

UV-data analysis in practice



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General Picture

image plane

uv plane

brightness (x,y)

visibility (u,v)

$$\longleftrightarrow \mathcal{FT} \longrightarrow$$



What we want



What we obtain with an interferometer

General Picture

image plane

uv plane

brightness (x,y)

visibility (*u,v*)^{instr}

IPB data
(raw data)



Calibration



hpb files

Imv* (gdf)

Gridding

visibility (*u,v*)^{obs}

uv-table

brightness (x,y)^{*uv*}



- Data processed enough to have removed all instrumental contribution

- Data raw enough to access to observational characteristics: baseline, scan, weight, etc.

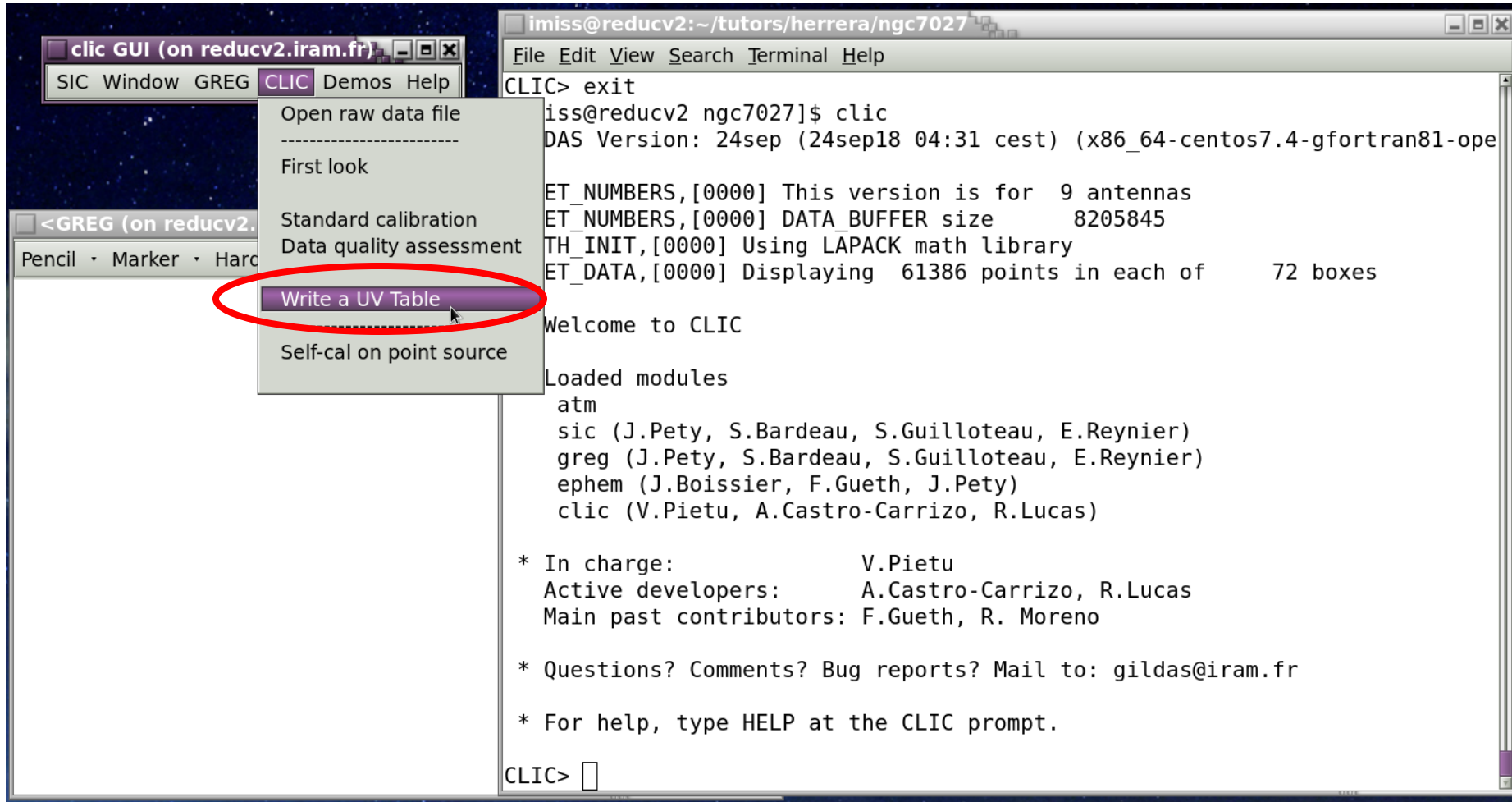
- Data not yet affected by the 'imaging process': assumptions, interpolations, computations, etc.

Summary

1. Let's create a uv -table, in **CLIC**
2. Data analysis, in **MAPPING**
 - Data analysis in the uv -plane
 - An inspection of the uv -data needed

Let's create a table ("mytable".uvt),
in **CLIC**

Creating a *uv*-table; CLIC



The image shows a screenshot of a computer interface. On the left, there is a window titled "clik GUI (on reducv2.iram.fr)". It has a menu bar with "SIC Window GREG CLIC Demos Help". A dropdown menu is open from the "CLIC" menu, listing several options: "Open raw data file", "First look", "Standard calibration", "Data quality assessment", "Write a UV Table" (which is highlighted with a red circle), and "Self-cal on point source". Below the menu is a toolbar with "Pencil", "Marker", and "Hard" buttons.

On the right, there is a terminal window titled "imiss@reducv2:~/tutors/herrera/ngc7027". The terminal shows the following text:

```
imiss@reducv2:~/tutors/herrera/ngc7027
File Edit View Search Terminal Help
CLIC> exit
imiss@reducv2 ngc7027]$ clic
DAS Version: 24sep (24sep18 04:31 cest) (x86_64-centos7.4-gfortran81-ope
ET_NUMBERS,[0000] This version is for 9 antennas
ET_NUMBERS,[0000] DATA_BUFFER size      8205845
TH_INIT,[0000] Using LAPACK math library
ET_DATA,[0000] Displaying 61386 points in each of      72 boxes

Welcome to CLIC

Loaded modules
atm
sic (J.Pety, S.Bardeau, S.Guilloteau, E.Reynier)
greg (J.Pety, S.Bardeau, S.Guilloteau, E.Reynier)
ephem (J.Boissier, F.Gueth, J.Pety)
clik (V.Pietu, A.Castro-Carrizo, R.Lucas)

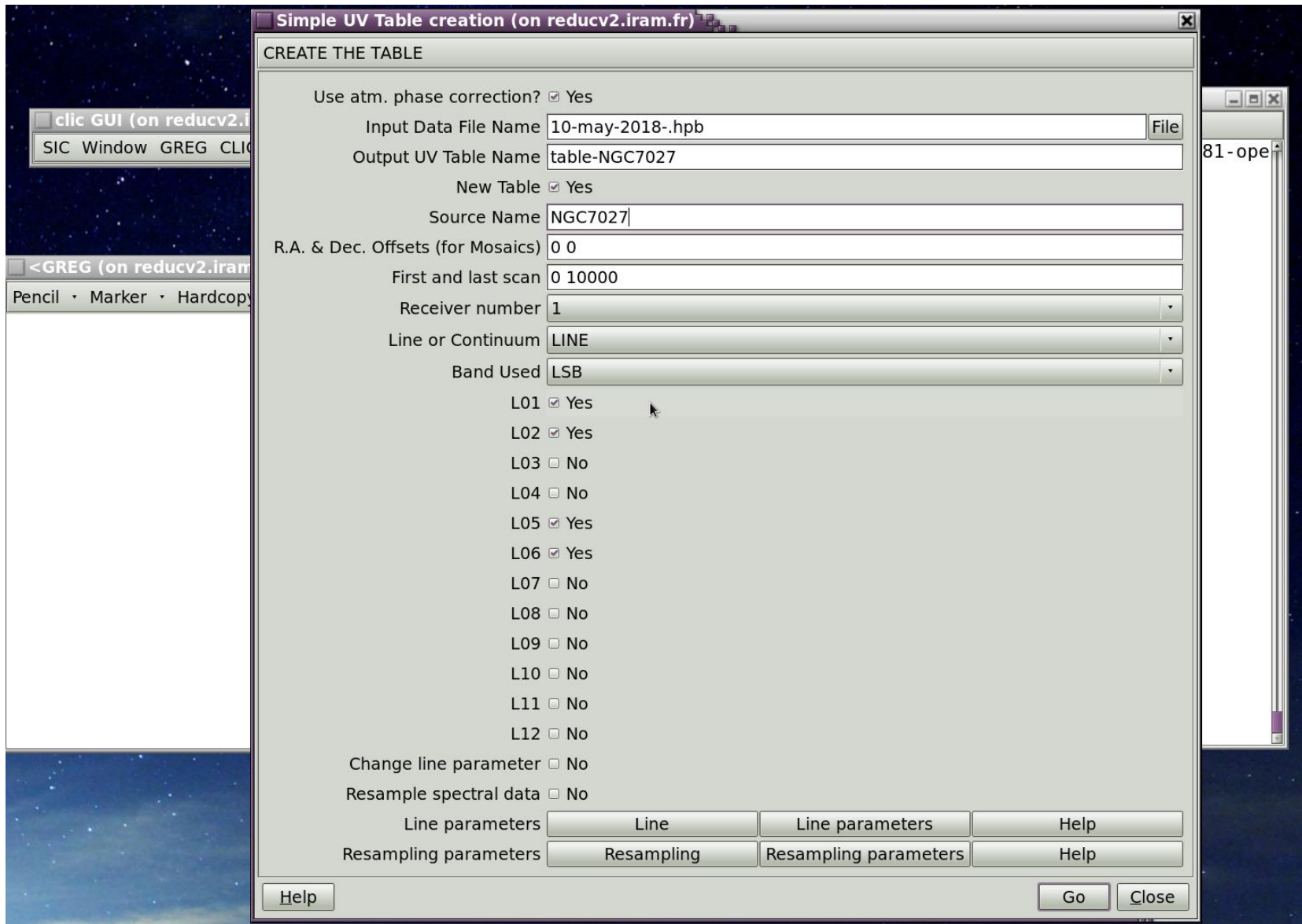
* In charge:          V.Pietu
Active developers:   A.Castro-Carrizo, R.Lucas
Main past contributors: F.Gueth, R. Moreno

* Questions? Comments? Bug reports? Mail to: gildas@iram.fr

* For help, type HELP at the CLIC prompt.

CLIC> 
```

Creating a *uv*-table; CLIC



Creating a *uv*-table; CLIC

Simple UV Table creation (on reducv2.iram.fr)

CREATE THE TABLE

Use atm. phase correction? Yes

Input Data File Name

Output UV Table Name

New Table Yes

Source Name

R.A. & Dec. Offsets (for Mosaics)

First and last scan

Receiver number

Line or Continuum

Band Used

Line parameters Line parameters

Resampling parameters Resampling parameters

Creating a *uv*-table; CLIC

Simple UV Table creation (on reducv2.iram.fr)

CREATE THE TABLE

Use atm. phase correction? Yes

Input Data File Name File

Output UV Table Name

New Table Yes

Source Name

R.A. & Dec. Offsets (for Mosaics)

First and last scan

Receiver number

Line or Continuum

Band Used

L01 Yes

L02 Yes

L03 No

L04 No

L05 Yes

L06 Yes

L07 No

L08 No

L09 No

L10 No

L11 No

L12 No

Change line parameter No

Resample spectral data No

Line parameters

Resampling parameters

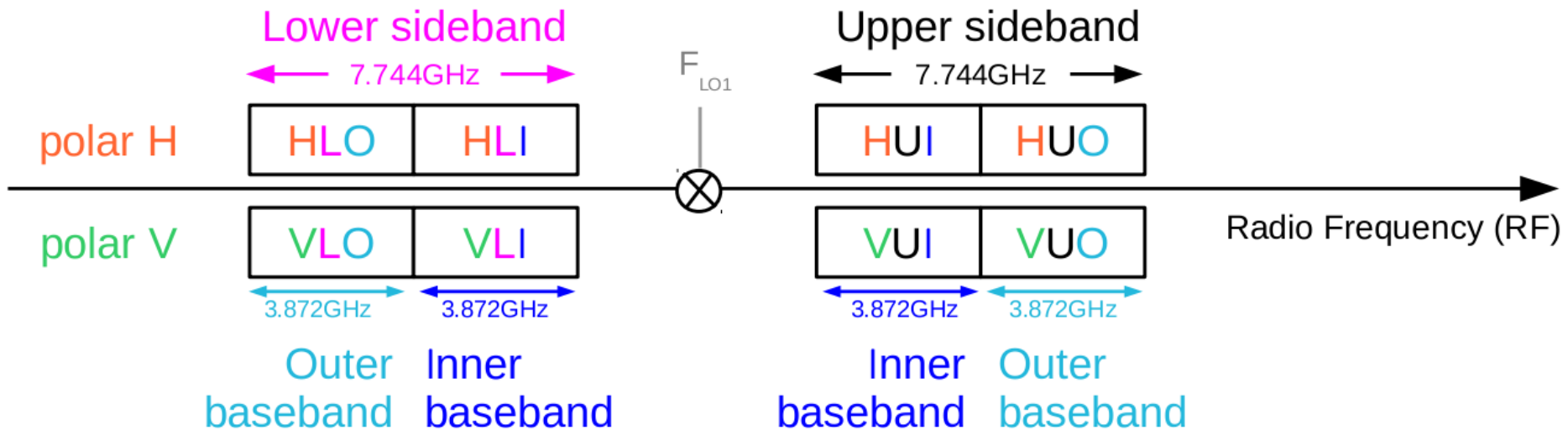
Low
resolution
units

Some high
resolution
units

Spectral Units

Creating a *uv*-table; CLIC

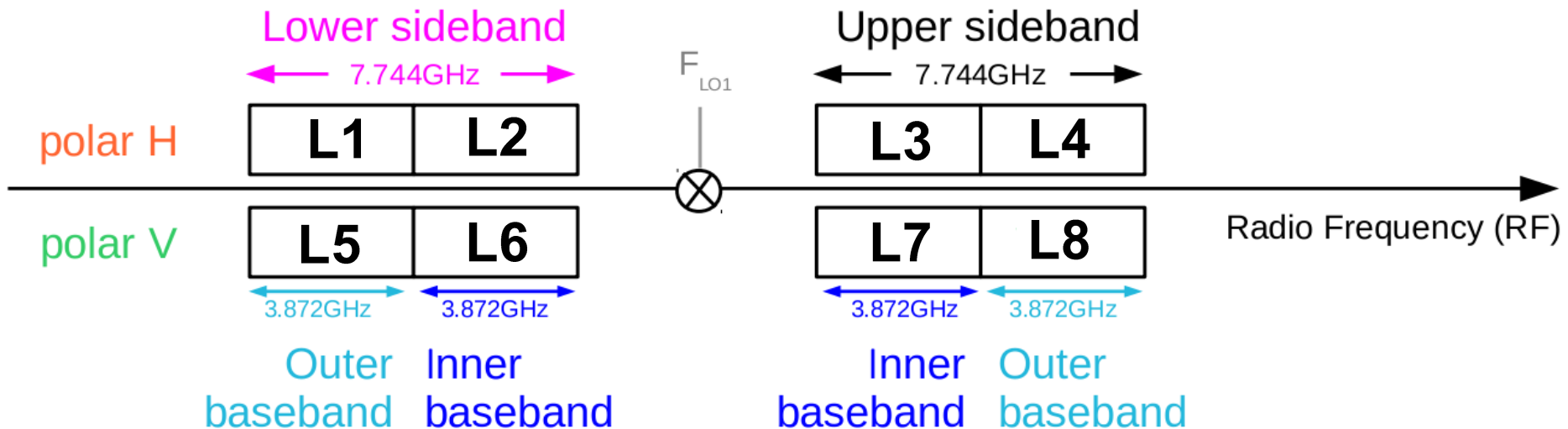
PolyFix



... more about PolyFiX on Friday morning

Creating a *uv*-table; CLIC

PolyFix



... more about PolyFiX on Friday morning

Creating a *uv*-table; CLIC

The screenshot displays the 'Simple UV Table' software interface. A central dialog box titled 'Band Used' is open, showing a list of spectral lines from L01 to L12. Each line has a checkbox and a 'Yes' or 'No' selection. L01, L02, L05, and L06 are checked and set to 'Yes', while L03, L04, L07, L08, L09, L10, L11, and L12 are unchecked and set to 'No'. The dialog also includes a 'File' input field and a 'Go' button. In the background, the main software window is visible, showing a 'CREATE THE TABLE' section with options for 'or Continuum' (set to 'LINE') and 'Band Used' (set to 'LSB'). Other visible text includes 'Use atm. ph...', 'Input I...', 'Output I...', 'R.A. & Dec. Offse...', 'Firs...', 'Re...', 'Line...', 'Change...', 'Resampl...', 'Li...', and 'Resampli...'. A red text overlay 'ral Units' is positioned to the right of the dialog box. The background also shows a 'clac GUI (on reducv2.1)' window and a '<GREG (on reducv2.iran)' window with a toolbar containing 'Pencil', 'Marker', and 'Hardcopy' options.

Simple UV Table

CREATE THE TABLE

or Continuum **LINE**

Band Used **LSB**

L01 Yes

L02 Yes

L03 No

L04 No

L05 Yes

L06 Yes

L07 No

L08 No

L09 No

L10 No

L11 No

L12 No

Use atm. ph...

Input I...

Output I...

R.A. & Dec. Offse...

Firs...

Re...

Line...

Change...

Resampl...

Li...

Resampli...

File

81 - ope...

parameters Help

ooling parameters Help

Go Close

clac GUI (on reducv2.1)

SIC Window GREG CLIC

<GREG (on reducv2.iran)

Pencil ▾ Marker ▾ Hardcopy

ral Units

Creating a *uv*-table; CLIC

Simple UV Table creation (on reducv2.iram.fr)

CREATE THE TABLE

Use atm. phase correction? Yes

Input Data File Name File

Output UV Table Name

New Table Yes

Source Name

R.A. & Dec. Offsets (for Mosaics)

First and last scan

Receiver number

Line or Continuum

Band Used

L01 Yes

L02 Yes

L03 No

L04 No

L05 Yes

L06 Yes

L07 No

L08 No

L09 No

L10 No

L11 No


L12 No

Change line parameters No

Resample spectral data No

Line parameters

Resampling parameters



Creating a uv-table; CLIC

The screenshot displays the 'Simple UV Table creation' application window. A modal dialog box titled 'Line parameters (on reducv2.iram.fr)' is open, allowing the user to modify line parameters. The dialog contains the following elements:

- A checkbox for 'Change line parameter' which is checked and labeled 'Yes'.
- A text input field for 'Line Name' containing the value 'lsb'.
- A text input field for 'Rest Frequency (MHz)' containing the value '96200'.
- Buttons for 'Help', 'Go', and 'Close'.

In the background, the main application window is visible, showing a list of lines (L04 to L12) with checkboxes for 'Change line parameter'. The 'Yes' checkbox for L12 is circled in red. Below the list, there are buttons for 'Line parameters', 'Resampling', and 'Resampling parameters', with the 'Line parameters' button also circled in red. A smaller version of the 'Line parameters' dialog box is shown below the main one, connected by lines, indicating its position in the background.

