

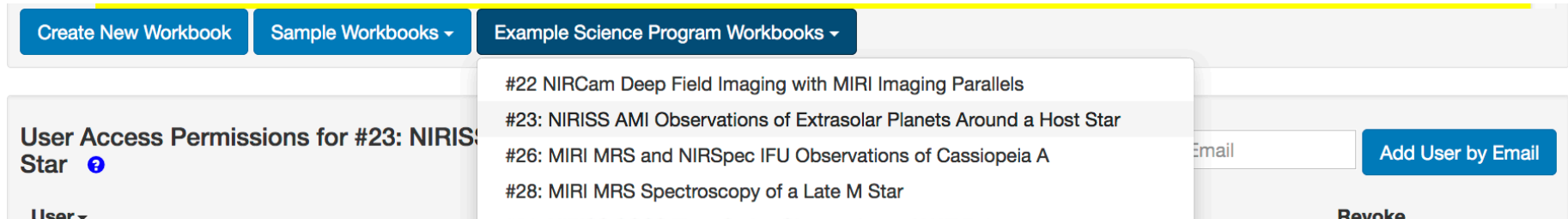
NIRISS AMI hands-on exercises



Example science program in JWST ETC



1. Log in to JWST ETC and Open program #23

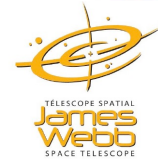


Create a scene with another target with spectral type F0V, vegamag=6.5, normalized in NIRISS F430M. Name the source 'Target 2' and name the scene 'Target 2 Scene'

- i. Create a Target Acquisition calculation for this source
- ii. Create a new calculation to use this scene
- iii. Calculate NGROUPS for an observation with NRM + F430M
- iv. Compare the 'Maximum number of Groups Before Saturation' value with the central pixel value in Groups Before Saturation image
- v. Calculate NINT to get 10^9 total photons in the exposure.
 - Use photon collect time formula and Extracted Flux in the Reports panel
- vi. What contrast can you reach with 10^9 total photons?



AMI calculations in JWST ETC

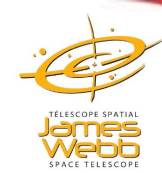


2. What is the magnitude (Vegamag) of the brightest F0V star that you can observe with NGROUPS=7 in F480M, F380M?
3. Create calculations to calculate NGROUPS and NINT required to get 10^7 photons from HD37093. Use Vegamag = 5.47 normalized in F380M and vegamag=5.46 normalized in F430M and F480M
4. Calculate NGROUPS=1 and NGROUPS=2 bright limits (Vegamag) for a A0V star observed with F380M.

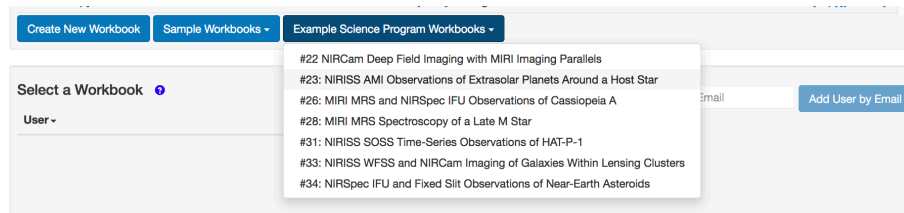


AMI calculations in JWST ETC

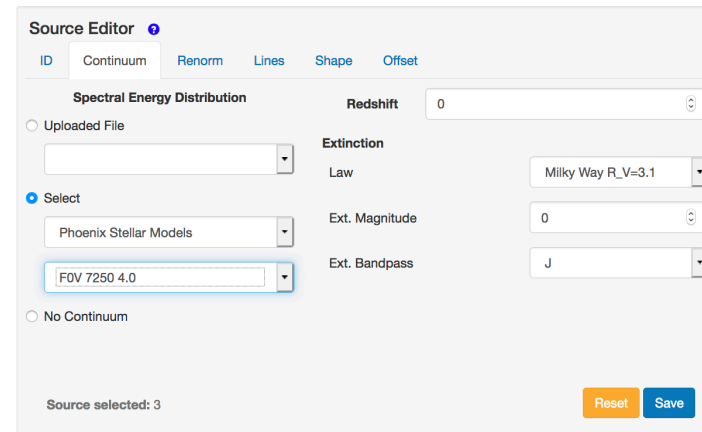
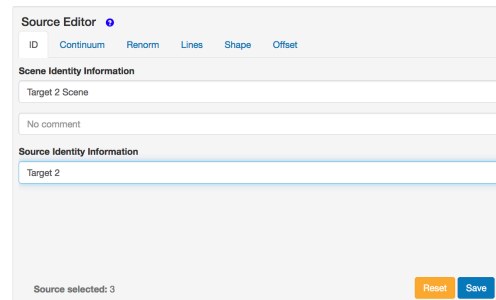
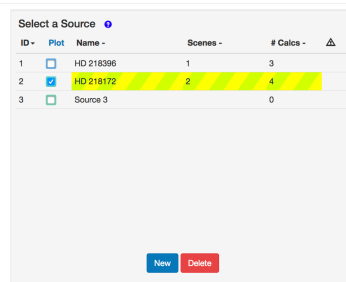
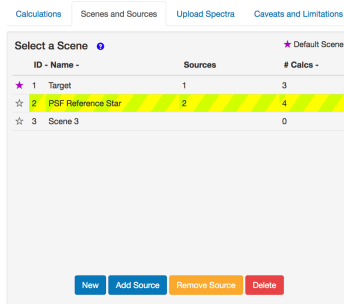
Answers to questions



