

# VLA Observation Preparation



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Atacama Large Millimeter/submillimeter Array

Karl G. Jansky Very Large Array

Robert C. Byrd Green Bank Telescope

Very Long Baseline Array



# Observational Considerations

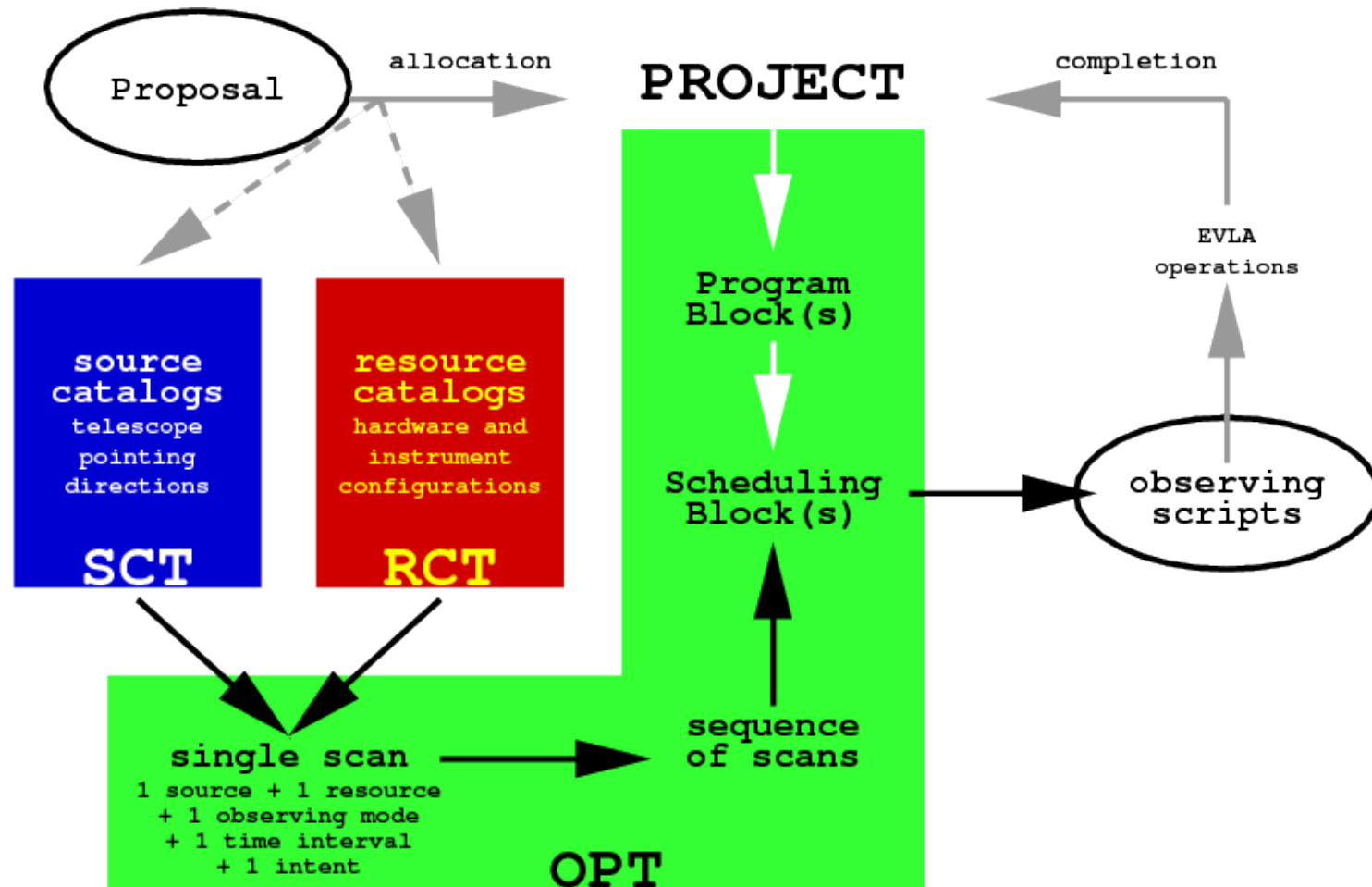
- The EVLA primarily uses dynamic scheduling (i.e., hard to know at what exact time your project will be on the array).
  - Each scheduling block must include a range of scheduling constraints:
    - LST start range
    - Weather (atmospheric phase noise and wind limits)
  - Anticipate and protect against unknown startup slew time and cable wrap
  - Anticipate and protect against availability of calibrators/ slew for different starting times

# Observational Considerations

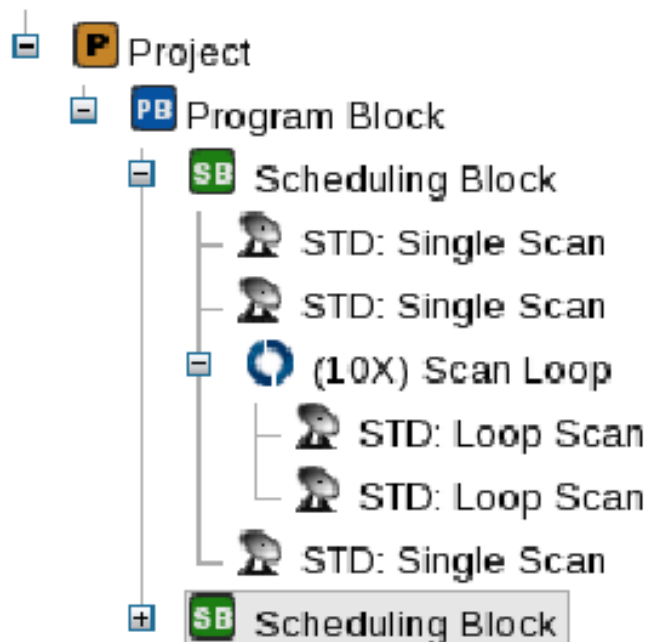
Where are my calibrators and target sources on the sky?

- Strong, point like calibrators are good for bandpass and delay calibration.
- Nearby calibrators are good for phase calibration.
- Pointing calibrators should be in the same general region of the sky.
- What are the choices for a flux calibrator?
- Can certain calibrations be combined with fewer calibrator sources?

# Flow diagram



# Example project “tree”



- Project has Program Blocks (PB)
- PB has Scheduling Blocks (SB)
  - Is “observing run” script
  - Sequence of scans and/or (loops of) loops of scans
  - Includes science target and various calibration sources.

# Designing a schedule

- Designing a schedule: determine which/what
  - Sources to observe, and for how long (with each setup).
  - Setups (“resources”) to use
    - Receivers, (baseband/subband) signals, correlator
  - Calibrations to perform
    - Extra sources/resources? (e.g. pointing)

# How to start the OPT

- Register at

<https://my.nrao.edu>

## Options

- [Obs Prep Tools](#)
- [Information](#)

## Observation Preparation Tools

## EVLA Observation Preparation Tool

- [Information about the Observation Preparation Tool](#)
- [Login to the Observation Preparation Tool](#)

## GBT Dynamic Scheduling System

- [Information about the Dynamic Scheduling System](#)
- [Login to the Dynamic Scheduling System](#)





- P [New Project]
- PB [New Program Block]
- SB [New Scheduling Block]
- STD [New Scan]

**Overview** Comments

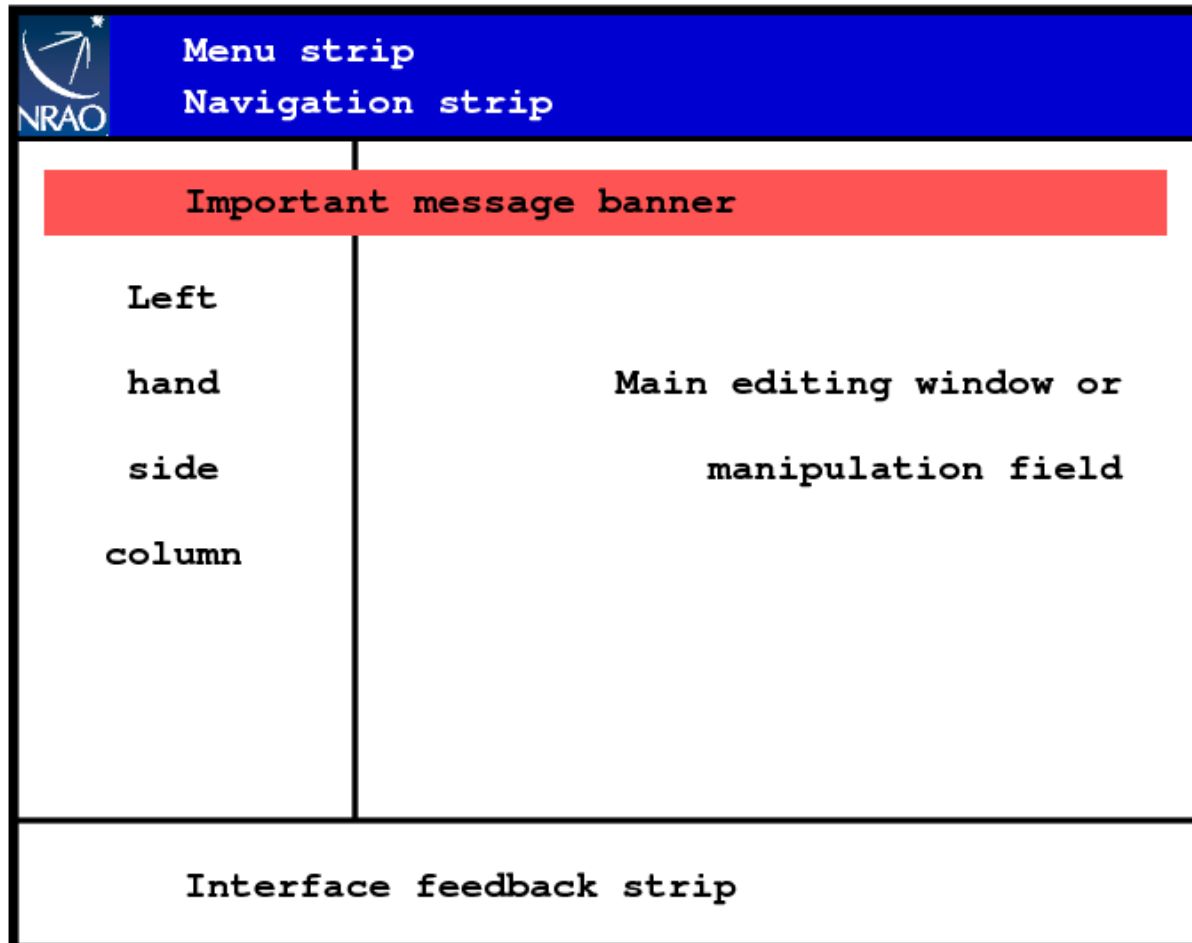
**SCAN DETAILS**

NAME	SCAN MODE	ANTENNA WRAP	REFERENCE POINTING	PHASE & DELAY CALIBRATION	OVER THE TOP
[New Scan]	Standard Observing	No Preference	<input type="checkbox"/> Apply Last?	<input type="checkbox"/> Apply Last?	<input type="checkbox"/> Allow?

