From scheduling and Phase 2 generation viewpoints

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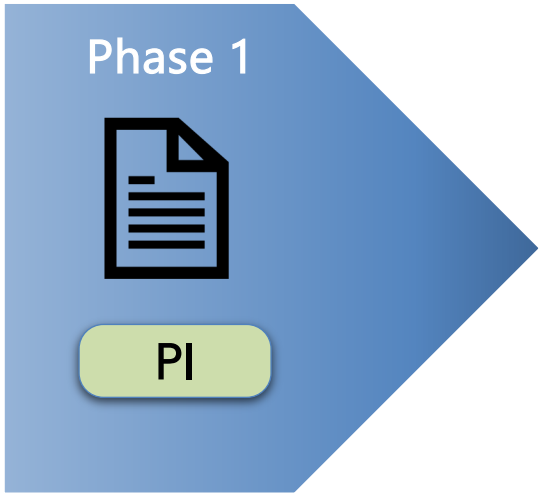
Outline

- What is Phase 2?
- Why do we care about scheduling and Phase 2 generation?
- General considerations
    1. Angular resolution
    2. Weather
    3. Duplications
    4. Resubmissions

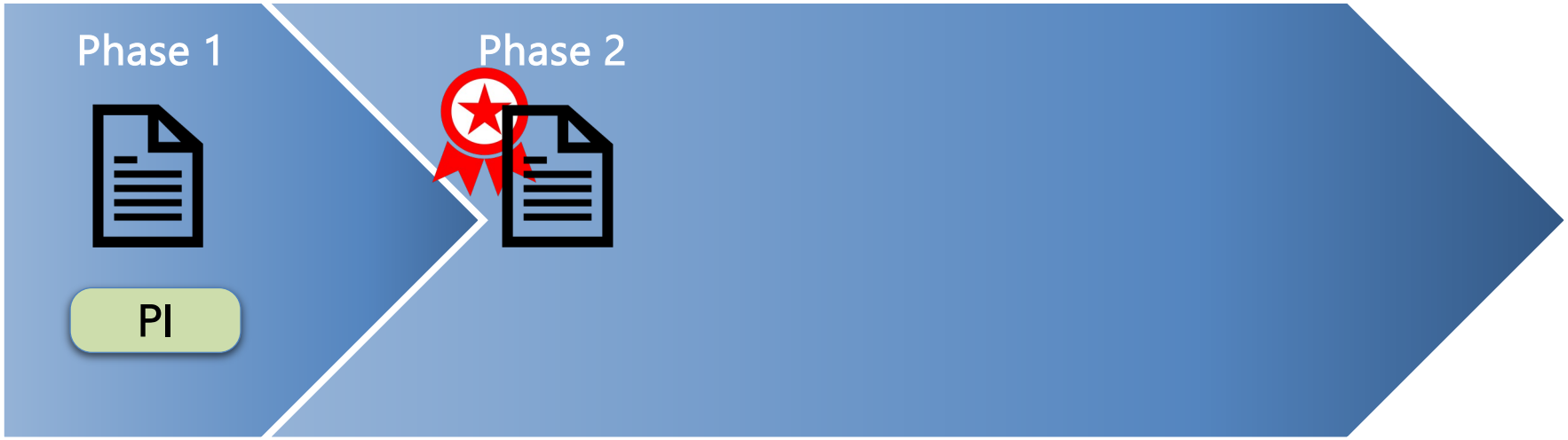
    Ref: Section 4.3 and 4.4 of the ALMA Cycle 12 Proposer's Guide
    Appendix A of the ALMA Users' Policies
- Change requests

What is Phase 2?



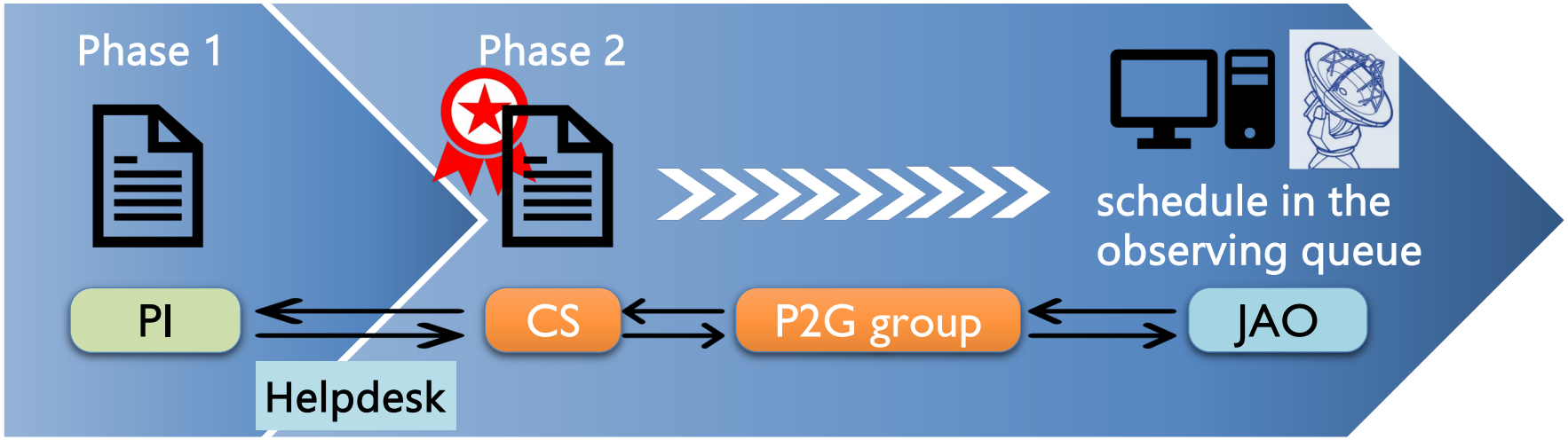
- Phase 1 process: Proposals are generated and submitted using the ALMA Observing Tool (ALMA OT).

