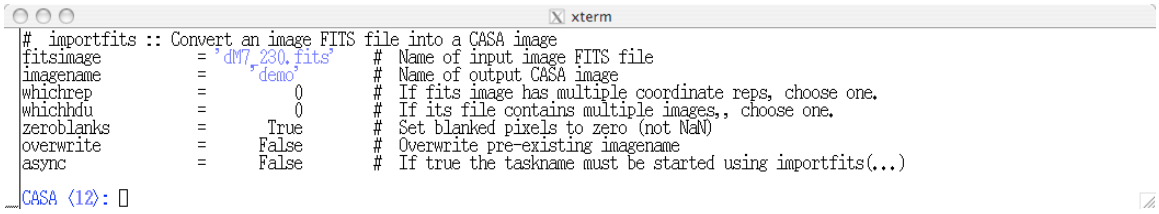
With the ALMA data reduction software, **CASA (Common Astronomy Software Applications)**, we can simulate ALMA observations to prepare for ALMA proposals.

First, you need to have a fits file of the image you want to observe with ALMA. Then, you use task 'importfits';

- default('importfits')
- inp
- fitsimage='dM7_230.fits'
- imagename='demo'



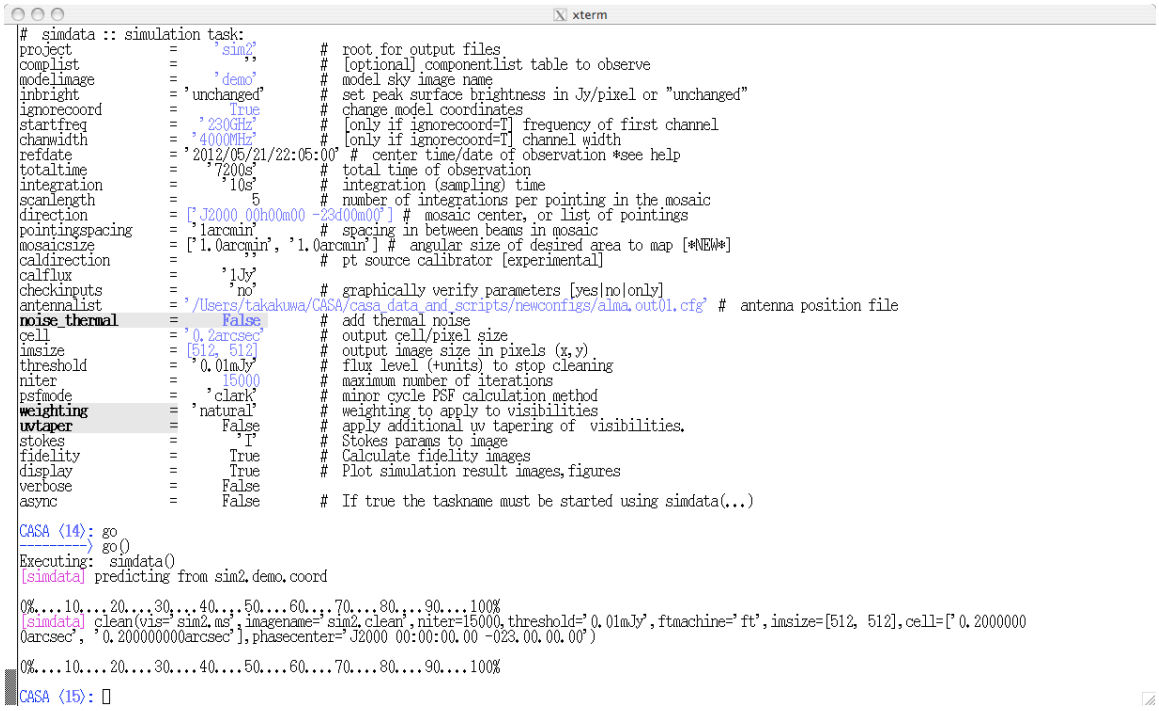
Here, dM7_230.fits is the fits image, and ``demo'' is the name of the image file in the CASA format.

