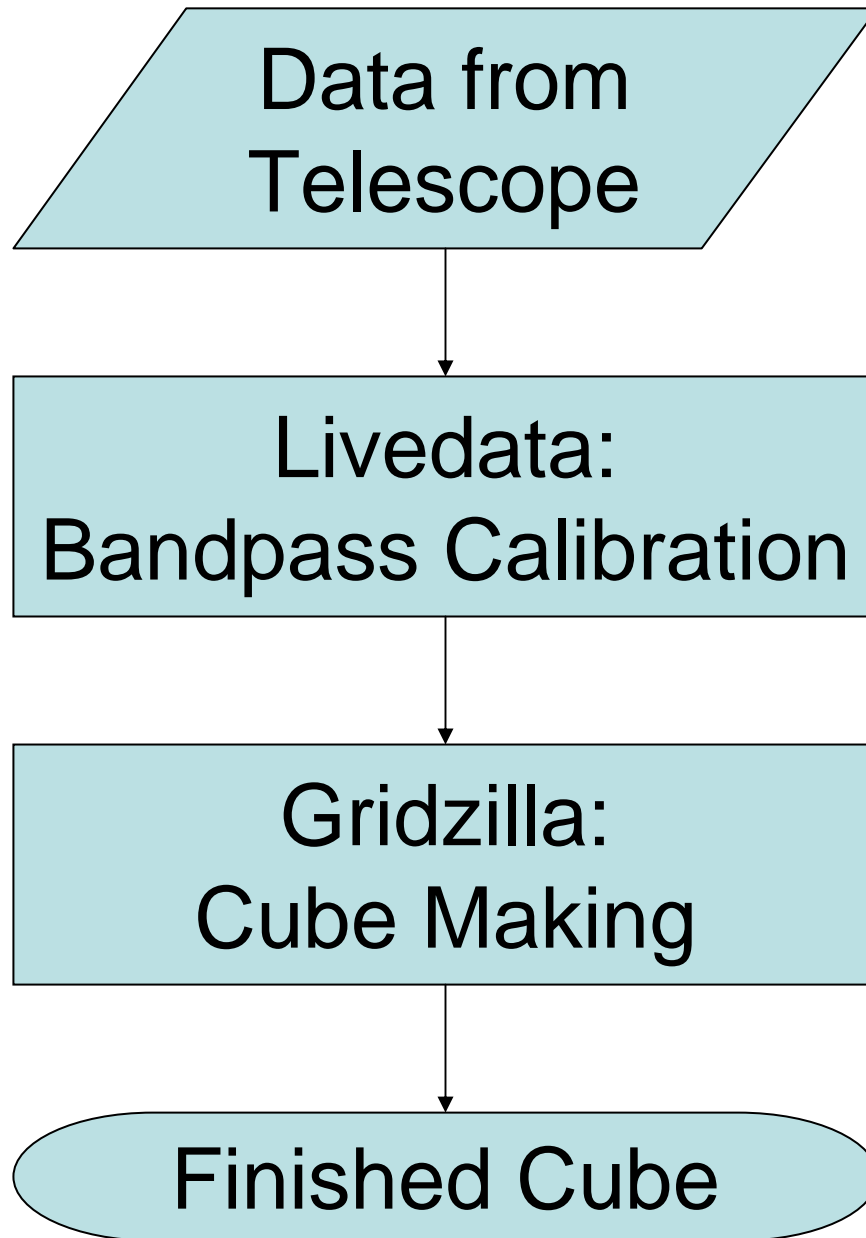


Processing AGES data

Robert Minchin



SCHEDULER

Configuration

GENERAL

START

 Pause Stop after this

STOP NOW

Exit

Read directory

./reformed

Write directory

./reformed_out/

File wildcard(s)

200512???.a2048.fits

MULTIBEAM WRITER

Output format

SDFITS

Raw files

Queue selection

Update

Queued files

 Auto-Queue

Dequeue

Processed files

Clear

wapp.20051226.a2048.0005.fits
 wapp.20051226.a2048.0006.fits
 wapp.20051226.a2048.0007.fits
 wapp.20051226.a2048.0008.fits
 wapp.20051226.a2048.0009.fits
 wapp.20051226.a2048.0010.fits

wapp.20051226.a2048.0005
 wapp.20051226.a2048.0006
 wapp.20051226.a2048.0007
 wapp.20051226.a2048.0008
 wapp.20051226.a2048.0009
 wapp.20051226.a2048.0010

DATA REDUCTION CONTROL

wapp.20051226.a2048.0010.fits

Gridded...

Reader

 Bandpass calibration Monitor output Statistics Write data

IDLE

IDLE

inactive

inactive

IDLE

Processing completed

```
18:27:30: bandpass: Check time = T
18:27:30: bandpass: Tjump = 3
18:27:30: bandpass: Check position = T
18:27:30: bandpass: Djump = 4
18:28:15: reader: Input file closed.
18:28:16: bandpass: Calculating and applying bandpass correction...
18:28:20: bandpass: Flushing buffer...
18:29:52: bandpass: pbsbandpass is finished.
18:29:52: writer: Output file closed.
```

MULTIBEAM READER

Format: SDFITS

Max retries: 0

Input data selection



IFs

1&2

Channel range

1 - 4096

 Read X-pol Interpolate Calibrate...

Aggregation 1

BANDPASS CALIBRATION

Configuration: GENERAL

Pre-bandpass calibration options

Spectral smoothing

TUKEY

Spectral pre-scaling

NONE

Bandpass calibration parameters

Method

EXTENDED

Max cycles

600

 Cross-beam

Estimator

MEDIAN

Box size

610

STATISTIC OF RATIOS

Post-bandpass calibration options

Spectral baseline fit

1

 Preserve continuum

Mask

0

0

0

0

0

0

0

0

0

0

0

Doppler frame

BARYCENT

 Rescale frequency axis

Validity checking

 Check field name Time

jump

3

second

 Position

4

arcmin

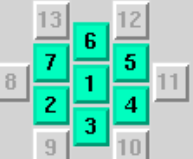
Bandpass Calibration

- Data is Tukey smoothed (reduces velocity resolution to ~ 7 km/s).
- Bandpass estimated as the median of the entire scan.
- Post bandpass-subtraction, a robust linear fit is made to the baseline.
- Frequency axis is rescaled to Barycentric.

Flux Calibration

- Cal On - Cal Off pair taken at the start of every scan.
- Livedata applies the calibration using $T_{\text{cal}} = 12 \text{ K}$ and $\text{Gain} = 10 \text{ K/Jy}$.
- Using fixed values for T_{cal} and Gain is not optimal and limits the flux accuracy to around 10%.

INPUT DATA SELECTION

	Frequency range <input type="text" value="0"/> - <input type="text" value="99999"/> MHz	<input checked="" type="checkbox"/> Spectral
	Rest frequency <input type="text" value="1420.40575"/> MHz	<input checked="" type="checkbox"/> Continuum
	IFs <input type="text" value="1&2"/>	<input checked="" type="checkbox"/> Baseline
	Polarization <input type="text" value="A&B"/>	