Creating a *uv*-table; CLIC

Resampling parameters (on reducv2.iram.fr)

Resample spectral data Yes

New number of channels

New reference channel

Velocity at the reference channel

New resolution

Help **Go** **Close**

L04 No
L05 Yes
L06 Yes
L07 No
L08 No
L09 No
L10 No
L11 Yes
L12 No

Change line parameter Yes
Resample spectral data Yes

Line parameters
Resampling parameters

Help **Go** **Close**

Creating a *uv*-table; CLIC

Resampling parameters (on reducv2.iram.fr)

Resample spectral data Yes

New number of channels

New reference channel

Velocity at the reference channel

New resolution

UV resampling can be also done in mapping
MAPPING> uv_resample

Help Go Close

L11 Yes
L12 No
Change line parameter Yes
Resample spectral data Yes

Line parameters Line Line parameters Help
Resampling parameters Resampling **Resampling parameters** Help

Help Go Close

Creating a uv-table; CLIC

Simple UV Table creation (on reducv2.iram.fr)

CREATE THE TABLE

Use atm. phase correction? Yes

Input Data File Name File

Output UV Table Name

New Table Yes

Source Name

R.A. & Dec. Offsets (for Mosaics)

First and last scan

Receiver number

Line or Continuum

Band Used

L01 Yes

L02 Yes

L03 No

L04 No

L05 Yes

L06 Yes

L07 No

L08 No

L09 No

L10 No

L11 No

L12 No

Change line parameter Yes

Resample spectral data Yes

Line parameters

Resampling parameters

Creating a *uv*-table; CLIC

```
imiss@reducv2:~/tutors/herrera/ngc7027
File Edit View Search Terminal Help
RF Passband Calibration is applied
RF Passband Calibration is frequency dependent
RF Passband Calibration is antenna-based
RF Passband Calibration from input file
Selection is LINE, LSB      , L001 L002 L005 L006
All frequencies selected.
I-FIND,[1645] New generation receivers data
I-FIND,[1645]      417 observations found
I-GET,[2324] Entry 935 Observation 935; 26
I-SET_DATA,[2324] Displaying 61386 points in each of      72 boxes
I-CLIC, Primary beam size 52.3908539      "
I-GET,[2323] Entry 934 Observation 934: 26
W-TABLE,[2323] Spectrum resampling is needed, obs. # 934 Scan 2323
W-TABLE,[2323] Frequency resolutions : 1.9999642372131348      -0.12835546574489437
W-TABLE,[2323] Reference channels : 1951.9847154268400      200.000000000000000
W-TABLE,[2323] Number of channels : 3859      400
I-GET,[2322] Entry 933 Observation 933; 26
I-GET,[2321] Entry 932 Observation 932; 29
I-GET,[2320] Entry 931 Observation 931; 32
I-GET,[2319] Entry 930 Observation 930; 32
I-GET,[2318] Entry 929 Observation 929; 32
I-GET,[2317] Entry 928 Observation 928; 27
I-GET,[2316] Entry 927 Observation 927; 27
```

Creating a *uv*-table; CLIC

```
imiss@reducv2:~/tutors/herrera/ngc7027
File Edit View Search Terminal Help
I-GET,[1655] Entry 103 Observation 103; 12
I-SET_PASS,[1655] RF recomputation not needed
I-GET,[1654] Entry 102 Observation 102; 12
I-SET_PASS,[1654] RF recomputation not needed
I-GET,[1653] Entry 101 Observation 101; 12
I-SET_PASS,[1653] RF recomputation not needed
I-GET,[1652] Entry 100 Observation 100; 12
I-SET_PASS,[1652] RF recomputation not needed
I-GET,[1651] Entry 99 Observation 99; 12
I-SET_PASS,[1651] RF recomputation not needed
I-GET,[1650] Entry 98 Observation 98; 12
I-SET_PASS,[1650] RF recomputation not needed
I-GET,[1649] Entry 97 Observation 97; 12
I-SET_PASS,[1649] RF recomputation not needed
I-GET,[1648] Entry 96 Observation 96; 12
I-SET_PASS,[1648] RF recomputation not needed
I-GET,[1647] Entry 95 Observation 95; 12
I-SET_PASS,[1647] RF recomputation not needed
I-GET,[1646] Entry 94 Observation 94; 12
I-SET_PASS,[1646] RF recomputation not needed
I-TABLE,[1646] 11598 visibilities written (out of 15012 possible)
I-TABLE,[1646] Old size 15012 New 11598
CLIC>
```

Creating a *uv*-table; CLIC

```
imiss@reducv2:~/tutors/herrera/ngc7027
File Edit View Search Terminal Help
CLIC> $cat table-NGC7027-table.cllic
!
! table-NGC7027-table.cllic
!
!
file in "10-may-2018.hpb"
!
set default
set scan 0 10000
set offset 0 0
set receiver 1
set quality AVERAGE
set weight tsys on
set weight calibration on
set phase antenna atmospher internal relative
set amplitude antenna absolute jansky relative
set rf_passband antenna frequency file on
!
set selection LINE LSB l01 and l02 and l05 and l06
find /proc corr /sou NGC7027
table table-NGC7027 new /freq lsb 96200           /res 400 200 26 0.4 velo
CLIC> █
```

**Easy and faster
editable script**

File Edit Options Buffers Tools F90 Help

```
!  
! table-NGC7027-table.clic  
!  
!  
file in "10-may-2018.hpb"  
!  
set default  
set scan 0 10000  
set offset 0 0  
set receiver 1  
set quality AVERAGE  
set weight tsys on  
set weight calibration on  
set phase antenna atmospher internal relative  
set amplitude antenna absolute jansky relative  
set rf_passband antenna frequency file on  
!  
set selection LINE LSB l01 and l02 and l05 and l06  
find /proc corr /sou NGC7027  
table table-NGC7027 new /freq lsb 96200 /res 400 200 26 0.4 velo
```

**Calibration
definitions**

CREATE THE TABLE

Use atm. phase correction? Yes

2nd data set!

Input Data File Name File

Output UV Table Name

New Table No

Source Name

R.A. & Dec. Offsets (for Mosaics)

First and last scan

Receiver number

Line or Continuum

Band Used

L01 Yes

L02 Yes

L03 No

L04 No

L05 Yes

L06 Yes

L07 No

L08 No

L09 No

L10 No

L11 No

L12 No

Change line parameter No

Resample spectral data No

Line parameters

Line

Line parameters

Help

Resampling parameters

Resampling

Resampling parameters

Help

Help

Go

Close

IC


```
! table-NGC7027-table.clic
```

```
! file in "10-may-2018.hpb"
```

1st data set!

```
!
set default
set scan 0 10000
set offset 0 0
set receiver 1
set quality AVERAGE
set weight tsys on
set weight calibration on
set phase antenna atmospher internal relative
set amplitude antenna absolute jansky relative
set rf_passband antenna frequency file on
!
set selection LINE LSB l01 and l02 and l05 and l06
find /proc corr /sou NGC7027
table table-NGC7027 new /freq lsb 96200 /res 400 200 26 0.4 velo
```

```
! file in "19-feb-2018.hpb"
```

2nd data set!

```
!
set default
set scan 0 10000
set offset 0 0
set receiver 1
set quality AVERAGE
set weight tsys on
set weight calibration on
set phase antenna atmospher internal relative
set amplitude antenna absolute jansky relative
set rf_passband antenna frequency file on
!
set selection LINE LSB l01 and l02 and l05 and l06
find /proc corr /sou NGC7027
table table-NGC7027
```

```
!  
! table-NGC7027-table.clic  
!  
!  
file in "10-may-2018-.hpb"  
!  
set default  
set scan 0 10000  
set offset 0 0  
set receiver 1  
set quality AVERAGE  
set weight tsys on  
set weight calibration on  
set phase antenna atmospher internal relative  
set amplitude antenna absolute jansky relative  
set rf_passband antenna frequency file on  
!  
set selection LINE LSB l01 and l02 and l05 and l06  
find /proc corr /sou NGC7027  
table table-NGC7027 new /freq lsb 96200 /res 400 200 26 0.4 velo  
!  
-----  
!  
file in "19-feb-2018.hpb"  
!  
set selection LINE LSB l01 and l02 and l05 and l06  
find /proc corr /sou NGC7027  
table table-NGC7027  
!  
-----  
!  
file in "01-mar-2018.hpb"  
!  
set selection LINE LSB l01 and l02 and l05 and l06  
find /proc corr /sou NGC7027  
table table-NGC7027
```

1st data set!

2nd data set!

3rd data set!

Creating a *uv*-table; CLIC

```
imiss@reducv2:~/tutors/herrera/ngc7027
File Edit View Search Terminal Help
CLIC> help table
  CLIC\TABLE Name [OLD|NEW] [/COMPRESS tmax uvmax]
  [/RESAMPLE nc ref val inc code shape width] [/FFT]
  [/FREQUENCY name rest-freq] [/DROP n1 n2]
  [/NOCHECK [SOURCE|POINTING|PHASE|EPOCH]]

This command will create an UV data Table from the current index.  If
no name is given, the most recently created table will be extended.  Next argu-
ment may be OLD (default value if not specified) to extend an existing
table, or NEW to create a new table.

The bands and subbands used must have been given by the command SET SE-
LECTION.  The weighting mode can be modified by the command SET WEIGHTS.

TABLE /RESAMPLE nc ref val inc code [shape width /FFT]

Option /RESAMPLE enables to resample data on a new spectral grid
(for line data).  'nc' is the output number of channels, 'ref' the
reference channel, 'val' the value of velocity or frequency offset
(with respect to the rest frequency) at the reference channel, 'inc'
the resolution, 'code' is "V" if the value 'val' and the resolution
... Press RETURN for more ...
```

```
!
! table-NGC7027-table.clic
!
file in "10-may-2018-.hpb"
!
set default
set scan 0 10000
set offset 0 0
```

For mosaics:
find /proc corr /source SourceName
table mosaic-source.uvt new /freq lsb 96200 /mosaic

```
set selection LINE LSB l01 and l02 and l05 and l06
find /proc corr /sou NGC7027
table table-NGC7027 new /freq lsb 96200 /res 400 200 26 0.4 velo
!
-----
!
file in "19-feb-2018.hpb"
!
set selection LINE LSB l01 and l02 and l05 and l06
find /proc corr /sou NGC7027
table table-NGC7027
!
-----
!
file in "01-mar-2018.hpb"
!
set selection LINE LSB l01 and l02 and l05 and l06
find /proc corr /sou NGC7027
table table-NGC7027
```

Note: a bug was found
in version **sep18**.
You should use version
oct18 (or later)

```
!
! table-NGC7027-table.clic
!
file in "10-may-2018-.hpb"
!
set default
set scan 0 10000
set offset 0 0
```

For **mosaics**:

find /proc corr /source SourceName

table mosaic-source.uvt new /freq lsb 96200 /mosaic

```
set selection LINE LSB l01 and l02 and l05 and l06
find /proc corr /sou NGC7027
table table-NGC7027 new /freq lsb 96200 /res 400 200 26 0.4 velo
```

For **continuum**:

Go to MAPPING and:

MAPPING>uv_continuum

```
!
!-----
!
file in "01-mar-2018.hpb"
!
set selection LINE LSB l01 and l02 and l05 and l06
find /proc corr /sou NGC7027
table table-NGC7027
```

Created “mytable”.uvt, in **CLIC**



Analyze the data, in **MAPPING**

1. Data analysis in the uv -plane

Data analysis in the *uv*-plane

The image shows a terminal window titled "imiss@reducv2:~/tutors/herrera/ngc7027" with a menu bar containing "File", "Edit", "View", "Search", "Terminal", and "Help". The terminal output is as follows:

```
[imiss@reducv2 ngc7027]$ mapping
GILDAS Version: 27sep (27sep18 02:04 cest) (x86_64-centos7.4-gfortran81-openmp)
executable tree

* Welcome to MAPPING

* Loaded modules
  sic (J.Pety, S.Bardeau, S.Guilloteau, E.Reynier)
  greg (J.Pety, S.Bardeau, S.Guilloteau, E.Reynier)
  mapping (J.Pety, S.Guilloteau, F.Gueth, N.Rodriguez-Fernandez)

* In charge:           J.Pety
  Active developers:   V.deSouzaMagalhaes, S.Bardeau, S.Guilloteau
  Main past contributors: N.Rodriguez-Fernandez, F.Gueth, K.Bouyoucef, R.Lucas

* MAPPING is an interactive program to image and deconvolve
  (sub)mm interferometric data

* Questions? Comments? Bug reports? Mail to: gildas@iram.fr

* For help, type HELP, INPUT and/or INFO at the MAPPING prompt

MAPPING> 
```

On the left, a window titled "mapping GUI (on reduc2.iram.fr)" has a menu bar with "SIC Window", "GREG", "MAPPING", "Demos", and "Help". The "MAPPING" menu is open, showing options: "Operations on UV table" (highlighted with a red circle), "Imaging and Deconvolution", "Self Calibration tool", and "Image Analysis Tools". Below the menu bar, there are icons for "Pencil", "Marker", and "Ha".

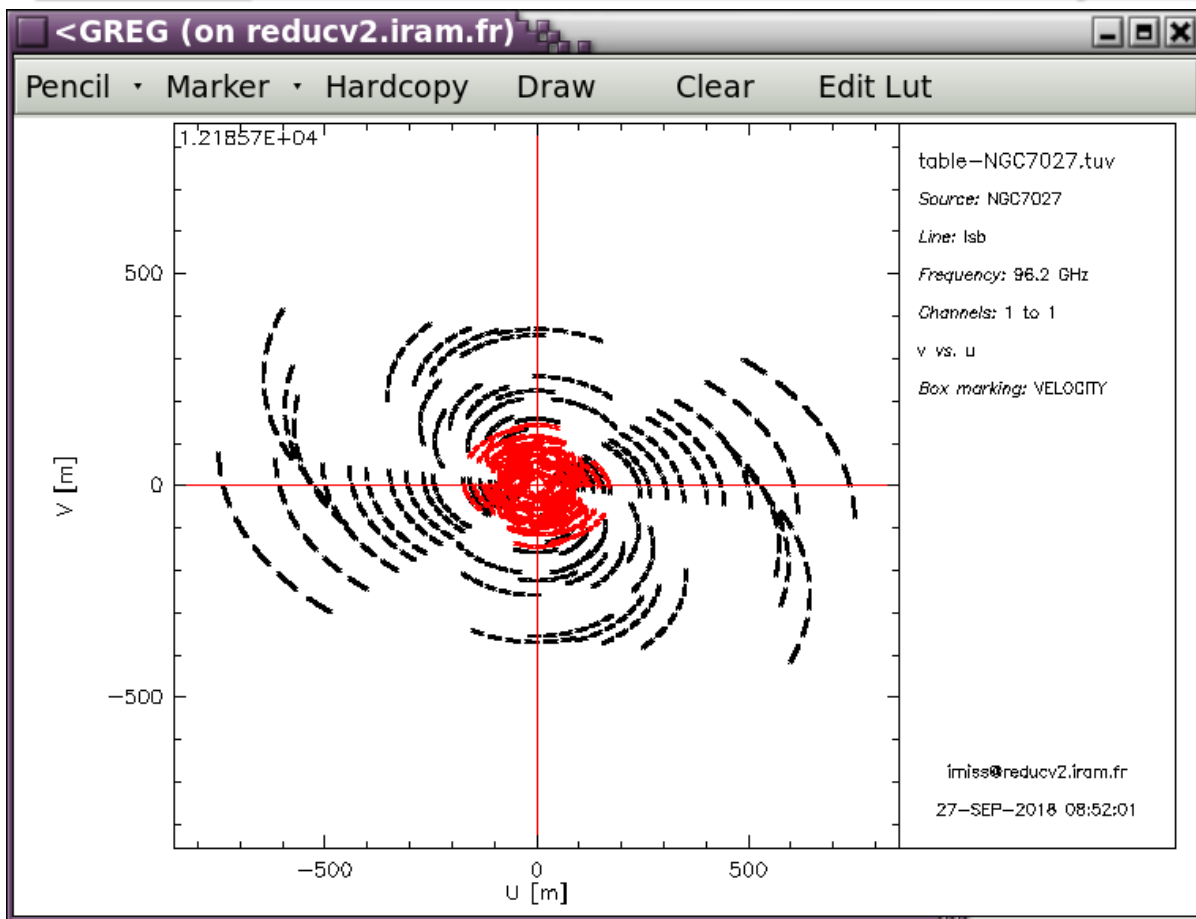
Data analysis in the *uv*-plane



Data analysis in the *uv*-plane



Data analysis in the uv -plane



reducv2.iram.fr

UV Clip	UV_CLIP	UV_CLIP parameters	Help
UV Coverage	UVCOV	UVCOV parameters	Help
UV Plots	UVSHOW	UVSHOW parameters	Help
UV_SHIFT	UV_SHIFT	UV_SHIFT parameters	Help
UV fit	UV_FIT	UV_FIT parameters	Help
Plotting UV fits	PLOTFIT	PLOTFIT parameters	Help

Help OK Close

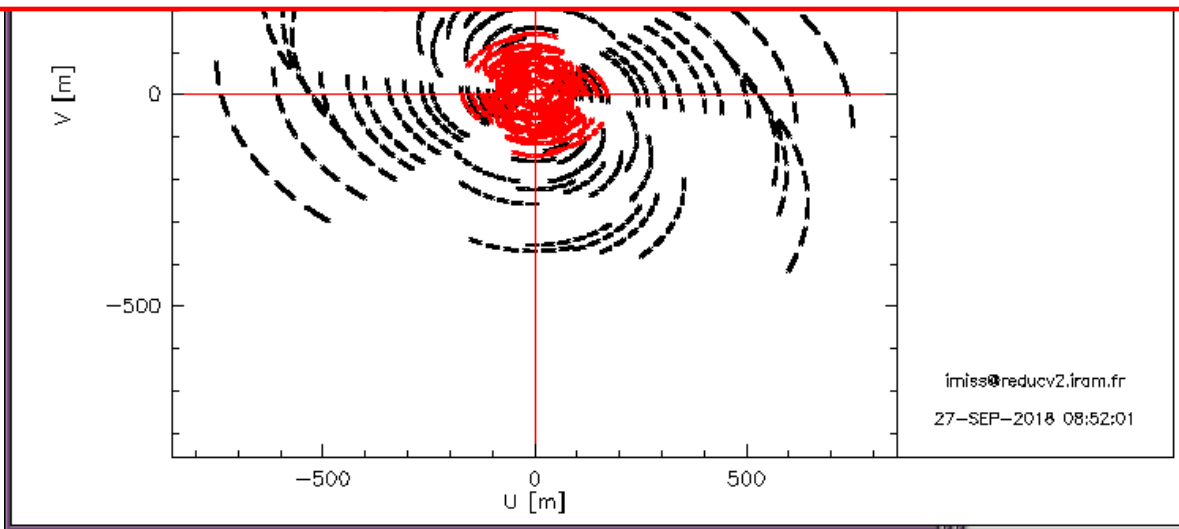
Data analysis in the *uv*-plane

With commands:

```
MAPPING> let name table-NGC7027
```

```
MAPPING> go uvcov
```

```
MAPPING> input uvcov ! To check the parameters
```



reducv2.iram.fr

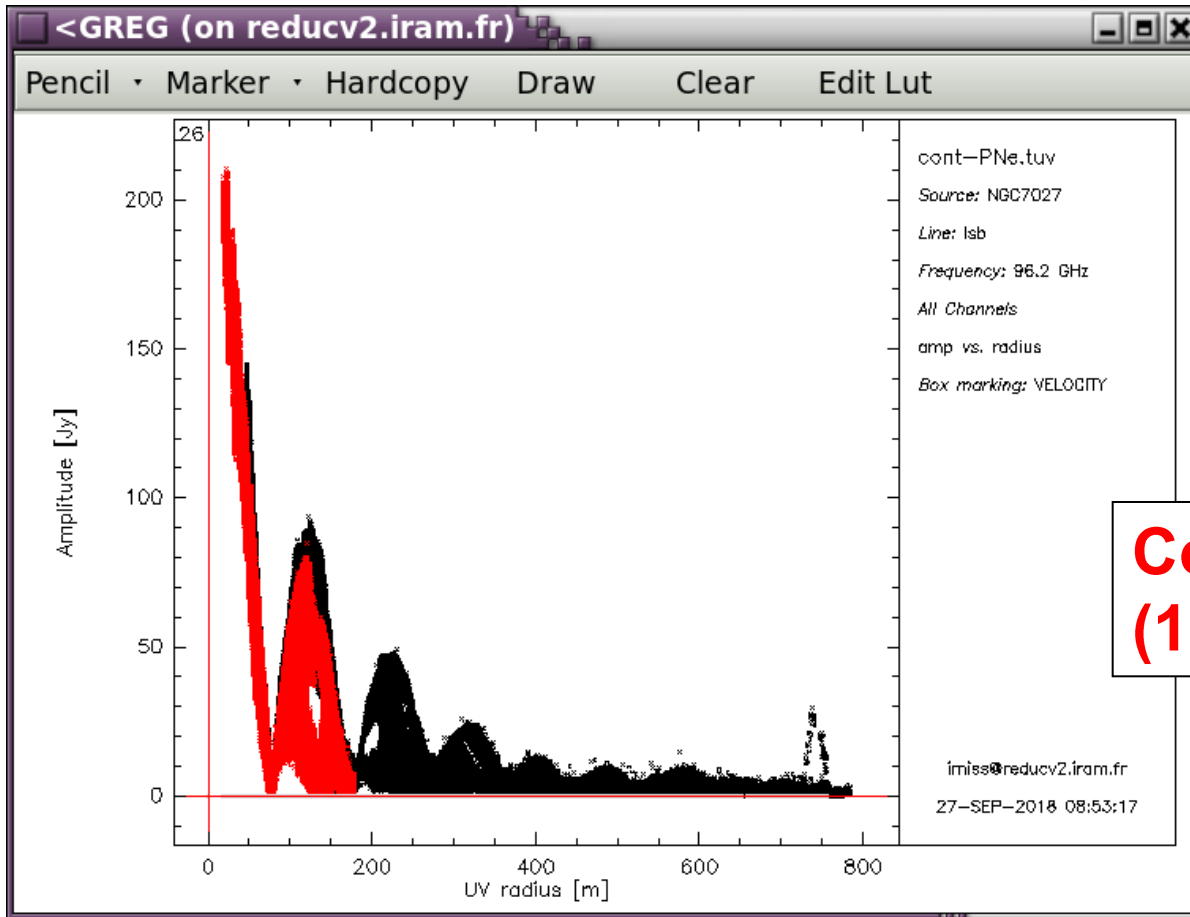
UV Clip	UV_CLIP	UV_CLIP parameters	Help
UV Coverage	UVCOV	UVCOV parameters	Help
UV Plots	UVSHOW	UVSHOW parameters	Help
UV_SHIFT	UV_SHIFT	UV_SHIFT parameters	Help
UV fit	UV_FIT	UV_FIT parameters	Help
Plotting UV fits	PLOTFIT	PLOTFIT parameters	Help

