DEMO PMS:
Proposal Management System

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10th IRAM millimeter Interferometry School

Picture: AZPEITIA Jean Jacques

NOEMA proposal preparation:

1) Scientific goal?

- Source
- Line or continuum
- Spatial resolution: low or high
- Spectral resolution: low or high
- Detection/mapping
- Context

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IN PRACTICE:

- check CDS (duplication) + ASTRO
- at which frequency
- with which spectral resolution?
- which array configuration?
- Detection = sensitivity
  Mapping = Time On Source (TOS)
- Prepare arguments for the PC

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2) Agreement with the call for proposal

Summer semester: compact configurations, low frequencies
Winter semester: extended configurations, high frequencies

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2 key documents : http://www.iram-institute.org
Science Users > Proposals > Call for Proposals

IRAM NOEMA interferometer
Observing Capabilities and Current Status

Table 1: Configuration Schedule

Conf	Scheduling Priority Winter 2018/2019
C	November – December
D	December – January
A	January – February
C	February – March
D	March – May

for which a significant amount of time can be invested. Observations in band 4 will not be offered this semester.

Unfinished A-rated programs from the current summer semester 2018 will be carried over into the upcoming winter semester. However, B-rated projects (or their sub-parts) from the summer semester 2018 that have not been started by the end of November 2018 will not be carried over and should be re-submitted. Investigators who wish to check the status of their project may consult the interferometer schedule on the IRAM website. This page is updated daily.

Call for Proposals on IRAM Telescopes

The deadline for submission of observing proposals on IRAM telescopes, both the NOEMA interferometer and the 30-meter telescope, covering the scheduling period 1 December 2018 to 31 May 2019, is

13 September 2018, 17:00 CEST (UT + 2 hours)

IRAM proposals should be submitted through the *Proposal Management System* (**PMS**) at URL:

http://pms.iram.fr/

NOEMA proposal preparation:

1) Scientific goal?

- Source
- Line or continuum
- Spatial resolution: low or high
- Spectral resolution: low or high
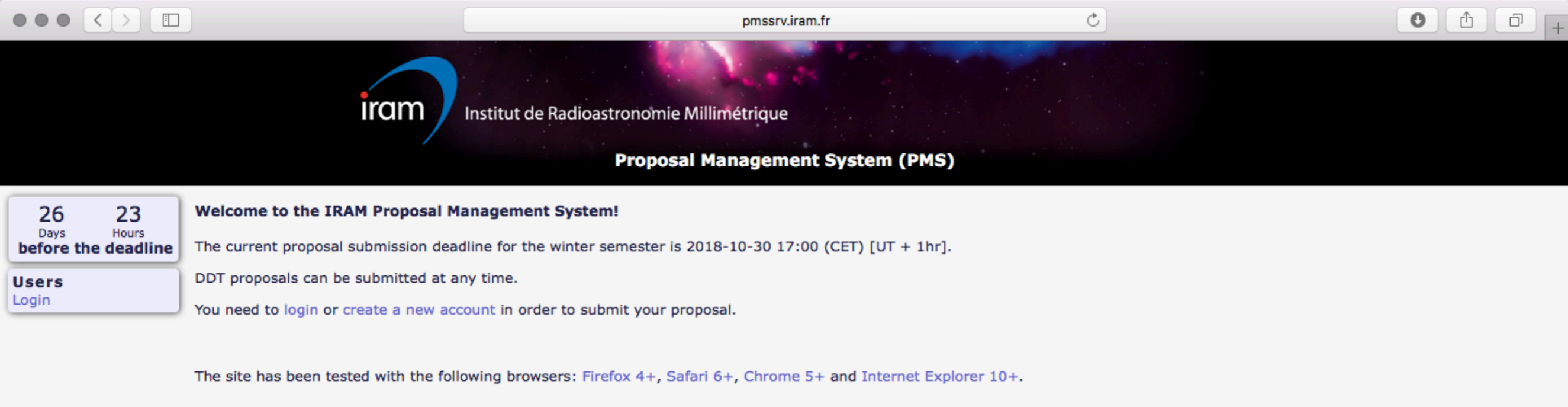- Detection/mapping
- Context

2) Agreement with the call for proposal

3) Proposal creation and submission

Through the Proposal Management System (PMS): https://pms.iram.fr

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Through the Proposal Management System (PMS): https://pms.iram.fr

- On line form with technical details
  (source coordinates, array configuration…)

- PDF file with scientific and technical justifications:
  - 2 pages of text (4 pages for Large Programs > 100 hours)
  - 2 pages of figures, tables, references (**well-separated!**)
  - font size 11pt or larger (LATEX template)

ONLINE DEMO FOR PMS

FAKE session created for the school:
pmssrv.iram.fr

First step: create an account
You can test yourself but do not invite Cols.

