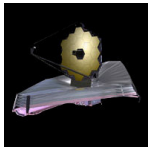

12157 - MIRI Clarity: Uncovering the Mysteries of Water Worlds and Sub-Neptunes in the Mid-Infrared

Cycle: 5, Proposal Category: GO

INVESTIGATORS

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Dr. Thaddeus Komacek (CoI) (ESA Member)	University of Oxford
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Dr. Charles Cadieux (CoI) (ESA Member)	University of Geneva, Department of Astronomy
Dr. Michael Radica (CoI)	University of Chicago

OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
LP791-18c				
	1	Transit	MIRI Low Resolution Spectroscopy	(5) LP-791-18
	3	Transit	MIRI Low Resolution Spectroscopy	(5) LP-791-18
TOI-270d				
	5	Transit	MIRI Low Resolution Spectroscopy	(4) TOI-270
TOI-270c				
	7	Transit	MIRI Low Resolution Spectroscopy	(4) TOI-270
	9	Transit	MIRI Low Resolution Spectroscopy	(4) TOI-270
GJ 9827d				
	11	Transit	MIRI Low Resolution Spectroscopy	(2) GJ9827
	13	Transit	MIRI Low Resolution Spectroscopy	(2) GJ9827
GJ 3090b				
	15	Transit	MIRI Low Resolution Spectroscopy	(3) GJ3090
	17	Transit	MIRI Low Resolution Spectroscopy	(3) GJ3090

ABSTRACT

Recent JWST NIRISS and NIRSpec observations have revealed an unexpected compositional diversity in the atmospheres of sub-Neptunes. As we move closer to the radius valley, the near-infrared observations indicate a shift from hydrogen-dominated atmospheres to hydrogen-water miscible envelopes and finally to water-dominated worlds. However, near-infrared observations remain plagued by detrimental overlaps between molecular bands as well as problematic correlations with cloud properties, leading to multiple possible interpretations for the nature of these planets. Here, we propose to overcome the limitations of near-infrared observations by revisiting the five most favorable water worlds and sub-Neptunes with molecular signatures using MIRI LRS mid-infrared spectroscopy. The proposed MIRI LRS observations will build upon existing data and provide the critical missing piece necessary to make H2O and sulfur species directly visible. This will allow us to understand the true diversity of the sub-Neptune population and the materials from which these planets formed. This program's legacy will be a database of uniform, precise 0.6–12 μm transmission spectra that will include archetypes of the most abundant types of planets in the Universe.

OBSERVING DESCRIPTION

The proposed program consists of MIRI LRS transit observations of the six most favorable water worlds and sub-Neptunes. Each transit observation will be immediately followed by short background observations, as is common practice for MIRI LRS transit observations. In total, two transits of each target will be observed, with the exception of TOI-270d, which will be observed only once.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(2)	GJ9827	RA: 23 27 5.2388 (351.7718283d) Dec: -01 17 7.13 (-1.28531d) Equinox: J2000	Proper Motion RA: 375.977 mas/yr Proper Motion Dec: 215.870 mas/yr Parallax: 0.0337247" Epoch of Position: 2016.0	

Comments: DR3Name Gaia DR3 2643842302456085888
RAdeg 351.77182847413
DEdeg -1.28531353557
Plx 33.7247
pmRA 375.977
pmDE 215.870
Gmag 9.840704
Teff 4182.0

2MASS 23270480-0117108
RAJ2000 351.770000
DEJ2000 -1.286352
Jmag 7.984
Hmag 7.379
Kmag 7.193
Category=Star
Description=[M dwarfs]
Extended=NO

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(3)	GJ3090	RA: 01 21 45.2173 (20.4384054d) Dec: -46 42 53.04 (-46.71473d) Equinox: J2000	Proper Motion RA: -111.08929387948497 mas/yr Proper Motion Dec: -79.95397168145395 mas/yr Parallax: 0.04453483319805842" Epoch of Position: 2016.0	

Comments: DR3Name Gaia DR3 4933912198895807104
RAdeg 20.43840559562
DEdeg -46.71473451693
pmRA -111.089
pmDE -79.954

2MASS 01214538-4642518
Jmag 8.168
Hmag 7.536
Kmag 7.294
Category=Star
Description=[M dwarfs]
Extended=NO