Help OK Close

Data analysis in the *uv*-plane



Data analysis in the *uv*-plane



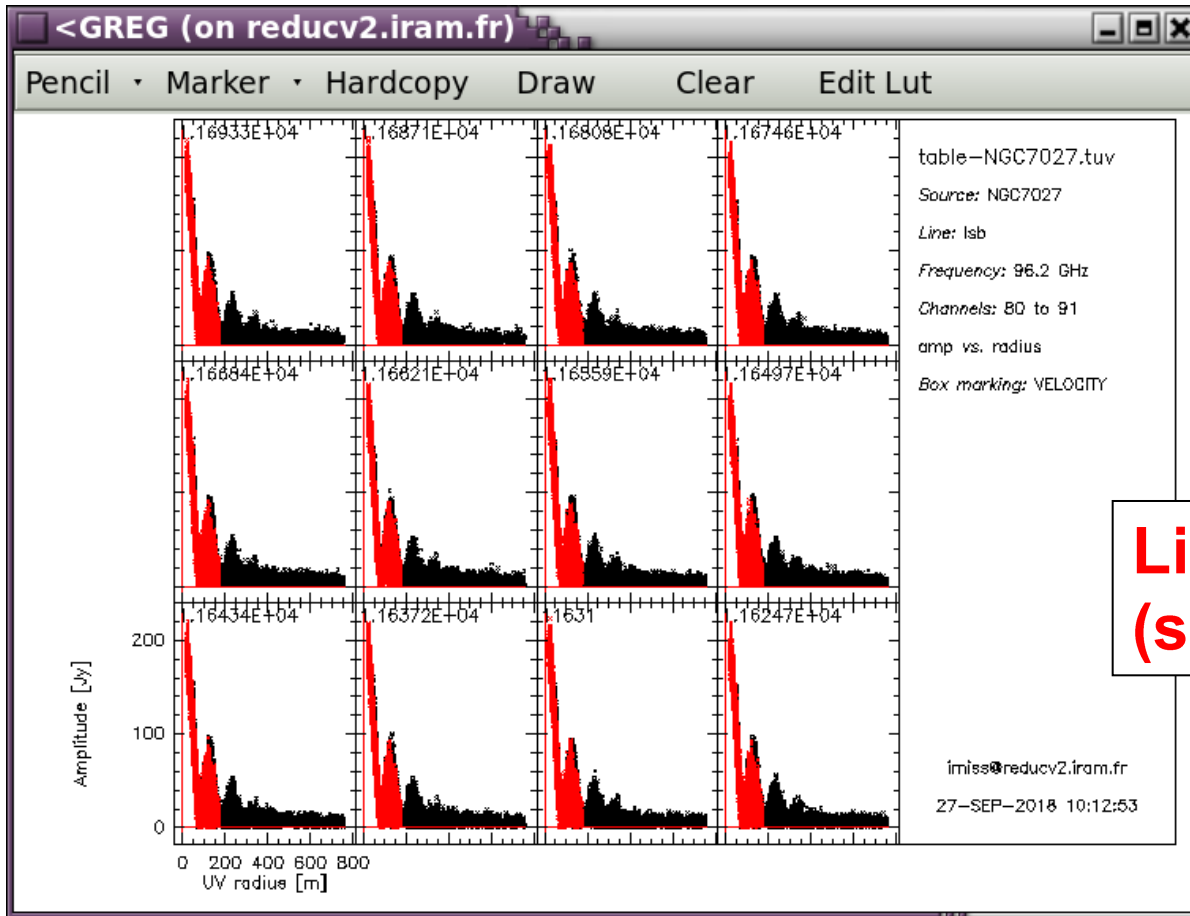
**Continuum uv table
(1 channel)**

reducv2.iram.fr

UV Clip	UV_CLIP	UV_CLIP parameters	Help
UV Coverage	UVCOV	UVCOV parameters	Help
UV Plots	UVSHOW	UVSHOW parameters	Help
UV_SHIFT	UV_SHIFT	UV_SHIFT parameters	Help
UV fit	UV_FIT	UV_FIT parameters	Help
Plotting UV fits	PLOTFIT	PLOTFIT parameters	Help

Help OK Close

Data analysis in the *uv*-plane



**Line uv table
(several channels)**

reducv2.iram.fr

UV Clip	UV_CLIP	UV_CLIP parameters	Help
UV Coverage	UVCOV	UVCOV parameters	Help
UV Plots	UVSHOW	UVSHOW parameters	Help
UV_SHIFT	UV_SHIFT	UV_SHIFT parameters	Help
UV fit	UV_FIT	UV_FIT parameters	Help
Plotting UV fits	PLOTFIT	PLOTFIT parameters	Help

Help OK Close

Data analysis in the uv-plane

UVSHOW parameters (on reducv2.iram.fr)

Generic name

X data

Y data

First channel

Last channel

Plot limits

Plot model fit No

Display zero level? Yes

Use one color per track? Yes

Typical time separating 2 tracks [hrs]

Marker definition as in the SET MARKER command

			<input type="button" value="Help"/>
UV Coverage	UVCOV	UVCOV parameters	<input type="button" value="Help"/>
UV Plots	UVSHOW	UVSHOW parameters	<input type="button" value="Help"/>
UV_SHIFT	UV_SHIFT	UV_SHIFT parameters	<input type="button" value="Help"/>
UV fit	UV_FIT	UV_FIT parameters	<input type="button" value="Help"/>
Plotting UV fits	PLOTFIT	PLOTFIT parameters	<input type="button" value="Help"/>
<input type="button" value="Help"/>			<input type="button" value="OK"/> <input type="button" value="Close"/>

Data analysis in the uv-plane

UVSHOW parameters (on reducv2.iram.fr)

Generic name

X data

Y data

First channel

Last channel

Plot limits

Plot model fit No

Display zero level? Yes

Use one color per track? Yes

Typical time separating 2 tracks [hrs]

Marker definition as in the SET MARKER command

- u
- v
- angle
- radius**
- time
- date
- scan
- number
- amp
- phase
- real
- imag
- weight
- iant
- jant
- base

UV Coverage	UVCOV	UVCOV parameters	Help
UV Plots	UVSHOW	UVSHOW parameters	Help
UV_SHIFT	UV_SHIFT	UV_SHIFT parameters	Help
UV fit	UV_FIT	UV_FIT parameters	Help
Plotting UV fits	PLOTFIT	PLOTFIT parameters	Help

<GREG (on reducv2.iram.fr)

Pencil ▾ Marker ▾ Hardcopy Draw Clear Edit Lut

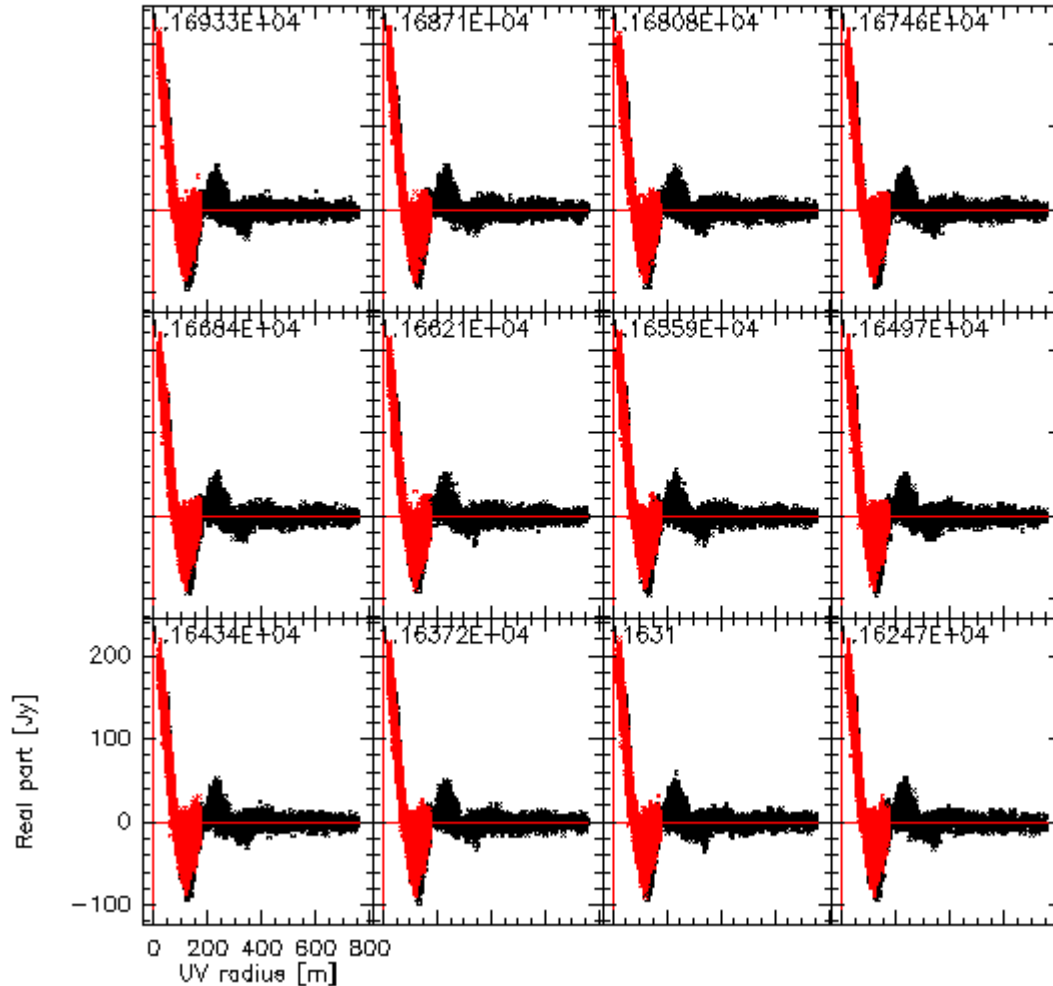


table-NGC7027-shift.tuv

Source: NGC7027

Line: lsb

Frequency: 96.2 GHz

Channels: 80 to 91

real vs. radius

Box marking: VELOCITY

imiss@reducv2.iram.fr

27-SEP-2018 12:16:19

UV fit

UV_FIT

UV_FIT parameters

Help

Plotting UV fits

PLOTFIT

PLOTFIT parameters

Help

Help

OK

Close

With commands:

MAPPING> let name table-NGC7027

MAPPING> let first 80

MAPPING> let last 91

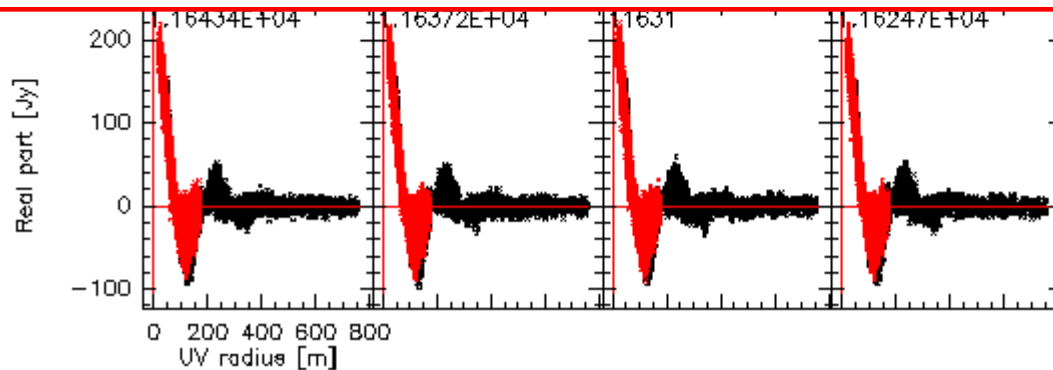
MAPPING> let ytype real

MAPPING> let xtype radius

MAPPING> go uvshow

MAPPING> input uvshow ! To check the parameters

ble-NGC7027-shift.tuv
ource: NGC7027
e: lsb
quency: 96.2 GHz
annels: 80 to 91
l vs. radius
x marking: VELOCITY



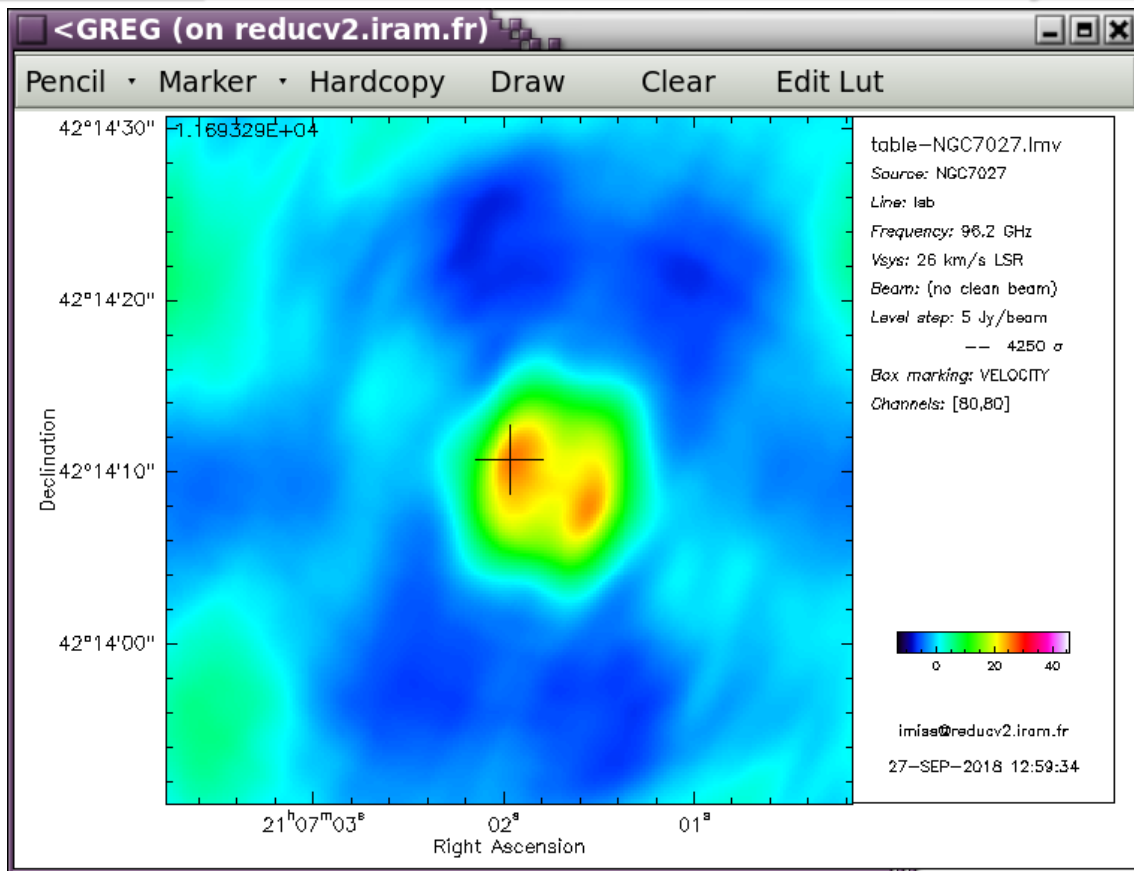
imiss@reducv2.iram.fr
27-SEP-2018 12:16:19

UV fit	UV_FIT	UV_FIT parameters	Help
Plotting UV fits	PLOTFIT	PLOTFIT parameters	Help
Help	OK	Close	

Data analysis in the *uv*-plane



Data analysis in the *uv*-plane



reducv2.iram.fr

Generic name: cont-PNe

UV Clip	UV_CLIP	UV_CLIP parameters	Help
UV Coverage	UVCOV	UVCOV parameters	Help
UV Plots	UVSHOW	UVSHOW parameters	Help
UV_SHIFT	UV_SHIFT	UV_SHIFT parameters	Help
UV fit	UV_FIT	UV_FIT parameters	Help
Plotting UV fits	PLOTFIT	PLOTFIT parameters	Help

Help OK Close

Data analysis in the *uv*-plane

UV_SHIFT parameters (on reducv2.iram.fr)

Generic name

Right Ascension

Declination

Angle from North

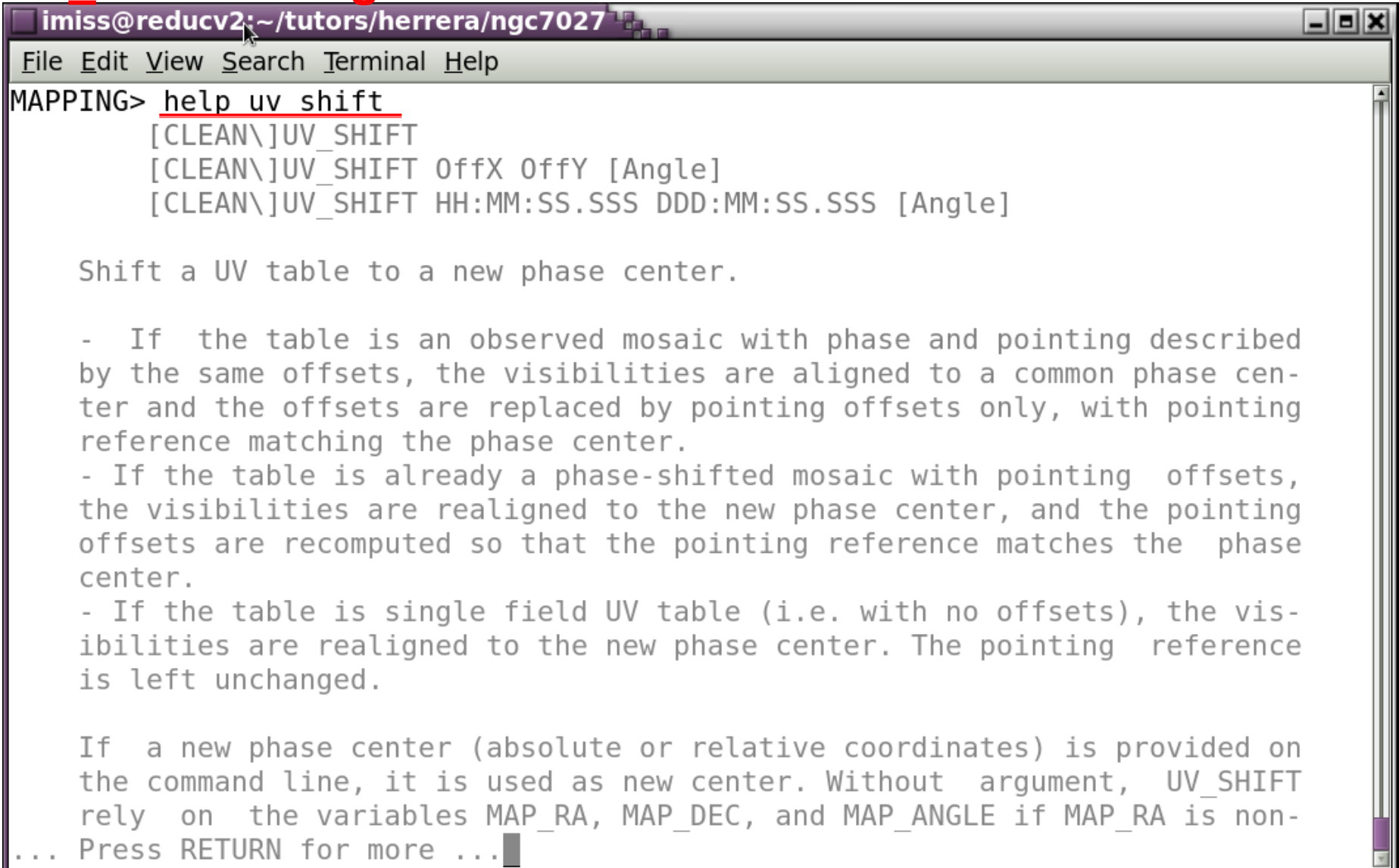
UV actions control panel (on reducv2.iram.fr)