ONLINE DEMO FOR PMS

To sort proposals by topics for the Program Committee

ONLINE DEMO FOR PMS

Sources and setups
Sources[?]: -Select-
Technical sheets: Add TechSheet

2 examples:

- Mosaic of a protostar and its ouflow (L1157):
  first goal: lines
  bonus: continuum
  mosaic size: 2.5 arcmin^2 - sensitivity 2.0 mJy/beam

- CO(2-1) observations of redshifted galaxies
  line width 500km.s^{-1} / resolution=100km.s^{-1}
  line strength: 2 mJy/beam

ONLINE DEMO FOR PMS

PROPOSAL NOT SUBMITTED

Proposal P350096

Session: Winter 2018 - NOEMA test

Title[?]:

Proposal category[?]: ● Standard ○ Time filler ○ Special ○ Large program

Scientific category[?]: 3 – ISM, star formation and astrochemistry

☑ Outflows, jets and ionized winds ☐ High-mass star formation ☐ Intermediate-mass star formation ☐ Low-mass star formation ☐ Pre-stellar cores, Infra-Red Dark Clouds (IRDC)
☐ Astrochemistry ☑ Inter-Stellar Medium (ISM)/Molecular clouds ☐ Photon-Dominated Regions (PDR)/X-Ray Dominated Regions (XDR) ☐ HII regions

Abstract[?]:

1200 characters

Total requested time: 33.6 (PolyFiX)
Request for 30m short spacings[?]: ☐

One single proposal for both observatories (NOEMA + 30m)

ONLINE DEMO FOR PMS

PROPOSAL NOT SUBMITTED

Proposal P350096

Session: Winter 2018 - NOEMA test
Title[?]:
Proposal category[?]: ⦿Standard ◯Time filler ◯Special ◯Large program
Scientific category[?]: [3 – ISM, star formation and astrochemistry]
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☐Astrochemistry ☑Inter-Stellar Medium (ISM)/Molecular clouds ☐Photon-Dominated Regions (PDR)/X-Ray Dominated Regions (XDR) ☐HII regions
Abstract[?]:

Total requested time: 33.6 (PolyFiX)
Request for 30m short spacings[?]: ☐
Old proposals
Resubmission[?]: [Select a proposal]   **Was your project partly observed?**
Continuation[?]: [Select a proposal]
Proposal history[?]:

http://www.iram.fr/IRAMFR/PDB/ongoing-last.html

B rated project might not be observed during the current semester
A rated project might not be carried over into next semester

It can be resubmitted for the next semester
if it is compatible with the call

ONLINE DEMO FOR PMS

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Institut de
Radioastronomie
Millimétrique

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☐ Astrochemistry ☑ Inter-Stellar Medium (ISM)/Molecular clouds ☐ Photon-Dominated Regions (PDR)/X-Ray Dominated Regions (XDR) ☐ HII regions

Abstract[?]:
[   ]

Total requested time: 33.6 (PolyFiX)
Request for 30m short spacings[?]: ☐

Old proposals
Resubmission[?]: [Select a proposal]

Continuation[?]: [Select a proposal]

Proposal history[?]:
[   ]

Authors

For a proposal to be complet[...]
to authors through PMS by [...]
We urge proposal editors to [...]
You may **submit** your propo[...]
this period, they will be **rem**[...]

[Invite co-authors]

PIs[?]: [Select authors]

✛	Full name	Current institute	Edit[?]	Email[?]	Status[?]		
▦	Charlene Lefevre	Institut de Radioastronomie Millimétrique	☑		✅		make CoI remove

CoIs[?]: [Select authors]

✛	Full name	Current institute	Edit[?]	Email[?]	Status[?]		
▦	Jeremie Boissier	Institut de Radioastronomie Millimétrique	☐		✅ valid		make PI

**Cols selection can be an argument for the PC:
give details of their role if relevant in attached PDF file**

**if they do not validate (7 days after the deadline)
they will disappear from the proposal header**

...o send invitations

...e proposal. Passed

ONLINE DEMO FOR PMS

Sources and setups

Sources[?]: -Select-

Technical sheets: Add TechSheet

2 examples:

- <u>Mosaic of a protostar and its ouflow (L1157):</u>
  first goal: lines
  bonus: continuum
  mosaic size: 2.5 arcmin^2 - sensitivity 2.0 mJy/beam

- <u>CO(2-1) observations of redshifted galaxies</u>
  line width: 500 km.s^{-1}
  line strength: 2 mJy/beam with 100 km.s^{-1}

L1157 mosaic

Technical sheet
Title[?]: L1157 mosaic
Proposal[?]: P350096
Type[?]: ○ Point source detection ○ Single field mapping ● Mosaic mapping
Science[?]: ● lines & continuum ○ only lines ○ only continuum

Instrumental tuning
○ Set frequency (Only low spectral resolution: 2 MHz) ● Import ASTRO script