1. Log in to JWST ETC and Open program #23

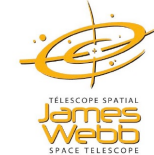


2. Create a scene with another target with spectral type F0V, vegamag=6.5, normalized in NIRISS F430M. Name the source 'Target 2' and name the scene 'Target 2 Scene'



AMI calculations in JWST ETC

Answers to questions



2. Create a scene with another target with spectral type F0V, vegamag=6.5, normalized in NIRISS F430M. Name the source 'Target 2' and name the scene 'Target 2 Scene' continued...

Source Editor

ID Continuum Renorm Lines Shape Offset

Normalize Source Flux Density

Renormalization applied after redshift

Normalize at wavelength

0.001 m μ y lambda 2 μ m

Normalize in bandpass

6.5 vegamag

JWST NIRISS/IMAGING F430M

HST WFC3/IR F098M

Source selected: 3

Reset Save

Calculations Scenes and Sources Upload Spectra Caveats and Limitations

Select a Scene

ID Name	Sources	# Calcs
★ 1 Target	1	3
☆ 2 PSF Reference Star	2	4
☆ 3 Target 2 Scene	3	0

Select a Source

ID Plot Name	Scenes	# Calcs
1 HD 218396	1	3
2 HD 218172	2	4
3 Target 2	3	0

Select new scene, new source and then add source

New Add Source Remove Source Delete

New Delete

Source Editor

ID Continuum Renorm Lines Shape Offset

Position of Source in Scene

X offset 0 arcsec

Y offset 0 arcsec

Orientation 0 degrees

Source selected: 3

Reset Save

Source Editor

ID Continuum Renorm Lines Shape Offset

Shape of source: Point Extended

Source selected: 3

Reset Save

AMI calculations in JWST ETC

Answers to questions

- i. Create a Target Acquisition calculation for this source
- ii. Create a new calculation to use this scene
- iii. Calculate NGROUPS for an observation with NRM + F430M
- iv. Compare the 'Maximum number of Groups Before Saturation' value with the central pixel value in Groups Before Saturation image
- v. Calculate NINT to get 10^9 total photons in the exposure.
 - Use photon collect time formula and Extracted Flux in the Reports panel
- vi. What contrast can you reach with 10^9 total photons?

Calculations | Scenes and Sources | Upload Spectra | Caveats and Limitations

ID	Mode	λ (nm)	Scn (s)	SNR
1	niriss ami	4.81	0.85	1007.77
2	niriss ami	4.81	0.62	507.22
3	niriss ami	4.81	5039.82	7831.05
4	niriss ami	4.81	8050.99	7836.49
5	niriss target_acq	4.81	0.22	104.87
6	niriss target_acq	4.81	0.22	72.26
7	niriss target_acq	4.81	0.32	117.41

Calculations | Scenes and Sources | Upload Spectra | Caveats and Limitations

ID	Mode	λ (nm)	Scn (s)	SNR	
1	niriss ami	4.81	1	0.85	1007.77
2	niriss ami	4.81	2	0.62	507.22
3	niriss ami	4.81	1	5039.82	7831.05
4	niriss ami	4.81	2	8050.99	7836.49
5	niriss target_acq	4.81	1	0.22	104.87
6	niriss target_acq	4.81	2	0.22	72.26
7	niriss target_acq	4.81	2	0.32	117.41
8	niriss target_acq	4.81	1	0.22	0.00

Scene ★ | Backgrounds | Instrument Setup | Detector Setup | Strategy

1: Target
2: PSF Reference Star
3: Target 2 Scene

Normalize Source Flux Density
Renormalization applied after redshift

Sources in that Scene
3: Target 2

Normalize at wavelength
0.001 flam

lambda 2 μm

Normalize in bandpass
6.5 vegmag

JWST NIRISS/IMAGING F430M

HST WFC3/IR F098M

Calculation selected: 8, Mode: niriss target_acq

Scene ★ | Backgrounds | Instrument Setup | Detector

Position
Ra Dec 0:00:00.00 0:00:00.00

Background configuration
None Low Medium High

Date Jul 1 2020

NIRISS Target Acquisition

Acq Mode
SOSS or AMI Bright

Filter
F480M

Calculations | Scenes and Sources | Upload Spectra | Caveats and Limitations

ID	Mode	λ (nm)	Scn (s)	SNR	
1	niriss ami	4.81	1	0.85	1007.77
2	niriss ami	4.81	2	0.62	507.22
3	niriss ami	4.81	1	5039.82	7831.05
4	niriss ami	4.81	2	8050.99	7836.49
5	niriss target_acq	4.81	1	0.22	104.87
6	niriss target_acq	4.81	2	0.22	72.26
7	niriss target_acq	4.81	2	0.32	117.41
8	niriss target_acq	4.81	3	0.72	157.37