TARGET SOURCE	HARDWARE SETUP	SCAN TIMING	INTENTS
No Source Assigned	No Instrument Config. Assigned <input type="checkbox"/> Keep Previous Conf.	Duration (LST) 00:05:00	<input checked="" type="checkbox"/> OBSERVE TARGET <input type="checkbox"/> CALIBRATE COMPLEX GAIN <input type="checkbox"/> CALIBRATE FLUX DENSITY SCALE <input type="checkbox"/> CALIBRATE BANDPASS <a href="#">More &gt;&gt;&gt;</a>
Change	Change		

# Layout of the OPT



# What are we observing?

- Target source: the AGB star IRC+10216
- RA (J2000): 09:47:57.382, DEC (J2000)= +13:16:40.66
- Array Configuration: D
- 3 hr long scheduling block
- Ka –band targeting the HC3N ( $\nu_0=36.39232$  GHz) and the SiS ( $\nu_0= 36.30963$  GHz) lines.
- $V$  (radio, LSR) = -26 km/s
- $\Delta V \sim 35$  km/s

# Source Catalog (SCT)

- Target source: the AGB star IRC+10216
  - RA (J2000): 09:47:57.382, DEC (J2000)= +13:16:40.66
- **In the OPT: click on Sources (top menu).**



- [New Project]
- [New Program Block]
- [New Scheduling Block]
- [New Scan]

Overview Comments

SCAN DETAILS

NAME	SCAN MODE	ANTENNA WRAP	REFERENCE POINTING	PHASE & DELAY CALIBRATION	OVER THE TOP
[New Scan]	Standard Observing	No Preference	<input type="checkbox"/> Apply Last?	<input type="checkbox"/> Apply Last?	<input type="checkbox"/> Allow?

TARGET SOURCE	HARDWARE SETUP	SCAN TIMING	INTENTS
No Source Assigned	No Instrument Config. Assigned <input type="checkbox"/> Keep Previous Conf.	Duration (LST) 00:05:00	<input checked="" type="checkbox"/> OBSERVE TARGET <input type="checkbox"/> CALIBRATE COMPLEX GAIN <input type="checkbox"/> CALIBRATE FLUX DENSITY SCALE <input type="checkbox"/> CALIBRATE BANDPASS <a href="#">More &gt;&gt;&gt;</a>
<input type="button" value="Change"/>	<input type="button" value="Change"/>		

Search

Search Aliases As Well

External Search

[Advanced Search](#)

[Advanced Search](#)



- Personal Catalog
- VLA

SOURCES IN 'PERSONAL CATALOG' (0)

There are currently no Sources in this group!

# Source Catalog (SCT)

- Target source: the AGB star IRC+10216
  - RA (J2000): 09:47:57.382, DEC (J2000)= +13:16:40.66
- **File → create new → catalog. Fill out the name field (e.g. NRAO\_CD\_OPT).**

Search

Search Aliases As Well

External Search

[Advanced Search](#)

Advanced Search

### SOURCES IN 'PERSONAL CATALOG' (0)

There are currently no Sources in this group!

- Personal Catalog
- VLA



Search

Search Aliases As Well

External Search

[Advanced Search](#)

*Advanced Search*

- Personal Catalog
- NRAO\_CD\_OPT**
- VLA

SOURCES IN 'NRAO\_CD\_OPT' (0)

There are currently no Sources in this group!

# Source Catalog (SCT)

- Target source: the AGB star IRC+10216
  - RA (J2000): 09:47:57.382, DEC (J2000)= +13:16:40.66
- **Click on the catalog NRAO\_CD\_OPT, and go to File → create new → Source**

Search

Search Aliases As Well

External Search

[Advanced Search](#)

[Advanced Search](#)

- Personal Catalog
- NRAO\_CD\_OPT**
- VLA

[Return to 'NRAO\\_CD\\_OPT'](#)

**New Source** | Images | Notes

**SOURCE NAME(S)**

NAME:

ORIGIN OF INFORMATION:

ALIASES: [Click to View](#)

SOURCE MAP: [Open in New Window](#)

**SOURCE POSITIONS**

COORDINATE SYSTEM:  POSITION TYPE:

	VALUE	UNCERTAINTY
RIGHT ASCENSION	<input type="text" value="0h 0m 0.000000s"/>	<input type="text" value="0.00mas"/>
DECLINATION	<input type="text" value="0d 0' 0.000000"/>	<input type="text" value="0.00mas"/>
DISTANCE	<input type="text" value="0.0"/> <input type="text" value="km"/>	<input type="text" value="0.0km"/>
EQUINOX	<input type="text" value="J2000"/>	

**SOURCE VELOCITIES**

# Source Catalog (SCT)

- Target source: the AGB star IRC+10216
- RA (J2000): 09:47:57.382, DEC (J2000)= +13:16:40.66

➤ **Populate Name, R.A., Dec. fields.**

Search

Search Aliases As Well

External Search

[Advanced Search](#)

Advanced Search

Personal Catalog

NRAO\_CD\_OPT

VLA

[Return to 'NRAO\\_CD\\_OPT'](#)

IRC+10216 Images Notes

SOURCE NAME(s)

NAME:

ORIGIN OF INFORMATION:

ALIASES: [Click to View](#)

SOURCE MAP: [Open in New Window](#)

SOURCE POSITIONS

COORDINATE SYSTEM:  POSITION TYPE:

	VALUE	UNCERTAINTY
RIGHT ASCENSION	<input type="text" value="9h 47m 57.382s"/>	<input type="text" value="0.00mas"/>
DECLINATION	<input type="text" value="13d 16' 40.66\"/>	<input type="text" value="0.00mas"/>
DISTANCE	<input type="text" value="0.0"/> <input type="text" value="km"/>	<input type="text" value="0.0km"/>
EQUINOX	<input type="text" value="J2000"/>	

SOURCE VELOCITIES

# Source Catalog (SCT)

- Target source: the AGB star IRC+10216
  - RA (J2000): 09:47:57.382, DEC (J2000)= +13:16:40.66
- **Target's LST range: Click on the 'images'.**



Notice: every day at 15:30 and 23:30 UTC this program may be taken offline for a few minutes.

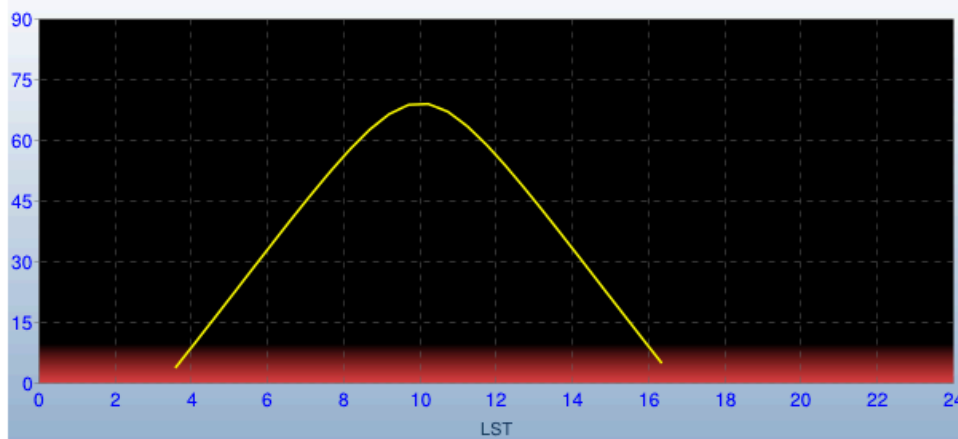
IRC+10216

Images

Notes

VISIBILITY CHART

Elevation Curve for IRC+10216 at the VLA



Elevation	LST (Rising)	LST (Setting)
8	03:51	15:45
10	04:01	15:35
15	04:25	15:11
20	04:49	14:47
25	05:13	14:22
30	05:38	13:58
80		

Azimuth Curve for IRC+10216 at the VLA

Search

Search Aliases As Well

External Search

Advanced Search

Advanced Search

- VLA
- NRAO\_CD\_OPT
- Personal Catalog



# Source Catalog (SCT)

- Target source: the AGB star IRC+10216
  - RA (J2000): 09:47:57.382, DEC (J2000)= +13:16:40.66
  - LST target: 05:45 → 13:45 (high elevations for high frequencies)
- **What calibrators are needed?**
- **Phase calibrator.**
  - **Reference pointing calibrator (C or X-band).**
  - **Bandpass Calibrator.**
  - **Flux density Calibrator.**



# Source Catalog (SCT)

- Target source: the AGB star IRC+10216
  - RA (J2000): 09:47:57.382, DEC (J2000)= +13:16:40.66
  - LST target: 05:45 → 13:45 (high elevations for high frequencies)
- **Finding a phase calibrator: Click on the catalog name 'NRAO\_CD\_OPT' on the side menu, then choose 'sky map'**

Search

Search Aliases As Well

External Search

[Advanced Search](#)

[Advanced Search](#)