What is Phase 2?



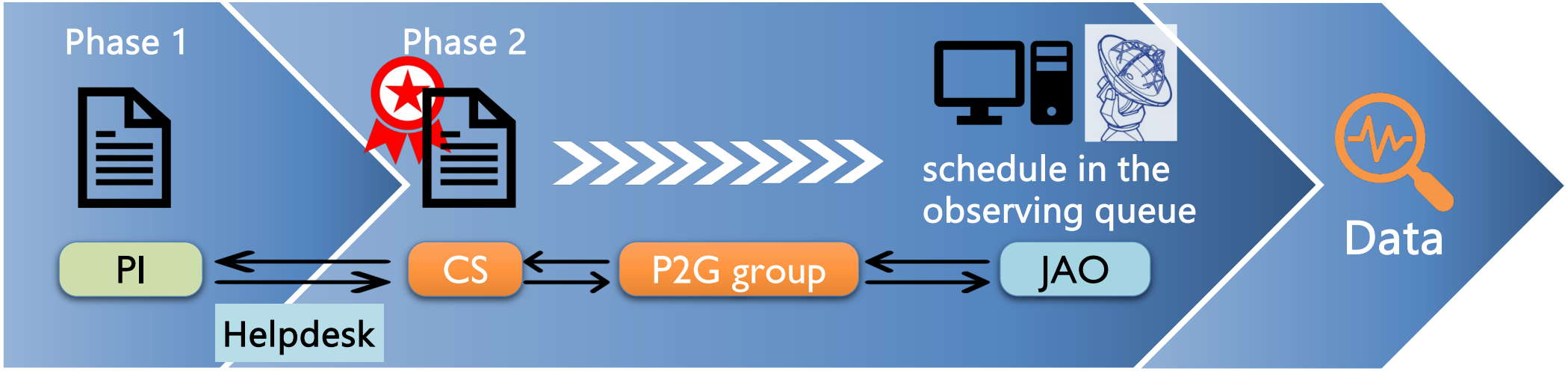
- Once a project has been approved for scheduling, it passes to Phase 2.

What is Phase 2?



- Once a project has been approved for scheduling, it passes to Phase 2.
  - Each approved project will be assigned a Contact Scientist (CS).
  - A Helpdesk ticket will be opened on behalf of the PI for communication with the CS and others.
  - The Phase2 Generation group (P2G group) will review the project and submit it to the ALMA observing queue to await execution at the telescope.
    - In case of problems, the CS will contact the PI.

Why do we care about scheduling and Phase 2 generation?



- When an observation is scheduled, various aspects of a proposed observation are important, such as requested angular resolution, weather conditions etc.
- Let's plan observations to maximize project completion and achieve our scientific goals!

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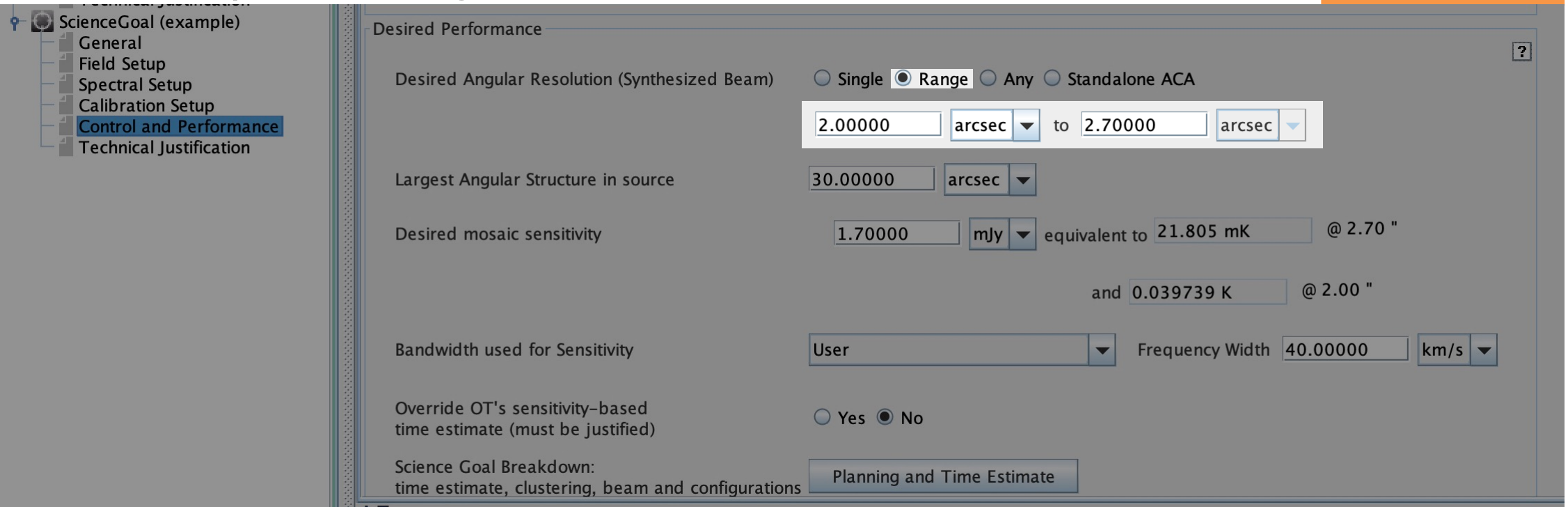
1. Angular resolution

