

LOFAR synthesis data handling Miscellaneous Tools

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Table Browser

GER.MS

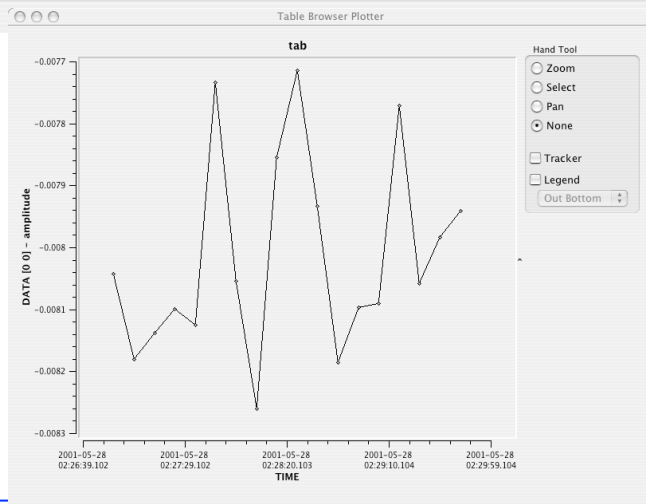
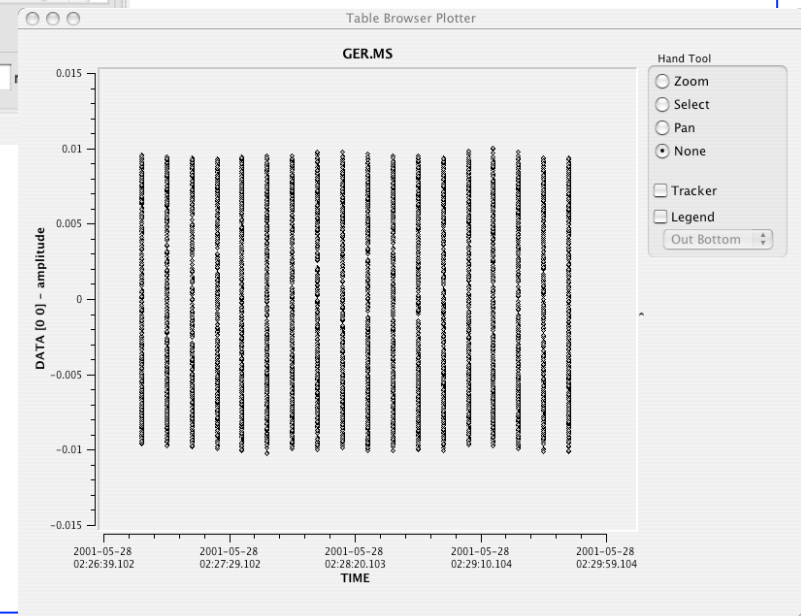
	UVW	ANTENNA1	ANTENNA2	ARRAY_ID	PROCESSOR_ID	EXPOSURE	FEED1	FEED2	FIELD_ID	FLAG_ROW	INTERVAL
0	[183.035, 1386.46, -2337.42]	0	13	0	-1	9.9549184...	0	0	0	0	10
1	[176.584, 1337.6, -2255.05]	0	12	0	-1	9.9549184...	0	0	0	0	10
2	[172.549, 1312.07, -2214.57]	1	13	0	-1	9.9549184...	0	0	0	0	10
3	[166.128, 1263.25, -2132.17]	1	12	0	-1	9.9549184...	0	0	0	0	10
4	[164.871, 1237.6, -2091.55]	2	13	0	-1	9.9549184...	0	0	0	0	10
5	[158.372, 1188.83, -2009.12]	2	12	0	-1	9.9549184...	0	0	0	0	10
6	[153.45, 1164.71, -1967.88]	3	13	0	-1	9.9549184...	0	0	0	0	10
7	[147.022, 1115.93, -1885.46]	3	12	0	-1	9.9549184...	0	0	0	0	10
8	[145.271, 1092.64, -1843.47]	4	13	0	-1	9.9549184...	0	0	0	0	10
9	[138.778, 1043.81, -1761.08]	4	12	0	-1	9.9549184...	0	0	0	0	10
10	[132.635, 1018.26, -1720.78]	5	13	0	-1	9.9549184...	0	0	0	0	10
11	[126.28, 969.486, -1638.35]	5	12	0	-1	9.9549184...	0	0	0	0	10
12	[127.222, 944.644, -1597.08]	6	13	0	-1	9.9549184...	0	0	0	0	10
13	[120.655, 895.891, -1514.65]	6	12	0	-1	9.9549184...	0	0	0	0	10