Personal Catalog

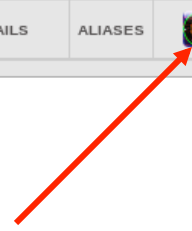
NRAO\_CD\_OPT

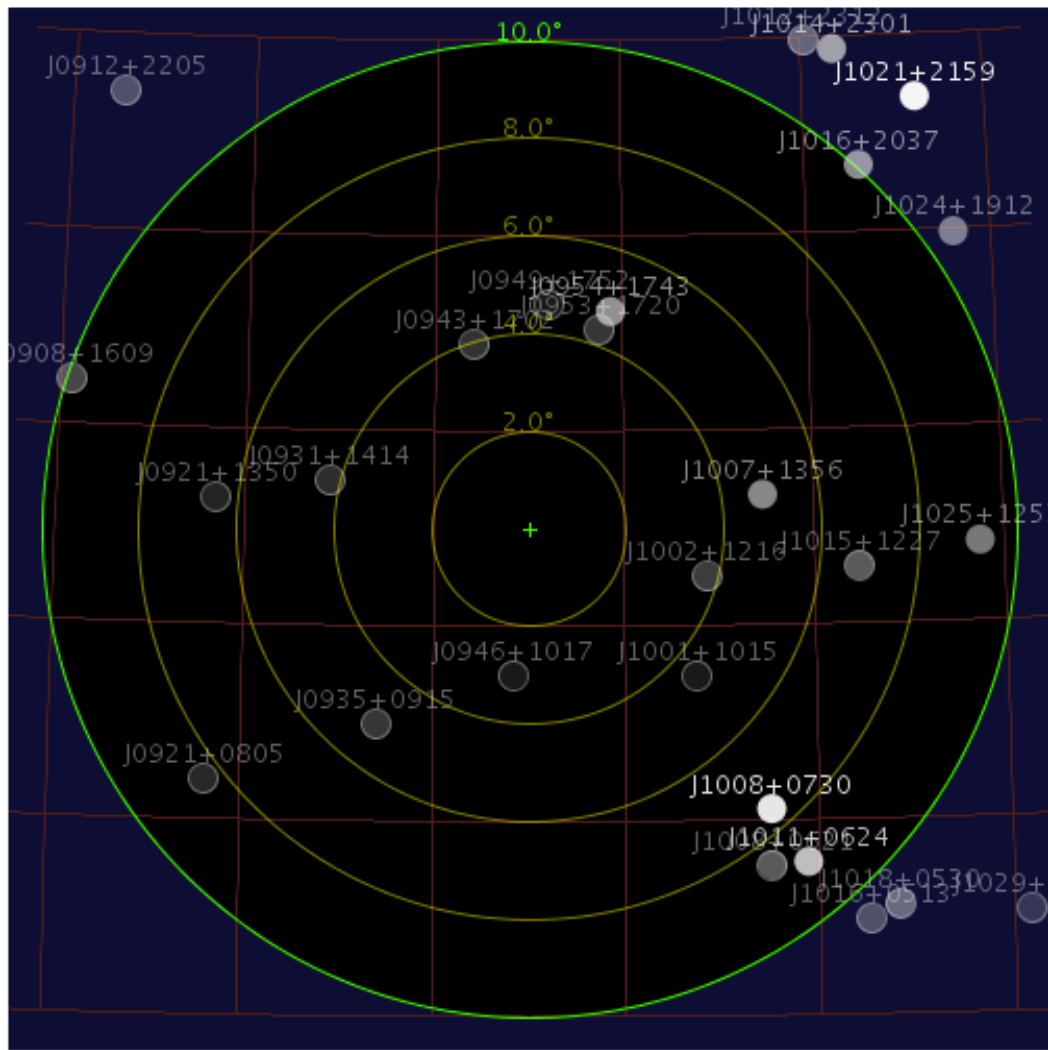
VLA

### SOURCES IN 'NRAO\_CD\_OPT' (1)

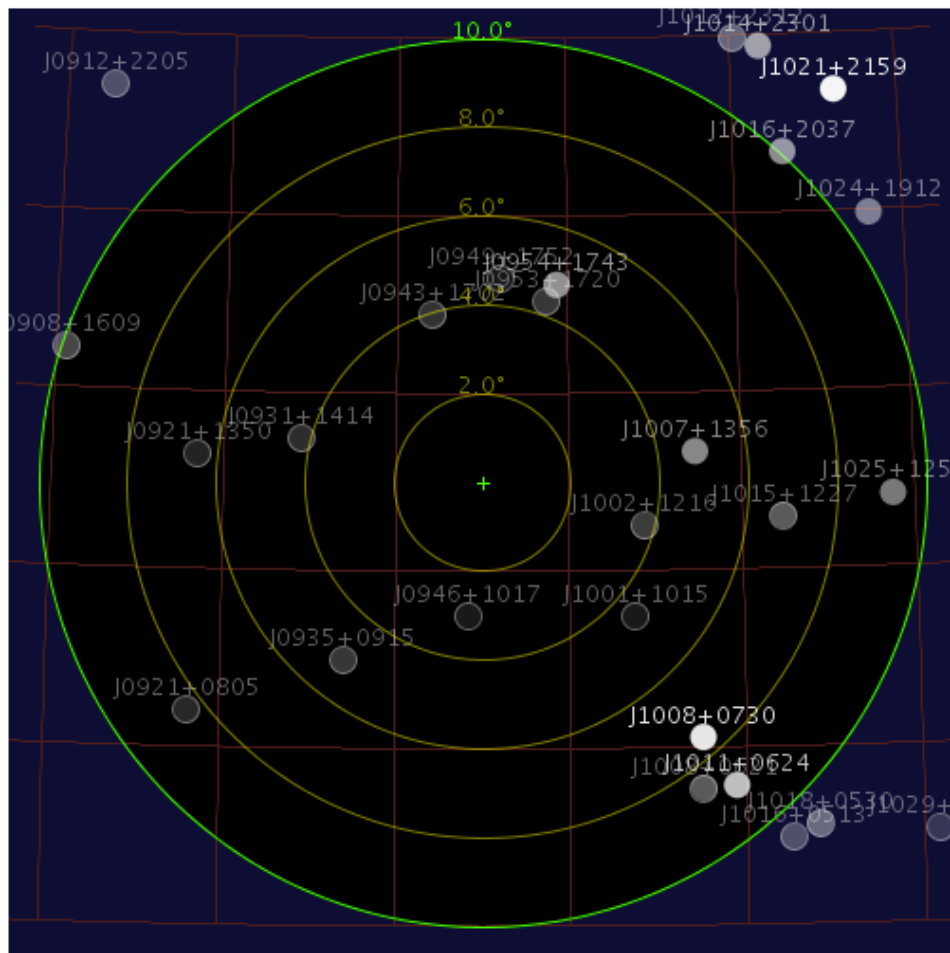
Select: [All](#) | [None](#)    Show: [25](#) | [50](#) | [100](#) | [200](#)    SELECT COORDINATE SYSTEM: [Equatorial](#)

	Name	Right Ascension	Declination	Velocity	Flux / Structure	Sky Map	
<input type="checkbox"/>	<a href="#">IRC+10216</a>	9h 47m 57.382s	13d 16' 40.66"	-26.0 km/s LSRK Radio	<a href="#">DETAILS</a>	<a href="#">ALIASES</a>	





**Objective:** Finding a nearby phase calibrator.  
 Hover over source to see information



## J0954+1743

*Aliases:* 0954+177 B0952+1757 0952+179

*Positions:*

RA: 9h 54m 56.824s

Dec: 17° 43' 31.222"

*Uncertainties (mas):*

RA: 2.0

Dec: 2.0

*Flux / Structure*

Band	Flux	A	B	C	D	UV <sub>min</sub> (kλ)	UV <sub>max</sub> (kλ)
L (20.0cm)	1.1Jy	P	X	X	X	45.0	
C (5.0cm)	0.7Jy	S	S	S	X	20.0	
X (3.0cm)	0.61Jy	P	P	P	P		
Ku (2.0cm)	0.6Jy	S	S	S	S		
Q (0.7cm)	0.4Jy	W	W	W	W		

*Velocities:*

No Information

*Images:*

None

A good gain calibrator for this frequency band would be **J0954+1743**

# Source Catalog (SCT)

- Target source: the AGB star IRC+10216
  - RA (J2000): 09:47:57.382, DEC (J2000)= +13:16:40.66
  - LST target: 05:45 → 13:45 (high elevations for high frequencies)
  - Phase calibrator: J0954+1743
- **Finding a reference pointing calibrator (C or X-band, for the target and the phase calibrator).**

## J1008+0730

*Aliases:* 3C237 1008+075 B1005+0744 1005+077

*Positions:*

*RA:* 10h 8m 0.016s

*Dec:* 7° 30' 16.552"

*Uncertainties (mas):*

*RA:* 1000.0

*Dec:* 1000.0

*Flux / Structure*

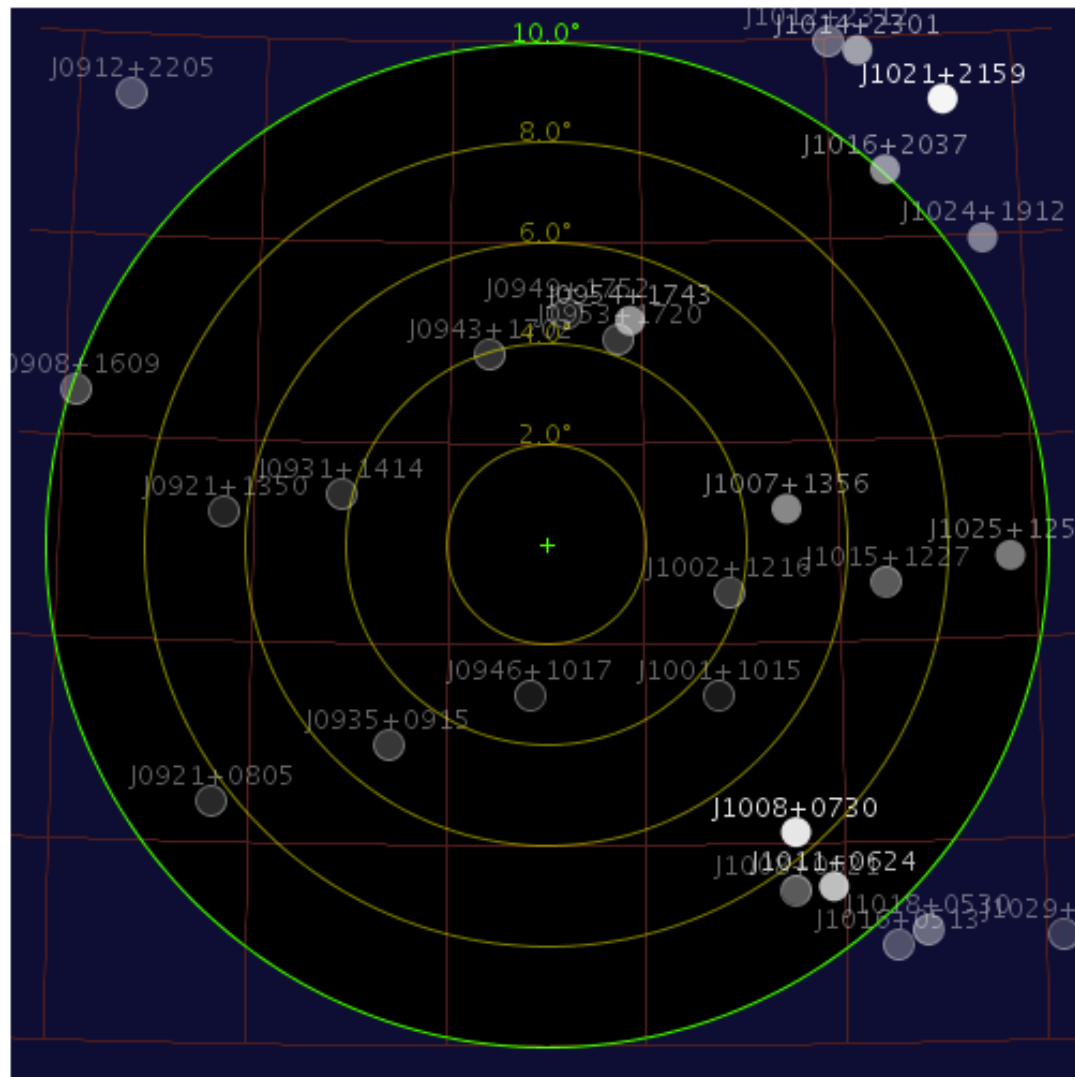
Band	Flux	A	B	C	D	UV <sub>min</sub> (kλ)	UV <sub>max</sub> (kλ)
L (20.0cm)	6.63Jy	X	X	S	P		15.0
C (5.0cm)	2.5Jy	X	X	X	S		15.0
Ku (2.0cm)	0.5Jy	X	X	X	X		
Q (0.7cm)	0Jy	X	X	X	X		

*Velocities:*

No Information

*Images:*

None



**Objective:** Finding a nearby reference pointing calibrator.

At C-band, a good reference pointing calibrator would be **J1008+0730**

# Source Catalog (SCT)

- Target source: the AGB star IRC+10216
  - RA (J2000): 09:47:57.382, DEC (J2000)= +13:16:40.66
  - LST target: 05:45 → 13:45 (high elevations for high frequencies)
  - Phase calibrator: J0954+1743
  - Reference pointing (C-band): J1008+0730
- **Finding a bandpass calibrator: use the ‘Advanced Search’ (on the left).**

Notice: every day at 15:30 and 23:30 UTC this program may be taken offline for a few minutes.

Search

Select a catalog to search

Search Aliases As Well

External Search

Advanced Search

Advanced Search

VLA

NRAO\_CD\_OPT

Personal Catalog

SOURCE SEARCH [Hide Advanced](#)

Select: All | None

VLA  NRAO\_CD\_OPT  Personal Catalog

SEARCH PARAMETERS:

Cone Search

Center RA:

Center Dec:

Select Source:

Radius (deg.):

Search By Calibrator Code

Array Conf.:

In Band:

Code:

Search By Flux Density

>:

In Band:

Search By Name

\*:

Search Aliases as well?

