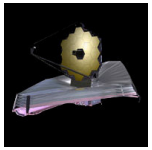

9622 - A Complete Mapping of Stellar Evolution and the Interstellar Medium across M33

Cycle: 5, Proposal Category: GO

INVESTIGATORS

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OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
M33				
	1	NIRCam Primary Mid	NIRCam Imaging	(1) M-33-Mortar1
	2	MIRI Off Observation	MIRI Imaging	(6) M33-OFF
	3	NIRCam Primary North	NIRCam Imaging	(2) M-33-Mortar2
	4	MIRI Off Observation	MIRI Imaging	(6) M33-OFF
	5	NIRCam Primary Sout h	NIRCam Imaging	(3) M-33-Mortar3
	6	MIRI Off Observation	MIRI Imaging	(6) M33-OFF
	7	MIRI Primary Mid	MIRI Imaging	(5) M-33-Mortar5
	8	MIRI Off Observation	MIRI Imaging	(6) M33-OFF
	9	MIRI Primary North	MIRI Imaging	(4) M-33-Mortar4
	10	MIRI Off Observation	MIRI Imaging	(6) M33-OFF
	11	MIRI Primary South	MIRI Imaging	(7) M-33-South
	12	MIRI Off Observation	MIRI Imaging	(6) M33-OFF

ABSTRACT

We propose to map the central 33 kpc^2 of the nearby, star forming, disk galaxy M33 using NIRCam (6 bands) and MIRI (3 bands). This will be a first heavily resolved IR survey across a spiral galaxy. Combined with existing large investments by HST, ALMA, and more, this program will deliver a legacy data set for benchmarking the key physics of galactic evolution from the structure of the star forming interstellar medium (ISM), to the youngest stars, through dust production and the last stages of stellar evolution. We will use these observations to:

(1) find >2200 massive young stellar objects (YSOs) over the star forming central disk of the galaxy, as a novel test for theories of star formation;

(2) use resolved, red stellar populations to probe the initial mass function and ancient star formation history of a spiral galaxy using stellar population synthesis;

(3) measure the contributions of O- and C-rich AGB stars to the dust budget of M33; and

(4) create high-quality maps of Paschen alpha plus massive YSOs and stars to provide a complete inventory of the sources of stellar feedback in the galaxy. We will then use polycyclic aromatic hydrocarbon (PAHs) to map out the small-scale structure of the ISM to find how feedback influences the gas around it.

We will deliver merged photometry of 40 million stars across 9 JWST + 6 HST bands and a curated mulitwavelength atlas of the nearest low-inclination disk galaxy to the Milky Way. With this JWST survey, M33 will form an essential case study to understand how galaxy evolution emerges from the collective action of millions of stars, HII regions, and gas clouds.

OBSERVING DESCRIPTION

Our primary observations consist of three NIRCam mosaics operated with MIRI in coordinated parallel mode. We use both modules of NIRCam with three filter configurations: F200W / F300W, F187N / F3335M and F115W / F444W. We use a FULLBOX dither pattern with 2 steps and 2 subpixel dithers optimized for MIRI parallels (observing F770W, F1000W, F2100w). Each mosaic is a 6 row x 1 column mosaic that we tile together. We introduce mosaic row and column offsets to tile the HST/PHATTER area at orientations when the program can be scheduled. This observing pattern accumulates a minimum of 300s in each NIRCam band and 277s in each MIRI parallel field. We have simulated the pointing resulting from these dither patterns for the primary and parallel instruments and find that most (>70%) of the field is covered with at least 2 times this integration depth.

Since the MIRI parallels in our primary observations cover disjoint parts of the galaxy, we two MIRI observations to fill in the gaps. Here, we use 4 point CYCLING patterns with FASTR1 readouts to accumulate 277s in F770W and F1000W and 566s in F2100W. One of the MIRI mosaics overlaps with archival data, so we have removed fields and bands of the mosaic that are already observed in the archival work. We operate NIRCam in parallel with these observations using 6 new bands (F150W/F405N, F090W/F360M, F212N/F430M).