Generic name

UV Clip	<input type="button" value="UV_CLIP"/>	<input type="button" value="UV_CLIP parameters"/>	<input type="button" value="Help"/>
UV Coverage	<input type="button" value="UVCOV"/>	<input type="button" value="UVCOV parameters"/>	<input type="button" value="Help"/>
UV Plots	<input type="button" value="UVSHOW"/>	<input type="button" value="UVSHOW parameters"/>	<input type="button" value="Help"/>
UV_SHIFT	<input type="button" value="UV_SHIFT"/>	<input type="button" value="UV_SHIFT parameters"/>	<input type="button" value="Help"/>
UV fit	<input type="button" value="UV_FIT"/>	<input type="button" value="UV_FIT parameters"/>	<input type="button" value="Help"/>
Plotting UV fits	<input type="button" value="PLOTFIT"/>	<input type="button" value="PLOTFIT parameters"/>	<input type="button" value="Help"/>

Data analysis in the *uv*-plane

uv_shift through commands:



```
imiss@reducv2:~/tutors/herrera/ngc7027
File Edit View Search Terminal Help
MAPPING> help uv shift
  [CLEAN\]UV_SHIFT
  [CLEAN\]UV_SHIFT OffX OffY [Angle]
  [CLEAN\]UV_SHIFT HH:MM:SS.SSS DDD:MM:SS.SSS [Angle]

Shift a UV table to a new phase center.

- If the table is an observed mosaic with phase and pointing described
  by the same offsets, the visibilities are aligned to a common phase
  center and the offsets are replaced by pointing offsets only, with pointing
  reference matching the phase center.
- If the table is already a phase-shifted mosaic with pointing offsets,
  the visibilities are realigned to the new phase center, and the pointing
  offsets are recomputed so that the pointing reference matches the phase
  center.
- If the table is single field UV table (i.e. with no offsets), the vis-
  ibilities are realigned to the new phase center. The pointing reference
  is left unchanged.

If a new phase center (absolute or relative coordinates) is provided on
the command line, it is used as new center. Without argument, UV_SHIFT
rely on the variables MAP_RA, MAP_DEC, and MAP_ANGLE if MAP_RA is non-
... Press RETURN for more ...
```

Data analysis in the *uv*-plane

With commands:

```
MAPPING> read uv "mytable"
```

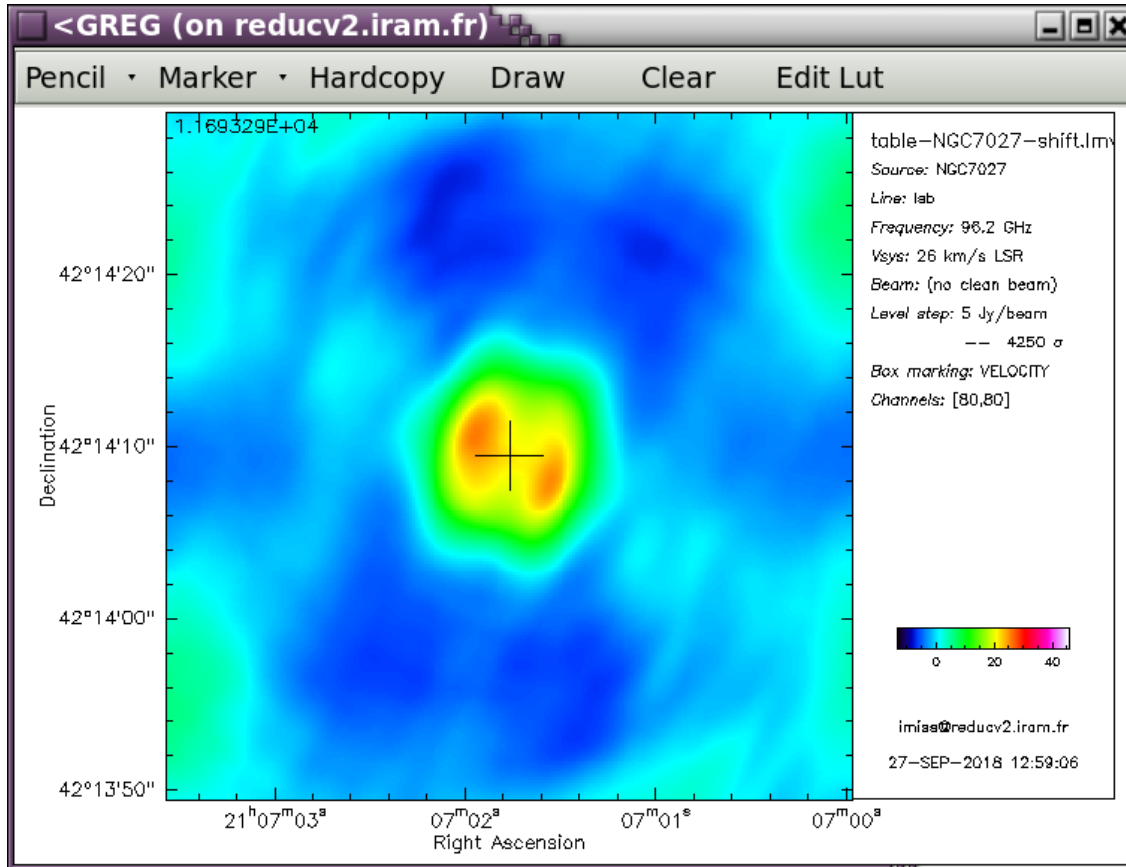
```
MAPPING> uv_shift Xoff Yoff
```

```
MAPPING> write uv table-name-shift
```

```
MAPPING> help uv_shift ! To check the parameters
```

```
MAPPING> read uv table-NGC7027
W-READ, File not modified and same range -- not reloaded
W-READ, Reading enforced by user
W-GDF_READ_UVDATASET, Producing a UVT order
MAPPING> uv shift -2.25 -1.25
I-UV_SHIFT, UV table is a single field
I-UV_SHIFT, New phase center 21:07:01.7674 42:14:09.4500 (offsets -2.25 -1
.25)
MAPPING> write uv table-NGC7027-shift
MAPPING>
```


Data analysis in the *uv*-plane



Generic name	cont-PNe		
UV Clip	UV_CLIP	UV_CLIP parameters	Help
UV Coverage	UVCOV	UVCOV parameters	Help
UV Plots	UVSHOW	UVSHOW parameters	Help
UV_SHIFT	UV_SHIFT	UV_SHIFT parameters	Help
UV fit	UV_FIT	UV_FIT parameters	Help
Plotting UV fits	PLOTFIT	PLOTFIT parameters	Help

Help OK Close

Data analysis in the *uv*-plane



Data analysis in the *uv*-plane

UV_FIT parameters (on reducv2.iram.fr)

Generic name: table-NGC7027-shift

First channel: 80

Last channel: 80

UV range(min, max) (meters): 0 800

Number of Functions (1 or 2): 1

Function 1: point

Parameters: 0 0 0 0 0 0

Starting range: 0 0 0 0 0 0

numb. of starts: 0 0 0 0 0 0

Subtract function: No

Function 2: point

Parameters: 0 0 0 0 0 0

Starting range: 0 0 0 0 0 0

numb. of starts: 0 0 0 0 0 0

Subtract function: No

Help Go Close

Control panel (on reducv2.iram.fr)

nt-PNe|

UV_CLIP	UV_CLIP parameters	Help
UVCOV	UVCOV parameters	Help
UVSHOW	UVSHOW parameters	Help
UV_SHIFT	UV_SHIFT parameters	Help
UV_FIT	UV_FIT parameters	Help
PLOTFIT	PLOTFIT parameters	Help

Plotting UV fits

Help OK Close

Data analysis in the *uv*-plane

UV_FIT parameters (on reducv2.iram.fr)

Generic name:

First channel:

Last channel:

UV range(min, max) (meters):

Number of Functions (1 or 2):

Function 1:

Parameters:

Starting range:

numb. of starts:

Subtract function: No

Function 2:

Parameters:

Starting range:

numb. of starts:

Subtract function: No

Help (on reducv2.iram.fr)

C_GAUSS Circular Gaussian sources
 C_DISK Circular Disk
 E_DISK Elliptical Disk (inclined)
 RING Annulus
 EXPO Exponential brightness
 POWER-2 $B = 1/r^2$
 POWER-3 $B = 1/r^3$
 E_RING Elliptical Annulus (inclined)
 Remark: See NF\$ for additional help

Variable PARAM01\$:
 TASK\REAL "Parameters" PARAM01\$[7]

Your guesses as input parameters for the fitting process. Six parameters have to be defined for each function. The parameter list used in the fit is:

POINT : Offset R.A., Offset Dec, Flux
E_GAUSS : Offset R.A., Offset Dec, Flux, Maj. diam., Min. diam., Pos Ang
C_GAUSS : Offset R.A., Offset Dec, Flux, Diameter
C_DISK : Offset R.A., Offset Dec, Flux, Diameter
E_DISK : Offset R.A., Offset Dec, Flux, Maj. diam., Min. diam., Pos Ang
RING : Offset R.A., Offset Dec, Flux, Inner Diameter, Outer Diameter
EXPO : Offset R.A., Offset Dec, Flux, Diameter
POWER-2 : Offset R.A., Offset Dec, Flux, Diameter
POWER-3 : Offset R.A., Offset Dec, Flux, Diameter
E_RING : Offset R.A., Offset Dec, Flux, Inner, Outer, Pos Ang, Ratio

Note that if the guesses are not sufficiently accurate the fit may not converge.

Variable PARAM02\$:
 TASK\REAL "Parameters" PARAM02\$[7]

Same as PARAM01\$

Data analysis

UV FIT parameters (on reducv2.iram.fr)

Generic name:

First channel:

Last channel:

UV range(min, max) (meters):

Number of Functions (1 or 2):

Function 1:

Parameters:

Starting range:

numb. of starts:

Subtract function: No

Function 2:

Parameters:

Starting range:

numb. of starts:

Subtract function: No

Help (on reducv2.iram.fr)

- C_GAUSS Circular Gaussian sources
- C_DISK Circular Disk
- E_DISK Elliptical Disk (inclined)
- RING Annulus
- EXPO Exponential brightness
- POWER-2 $B = 1/r^2$
- POWER-3 $B = 1/r^3$
- E_RING Elliptical Annulus (inclined)

Remark: See NF\$ for additional help

Variable PARAM01\$:
TASK\REAL "Parameters" PARAM01\$[7

Your guesses as input parameters for the fitting p
have to be defined for each function. The paramete
is:

- POINT : Offset R.A., Offset Dec, Flux
- E_GAUSS : Offset R.A., Offset Dec, Flux, Maj. diam
- C_GAUSS : Offset R.A., Offset Dec, Flux, Diameter
- C_DISK : Offset R.A., Offset Dec, Flux, Diameter
- E_DISK : Offset R.A., Offset Dec, Flux, Maj. diam.
- RING : Offset R.A., Offset Dec, Flux, Inner Diam**
- EXPO : Offset R.A., Offset Dec, Flux, Diameter
- POWER-2 : Offset R.A., Offset Dec, Flux, Diameter
- POWER-3 : Offset R.A., Offset Dec, Flux, Diameter
- E_RING : Offset R.A., Offset Dec, Flux, Inner, Out

Note that if the guesses are not sufficiently accu
converge.

Variable PARAM02\$:
TASK\REAL "Parameters" PARAM02\$[7

Same as PARAM01\$

UV_SHIFT	UV_SHIFT parameters	Help
UV_FIT	UV FIT parameters	Help
PLOTFIT	PLOTFIT parameters	Help

Data analysis in the *uv*-plane

```
imiss@reducv2:~/tutors/herrera/ngc7027
File Edit View Search Terminal Tabs Help
imiss@reducv2:~/tutors/herrera/ngc7027 x herrera@herrera:~

W-DCOV, Jacobian singular, info=          2
r.m.s.=   30.6978 Jy.
RING   R.A.      =   -0.18724 (   .35419)  21:07:01.75054
RING   Dec.      =    0.18611 (   .34386)  42:14:09.6361
RING   Flux      =   203.57039 (   .04314)  Jy
RING   I.Diam.   =    9.67553 (   .27221)
RING   O.Diam.   =    0.00000 (   .00000)

I-UV_FIT, 18078 data points for channel3430
I-UV_FIT, Starting minimization on channel3430 Velocity= -9.186E+03
I-UV_FIT, Starting from 0.0000      0.0000      200.00      1.0000      0.0000

W-DCOV, Jacobian singular, info=          2
r.m.s.=   30.6410 Jy.
RING   R.A.      =   -0.19016 (   .35428)  21:07:01.75028
RING   Dec.      =    0.19305 (   .34393)  42:14:09.6430
RING   Flux      =   203.45130 (   .04316)  Jy
RING   I.Diam.   =    9.66825 (   .27228)
RING   O.Diam.   =    0.00000 (   .00000)

I-UV_FIT, Successful completion

I-RUN, Elapsed 24.4, User 1633.7, System 5.3
I-RUN, Task uv_fit completed successfully
MAPPING>
```

Data analysis in the *uv*-plane



Data analysis in the *uv*-plane

PLOTFIT parameters (on reducv2.iram.fr)

Generic name:

Number of fitted functions to be plotted:

Order in which fitted functions are plotted:

Number of parameters plotted along x axis:

X Parameter #1:

X Parameter #2:

X Parameter #3:

X Parameter #4:

X Parameter #5:

X Parameter #6:

Number of parameters plotted along y axis:

Y Parameter #1:

Y Parameter #2:

Y Parameter #3:

Y Parameter #4:

Y Parameter #5:

Y Parameter #6:

First channel:

Last channel:

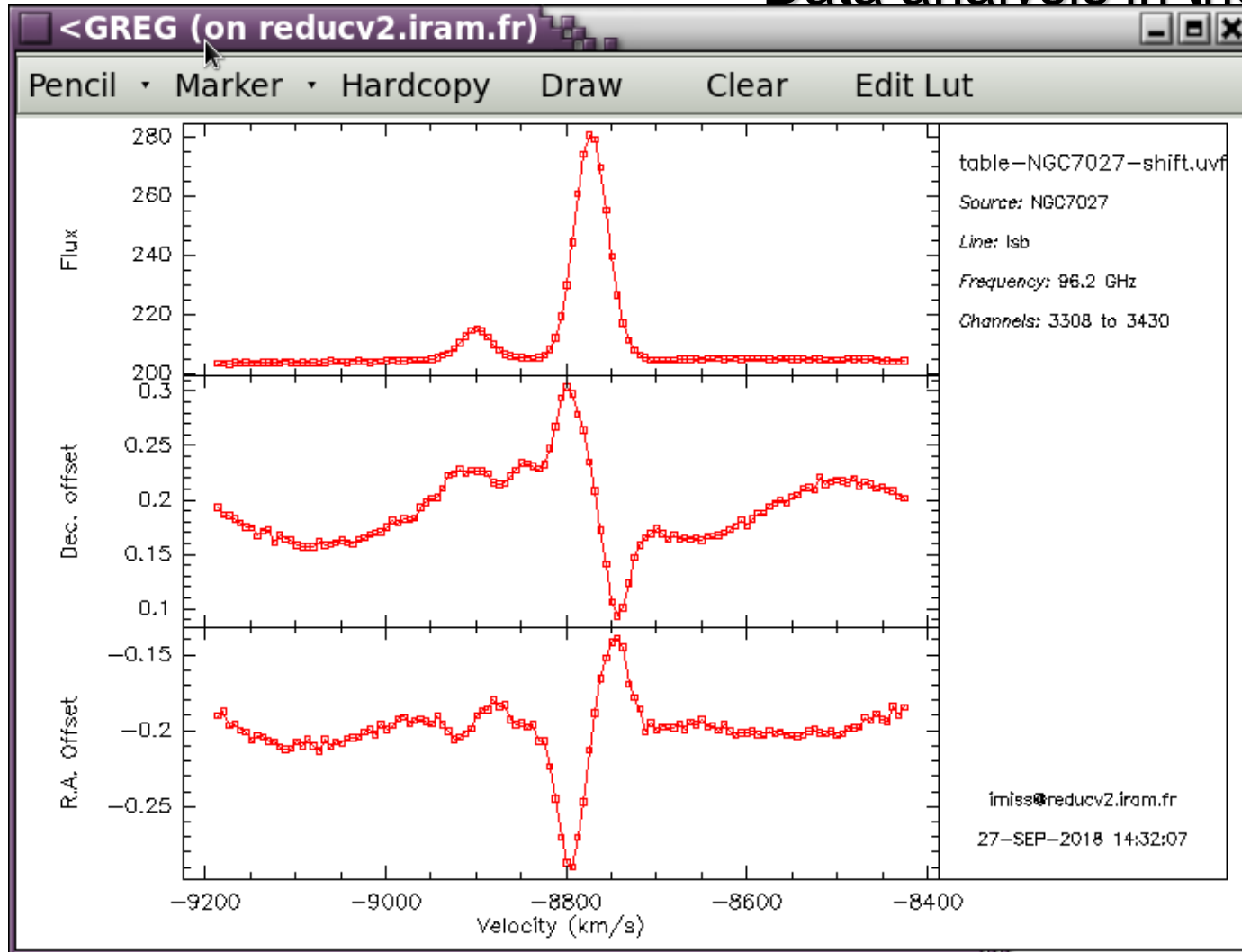
Plot error bars: No

panel (on reducv2.iram.fr)

Ne|

UV_CLIP	UV_CLIP parameters	Help
UVCOV	UVCOV parameters	Help
UVSHOW	UVSHOW parameters	Help
UV_SHIFT	UV_SHIFT parameters	Help
UV_FIT	UV_FIT parameters	Help
PLOTFIT	PLOTFIT parameters	Help

Data analysis in the *uv*-plane



IP parameters	Help		
V parameters	Help		
DW parameters	Help		
UV_SHIFT	UV_SHIFT parameters	Help	
UV fit	UV_FIT	UV_FIT parameters	Help
Plotting UV fits	PLOTFIT	PLOTFIT parameters	Help

Help OK Close

MAPPING procedures / commands

```
MAPPING> input "command" or help "command"  
MAPPING> let name uvtable-name  
MAPPING> go "command"
```

Type: INPUT command-name for further information on a command

Type: GO command-name to execute a command

MAPPING procedures / commands

```
MAPPING> input "command" or help "command"
```

```
MAPPING> go "command"
```

These can be also found in the widgets:

go setup

go uvclip

go uvcov

go uvshow

go uv shift

go uvfit

go plotfit

go uvshort

go uvstat

go uvmap

go clean

go support

go view

go flux

go noise

go moments

go velocity

Data analysis in the *uv*-plane

MAPPING procedures / commands

MAPPING> input “command” or help “command”

MAPPING> go “command”

mapping GUI (on reducv2.iram.fr)

