Writing a good proposal

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Time allocation committee CV

- Since 2005: Served on >17 TACs; Reviewed >1000 proposals
- JCMT
  - UK TAG (>4 times)
  - EAO (3 times, twice as chair)
- China Telescope Access Program
- CFHT (Taiwan TAC; 4 times)
- Hubble Space Telescope Cycle 19
- Spitzer Space Telescope Cycles 2, 5, and 6 (chair in Cycle 6)
- NOAO (2 times)

The JCMT TAC membership

- General TAC only, no sub-committees by subject area
- 6 members, one from each region, plus 1 chair
- Term: 2 years (chair: 3 years)

The proposal evaluation process (2016B)

- Deadline: 16 March 2016: 77 proposals
- All TAC members read and grade all 77 proposals
- Each proposal is reviewed by two TAC members in greater detail (1st and 2nd assessor)
- Technical reviews by JCMT staff within 4 weeks
- External reviews by experts are solicited by first assessor
- TAC meeting: 19/20 May 2016 (Taipei)
- First assessor writes feedback to proposers

The proposal evaluation process

Note that:

- Due to sheer numbers, TAC members typically spend only 15 minutes with your proposal
- TAC members are not experts on your topic
- JCMT TAC is allowed to give partial allocation
- JCMT TAC awards 30% more time than is available in the semester, to have flexibility with the weather and instrument availability

Publication statistics

Per semester 1300 hours of observing time are available for the JCMT partners

80-90 JCMT publications per year

-> Each publication represents about 30 hours of observing time

Assuming a 50% rate of observational success, aim for 15 hours per publication, but not necessarily written by you!

Tip:

Make sure your time request is reasonable:

~15 hours / publication

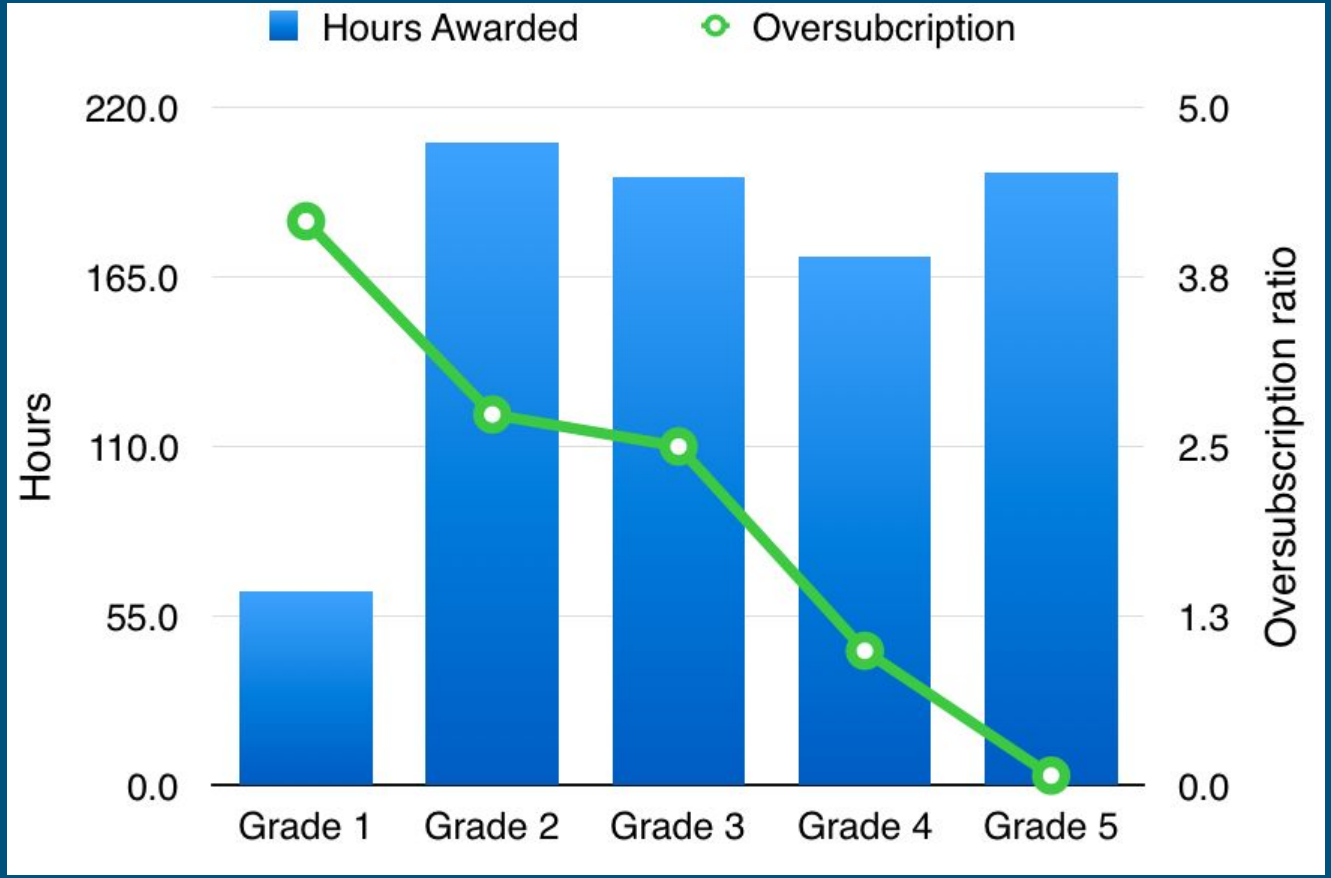
3

Oversubscription of available observing time

Ranging from 4 in the Band 1 weather

to 1 in Band 4 weather

Almost no demand for Band 5 weather


Hours Awarded
Oversubcription
220.0
165.0
110.0
55.0
0.0
Hours
5.0
3.8
2.5
1.3
0.0
Oversubscription ratio
Grade 1
Grade 2
Grade 3
Grade 4
Grade 5