We require a specific range of roll angles (80° to 110° in aperture PA) for the telescope to ensure that the MIRI parallels are simultaneously covering

the star forming part of the disk. This 30 degree range is selected to allow for a broad range of scheduling windows. Once scheduled, we will adjust row and column offsets for the specific PA of the telescope so that we can obtain ideal coverage at the given PA.

Since our MIRI data will be filled with diffuse emission, we include observations of a MIRI "OFF" field located outside of the galaxy to set the background levels. This is configured as a sequence with required observations within 1-2 days depending on the integration time in the associated MIRI observation.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	M-33-Mortar1	RA: 01 33 58.2287 (23.4926196d) Dec: +30 41 30.32 (30.69176d) Equinox: J2000	Proper Motion RA: 5.479301949670298E-5 sec of time/yr Proper Motion Dec: 8.269999999999999E-4 arcsec/yr Epoch of Position: 2015.5	
Comments: *Category=Galaxy* *Description=[Disk galaxies, Spiral galaxies]*				
(2)	M-33-Mortar2	RA: 01 34 9.3667 (23.5390279d) Dec: +30 46 53.74 (30.78159d) Equinox: J2000	Proper Motion RA: 5.479301949670298E-5 sec of time/yr Proper Motion Dec: 8.269999999999999E-4 arcsec/yr Epoch of Position: 2015.5	
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *Category=Galaxy* *Description=[Disk galaxies, Spiral galaxies]*				
(3)	M-33-Mortar3	RA: 01 33 49.5061 (23.4562754d) Dec: +30 35 10.22 (30.58617d) Equinox: J2000	Proper Motion RA: 5.479301949670298E-5 sec of time/yr Proper Motion Dec: 8.269999999999999E-4 arcsec/yr Epoch of Position: 2015.5	
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *Category=Galaxy* *Description=[Disk galaxies, Spiral galaxies]*				
(4)	M-33-Mortar4	RA: 01 34 4.9120 (23.5204667d) Dec: +30 45 49.20 (30.76367d) Equinox: J2000	Proper Motion RA: 5.479301949670298E-5 sec of time/yr Proper Motion Dec: 8.269999999999999E-4 arcsec/yr Epoch of Position: 2015.5	
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *Category=Galaxy* *Description=[Disk galaxies, Spiral galaxies]*				
(5)	M-33-Mortar5	RA: 01 33 55.3313 (23.4805471d) Dec: +30 39 5.24 (30.65146d) Equinox: J2000	Proper Motion RA: 5.479301949670298E-5 sec of time/yr Proper Motion Dec: 8.269999999999999E-4 arcsec/yr Epoch of Position: 2015.5	
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *Category=Galaxy* *Description=[Disk galaxies, Spiral galaxies]*				
(6)	M33-OFF	RA: 01 36 31.9109 (24.1329621d) Dec: +30 33 47.61 (30.56322d) Equinox: J2000		
Comments: *Category=Calibration* *Description=[Telescope/sky background]*				
(7)	M-33-South	RA: 01 33 50.6592 (23.4610800d) Dec: +30 33 43.66 (30.56213d) Equinox: J2000	Proper Motion RA: 0.707 mas/yr Proper Motion Dec: 0.827 mas/yr Epoch of Position: 2000	
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.* *Category=Galaxy* *Description=[Spiral galaxies]* *Extended=YES*				

Observation

Proposal 9622, Observation 1: NIRCam Primary Mid Thu May 21 20:00:51 GMT 2026

Diagnostic Status: Warning

Observing Template: NIRCam Imaging

Coordinated Parallel Template(s): MIRI Imaging

Diagnostics

(NIRCam Primary Mid (Obs 1)) Warning (Form): By selecting Target Placement = Module Gap the target coordinates will not fall on any detector unless an appropriate Mosaic, set of Dithers or Offset Special Requirement is specified.