SIC Window GREG MAPPING Demos Help

Operations on UV table

Imaging and Deconvolution

Self Calibration tool

Image Analysis Tools

These can be also found in the widgets:

go setup

go uvclip

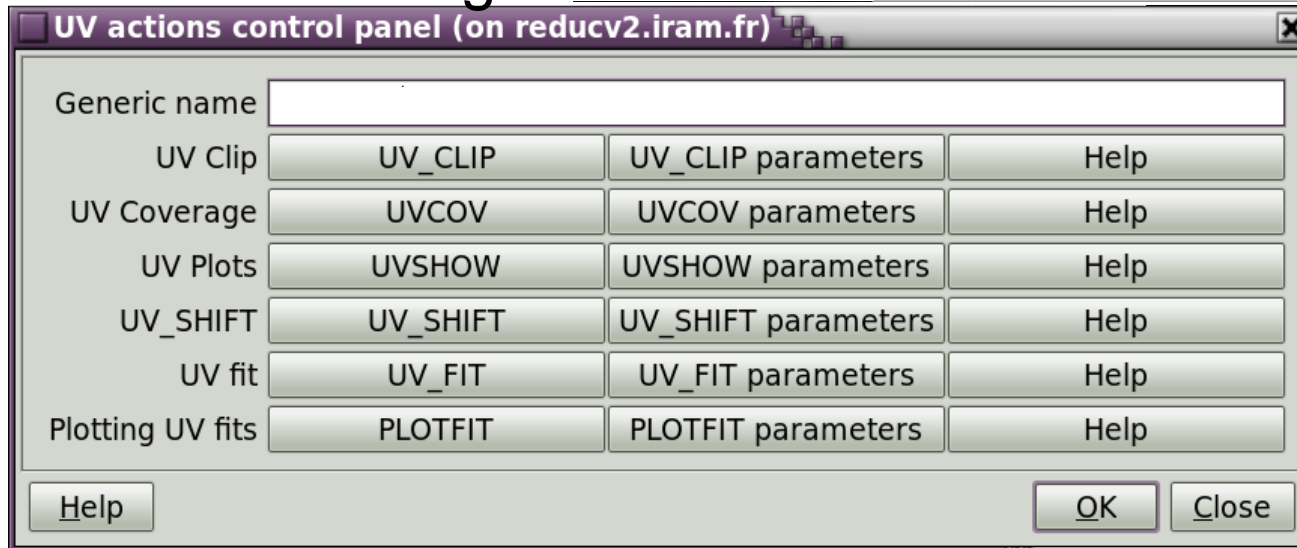
go uvcov

go uvshow

go uvshift

go uvfit

go plotfit



MAPPING procedures / commands

```
MAPPING> input "command" or help "command"
```

```
MAPPING> go "command"
```

These can be also found in the widgets:

go setup

go uvclip

go uvcov

go uvshow

go uvshift

go uvfit

go plotfit

go uvshort

go uvstat

go uvmap

go clean

go support

go view

go flux

go noise

go moments

go velocity

Data analysis in the *uv*-plane

MAPPING> input

INPUT & GO possibilities:

Commands for multichannel viewing:

- **VIEW** interactive viewing of spectra data cube
- **3VIEW** interactive viewing of position/velocity diagrams
- **BIT** plot a color map of all or selected channels
- **MAP** plot a contour map of all or selected channels
- **XV** plot x-axis/velocity diagrams
- **VY** plot velocity/y-axis diagrams
- **SPECTRE** plot spectra from a data cube
- **VELOCITY** plot mean, velocity and width maps
- **OVER** Overlay bitmaps and contours of several images
- **COLOR, LUT** Fiddle Color Table

Commands for analysis

- **NOISE** Compute noise histogram of data cubes
- **MOMENT** Compute mean, velocity and width maps

Commands for UV-visibility analysis:

- **UVSHOW** plot UV data for all or selected channels

Commands for multichannel mapping:

- **UVMAP** compute an image from UV data
- **CLEAN** clean a dirty image
- **SUPPORT** define a deconvolution support
- **IMAGE** compute an image from UV data and clean it
- **CCT** [Ncc] display Clean Components up to Ncc

Commands for self-calibration:

- **SELF CAL** compute phase gains using self calibration

MAPPING procedures / commands

```
MAPPING> input "command" or help "command"
```

```
MAPPING> go "command"
```

```
go uv_applyphase
```

```
go uv_dft
```

```
go uv_mflag
```

```
go uv_splitfield
```

```
go uv_average
```

```
go uv_extract
```

```
go uv_model
```

```
go uv_subtract
```

```
go uv_cal
```

```
go uv_fidelity
```

```
go uv_mult
```

```
go uv_table
```

```
go uv_ccmodel
```

```
go uv_flag
```

```
go uv_noise
```

```
go uv_timeaverage
```

```
go uv_cct
```

```
go uv_fmodel
```

```
go uv_observe
```

```
go uv_timebase
```

```
go uv_center
```

```
go uv_gain
```

```
go uv_pointing
```

```
go uv_track
```

```
go uv_circle
```

```
go uv_hanning
```

```
go uv_short
```

```
go uv_track_phase
```

```
go uv_clip
```

```
go uv_hybrid
```

```
go uv_sinusphase
```

```
go uv_zero
```

```
go uv_compress
```

```
go uv_list
```

```
go uv_solve
```

```
go uv_cuts
```

```
go uv_merge
```

```
go uv_sort
```

Data analysis in the *uv*-plane

go uv_circle

MAPPING> help uv_circle

Compute the azimuthal average of the visibilities around the UV plane center. The output UV table gives for each bin one visibility associated to one UV radius. This radius is the actual average of $\sqrt{U^2+V^2}$ of the visibilities in the bin (i.e. it is not the theoretical bin center).

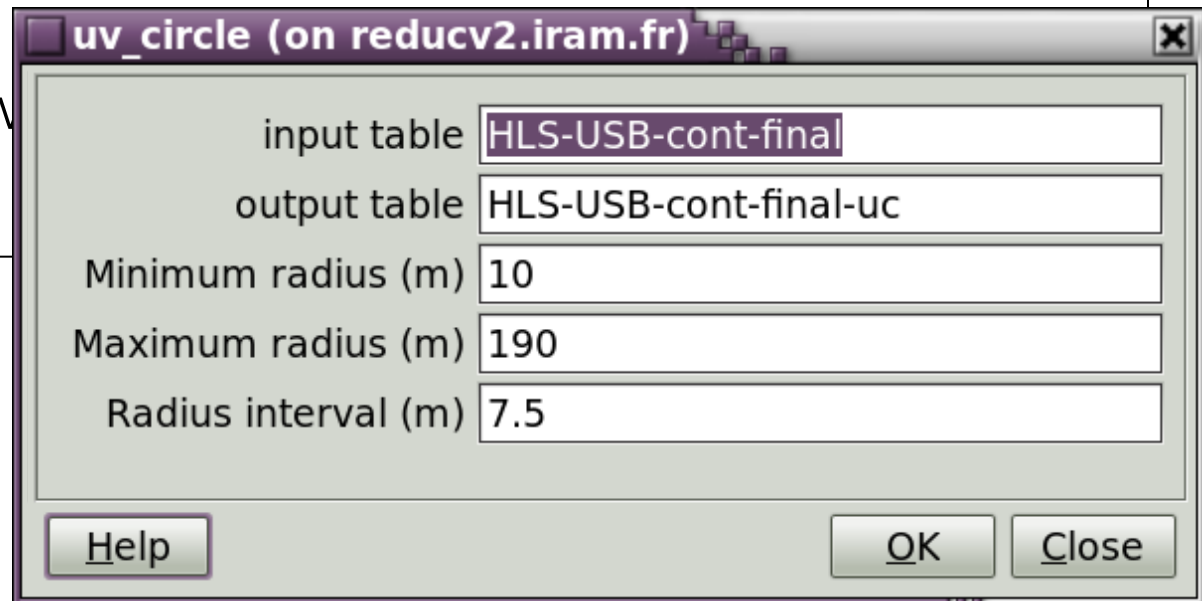
Flagged visibilities are ignored. If no input visibility is found inside a bin, then it is skipped in the output table.

Additional Help Available:

UVTABLE\$ OUTABLE\$ QM

MAPPING> go uv_circle

Note: use only in symmetrical sources.



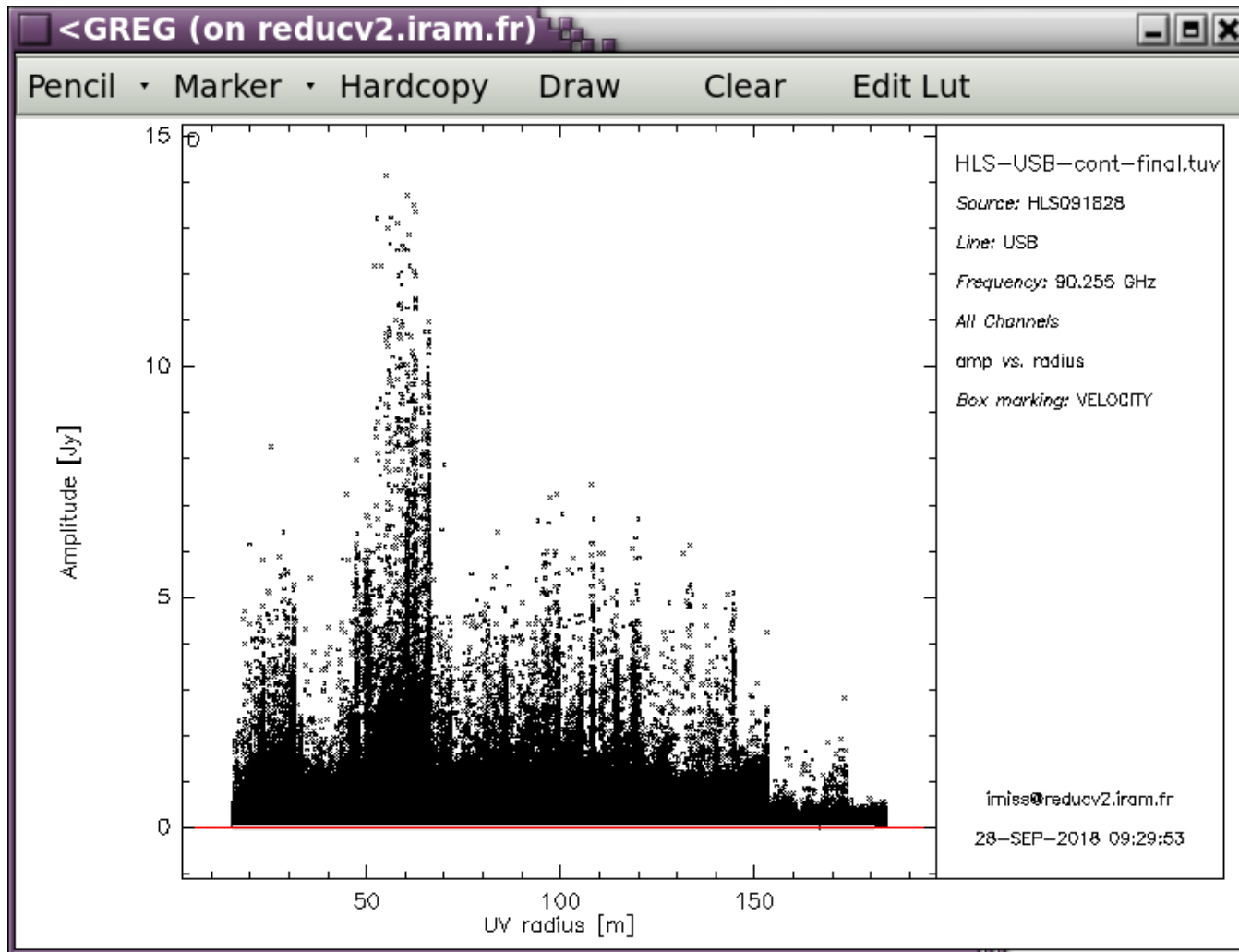
The screenshot shows a dialog box titled "uv_circle (on reducv2.iram.fr)". It contains several input fields for configuring the data analysis process:

input table	HLS-USB-cont-final
output table	HLS-USB-cont-final-uc
Minimum radius (m)	10
Maximum radius (m)	190
Radius interval (m)	7.5

At the bottom of the dialog, there are three buttons: "Help", "OK", and "Close".