- Observations are scheduled based on the angular resolution
- For scheduling feasibility and Quality Assurance (QA) purposes, if the PI selects a single value for the Desired Angular Resolution or a range narrower than 20% around its center value, typically, a range of +/-20% around the specified single or center value will be enforced.
  Example: for a single value of 2 arcsec => 1.6 to 2.4 arcsec

In OT



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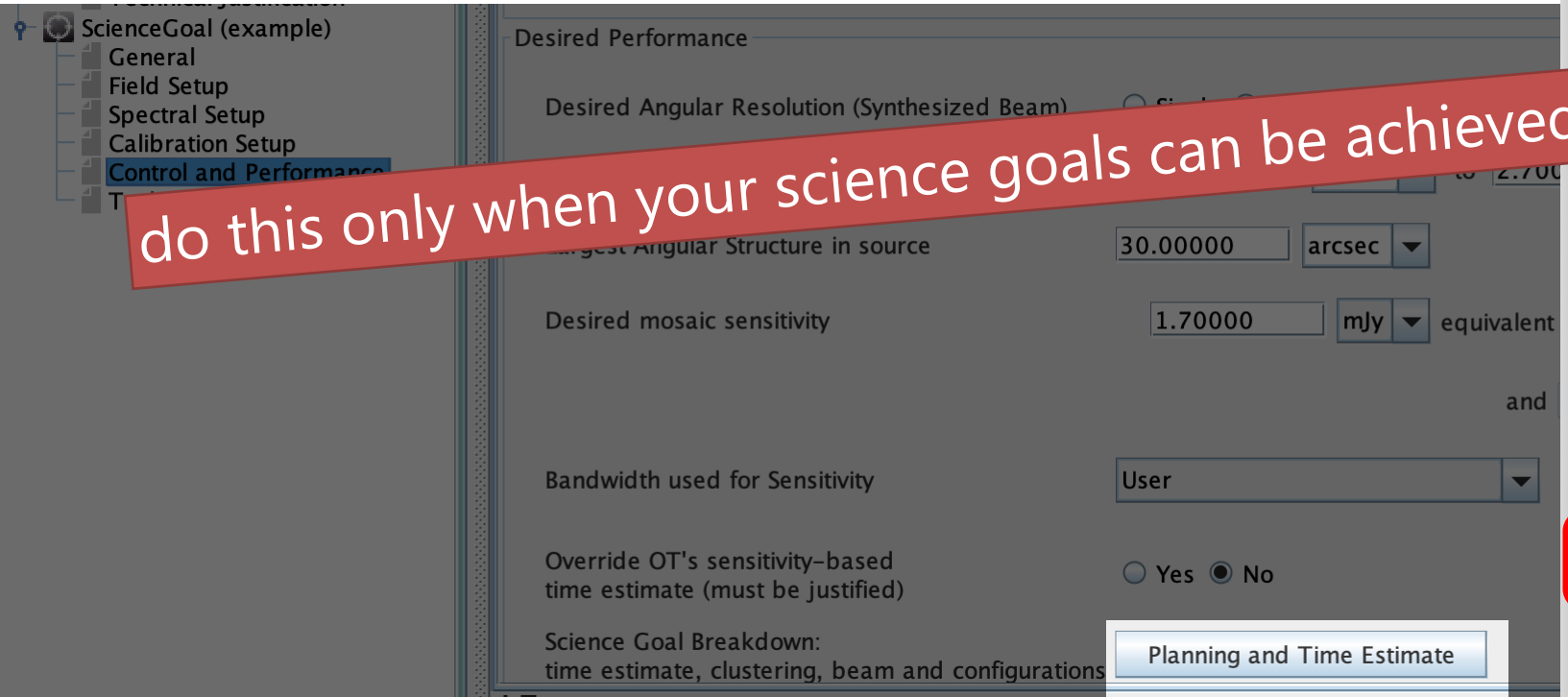
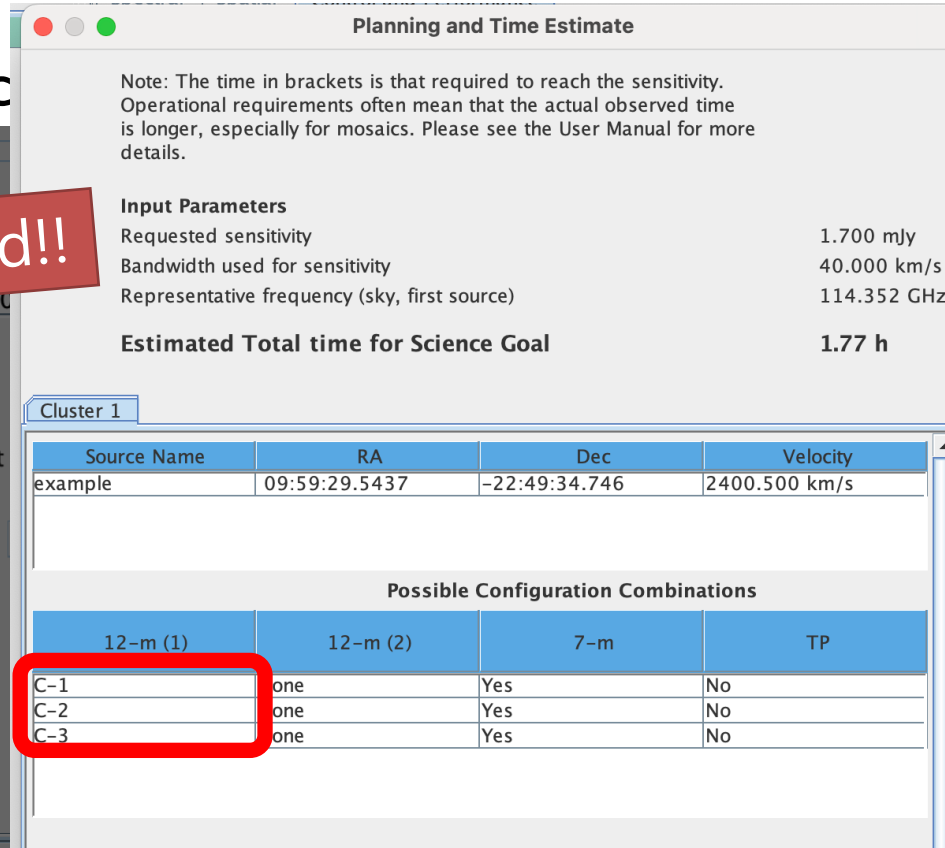