(Visit 1:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 1:2) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 1:3) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 1:4) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 1:5) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 1:6) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	M-33-Mortar1	RA: 01 33 58.2287 (23.4926196d) Dec: +30 41 30.32 (30.69176d) Equinox: J2000	Proper Motion RA: 5.479301949670298E-5 sec of time/yr Proper Motion Dec: 8.269999999999999E-4 arcsec/yr Epoch of Position: 2015.5	

Comments:
Category=Galaxy
Description=[Disk galaxies, Spiral galaxies]

Template

NIRCam Imaging	MIRI Imaging
Module: ALL	Subarray: FULL
Subarray: FULL	
Target Placement: Module gap (large extended source)	

Mosaic

Rows	Columns	Row Overlap %	Column Overlap %	Row shift (deg)	Column shift (deg)	Tile Order
6	1	18.0	40.0	0.0	-30.0	DEFAULT

Dithers

#	Primary Dither Type	Primary Dithers	Dither Size	Subpixel Positions	Coordinated Parallel Subpixel Selector	Dither Direct Images Primes
1	FULLBOX	2TIGHTGAPS		1	2-POINT-WITH-MIRI-F770W	NO_DITHERING

Spectral Elements

NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	Optional ETC ID
1	F187N	F335M	SHALLOW4	4	1	4	4	815.995	168019
2	F200W	F300M	SHALLOW4	3	1	4	4	601.259	168019
3	F115W	F444W	SHALLOW4	3	1	4	4	601.259	168019

Spectral Elements

MIRI Imaging	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
1	F2100W	FASTR1	25	3	1		4	12	854.712	225860
2	F770W	FASTR1	50	1	1		4	4	555.008	225860
3	F1000W	FASTR1	50	1	1		4	4	555.008	225860

Special Requirements

Sequence Visits within 53.0 Days
Aperture PA Range 80 to 110 Degrees (V3 80.07457694 to 110.07457694)
Visits Same PA
No Parallel Attachments

Group Observations 1, 2 within 1 Days

Observation

Proposal 9622, Observation 2: MIRI Off Observation

Thu May 21 20:00:51 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

(Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(6)	M33-OFF	RA: 01 36 31.9109 (24.1329621d) Dec: +30 33 47.61 (30.56322d) Equinox: J2000		

Comments:
Category=Calibration
Description=[Telescope/sky background]

Template

Subarray
FULL

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	CYCLING	1	3						DEFAULT

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
1	F770W	FASTR1	30	1	1	Dither 1	3	3	249.754	225860
2	F1000W	FASTR1	30	1	1	Dither 1	3	3	249.754	225860
3	F2100W	FASTR1	60	1	1	Dither 1	3	3	499.507	225860

Special Requirements

Group Observations 1, 2 within 1 Days

Observation

Proposal 9622, Observation 3: NIRCam Primary North Thu May 21 20:00:51 GMT 2026

Diagnostic Status: Warning

Observing Template: NIRCam Imaging

Coordinated Parallel Template(s): MIRI Imaging

Diagnostics

(NIRCam Primary North (Obs 3)) Warning (Form): By selecting Target Placement = Module Gap the target coordinates will not fall on any detector unless an appropriate Mosaic, set of Dithers or Offset Special Requirement is specified.

(Visit 3:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 3:2) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 3:3) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 3:4) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 3:5) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 3:6) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(2)	M-33-Mortar2	RA: 01 34 9.3667 (23.5390279d) Dec: +30 46 53.74 (30.78159d) Equinox: J2000	Proper Motion RA: 5.479301949670298E-5 sec of time/yr Proper Motion Dec: 8.269999999999999E-4 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Galaxy
Description=[Disk galaxies, Spiral galaxies]

Template

NIRCam Imaging	MIRI Imaging
Module: ALL	Subarray: FULL
Subarray: FULL	
Target Placement: Module gap (large extended source)	

Mosaic

Rows	Columns	Row Overlap %	Column Overlap %	Row shift (deg)	Column shift (deg)	Tile Order
6	1	18.0	40.0	0.0	-30.0	DEFAULT

Dithers

#	Primary Dither Type	Primary Dithers	Dither Size	Subpixel Positions	Coordinated Parallel Subpixel Selector	Dither Direct Images Primes
1	FULLBOX	2TIGHTGAPS		1	2-POINT-WITH-MIRI-F770W	NO_DITHERING