Restore Columns Resize Headers

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```
python
from pyrap.tables import *
t = table('GER.MS')
t1 = t.query('DATA_DESC_ID=0')
t1.browse()
```

casabrowser ('GER.MS')



casaviewer (ms)

```
python
```

```
from pyrap.tables import *  
t = table('GER.MS')  
t1 = t.query('DATA_DESC_ID=0')  
t1.view()
```

```
casaviewer ('GER.MS')
```

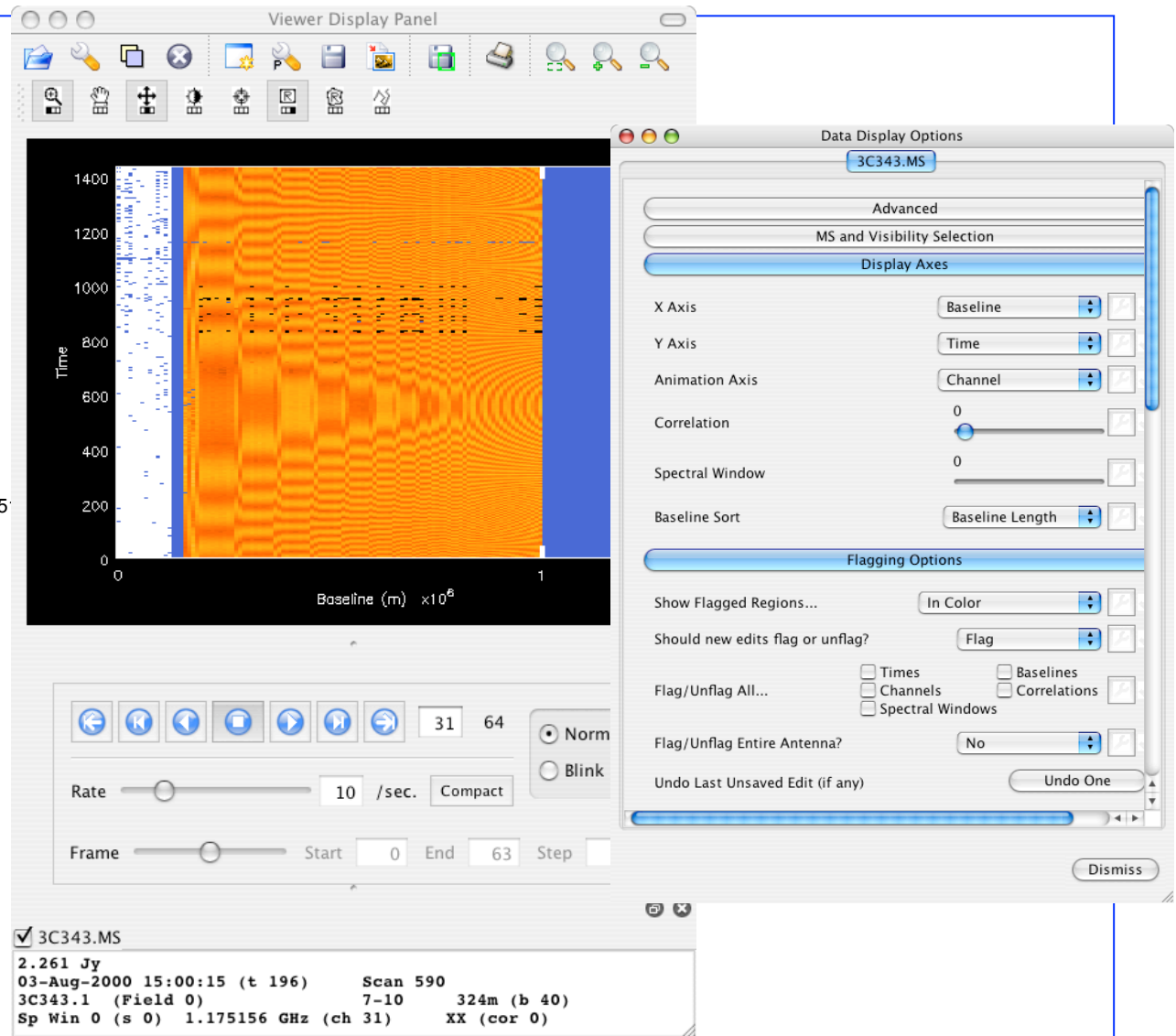
Sorting... Done.

/Users/diepen/3C343.MS

Selected MS: Time slots: 1437 Baselines (incl. gaps): 15
Correlations: 4 Channels: 64 Spectral Windows: 1

Loading MS vis. data: 28% 47% 80% 89% Done.

Resorting MS vis. data: 38% 95% Done.



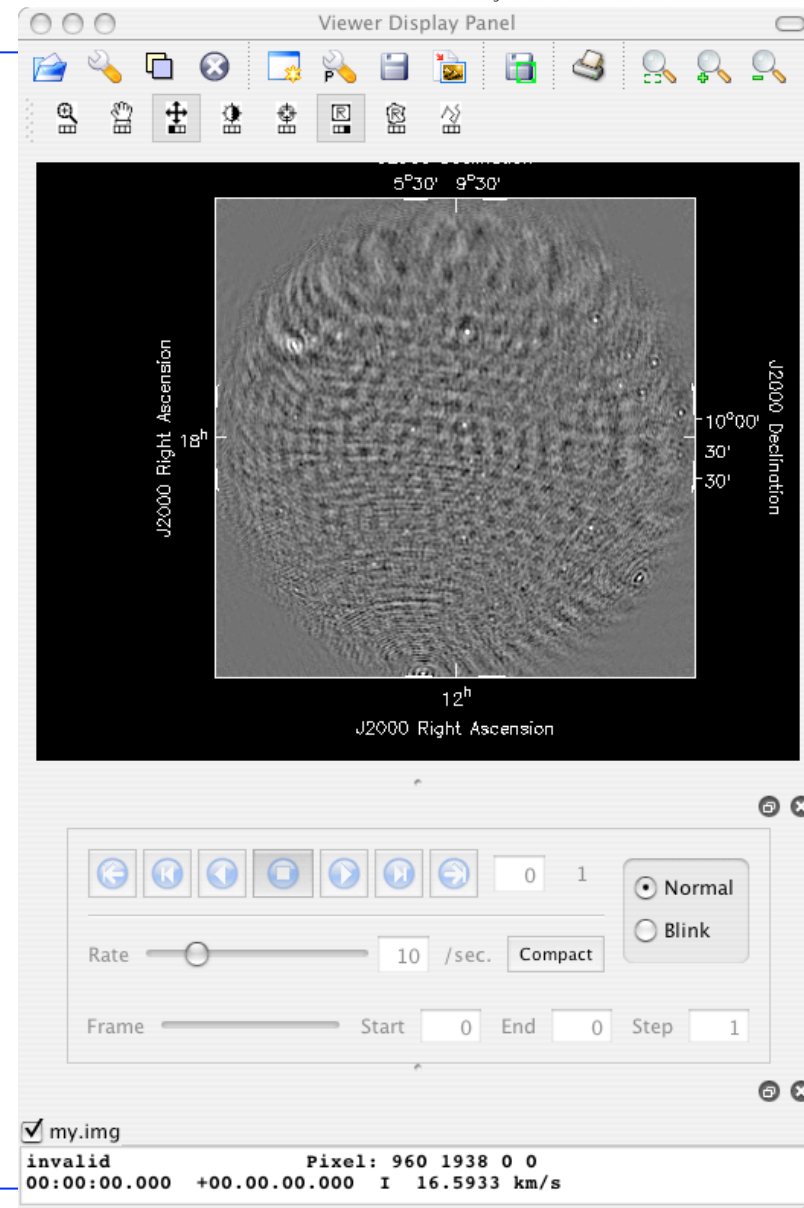
The screenshot shows the casaviewer software interface. The main window is titled "Viewer Display Panel" and displays a data visualization. The Y-axis is labeled "Time" and ranges from 0 to 1400. The X-axis is labeled "Baseline (m) x10⁶" and ranges from 0 to 1. The plot shows a heatmap of data points, with a vertical blue bar on the left side. Below the plot is a control panel with navigation buttons (back, forward, home, stop, play, refresh), a "Rate" slider set to 10 /sec., and a "Frame" slider with "Start" at 0, "End" at 63, and "Step" at 1. A "Norm" button is also present. At the bottom of the window, there is a status bar showing the selected MS file: "3C343.MS" with details: "2.261 Jy", "03-Aug-2000 15:00:15 (t 196)", "Scan 590", "3C343.1 (Field 0)", "7-10 324m (b 40)", "Sp Win 0 (s 0) 1.175156 GHz (ch 31) XX (cor 0)".

Overlaid on the right side of the main window is a "Data Display Options" dialog box for the file "3C343.MS". The dialog has two main sections: "Advanced" and "MS and Visibility Selection". Under "Advanced", there are "Display Axes" settings: X Axis (Baseline), Y Axis (Time), Animation Axis (Channel), Correlation (0), Spectral Window (0), and Baseline Sort (Baseline Length). Under "Flagging Options", there are settings for "Show Flagged Regions..." (In Color), "Should new edits flag or unflag?" (Flag), "Flag/Unflag All..." (Times, Channels, Spectral Windows, Baselines, Correlations), "Flag/Unflag Entire Antenna?" (No), and "Undo Last Unsavd Edit (if any)" (Undo One). A "Dismiss" button is at the bottom right.

casaviewer (image)

