ALMA Science

What is the astrometric (position) accuracy of an ALMA observation?

Jared Anand Crossley - 2024-10-08 - General ALMA Queries

The absolute position accuracy of an ALMA image will be limited by the accuracy of the phase calibrator position and the quality of the phase transfer during the observations. The latter depends on the weather conditions, the angle between the phase calibrator and the target, the cadence of observations of the phase calibrator, and the level of errors in the antenna position measurements (which are typically around the 0.1-0.2 mm level). For most cases, the position accuracy will be less than the synthesized beam width and greater than 0.1 arcseconds, unless special observing sequences are used (including the observation of several phase calibrators).

The relative positional accuracy between two sources in an image is given by ~ 0.5 * synthesized beam / SNR.