do this only when your science goals can be achieved!!



2. Weather

- The amount of time with stable atmospheric conditions suitable for observations in Bands 7 through 10 outside of the LST ranges given in the last column is limited.
- The best months for high-frequency observations are from May to November.

Tentative Configuration Schedule

Start date	Configuration	Longest baseline	LST for best observing conditions
2025 October 1	C-8	8.5 km	~ 22—10 h
2025 October 20	C-7	3.6 km	~ 23—11 h
2025 November 10	C-6	2.5 km	~ 1—13 h
2025 December 1	C-5	1.4 km	~ 2—14 h
2025 December 20	C-4	0.78 km	~ 4—15 h
2026 January 10	C-3	0.50 km	~ 5—17 h
2026 February 1	*No observations due to maintenance*		
2026 March 1	C-1	0.16 km	~ 8—21 h
2026 March 26	C-2	0.31 km	~ 9—23 h
2026 April 20	C-3	0.50 km	~ 11—0 h
2026 May 10	C-4	0.78 km	~ 12—2 h
2026 May 31	C-5	1.4 km	~ 13—4 h
2026 June 23	C-6	2.5 km	~ 15—6 h
2026 July 28	C-5	1.4 km	~ 17—7 h
2026 August 18	C-4	0.78 km	~ 19—8 h
2026 September 10	C-3	0.50 km	~ 20—9 h

mentioned in Taniguchi-san's talk

Table 3: Planned 12-m Array Configuration Schedule for Cycle 12. Configuration properties are given in Section A.2.

3. Duplications

- Duplicate observations of the similar location on the sky with similar observing parameters are not permitted unless scientifically justified (Section 4.4.1)
- Criteria: see Appendix A of the ALMA Users' Policies

Appendix A Definition of a Duplicate Observation

A proposed observation is considered a duplicate of another observation if *all* of the following conditions are met:

Target field location

- For single-field interferometry, the proposed position coincides within the half-power beam width of the other observation. Moving objects (e.g., Solar System objects) will be identified by name.
- For mosaic observations, more than 50% of the proposed pointings are within the half power beam width area covered by the other observation.

Angular Resolution

- The proposed angular resolution differs by a factor of ≤2 from the other observation.

Spectral windows

- Continuum: The requested sensitivity (rms) for the aggregate bandwidth is better by a factor of ≤ 2 from the other observation and the requested frequency is within a factor of 1.3.