talk by J. Boissier

[Import] [Export] ☐ Show script ☑ Display lines ☐ List lines
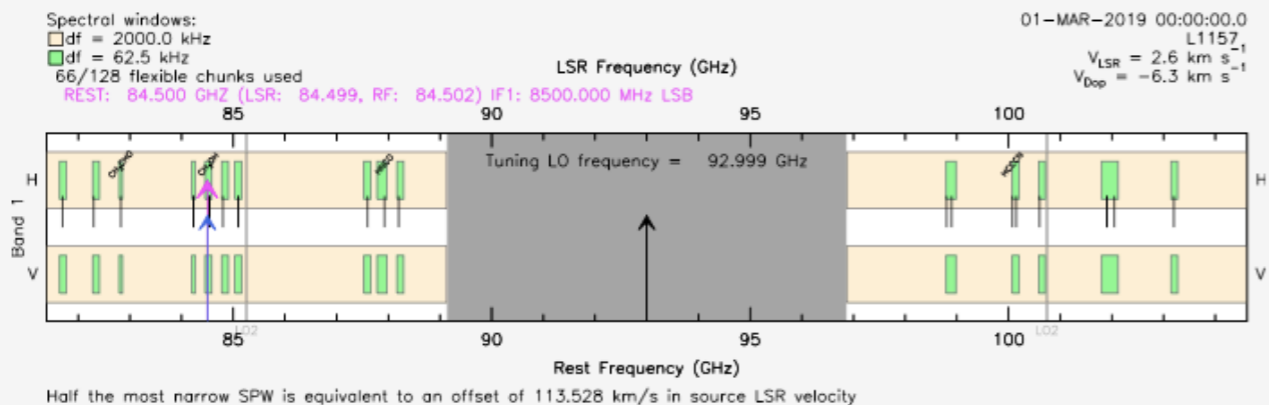
Source L1157
Proposal[?]: P350096
Id[?]: L1157
Epoch: J2000
RA[?]: 20:39:10.000
DEC[?]: 68:01:20.000
Vlsr (km/s)[?]: 2.6
[Ok] [Cancel]

Mosaic[?]
● Input Area ○ Input offsets
Mosaic area[?]: 2.5 arcmin^2

Time settings
Representative frequency[?]: 84.500 GHz
Spectral resolution[?]: 1.500 [km/s ▾]   (min. 0.222 km/s)

Requested time fraction per configuration:
A[?]: [ ] % **C[?]:** [ ] % **D[?]:** 100.0 % [Validate]

Requested telescope time[?]: 33.60 hours
→ **Typical declination[?]:** 68.0 deg
→ **Tsys range over the bandwidth:** 78.2 - 84.8 K
→ **Resulting line sensitivity at representative frequency[?]:** 1.5 mJy/beam
→ **Resulting continuum sensitivity[?]:** 8.2 microJy/beam

Configuration[?]	D
Typical angular resolution	4.6
Telescope time (hours)	33.6
Line sensitivity (mK (mJy/beam))	12.4 (1.5)
Continuum sensitivity (microJy/beam)	8.2

Source properties for lines
Smallest resolved scales[?]: 5.0 arcsec **Largest scales[?]:** 15.0 arcsec
Expected signal[?]: > 50.0 [mK ▾] → **SNR:** > 5
Expected line width[?]: 6.0 [km/s ▾]

Source properties for continuum
Smallest resolved scales[?]: 5.0 arcsec **Largest scales[?]:** 15.0 arcsec
Expected signal[?]: 300.0 [microJy/beam ▾] → **SNR:** 37

Sources[?]: [Vlsr (km/s) ▾]
[Add a source] [Upload sources] [Remove all sources] [Download sources]

Id	Epoch	RA	DEC	Vlsr (km/s)	Select[?]	Track duration[?] hours	D nb	
L1157	J2000	20:39:10.000	68:01:20.000	2.6	☑	8.0	4.2	edit/delete

Summary
Total observing time[?]: 33.60 hours

Observing star formation in galaxies

galaxies.cat

```
Gal1 EQ 2000 00:00:00.00 50:00:00.00 RED 1.6
Gal2 EQ 2000 01:00:00.00 50:00:00.00 RED 1.8
Gal3 EQ 2000 02:00:00.00 50:00:00.00 RED 2.0
Gal4 EQ 2000 03:00:00.00 50:00:00.00 RED 2.2
Gal5 EQ 2000 04:00:00.00 50:00:00.00 RED 2.6
```

Fsky = Frest/(1+z)
Frest = 230.538GHz

Redshifts are now supported by PMS

Redshift + Rest frequency

OR

LSR 0.0 + Redshifted frequency

Observing star formation in galaxies

galaxies.cat

```
Gal1 EQ 2000 00:00:00.00 50:00:00.00 RED 1.6
Gal2 EQ 2000 01:00:00.00 50:00:00.00 RED 1.8
Gal3 EQ 2000 02:00:00.00 50:00:00.00 RED 2.0
Gal4 EQ 2000 03:00:00.00 50:00:00.00 RED 2.2
Gal5 EQ 2000 04:00:00.00 50:00:00.00 RED 2.6
```

$F_{sky} = F_{rest}/(1+z)$
$F_{rest} = 230.538 GHz$

What is possible?

Redshifts are now supported by PMS

At higher redshift, CO(3-2) could be observed: $F_{rest}=345.796 GHz$

Demo with Gal3 and Gal5

Observing star formation in galaxies

Gal3

Setup 1: CO(2-1)

Observing star formation in galaxies

iram
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Radioastronomie
Millimétrique

Gal5

Technical sheet

Title[?]: galaxy survey

Proposal[?]: P350132

Type[?]: ⦿Point source detection ◯Single field mapping ◯Mosaic mapping

Track sharing[?]: ☐

Science[?]: ◯lines & continuum ⦿only lines ◯only continuum

Instrumental tuning

⦿Set frequency (Only low spectral resolution: 2 MHz) ◯Import ASTRO script

Rest frequency[?]: 345.796 GHz **Source Redshift[?]:** 2.6   **Setup 2: CO(3-2)**