Scene ★ | Backgrounds | Instrument Setup | Detector Setup | Strategy

Subarray
SOSS or AMI TA

Readout pattern
NISRAPID

Groups
13

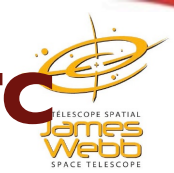
Integrations
1

Exposures
1

Total exposure time: 00:00:01 (0.72 s)

Total integrations: 1

Calculation selected: 8, Mode: niriss target_acq



AMI calculations in JWST ETC

Answers to questions

- i. Create a Target Acquisition calculation for this source
- ii. **Create a new calculation to use this scene**
- iii. Calculate NGROUPS for an observation with NRM + F430M
- iv. Compare the 'Maximum number of Groups Before Saturation' value with the central pixel value in Groups Before Saturation image
- v. Calculate NINT to get 10^9 total photons in the exposure.
 - Use photon collect time formula and Extracted Flux in the Reports panel
- vi. What contrast can you reach with 10^9 total photons?

ii

Calculations Scenes and Sources Upload Spectra Caveats and Lin

MIRI	NIRCam	NIRISS	NIRSpec	ID	Mode	(s)	SNR
		Imaging		1	niriss ami	0.85	1007.77
		SOSS		2	niriss ami	0.62	507.22
		WFSS		3	niriss ami	5039.82	7831.05
		AMI		4	niriss ami	4.81	2
		Target Acquisition		5	niriss target_acq	4.81	1
				6	niriss target_acq	4.81	2
				7	niriss target_acq	4.81	2
				8	niriss target_acq	4.81	3

Calculations Scenes and Sources Upload Spectra Caveats and Limitations

MIRI	NIRCam	NIRISS	NIRSpec	ID	Mode	λ	Scn	(s)	SNR
				1	niriss ami	4.81	1	0.85	1007.77
				2	niriss ami	4.81	2	0.62	507.22
				3	niriss ami	4.81	1	5039.82	7831.05
				4	niriss ami	4.81	2	8050.99	7836.49
				5	niriss target_acq	4.81	1	0.22	104.87
				6	niriss target_acq	4.81	2	0.22	72.26
				7	niriss target_acq	4.81	2	0.32	117.41
				8	niriss target_acq	4.81	3	0.72	157.37
				9	niriss ami	4.28	3	0.85	520.97

Scene ★ Backgrounds Instrument Setup Detector Setup Strategy

Scene for Calculation: 3: Target 2 Scene

Sources in that Scene: 3: Target 2

Scene Identity Information: Target 2 Scene

Source Identity Information: Target 2

Calculation selected: 9, Mode: niriss ami

Reset Calculate

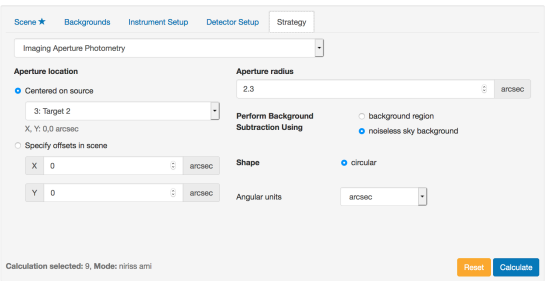
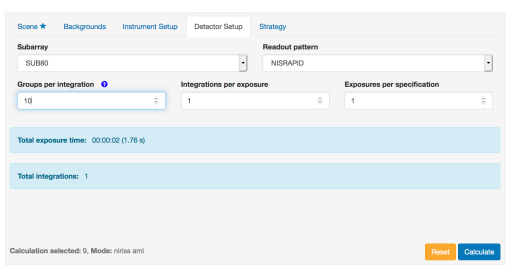
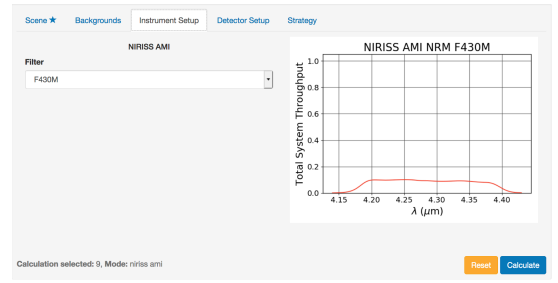
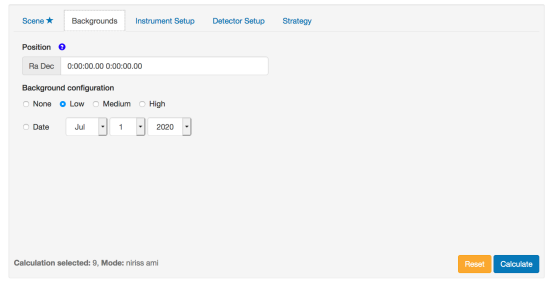
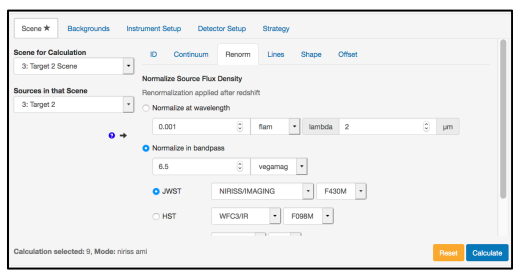