Search By Right Ascension (J2000)

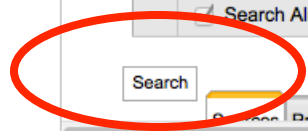
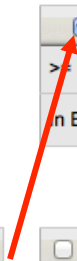
>=:

<=:

Search By Declination (J2000)

>=:

<=:





Search

Sources

Properties











### SOURCES IN '1. SEARCH RESULTS' (5)

Select: All | None

Show: 25 | 50 | 100 | 200

SELECT COORDINATE SYSTEM:

Equatorial

		Catalog	Name	Right Ascension	Declination	Velocity	Flux / Structure		Sky Map
<input type="checkbox"/>		VLA	J1229+0203	12h 29m 6.699729s	2d 3' 8.59819"		DETAILS	ALIASES	
<input type="checkbox"/>		VLA	J1230+1223	12h 30m 49.423381s	12d 23' 28.04393"		DETAILS	ALIASES	
<input type="checkbox"/>		VLA	J1256-0547	12h 56m 11.16656s	-5d 47' 21.52458"		DETAILS	ALIASES	
<input type="checkbox"/>		VLA	J1642+3948	16h 42m 58.809951s	39d 48' 36.99395"		DETAILS	ALIASES	
<input type="checkbox"/>		VLA	J2253+1608	22h 53m 57.747932s	16d 8' 53.56089"		DETAILS	ALIASES	

Search

Sources Properties

### SOURCES IN '1. SEARCH RESULTS' (5)

Select: All | None    Show: 25 | 50 | 100 | 200    SELECT COORDINATE SYSTEM: Equatorial

		Catalog	Name	Right Ascension	Declination	Velocity	Flux / Structure		Sky Map
<input type="checkbox"/>		VLA	J1229+0203	12h 29m 6.699729s	2d 3' 8.59819"		DETAILS	ALIASES	
<input type="checkbox"/>		VLA	J1230+1223	12h 30m 49.423381s	12d 23' 28.04393"		DETAILS	ALIASES	
<input type="checkbox"/>		VLA	J1256-0547	12h 56m 11.16656s	-5d 47' 21.52458"		DETAILS	ALIASES	

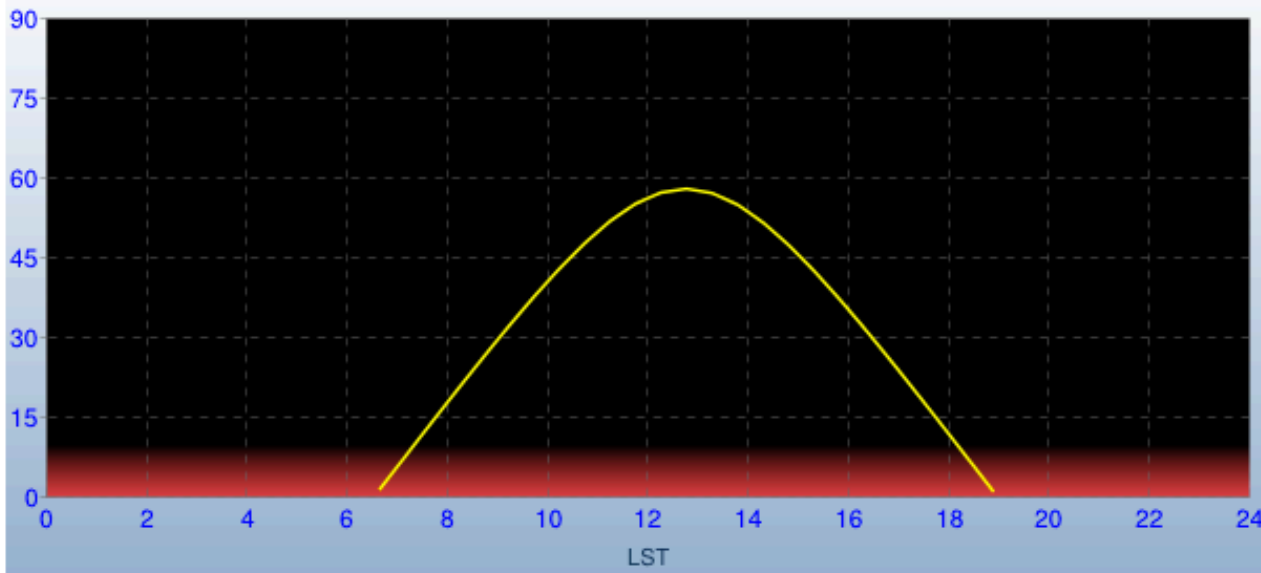
J1229+0203

Images

Notes

### VISIBILITY CHART

Elevation Curve for J1229+0203 at the VLA



Elevation	LST (Rising)	LST (Setting)
8	07:02	17:56
10	07:12	17:46
15	07:36	17:22
20	08:01	16:58
25	08:26	16:33
30	08:51	16:07
80		

# Source Catalog (SCT)

- Target source: the AGB star IRC+10216
  - RA (J2000): 09:47:57.382, DEC (J2000)= +13:16:40.66
  - LST target 05:45 → 13:45 (high elevations for high frequencies)
  - Phase calibrator: J0954+1743
  - Reference pointing (C-band): J1008+0730
  - Bandpass calibrator: J1229+0203 (LST range: 9:00 → 16:00)
- **Finding a Flux calibrator: Click on the + of the 'VLA' catalog, then on 'VLA Flux Cal'.**

Search

Search Aliases As Well

External Search

[Advanced Search](#)

- Advanced Search
  - 1. Search Results
  - 2. Search Results



- Personal Catalog
- NRAO\_CD\_OPT
- VLA
  - RA Groups
  - Dec Groups
  - VLA Flux Cal

### SOURCES IN 'VLA FLUX CAL' (5)

Select: [All](#) | [None](#)    Show: [25](#) | [50](#) | [100](#) | [200](#)    SELECT COORDINATE SYSTEM: [Equatorial](#)

		Name	Right Ascension	Declination	Velocity	Flux / Structure		Sky Map
<input type="checkbox"/>		0137+331=3C48	1h 37m 41.299431s	33d 9' 35.13299"		DETAILS	ALIASES	
<input type="checkbox"/>		0542+498=3C147	5h 42m 36.137916s	49d 51' 7.23356"		DETAILS	ALIASES	
<input type="checkbox"/>		1331+305=3C286	13h 31m 8.287984s	30d 30' 32.95885"		DETAILS	ALIASES	
<input type="checkbox"/>		0521+166=3C138	5h 21m 9.886021s	16d 38' 22.05122"		DETAILS	ALIASES	
<input type="checkbox"/>		1411+522=3C295	14h 11m 20.6477s	52d 12' 9.141"		DETAILS	ALIASES	

Search

Search Aliases As Well

External Search

[Advanced Search](#)

Advanced Search

- 1. Search Results
- 2. Search Results

Personal Catalog

NRAO\_CD\_OPT

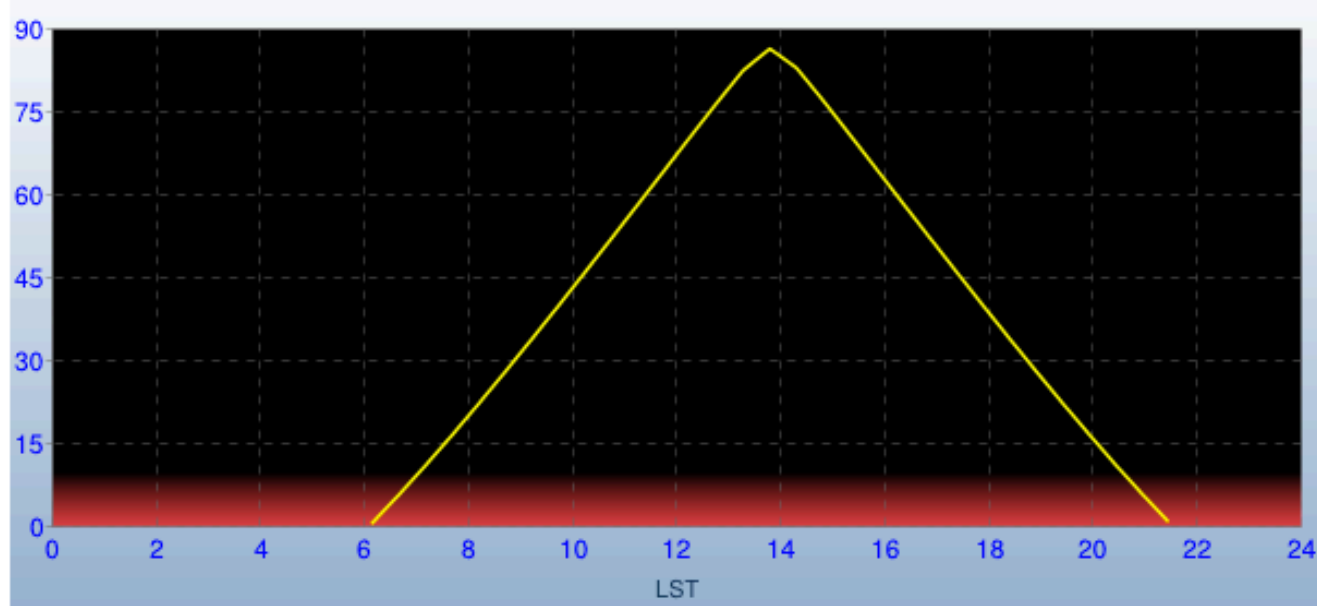
VLA

SOURCES IN 'VLA FLUX CAL' (5)

Select: All | None Show: 25 | 50 | 100 | 200 SELECT COORDINATE SYSTEM: Equatorial

	Name	Right Ascension	Declination	Velocity	Flux / Structure		Sky Map
<input type="checkbox"/>	0137+331=3C48	1h 37m 41.299431s	33d 9' 35.13299"		DETAILS	ALIASES	
<input type="checkbox"/>	0542+498=3C147	5h 42m 36.137916s	49d 51' 7.23356"		DETAILS	ALIASES	
<input type="checkbox"/>	1331+305=3C286	13h 31m 8.287984s	30d 30' 32.95885"		DETAILS	ALIASES	
<input type="checkbox"/>	0521+166=3C138	5h 21m 9.886021s	16d 38' 22.05122"		DETAILS	ALIASES	
<input type="checkbox"/>	1411+522=3C295	14h 11m 20.6477s	52d 12' 9.141"		DETAILS	ALIASES	