(4)	TOI-270	RA: 04 33 39.8638 (68.4160992d) Dec: -51 57 26.75 (-51.95743d) Equinox: J2000	Proper Motion RA: 83.082 mas/yr Proper Motion Dec: -269.803 mas/yr Parallax: 0.0444899" Epoch of Position: 2016.0	

Comments: DR3Name Gaia DR3 4781196115469953024
RAdeg 68.41609923470
DEdeg -51.95743117623
Plx 44.4899
pmRA 83.082
pmDE -269.803
Gmag 11.621160
Teff 3290.2

2MASS 04333970-5157222
RAJ2000 68.415442
DEJ2000 -51.956169
Jmag 9.099
Hmag 8.531
Kmag 8.251
Category=Star
Description=[M dwarfs]
Extended=NO

(5)	LP-791-18	RA: 11 02 45.9546 (165.6914775d) Dec: -16 24 22.29 (-16.40619d) Equinox: J2000	Proper Motion RA: -221.291 mas/yr Proper Motion Dec: -58.840999963649665 mas/yr Parallax: 0.037522481813749085" Epoch of Position: 2000	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[M dwarfs]

Observation

Proposal 12157, Observation 1: Transit

Mon May 11 17:00:43 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Low Resolution Spectroscopy

Diagnostics

(Transit (Obs 1)) Warning (Form): Exposure Duration exceeds the limit of 10000.0 seconds. Above this limit it is possible that a High Gain Antenna move may occur during the exposure.

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(5)	LP-791-18	RA: 11 02 45.9546 (165.6914775d) Dec: -16 24 22.29 (-16.40619d) Equinox: J2000	Proper Motion RA: -221.291 mas/yr Proper Motion Dec: -58.840999963649665 mas/yr Parallax: 0.037522481813749085" Epoch of Position: 2000	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[M dwarfs]

Acquisition

#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	Optional ETC ID
1	SAME	F1000W	FAST	8	1	1	1.272	126129.1

Template

Subarray	Obtain Verification Image?
SLITLESSPRISM	true

Dithers

#	Dither Type	No. Spectral Steps	Spectral Step Offset	No. Spatial Steps	Spatial Step Offset
1	NONE				

Pointing Verification

#	PV Readout Pattern	PV Groups/Int	PV Integrations/Exp	PV Total Integrations	PV Exposures/Dith	PV Total Dithers	PV Total Exposure Time	Optional ETC ID	Filter
1	FASTR1	8	1	1	1	1	1.272		F1000W

Spectral Elements

#	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Exposures/Dith	Total Dithers	Total Exposure Time	Optional ETC ID
1	FASTR1	160	596	596	1	1	15260.683	126129.2

Special Requirements

Between Dates 08-MAY-2026:00:00:00 and 28-JUL-2026:00:00:00
Between Dates 30-JUL-2026:00:00:00 and 31-OCT-2026:00:00:00
Between Dates 02-NOV-2026:00:00:00 and 07-APR-2028:00:00:00
Between Dates 09-APR-2028:00:00:00 and 01-JUL-2028:00:00:00
Phase 0.9749244521999991 to 0.9833554521999992 with period 4.9899093 Days and zero-phase 2460113.3411445 HJD
Aperture PA Range 16.83544897 to 72.83544897 Degrees (V3 12.0 to 68.0)
Aperture PA Range 109.83544897 to 111.83544897 Degrees (V3 105.0 to 107.0)
Aperture PA Range 142.83544897 to 143.83544897 Degrees (V3 138.0 to 139.0)
Aperture PA Range 192.83544897 to 249.83544897 Degrees (V3 188.0 to 245.0)
Aperture PA Range 289.83544897 to 291.83544897 Degrees (V3 285.0 to 287.0)
Aperture PA Range 322.83544897 to 323.83544897 Degrees (V3 318.0 to 319.0)
Time Series Observation
No Parallel Attachments

Observation

Proposal 12157, Observation 3: Transit

Mon May 11 17:00:43 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Low Resolution Spectroscopy

Diagnostics

(Transit (Obs 3)) Warning (Form): Exposure Duration exceeds the limit of 10000.0 seconds. Above this limit it is possible that a High Gain Antenna move may occur during the exposure.

