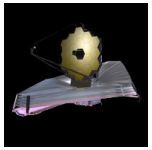

5857 - Constraining the volatile budget in the birthplace of TRAPPIST-1-like systems

Cycle: 3, Proposal Category: GO

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OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
Observation Folder				
	1	J15421455-3410256 NIRSpec	NIRSpec IFU Spectroscopy	(1) J15421455-3410256

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
	2	J153848.3-344038 NIRSpec	NIRSpec IFU Spectroscopy	(2) J153848.3-344038
	3	J16011549-4152351 NIRSpec	NIRSpec IFU Spectroscopy	(3) J16011549-4152351
	4	J11042275-7718080 NIRSpec	NIRSpec IFU Spectroscopy	(4) J11042275-7718080
	5	J11071622-7723068 NIRSpec	NIRSpec IFU Spectroscopy	(5) J11071622-7723068
	6	J125701.5-764834 NIRSpec	NIRSpec IFU Spectroscopy	(6) J125701.5-764834
	7	IRAM04191+1522 NIRSpec	NIRSpec IFU Spectroscopy	(7) IRAM04191+1522
	8	1521F-IRS NIRSpec	NIRSpec IFU Spectroscopy	(8) 1521F-IRS
	9	J041412.3+280837 NIRSpec	NIRSpec IFU Spectroscopy	(9) J041412.3+280837

ABSTRACT

JWST observations demonstrate that rocky planets around M dwarfs, such as those of TRAPPIST-1 system, have little or no atmosphere. The reason for this could be that they either have experienced significant atmospheric loss or that their initial volatile inventory was smaller. We propose to break this degeneracy by studying the volatile budget in the birthplaces of TRAPPIST-1-like systems. While many GO and GTO programs target the ice budget of solar-type protostars, the inventories of icy volatiles around very low luminosity protostellar systems, potential TRAPPIST-1 precursors, are vastly unexplored. Through the study of ices in 9 very low-luminosity protostellar systems across different star forming regions, we will examine whether there are any systematic differences in the initial volatile inventory between the very low luminosity systems and their higher luminosity counterparts.

OBSERVING DESCRIPTION

We propose to target 9 very low-luminosity protostellar systems to assess whether there is any difference between their volatile budget compared with their higher-luminosity counterparts. Our observations include G395M/F290LP and G235M/F170LP filter combination to include the entire 1.6 to 5 microns range which includes all the main oxygen and carbon carriers in ices.

For almost all sources we use the readout pattern NRSIRS2RAPID for optimisation of S/N. For one source we use NRSRAPID to avoid saturation while including more groups for better efficiency. Integration times are designed to include a minimum of S/N~50 on the continuum which results in detection of the water ice band at a S/N >3.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	J15421455-3410256	RA: 15 42 14.5530 (235.5606375d) Dec: -34 10 25.64 (-34.17379d) Equinox: J2000	Epoch of Position: 2000	
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *Category=Star* *Description=[Young stellar objects]* *Extended=YES*				
(2)	J153848.3-344038	RA: 15 38 48.3000 (234.7012500d) Dec: -34 40 38.00 (-34.67722d) Equinox: J2000	Epoch of Position: 2000	
Comments: *Category=Star* *Description=[Young stellar objects]* *Extended=YES*				
(3)	J16011549-4152351	RA: 16 01 15.4922 (240.3145508d) Dec: -41 52 35.19 (-41.87644d) Equinox: J2000	Epoch of Position: 2000	
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *Category=Star* *Description=[Young stellar objects]* *Extended=YES*				
(4)	J11042275-7718080	RA: 11 04 22.7592 (166.0948300d) Dec: -77 18 8.09 (-77.30225d) Equinox: J2000	Epoch of Position: 2000	
Comments: This object was generated by the targetselector and retrieved from the 2MASS database. *Category=Star* *Description=[Young stellar objects]* *Extended=YES*				
(5)	J11071622-7723068	RA: 11 07 16.2278 (166.8176158d) Dec: -77 23 6.83 (-77.38523d) Equinox: J2000	Epoch of Position: 2000	
Comments: This object was generated by the targetselector and retrieved from the 2MASS database. *Category=Star* *Description=[Young stellar objects]* *Extended=YES*				
(6)	J125701.5-764834	RA: 12 57 1.5800 (194.2565833d) Dec: -76 48 34.90 (-76.80969d) Equinox: J2000	Epoch of Position: 2000	
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *Category=Star* *Description=[Young stellar objects]* *Extended=YES*				
(7)	IRAM04191+1522	RA: 04 21 56.9030 (65.4870958d) Dec: +15 29 46.15 (15.49615d) Equinox: J2000	Epoch of Position: 2000	
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *Category=Star* *Description=[Young stellar objects]* *Extended=YES*				