AMI calculations in JWST ETC

Answers to questions

- i. Create a Target Acquisition calculation for this source
- ii. Create a new calculation to use this scene
- iii. Calculate NGROUPS for an observation with NRM + F430M
- iv. Compare the 'Maximum number of Groups Before Saturation' value with the central pixel value in Groups Before Saturation image
- v. Calculate NINT to get 10^9 total photons in the exposure.
 - Use photon collect time formula and Extracted Flux in the Reports panel
- vi. What contrast can you reach with 10^9 total photons?

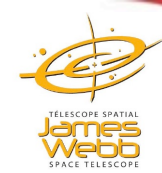
iii Update Scene, background, Instrument Setup and Strategy and run the calculation with default Detector Setup





AMI calculations in JWST ETC

Answers to questions



- i. Create a Target Acquisition calculation for this source
- ii. Create a new calculation to use this scene
- iii. Calculate NGROUPS for an observation with NRM + F430M
- iv. Compare the 'Maximum number of Groups Before Saturation' value with the central pixel value in Groups Before Saturation image
- v. Calculate NINT to get 10^9 total photons in the exposure.
 - Use photon collect time formula and Extracted Flux in the Reports panel
- vi. What contrast can you reach with 10^9 total photons?

iii continued

The screenshot displays the JWST ETC interface with the following components:

- Calculations Table:** A table listing various calculations. The 9th row is highlighted in yellow, showing a calculation for 'nrmss ami' with a wavelength of 4.28 micrometers, 3 groups, and a SNR of 965.00.
- Configuration Panel:** Shows settings for the selected calculation, including 'Subarray' (SUB20), 'Readout pattern' (NDRAPD), 'Groups per integration' (22), 'Integrations per exposure' (1), and 'Exposures per specification' (1). The total exposure time is 00:00:02 (1.76 s).
- Images Panel:** Displays a 'Groups Before Saturation' image showing a central bright spot with a radial distribution of groups.
- Plots Panel:** Shows a 'Signal to Noise' plot with a single data point at approximately 965 SNR.
- Reports Panel:** Provides detailed parameters for the calculation, including:
 - Instrument Filter/Dispenser: 430nm/null
 - Extraction Aperture Position (arcsec): (0.00, 0.00)
 - Wavelength of Interest used to Calculate Scalar Values (microns): 4.28
 - Size of Extraction Aperture (arcsec): 2.3
 - Total Time Required for Strategy (seconds): 1.76
 - Total Exposure Time (seconds): 1.76
 - Maximum Fraction of Saturation: 0.97
 - Maximum Number of Groups Before Saturation: 22
 - Extracted Flux (e-/sec): 809296.80
 - Standard Deviation in Extracted Flux (e-/sec): 837.87
 - Extracted Signal-to-Noise ratio: 965.00
 - Input Background Surface Brightness (M_J/yr): 0.21
 - Total Background Flux in Extraction Aperture (e-/sec): 153.77
 - Total Sky Background Flux in Extraction Aperture (e-/sec): 153.77
 - Fraction of Total Background due to Signal From Source: 0.00

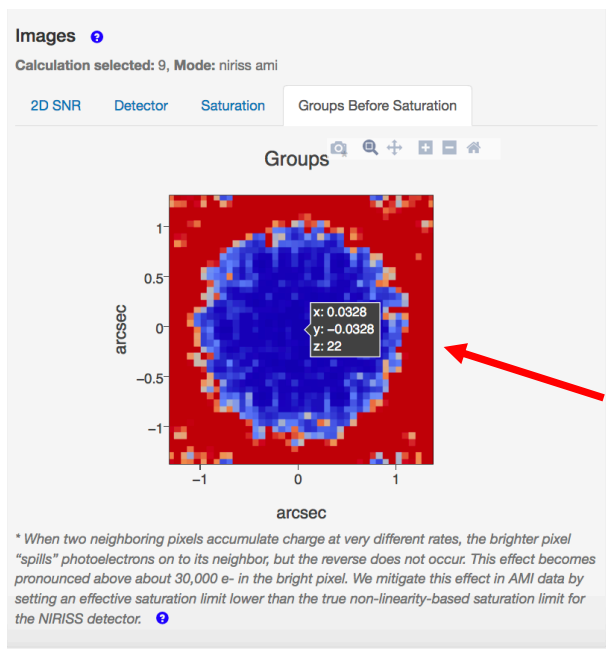
Maximum Number of Groups Before saturation value is 22 from the Reports panel. Therefore set Groups per integration to **22**. (NGROUPS)