Elevation Curve for 1331+305=3C286 at the VLA



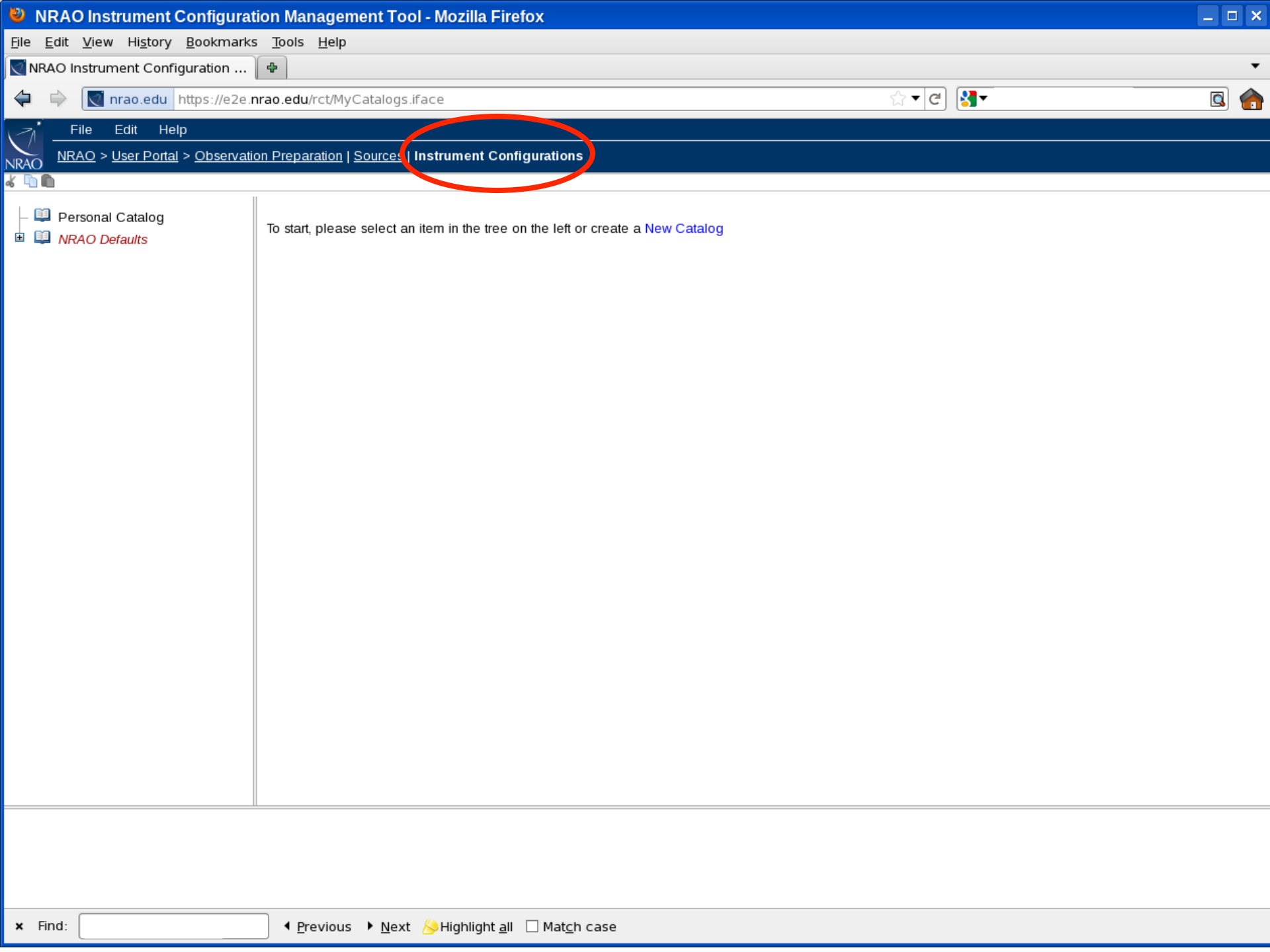
Elevation	LST (Rising)	LST (Setting)
8	06:44	20:18
10	06:55	20:07
15	07:23	19:39
20	07:50	19:13
25	08:16	18:46
30	08:41	18:21
80	12:47	14:15

# Source Catalog (SCT)

- Target source: the AGB star IRC+10216
- RA (J2000): 09:47:57.382, DEC (J2000)= +13:16:40.66
- LST target: 05:45 → 13:45 (high elevations for high frequencies)
- Phase calibrator: J0954+1743
- Reference pointing (C-band): J1008+0730
- Bandpass calibrator: J1229+0203 (LST range ~ 9:00 → 16:00)
- Flux density calibrator: J1331+305=3C286 (LST range ~ 8:30 → 18:30, gap between 12:45 – 14:15 to avoid elevations > 80 degrees).
  
- Note that the bandpass and flux density calibrators do not require separate reference pointing calibrators.

# Resource Catalog (RCT)

- Ka –band targeting the HC3N ( $\nu_0=36.39232$  GHz) and the SiS ( $\nu_0= 36.30963$  GHz) lines.
- $V$  (radio, LSR) = -26 km/s
- $\Delta V \sim 35$  km/s



- Personal Catalog
- NRAO Defaults*

To start, please select an item in the tree on the left or create a [New Catalog](#)



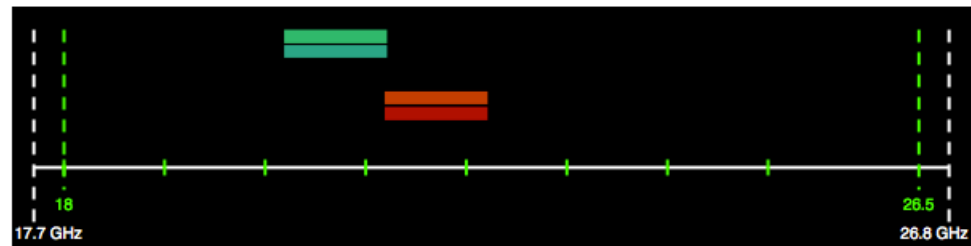
# Resource Catalog (RCT)

- File → Create New → Catalog, fill out the name (e.g., NRAO\_CD).
- File → Create New → 8-bit Instrument Configuration

**Notice:** every day at 15:30 and 23:30 UTC this program may be taken offline for a few minutes.

- NRAO Defaults
- old OSRO NRAO Defaults
- NRAO Defaults
- Old CD
- Personal Catalog
- NRAO\_CD

**NRAO\_CD » [New Resource]**



Total BI. BPs Used:	0 of 64
Total Data Rate:	0.00 MB/s or 0.00 GB/h
Total Spectral Points:	0
Total Bandwidth:	0.0GHz
Capability Mode:	General observing

- Basics
- Lines
- Basebands
- Line Placement
- Subbands
- Validation

ID  
680615

# Resource Catalog (RCT)

Basics

Lines

Basebands

Line Placement

Subbands

Validation

**ID**

680615

**Name**

IRC

**Receiver Band**

Ka (26.5GHz - 40.0GHz)

1-dB range: 26.0GHz - 40.0GHz

3-dB range: 25.0GHz - 41.0GHz

**Correlator Integration Time (s)**

3.0

**Comments**

- Insert a name, e.g. IRC
- Choose Ka-band
- Choose an integration time (e.g., 3 sec)



# Resource Catalog (RCT)

➤ Go to “Lines” tab

Basics **Lines** Basebands Line Placement Subbands Validation

## Direction for Doppler calculations

Coordinate System	Right Ascension	Declination	Epoch
Equatorial	0h 0m 0.000000h	0d 0' 0.000000"	J2000

Import Source Position

## Spectral line frequencies and coverage

Line	Rest Frequency	Rest Frame	Convention	Velocity	Minimum Range	Channel Separation	Polarization	BI.BPs Required	Delete
------	----------------	------------	------------	----------	---------------	--------------------	--------------	-----------------	--------

Add Line

Copy Last Line



# Resource Catalog (RCT)

## ➤ Insert or Import Source Position

Basics **Lines** Basebands Line Placement Su

**Direction for Doppler calculations**

Coordinate System	Right Ascension	Declination	Epoch
Equatorial	0h 0m 0.00000h	0d 0' 0.000000"	J2000

**Import Source Position**

**Choose Source**

SOURCE CATALOG:  
NRAO\_CD\_OPT

SOURCE GROUP:  
All

SOURCES:  
 IRC+10216

Select Cancel

# Resource Catalog (RCT)

## ➤ Add Line

Basics **Lines** Basebands Line Placement Subbands Validation

### Direction for Doppler calculations

Coordinate System	Right Ascension	Declination	Epoch
Equatorial	9h 47m 57.382s	13d 16' 40.66"	J2000

Import Source Position

### Spectral line frequencies and coverage

Line	Rest Frequency	Rest Frame	Convention	Velocity	Minimum Range	Channel Separation	Polarization	BI.BPs Required	Delete
------	----------------	------------	------------	----------	---------------	--------------------	--------------	-----------------	--------

Add Line Copy Last Line

# Resource Catalog (RCT)

- HC3N ( $\nu_0=36.39232$  GHz).
- $V$  (radio, LSR) = -26 km/s
- Minimum Range = 35 km/s
- Channel Separation = 2 km/s

	Line	Rest Frequency	Rest Frame	Convention	Velocity	Minimum Range	Channel Separation	Polarization
L1	HC3N	36.39232 36.396GHz	LSR	Radio (km/s)	-26.0 km/s	35.0 km/s 4.249MHz	2.0 km/s 242.783kHz	Full

Add Line

Copy Last Line

# Resource Catalog (RCT)

- HC3N ( $\nu_0=36.39232$  GHz).
- $V$  (radio, LSR) = -26 km/s
- Minimum Range = 35 km/s
- Channel Separation = 2 km/s

	Line	Rest Frequency	Rest Frame	Convention	Velocity	Minimum Range	Channel Separation	Polarization
L1	HC3N	36.39232 36.396GHz	LSR	Radio (km/s)	-26.0 km/s	35.0 km/s 4.249MHz	2.0 km/s 242.783kHz	Full

Add Line Copy Last Line

- SiS ( $\nu_0=36.30963$  GHz).

## Spectral line frequencies and coverage

	Line	Rest Frequency	Rest Frame	Convention	Velocity	Minimum Range	Channel Separation	Polarization
L1	HC3N	36.39232 36.396GHz	LSR	Radio (km/s)	-26.0 km/s	35.0 km/s 4.249MHz	2.0 km/s 242.783kHz	Full
L2	SiS	36.30963 36.313GHz	LSR	Radio (km/s)	-26.0 km/s	35.0 km/s 4.239MHz	2.0 km/s 242.232kHz	Full



# Resource Catalog (RCT)

- HC3N ( $\nu_0=36.39232$  GHz).
- $V$  (radio, LSR) = -26 km/s
- Minimum Range = 35 km/s
- Channel Separation = 2 km/s

	Line	Rest Frequency	Rest Frame	Convention	Velocity	Minimum Range	Channel Separation	Polarization
L1	HC3N	36.39232 36.396GHz	LSR	Radio (km/s)	-26.0 km/s	35.0 km/s 4.249MHz	2.0 km/s 242.783kHz	Full

Add Line

Copy Last Line

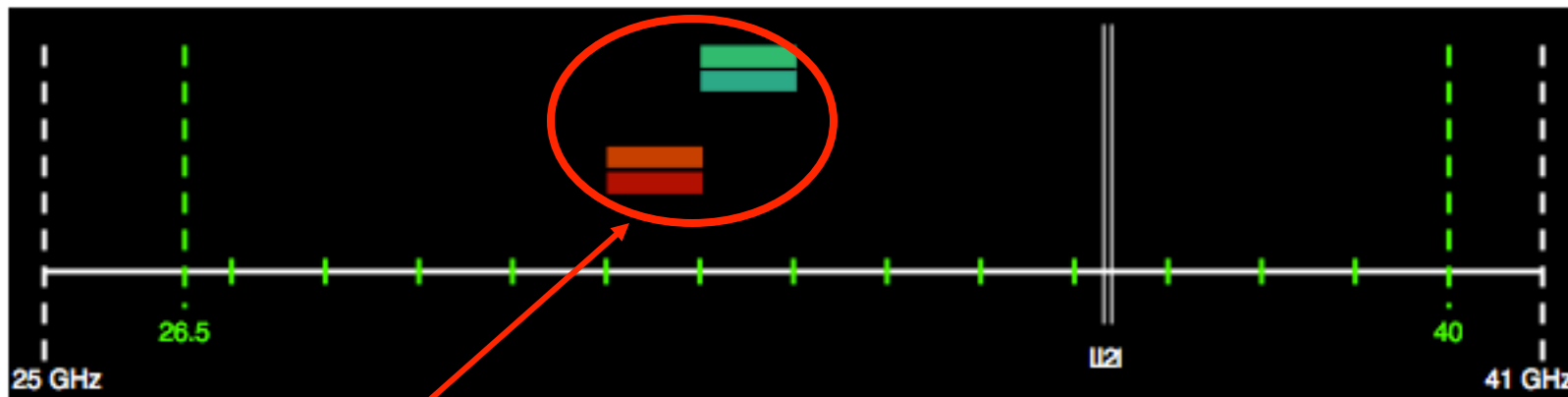
- SiS ( $\nu_0=36.30963$  GHz).