	(8)	1521F-IRS	RA: 04 28 38.9600 (67.1623333d) Dec: +26 51 35.00 (26.85972d) Equinox: J2000	Epoch of Position: 2000
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *Category=Star* *Description=[Young stellar objects]* *Extended=YES*			
	(9)	J041412.3+280837	RA: 04 14 12.2894 (63.5512058d) Dec: +28 08 37.17 (28.14366d) Equinox: J2000	Epoch of Position: 2000
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *Category=Star* *Description=[Young stellar objects]* *Extended=YES*			

Observation

Proposal 5857, Observation 1: J15421455-3410256 NIRSpec

Fri Mar 01 04:04:02 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRSpec IFU Spectroscopy

Diagnostics

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	J15421455-3410256	RA: 15 42 14.5530 (235.5606375d) Dec: -34 10 25.64 (-34.17379d) Equinox: J2000	Epoch of Position: 2000	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[Young stellar objects]
Extended=YES

Template

TA Method
NONE

Dithers

#	Dither Type	Size	Starting Point	Number of Points	Points
1	4-POINT-DITHER				

Spectral Elements

#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Leakcal	Dither	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	G395M/F290LP	NRSIRS2RAPID	30	1	false	true	NONE	4	4	1809.022	172909
2	G235M/F170LP	NRSIRS2RAPID	30	1	false	true	NONE	4	4	1809.022	

Observation

Proposal 5857, Observation 2: J153848.3-344038 NIRSpec Fri Mar 01 04:04:02 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRSpec IFU Spectroscopy

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
(2)	J153848.3-344038	RA: 15 38 48.3000 (234.7012500d) Dec: -34 40 38.00 (-34.67722d) Equinox: J2000	Epoch of Position: 2000	

Comments:
Category=Star
Description=[Young stellar objects]
Extended=YES

Template

TA Method
NONE

Dithers

#	Dither Type	Size	Starting Point	Number of Points	Points
1	4-POINT-DITHER				

Spectral Elements

#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Leakcal	Dither	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	G395M/F290LP	NRSIRS2RAPID	25	1	false	true	NONE	4	4	1517.245	
2	G235M/F170LP	NRSIRS2RAPID	25	1	false	true	NONE	4	4	1517.245	

Observation

Proposal 5857, Observation 3: J16011549-4152351 NIRSpec

Fri Mar 01 04:04:02 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRSpec IFU Spectroscopy

Diagnostics

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(3)	J16011549-4152351	RA: 16 01 15.4922 (240.3145508d) Dec: -41 52 35.19 (-41.87644d) Equinox: J2000	Epoch of Position: 2000	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[Young stellar objects]
Extended=YES

Template

TA Method
NONE

Dithers

#	Dither Type	Size	Starting Point	Number of Points	Points
1	4-POINT-DITHER				

Spectral Elements

#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Leakcal	Dither	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	G395M/F290LP	NRSIRS2RAPID	20	1	false	true	NONE	4	4	1225.467	
2	G235M/F170LP	NRSIRS2RAPID	20	1	false	true	NONE	4	4	1225.467	

Observation

Proposal 5857, Observation 4: J11042275-7718080 NIRSpec

Fri Mar 01 04:04:02 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRSpec IFU Spectroscopy

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
(4)	J11042275-7718080	RA: 11 04 22.7592 (166.0948300d) Dec: -77 18 8.09 (-77.30225d) Equinox: J2000	Epoch of Position: 2000	

Comments: This object was generated by the targetselector and retrieved from the 2MASS database.
Category=Star
Description=[Young stellar objects]
Extended=YES