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(5)	LP-791-18	RA: 11 02 45.9546 (165.6914775d) Dec: -16 24 22.29 (-16.40619d) Equinox: J2000	Proper Motion RA: -221.291 mas/yr Proper Motion Dec: -58.840999963649665 mas/yr Parallax: 0.037522481813749085" Epoch of Position: 2000	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[M dwarfs]

Acquisition

#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	Optional ETC ID
1	SAME	F1000W	FAST	8	1	1	1.272	126129.1

Template

Subarray	Obtain Verification Image?
SLITLESSPRISM	true

Dithers

#	Dither Type	No. Spectral Steps	Spectral Step Offset	No. Spatial Steps	Spatial Step Offset
1	NONE				

Pointing Verification

#	PV Readout Pattern	PV Groups/Int	PV Integrations/Exp	PV Total Integrations	PV Exposures/Dith	PV Total Dithers	PV Total Exposure Time	Optional ETC ID	Filter
1	FASTR1	8	1	1	1	1	1.272		F1000W

Spectral Elements

#	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Exposures/Dith	Total Dithers	Total Exposure Time	Optional ETC ID
1	FASTR1	160	596	596	1	1	15260.683	126129.2

Special Requirements

Between Dates 08-MAY-2026:00:00:00 and 28-JUL-2026:00:00:00
Between Dates 30-JUL-2026:00:00:00 and 31-OCT-2026:00:00:00
Between Dates 02-NOV-2026:00:00:00 and 07-APR-2028:00:00:00
Between Dates 09-APR-2028:00:00:00 and 01-JUL-2028:00:00:00
Phase 0.9749244521999991 to 0.9833554521999992 with period 4.9899093 Days and zero-phase 2460113.3411445 HJD
Aperture PA Range 16.83544897 to 72.83544897 Degrees (V3 12.0 to 68.0)
Aperture PA Range 109.83544897 to 111.83544897 Degrees (V3 105.0 to 107.0)
Aperture PA Range 142.83544897 to 143.83544897 Degrees (V3 138.0 to 139.0)
Aperture PA Range 192.83544897 to 249.83544897 Degrees (V3 188.0 to 245.0)
Aperture PA Range 289.83544897 to 291.83544897 Degrees (V3 285.0 to 287.0)
Aperture PA Range 322.83544897 to 323.83544897 Degrees (V3 318.0 to 319.0)
Time Series Observation
No Parallel Attachments

Observation

Proposal 12157, Observation 5: Transit

Mon May 11 17:00:43 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Low Resolution Spectroscopy

Diagnostics

(Transit (Obs 5)) Warning (Form): Exposure Duration exceeds the limit of 10000.0 seconds. Above this limit it is possible that a High Gain Antenna move may occur during the exposure.

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(4)	TOI-270	RA: 04 33 39.8638 (68.4160992d) Dec: -51 57 26.75 (-51.95743d) Equinox: J2000	Proper Motion RA: 83.082 mas/yr Proper Motion Dec: -269.803 mas/yr Parallax: 0.0444899" Epoch of Position: 2016.0	

Comments: DR3Name Gaia DR3 4781196115469953024
RAdeg 68.41609923470
DEdeg -51.95743117623
Plx 44.4899
pmRA 83.082
pmDE -269.803
Gmag 11.621160
Teff 3290.2

2MASS 04333970-5157222
RAJ2000 68.415442
DEJ2000 -51.956169
Jmag 9.099
Hmag 8.531
Kmag 8.251
Category=Star
Description=[M dwarfs]
Extended=NO

Acquisition

#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	Optional ETC ID
1	SAME	F1000W	FAST	8	1	1	1.272	197714

Template

Subarray	Obtain Verification Image?
SLITLESSPRISM	true

Dithers

#	Dither Type	No. Spectral Steps	Spectral Step Offset	No. Spatial Steps	Spatial Step Offset
1	NONE				

Pointing Verification

#	PV Readout Pattern	PV Groups/Int	PV Integrations/Exp	PV Total Integrations	PV Exposures/Dith	PV Total Dithers	PV Total Exposure Time	Optional ETC ID	Filter
1	FASTR1	8	1	1	1	1	1.272		F1000W

Spectral Elements

#	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Exposures/Dith	Total Dithers	Total Exposure Time	Optional ETC ID
1	FASTR1	21	5861	5861	1	1	20506.777	197714