Search path File wildcard(s)

```
wpp_20060612_0204S_0013_sdfits (in ./reformed_out)
wpp_20060612_0204S_0002_sdfits (in ./reformed_out)
wpp_20060612_0204S_0004_sdfits (in ./reformed_out)
wpp_20060612_0204S_0005_sdfits (in ./reformed_out)
wpp_20060612_0204S_0006_sdfits (in ./reformed_out)
wpp_20060612_0204S_0008_sdfits (in ./reformed_out)
wpp_20060612_0204S_0009_sdfits (in ./reformed_out)
wpp_20060612_0204S_0010_sdfits (in ./reformed_out)
wpp_20060612_0204S_0011_sdfits (in ./reformed_out)
wpp_20060612_0204S_0012_sdfits (in ./reformed_out)
wpp_20060612_0204S_0005_sdfits (in ./reformed_out)
wpp_20060612_0204S_0006_sdfits (in ./reformed_out)
wpp_20060612_0204S_0007_sdfits (in ./reformed_out)
wpp_20060612_0204S_0008_sdfits (in ./reformed_out)
wpp_20060612_0204S_0009_sdfits (in ./reformed_out)
wpp_20060612_0204S_0010_sdfits (in ./reformed_out)
wpp_20060612_0204S_0011_sdfits (in ./reformed_out)
wpp_20060612_0204S_0012_sdfits (in ./reformed_out)
wpp_20060612_0204S_0013_sdfits (in ./reformed_out)
wpp_20060612_0204S_0004_sdfits (in ./reformed_out)
wpp_20060612_0204S_0005_sdfits (in ./reformed_out)
wpp_20060612_0204S_0006_sdfits (in ./reformed_out)
wpp_20060612_0204S_0007_sdfits (in ./reformed_out)
wpp_20060612_0204S_0008_sdfits (in ./reformed_out)
wpp_20060612_0204S_0009_sdfits (in ./reformed_out)
wpp_20060612_0204S_0010_sdfits (in ./reformed_out)
wpp_20060612_0204S_0011_sdfits (in ./reformed_out)
wpp_20060612_0204S_0012_sdfits (in ./reformed_out)
wpp_20060612_0204S_0004_sdfits (in ./reformed_out)
wpp_20060612_0204S_0005_sdfits (in ./reformed_out)
wpp_20060612_0204S_0006_sdfits (in ./reformed_out)
wpp_20060612_0204S_0007_sdfits (in ./reformed_out)
wpp_20060612_0204S_0008_sdfits (in ./reformed_out)
wpp_20060612_0204S_0009_sdfits (in ./reformed_out)
wpp_20060612_0204S_0010_sdfits (in ./reformed_out)
wpp_20060612_0204S_0011_sdfits (in ./reformed_out)
wpp_20060612_0204S_0012_sdfits (in ./reformed_out)
wpp_20060612_0204S_0001_sdfits (in ./reformed_out)
wpp_20060612_0204S_0002_sdfits (in ./reformed_out)
```

GRIDZILLA

Parameter set

PROCESSING OPTIONS

Output image geometry

Projection	<input type="text" value="SIN"/>	P1: <input type="text" value="0"/>	<input type="checkbox"/> Reference point	<input type="text" value="EQUATORIAL"/>
		P2: <input type="text" value="0"/>		
			LONPOLE	<input type="text" value="999°00'00\"/>
			LATPOLE	<input type="text" value="999°00'00\"/>

Image centre and extent

 Autosizex-scale: arcmin/pixely-scale: arcmin/pixel

Data validation

Tsys range	<input type="text" value="1"/> - <input type="text" value="10000"/>	Doppler registration	<input type="text" value="0.1"/> channel
Data range	<input type="text" value="-0.05"/> - <input type="text" value="0.05"/>		

Gridding parameters

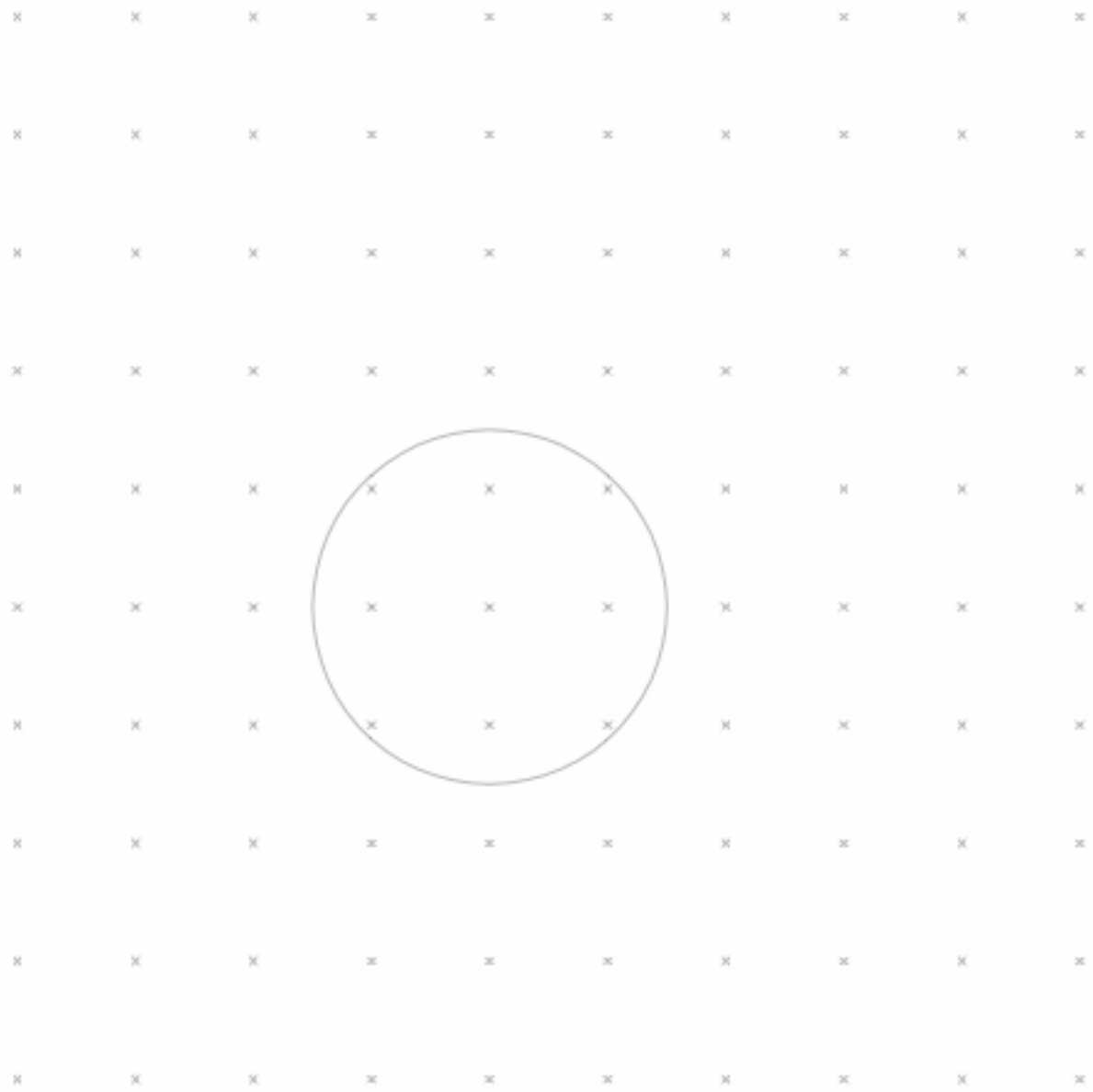
Statistic	<input type="text" value="WGTMED"/>	Beam weighting	<input type="text" value="1"/>	Smoothing kernel	<input type="text" value="TOP-HAT"/>
Clip fraction	<input type="text" value="0"/> %	Beam FWHM	<input type="text" value="3.4"/> arcmin	Kernel FWHM	<input type="text" value="3"/> arcmin
<input type="checkbox"/> Tsys weighting		<input checked="" type="checkbox"/> Beam normalization		Cutoff radius	<input type="text" value="1.5"/> arcmin