## Spectral line frequencies and coverage

	Line	Rest Frequency	Rest Frame	Convention	Velocity	Minimum Range	Channel Separation	Polarization
L1	HC3N	36.39232 36.396GHz	LSR	Radio (km/s)	-26.0 km/s	35.0 km/s 4.249MHz	2.0 km/s 242.783kHz	Full
L2	SiS	36.30963 36.313GHz	LSR	Radio (km/s)	-26.0 km/s	35.0 km/s 4.239MHz	2.0 km/s 242.232kHz	Full

# Resource Catalog (RCT)

NRAO\_CD » IRC



These are the two 1 GHz wide basebands of the 8 bit samplers.  
We need to overlap them with the lines.

# Resource Catalog (RCT)

➤ Go to “Basebands” tab

Basics

Lines

**Basebands**

Line Placement

Subbands

Validation

## Sampler Input Mode

Two 1-GHz 8-bit samplers (A0/C0 and B0/D0)

Name	Bits	Center Frequency	Sky Range
A0/C0 1.024GHz	8	<input type="text" value="36.32GHz"/>	35.808GHz - 36.832GHz
B0/D0 1.024GHz	8	<input type="text" value="36.25GHz"/>	35.738GHz - 36.762GHz

# Resource Catalog (RCT)

- Still under “Basebands” tab:
- We will Doppler set the baseband A0/C0 on HC3N
- We will Doppler set the baseband B0/D0 on SiS

Name	Doppler Line	Offset From Center	Target Sky Frequency	Position	Velocity	Rest Frame	Convention
A0/C0	<input checked="" type="checkbox"/> HC3N - 36.392GHz	-75.898MHz	36.396GHz	9h 47m 57.382s 13d 16' 40.66"	-26.0km/s	Lsr Kinematic	Radio
B0/D0	<input checked="" type="checkbox"/> SiS - 36.310GHz	-63.200MHz	36.313GHz	9h 47m 57.382s 13d 16' 40.66"	-26.0km/s	Lsr Kinematic	Radio

# Resource Catalog (RCT)

➤ Go to “Line Placement” tab

Basics	Lines	Basebands	Line Placement	Subbands	Validation					
Line	Rest Frequency	Rest Frame	Convention	Velocity	Minimum Range	Channel Separation	Polarization	BI.BPs Required	Generate	
L1	HC3N	36.39232GHz 36.396GHz	Lsr Kinematic	Radio	-26km/s	35.0 km/s 4.249MHz	2.0 km/s 242.783kHz	FULL	1	Generate
L2	SiS	36.30963GHz 36.313GHz	Lsr Kinematic	Radio	-26km/s	35.0 km/s 4.239MHz	2.0 km/s 242.232kHz	FULL	1	Generate

- Click on Generate for HC3N.
- Choose **A0/C0**, Generate
- Repeat for SiS.
- Choose **B0/D0**, Generate.

## Generate Subband from Science Specification

Using line **HC3N - 36.39232GHz**

### Baseband

A0/C0

### Comments

Generated from HC3N -  
36.39232GHz

Generate

Cancel

# Resource Catalog (RCT)

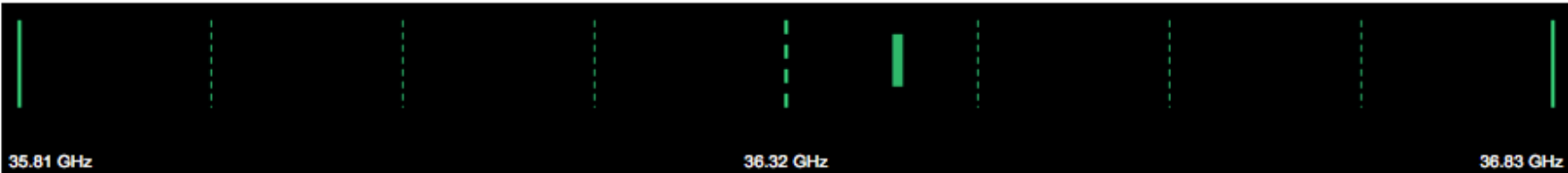
➤ Go to “Subbands” tab

Basics Lines Basebands Line Placement **Subbands** Validation

Clear All Subbands

**A0/C0** B0/D0

Add Subband Fill Subbands Bulk Edit Selected Subbands Delete Selected Subbands



35.81 GHz 36.32 GHz 36.83 GHz

SBP	BW	Snap To Grid	Central Frequency	Fix To Baseband	Polarization	Bl. BPs	Channels	MB/s	Comments	Delete	Select All   None
1	8MHz 65.9km/s	<input type="checkbox"/>	36.395897852C 36.39190GHz - 36.39990GHz	<input type="checkbox"/>	Full	1	64 × 125kHz (64 × 1.03km/s)	0.247	Generated from HC3N	<input type="checkbox"/>	<input type="checkbox"/>

# Resource Catalog (RCT)


➤ Go to “Subbands” tab

Basics Lines Basebands Line Placement **Subbands** Validation

Clear All Subbands

A0/C0 **B0/D0**

Add Subband Fill Subbands Bulk Edit Selected Subbands Delete Selected Subbands



SBP	BW	Snap To Grid	Central Frequency	Fix To Baseband	Polarization	Bl. BPs	Channels	MB/s	Comments	Delete	Select All   None
0	8MHz 66.0km/s	<input type="checkbox"/>	36.313199723C 36.30920GHz - 36.31720GHz	<input type="checkbox"/>	Full	1	64 × 125kHz (64 × 1.03km/s)	0.247	Generated from SIS - 3	<input type="checkbox"/>	<input type="checkbox"/>

# Resource Catalog (RCT)

➤ Go to “Validation” tab to view the summary and see if there are any warning messages.

Basics	Lines	Basebands	Line Placement	Subbands	Validation
--------	-------	-----------	----------------	----------	------------

<b>Name:</b>	IRC
<b>Tint:</b>	3.0
<b>Receiver Band:</b>	Ka (26.5GHz - 40.0GHz)

T <sub>int</sub>	AC BB <sub>center</sub> Freq	AC Summed BW	AC Coverage	Req. BIBPs	# Channels	AC Doppler Line	AC Doppler Vel.	AC Doppler Pos.	AC Doppler
Band	BD BB <sub>center</sub> Freq	BD Summed BW	BD Coverage	Total BIBPs	Min/Max Width	BD Doppler Line	BD Doppler Vel.	BD Doppler Pos.	BD Doppler
3s	36.31911053GHz	8.0MHz	0.78125 %	2	128	36.39232GHz	-26.0km/s LSR Radio	9h 47m 57.382s 13d 16' 40.66"	-75.837683
Ka	36.24911255GHz	8.0MHz	0.78125 %	2	125.0kHz / 125.0kHz	36.30963GHz	-26.0km/s LSR Radio	9h 47m 57.382s 13d 16' 40.66"	-63.13969

Bandband	ID	SB Bandwidth	Frequency Range	Center	Polarization	BIBPs	Channels	Ch. Width	Phased	Data Rate	Priority	C
A0/C0	0	8MHz	36.39183768GHz - 36.39983768GHz	36.39583768GHz	Full	1	64	125.0kHz	No	0.247 MB/s	0	Generated from
B0/D0	0	8MHz	36.30919972GHz - 36.31719972GHz	36.31319972GHz	Full	1	64	125.0kHz	No	0.247 MB/s	0	Generated from

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Q1	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Q2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Q3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Q4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Data Rate
0.494 MB/s
1.777 GB/h





# Observation Preparation

NRAO Observation Preparation Tool - Mozilla Firefox <2>

File Edit View History Bookmarks Tools Help

NRAO Observation Preparation ...

nrao.edu https://e2e.nrao.edu/opt/MyProjects.iface

File Edit Help

NRAO > User Portal > **Observation Preparation** | Sources | Instrument Configurations

[New Project]

[New Program Block]

[New Scheduling Block]

STD: [New Scan]

### PROGRAM BLOCK DETAILS

NAME	<input type="text" value="[New Program Block]"/>	COMPLETED?	Yes
ALLOCATED TIME (HRS)	0.0	USED TIME (HRS)	0.0


### ACCEPTABLE CONFIGURATIONS

Drag configurations from the list on the right to the left to choose that configuration.  
Drag configurations on the left up and down in order to adjust their priority.  
Drag configurations from the list on the left to the right to remove that configuration.

ACCEPTABLE CONFIGURATIONS	AVAILABLE CONFIGURATIONS
	A
	B
	C
	D
	BNA
	CNB
	DNC
	A=>BNA
	BNA=>B
	B=>CNB
	CNB=>C
	C=>DNC
	DNC=>D

SCHEDULING BLOCKS

# Observation Preparation

- If you don't have "New Project" on the left menu:
  - File → Create New → Test Project
- Click on Program Block 
  - Insert a name: TEST
  - Acceptable array configuration: drag the desired configuration

# Observation Preparation

NRAO Observation Preparation Tool

https://obs.vla.nrao.edu/opt/MyProjects.jsf

File Edit View Help

NRAO > User Portal > Observation Preparation | Sources | Instrument Configurations

Hello, Dr. Galactico Armenian Exit

**Notice:** every day at 15:30 and 23:30 UTC this program may be taken offline for a few minutes until it becomes more stable.

**PROGRAM BLOCK DETAILS**

NAME  SCHEDULING PRIORITY

ALLOCATED TIME (HRS) 0.00 USED TIME (HRS) 0.00 COMPLETED? Yes

**ACCEPTABLE CONFIGURATIONS**

Drag configurations from the list on the right to the left to choose that configuration.  
Drag configurations on the left up and down in order to adjust their priority.  
Drag configurations from the list on the left to the right to remove that configuration.

**ACCEPTABLE CONFIGURATIONS**

**AVAILABLE CONFIGURATIONS**

- A
- B
- C
- BNA
- CNB
- DNC
- A=>BNA
- BNA=>B
- B=>CNB

# Observation Preparation

- Scheduling Block: Information tab.
- Name: TEST SB
- LST range (uncheck “no constraint”):
  - LST target/phase\_cal/ref\_cal: 05:45 → 13:45
  - LST BP\_cal: 9:00 → 16:00
  - LST Flux\_cal: 08:30 → 18:30 (gap between 12:45 – 14:15)

**Assuming a 3 hr long SB:**

**One possible LST start range: 08:30 → 09:45  
(if the flux cal is observed toward the end)**

- Scheduling constraints: choose Ka band's

# Observation Preparation: Scheduling Block

Navigation icons: Home, Back, Forward, Refresh, Print, etc.

[New Project]

PB TEST

SB TEST SB, 00:00:00

STD: [New Scan]

Information | Reports | Validation and Submission | Bulk Scan Creation | Bulk Scan Edit | Executions

### SCHEDULING BLOCK DETAILS

GENERATED ID: 15246476

NAME: TEST SB

STATUS: Not Submitted

COUNT: 1

COMPLETED: 0

TOTAL TIME: 00:00:00

TIME PER EXECUTION: 00:00:00

SCHEDULE TYPE: Dynamic

LST START RANGE: 08 : 30 - 09 : 45 Remove

NO CONSTRAINT:

EARLIEST UT START DATE (OPTIONAL): 2013/01/26

AVOID SUNRISE:

AVOID SUNSET:

Diagram illustrating the scheduling block configuration:

- North (N) is at 360° / 0°.
- Green arc: Clockwise (CW) right wrap, from 275° to -85°.
- Red arc: Counter-clockwise (CCW) left wrap, from 85° to 445°.
- 180° arc below: 265° - 265°.