Special Requirements

Between Dates 22-APR-2026:00:00:00 and 06-SEP-2027:00:00:00
Between Dates 08-SEP-2027:00:00:00 and 17-SEP-2027:00:00:00
Between Dates 19-SEP-2027:00:00:00 and 12-FEB-2028:00:00:00
Between Dates 14-FEB-2028:00:00:00 and 01-JUL-2028:00:00:00
Phase 0.9855319790006997 to 0.9898039790006996 with period 11.37965984 Days and zero-phase 2460346.977984 HJD
Aperture PA Range 4.83544897 to 145.83544897 Degrees (V3 0.0 to 141.0)
Aperture PA Range 172.83544897 to 325.83544897 Degrees (V3 168.0 to 321.0)
Aperture PA Range 349.83544897 to 4.83444897 Degrees (V3 345.0 to 359.999)
Time Series Observation
No Parallel Attachments

Observation

Proposal 12157, Observation 7: Transit

Mon May 11 17:00:43 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Low Resolution Spectroscopy

Diagnostics

(Transit (Obs 7)) Warning (Form): Exposure Duration exceeds the limit of 10000.0 seconds. Above this limit it is possible that a High Gain Antenna move may occur during the exposure.

(Visit 7:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(4)	TOI-270	RA: 04 33 39.8638 (68.4160992d) Dec: -51 57 26.75 (-51.95743d) Equinox: J2000	Proper Motion RA: 83.082 mas/yr Proper Motion Dec: -269.803 mas/yr Parallax: 0.0444899" Epoch of Position: 2016.0	

Comments: DR3Name Gaia DR3 4781196115469953024
RAdeg 68.41609923470
DEdeg -51.95743117623
Plx 44.4899
pmRA 83.082
pmDE -269.803
Gmag 11.621160
Teff 3290.2

2MASS 04333970-5157222
RAJ2000 68.415442
DEJ2000 -51.956169
Jmag 9.099
Hmag 8.531
Kmag 8.251
Category=Star
Description=[M dwarfs]
Extended=NO

Acquisition

#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	Optional ETC ID
1	SAME	F1000W	FAST	8	1	1	1.272	197714

Template

Subarray	Obtain Verification Image?
SLITLESSPRISM	true

Dithers

#	Dither Type	No. Spectral Steps	Spectral Step Offset	No. Spatial Steps	Spatial Step Offset
1	NONE				

Pointing Verification

#	PV Readout Pattern	PV Groups/Int	PV Integrations/Exp	PV Total Integrations	PV Exposures/Dith	PV Total Dithers	PV Total Exposure Time	Optional ETC ID	Filter
1	FASTR1	8	1	1	1	1	1.272		F1000W

Spectral Elements

#	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Exposures/Dith	Total Dithers	Total Exposure Time	Optional ETC ID
1	FASTR1	21	5118	5118	1	1	17907.109	197714

Special Requirements

Between Dates 22-APR-2026:00:00:00 and 15-NOV-2026:00:00:00
Between Dates 17-NOV-2026:00:00:00 and 18-JUN-2027:00:00:00
Between Dates 20-JUN-2027:00:00:00 and 25-AUG-2027:00:00:00
Between Dates 27-AUG-2027:00:00:00 and 06-SEP-2027:00:00:00
Between Dates 08-SEP-2027:00:00:00 and 17-SEP-2027:00:00:00
Between Dates 19-SEP-2027:00:00:00 and 04-OCT-2027:00:00:00
Between Dates 06-OCT-2027:00:00:00 and 19-JAN-2028:00:00:00
Between Dates 21-JAN-2028:00:00:00 and 06-MAY-2028:00:00:00
Between Dates 08-MAY-2028:00:00:00 and 01-JUL-2028:00:00:00
Phase 0.9764876244298818 to 0.9839220895608654 with period 5.6605731 Days and zero-phase 2460551.810495 HJD
Aperture PA Range 4.83544897 to 145.83544897 Degrees (V3 0.0 to 141.0)
Aperture PA Range 172.83544897 to 325.83544897 Degrees (V3 168.0 to 321.0)
Aperture PA Range 349.83544897 to 4.83444897 Degrees (V3 345.0 to 359.999)
Time Series Observation
No Parallel Attachments

Observation

Proposal 12157, Observation 9: Transit

Mon May 11 17:00:43 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Low Resolution Spectroscopy

Diagnostics

(Transit (Obs 9)) Warning (Form): Exposure Duration exceeds the limit of 10000.0 seconds. Above this limit it is possible that a High Gain Antenna move may occur during the exposure.