  – or –

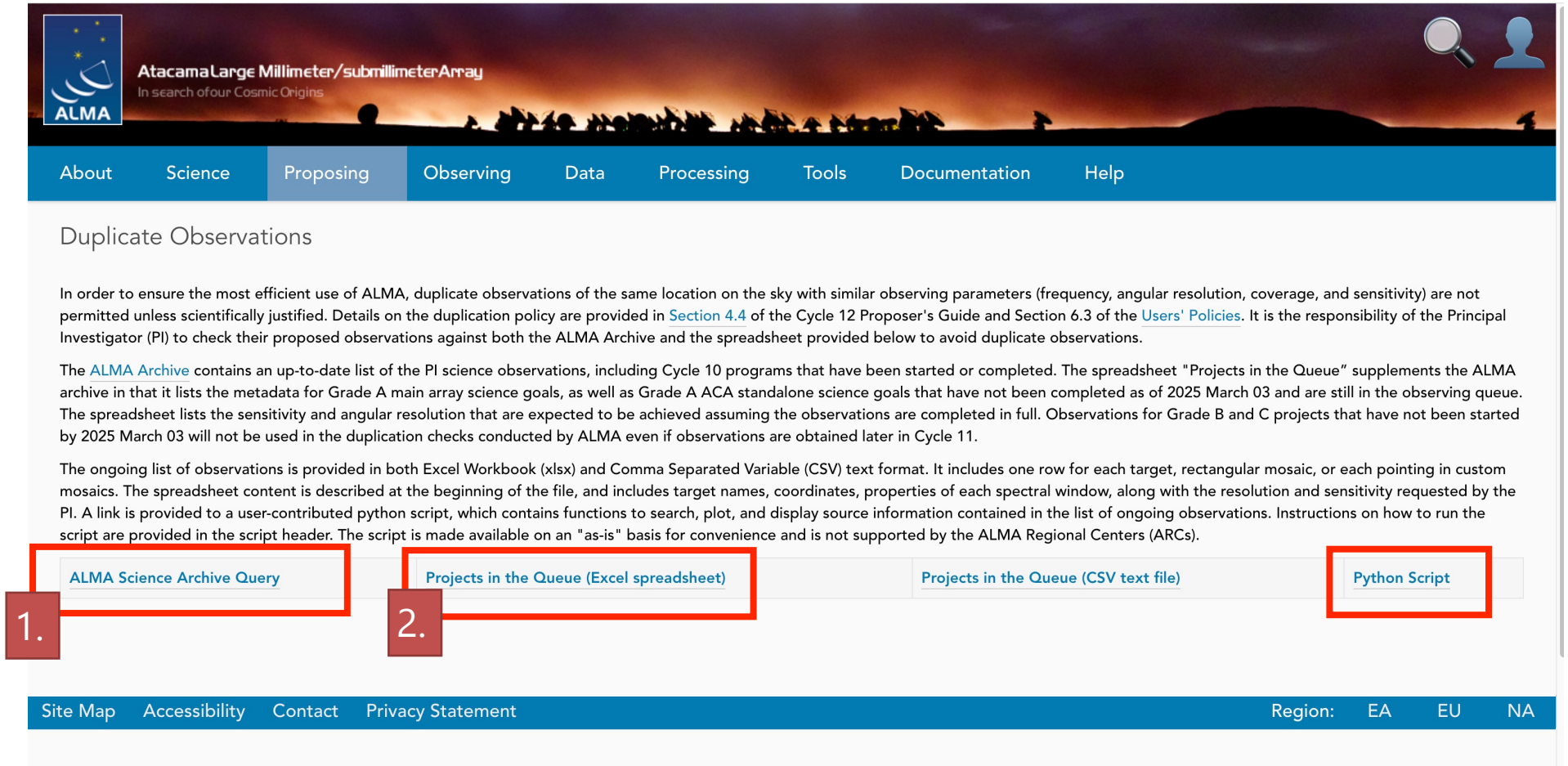
- Spectral line: If the central frequency in any requested correlator window observed in Frequency Division Mode (FDM) mode is encompassed by the other observation observed in FDM mode and the sensitivity per spectral channel, after smoothing to the same spectral resolution, is better by a factor of ≤ 2.

To be considered a "continuum" observation, the proposed correlator setup must contain 2 or more windows with a bandwidth > 1.8 GHz.

Solar observations will not be checked for duplications.