Tip:

Consider asking for weather Band 4 or Band 5 time

Succes rates

In 2016A:

⅓ of proposals: full award

Highly ranked proposals; lower ranked Band 4 and 5 proposals

⅓ of proposals: partial award

Promising science cases, but large or unbalanced request; near cut-off line

⅓ of proposals: reject

So…

How do you write a good observing proposal?

Generate an idea

- Start early!
- Ideas often follow from current research, or extensive discussions with collaborators. This works best when you start early.
- Iteration between scientific goals and telescope capabilities will gradually improve the idea. Again, start early.
- Search archives and literature for existing data that can address the scientific question partially or completely, or can complement the requested data. Did I say you should start early?

Follow the instructions in the call for proposals

2016B: https://proposals.eaobservatory.org/jcmt/semester/2

- Content of proposal
- Calibrations
- Previous proposals
- Data available from JCMT archive and Large Programs

Follow the instructions in the call for proposals

2016B: https://proposals.eaobservatory.org/jcmt/semester/2

- Content of proposal
  - *Proposal authors are expected to provide separately both a Scientific and a Technical Justification for their proposed observations. These justifications should be substantiated with results from our integration time calculators to show that the proposed observations will reach the necessary noise limits for your science goals. The calculators are integrated into our proposal submission system, and you should use them to save your calculation(s) to your proposal.*
- Calibrations
- Previous proposals
- Data available from JCMT archive and Large Programs

Follow the instructions in the call for proposals

2016B: https://proposals.eaobservatory.org/jcmt/semester/2

- Content of proposal
- Calibrations
  - This will be taken care of by the observatory
- Previous proposals
- Data available from JCMT archive and Large Programs

Follow the instructions in the call for proposals

2016B: https://proposals.eaobservatory.org/jcmt/semester/2

- Content of proposal
- Calibrations
- Previous proposals
  - *The proposers should provide information on any previous, successful JCMT allocations, including any papers published as a result or the status of the project. The success of previous projects can be taken into account when awarding time, so it is in your interests to provide full information on this. A section is included within the proposal submission system for this information.*
- Data available from JCMT archive and Large Programs

Follow the instructions in the call for proposals

2016B: https://proposals.eaobservatory.org/jcmt/semester/2

- Content of proposal
- Calibrations
- Previous proposals
- Data available from JCMT archive and Large Programs
  - This section is in place to prevent duplicate observations. Please adhere to the instructions, and make sure to do this well. You may also spend some time on this in the scientific description of the proposal

Scientific justification

Remember: The TAC has only 15 minutes!

- Background; why is this subject important or interesting for the broader astronomy community?
- Explain the exact question you want to address
- Explain exactly how the proposed observations will address this question
- Justify in detail the sample size, the map size, and the integration times needed. Why exactly this amount, and not more, or less?

More tips and tricks (1)

A good approach is writing the proposal in such a way that the observation will distinguish between two (or more) competing scenarios, models or theories.

Constraining parameter space of an existing model can also be a good approach.

More tips and tricks (2)

Avoid vague and overambitious statements such as "these observations will further our understanding of star formation", or "these measurement will shed light on the theory of galaxy evolution".

Instead, be specific about the analysis steps that follow the observations, and what results you hope to obtain.

More tips and tricks (3)

- Some well chosen figures say more than a thousand words
- Use boldface to highlight key statements, to help the TAC. Other typographic tools, such as bullets, may be helpful too.
- Keep the description as simple as possible, and get to the point quickly (remember: 15 minutes)
- TAC members do not have time to follow references, include all necessary information in the proposal

Past proposals & ongoing research

- If you have had past successful proposals on the same subject, describe the status of those past projects:
  - has the data been obtained, reduced, analysed?
  - what is the relation to the current request?
  - how much of that work is already published?
- If you are resubmitting an unsuccessful proposal:
  - take the TAC comments into account!

On sample sizes and integration times

15 hours of successful observing time ⇔ 1 publication

If your request is very large, find strategies to reduce the time request

- can you reduce the sample size...
- can you increase the r.m.s....
- can you reduce the size of the mapped area...
- can you reduce the number of transitions observed...
- can you drop one of the two continuum bands on SCUBA2...

... and still achieve your science goals?

If so, do it!

Final tips

- Stick to all editing instructions (page limit, font size)
- Iterate the almost-final proposal with co-investigators well before the deadline
- Be wary of buzz words (Rosetta Stone), but don’t shy away from fashionable science
- If you dare, be different!

Good luck!