Export ☐Show script ☐Display lines ☐List lines

Spectral windows:
☐df = 2000.0 kHz

0/128 flexible chunks used
REST: 345.796 GHZ (LSR: 96.054, RF: 96.054) IF1: 6054.447 MHz USB
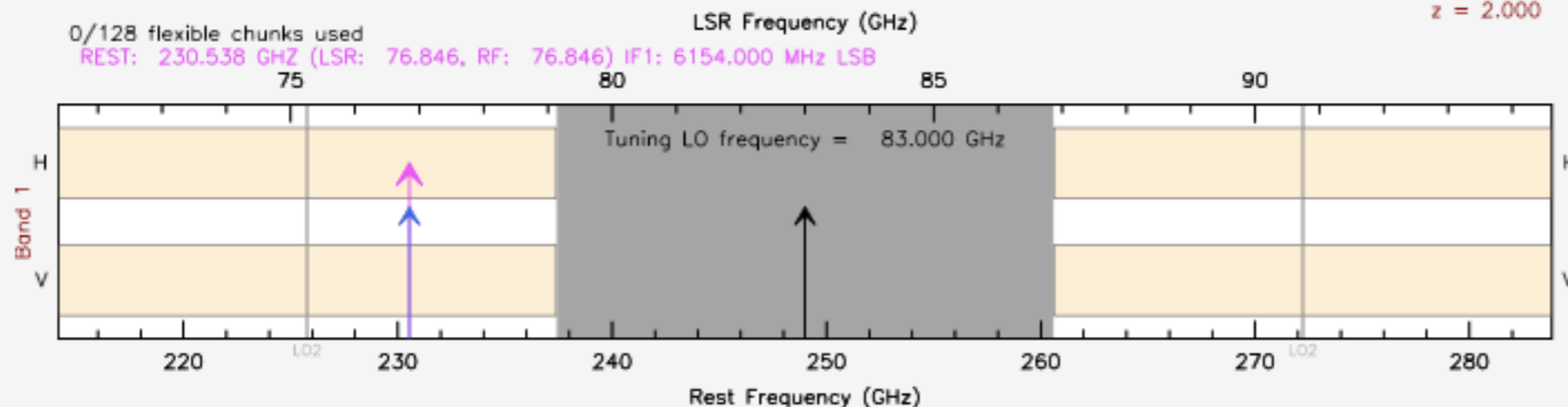
REDSHIFT
z = 2.600

LSR Frequency (GHz)

Tuning LO frequency = 90.000 GHz

Rest Frequency (GHz)
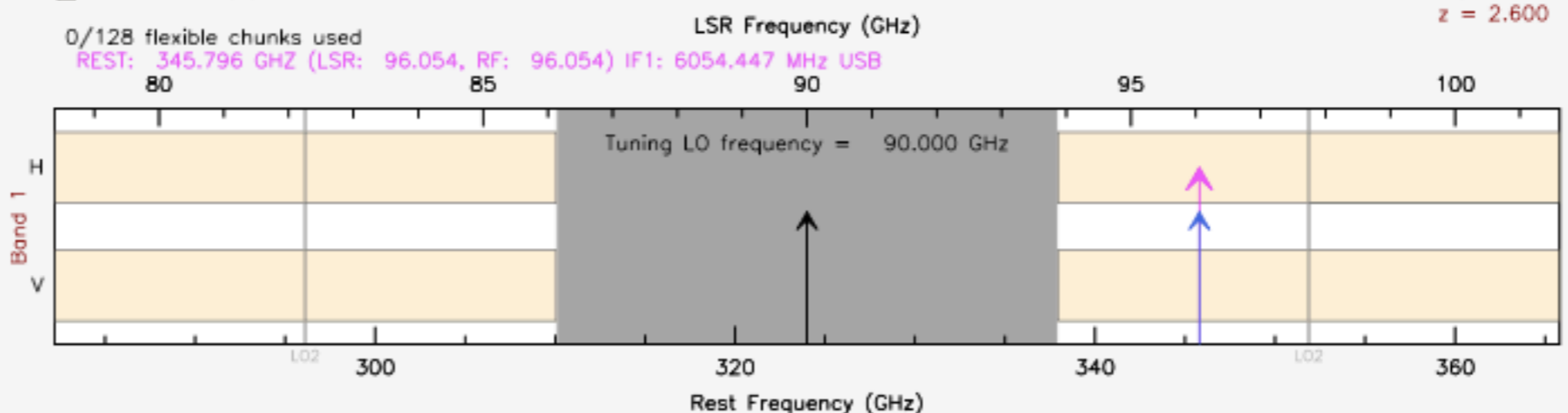
Half the most narrow SPW is equivalent to an offset of .243541 in redshift

Time settings

Representative frequency[?]: 230.538 GHz

Spectral resolution[?]: 149.995 km/s (min. 2.601 km/s)

Requested time fraction per configuration:

A[?]: ___ % **C[?]:** ___ % **D[?]:** ___ % **or Any[?]:** 100.0 % **from:** ☑A ☑C ☑D