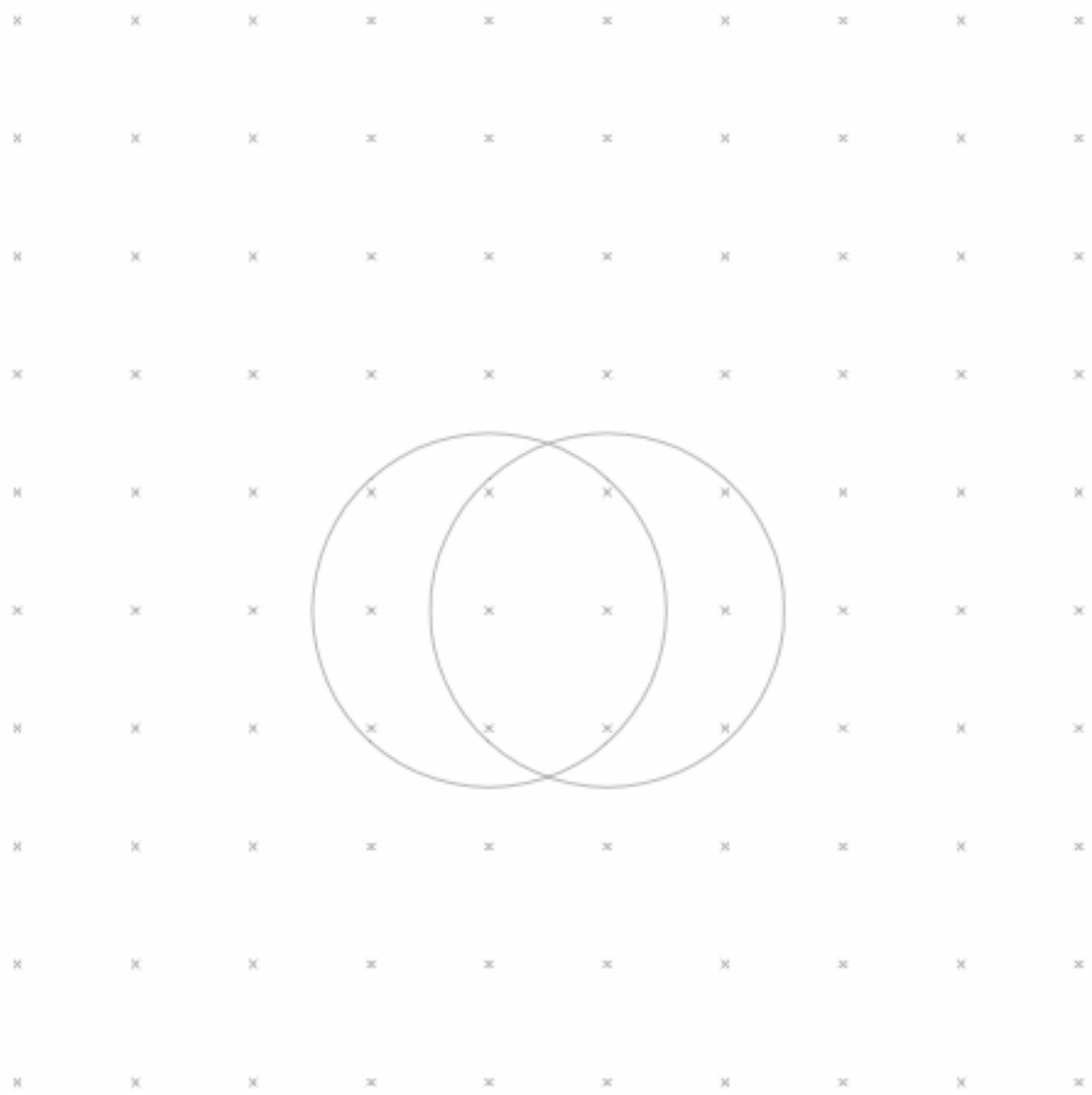
Blanking level Processor host Use % of 1030MByteFITS spectral type FITS numerical format Output FITS directory Output FITS file name

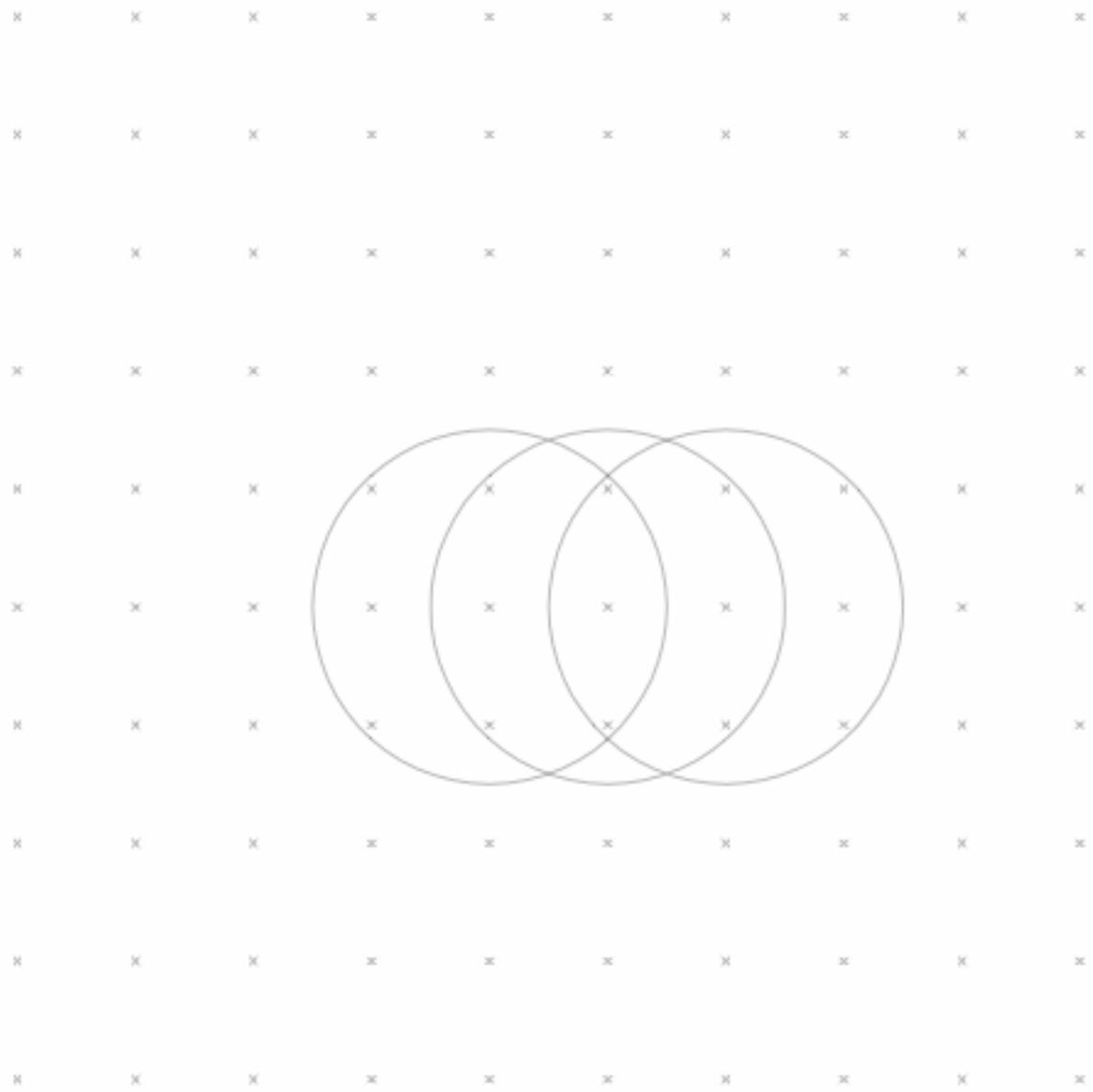
14:01:27: 2006/06/19 AST (Mon) Multibeam logger