(Visit 9:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(4)	TOI-270	RA: 04 33 39.8638 (68.4160992d) Dec: -51 57 26.75 (-51.95743d) Equinox: J2000	Proper Motion RA: 83.082 mas/yr Proper Motion Dec: -269.803 mas/yr Parallax: 0.0444899" Epoch of Position: 2016.0	

Comments: DR3Name Gaia DR3 4781196115469953024
RAdeg 68.41609923470
DEdeg -51.95743117623
Plx 44.4899
pmRA 83.082
pmDE -269.803
Gmag 11.621160
Teff 3290.2

2MASS 04333970-5157222
RAJ2000 68.415442
DEJ2000 -51.956169
Jmag 9.099
Hmag 8.531
Kmag 8.251
Category=Star
Description=[M dwarfs]
Extended=NO

Acquisition

#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	Optional ETC ID
1	SAME	F1000W	FAST	8	1	1	1.272	197714

Template

Subarray	Obtain Verification Image?
SLITLESSPRISM	true

Dithers

#	Dither Type	No. Spectral Steps	Spectral Step Offset	No. Spatial Steps	Spatial Step Offset
1	NONE				

Pointing Verification

#	PV Readout Pattern	PV Groups/Int	PV Integrations/Exp	PV Total Integrations	PV Exposures/Dith	PV Total Dithers	PV Total Exposure Time	Optional ETC ID	Filter
1	FASTR1	8	1	1	1	1	1.272		F1000W

Spectral Elements

#	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Exposures/Dith	Total Dithers	Total Exposure Time	Optional ETC ID
1	FASTR1	21	5118	5118	1	1	17907.109	197714

Special Requirements

Between Dates 22-APR-2026:00:00:00 and 15-NOV-2026:00:00:00
Between Dates 17-NOV-2026:00:00:00 and 18-JUN-2027:00:00:00
Between Dates 20-JUN-2027:00:00:00 and 25-AUG-2027:00:00:00
Between Dates 27-AUG-2027:00:00:00 and 06-SEP-2027:00:00:00
Between Dates 08-SEP-2027:00:00:00 and 17-SEP-2027:00:00:00
Between Dates 19-SEP-2027:00:00:00 and 04-OCT-2027:00:00:00
Between Dates 06-OCT-2027:00:00:00 and 19-JAN-2028:00:00:00
Between Dates 21-JAN-2028:00:00:00 and 06-MAY-2028:00:00:00
Between Dates 08-MAY-2028:00:00:00 and 01-JUL-2028:00:00:00
Phase 0.9764876244298818 to 0.9839220895608654 with period 5.6605731 Days and zero-phase 2460551.810495 HJD
Aperture PA Range 4.83544897 to 145.83544897 Degrees (V3 0.0 to 141.0)
Aperture PA Range 172.83544897 to 325.83544897 Degrees (V3 168.0 to 321.0)
Aperture PA Range 349.83544897 to 4.83444897 Degrees (V3 345.0 to 359.999)
Time Series Observation
No Parallel Attachments

Observation

Proposal 12157, Observation 11: Transit

Mon May 11 17:00:43 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Low Resolution Spectroscopy

Diagnostics

(Transit (Obs 11)) Warning (Form): Exposure Duration exceeds the limit of 10000.0 seconds. Above this limit it is possible that a High Gain Antenna move may occur during the exposure.

(Visit 11:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(2)	GJ9827	RA: 23 27 5.2388 (351.7718283d) Dec: -01 17 7.13 (-1.28531d) Equinox: J2000	Proper Motion RA: 375.977 mas/yr Proper Motion Dec: 215.870 mas/yr Parallax: 0.0337247" Epoch of Position: 2016.0	

Comments: DR3Name Gaia DR3 2643842302456085888
RAdeg 351.77182847413
DEdeg -1.28531353557
Plx 33.7247
pmRA 375.977
pmDE 215.870
Gmag 9.840704
Teff 4182.0

2MASS 23270480-0117108
RAJ2000 351.770000
DEJ2000 -1.286352
Jmag 7.984
Hmag 7.379
Kmag 7.193
Category=Star
Description=[M dwarfs]
Extended=NO

Acquisition

#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	Optional ETC ID
1	SAME	F1000W	FAST	4	1	1	0.636	197714