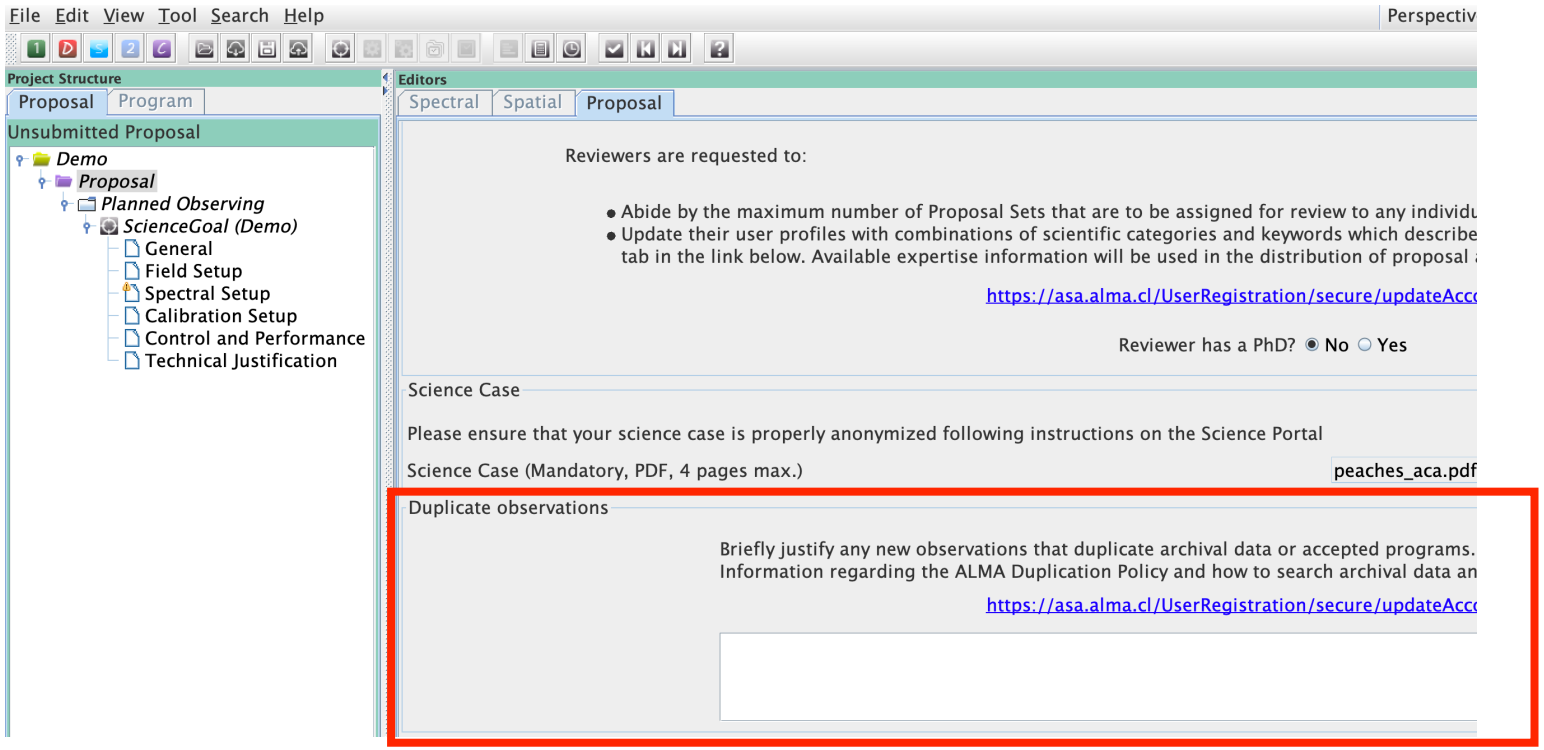
3. Duplications

- It is the responsibility of the Principal Investigator (PI) to check their proposed observations against both the ALMA Archive and the spreadsheet provided in the Science Portal to avoid duplicate observations.



3. Duplications

- Provide justification in OT



4. Resubmission of an unfinished proposal

- Proposal teams that submit a Cycle 12 proposal to observe some or all the SGs of an unfinished project will have the relevant SGs identified as a "resubmission".
- Criteria: Appendix A of the ALMA Users' Policies
- Policies (Section 4.4.2 of the ALMA Cycle 12 Proposer's Guide):
  - If the observations are successfully completed in Cycle 11:
    the relevant portion of the Cycle 12 proposal will be canceled
  - If the observations started in a previous cycle:
    they will continue to be observed with the setup of the previous cycle

4. Resubmission of an unfinished proposal

- **Example:**

Cycle 11 **accepted** project observation **started**

Cycle 12 project

Desired Performance

Desired Angular Resolution (Synthesized Beam) ○ Single ◉ Range ○ Any ○ Standalone ACA

2.00000 arcsec to 2.70000 arcsec

Largest Angular Structure in source 10.00000 arcsec

Desired mosaic sensitivity 1.00000 mJy equivalent to 12.826 mK @ 2.70 "

and 0.023376 K @ 2.00 "

Bandwidth used for Sensitivity User Frequency Width 40.00000 km/s

Planning and Time Estimate

Note: The time in brackets is that required to reach the sensitivity. Operational requirements often mean that the actual observed time is longer, especially for mosaics. Please see the User Manual for more details.

Input Parameters

Requested sensitivity	1.000 mJy
Bandwidth used for sensitivity	40.000 km/s
Representative frequency (sky, first source)	114.352 GHz
Estimated Total time for Science Goal	**1.20 h**

Cluster 1

Source Name	RA	Dec	Velocity
example	09:59:29.5437	-22:49:34.746	2400.500 km/s

Possible Configuration Combinations

12-m (1)	12-m (2)	7-m	TP
C-1	None	No	No
C-2	None	No	No
C-3	None	No	No

Desired Performance

Desired Angular Resolution (Synthesized Beam) ○ Single ◉ Range ○ Any ○ Standalone ACA

2.00000 arcsec to 2.70000 arcsec

Largest Angular Structure in source 10.00000 arcsec

Desired mosaic sensitivity 0.50000 mJy equivalent to 6.4132 mK @ 2.70 "

and 0.011688 K @ 2.00 "

Bandwidth used for Sens km/s

not better by a factor of ≤ 2
=> identified as resubmission

Note: The time in brackets is that required to reach the sensitivity. Operational requirements often mean that the actual observed time is longer, especially for mosaics. Please see the User Manual for more details.

