ALMA Cycle 8 Proposal Writing Tips

NAOJ Proposal Preparation Workshop

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Disclaimer

- The views expressed herein are my own personal opinions based on my experience as both a proposer and a Review Panel member
- 50% success rate (3 out of 6 over cycles 3, 4, 6, 7)
- Cycle 5 and 7 Review Panel member
- Expertise in Category 3: ISM, Star Formation and Astrochemistry
- Keep in mind that Cycle 8 is shaping up to be anything but ordinary

The Grim Reality, and your Goal

- Cycle 7: 1773 proposals
  - A – 128 (#1-128; 0-7%)
  - B – 270 (#129-398; 7-22%)
  - C – 236 (#399-634; 22-36%)
- Cycle 6: 1836 proposals
  - A – 100 (#1-100; 0-5%)
  - B – 269 (#101-369; 5-20%)
  - C – 292 (#370-661; 20-36%)
- Doesn’t account for scheduling considerations (frequency & PWV, array config., RA pressure)
- You are aiming for the top 20% of all proposals

The Reviewer's Perspective

- Over the past few cycles, reviewers have been responsible for grading between about 60 and 120 proposals (the work load per reviewer is improving, but at the expense of panel size; 8 -> 6)
- A reviewer's task is to provide a numeric score and comments, both positive and negative, for every proposal
- For many reviewers, the time spent on reading and grading proposals is in addition to their normal academic, support, and/or functional duties

20 minutes

Help the Reviewer

- Background
  - It is likely that most reviewers are not experts in your specific topic of research. Provide them with enough information so that they feel capable of making an informed decision about your proposal
- Clarity
  - To properly judge a proposal, the reviewer needs to understand exactly what you are trying to do, and why you are trying to do it (how does this relate to our understanding of astrophysics in a broader sense?)

Stand out from the crowd

- Your proposal should be memorable (in a good way) to the reviewer. It is impossible to hold the contents of 60+ proposals in memory
- Clear, easy to understand, well-written proposals tend to be more memorable
- In popular sub-fields, several different groups may propose roughly the same observations toward different target regions. If you work in one of these fields, explain what makes your proposal unique compared to the current state of the field (Why is your proposal better than the others?)

Highlight the Important Points

- Emphasized text (**Boldfaced**, underlined, *italicized*, bulleted list, or font colors) can and should be used, but only with purpose, and sparingly (the more emphasized text there is, the less important it becomes)
- I tend to limit the use of emphasized text to 2-3 sentences that describe:
  - The main scientific goal of the proposal
  - The importance of this research in a broader context
  - The observations to be performed
- This practice helps the reviewer
  - They will pay more attention to emphasized text
  - It is easy to locate the main points after reading

What Do I Look For as a Reviewer?

1. **What is the goal of this proposal?**
2. **Why is this proposal important to astronomy?**
3. **How are the goals going to be achieved?**

- Is the use of ALMA justified?
- Is the target sample justified?
  - Too many? Too few? Typical objects? Extraordinary objects?
- Are the proposed methods justified?
  - Which lines/frequencies and why? Can the experiment work?
- Any unanswered question is immediately considered a weakness. Do NOT give the reviewers easy-to-identify weaknesses!

Writing Tips

- Proposal writing and paper writing are different
  - Paper writing is conservative. You are stating the facts of the observations, your interpretation, and many possible uncertainties and caveats
  - Proposal writing is ambitious. You are exploring the unknown and are going to answer outstanding questions.
  - Describe every goal (within reason) that your proposal will achieve.
  - Your proposal should provide a definitive answer to a specific question. It should not be an incremental advance that adds one data point to an existing plot

Writing Tips

- Get to the point quickly
  - ✓ State the primary goal of your proposal on the first page, preferrably in the top half.
  - ✕ Do not begin the proposal by providing an extensive (1+ page) discussion of background material.

Writing Tips

- Justify **EVERY** choice that you have made
  - Continuum
    - Why at this frequency?
  - Spectral Line
    - Why is each line important?
  - Target Sample
    - Why are you observing these targets?
- Anything that is not justified may be considered a weakness by the reviewer

Writing Tips

- End your proposal with one of the two major points
  - **What** is the primary goal of your proposal?
    - You will have already stated this clearly on page 1, so it is just re-iterating the main point. “By performing X observations we will achieve Y.”
  - **Why** is your proposal important to astronomy?
    - “By answering question X, we will gain a better understanding of process Y, which has important implications for subjects A, B, and C.”
- This is the last thing the reviewer reads before writing comments and giving a numeric score

Writing Tips

- Use active voice when possible. This implies that *you* are doing the proposed research, rather than the research somehow happening on its own
  - ✓ We will determine Y
  - ✗ Y will be determined
  - As long as you never state who “we” are, then the proposal is still anonymous

Good Luck!