How many individual pointings is my science goal restricted too in my ALMA proposal?

Imported User 84 - 2020-09-21 - General ALMA Queries

For sources distributed widely in the sky, the Science Goal (SG) will be split by the OT into different “clusters”, each grouping all sources within 10 degrees. **While there is no restriction on the total number of sources in a SG, for each grouping within the SG, the total number of pointings must be less than or equal to 150.** Pointings with the ACA, if used in concert with 12-m Array observations, do not count against this 150-pointing limit.

The sources in a SG are further subjected to the following restrictions:

1. All the sources in a SG must be defined by the same field setup – either all as rectangular fields, or all as individual positions
2. Sources must use the same spectral setup (relative placement and properties of spectral windows)

For a given group of sources with positions within 10 degrees in the sky the total number of separate tunings cannot exceed 5.

Rectangular Fields:

A rectangular field (also referred to as a mosaic) is specified by a field center, the length, width and orientation of the field, and a single spacing between the pointing centers. Observations are conducted using the “mosaic” observing mode. This repeatedly cycles through all the pointings in the mosaic so that the imaging characteristics across the map are similar.

The OT will set up a uniform mosaic pattern based on a user-specified pointing separation, and will calculate the time to reach the required sensitivity considering any overlap. Non-Nyquist spatial samplings are allowed but must be justified in the technical justification. Individual mosaics will not be combined during post-processing.

If ACA observations are requested as part of a mosaic, then a corresponding 7-m Array mosaic will also be observed. If these include TP observations, the mosaic area(s) will be covered by the TP Array using on-the-fly mapping.

Multiple sources may be included inside a SG, each of which can have a differently sized rectangular field. The collection of mosaics is subject to the source SG restrictions given above.

Individual Pointings:

For each field source one or more pointings can be defined at a position of the PI's choosing

and all must overlap i.e. they must form a single mosaic without gaps. These are often referred to as "custom mosaics" and are subject to the source SG restrictions given above.

The interferometric data will be combined in post-processing to produce a single image. If ACA observations are requested as part of a 12-m Array Science Goal, then the corresponding 7-m Array observations will be obtained using a Nyquist-sampled mosaic pattern that covers the 12-m Array pointings. If these include TP observations, the mosaic area(s) will be covered by the TP Array using on-the-fly mapping.

For targets separated by more than 10 degrees, such as wide-area surveys, additional SGs may be added.

Please refer to the ALMA Proposers Guide in the Documents and Tools Section of the ALMA Science Portal for more information on the restrictions for setting up mosaics in your ALMA proposal.