Template

Subarray	Obtain Verification Image?
SLITLESSPRISM	true

Dithers

#	Dither Type	No. Spectral Steps	Spectral Step Offset	No. Spatial Steps	Spatial Step Offset
1	NONE				

Pointing Verification

#	PV Readout Pattern	PV Groups/Int	PV Integrations/Exp	PV Total Integrations	PV Exposures/Dith	PV Total Dithers	PV Total Exposure Time	Optional ETC ID	Filter
1	FASTR1	8	1	1	1	1	1.272		F1500W

Spectral Elements

#	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Exposures/Dith	Total Dithers	Total Exposure Time	Optional ETC ID
1	FASTR1	10	8999	8999	1	1	15743.052	197714

Special Requirements

Between Dates 08-MAY-2026:00:00:00 and 16-JUL-2026:00:00:00
Between Dates 18-JUL-2026:00:00:00 and 01-JUL-2028:00:00:00
Phase 0.9796482797461573 to 0.9874862797461573 with period 6.201830 Days and zero-phase 2460265.10196 HJD
Aperture PA Range 67.83544897 to 68.83544897 Degrees (V3 63.0 to 64.0)
Aperture PA Range 244.83544897 to 245.83544897 Degrees (V3 240.0 to 241.0)
Time Series Observation
No Parallel Attachments

Observation

Proposal 12157, Observation 13: Transit

Mon May 11 17:00:43 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Low Resolution Spectroscopy

Diagnostics

(Transit (Obs 13)) Warning (Form): Exposure Duration exceeds the limit of 10000.0 seconds. Above this limit it is possible that a High Gain Antenna move may occur during the exposure.

(Visit 13:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(2)	GJ9827	RA: 23 27 5.2388 (351.7718283d) Dec: -01 17 7.13 (-1.28531d) Equinox: J2000	Proper Motion RA: 375.977 mas/yr Proper Motion Dec: 215.870 mas/yr Parallax: 0.0337247" Epoch of Position: 2016.0	

Comments: DR3Name Gaia DR3 2643842302456085888
RAdeg 351.77182847413
DEdeg -1.28531353557
Plx 33.7247
pmRA 375.977
pmDE 215.870
Gmag 9.840704
Teff 4182.0

2MASS 23270480-0117108
RAJ2000 351.770000
DEJ2000 -1.286352
Jmag 7.984
Hmag 7.379
Kmag 7.193
Category=Star
Description=[M dwarfs]
Extended=NO

Acquisition

#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	Optional ETC ID
1	SAME	F1000W	FAST	4	1	1	0.636	197714

Template

Subarray	Obtain Verification Image?
SLITLESSPRISM	true

Dithers

#	Dither Type	No. Spectral Steps	Spectral Step Offset	No. Spatial Steps	Spatial Step Offset
1	NONE				

Pointing Verification

#	PV Readout Pattern	PV Groups/Int	PV Integrations/Exp	PV Total Integrations	PV Exposures/Dith	PV Total Dithers	PV Total Exposure Time	Optional ETC ID	Filter
1	FASTR1	8	1	1	1	1	1.272		F1500W

Spectral Elements

#	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Exposures/Dith	Total Dithers	Total Exposure Time	Optional ETC ID
1	FASTR1	10	8999	8999	1	1	15743.052	197714

Special Requirements

Between Dates 08-MAY-2026:00:00:00 and 16-JUL-2026:00:00:00
Between Dates 18-JUL-2026:00:00:00 and 01-JUL-2028:00:00:00
Phase 0.9796482797461573 to 0.9874862797461573 with period 6.201830 Days and zero-phase 2460265.10196 HJD
Aperture PA Range 67.83544897 to 68.83544897 Degrees (V3 63.0 to 64.0)
Aperture PA Range 244.83544897 to 245.83544897 Degrees (V3 240.0 to 241.0)
Time Series Observation
No Parallel Attachments

Observation

Proposal 12157, Observation 15: Transit

Mon May 11 17:00:43 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Low Resolution Spectroscopy

Diagnostics

(Transit (Obs 15)) Warning (Form): Exposure Duration exceeds the limit of 10000.0 seconds. Above this limit it is possible that a High Gain Antenna move may occur during the exposure.