Requested telescope time[?]: 8.00 hours
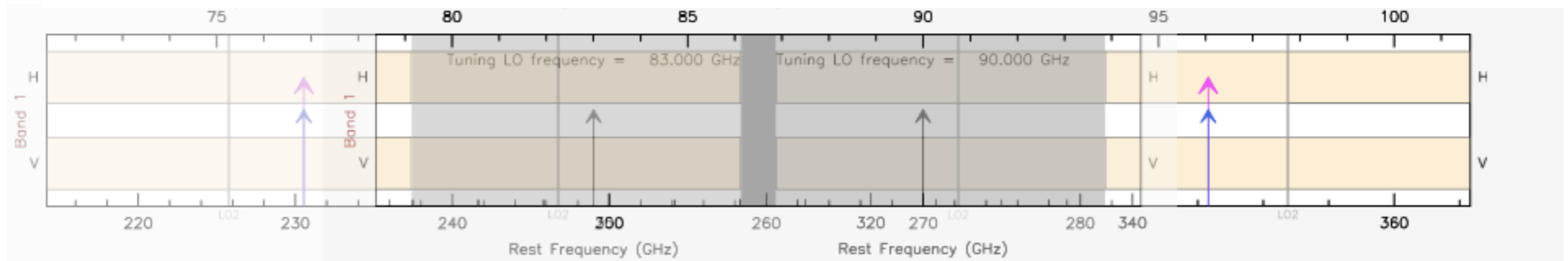
→ **Typical declination[?]:** 50.0 deg
→ **Tsys range over the bandwidth:** 76.8 - 83.2 K
→ **Resulting line sensitivity at representative frequency[?]:** 196.6 microJy/beam
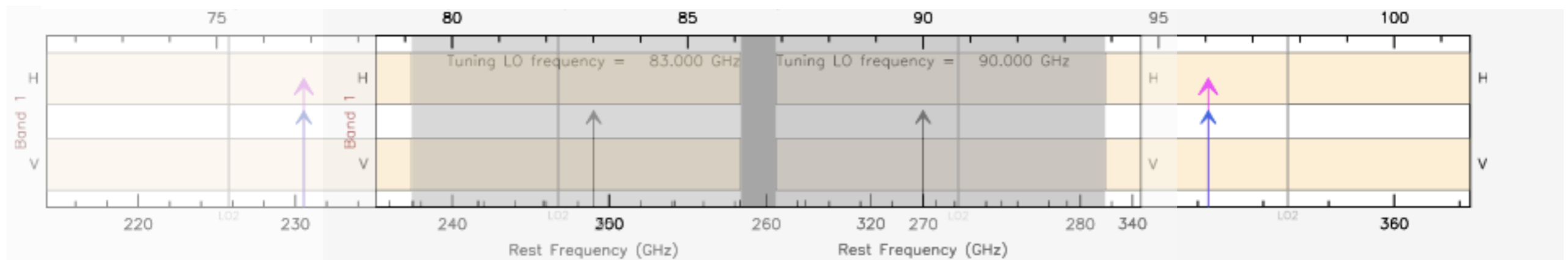→ **Resulting continuum sensitivity[?]:** 9.6 microJy/beam

Observing star formation in galaxies

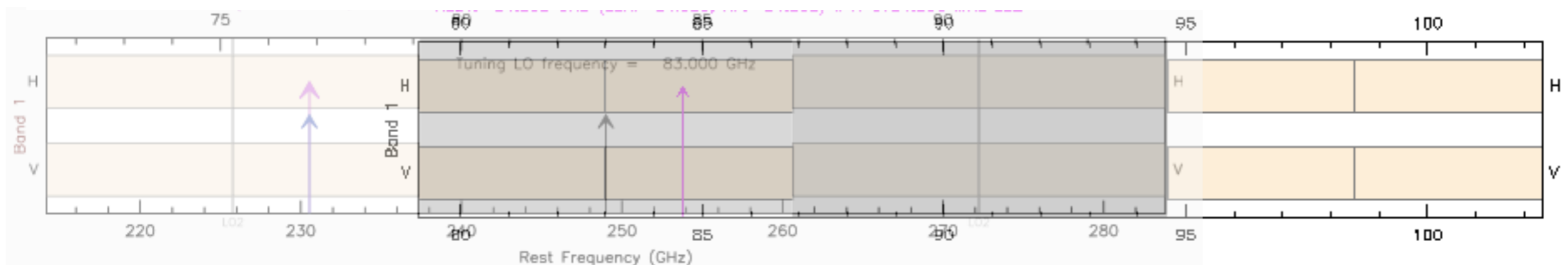Frequency coverage obtained with the two setups:

Observing star formation in galaxies

Frequency coverage obtained with the two setups:
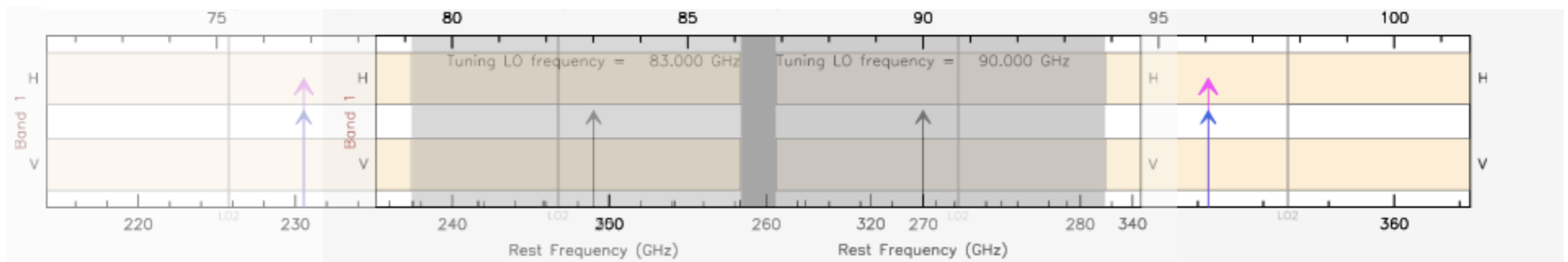