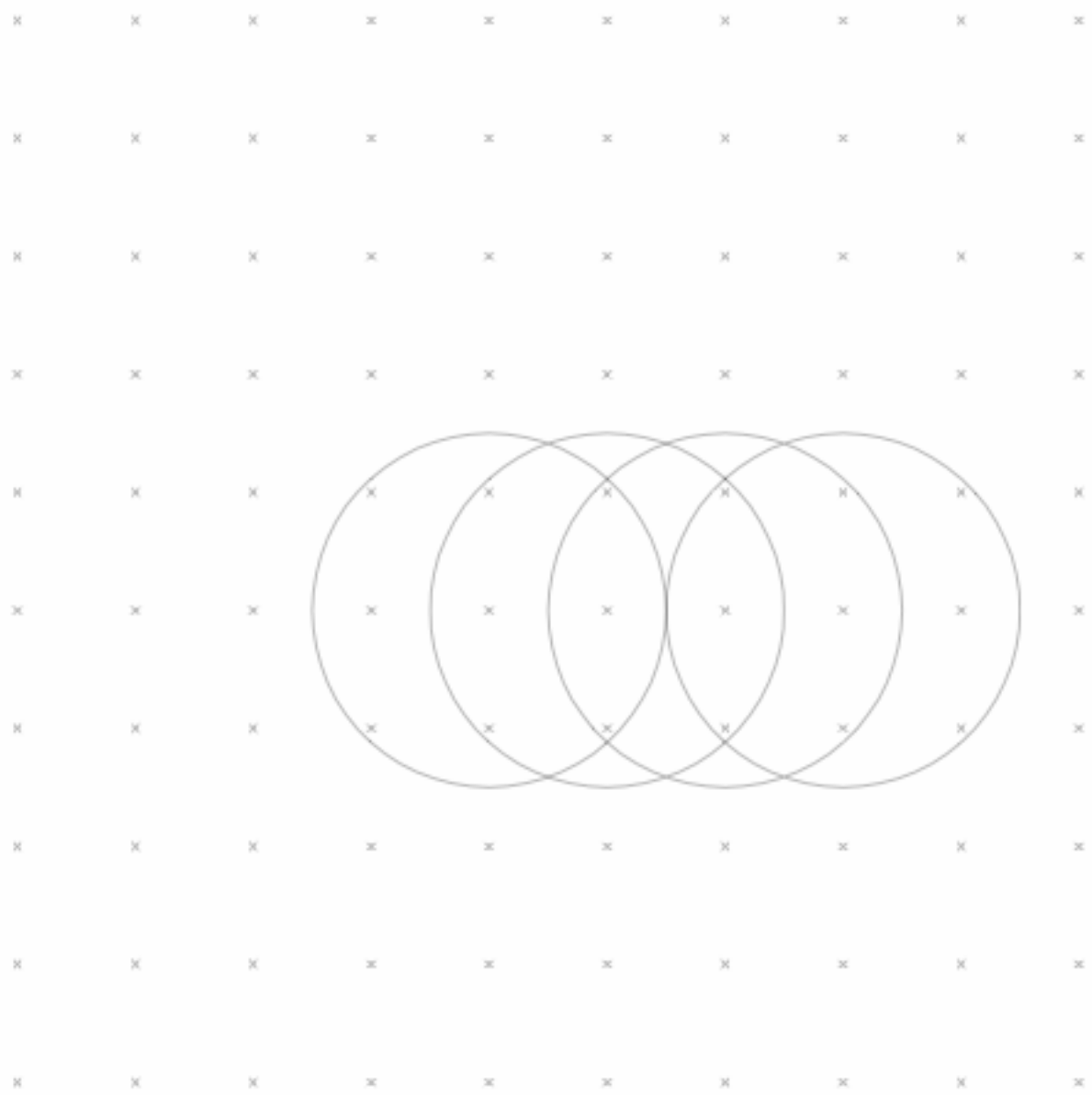
Gridding

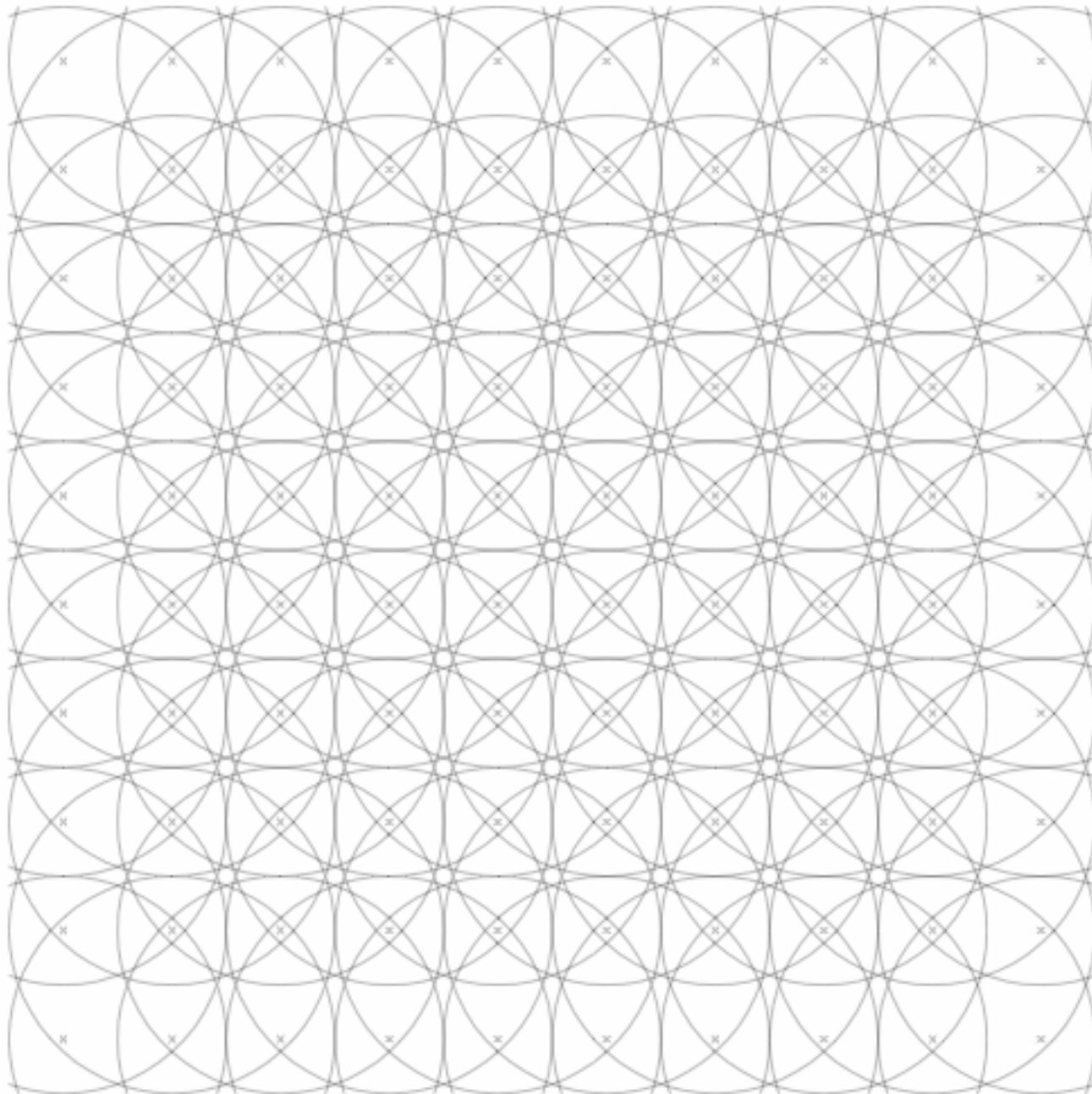
- Makes a cube with $1' \times 1'$ pixels.
- Each pixel contains all spectra located within $1.5'$ - spectra are assigned to more than one pixel.
- For each pixel, spectra are weighted to recreate the flux of a point source at the pixel centre.