Input Parameters

Requested sensitivity	0.5000 mJy
Bandwidth used for sensitivity	40.000 km/s
Representative frequency (sky, first source)	114.352 GHz
Estimated Total time for Science Goal	**4.81 h**

Source Name	RA	Dec	Velocity
example	09:59:29.5437	-22:49:34.746	2400.500 km/s

Possible Configuration Combinations

12-m (1)	12-m (2)	7-m	TP
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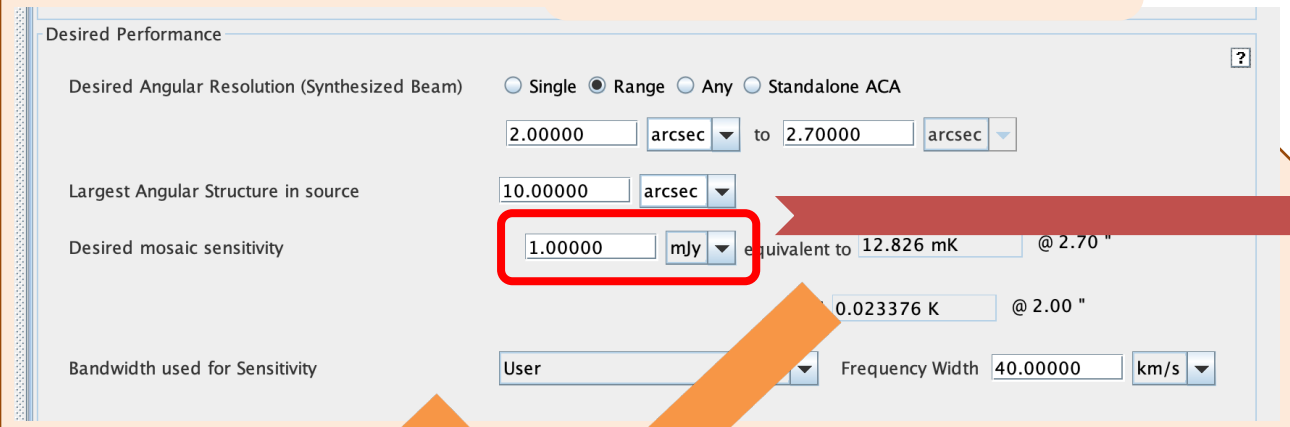
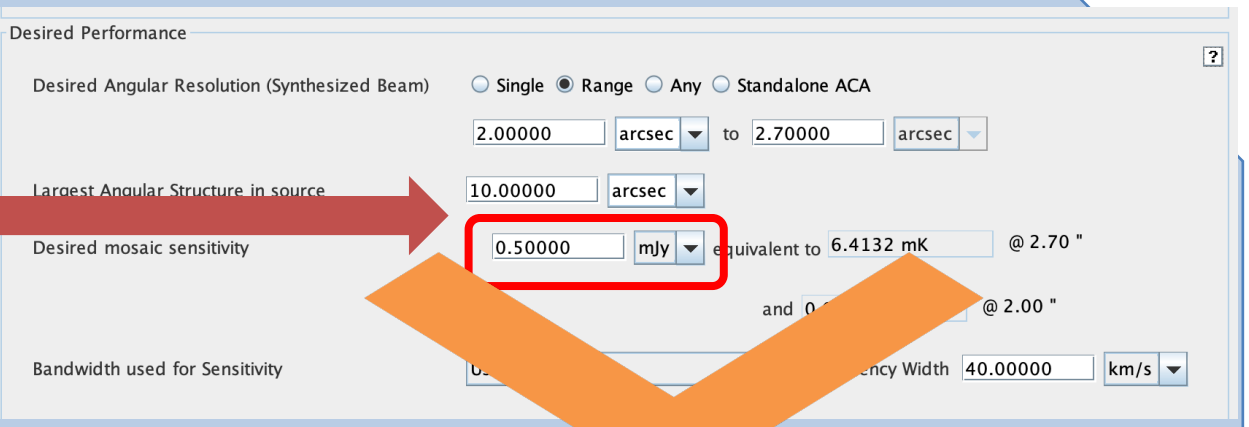
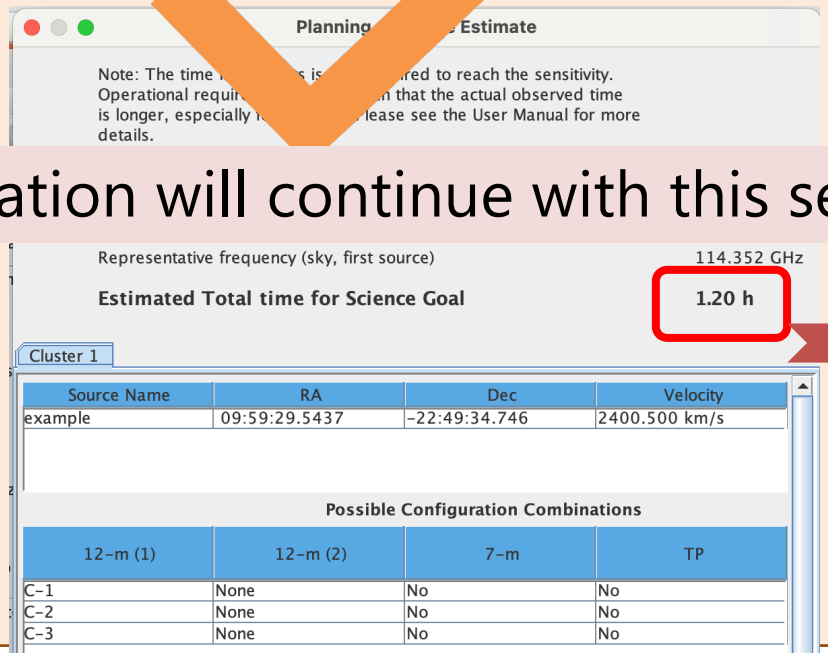
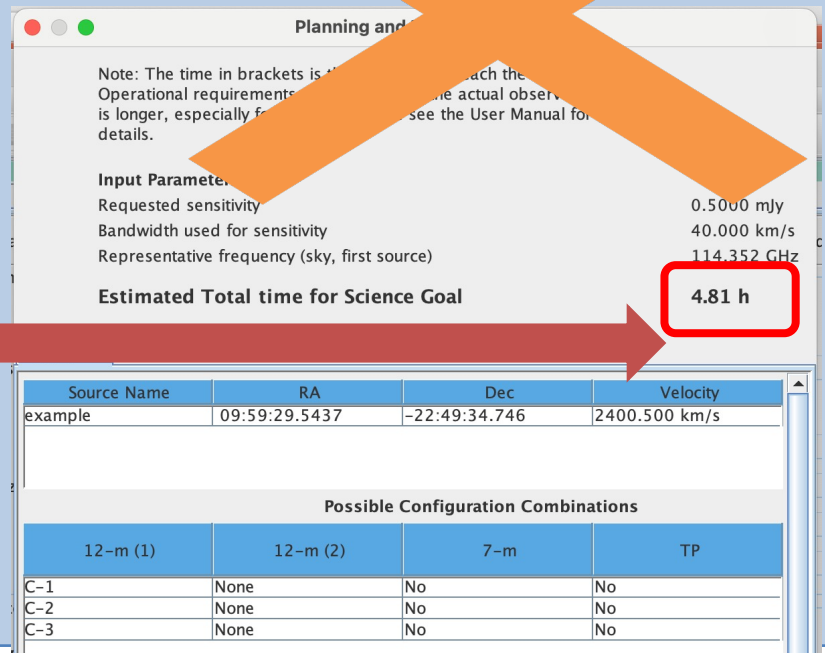