You better use ASTRO to prepare spectral surveys


```
ASTRO> tuning 76.846 LSB 6154 /FIXED_FREQ
```
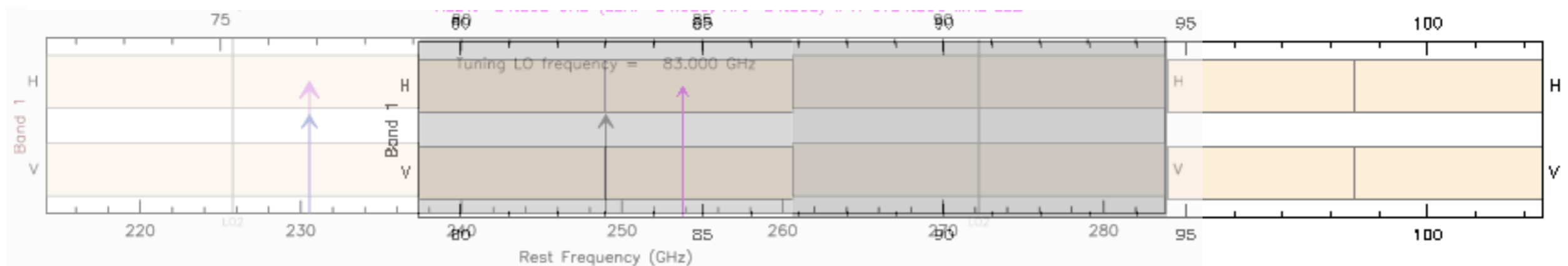
7744MHz between the two
```
ASTRO> tuning 84.59 LSB 6154 /FIXED_FREQ
```

Observing star formation in galaxies

Frequency coverage obtained with the two setups:
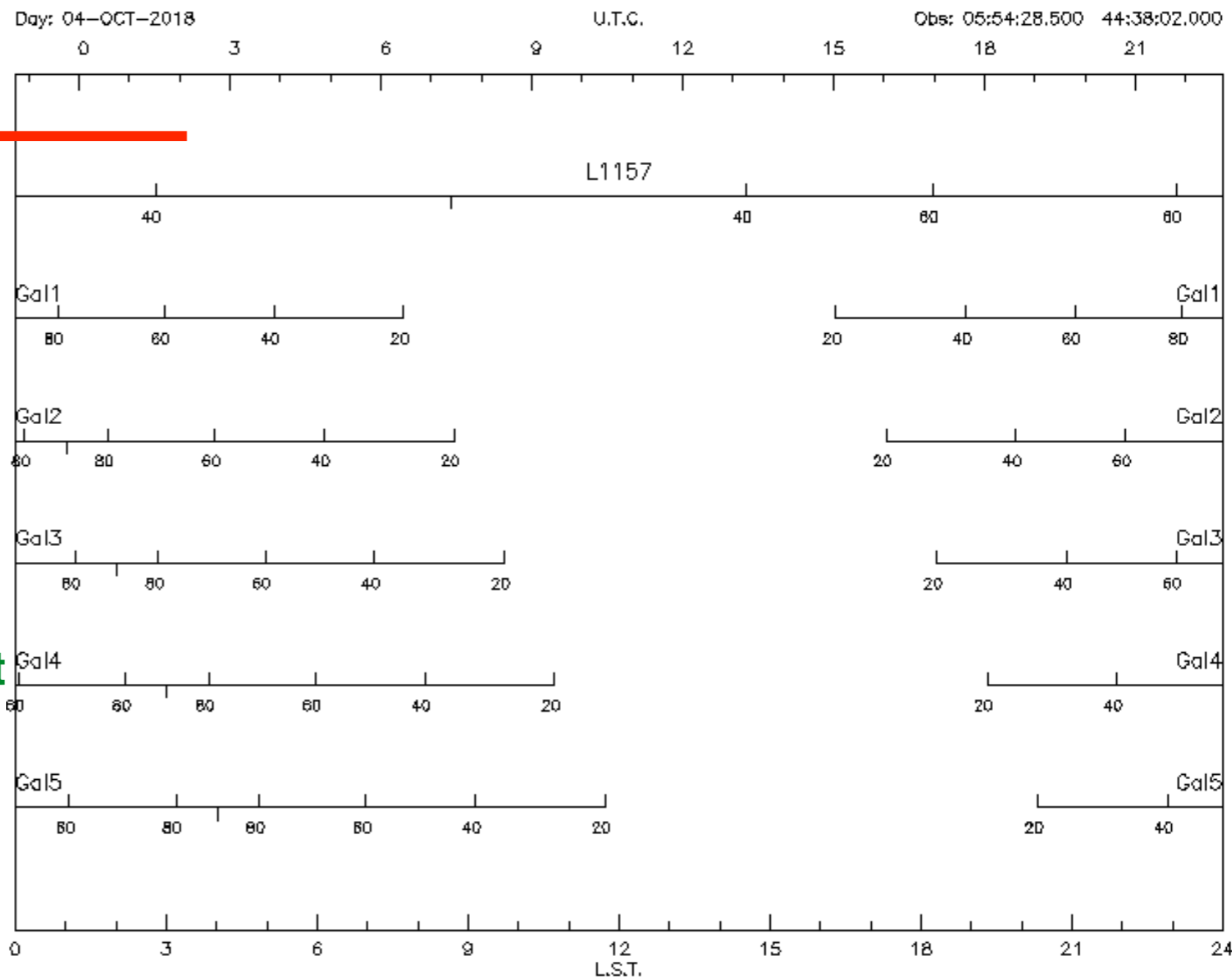

