default

LOFAR Wiki - https://www.astron.nl/lofarwiki/

## **VLBI** Tutorial

Enno will have us working on a VLBI dataset. LOFAR is fundamentally a VLBI instrument, so it will be useful to explore how VLBI is different from connected-element interferometry.

## Testing

## J Eisloeffel's notes

load the data, get FITS files from http://www.astro.rub.de/middelberg/tmp/v211a\_calib.fits http://www.astro.rub.de/middelberg/tmp/v211b calib.fits chdir to directory where FITS files are, then start Aips load the data \_\_\_\_\_ tget fitld (or use "task 'fitld'") default datain 'PWD:v211a\_calib.fits outname 'v211a' qo Do the same with the other file \_\_\_\_\_ tget fitld default datain 'PWD:v211b calib.fits outname 'v211b' qo make sure the new files have catalog numbers 1 and 2! Take a look at the scans \_\_\_\_\_ tget listr

```
getn 1
optype 'SCAN
go
plot spectra
_____
              * or task 'possm'
tget possm
default
getn 1
dotv 1
flagver -1
nplots 4
aparm (9) 1
solint 1
aparm 0, 1, 0, 0, -180, 180, 0, 0, 1, 0
qo
* stop possm by clicking into the window and then pressing d like "done"
* where do the slopes and offsets across the band come from?
* how would one fix it?
plot the spectra with first calibration
_____
tget possm
default
getn 1
dotv 1
docalib 1
gainuse 2
flagver -1
nplots 4
aparm (9) 1
solint 1
aparm 0, 1, 0, 0, -180, 180, 0, 0, 1, 0
go
the edges of the passband have low amplitudes, flag them:
_____
tget possm
default
getn 1
dotv 1
```

docalib 1 gainuse 2 flagver 1 nplots 4 aparm (9) 1 solint 1 aparm 0, 1, 0, 0, -180, 180, 0, 0, 1, 0 go Now we can average the data across the band and have a look at the phases as a function of time \_\_\_\_\_ tget vplot \* or task 'vplot' tvinit default getn 1 nplots 6 docalib 1 gainuse 2 dotv 1 flagver 1 bchan 1 echan 64 avgif 1 bparm 0 2 go Hmmm, that was a bit messy, zoom into a short section \_\_\_\_\_ tget vplot tvinit default getn 1 nplots 6 docalib 1 gainuse 2 dotv 1

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timerang 1 0 0 0 1 2 0 0

flagver 1 bchan 1 echan 64 avgif 1 bparm 0 2

go

```
*** some tests done on the spot
timerang 1,0,0,0,1,2,0,0
bparm 0
go
timerang 0
go
Look at the uv plane coverage
_____
tget uvplt * or task 'uvplt'
tvinit
default
getn 1
bparm 6 7
bif 1
eif 1
bchan 30
echan 30
dotv 1
go
Compare that to the uv plane coverage of the v211b file (after above
commands, just "getn 2" and "go" again).
tget imagr
             * or task 'imagr'
default
getn 1
sources '0022-423'
docalib 1
gainuse 6
bchan 1
echan 64
bif 1
eif 4
nchav 64
flagver 1
outname 'DEMO'
cellsi 0.002 0.002
imsize 1024
niter 100
dotv 1
go
```

dowait 1

- $\ast$  set a box around the dirty image
- \* clean with a small clean window
- \* continue cleaning
- \* stop cleaning

## tvzoom

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