Spectral Elements

NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	Optional ETC ID
1	F187N	F335M	SHALLOW4	4	1	4	4	815.995	168019
2	F200W	F300M	SHALLOW4	3	1	4	4	601.259	168019
3	F115W	F444W	SHALLOW4	3	1	4	4	601.259	168019

Spectral Elements

MIRI Imaging	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
1	F2100W	FASTR1	25	3	1		4	12	854.712	225860
2	F770W	FASTR1	25	2	1		4	8	566.108	225860
3	F1000W	FASTR1	25	2	1		4	8	566.108	225860

Special Requirements

Sequence Visits within 53.0 Days
Aperture PA Range 80 to 110 Degrees (V3 80.07457694 to 110.07457694)
Visits Same PA
No Parallel Attachments

Group Observations 3, 4 within 1 Days

Observation

Proposal 9622, Observation 4: MIRI Off Observation

Thu May 21 20:00:51 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

(Visit 4:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(6)	M33-OFF	RA: 01 36 31.9109 (24.1329621d) Dec: +30 33 47.61 (30.56322d) Equinox: J2000		

Comments:
Category=Calibration
Description=[Telescope/sky background]

Template

Subarray
FULL

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	CYCLING	1	3						DEFAULT

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
1	F770W	FASTR1	30	1	1	Dither 1	3	3	249.754	225860
2	F1000W	FASTR1	30	1	1	Dither 1	3	3	249.754	225860
3	F2100W	FASTR1	60	1	1	Dither 1	3	3	499.507	225860

Special Requirements

Group Observations 3, 4 within 1 Days

Observation

Proposal 9622, Observation 5: NIRCam Primary South Thu May 21 20:00:51 GMT 2026

Diagnostic Status: Warning

Observing Template: NIRCam Imaging

Coordinated Parallel Template(s): MIRI Imaging

Diagnostics

(NIRCam Primary South (Obs 5)) Warning (Form): By selecting Target Placement = Module Gap the target coordinates will not fall on any detector unless an appropriate Mosaic, set of Dithers or Offset Special Requirement is specified.

(Visit 5:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 5:2) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 5:3) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 5:4) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 5:5) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 5:6) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 5:7) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 5:8) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 5:9) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 5:10) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 5:11) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 5:12) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 5:13) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 5:14) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(3)	M-33-Mortar3	RA: 01 33 49.5061 (23.4562754d) Dec: +30 35 10.22 (30.58617d) Equinox: J2000	Proper Motion RA: 5.479301949670298E-5 sec of time/yr Proper Motion Dec: 8.269999999999999E-4 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Galaxy
Description=[Disk galaxies, Spiral galaxies]

Template

NIRCam Imaging	MIRI Imaging
Module: ALL	Subarray: FULL
Subarray: FULL	
Target Placement: Module gap (large extended source)	

Mosaic

Rows	Columns	Row Overlap %	Column Overlap %	Row shift (deg)	Column shift (deg)	Tile Order
7	2	18.0	65.0	0.0	-30.0	DEFAULT

Dithers

#	Primary Dither Type	Primary Dithers	Dither Size	Subpixel Positions	Coordinated Parallel Subpixel Selector	Dither Direct Images Primes
1	FULLBOX	2TIGHTGAPS		1	2-POINT-WITH-MIRI-F770W	NO_DITHERING

Spectral Elements

NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	Optional ETC ID
1	F187N	F300M	SHALLOW4	4	1	4	4	815.995	168019
2	F200W	F335M	SHALLOW4	3	1	4	4	601.259	168019
3	F115W	F444W	SHALLOW4	3	1	4	4	601.259	168019

Spectral Elements

MIRI Imaging	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
1	F2100W	FASTR1	25	3	1		4	12	854.712	225860
2	F770W	FASTR1	25	2	1		4	8	566.108	225860
3	F1000W	FASTR1	25	2	1		4	8	566.108	225860

Special Requirements

Sequence Visits within 53.0 Days
Aperture PA Range 80 to 110 Degrees (V3 80.07457694 to 110.07457694)
Visits Same PA
No Parallel Attachments

