How do I recreate Manually Calibrated Total Power Data?

Andrew Lipnicky - 2023-04-18 - Archive & Data Retrieval

The ALMA TP data is generally reduced using the TP data reduction pipeline which performs calibration and imaging; very few are reduced manually using standard scripts. You can determine whether your data was reduced by Pipeline by looking for a file "PPR...xml" in the "script" subdirectory. If such a file is present, your data was pipeline-reduced.

TP datasets will often consist of many execution blocks (EBs). Each of them was calibrated individually. Imaging is done on all calibrated data together. For manually reduced data, the values that were used to convert brightness temperature in Kelvin to Jy/beam are available at the end of each calibration script. The conversion factors were derived from an observatory database for which the observatory conducts regular observations of standard single-dish calibrators and stores the measurements. This analysis is done using standard scripts. We are not providing those data by default to the users, but in case you would be interested to have them, you are welcome to contact the helpdesk of your region.

If your TP data was reduced manually, please see the official CASA guide, available at the following link: https://casaguides.nrao.edu/index.php?title=M100_Band3_SingleDish_4.5

To regenerate the calibrated data, you will need to download the raw data (ASDMs) from the ALMA archive, remove the '.asdm.sdm' extensions and then run the scripts ('*.scriptForSDcalibration.py') in the scripts folder. We recommend that you create an individual folder for each ASDM, and calibrate each ASDM in its own folder.

For the imaging, we recommend you use the provided script, as it contains certain values (e.g. beams) that must be set to a precise value. You may run the script step-by-step, as for the calibration script. Before doing that, you may need to update the paths to the calibrated data, in the msNames variable near the top of the script.

Tags
total power
tp