You better use ASTRO to prepare spectral surveys

Then in PMS you can put
the representative frequency where your like

What about sun avoidance?

talk by M. Krips ←


```
Day: 04-OCT-2018                    U.T.C.        Obs: 05:54:28.500  44:38:02.000
```

ASTRO> obs noema
ASTRO> cata all_sources.cat
ASTRO> hori /sou

```
L1157    Sun distance    104.8    No Avoidance
Gal1     Sun distance    133.5    No Avoidance
Gal2     Sun distance    134.1    No Avoidance
Gal3     Sun distance    131.3    No Avoidance
Gal4     Sun distance    125.7    Avoidance 12-MAY-2019 to 26-MAY-2019
Gal5     Sun distance    118.0    Avoidance 14-MAY-2019 to 15-JUN-2019
```
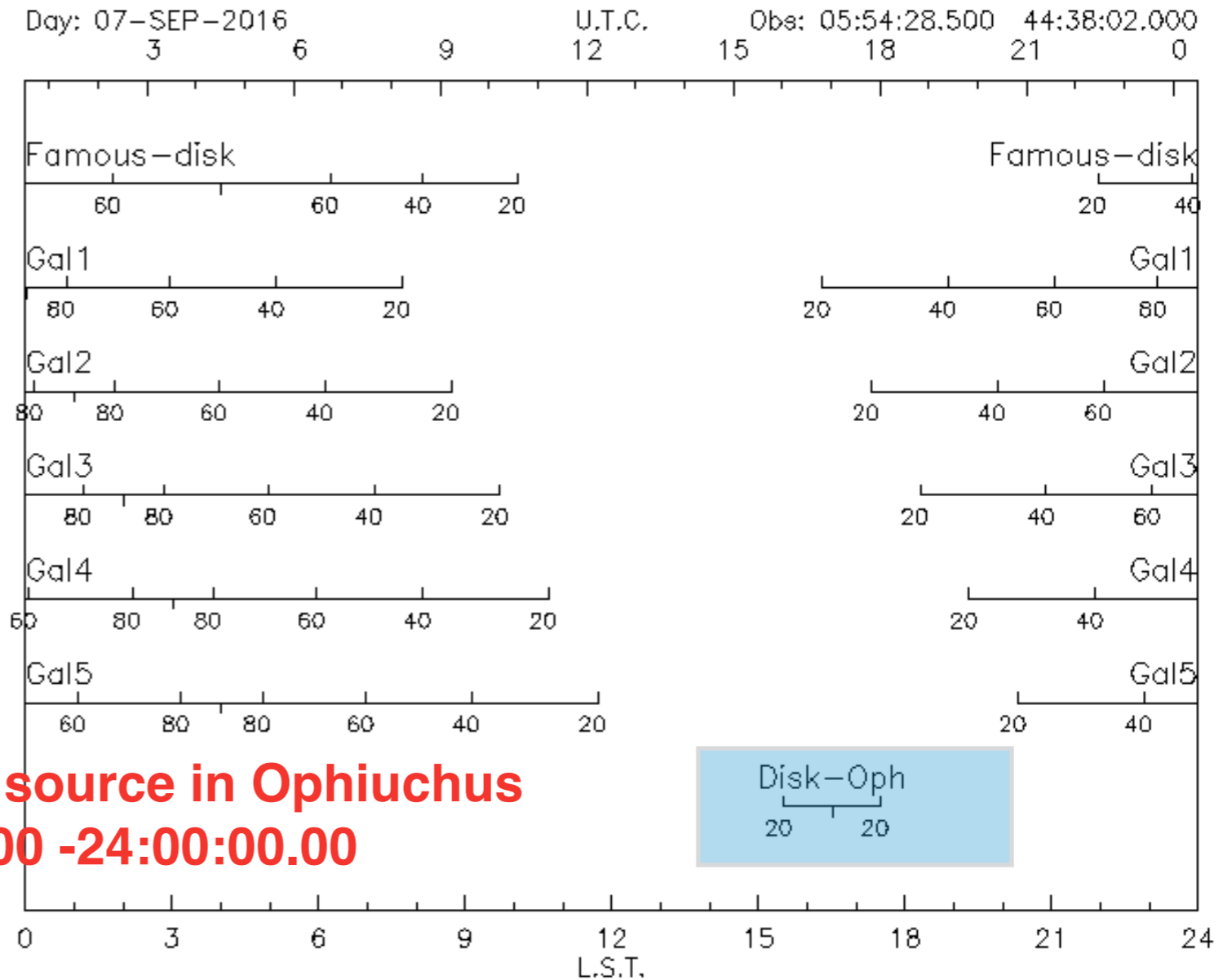
And low declination source?

