

Table 5: Comparing proposal numbers of Cycle 3 with previous Cycles

A more detailed look at the statistics can be seen in Table 6. Here we separate the proposals between ASIAA and Taiwan Universities for EA and NA time, and divide the results between each ALMA Cycle. In Cycle 3 there was one 50:50 EA:NA time proposal from ASIAA, and two from Taiwan Universities.

Compared to last year, Taiwan Universities have performed twice as well by doubling their accepted proposals (both Priority grade A+B, and Filler grade C). In addition, they submitted ~30% less proposals (17 Cycle 3 vs 24 Cycle 2). Their success rate this year is comparable to that in Cycle 1.

Also when compared to last year, ALMA-Taiwan has doubled their number of grade C filler projects. The ASIAA grade C number has increased from 5 to 10, and the Taiwan University number has increased from 2 to 4.

		ASIAA to EA	ASIAA to NA	University to EA	University to NA	Total
Cycle 0	Submitted	21	6	15	3	45
	Priority (A+B)	7	0	1	0	8
	Filler (C)	5	1	1	0	7
Cycle 1	Submitted	25.5	9.5	18	3	56
*ASIAA to EU:+1	Priority (A+B)	8	4	1	0	13
	Filler (C)	3	1	3	0	6
Cycle 2	Submitted	38	11	24	0	73
	Priority (A+B)	15	3	2	0	20
	Filler (C)	5	0	2	0	7
Cycle 3	Submitted	50 + (0.5)	9 + (0.5)	17 + (2*0.5)	0 + (2*0.5)	79
	Priority (A+B)	14 + (0.5)	4 + (0.5)	4	0	23
	Filler (C)	10	0	4	0	14

Table 6: A more detailed breakdown of proposals from ASIAA and Taiwan Universities, submitted to EA or NA time, and separated between each ALMA Cycle thus far. The “(0.5)” entries in Cycle 3 represent a 50:50 EA:NA proposal.

Summary

For ALMA Cycle 3, Taiwan users submitted a total of 79 proposals, of which 7 received grade A, 16 grade B, 14 grade C, 40 grade U.

In terms of percentile rating, 10 were in the top 10%, 12 in the 10-20% decile, 7 in the 20-40% band, 44 in the 40-70% band, and 6 in the bottom 30%.

There were 67 proposals requesting EA time, 9 for NA time, and 3 for shared EA/NA time. Out of the successful proposals there are 18 for EA time, 4 for NA time, and 1 for shared EA/NA time.

Last year, in Cycle 2, there were 353 proposals accepted in total, and ALMA-Taiwan had 20 successful proposals. The ALMA-Taiwan success rate was 5.67%. This year for Cycle 3 there were 401 proposals accepted in total meaning ALMA-Taiwan has a 5.74% success rate. The ALMA-Taiwan success rate is comparable between Cycle 3 and Cycle 2.

For Cycle 3, ASIAA members submitted 60 proposals as PI, and Taiwan University members submitted a total of 19 proposals as PI. There were 19 successful proposals from ASIAA and 4 were successful from Taiwanese Universities. ASIAA has 10 grade C filler projects and Taiwan Universities have 4.

Overall, the success rate of ALMA-Taiwan Cycle 3 proposals is ~29%. At ARC-T we aim to increase the success rate for next years Cycle 4 by encouraging and assisting Taiwanese astronomers, especially in the Taiwanese Universities, to pursue their science with ALMA.