# Observation Preparation: Scheduling Block

Navigation icons: [New Project], [TEST], [TEST SB, 00:00:00], [STD: [New Scan]]

	Description	Wind	Atmospheric Phase Limit
<input type="radio"/>	Lowest Frequencies (4, P, and L)	Any	Any
<input type="radio"/>	2.0GHz - 4.0GHz (S)	Any	60.0 degrees
<input type="radio"/>	4.0GHz - 8.0GHz (C)	Any	45.0 degrees
<input type="radio"/>	8.0GHz - 12.0GHz (X)	15.0 m/s	30.0 degrees
<input type="radio"/>	12.0GHz - 18.0GHz (Ku)	10.0 m/s	15.0 degrees
<input type="radio"/>	18.0GHz - 26.5GHz (K)	7.0 m/s	10.0 degrees
<input checked="" type="radio"/>	26.5GHz - 40.0GHz (Ka)	6.0 m/s	7.0 degrees
<input type="radio"/>	40.0GHz - 50.0GHz (Q)	5.0 m/s	5.0 degrees
<input type="radio"/>	Specified Constraints	<input type="text"/> m/s	<input type="text"/> degrees

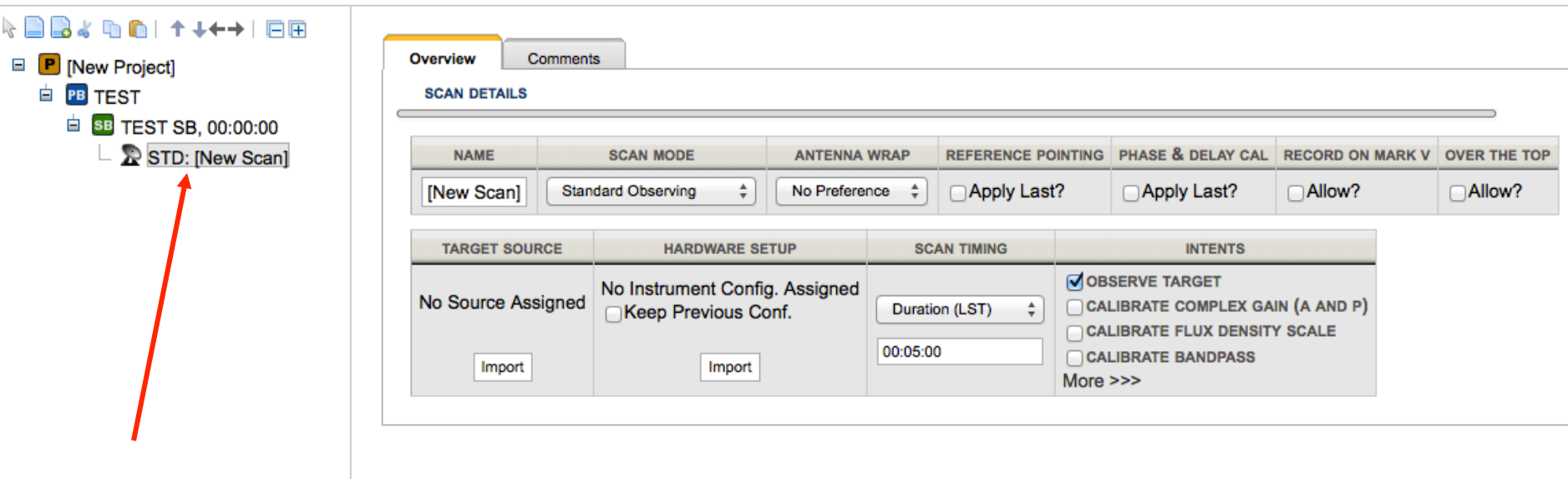
COMMENTS TO THE OPERATOR

# Observation Preparation: Scheduling Block

- Scheduling Block: Scans
  - Dummy scan for each correlator configuration
    - The Ka-band configuration
    - The C-band reference pointing configuration
  - Reference pointing scan on J1008+0730
    - The above three scans should sum up to 10-12 min.
  - Phase calibrator J0954+0743
  - Target-Phase cal loop
  - Repeat the last three steps
  - Ref. point. on BP cal, Ka-band scan on BP cal
  - Ref. point. on Flux cal, Ka-band scan on Flux cal

# Observation Preparation: Scans

– How to set a reference pointing scan.



The screenshot shows the observation preparation software interface. On the left, a project tree displays a hierarchy: [New Project] > TEST > TEST SB, 00:00:00 > STD: [New Scan]. A red arrow points to the 'STD: [New Scan]' entry. On the right, the 'SCAN DETAILS' configuration panel is shown, with tabs for 'Overview' and 'Comments'. The 'SCAN DETAILS' section contains a table with the following data:

NAME	SCAN MODE	ANTENNA WRAP	REFERENCE POINTING	PHASE & DELAY CAL	RECORD ON MARK V	OVER THE TOP
[New Scan]	Standard Observing	No Preference	<input type="checkbox"/> Apply Last?	<input type="checkbox"/> Apply Last?	<input type="checkbox"/> Allow?	<input type="checkbox"/> Allow?

TARGET SOURCE	HARDWARE SETUP	SCAN TIMING	INTENTS
No Source Assigned <input type="button" value="Import"/>	No Instrument Config. Assigned <input type="checkbox"/> Keep Previous Conf. <input type="button" value="Import"/>	Duration (LST) 00:05:00	<input checked="" type="checkbox"/> OBSERVE TARGET <input type="checkbox"/> CALIBRATE COMPLEX GAIN (A AND P) <input type="checkbox"/> CALIBRATE FLUX DENSITY SCALE <input type="checkbox"/> CALIBRATE BANDPASS More >>>



# Reference Pointing Scan

- Using the calibrator : J1008+0730.
- Using C-band.

Overview Comments

SCAN DETAILS

NAME	SCAN MODE	ANTENNA WRAP	REFERENCE POINTING	PHASE & DELAY CALIBRATION	OVER THE TOP
[New Scan]	Standard Observing	No Preference	<input type="checkbox"/> Apply Last?	<input type="checkbox"/> Apply Last?	<input type="checkbox"/> Allow?

TARGET SOURCE	HARDWARE SETUP	SCAN TIMING	INTENTS
No Source Assigned <a href="#">Change</a>	No Instrument Config. Assigned <input type="checkbox"/> Keep Previous Conf. <a href="#">Change</a>	Duration (LST) 00:05:00	<input checked="" type="checkbox"/> OBSERVE TARGET <input type="checkbox"/> CALIBRATE COMPLEX GAIN <input type="checkbox"/> CALIBRATE FLUX DENSITY SCALE <input type="checkbox"/> CALIBRATE BANDPASS <a href="#">More &gt;&gt;&gt;</a>

# Reference Pointing Scan

– Using the calibrator : J1008+0730.

– Using C-band

The screenshot shows a software interface for configuring a radio astronomy scan. On the left, the 'SCAN DETAILS' section is visible, containing a table with columns for NAME, SCAN MODE, and ANT. The 'NAME' field contains 'Ref\_point', 'SCAN MODE' is set to 'Interferometric Pointing', and 'ANT' is 'No F'. Below this, there are sections for 'TARGET SOURCE' (No Source Assigned) and 'HARDWARE SETUP' (No Instrument Config. Assi), each with an 'Import' button. On the right, a 'SOURCE CATALOG' is displayed, listing various celestial coordinates. The entry 'J1008+0730' is selected with a blue radio button. At the bottom of the catalog, there is a 'Change' button. At the bottom right of the entire window, there is a 'Cancel' button. Three red arrows point from the text in the slide to the 'Import' button, the 'J1008+0730' entry, and the 'Change' button.

NAME	SCAN MODE	ANT
Ref_point	Interferometric Pointing	No F

TARGET SOURCE	HARDWARE SETUP
No Source Assigned	No Instrument Config. Assi

SOURCE CATALOG: VLA SOURCE GROUP: RA 10 SOURCES

- J1002+1210
- J1003+3244
- J1006+3454
- J1007-0207
- J1007+1356
- J1008+0730
- J1008+0621
- J1010+8250
- J1011+0624
- J1012+2312
- J1013+3445
- J1013+2449
- J1014+2301
- J1015+1227
- J1016+0513
- J1016+2037
- J1017+6116
- J1018-3144
- J1018+3542
- J1018+0530
- J1018-3123
- J1018+6220

Import Import Change Cancel

# Reference Pointing Scan

- Using the calibrator : J1008+0730.
- Using C-band.

Overview | Comments

SCAN DETAILS

NAME	SCAN MODE	ANTENNA WRAP	REFERENCE POINTING	PHASE & DELAY CAL	RECORD ON MARK V	OVER THE TOP
Ref_point	Interferometric Pointing	No Preference	<input type="checkbox"/> Apply Last?	<input type="checkbox"/> Apply Last?	<input type="checkbox"/> Allow?	<input type="checkbox"/> Allow?

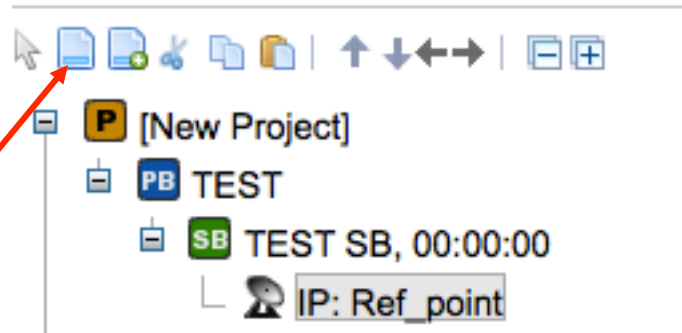
TARGET SOURCE	HARDWARE SETUP	SCAN TIMING	INTENTS
J1008+0730 RA: 10h 8m 0.016s DEC: 7d 30' 16.552" <input type="button" value="Import"/>	No Instrument Config. Assigned <input type="button" value="Import"/>	Duration (LST) <input type="text" value="00:05:00"/>	<input checked="" type="checkbox"/> CALIBRATE OFFSET POINTING

RESOURCE CATALOG: NRAO Defaults | RESOURCE GROUP: Pointing setups

- Primary C band pointing
- Primary X band pointing
- Secondary K band pointing
- Secondary Ka band pointing
- Secondary Q band pointing

# Observation Preparation: Scans

- How to set a regular scan using target source and resource.
  - 1<sup>st</sup> we need to add a new scan



# Target Source Scan

- Using the target source: IRC+10216
- Using the Ka-band resource we made.