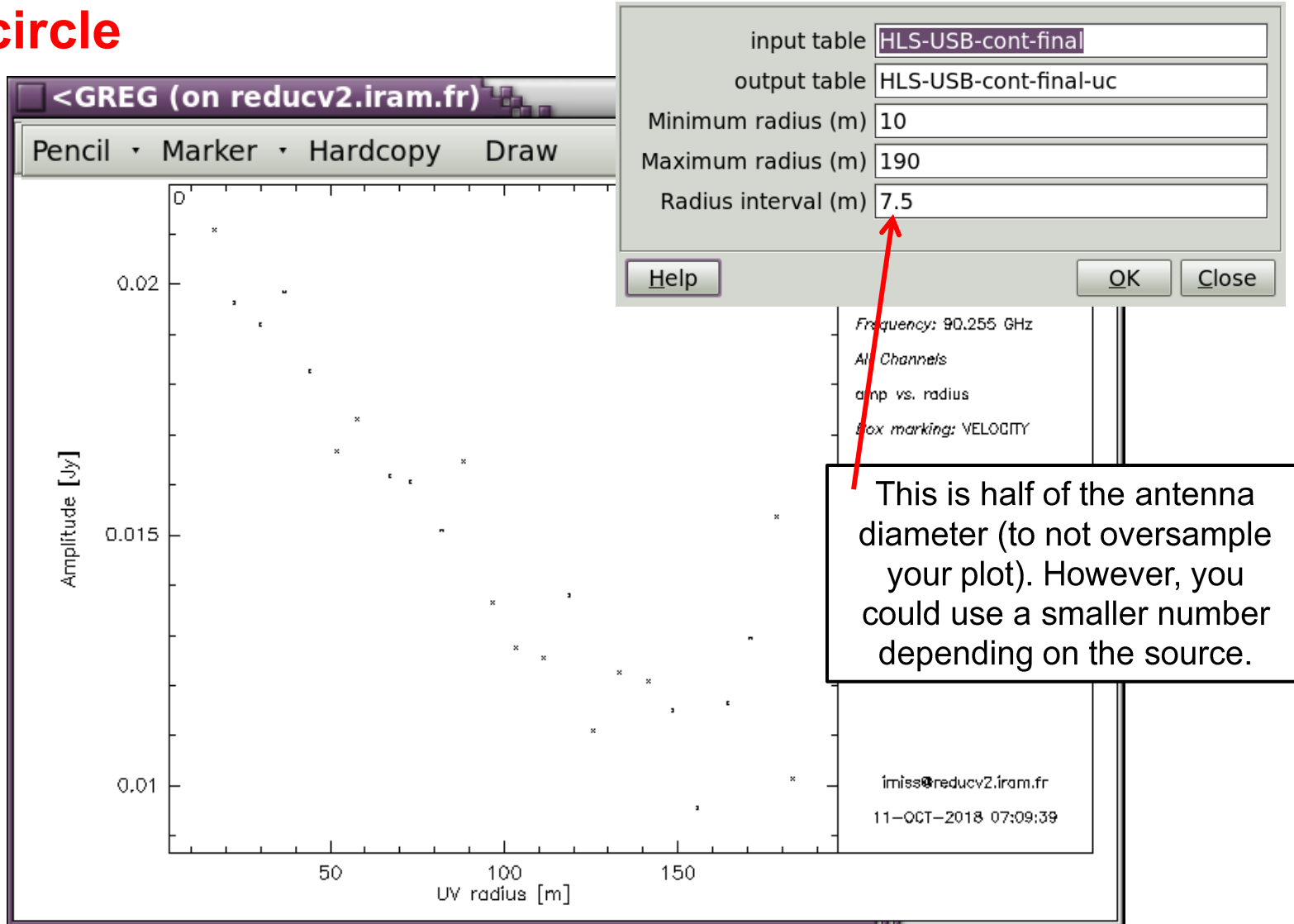
Data analysis in the uv -plane

go **uv_circle**



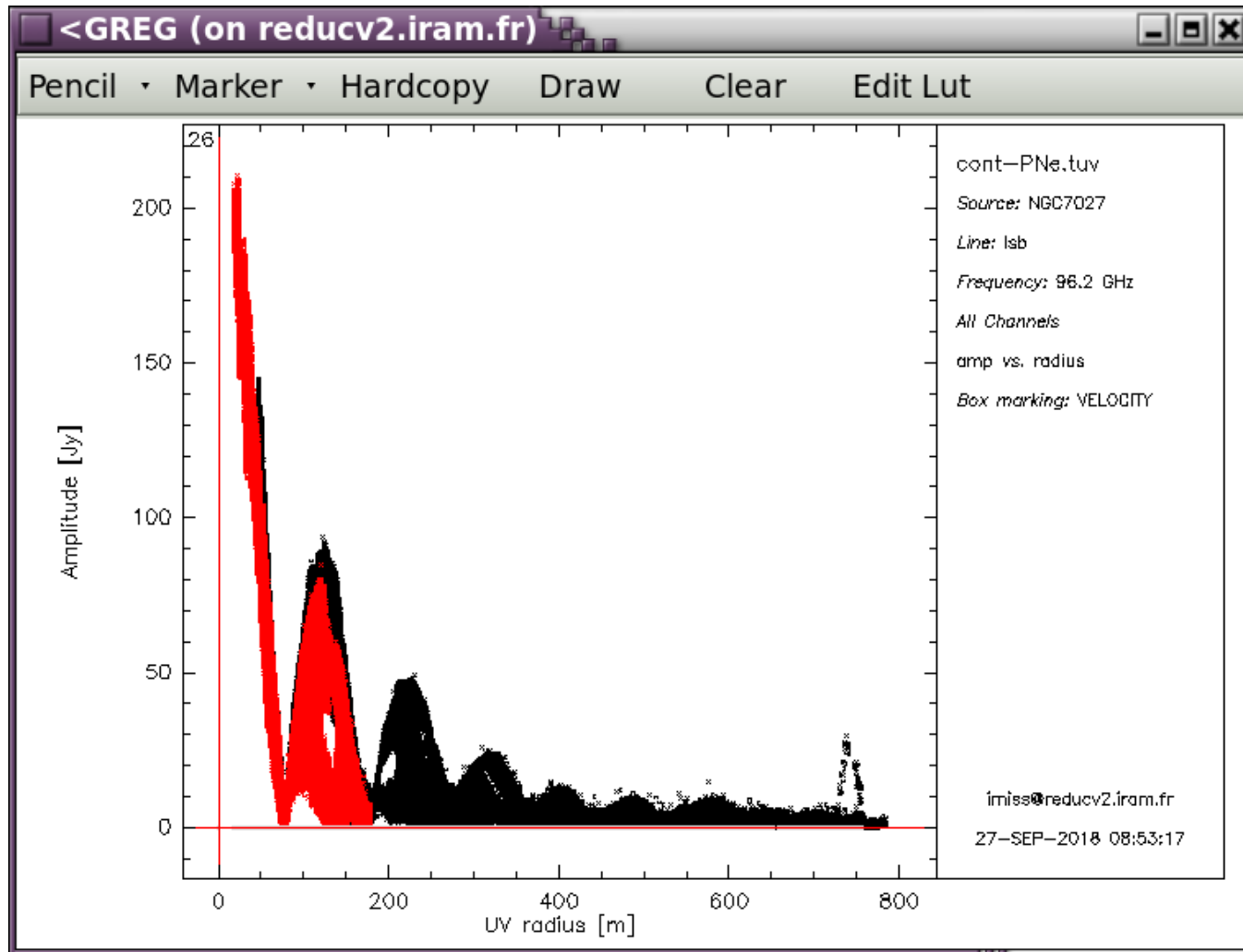
Data analysis in the uv -plane

go **uv_circle**



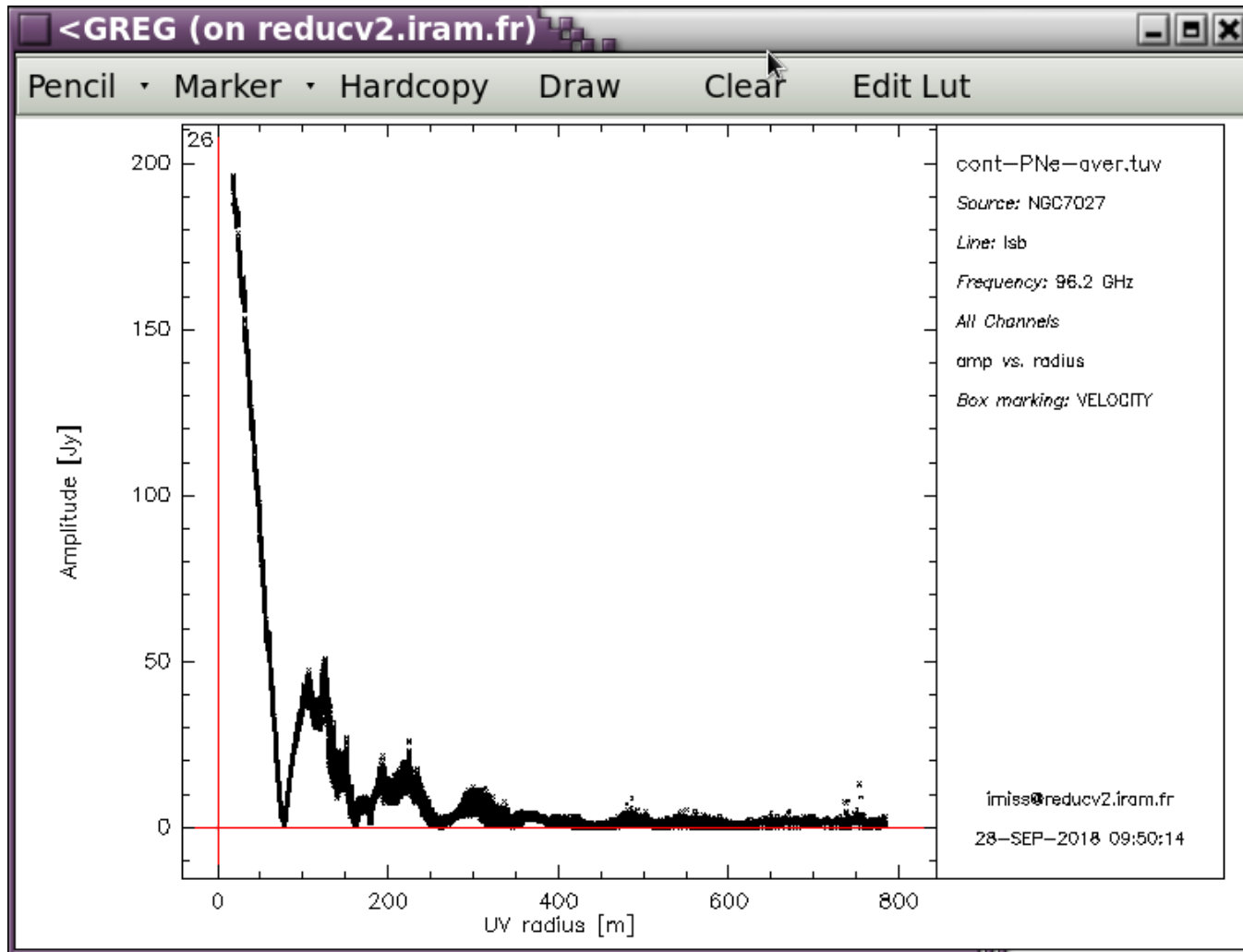
Data analysis in the uv -plane

go **uv_circle**



Data analysis in the uv -plane

go **uv_circle**



MAPPING procedures / commands

```
MAPPING> help "command"  
MAPPING> READ UV uvtable-name  
MAPPING> "command" [Arg]  
MAPPING> WRITE UV uvtable-name-output
```

uv_baseline

uv_check

uv_compress

uv_continuum

uv_flag

uv_filter

uv_map

uv_resample

uv_residual

uv_restore

uv_reweight

uv_shift

uv_sort

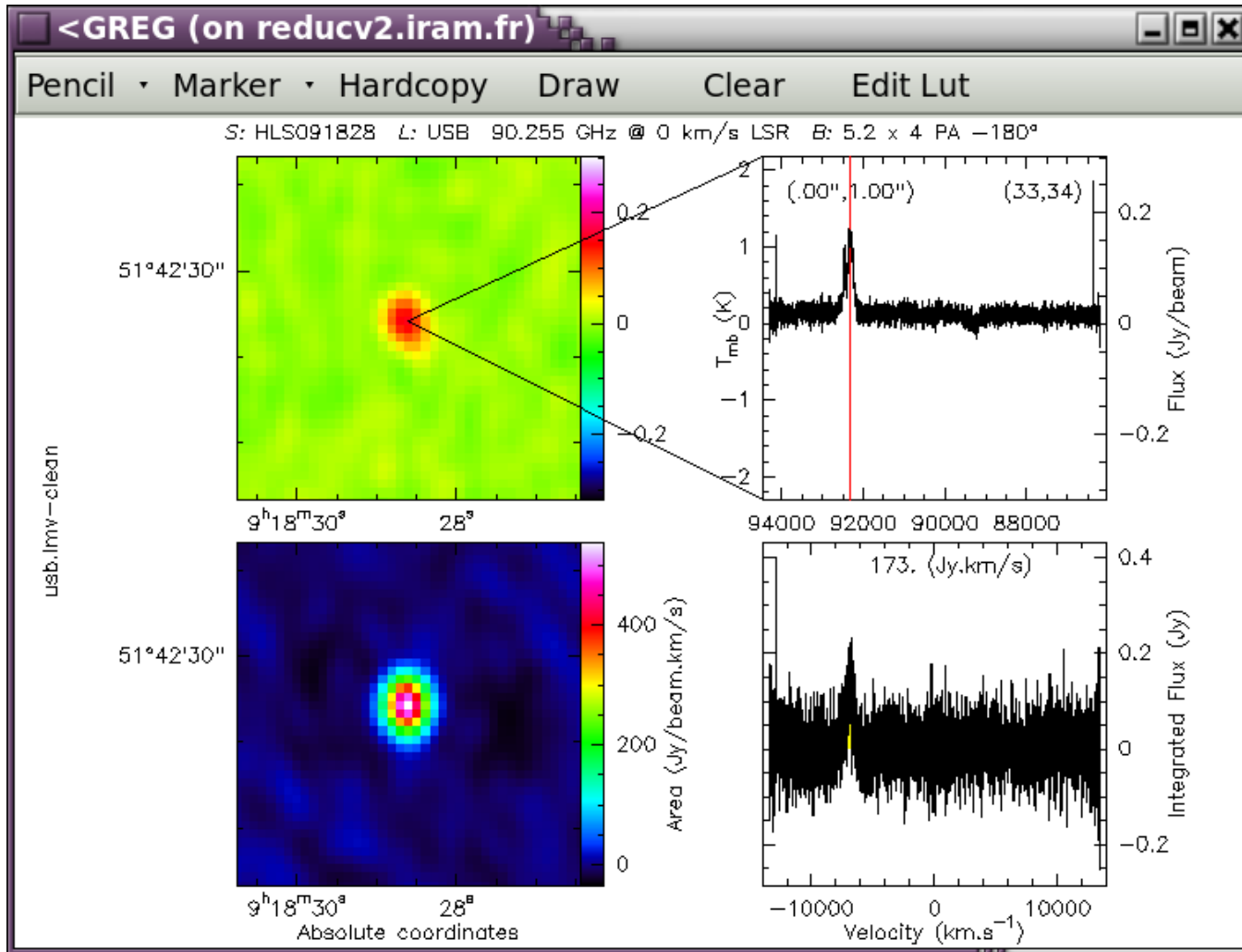
uv_stat

uv_time

uv_truncate

Data analysis in the uv -plane

uv_compress



Data analysis in the *uv*-plane

uv_compress

MAPPING> help uv_compress

[CLEAN\]UV_COMPRESS Nc

Resample the UV data loaded by READ UV by averaging NC adjacent channels. All other UV commands except UV_RESAMPLE work on the "Resampled" UV table.

The "Resampled" UV table is a simple copy of the original one after a READ UV command, or after a UV_RESAMPLE or UV_COMPRESS commands without arguments.

MAPPING> read uv usb

W-GDF_READ_UVDATASET, Producing a UVT order

I-PAUSE, Generated by pressing ^C

MAPPING> uv_compress 15

I-UV_COMPRESS, Averaging by chunks of 15 channels

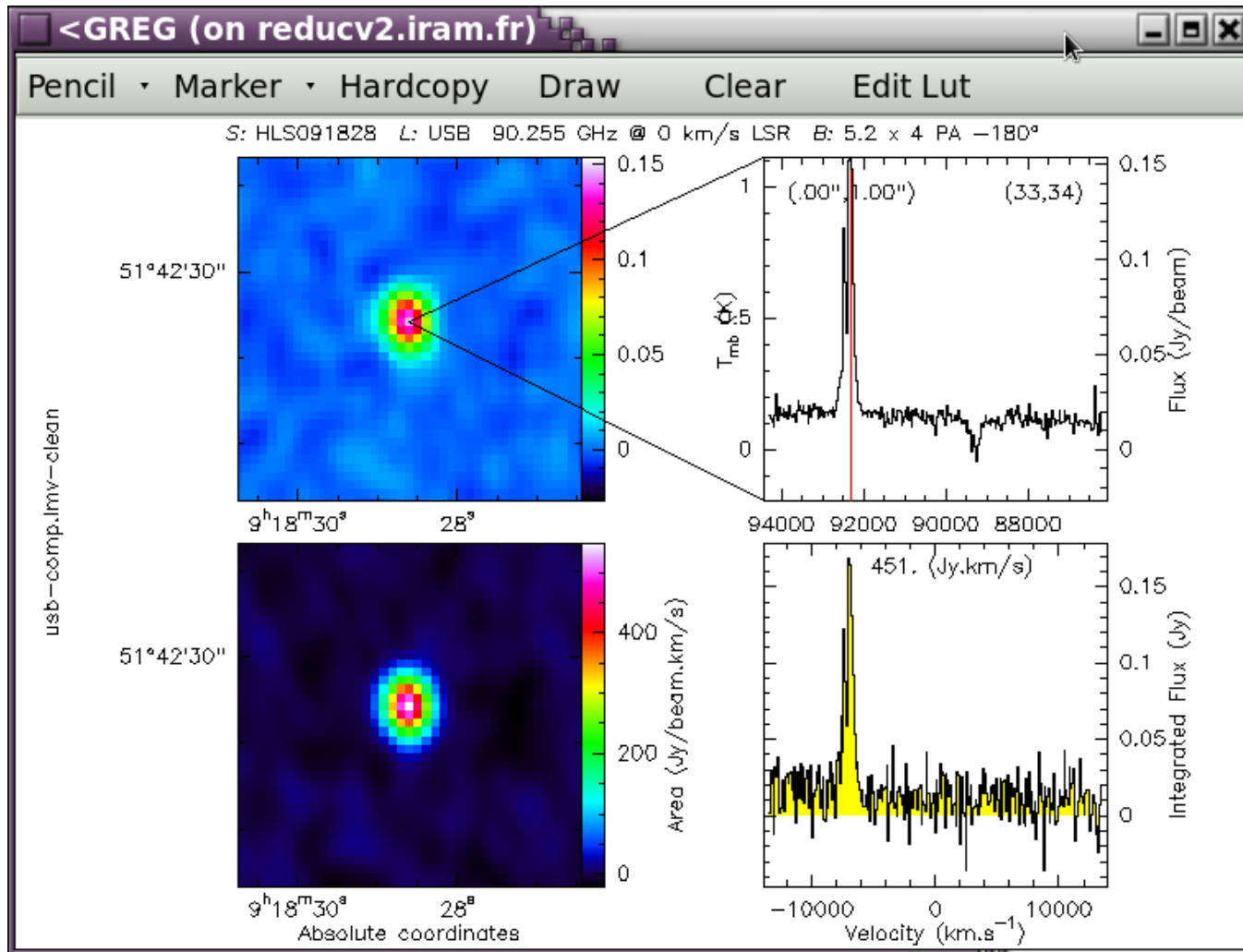
MAPPING> write uv usb-comp

MAPPING> \$ls usb-comp.uvt

usb-comp.uvt

Data analysis in the uv -plane

uv_compress



How to create a continuum uv table from a cube?

1. **uv_filter**: to filter channels with line emission

MAPPING> help uv_filter

```
[CLEAN\]UV_FILTER [/ZERO] [/CHANNELS Channel_List] [/FREQUENCY List  
Of Frequencies] [/WIDTH Width]
```

"Filter" line emission, by flagging the corresponding channels. The channels can be specified either by the /CHANNEL option or by the /FREQUENCY and /WIDTH options.

...

2. **uv_continuum**: to create uv table from the filtered one

MAPPING> help uv_continuum

```
[CLEAN\]UV_CONTINUUM Naver [First Last]
```

Transform the (presumably spectral line) UV data set loaded by READ UV into a "continuum" data set.

The transformation selects line channels from First to Last, average them by groups of Naver contiguous channels, and concatenate the resulting visibilities into a "continuum" UV table.

...

MAPPING procedures / commands

```
MAPPING> help "command"  
MAPPING> READ UV uvtable-name  
MAPPING> "command" [Arg]  
MAPPING> WRITE UV uvtable-name-output
```

uv_baseline

uv_check

uv_compress

uv_continuum

uv_flag

uv_filter

uv_map

uv_resample

uv_residual

uv_restore

uv_reweight

uv_shift

uv_sort

uv_stat

uv_time

uv_truncate

MAPPING procedures / commands

```
MAPPING> help "command"  
MAPPING> READ UV uvtable-name  
MAPPING> "command" [Arg]  
MAPPING> WRITE UV uvtable-name-output
```

uv_baseline

uv_check

uv_compress

uv_continuum

uv_flag

uv_filter

uv_map

uv_resample

uv_residual

uv_restore

uv_reweight

uv_shift

uv_sort

uv_stat

uv_time

```
MAPPING> type
```

To see in the screen all
commands that you have typed

Data analysis in the *uv*-plane

uv tables are fully editable

Each visibility contains:

uv table [visib dimension, # visibilities]

- *u* in meters
- *v* in meters
- scan number
- observation date (CLASS number)
- time in seconds (since date above)
- start antenna in the baseline
- end antenna in the baseline

visib dimension = $7 + 3 \times (\# \text{ channels})$

7 visib. characteristics

- real part for 1st channel
- imaginary part
- weight

```
mapping> define table aa mytable.uvt write
mapping> let aa[8,2380] 6000
mapping> delete /variable aa
```

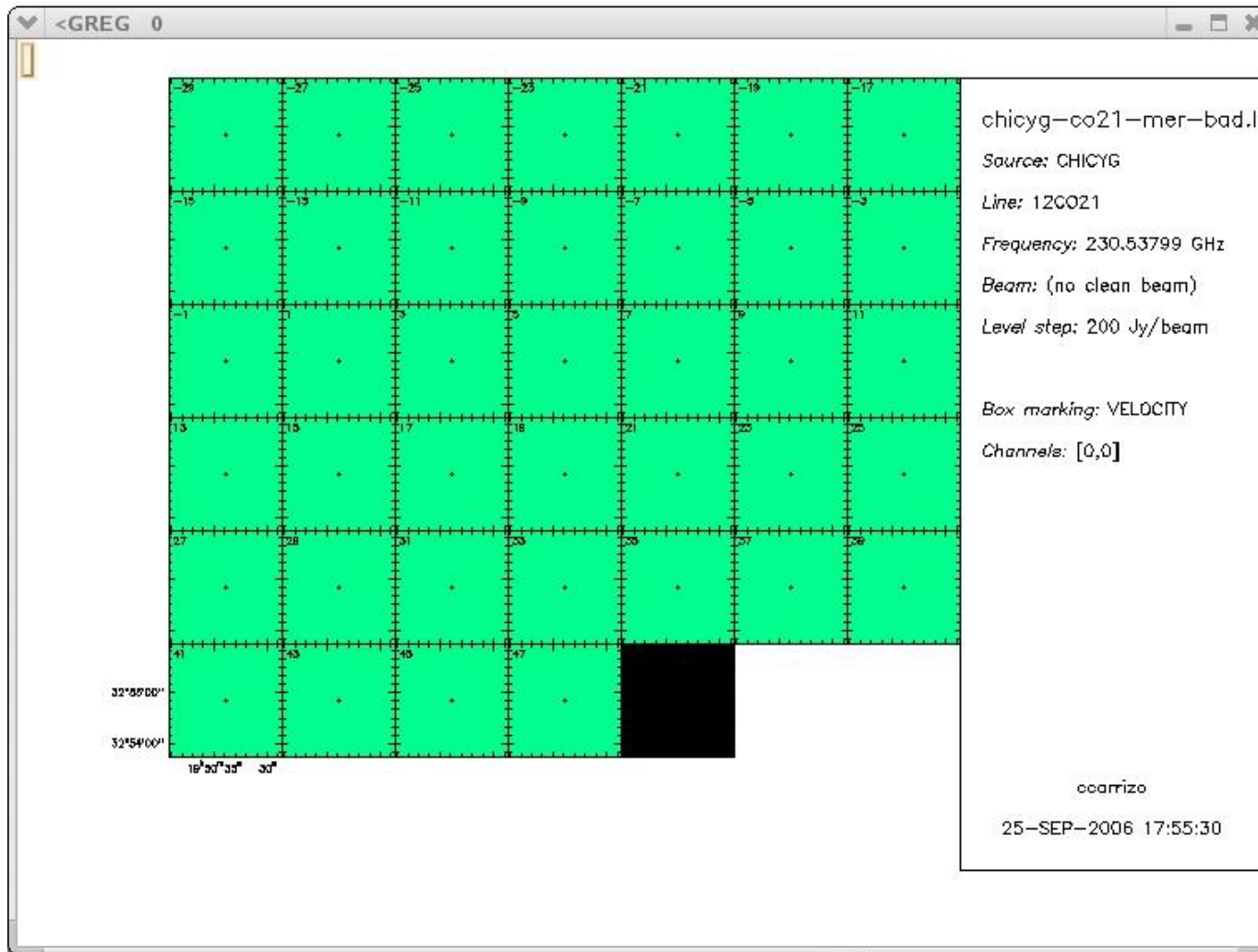
- real part for 2nd channel
- imaginary part 2nd channel
- ...

data at 2nd channel

3. An inspection of the data in the *uv*-plane is recommended

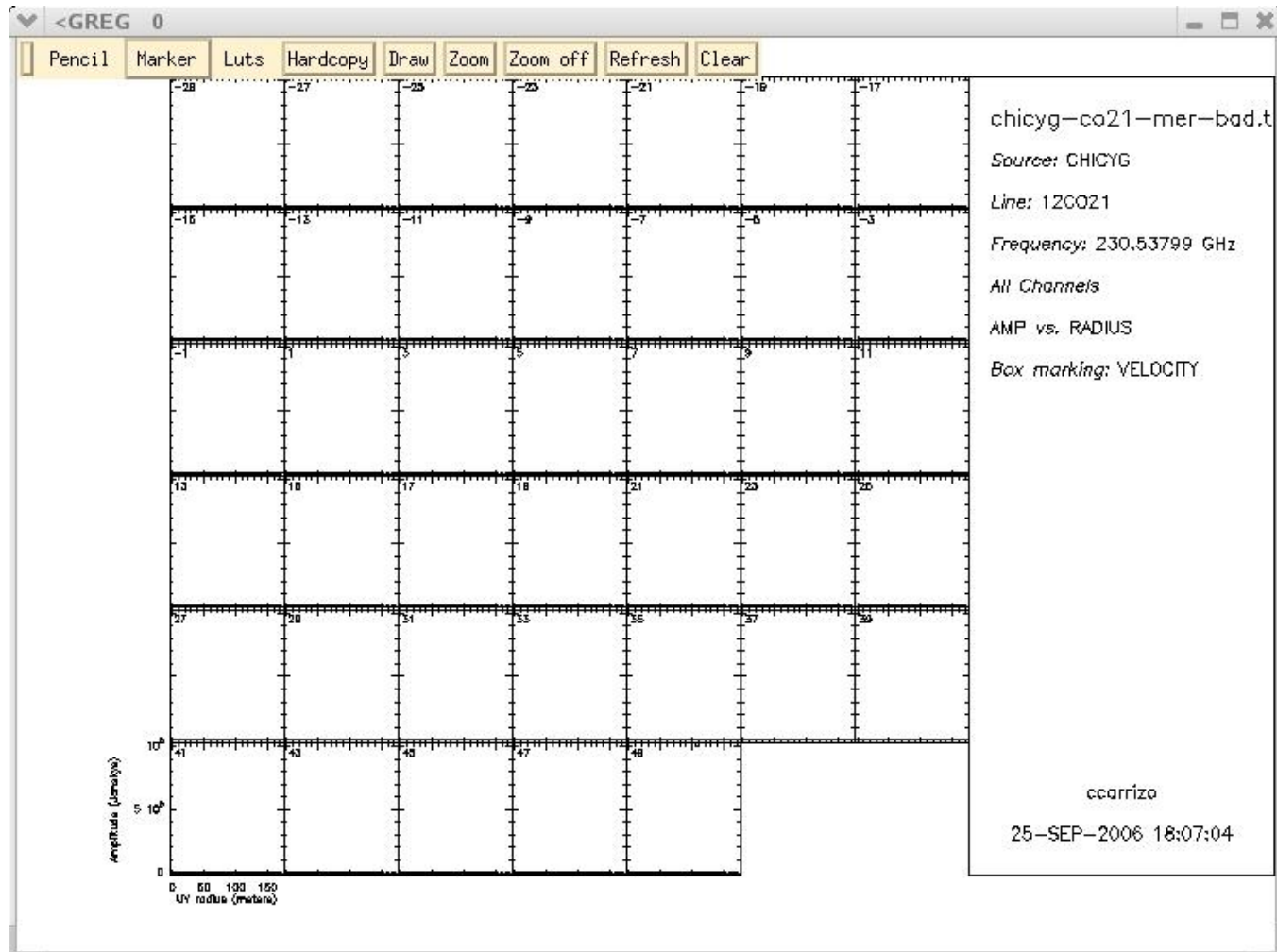
(1) Passing directly from hpb → mapping

It may happen...