Observation will continue with this setup





Change requests

- Section 6.2 of the ALMA Cycle 12 Proposer's Guide and Section 8 of the ALMA Users' Policies
- After the PIs have been notified of the results of the proposal review process, PIs of scheduled proposals may request necessary changes to their project.
- All change requests are made through the ALMA Helpdesk.
- The request must include a clear description of the proposed change along with a clear, substantive justification for the change.
- Minor changes

- Major changes (defined in Appendix B of the ALMA Users' Policies)

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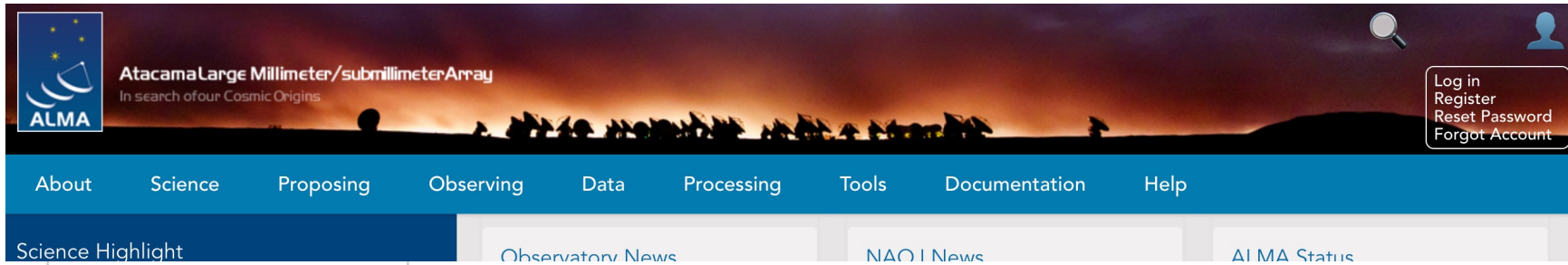
- All change requests are made through the ALMA Helpdesk.
- The request must include a clear description of the proposed change along with a clear, substantive justification for the change.
- Minor changes can usually be made, but PIs are strongly encouraged to make any necessary requests well in advance of the potential scheduling of observations.
- Major changes (defined in Appendix B of the ALMA Users' Policies) are allowed only if the change is essential for the science goals of the project.

Change requests

- Major change requests may be motivated by the following considerations
  - New information received since the original proposal submission
  - Technical considerations for implementation during Phase 2 (that are initiated by the PI, e.g. to optimize the scientific yield of the observations)
  - Mistakes made by the PI
- Major changes whose main motivation is to increase the observing window, for example by changing the angular resolution or configuration, are **not** typically accepted.
- Please read Section 8 and Appendix B of the ALMA Users' Policies carefully before requesting any changes!
- Triple-check all setups before the proposal submission deadline!



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