James Miller-Jones
2009 June 29

The data in question are from project code AT166, and these instructions aim to deal with the 5-GHz C-band data. I assume that acalibrated, single-source uv-dataset is available, denoted as 3C129.SPLIT.1

##
First of all, plot the data
Assume i is the catalog number of this SPLIT file
Find the relevant number using ucat

UVPLT
default uvplt
getn i
dotv 1
docal -1
gainuse 0
sources ''
stokes 'i'
go
This plots amplitude against distance from the centre of the uv-plane. Note the maximum baseline out to which the plot goes, b_max (in klambda). Use this to calculate the required pixel size (3-5 pixels across the resolution element).
Also calculate the required image size to image the full primary beam. FWHP beamsize for a 25m dish ~ 45arcmin/frequency(GHz)
cellsi = 3600*180/(5*pi*uvmax*1000)
imsi = 45*60/(freq(GHz)*cellsi)
If there is any bad data, get rid of it with TVFLG

##
TVFLG
default tvflg
getn i
dparm(3) 1
outfgver 1
go
##
Now image the source IMAGR
default imagr
getn i

flagver 1
cellsi 0.22
imsi 2048
uvwtfn 'n'
dotv 1
niter 2000
boxfile 'PWD:3c129.box'
oboxfile boxfile
go
Image size must be a power of 2.
Now interactively CLEAN the image until you don't trust any of the remaining flux. Then stop CLEANing.
##
Inspect the final image.
j is the catalog number of the resulting ICL001 file
getn j ; tvin ; tvlo ; tvps
Find the rms noise
tvwin ; imstat
imh or qh: print the max, min flux in the CLEANed image
##
Plot up the pixel distribution
IMEAN
default imean
getn j
doinver 1
dohis 2
dotv 1
pixavg 0
pixstd 0
tvin
tvwin
go
This places the rms noise in the image header, as ACTNOISE
##
Now self-calibrate the data, using your image as a model
CALIB
default calib
getn i
get2n j
cmethod 'dft'
cmodel 'comp'
refant 22
solint 2
solmo 'p'
go
This writes an SN table and a CALIB file (catalog number k)

##
Inspect the solutions
SNPLT
default snplt
getn j
inext 'sn'
inver 1
dotv 1
nplot 9
opty 'phas'
go
Ensure the phases vary smoothly with time
##
Re-image the data
IMAGR
tget imagr
getn k
niter 5000
go
Produces a file ICL001.2, which has catalog number m
##
Assess the new rms noise
IMEAN
tget imean
getn m
go
##
Try an amplitude and phase selfcal
CALIB
getn k
get2n m
solint 20
solmo 'a&p'
cparm(2) 1
go
Produces new CALIB file (catalog number n) and new SN table
##
Now you MUST inspect the data to check it did something sensible
SNPLT
tget snplt
getn k
inext 'sn'
inver 1
dotv 1
nplot 9
opty 'amp'

go
Ensure the amplitudes are relatively uniform
UVPLT
tget uvplt
getn n
go
##
Now make the final image
IMAGR
tget imagr
getn n
go
##