AMI calculations in JWST ETC

Answers to questions

- i. Create a Target Acquisition calculation for this source
- ii. Create a new calculation to use this scene
- iii. Calculate NGROUPS for an observation with NRM + F430M
- iv. Compare the 'Maximum number of Groups Before Saturation' value with the central pixel value in Groups Before Saturation image
- v. Calculate NINT to get 10^9 total photons in the exposure.
 - Use photon collect time formula and Extracted Flux in the Reports panel
- vi. What contrast can you reach with 10^9 total photons?

iv



Reports 🔍
 Calculation selected: 9, Mode: niriss ami
 Report **Warnings** Errors Downloads

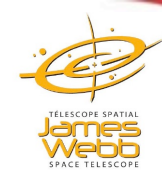
Instrument Filter/Disperser:	f430m/null
Extraction Aperture Position (arcsec):	[0.00, 0.00]
Wavelength of Interest used to Calculate Scalar Values (microns):	4.28
Size of Extraction Aperture (arcsec):	2.3
Total Time Required for Strategy (seconds):	1.76
Total Exposure Time (seconds):	1.76
Maximum Fraction of Saturation:	0.97
Maximum Number of Groups Before Saturation:	22
Extracted Flux (e-/sec):	809296.80
Standard Deviation in Extracted Flux (e-/sec):	837.87
Extracted Signal-to-Noise ratio:	965.90
Input Background Surface Brightness (MJy/sr):	0.21
Total Background Flux in Extraction Aperture (e-/sec):	153.77
Total Sky Background Flux in Extraction Aperture (e-/sec):	153.77
Fraction of Total Background due to Signal From Scene:	0.00
Average Number of Cosmic Rays per Ramp:	1.3e-4

Maximum number of Groups Before saturation in the brightest pixel of AMI PSF.



AMI calculations in JWST ETC

Answers to questions



- i. Create a Target Acquisition calculation for this source
- ii. Create a new calculation to use this scene
- iii. Calculate NGROUPS for an observation with NRM + F430M
- iv. Compare the 'Maximum number of Groups Before Saturation' value with the central pixel value in Groups Before Saturation image
- v. Calculate NINT to get 10^9 total photons in the exposure.
 - Use photon collect time formula and Extracted Flux in the Reports panel
- vi. What contrast can you reach with 10^9 total photons?

v

Total Time Required for Strategy (seconds):	1.76
Total Exposure Time (seconds):	1.76
Maximum Fraction of Saturation:	0.97
Maximum Number of Groups Before Saturation:	22
Extracted Flux (e-/sec):	809296.80
Standard Deviation in Extracted Flux (e-/sec):	837.87
Extracted Signal-to-Noise ratio:	965.90
Input Background Surface Brightness (M _v /sr):	0.21

$$\begin{aligned}\text{Total photons} &= \text{flux} \times \text{NGROUPS} \times \text{NINT} \times \text{TFRAME} \\ \text{NINT} &= \text{Total photons} / (\text{flux} \times \text{NGROUPS} \times \text{TFRAME}) \\ &= 10^9 / (809296.80 \text{ e-/sec} \times 22 \times 0.07544 \text{ sec}) \\ &= 744.5 \rightarrow \text{Round up to } 745\end{aligned}$$



AMI calculations in JWST ETC

Answers to questions



- i. Create a Target Acquisition calculation for this source
- ii. Create a new calculation to use this scene
- iii. Calculate NGROUPS for an observation with NRM + F430M
- iv. Compare the 'Maximum number of Groups Before Saturation' value with the central pixel value in Groups Before Saturation image
- v. Calculate NINT to get 10^9 total photons in the exposure.
 - Use photon collect time formula and Extracted Flux in the Reports panel
- vi. What contrast can you reach with 10^9 total photons?

vi

$$\text{sqrt}(100/(10^{**9})) = 0.0003$$

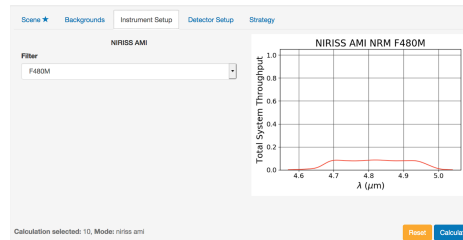
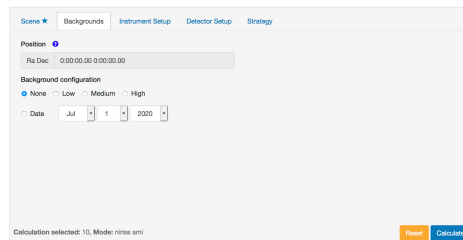
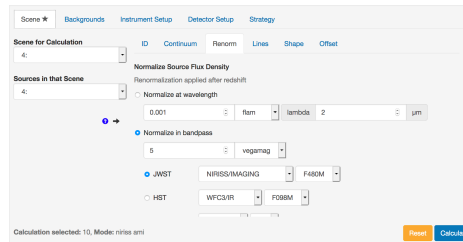
AMI calculations in JWST ETC

