

Sep 13, 13 11:46

VLBI_TUTORIAL_2

Page 1/2

Which source have we lost and why?

=====

```
>task 'vplot'
>default
>antennas 1 0
>baseline 0
>docal -1
>sources ''
>bif 3; eif 3
>bchan 1; echan 16
>avgchan 1 - although with 'docal -1' data are not calibrated!!!
>xinc 1
>solint 0.5
>bparm 12 1
>stokes 'rr'
>flagver 1
>doband -1
>nplots 1
>dotv 1
>tvini; go
```

>docal 1; gainuse 4 ==> a scan (or more) disappears!
Use LISTR to find out which source was observed in that scan!

{With bparm 12 2 one may check the effect of calibration on the phases as well;
docal -1/1}

Which telescope have we lost and why?

=====

Well, first of all we lost it because it started observations later, and therefore data were not in IDI1. But we would have lost it anyway because of our very first calibration step...

Plotting the data (full timerange) with VPLOT one could find this out (comparing docal -1 and docal 1 plots). Plotting sometimes takes a lot of time, why do not we check the Pipeline plots in the EVN Archive!

Imaging the phase-reference source

=====

Use either own calibrated data (we do not need the 'lost' telescope now), or read in the pipeline-calibrated uv-data for the phase-reference and the target sources.

```
>tvini
>task 'imagr'
>default
>getn 5
AIPS 1: Got(1)   disk= 1  user=1000  type=UV   J1217+3007.UVDATA.1
>cellsize 0.001      (i.e. 1 milliarcsecond)
>antennas 1, 2, 3, 4, 5, 6, 7, 8
>baseline 1, 2, 3, 4, 5, 6, 7, 8      (for now, limiting to western-EVN only)
>imsize 512
>robust -3
>niter 10000
>dotv 1; go
```

Sep 13, 13 11:46

VLBI_TUTORIAL_2

Page 2/2

We will have to use boxes interactively to clean this - beam is not as well behaved as in the case of JVLA...

```
>tvpseudo    - to see if we have some structure there (?)
>tvini
```

To make a contour/grey scale plot of the image:

```
>getn ...
>task 'kntr'
>dovec -1
>levs = -1, 1, 2, 4, 8, 16, 32, 64...
>clev = 0.001-0.010          (play and see the effect)
```

Note 'dotv -1' creates a plot that can be looked at with the TEK server. From this PL file one can make a postscript output using the task 'LWPLA'.

TIP: with phase and amplitude self-calibration the image can be improved further. The SN tables resulting from this calibration can be passed to the target as well, to remove the structural phase effects of the phase-reference source from the data.

Imaging of the target
=====

Try it first without using any CLEAN windows.

```
>tget imagr
>getn 3
AIPS 1: Got(1)   disk= 1  user=1000   type=UV   J121839.7.UVDATA.1
>antennas 1, 2, 3, 4, 5, 6, 7, 8      (as before,
>baseline 1, 2, 3, 4, 5, 6, 7, 8      ignore Merlin outstations and Ar...)
>cellsize 0.002                        (still enough; get large FOV)
>tvini
>go
```

KNTR - play with clev between 0.0001 and 0.001

Note (brightest feature of the) source is offset from phase centre -why?

With 'robust -3' we do not see much extended structure. Try to get more sensitivity with higher robust parameter: 0, 3, 5. The last one is close to pure natural weighting that gives the best sensitivity (but somewhat reduced resolution). However, in this special case it seems 'robust 0' works the best. Also, use windows to constrain the extended structure better; this way you do not clean in the sidelobes. Rebox keeps your previous boxes and you can add new ones.

1 - Ef, 2 - Mc, 3 - On, 4 - Tr, 5 - Wb, 6 - Sh, 7 - Cm, 8 - Jb,
9 - Da, ... (no more Merlin outstations in the data), 13 - Ar