```
python
from pyrap.images import *
im = image('my.img')
im.view()
```

```
casaviewer ('my.img')
```



msselect

- select baselines from an MS using CASA's syntax

msoverview in=msname [verbose=T]

- summary of a MeasurementSet

showtable in=msname

- show structure of table (columns, data managers); use `-h` for help

showtablelock my.ms

- show which process holds a lock on table my.ms

makems

- make a MeasurementSet with data=0 (for simulations)
 - See <http://www.lofar.org/wiki/lib/exe/fetch.php?media=software:makems.pdf>

makebeamtables

- Attach the beam info tables (needed for BBS, smart demixing, imaging)
 - See <http://www.lofar.org/wiki/doku.php?id=engineering:software:tools:makebeamtables>

lwimager

- Make an image from an MS (using CASA classes)
 - See `lwimager -h`
 - `operation=empty` makes a zero image with correct coordinates

cexecms

- Execute a command on all subbands of an observation

See also <http://www.lofar.org/operations/doku.php?id=engineering:software:tools>

Select baselines from an MS

- uses CASA-style baseline selection
- can make shallow or deep copy
- See <http://www.lofar.org/wiki/lib/exe/fetch.php?media=software:msselection.pdf>

```
msselect in=in.ms out=out.ms baselines='CS*'
```

creates out.ms (as RefTable) containing all cross-corr baselines with core stations.

```
msselect in=in.ms out=out.ms baselines='CS* &' deep=T
```

creates out.ms (a deep copy) containing core-core baselines (only cross-corr).

```
msselect in=in.ms out=out.ms baselines='CS* &&' deep=T
```

creates out.ms (a deep copy) containing core-core baselines (auto-corr and cross-corr).

- Uses cexec to execute a command for matching file names on nodes in a cluster
- Replaces placeholders like <FN> with actual file name
- Deduces cluster name from head node (Ice: or locus:).
 - Use -c to override like
 - c 'locus: 0-5'
- Execute without arguments to get help info

```
cexecms "ls -d <FN>" "/data/scratch/pipeline/L23276/L23276*"
```

finds all subbands for the given observation (using a wildcarded file name).

Note: quotes have to be used around command and file name pattern.

```
cexecms "taql 'update <FN>/ANTENNA set MOUNT=\"X-Y\"'" "/data/scratch/pipeline/  
L2011_23138/*.dppp"
```

fixes the MOUNT column in the gives MSs.

Note: 3 levels of quotes are needed (X-Y, taql command, and cexecms command).

This command only works for bash. In (t)csH the inner quotes have to be escaped differently like:

```
cexecms "taql 'update <FN>/ANTENNA set MOUNT=\"'X-Y'\"'" "/data/scratch/pipeline/  
L2011_23138/*.dppp"
```

- Use -s option to execute a script
 - can be python script, parset file, ...

For example:

count flagged data in all (raw) MSs of an observation

```
use LofIm
```

```
cexecms -s $HOME/nd.pset NDPPP '/data/L42791/*.MS' > count.log
```

with nd.pset containing:

```
msin=<FN>
```

```
msout=
```

```
steps=[count]
```