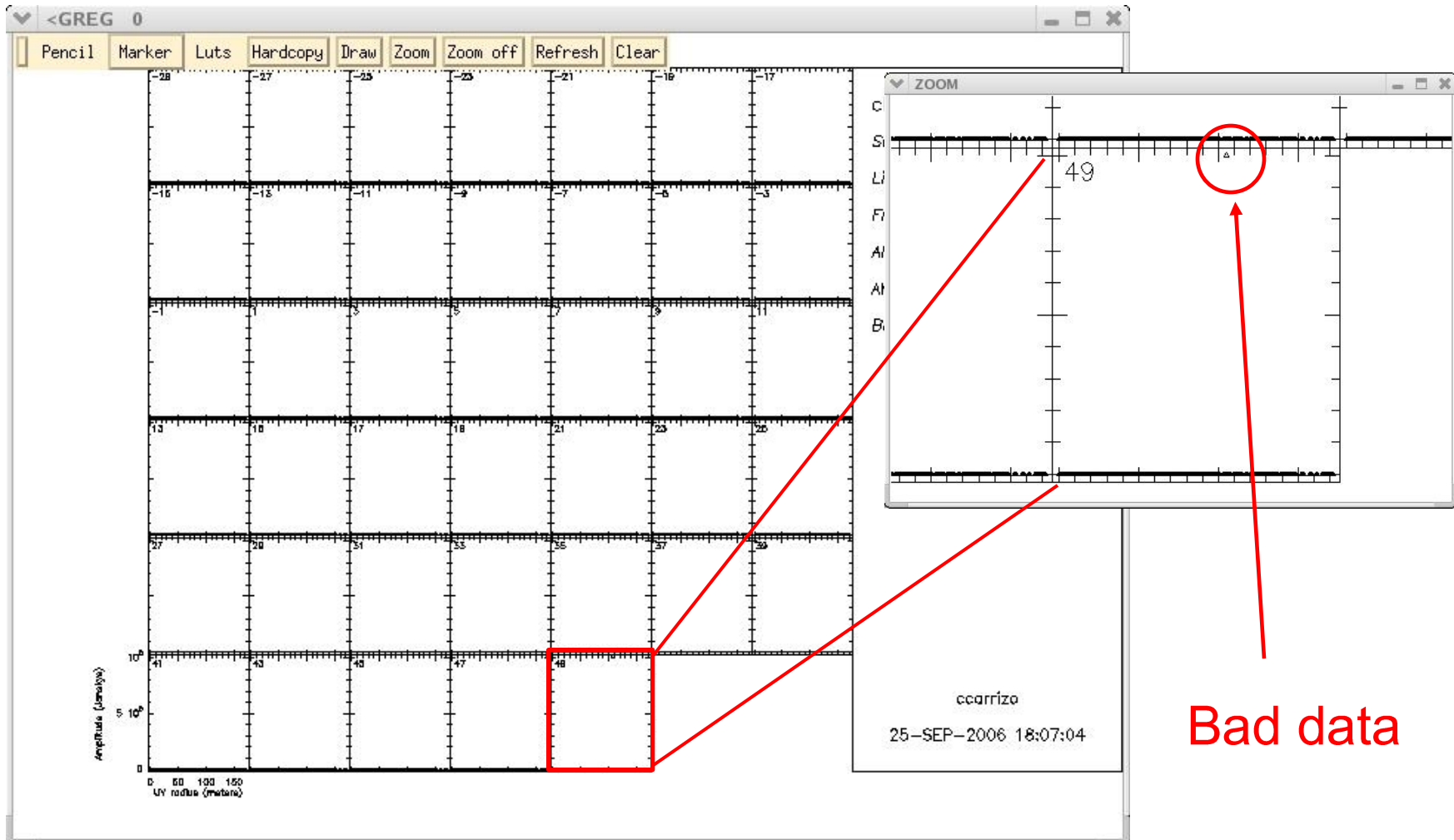
(1) Passing directly from hpb → mapping

It may happen...



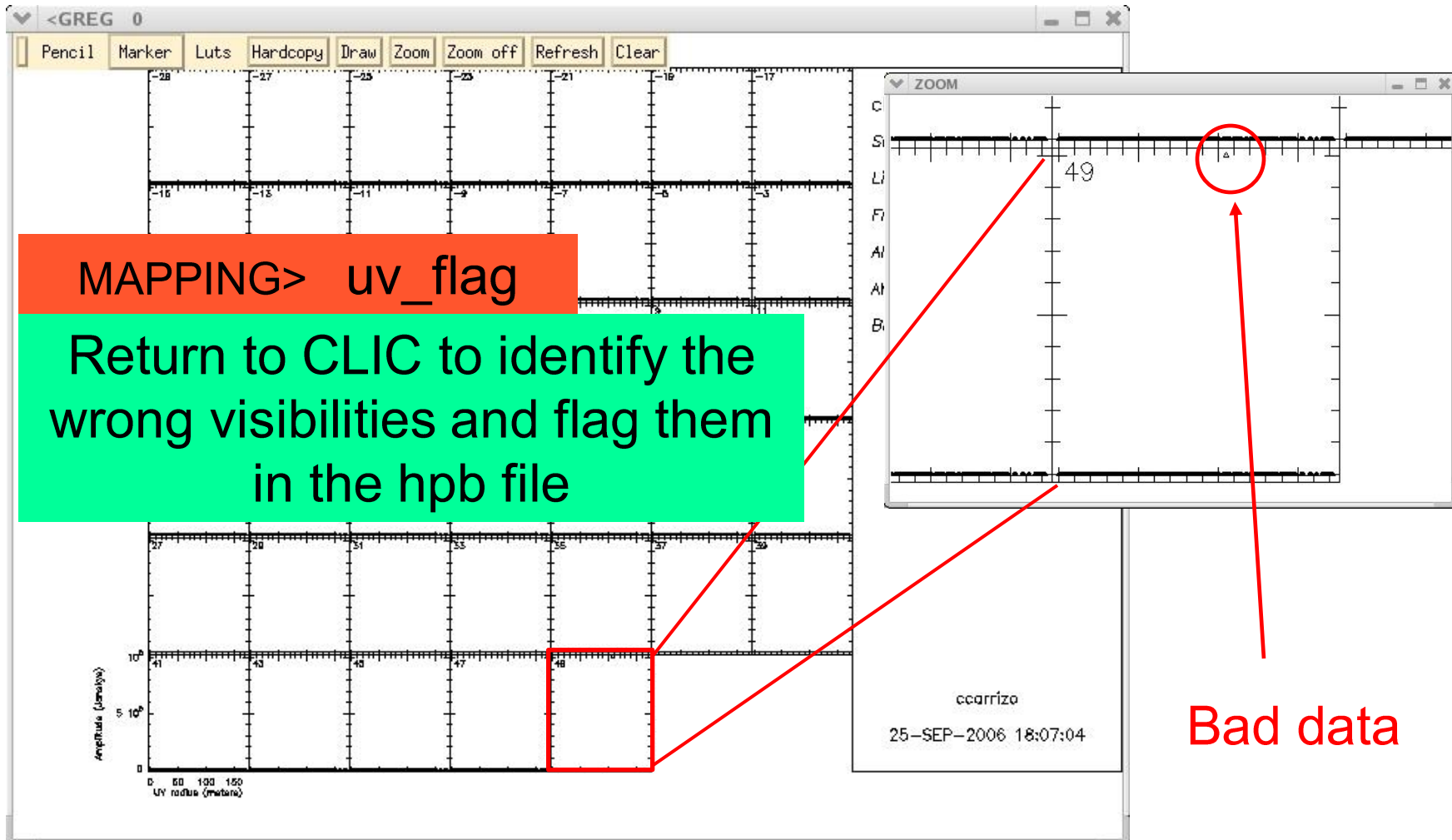
(1) Passing directly from hpb → mapping

It may happen... that there remain some wrong visibilities



(1) Passing directly from hpb → mapping

It may happen... that there remain some wrong visibilities



(1) Passing directly from hpb → mapping

It may happen... that there remain some wrong visibilities

Returning to CLIC to flag the bad visibilities

```
File Edit View Search Terminal Help
CLIC> set aver scan
CLIC> set y amp
I-SET_DATA,[0000] Displaying 122773 points in each of      36 boxes
Y axis  : Amplitude          , 0.00 to *
CLIC> set x time
I-SET_DATA,[0000] Displaying 122773 points in each of      36 boxes
X axis  : Time                , * to *
CLIC> find /proc corr /type o
I-FIND,[0000] New generation receivers data
I-FIND,[0000]          418 observations found
CLIC> plot /id col
I-GET,[2595] Entry 985 Observation 985; 12
I-SET_DATA,[2595] Displaying 122773 points in each of      36 boxes
I-GET,[2594] Entry 984 Observation 984; 11
```

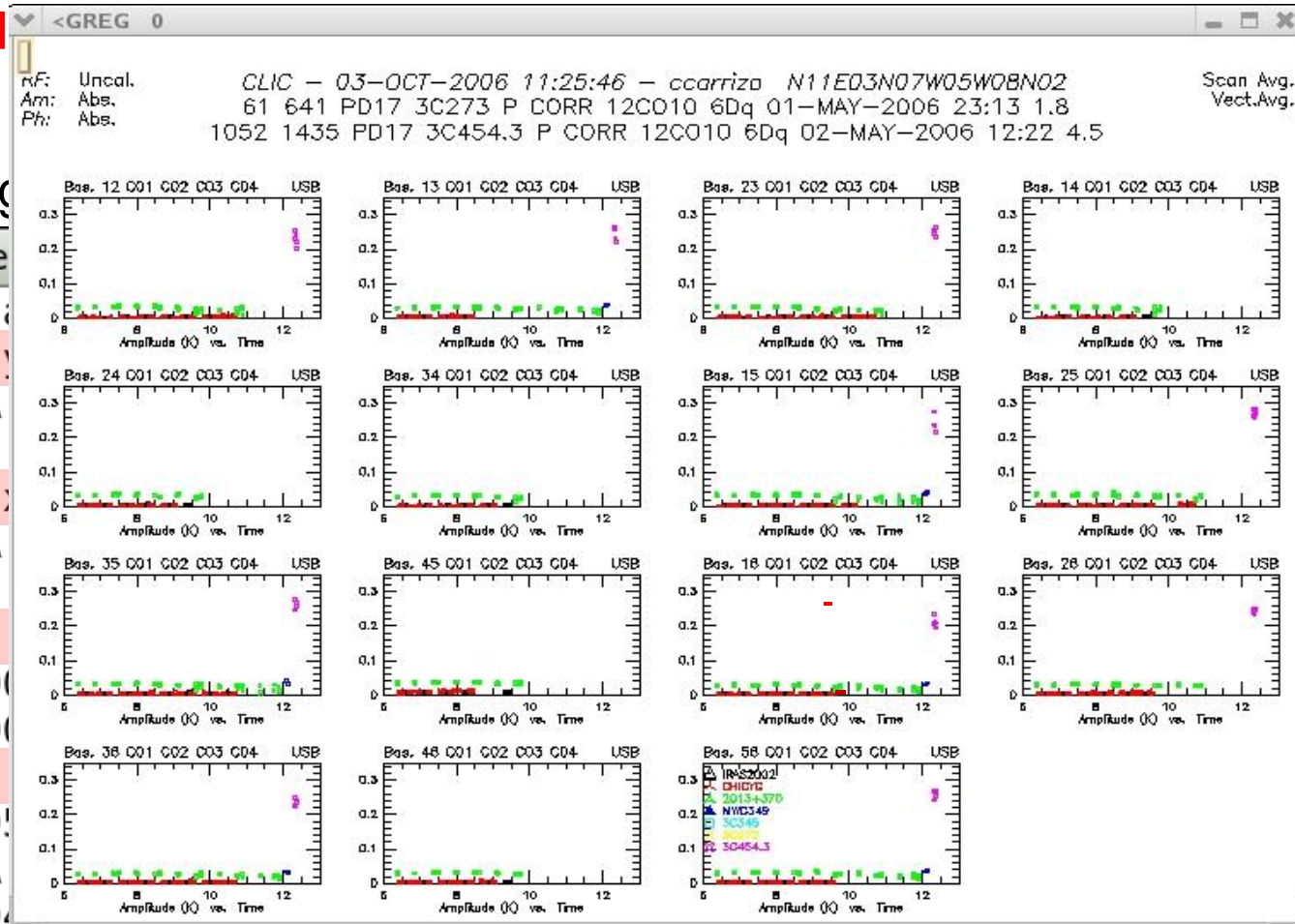
(1)

Passing directly from hpb → mapping

Returning

File Edit View

```
CLIC> set  
CLIC> set  
I-SET_DATA  
Y axis :  
CLIC> set  
I-SET_DATA  
X axis :  
CLIC> find  
I-FIND, [000  
I-FIND, [000  
CLIC> plot  
I-GET, [259  
I-SET_DATA  
I-GET, [259
```



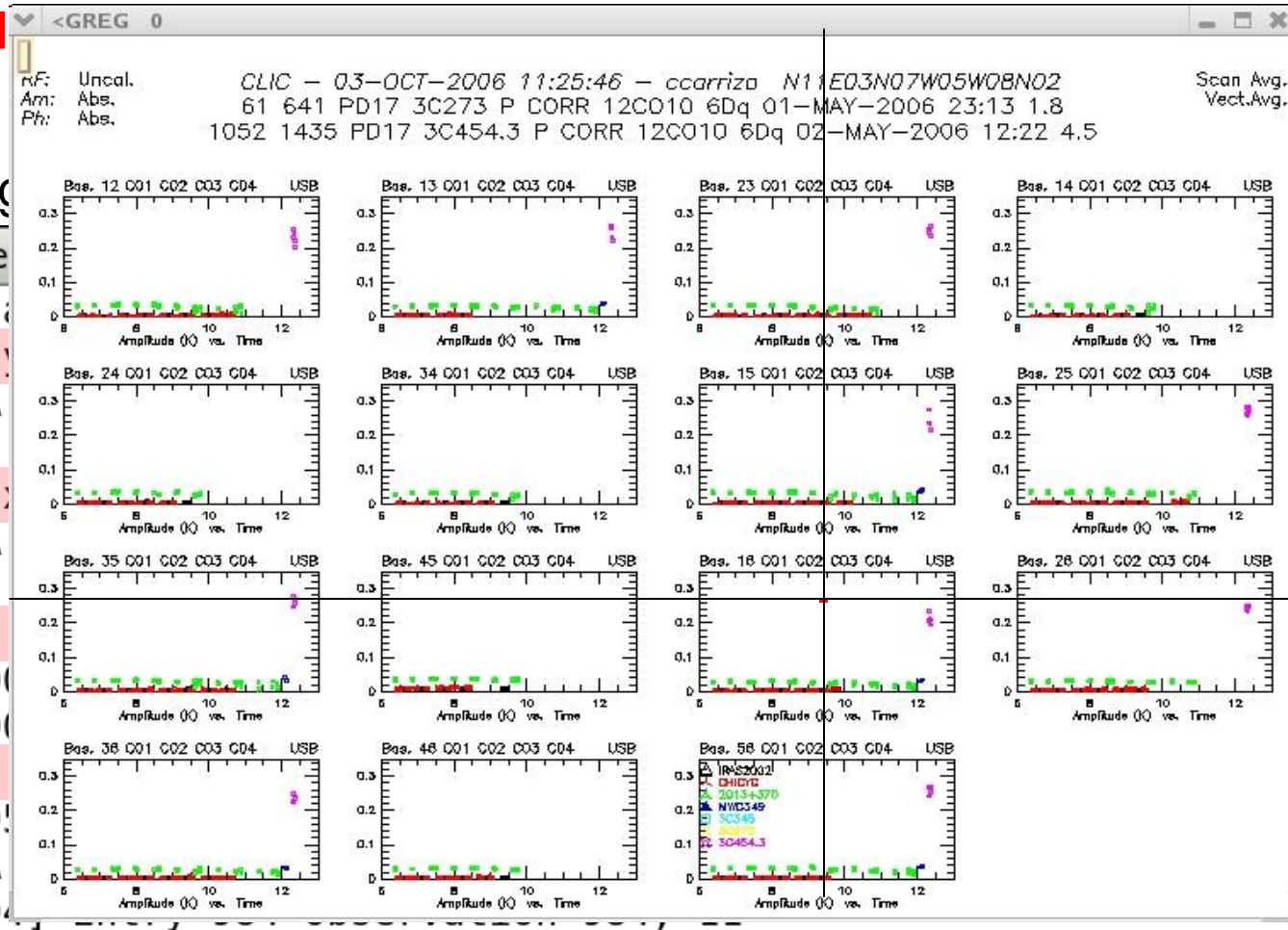
(1)

Passing directly from hpb → mapping

Returning

File Edit View

```
CLIC> set  
CLIC> set  
I-SET_DATA  
Y axis :  
CLIC> set  
I-SET_DATA  
X axis :  
CLIC> find  
I-FIND, [00  
I-FIND, [00  
CLIC> plot  
I-GET, [259  
I-SET_DATA  
I-GET, [259
```