Group Observations 5, 6 within 1 Days

Observation

Proposal 9622, Observation 6: MIRI Off Observation

Thu May 21 20:00:51 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

(Visit 6:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(6)	M33-OFF	RA: 01 36 31.9109 (24.1329621d) Dec: +30 33 47.61 (30.56322d) Equinox: J2000		

Comments:
Category=Calibration
Description=[Telescope/sky background]

Template

Subarray
FULL

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	CYCLING	1	3						DEFAULT

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
1	F770W	FASTR1	30	1	1	Dither 1	3	3	249.754	225860
2	F1000W	FASTR1	30	1	1	Dither 1	3	3	249.754	225860
3	F2100W	FASTR1	60	1	1	Dither 1	3	3	499.507	225860

Special Requirements

Group Observations 5, 6 within 1 Days

Observation

Proposal 9622, Observation 7: MIRI Primary Mid Thu May 21 20:00:51 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Coordinated Parallel Template(s): NIRCam Imaging

Diagnostics

(Visit 7:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:2) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:3) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:4) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:5) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:6) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:7) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:8) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:9) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:10) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:11) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:12) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:13) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:14) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:15) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:16) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:17) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:18) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:19) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:20) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:21) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:22) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:23) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 7:24) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(5)	M-33-Mortar5	RA: 01 33 55.3313 (23.4805471d) Dec: +30 39 5.24 (30.65146d) Equinox: J2000	Proper Motion RA: 5.479301949670298E-5 sec of time/yr Proper Motion Dec: 8.269999999999999E-4 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Galaxy
Description=[Disk galaxies, Spiral galaxies]

Template

MIRI Imaging	NIRCam Imaging
Subarray: FULL	Module: ALL Subarray: FULL

Mosaic

Rows	Columns	Row Overlap %	Column Overlap %	Row shift (deg)	Column shift (deg)	Tile Order
6	4	10.0	10.0	0.0	0.0	HILBERT_CURVE

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	CYCLING	1	4						DEFAULT

Spectral Elements

MIRI Imaging	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
1	F2100W	FASTR1	25	2	1	Dither 1	4	8	566.108	225860
2	F770W	FASTR1	25	1	1	Dither 1	4	4	277.504	225860
3	F1000W	FASTR1	25	1	1	Dither 1	4	4	277.504	225860

Spectral Elements

NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	Optional ETC ID
1	F212N	F405N+F444W	SHALLOW4	2	1	4	4	386.524	
2	F150W	F430M	SHALLOW4	1	1	4	4	171.788	
3	F090W	F360M	SHALLOW4	1	1	4	4	171.788	

Special Requirements

Group Visits within 53.0 Days
Aperture PA Range 80 to 110 Degrees (V3 75.16455103 to 105.16455103)
Visits Same PA
No Parallel Attachments

Group Observations 7, 8 within 2 Days

Observation

Proposal 9622, Observation 8: MIRI Off Observation

Thu May 21 20:00:51 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

(Visit 8:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(6)	M33-OFF	RA: 01 36 31.9109 (24.1329621d) Dec: +30 33 47.61 (30.56322d) Equinox: J2000		

Comments:
Category=Calibration
Description=[Telescope/sky background]

Template

Subarray
FULL

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	CYCLING	1	3						DEFAULT

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
1	F770W	FASTR1	30	1	1	Dither 1	3	3	249.754	225860
2	F1000W	FASTR1	30	1	1	Dither 1	3	3	249.754	225860
3	F2100W	FASTR1	60	1	1	Dither 1	3	3	499.507	225860

Special Requirements

Group Observations 7, 8 within 2 Days

Observation

Proposal 9622, Observation 9: MIRI Primary North Thu May 21 20:00:51 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Coordinated Parallel Template(s): NIRCam Imaging

Diagnostics

(Visit 9:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:2) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:3) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:4) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:5) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:6) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:7) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:8) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:9) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:10) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:11) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:12) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:13) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:14) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:15) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:16) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:17) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:18) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:19) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:20) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:21) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:22) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:23) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:24) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:25) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:26) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:27) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 9:28) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(4)	M-33-Mortar4	RA: 01 34 4.9120 (23.5204667d) Dec: +30 45 49.20 (30.76367d) Equinox: J2000	Proper Motion RA: 5.479301949670298E-5 sec of time/yr Proper Motion Dec: 8.269999999999999E-4 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Galaxy
Description=[Disk galaxies, Spiral galaxies]