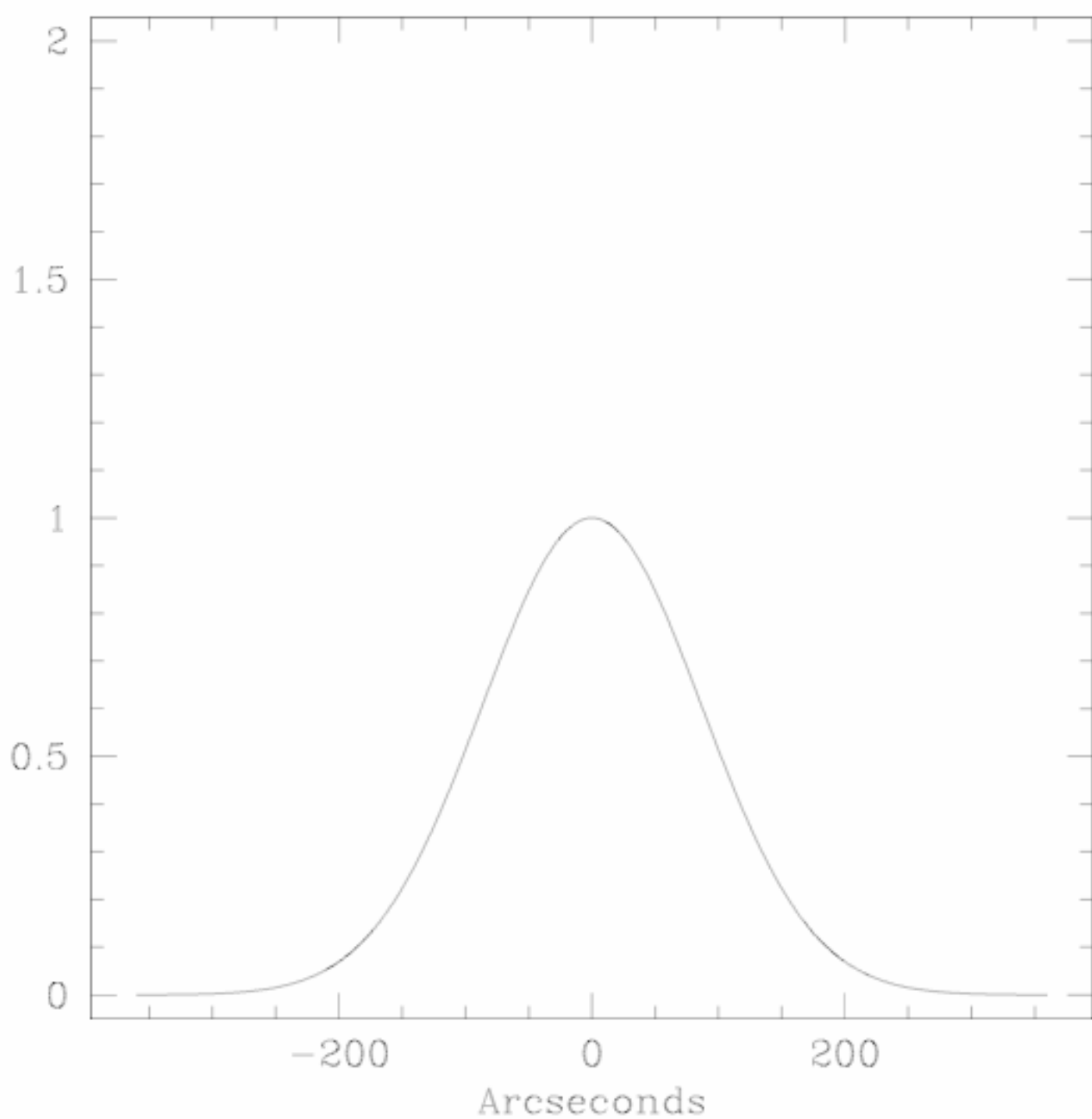


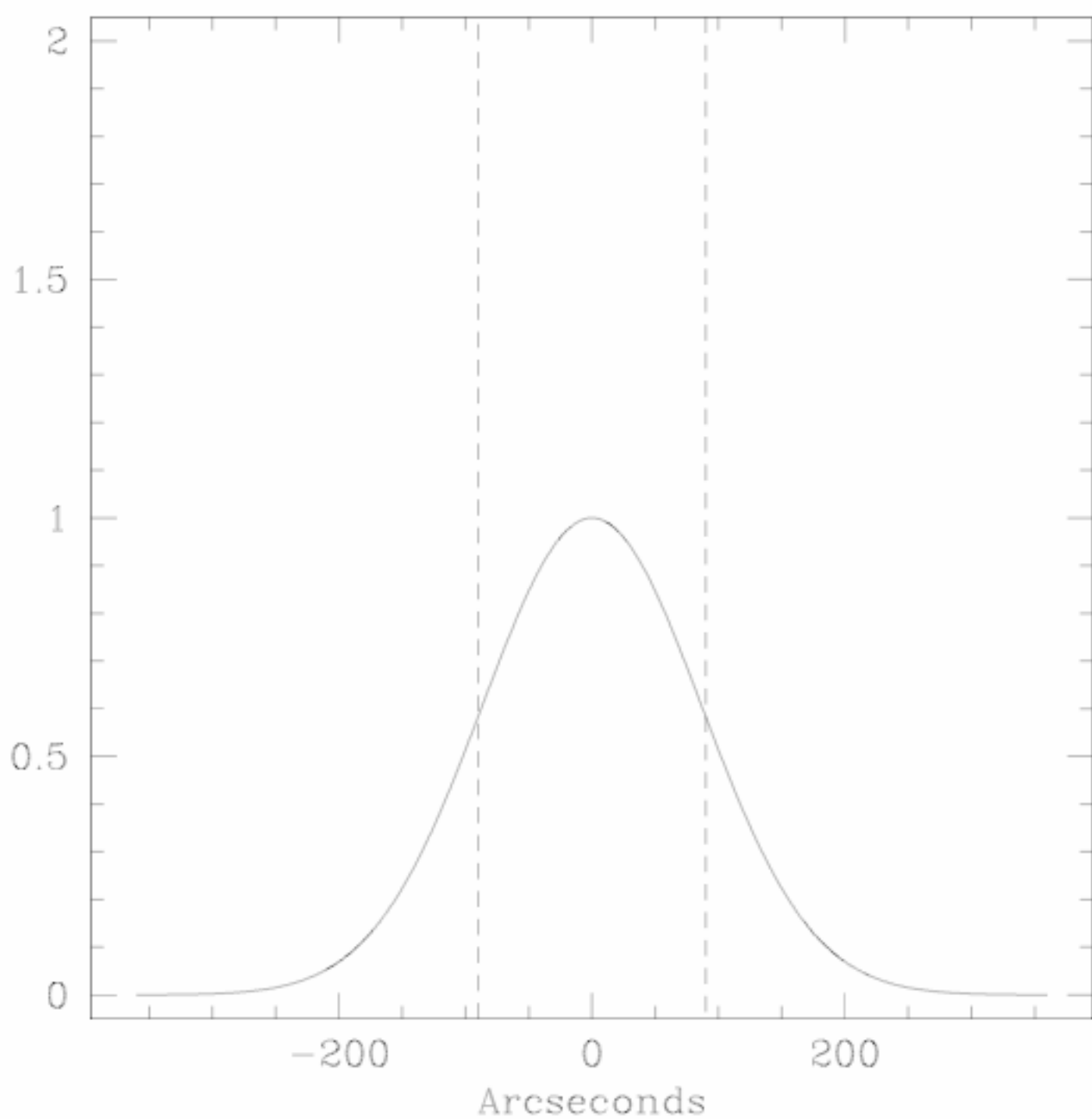


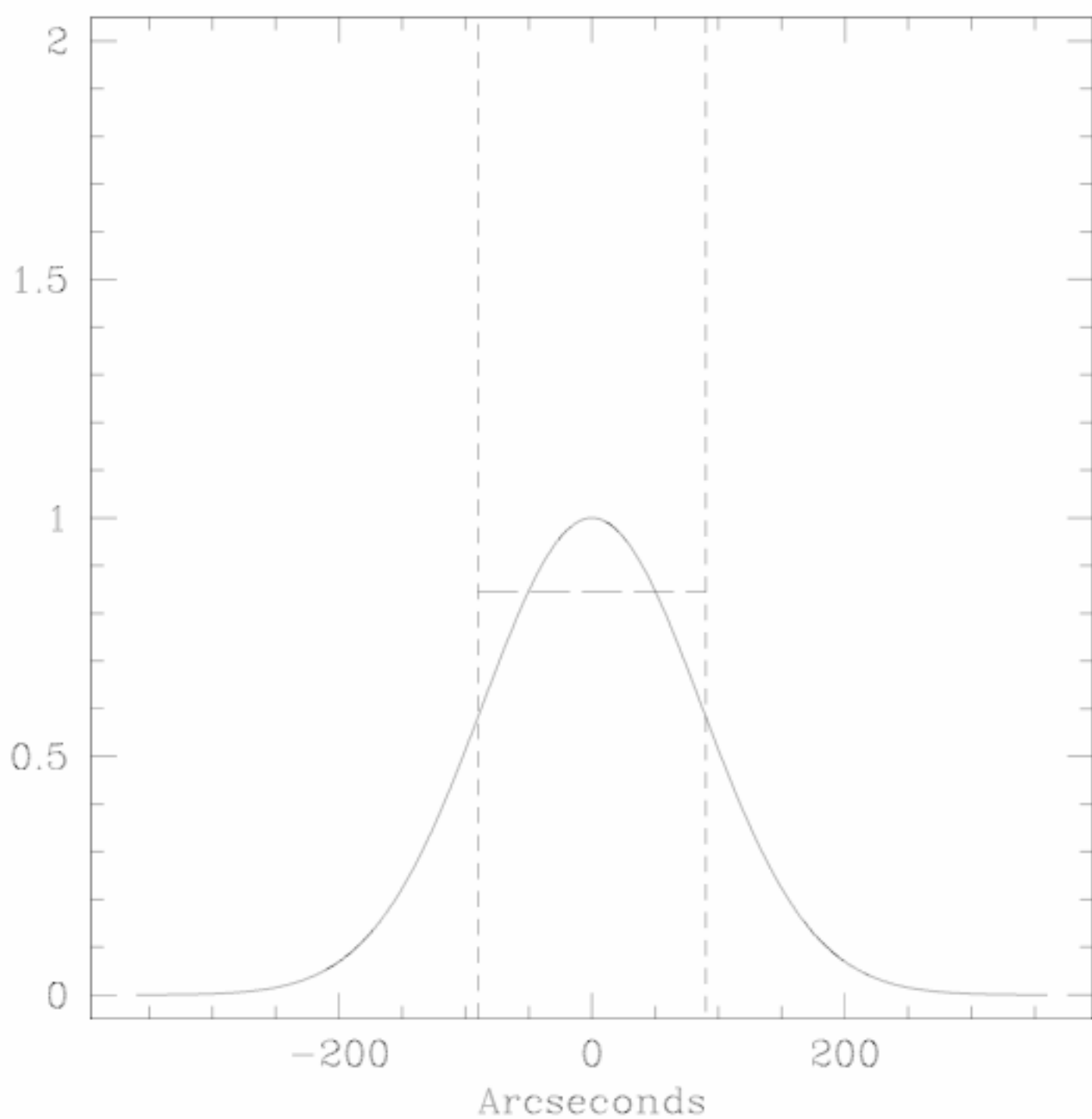


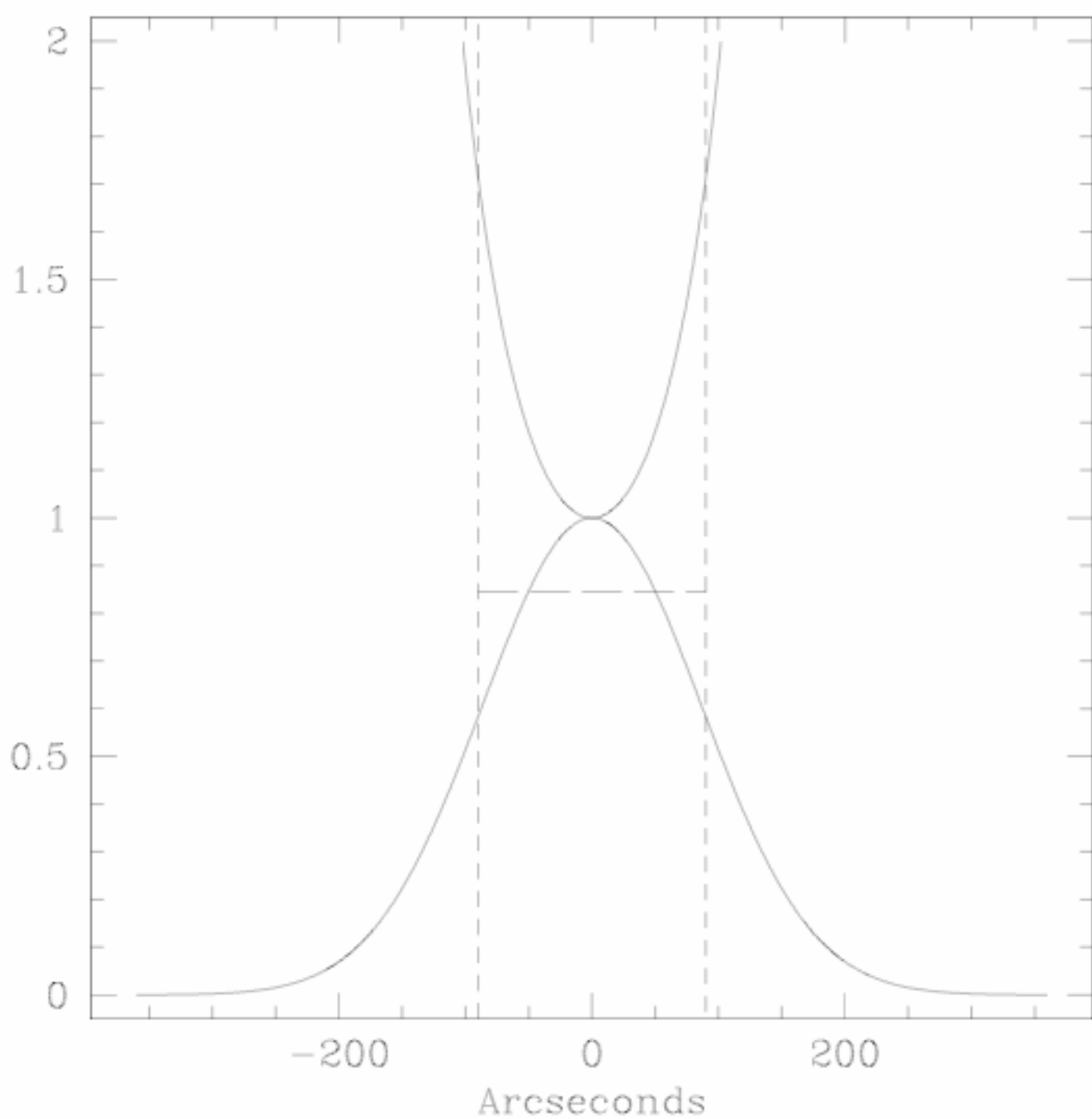






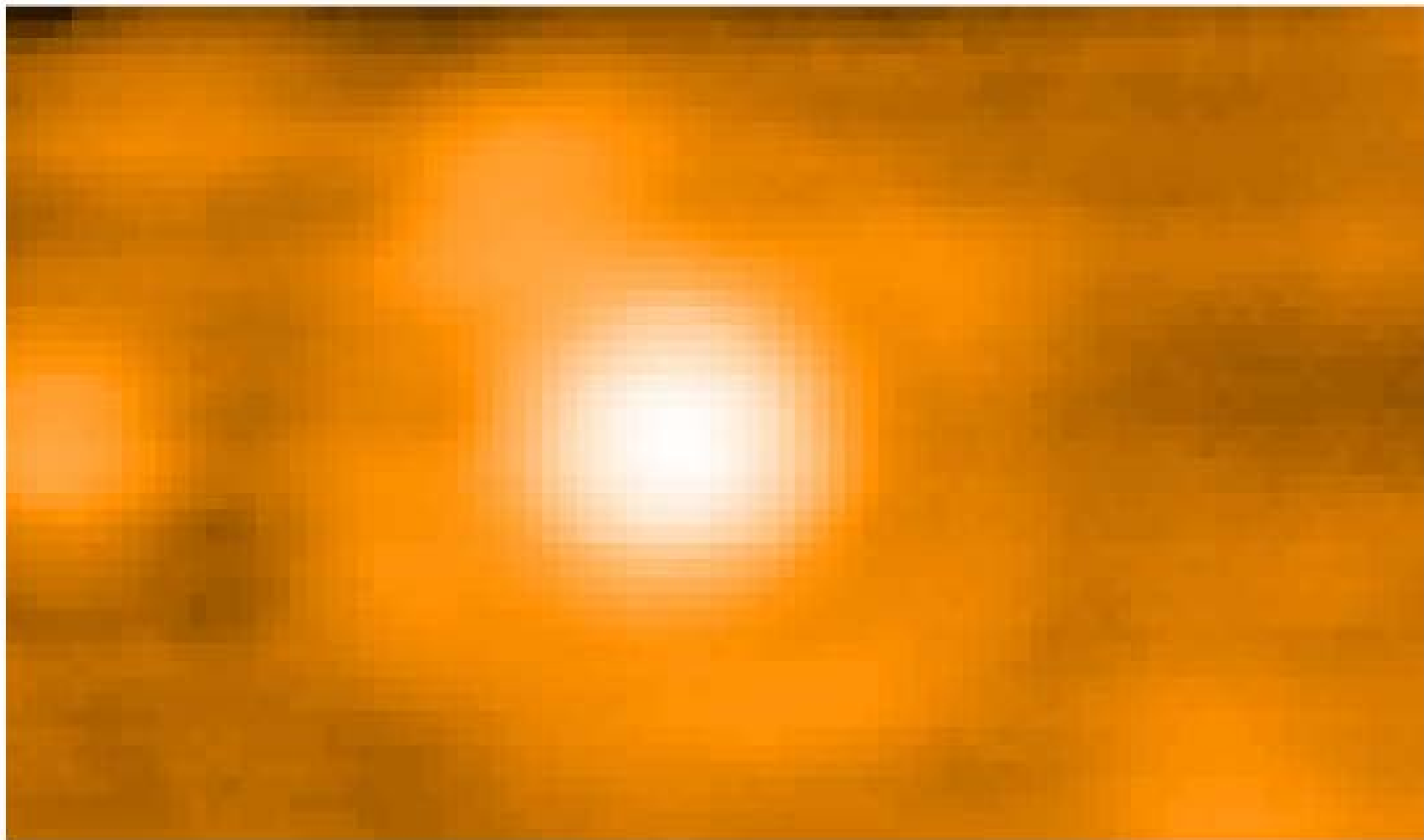






Survey Strategy

- Designed so that every beam makes its own Nyquist-sampled map of the sky.
- This gives uniform sensitivity and removes beam asymmetries from the final cube.
- All observations below 15° ZA to reduce variations in Gain and T_{sys} .