talk by M. Krips ←

Taurus

ASTRO> obs noema
ASTRO> cata all_sources.cat
ASTRO> time 00:00:00.00 07-sep–2016
ASTRO> hori /sou

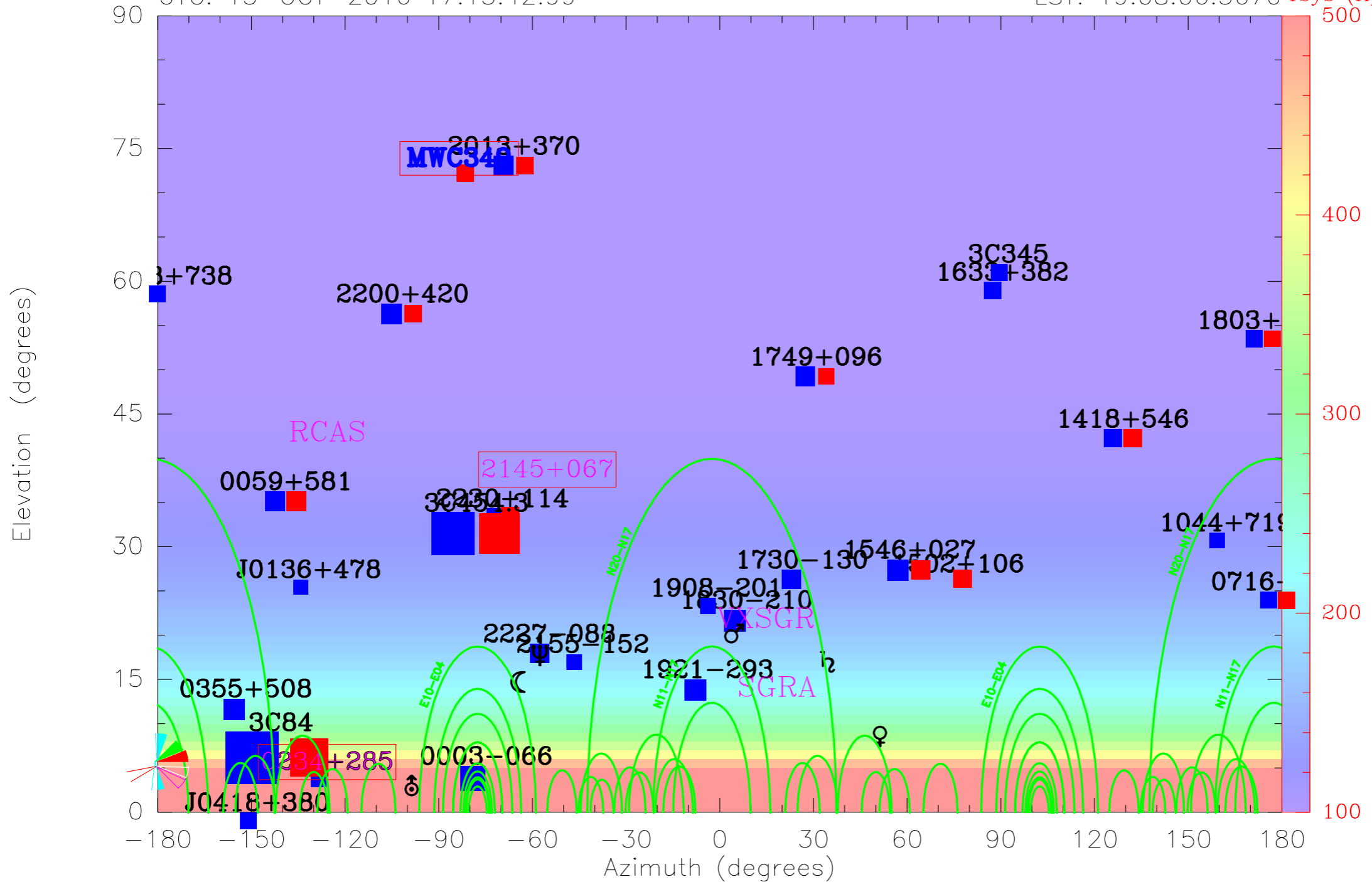**Low declination source in Ophiuchus**
16:30:00.00 -24:00:00.00

Day: 07-SEP-2016   U.T.C.   Obs: 05:54:28.500   44:38:02.000

IT IS DOABLE WITH NOEMA BUT CHALLENGING !
YOU NEED TO ADAPT TIME ON SOURCE!

Why do you need to adapt the TOS?

Low elevation = higher Tsys + shadowing

Plot credit: P. Chaudet

Give your best effort to convince the Program Committee of the feasibility of your project :

-     **+ correct estimation of the time on source**
-     **+ agreement with the CALL for proposal**
-     **+ science justification and role of cols if relevant**

Do not hesitate to send a mail to <u>sog@iram.fr</u>
if you have questions when preparing your proposal!