CLIC> cursor

To define the scan range

(1) Passing directly from hpb → mapping

It may happen... that there remain some wrong visibilities

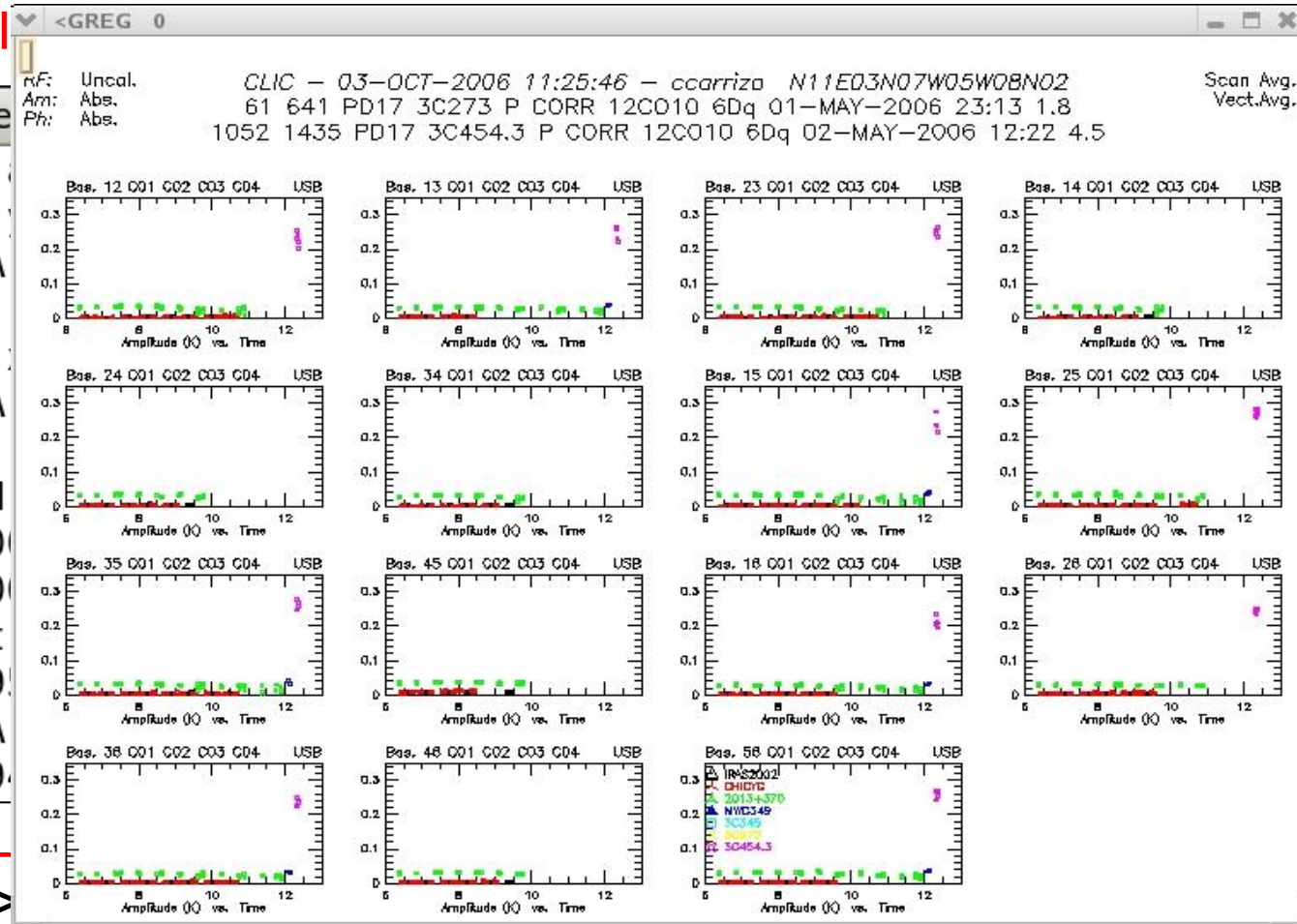
```
File Edit View Search Terminal Help
CLIC> set aver scan
CLIC> set y amp
I-SET_DATA,[0000] Displaying 122773 points in each of      36 boxes
Y axis : Amplitude      , 0.00 to *
CLIC> set x time
I-SET_DATA,[0000] Displaying 122773 points in each of      36 boxes
X axis : Time           , * to *
CLIC> find /proc corr /type o
I-FIND,[0000] New generation receivers data
I-FIND,[0000]          418 observations found
CLIC> plot /id col
I-GET,[2595] Entry 985 Observation 985; 12
I-SET_DATA,[2595] Displaying 122773 points in each of      36 boxes
I-GET,[2594] Entry 984 Observation 984; 11
```

```
CLIC> find /procedure corr /type object /scans 1245 1255
CLIC> store quality 9
```

(1)

Passing directly from hpb → mapping

```
File Edit View  
CLIC> set  
CLIC> set  
I-SET_DATA  
Y axis :  
CLIC> set  
I-SET_DATA  
X axis :  
CLIC> find  
I-FIND, [00  
I-FIND, [00  
CLIC> plot  
I-GET, [259  
I-SET_DATA  
I-GET, [259
```



CLIC>

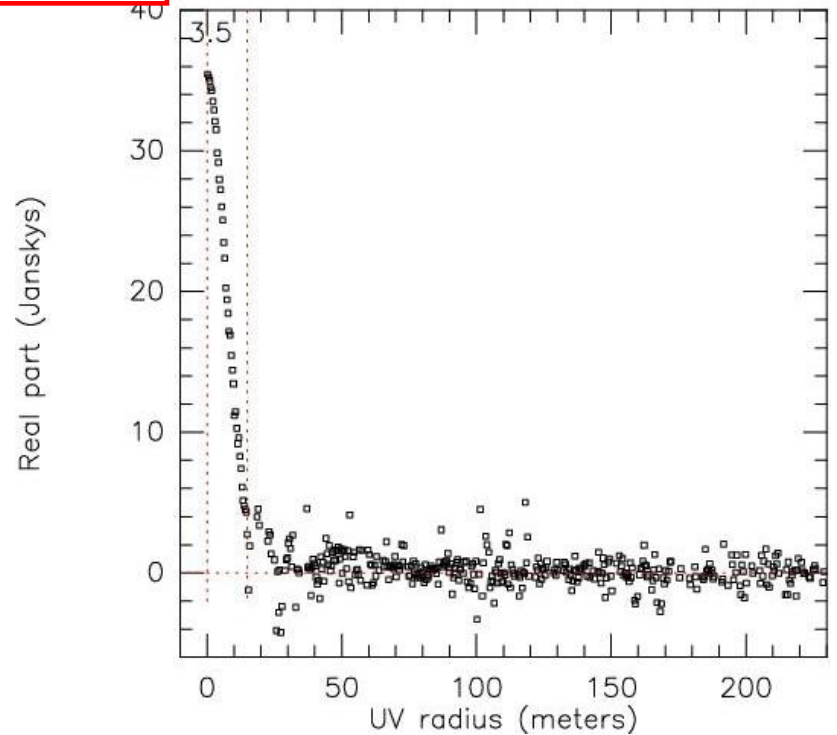
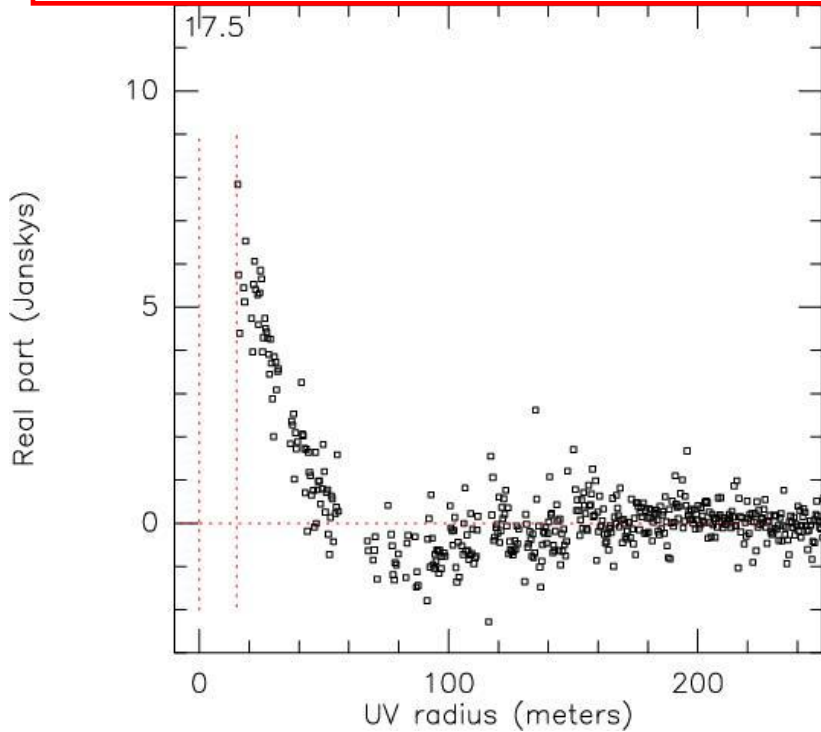
CLIC> store quality 9

255

(2)

Passing directly from hpb → mapping

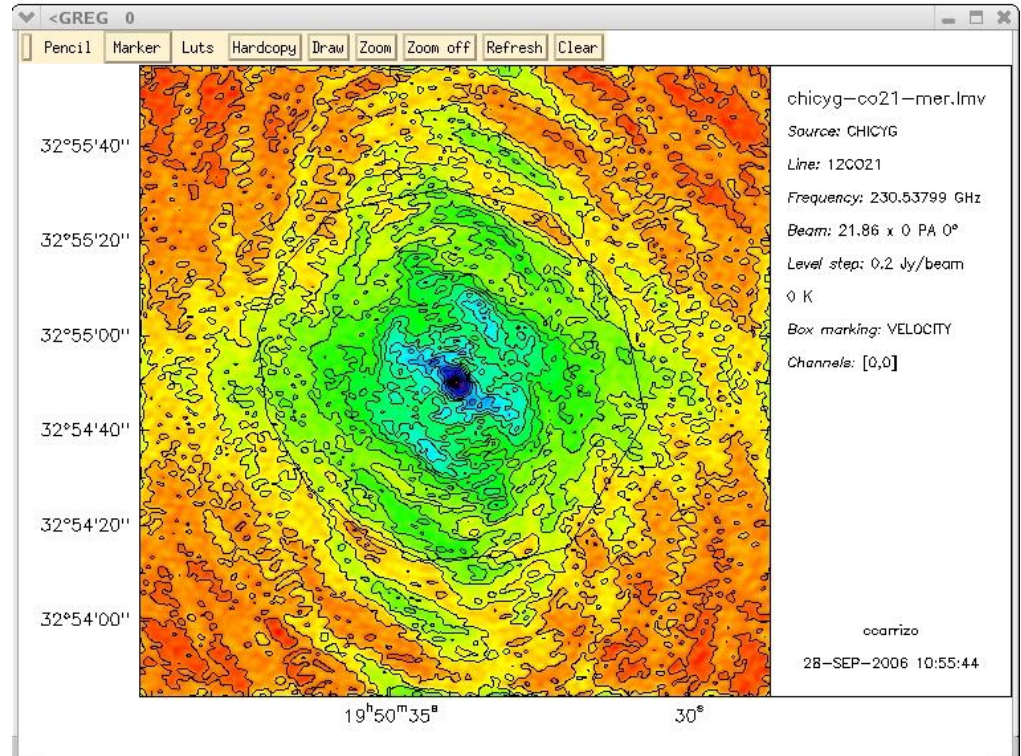
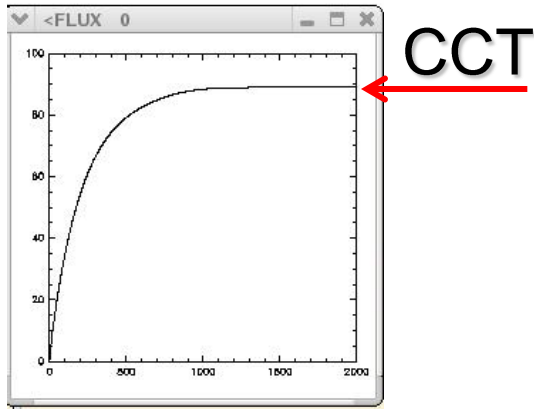
When short-spacing data, check that the relative calibration is ok



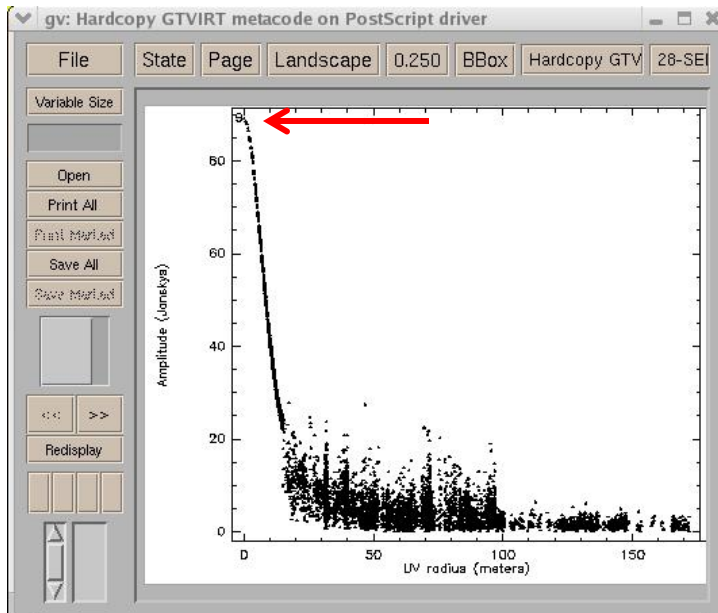
+ Short-spacing data

(3) Passing directly from hpb → mapping

Good practice: When cleaning (extended sources)...



Dirty image

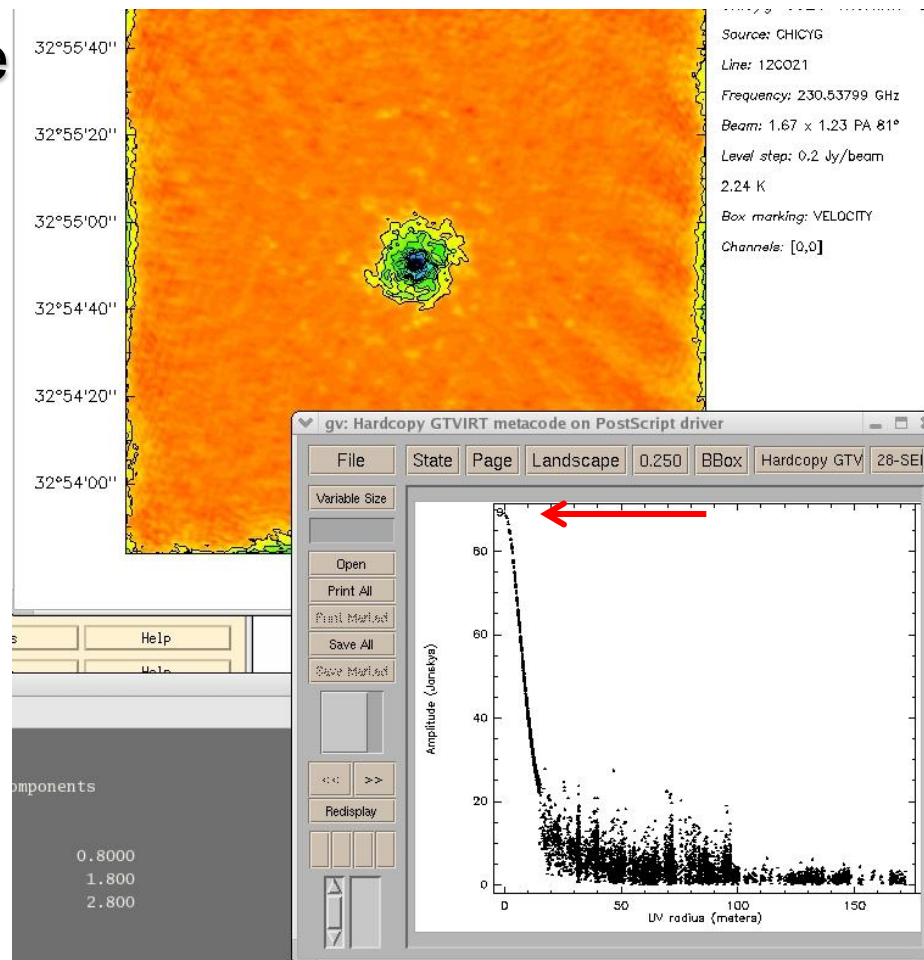


Uvradius vs Amp

(3) Passing directly from hpb → mapping

Good practice: When cleaning (extended sources)
**verify that the flux obtained in the image plane
coincides with that at the zero-spacing**

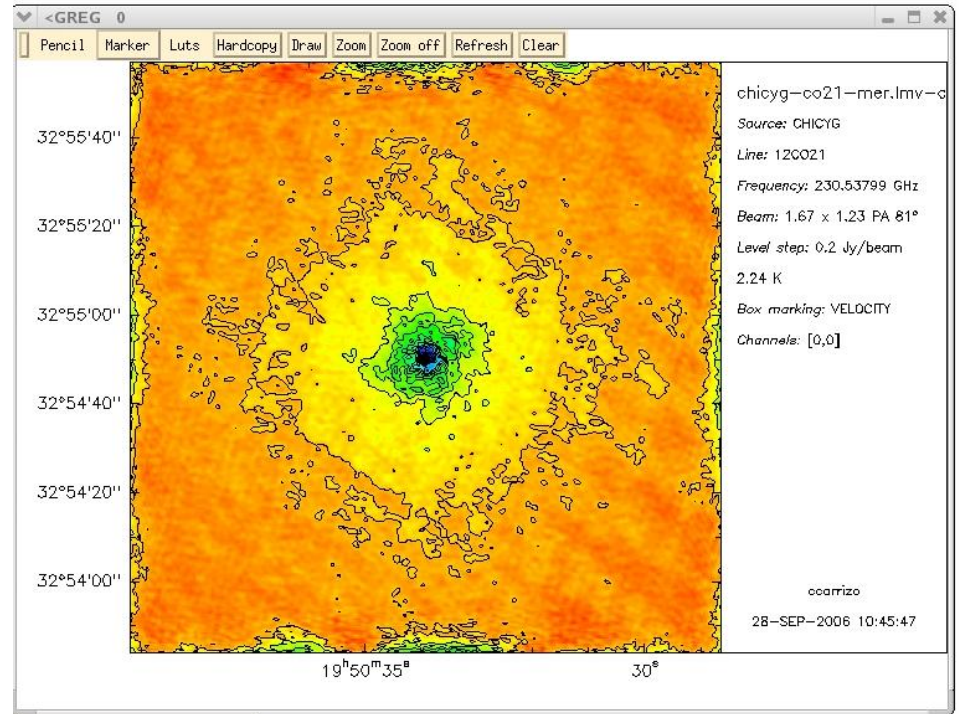
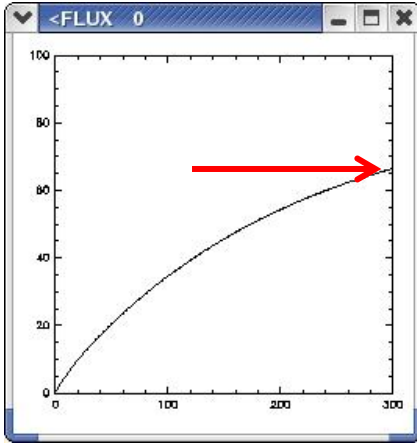
Clean image



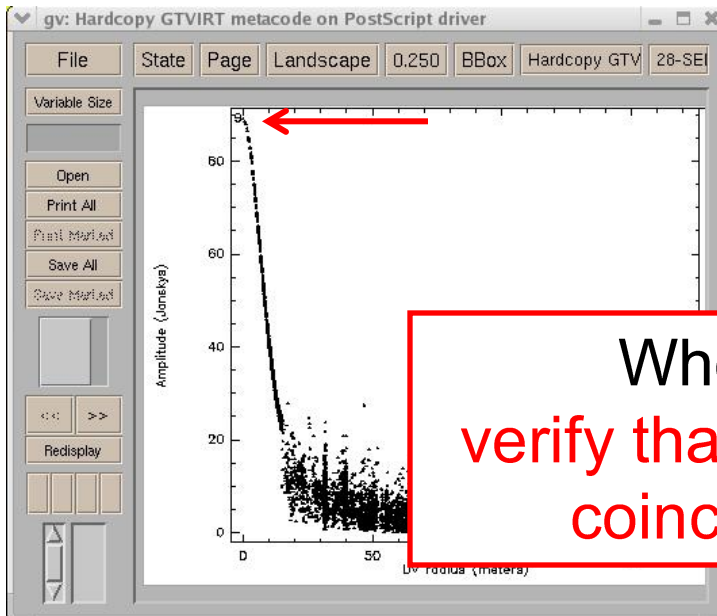
(3) Passing directly from hpb → mapping

If not, it may happen...

CCT



Clean image



When cleaning (extended sources)
verify that the flux obtained in the image plane
coincides with that at the zero-spacing

To conclude:

- An inspection of data in the uv -plane is recommended for all the projects
- A detailed analysis in the uv -plane: detection, modeling of simple shapes, to check relative calibration, etc...