NVSS J113805+194610

NVSS J113736+194453

NVSS J113811+194046

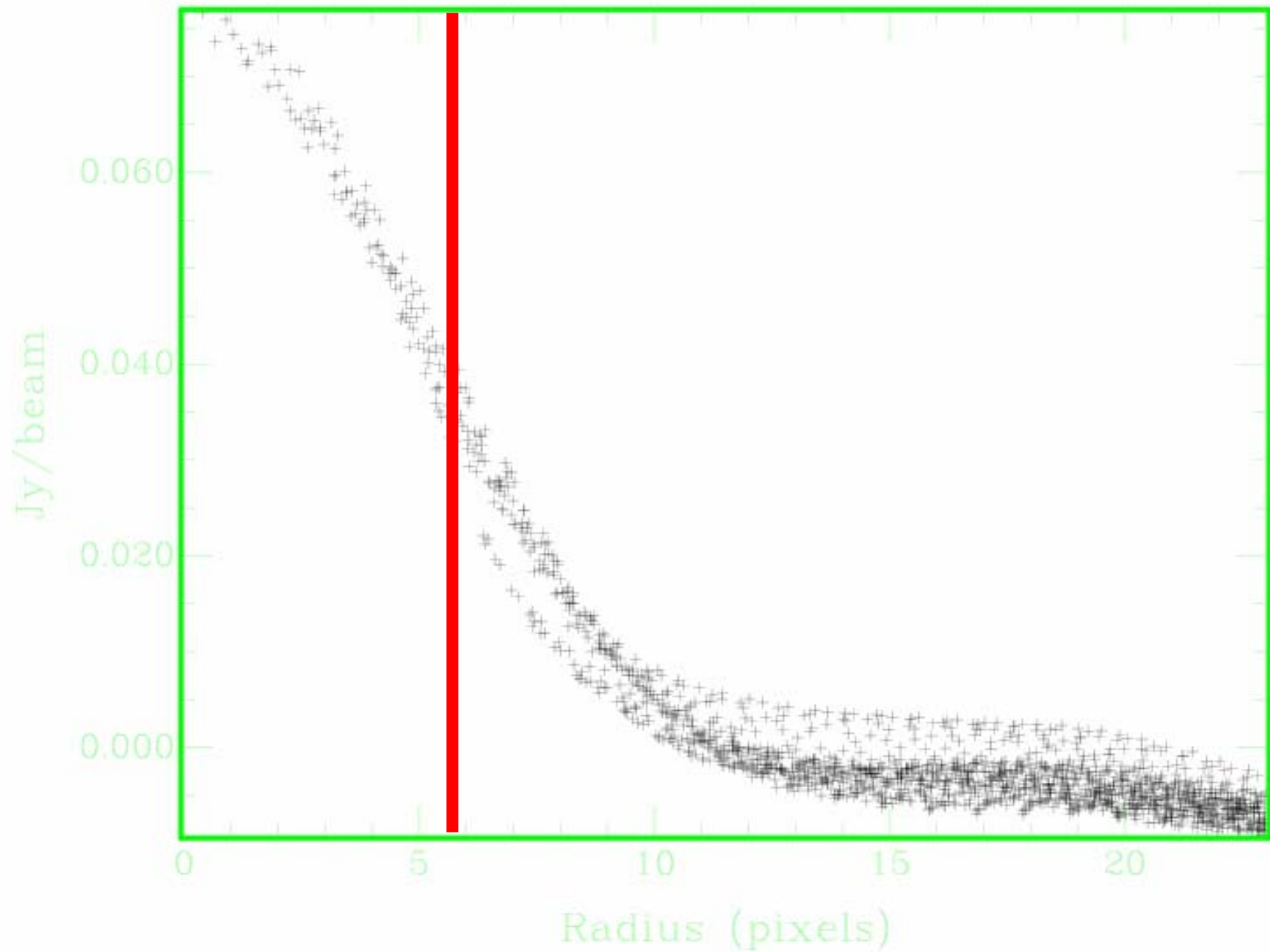
J113736+194045

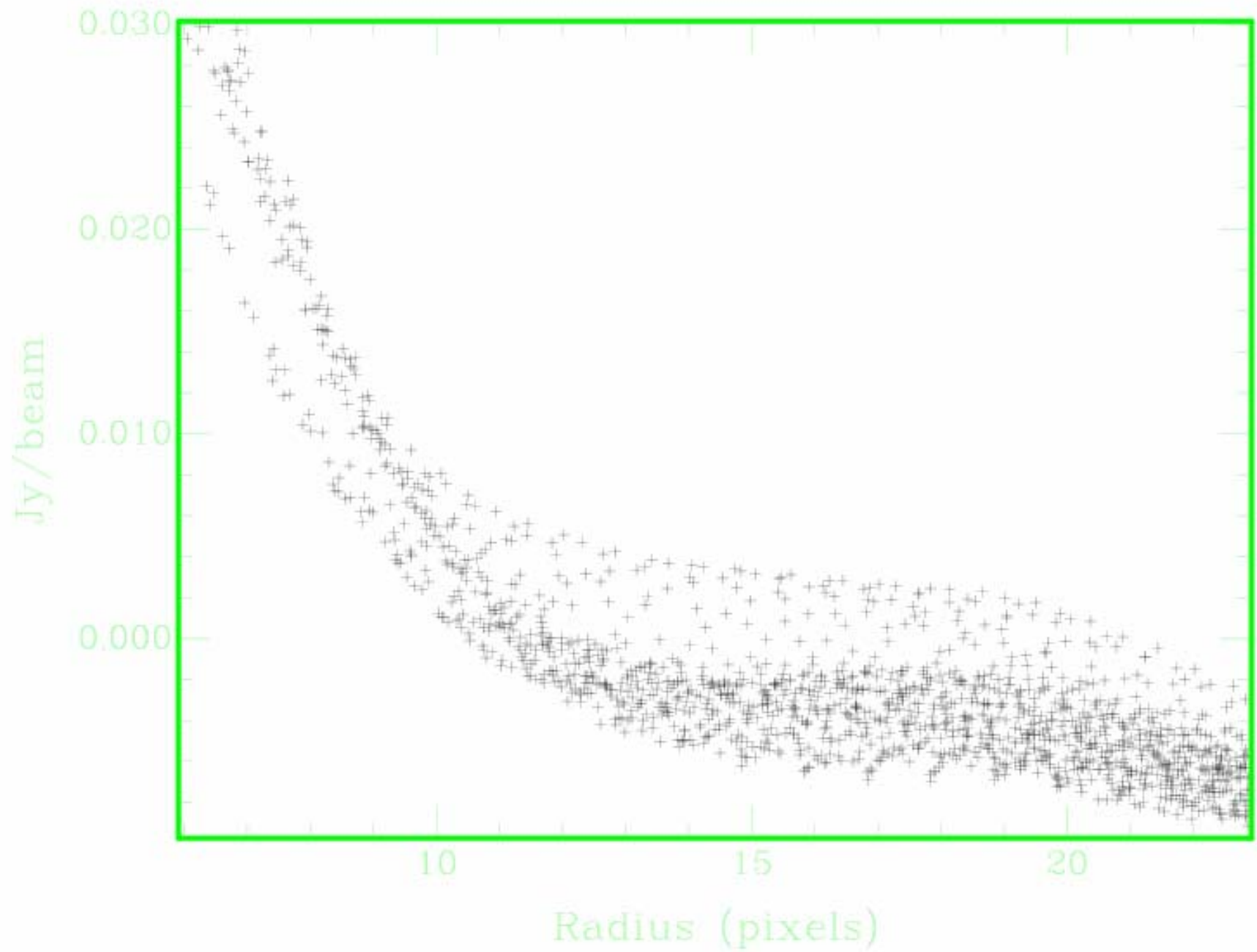
NVSS J113745+193813

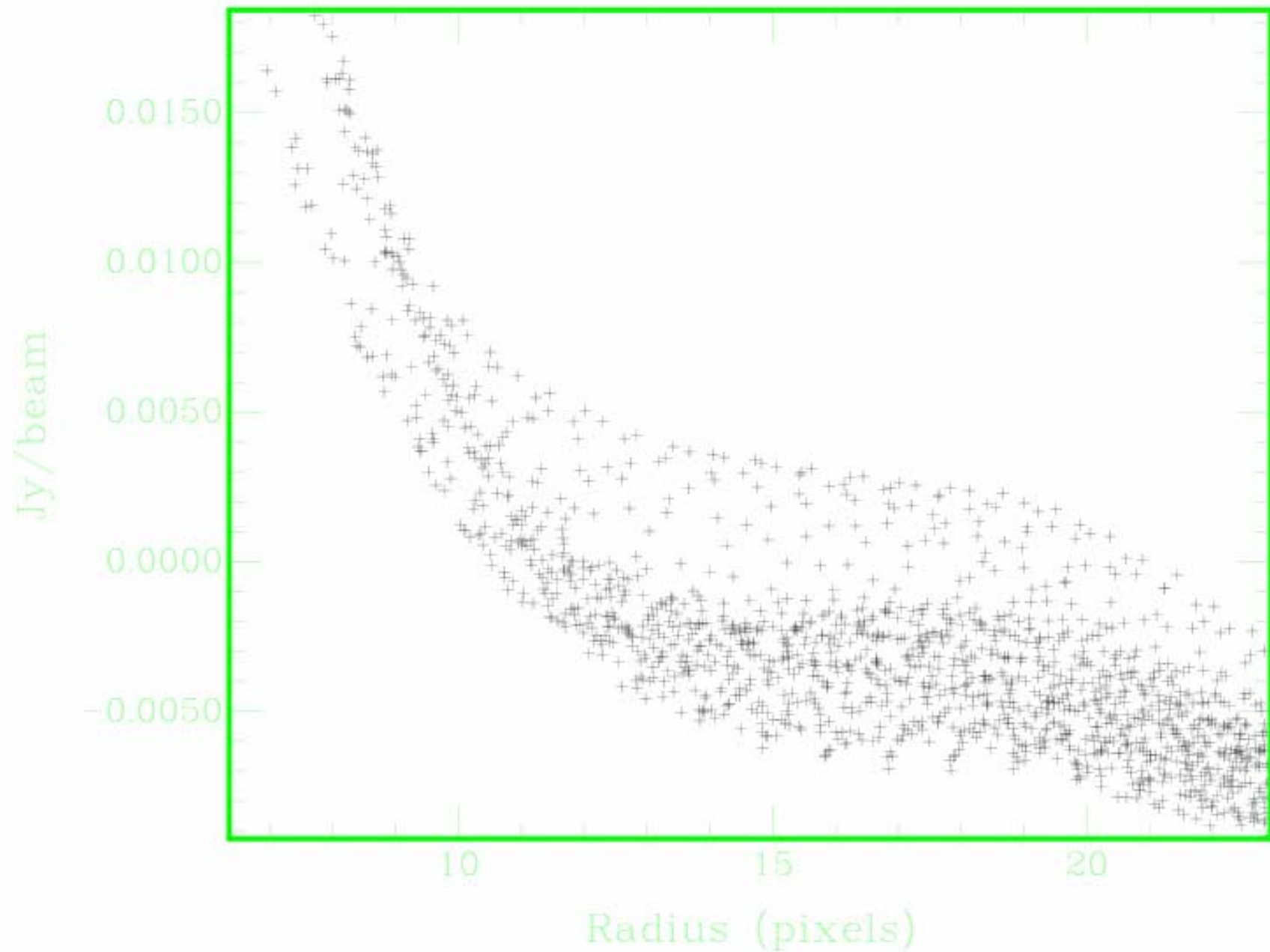
2MASX J11370826+1937457

NVSS J113657+193521

NVSS J113646+193448







Gridzilla produces...

- Continuum map;
 - 'spectracounts' map;
 - 'beamRSS' map;
 - spectral line cubelets.
-
- The cubelets are combined to form the final spectral line cube.