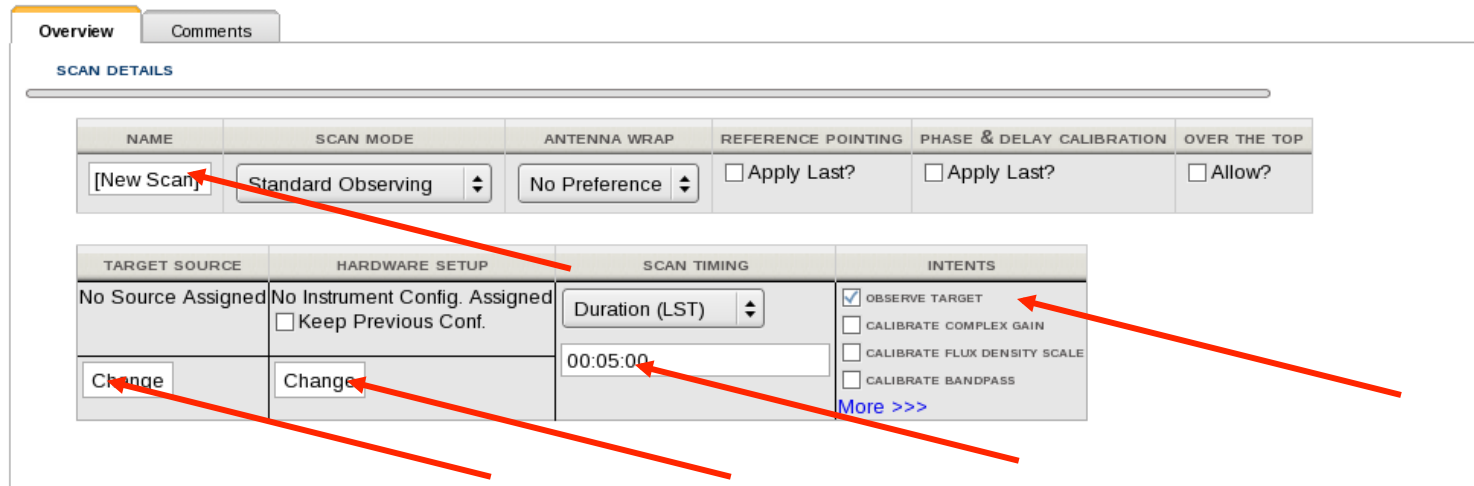
Overview Comments

SCAN DETAILS

NAME	SCAN MODE	ANTENNA WRAP	REFERENCE POINTING	PHASE & DELAY CALIBRATION	OVER THE TOP
[New Scan]	Standard Observing	No Preference	<input type="checkbox"/> Apply Last?	<input type="checkbox"/> Apply Last?	<input type="checkbox"/> Allow?

TARGET SOURCE	HARDWARE SETUP	SCAN TIMING	INTENTS
No Source Assigned	No Instrument Config. Assigned <input type="checkbox"/> Keep Previous Conf.	Duration (LST) 00:05:00	<input checked="" type="checkbox"/> OBSERVE TARGET <input type="checkbox"/> CALIBRATE COMPLEX GAIN <input type="checkbox"/> CALIBRATE FLUX DENSITY SCALE <input type="checkbox"/> CALIBRATE BANDPASS <a href="#">More &gt;&gt;&gt;</a>
<a href="#">Change</a>	<a href="#">Change</a>		

The screenshot shows a web-based configuration interface for a radio telescope scan. It features two main sections: 'SCAN DETAILS' and a lower section for source and hardware configuration. The 'SCAN DETAILS' section contains a table with columns for NAME, SCAN MODE, ANTENNA WRAP, REFERENCE POINTING, PHASE & DELAY CALIBRATION, and OVER THE TOP. Below this is another table with columns for TARGET SOURCE, HARDWARE SETUP, SCAN TIMING, and INTENTS. Red arrows are drawn over the image, pointing to the '[New Scan]' button, the 'Standard Observing' dropdown, the 'No Preference' dropdown, the 'Change' button under 'TARGET SOURCE', the 'Change' button under 'HARDWARE SETUP', the '00:05:00' input field, and the 'OBSERVE TARGET' checkbox.

# Target Source Scan

- Using the target source: IRC+10216
- Using the Ka-band resource we made.

Overview | Comments

### SCAN DETAILS

NAME	SCAN MODE	ANTENNA WRAP	REFERENCE POINTING	PHASE & DELAY CAL	RECORD ON MARK V	OVER THE TOP
IRC+10216	Standard Observing	No Preference	<input type="checkbox"/> Apply Last?	<input type="checkbox"/> Apply Last?	<input type="checkbox"/> Allow?	<input type="checkbox"/> Allow?

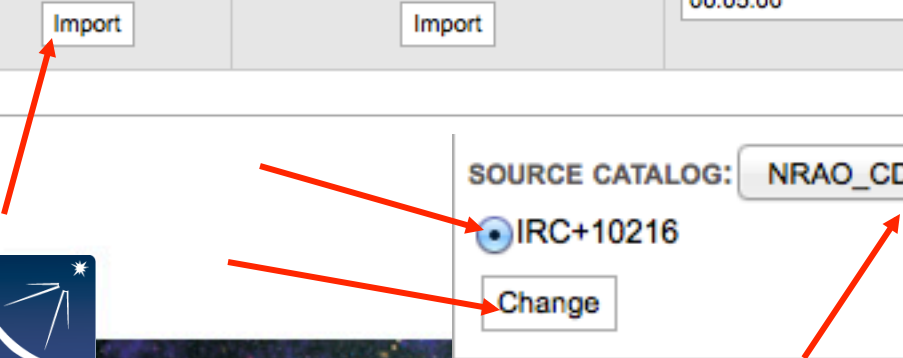
  

TARGET SOURCE	HARDWARE SETUP	SCAN TIMING	INTENTS
No Source Assigned <input type="button" value="Import"/>	No Instrument Config. Assigned <input type="checkbox"/> Keep Previous Conf. <input type="button" value="Import"/>	Duration (LST) 00:05:00	<input checked="" type="checkbox"/> OBSERVE TARGET <input type="checkbox"/> CALIBRATE COMPLEX GAIN (A AND P) <input type="checkbox"/> CALIBRATE FLUX DENSITY SCALE <input type="checkbox"/> CALIBRATE BANDPASS More >>>

SOURCE CATALOG: NRAO\_CD\_OPT | SOURCE GROUP: All | SOURCES:

- IRC+10216



# Target Source Scan

- Using the target source: IRC+10216
- Using the Ka-band resource we made.

Overview Comments

SCAN DETAILS

NAME	SCAN MODE	ANTENNA WRAP	REFERENCE POINTING	PHASE & DELAY CAL	RECORD ON MARK V	OVER THE TOP
IRC+10216	Standard Observing	No Preference	<input type="checkbox"/> Apply Last?	<input type="checkbox"/> Apply Last?	<input type="checkbox"/> Allow?	<input type="checkbox"/> Allow?

TARGET SOURCE	HARDWARE SETUP	SCAN TIMING	INTENTS
IRC+10216 RA: 9h 47m 57.382s DEC: 13d 16' 40.66" VELOCITY-26.0km/s LSR_KINEMATIC RADIO <input type="button" value="Import"/>	No Instrument Config. Assigned <input type="checkbox"/> Keep Previous Conf. <input type="button" value="Import"/>	Duration (LST) 00:05:00	<input checked="" type="checkbox"/> OBSERVE TARGET <input type="checkbox"/> CALIBRATE COMPLEX GAIN (A AND P) <input type="checkbox"/> CALIBRATE FLUX DENSITY SCALE <input type="checkbox"/> CALIBRATE BANDPASS More >>>

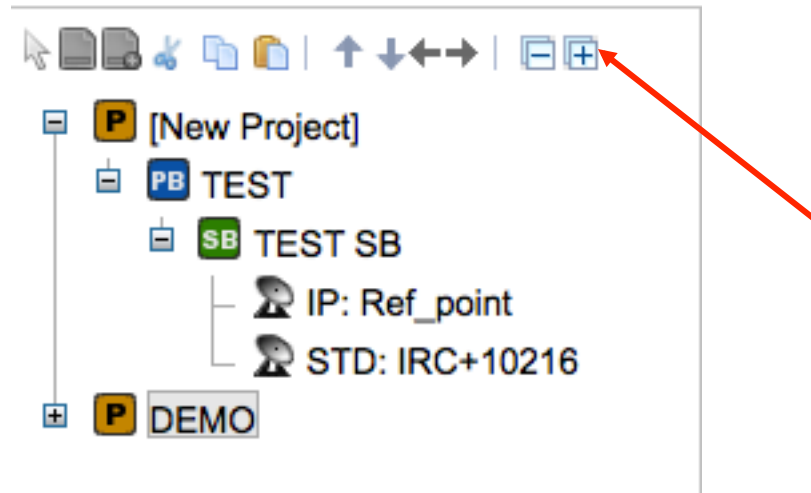
RESOURCE CATALOG: NRAO\_CD RESOURCE GROUP: All RESOURCES:

IRC



# Observation Preparation

- You were provided with a file called OPT\_demo.xml
- File → Import Project, Browse to locate the file and import (click once and wait for a few seconds).
- Expand its content





# Observation Preparation

NRAO Observation Preparation Tool

https://obs.vla.nrao.edu/opt/MyProjects.jsf

File Edit View Help

NRAO > User Portal > Observation Preparation | Sources | Instrument Configurations

Hello, Dr. Galactico Armenian Exit

**Notice:** every day at 15:30 and 23:30 UTC this program may be taken offline for a few minutes until it becomes more stable.

Information **Reports** Validation and Submission Bulk Scan Creation Bulk Scan Edit Executions

OBSERVING PROGRAM

Use your browser's regular Print feature to print this report.

PROJECT CODE: 5429\_1 GENERATED ID: 6613118  
PRINCIPAL INVESTIGATOR: Dr. Galactico Armenian <emomjian@gmail.com>

ASSUMED STARTING CONDITIONS

LST START RANGE: 08:30-09:45  
WIND CONSTRAINTS: 6.0 m/s API CONSTRAINTS: 7.0 degrees

LST START:   LST

LST STOP: 62633 12:30:00 LST

ANTENNA STARTING DIRECTION

AZIMUTH:  ELEVATION

COORDINATE SYSTEM HORIZONTAL

SHADOWING LIMIT (MAX)  IN CONFIGURATION D

DEMO

- DEMO
- DEMO SB, 03:00:00
  - STD: dummy Ka
  - STD: dummy C
  - IP: J1008+0730
  - STD: J0954+1743
  - (7X) target-phase\_cal
    - IP: J1008+0730
    - STD: J0954+1743
  - (7X) target-phase\_cal
    - IP: J1008+0730
    - STD: J0954+1743
  - (7X) target-phase\_cal
    - IP: J1229+0203
    - STD: J1229+0203
  - IP: 1331+305=3C286
  - STD: 1331+305=3C28

Warning: Schedule Summary: There is no time on source for scan 'dummy Ka'.

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# Observation Preparation

- SB: 'Reports' to view all you have done
- Check
  - Instrument configuration summary
  - Time on source summary
  - Schedule summary.

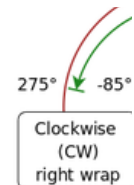
# Observation Preparation

- SB: Reports to view all you have done.
- Change the 'assumed schedule start' at the top to assess whether all the scans in the SB are OK at all possible start times in the assumed LST range.

ASSUMED SCHEDULE START:   LST

SCHEDULE STOP: 62633 12:30:00 LST

ASSUMED ANTENNA POSITION  
AZIMUTH: 225.0d  
ELEVATION: 35.0d



# Observation Preparation


- SB:Validation and Submission.

Information Reports **Validation and Submission** Bulk Scan Creation Bulk Scan Edit Executions

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### VALIDATE SCHEDULING BLOCK

To submit your project, click Validate below. If there are no errors, you may then submit the project for scheduling.

Success! Your project has no errors. 


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### REQUEST HELP

To request help, you must file a ticket with the help desk. Clicking the button below will send you to the help desk.  
*Be sure to include the following text:*  
OPT Help for Project Code: 5429\_1  
SB ID: 6613118  
Request Help

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### SUBMIT SCHEDULING BLOCK



# Observation Preparation

Logout of the OPT as soon as you are done!

**Wait for an email from the VLA  
operator notifying that the  
observations have been carried out!**