Answers to questions

2. What is the vegamag magnitude of the brightest F0V star that you can observe with NGROUPS=7 in F480M, F380M?

- F480M
Vegamag = 5 gives maximum number of Groups Before Saturation as 7.
Vegamag = 5.1 gives maximum number of Groups Before Saturation as 8.
Therefore **vegamag=5** is the NGROUP=7 bright limit for F480M

- F380M
vegamag = 6
for NGROUPS=7

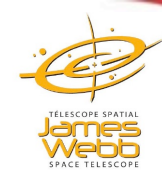


Reports

Calculation selected: 10, Mode: niriss ami

Report Warnings Errors Downloads

Instrument Filter/Disperser:	f480m/null
Extraction Aperture Position (arcsec):	[0.00, 0.00]
Wavelength of Interest used to Calculate Scalar Values (microns):	4.81
Size of Extraction Aperture (arcsec):	2.5
Total Time Required for Strategy (seconds):	0.62
Total Exposure Time (seconds):	0.62
Maximum Fraction of Saturation:	0.91
Maximum Number of Groups Before Saturation:	7
Extracted Flux (e-/sec):	2877649.50
Standard Deviation in Extracted Flux (e-/sec):	3275.57
Extracted Signal-to-Noise ratio:	878.52
Input Background Surface Brightness (MJy/sr):	0.00
Total Background Flux in Extraction Aperture (e-/sec):	0.00
Total Sky Background Flux in Extraction Aperture (e-/sec):	0.00
Fraction of Total Background due to Signal From Scene:	0.00



AMI calculations in JWST ETC

Answers to questions

3. Create calculations to calculate NGROUPS and NINT required to get 10^7 photons from HD37093. Use Vegamag = 5.47 normalized in F380M and vegamag=5.46 normalized in F430M and F480M

Answer:

This is similar to calculations 2, 3 and 4 in NIRISS AMI Examples sample workbook. The only difference is in the total number of photons which will change the number of integrations.

F480M NGROUPS=11, NINT = 7

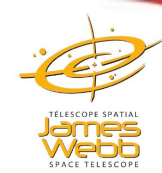
F430M NGROUPS=8, NINT = 8

F380M NGROUPS=4, NINT = 11



AMI calculations in JWST ETC

Answers to questions



4. Calculate NGROUPS=1 and **NGROUPS=2 bright limits (Vegamag)** for A0V star observed with F380M.

This is similar to Example 3 in NIRISS AMI Examples. Only the filter is different.

**NGROUPS=2 bright limit
For F380M**

4.66

**Change the magnitude to
4.65 and look at the warning message**

Source Editor ?

ID Continuum Renorm Lines Shape Offset

Normalize Source Flux Density

Renormalization applied after redshift

Normalize at wavelength

0.001 flam lambda 2 μm

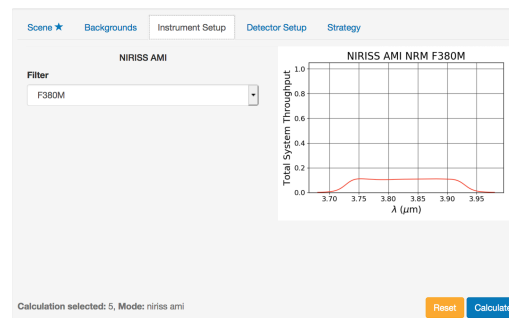
Normalize in bandpass

4.66 vegamag

JWST NIRISS/IMAGING F380M

HST WFC3/IR F098M

Source selected: 4 Reset Save



Reports ?

Calculation selected: 5, Mode: niriss ami

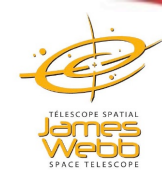
Report Warnings Errors Downloads

Instrument Filter/Disperser:	f380m/null
Extraction Aperture Position (arcsec):	[0.00, 0.00]
Wavelength of Interest used to Calculate Scalar Values (microns):	3.83
Size of Extraction Aperture (arcsec):	2
Total Time Required for Strategy (seconds):	0.25
Total Exposure Time (seconds):	0.25
Maximum Fraction of Saturation:	0.99
Maximum Number of Groups Before Saturation:	2
Extracted Flux (e-/sec):	6705701.97
Standard Deviation in Extracted Flux (e-/sec):	15015.28
Extracted Signal-to-Noise ratio:	446.59
Input Background Surface Brightness (MJy/sr):	0.00
Total Background Flux in Extraction Aperture (e-/sec):	0.00
Total Sky Background Flux in Extraction Aperture (e-/sec):	0.00
Fraction of Total Background due to	0.00



