How can I update Cycle 0 absolute fluxes to the Butler-JPL-Horizons 2012 model standards?

Imported User 25 - 2023-11-01 - Historical Articles

Cycle 0 data reduction was done using CASA versions 3.3 and 3.4, which use the Butler-JPL-Horizons 2010 models to set the flux model for solar system objects. The fluxes of science targets were then bootstrapped from these solar system object measurements and models. With the wealth of new information now available from telescopes like Herschel, along with more detailed models of some of the more prevalent atmospheric spectral lines in solar system objects, the models were updated for the CASA 4.0 release. The new models are called Butler-JPL-Horizons 2012 and represent the current best understanding from published or publicly available work. The differences between the two sets of models are typically a few to 20%, with a significant outlier for Venus at Band 9 (38%). Whether the change is important for a specific dataset is highly dependent on individual science goals and which solar system object was used.

A CASA Guide has been published to summarize the differences between the 2010 and 2012 models and give instructions on how to update Cycle 0 data to the new flux density standard:
http://casaguides.nrao.edu/index.php?title=Solar_System_Models_in_CASA_4.0

A memo describing the details of the models and how they work in CASA can be found in the ALMA Memo Series:
https://science.nrao.edu/facilities/alma/aboutALMA/Technology/ALMA_Memo_Series/alma594/abs594

If, after reading the CASA Guide and memo, you have difficulties understanding just what to do, feel free to contact your ARC through the ALMA helpdesk (https://almascience.org).

To review the data and data products, we encourage you to download and install CASA from http://casa.nrao.edu/casa_obtaining.shtml, and to join the CASA mailing lists at http://casa.nrao.edu/mail_list.shtml to keep informed of important CASA updates.