ALMA Science

How many pointings can my proposal contain?

Sarah Wood - 2020-09-21 - Project Planning

In each Science Goal, sources are selected in one of two ways: by specifying a rectangular field or by specifying individual pointing positions. Each involves some restrictions.

Maximum number of pointings:

The maximum number of pointings allowed in a **Scheduling Block** (SB) is 150. The OT uses a clustering algorithm which will split the sources in a Science Goal into clusters with a size of 10 degrees (1 degree for SGs requiring long-baseline configurations) and each of these is written into a separate SB. Therefore, the effective limitation is that each cluster must contain no more than 150 pointings. If multiple configurations are required, this limitation applies to each individually i.e. not to the sum of e.g. the 12-m and ACA pointings. The clusters are indicated to the user via the Time Estimate dialogue and the Project Time Summary (available from the OT's toolbar).

There is no restriction on the number of Science Goals.

Sources in a SG are futher subjected to the following restrictions:

1. All sources in the SG must be defined by the same field setup - all must be either rectangular fields or individual pointing positions
2. They can be observed with one spectral setup (relative placement and properties of spectral windows)
3. There can be no more than five tunings **per cluster**

Rectangular Fields:

A rectangular field 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.

Multiple sources may be included inside a SG, each of which can have a differently sized rectangular field.

Individual Pointings:

These are usually specified as offsets from the source position. All pointings must overlap such that they would produce a single mosaiced image.