AMI calculations in JWST ETC

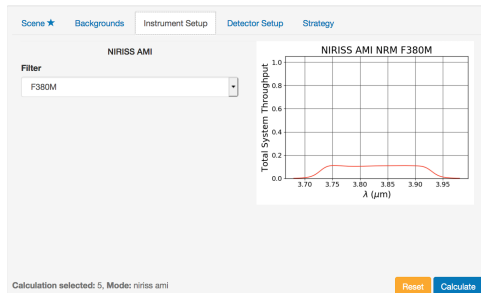
Answers to questions



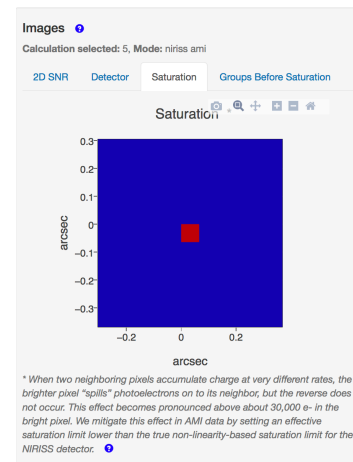
4. Calculate **NGROUPS=1** and NGROUPS=2 bright limits (Vegamag) for A0V star observed with F380M.

This is similar to Example 3 in NIRISS AMI Examples. Only the filter is different.

NGROUPS=1 bright limit for F380M is 4.03. Change the magnitude to 4.02 and look at the central pixel in Groups Before Saturation image.

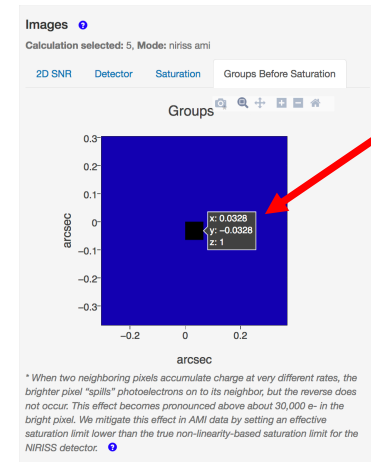


Report	Warnings	Errors	Downloads
Instrument Filter/Dispenser:	f380m/null		
Extraction Aperture Position (arcsec):	[0.00, 0.00]		
Wavelength of Interest used to Calculate Scalar Values (microns):	3.83		
Size of Extraction Aperture (arcsec):	2		
Total Time Required for Strategy (seconds):	0.25		
Total Exposure Time (seconds):	0.25		
Maximum Fraction of Saturation:	1.77		
Maximum Number of Groups Before Saturation:	1		
Extracted Flux (e-/sec):	11979653.37		
Standard Deviation in Extracted Flux (e-/sec):	NaN		
Extracted Signal-to-Noise ratio:	0.00		
Input Background Surface Brightness (MJy/sr):	0.00		
Total Background Flux in Extraction Aperture (e-/sec):	0.00		
Total Sky Background Flux in Extraction Aperture (e-/sec):	0.00		
Fraction of Total Background due to	0.00		



Saturation image

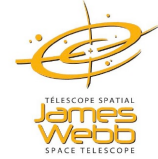
Signal limit exceeded in group 2 but not in group 1



Groups Before Saturation image

Example science program in JWST APT

AMI Specific strategies



JWST Draft Proposal (Unsaved)

- Proposal Information
- Targets**
- Observations
- Observation Links

Targets

Resolve a target name or position

Create a new Fixed Target

Create a new Target Group

Create a new Solar System Target

Create a new Generic Target

Import Fixed Targets from whitespace, CSV, TSV, or VOTable

Get coordinates from GAIA DR2 archive, enter epoch as 2015.5

- Use Fixed Target Resolver to search for target and then manually update coordinates OR
- Select New Fixed target and update information.

Astronomer's Proposal Tools Version 27.3.1 JWST PRD: PRDOPSSOC-M-025 - JWST Approved Proposal 23 (Unsaved)

Form Editor | Spreadsheet Editor | Orbit Planner | Visit Planner | Timeline | View in Aladin | BOT | Target Confirmation | PDF Preview | Submission | Errors and Warnings | Run All Tools | Stop

New Document | New

JWST Approved Proposal 23 (Unsaved)

- Proposal Information
- Proposal Description
- Team Expertise
- PI: William Blair
- Targets
 - Fixed Targets
 - 1 HD-218396**
 - 2 HD-218172
- Observations
- Observation Links

1 HD-218396 of JWST Approved Proposal 23 (Unsaved)

Number: 1

Name in the Proposal: HD-218396 (unique within proposal)

Name for the Archive: HD 218396 (standard resolvable name)

Category: Star

Description: +/- Exoplanet Systems F stars

Choose 1 to 5 items after selecting a category.

