

ALMA Science

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The Largest Angular Structure (LAS) of a source corresponds to the largest coherent structure in a source that needs to be imaged. This is a very important parameter for an interferometer as the shortest baselines set a limit on the largest scale that can be successfully imaged. This is because interferometers work as a "Fourier filter" - scales smaller than can be detected by the shortest baselines are completely missing from the resultant image. The largest scale that can be successfully imaged by an interferometer is referred to as the Maximum Recoverable (angular) Scale (MRS) and is displayed by the OT for the smallest and largest 12-m configurations, as well as the 7-m ACA Array.

In the OT's Control & Performance editor, enter the angular size of the largest feature that you wish to recover with your proposed observations. In all cases, try and give a reasonable estimate for this parameter, even if it is not accurately known beforehand. The LAS will then be used by the OT to determine which array configurations are required to produce a good image of the source. The first 12-m configuration is chosen such that the requested angular resolution is achieved. If this configuration has baselines short enough to be able to image the requested LAS, $MRS > LAS$, then no more configurations will be added. If this is not the case, the OT will try and add other configurations (including the ACA) until the LAS is satisfactorily recovered.

You can watch a video on Largest Angular Scale and Maximum Recoverable Scale at <https://science.nrao.edu/science/videos/largest-angular-scale-and-maximum-recoverable-scale> for further information on how these affect your ALMA proposal.