Template

MIRI Imaging	NIRCam Imaging
Subarray: FULL	Module: ALL Subarray: FULL

Mosaic

Rows	Columns	Row Overlap %	Column Overlap %	Row shift (deg)	Column shift (deg)	Tile Order
7	4	10.0	10.0	0.0	0.0	HILBERT_CURVE

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	CYCLING	1	4						DEFAULT

Spectral Elements

MIRI Imaging	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
1	F2100W	FASTR1	25	2	1	Dither 1	4	8	566.108	225860
2	F1000W	FASTR1	25	1	1	Dither 1	4	4	277.504	225860
3	F770W	FASTR1	25	1	1	Dither 1	4	4	277.504	225860

Spectral Elements

NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	Optional ETC ID
1	F212N	F405N+F444W	SHALLOW4	2	1	4	4	386.524	
2	F150W	F430M	SHALLOW4	1	1	4	4	171.788	
3	F090W	F360M	SHALLOW4	1	1	4	4	171.788	

Special Requirements

Group Visits within 53.0 Days
Aperture PA Range 80 to 110 Degrees (V3 75.16455103 to 105.16455103)
Visits Same PA
No Parallel Attachments

Group Observations 9, 10 within 2 Days

Observation

Proposal 9622, Observation 10: MIRI Off Observation

Thu May 21 20:00:51 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

(Visit 10:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(6)	M33-OFF	RA: 01 36 31.9109 (24.1329621d) Dec: +30 33 47.61 (30.56322d) Equinox: J2000		

Comments:
Category=Calibration
Description=[Telescope/sky background]

Template

Subarray
FULL

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	CYCLING	1	4						DEFAULT

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
1	F770W	FASTR1	25	1	1	Dither 1	4	4	277.504	225860
2	F1000W	FASTR1	25	1	1	Dither 1	4	4	277.504	225860
3	F2100W	FASTR1	25	2	1	Dither 1	4	8	566.108	225860

Special Requirements

Group Observations 9, 10 within 2 Days

Observation

Proposal 9622, Observation 11: MIRI Primary South

Thu May 21 20:00:51 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

(Visit 11:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 11:2) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 11:3) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 11:4) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 11:5) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 11:6) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 11:7) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 11:8) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 11:9) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 11:10) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 11:11) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 11:12) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 11:13) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 11:14) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 11:15) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 11:16) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 11:17) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 11:18) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 11:19) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 11:20) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(7)	M-33-South	RA: 01 33 50.6592 (23.4610800d)	Proper Motion RA: 0.707 mas/yr	
		Dec: +30 33 43.66 (30.56213d)	Proper Motion Dec: 0.827 mas/yr	
		Equinox: J2000	Epoch of Position: 2000	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.
Category=Galaxy
Description=[Spiral galaxies]
Extended=YES

Template

Subarray
FULL

Mosaic

Rows	Columns	Row Overlap %	Column Overlap %	Row shift (deg)	Column shift (deg)	Tile Order
5	6	10.0	10.0	0.0	0.0	HILBERT_CURVE

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	CYCLING	1	4						DEFAULT

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
1	F770W	FASTR1	25	1	1	Dither 1	4	4	277.504	

Special Requirements

Group Visits within 53.0 Days
Aperture PA Range 80 to 110 Degrees (V3 75.16455103 to 105.16455103)
Visits Same PA

Group Observations 11, 12 within 1 Days

Observation

Proposal 9622, Observation 12: MIRI Off Observation

Thu May 21 20:00:51 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

(Visit 12:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(6)	M33-OFF	RA: 01 36 31.9109 (24.1329621d) Dec: +30 33 47.61 (30.56322d) Equinox: J2000		

Comments:
Category=Calibration
Description=[Telescope/sky background]

Template

Subarray
FULL

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	CYCLING	1	3						DEFAULT

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
1	F770W	FASTR1	30	1	1	Dither 1	3	3	249.754	225860

Special Requirements

Group Observations 11, 12 within 1 Days