J2000 Coordinates (ICRS) RA: 23 07 28.8327 Dec: +21 08 2.53

Uncertainty RA: [] Arcsec Dec: [] Arcsec

Proper Motion RA: 108.30 mas/yr Dec: -49.48 mas/yr

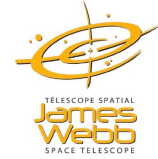
Epoch: 2015.5

Annual Parallax (arcsec): []

Extended: Unknown Recommended for spectroscopy (for advice to data reduction pipeline)



Example science program in JWST APT



Astronomer's Proposal Tools Version 27.3.1 JWST PRD: PRDOPSSOC-M-025 - JWST Approved Proposal 23 (Unsaved)

Form Editor | Spreadsheet Editor | Orbit Planner | Visit Planner | Timeline | View in Aladin | BOT | Target Confirmation | PDF Preview | Submission | Errors and Warnings | All Tools | Stop

New Document | New

What's New | Roadmap | Feedback

JWST Approved Proposal 23 (Unsa...
 Proposal Information
 Targets
 Observations
 Exoplanets in HD 218396 with
 HD-218396 (Obs 1)
 HD-218172 (Obs 2)
 Observation Links

HD-218396 (Obs 1) of JWST Approved Proposal 23 (Unsaved)

Direct Imaging Parameters
 Direct Image True False

PSF Reference Observations
 This is a PSF Reference Observation

HD-218172 (Obs 2) (PSF Reference; Filters [F480M])

PSF Reference Observations

Additional justification Additional justification of self-reference observations will be provided in the science justification

Edit Exoplanets in HD 218396 with NIRISS AMI | New | Edit Visit 1:1

Astronomer's Proposal Tools Version 27.3.1 JWST PRD: PRDOPSSOC-M-025 - JWST Approved Proposal 23 (Unsaved)

Form Editor | Spreadsheet Editor | Orbit Planner | Visit Planner | Timeline | View in Aladin | BOT | Target Confirmation | PDF Preview | Submission | Errors and Warn | Run All Tools | Stop

New Document | New

What's New | Roadmap | Feedback

JWST Approved Proposal 23 (Unsa...
 Proposal Information
 Targets
 Observations
 Exoplanets in HD 218396 with
 HD-218396 (Obs 1)
 HD-218172 (Obs 2)
 Observation Links

HD-218172 (Obs 2) of JWST Approved Proposal 23 (Unsaved)

Filters

Add Duplicate Insert Above Remove

Direct Imaging Parameters
 Direct Image True False

PSF Reference Observations
 This is a PSF Reference Observation (exclusive access period will be 0 months)

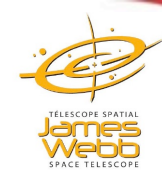
Edit Visit 1:1 | New | Edit Visit 2:1

Observa...	Number	Status	Duplication	Label	Science	Total Char...	Data Volume	Parallel Slo...	Instrument	Ter
Show: Observation										

2 errors & warnings (Click for Details)



Example science program in JWST APT AMI Specific strategies



Adding Special Requirements

The screenshot shows the JWST APT software interface. The main window displays the 'Group/Sequence Observations Link' dialog box for observation HD-218396. The dialog box contains the following fields and options:

- Number: 1, Status: IMPLEMENTED
- Label: HD-218396
- Instrument: NIRISS
- Template: NIRISS Aperture Masking Interferometry
- Target: 1 HD-218396
- Splitting Distance: 50.0 Arcsec
- Number of Observations: 1
- Science Time: 4416 (secs)
- Total Time: 9169 (secs)
- Volume: 899 MB

The 'Observation list' field contains two entries: HD-218396 (Obs 1) and HD-218172 (Obs 2). The 'Time interval' is set to 'Days'. The 'Non-interruptible' checkbox is checked. The 'Exclusive Use Of Instrument' checkbox is unchecked. The 'Group Observations 1, 2, Non-interruptible' text is displayed at the bottom of the dialog box. An 'OK' button is located at the bottom right of the dialog box.

A purple arrow points to the 'Add' button in the 'Special Requirements' tab. A context menu is open over the 'Add' button, showing the following options:

- Timing
- Position Angle
- Offset
- No Parallel
- On Hold
- Target Of Opportunity
- Maximum Visit Duration
- Background Noise
- After Date
- Before Date
- Between Dates
- Phase
- After Observation Link
- Group/Sequence Observations Link

The 'Group/Sequence Observations Link' option is highlighted in blue. A red box with the text 'Click on Add' is positioned above the 'Add' button.



Example science program in JWST APT AMI Specific strategies



Create 'NIRISS AMI Observations of Extrasolar Planets around a Host Star' proposal and compare with the existing program.

- Select target HR8799(or HD218396) and calibrator (HD218172).
- Enter/update coordinates, proper motion using information from Gaia DR2 archive, use 2015.5 epoch.
- Create observations for each source using NIRISS AMI template.
- Update exposure parameters using calculations 5 and 7 for Target Acquisition and calculations 3 and 4 for science observations in JWST ETC example science program workbook #23: NIRISS AMI Observations of Extrasolar Planets Around a Host Star.
- Create Group non-interruptible Special Requirement for the target and the calibrator.
- Update PSF Reference Observations field for the target and the calibrator.
- Run visit planner
- Run Smart accounting
- Create the times report (via APT File – Export) to look at an ASCII listing of charged times
- Create Target Confirmation Charts and view the observations in Aladin.