(Visit 15:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(3)	GJ3090	RA: 01 21 45.2173 (20.4384054d) Dec: -46 42 53.04 (-46.71473d) Equinox: J2000	Proper Motion RA: -111.08929387948497 mas/yr Proper Motion Dec: -79.95397168145395 mas/yr Parallax: 0.04453483319805842" Epoch of Position: 2016.0	

Comments: DR3Name Gaia DR3 4933912198895807104
RAdeg 20.43840559562
DEdeg -46.71473451693
pmRA -111.089
pmDE -79.954

2MASS 01214538-4642518
Jmag 8.168
Hmag 7.536
Kmag 7.294
Category=Star
Description=[M dwarfs]
Extended=NO

Acquisition

#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	Optional ETC ID
1	SAME	F1000W	FAST	4	1	1	0.636	197714

Template

Subarray	Obtain Verification Image?
SLITLESSPRISM	true

Dithers

#	Dither Type	No. Spectral Steps	Spectral Step Offset	No. Spatial Steps	Spatial Step Offset
1	NONE				

Pointing Verification

#	PV Readout Pattern	PV Groups/Int	PV Integrations/Exp	PV Total Integrations	PV Exposures/Dith	PV Total Dithers	PV Total Exposure Time	Optional ETC ID	Filter
1	FASTR1	8	1	1	1	1	1.272		F1500W

Spectral Elements

#	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Exposures/Dith	Total Dithers	Total Exposure Time	Optional ETC ID
1	FASTR1	10	8881	8881	1	1	15536.618	197714

Special Requirements

Phase 0.9569702992975536 to 0.9740072992975537 with period 2.8531054 Days and zero-phase 2460159.312806 HJD
Aperture PA Range 4.83544897 to 17.83544897 Degrees (V3 0.0 to 13.0)
Aperture PA Range 64.83544897 to 199.83544897 Degrees (V3 60.0 to 195.0)
Aperture PA Range 244.83544897 to 4.83444897 Degrees (V3 240.0 to 359.999)
Time Series Observation
No Parallel Attachments

Observation

Proposal 12157, Observation 17: Transit

Mon May 11 17:00:43 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Low Resolution Spectroscopy

Diagnostics

(Transit (Obs 17)) Warning (Form): Exposure Duration exceeds the limit of 10000.0 seconds. Above this limit it is possible that a High Gain Antenna move may occur during the exposure.

(Visit 17:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(3)	GJ3090	RA: 01 21 45.2173 (20.4384054d) Dec: -46 42 53.04 (-46.71473d) Equinox: J2000	Proper Motion RA: -111.08929387948497 mas/yr Proper Motion Dec: -79.95397168145395 mas/yr Parallax: 0.04453483319805842" Epoch of Position: 2016.0	

Comments: DR3Name Gaia DR3 4933912198895807104
RAdeg 20.43840559562
DEdeg -46.71473451693
pmRA -111.089
pmDE -79.954

2MASS 01214538-4642518
Jmag 8.168
Hmag 7.536
Kmag 7.294
Category=Star
Description=[M dwarfs]
Extended=NO

Acquisition

#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	Optional ETC ID
1	SAME	F1000W	FAST	4	1	1	0.636	197714

Template

Subarray	Obtain Verification Image?
SLITLESSPRISM	true

Dithers

#	Dither Type	No. Spectral Steps	Spectral Step Offset	No. Spatial Steps	Spatial Step Offset
1	NONE				

Pointing Verification

#	PV Readout Pattern	PV Groups/Int	PV Integrations/Exp	PV Total Integrations	PV Exposures/Dith	PV Total Dithers	PV Total Exposure Time	Optional ETC ID	Filter
1	FASTR1	8	1	1	1	1	1.272		F1500W

Spectral Elements

#	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Exposures/Dith	Total Dithers	Total Exposure Time	Optional ETC ID
1	FASTR1	10	8881	8881	1	1	15536.618	197714

Special Requirements

Phase 0.9569702992975536 to 0.9740072992975537 with period 2.8531054 Days and zero-phase 2460159.312806 HJD
Aperture PA Range 4.83544897 to 17.83544897 Degrees (V3 0.0 to 13.0)
Aperture PA Range 64.83544897 to 199.83544897 Degrees (V3 60.0 to 195.0)
Aperture PA Range 244.83544897 to 4.83444897 Degrees (V3 240.0 to 359.999)
Time Series Observation
No Parallel Attachments