- go

Now, you have a CASA image file (=demo) you want to observe with ALMA. Then, use task 'simdata';

- default('simdata')
- inp (put parameters as follows for example)
- go

Here is an example;



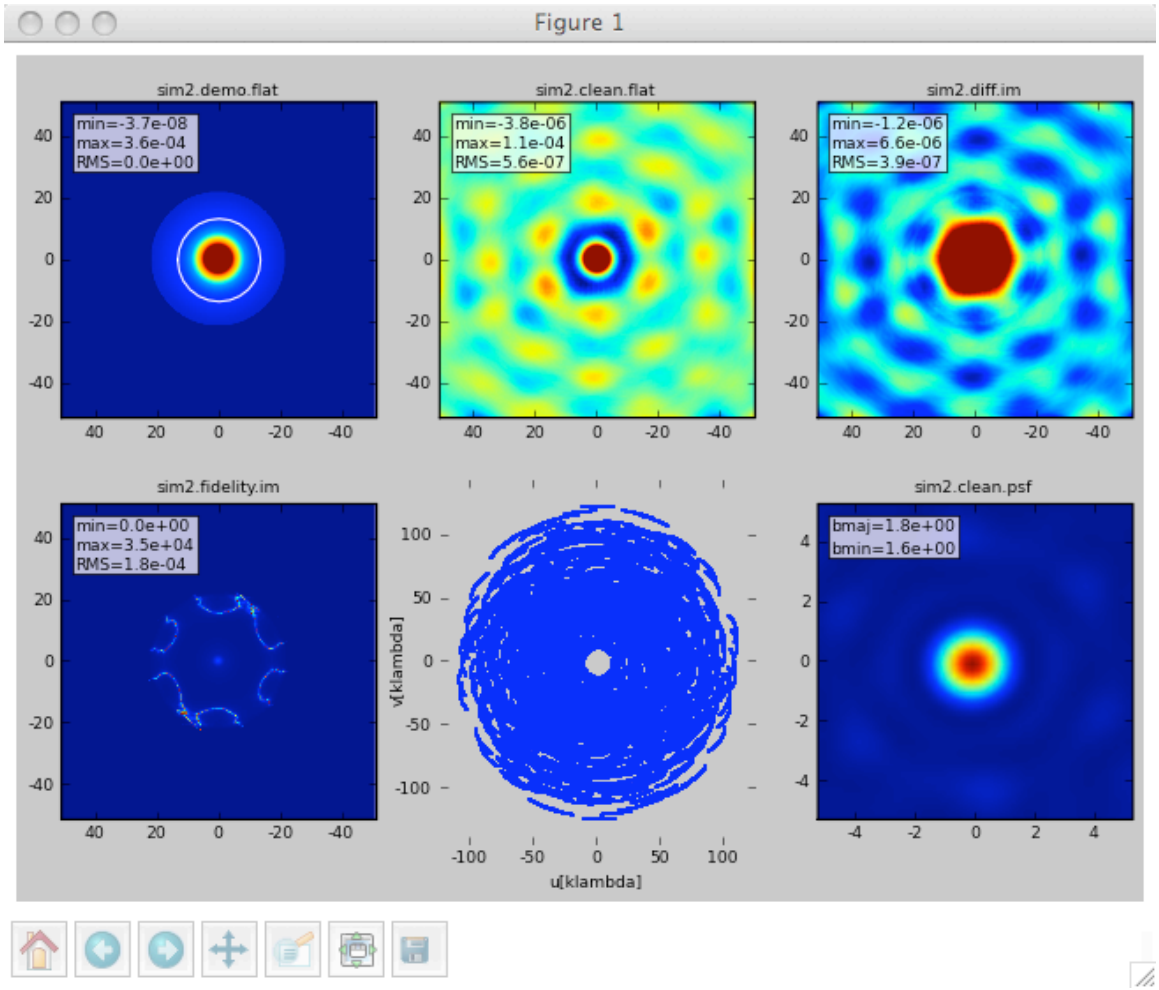
``modelimage'' is the name of the image file. ``startfreq'', ``chanwidth'' specify the frequency in the first correlator channel and the channel width, respectively. ``totaltime'' and ``integration'' specify the total observing time and the sampling time, respectively. ``direction'' is the source coordinate. ``antennalist'' specifies the text file of the ALMA antenna coordinates (i.e., baselines). ``cell'', ``imsize'' specify the resultant image cell size and the dimensions. ``niter'' is the maximum interation of CLEAN, and ``weighting'' and ``uvtaper'' specify imaging weighting and taper parameters.

For more details, you can read the help file;

➢ help simdata

You can obtain some detailed instruction on simdata.

and the result is;



The above example is an observing simulation of the extended (~40") disk with the 12-m array at high angular resolution, and hence the extended components are significantly missed.

Simdata is sophisticated, with lots of parameters that you can play with. Basic understanding of interferometric imaging is required to use it properly.