Template

TA Method
NONE

Dithers

#	Dither Type	Size	Starting Point	Number of Points	Points
1	4-POINT-DITHER				

Spectral Elements

#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Leakcal	Dither	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	G395M/F290LP	NRSIRS2RAPID	9	1	false	true	NONE	4	4	583.556	
2	G235M/F170LP	NRSIRS2RAPID	9	1	false	true	NONE	4	4	583.556	

Observation

Proposal 5857, Observation 5: J11071622-7723068 NIRSpec Fri Mar 01 04:04:02 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRSpec IFU Spectroscopy

Diagnostics

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(5)	J11071622-7723068	RA: 11 07 16.2278 (166.8176158d) Dec: -77 23 6.83 (-77.38523d) Equinox: J2000	Epoch of Position: 2000	

Comments: This object was generated by the targetselector and retrieved from the 2MASS database.
Category=Star
Description=[Young stellar objects]
Extended=YES

Template

TA Method
NONE

Dithers

#	Dither Type	Size	Starting Point	Number of Points	Points
1	4-POINT-DITHER				

Spectral Elements

#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Leakcal	Dither	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	G395M/F290LP	NRSRAPID	4	1	false	true	NONE	4	4	214.735	
2	G235M/F170LP	NRSRAPID	4	1	false	true	NONE	4	4	214.735	

Observation

Proposal 5857, Observation 6: J125701.5-764834 NIRSpec

Fri Mar 01 04:04:02 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRSpec IFU Spectroscopy

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)	J125701.5-764834	RA: 12 57 1.5800 (194.2565833d) Dec: -76 48 34.90 (-76.80969d) Equinox: J2000	Epoch of Position: 2000	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[Young stellar objects]
Extended=YES

Template

TA Method
NONE

Dithers

#	Dither Type	Size	Starting Point	Number of Points	Points
1	4-POINT-DITHER				

Spectral Elements

#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Leakcal	Dither	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	G395M/F290LP	NRSIRS2RAPID	30	1	false	true	NONE	4	4	1809.022	
2	G235M/F170LP	NRSIRS2RAPID	30	1	false	true	NONE	4	4	1809.022	

Observation

Proposal 5857, Observation 7: IRAM04191+1522 NIRSpec Fri Mar 01 04:04:02 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRSpec IFU Spectroscopy

Diagnostics

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(7)	IRAM04191+1522	RA: 04 21 56.9030 (65.4870958d) Dec: +15 29 46.15 (15.49615d) Equinox: J2000	Epoch of Position: 2000	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[Young stellar objects]
Extended=YES

Template

TA Method
NONE

Dithers

#	Dither Type	Size	Starting Point	Number of Points	Points
1	4-POINT-DITHER				

Spectral Elements

#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Leakcal	Dither	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	G395M/F290LP	NRSIRS2RAPID	40	1	false	true	NONE	4	4	2392.578	
2	G235M/F170LP	NRSIRS2RAPID	40	1	false	true	NONE	4	4	2392.578	

Observation

Proposal 5857, Observation 8: 1521F-IRS NIRSpec

Fri Mar 01 04:04:02 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRSpec IFU Spectroscopy

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
(8)	1521F-IRS	RA: 04 28 38.9600 (67.1623333d) Dec: +26 51 35.00 (26.85972d) Equinox: J2000	Epoch of Position: 2000	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[Young stellar objects]
Extended=YES

Template

TA Method
NONE

Dithers

#	Dither Type	Size	Starting Point	Number of Points	Points
1	4-POINT-DITHER				

Spectral Elements

#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Leakcal	Dither	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	G395M/F290LP	NRSIRS2RAPID	40	1	false	true	NONE	4	4	2392.578	
2	G235M/F170LP	NRSIRS2RAPID	40	1	false	true	NONE	4	4	2392.578	

Observation

Proposal 5857, Observation 9: J041412.3+280837 NIRSpec

Fri Mar 01 04:04:02 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRSpec IFU Spectroscopy

Diagnostics

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(9)	J041412.3+280837	RA: 04 14 12.2894 (63.5512058d) Dec: +28 08 37.17 (28.14366d) Equinox: J2000	Epoch of Position: 2000	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[Young stellar objects]
Extended=YES

Template

TA Method
NONE

Dithers

#	Dither Type	Size	Starting Point	Number of Points	Points
1	4-POINT-DITHER				

Spectral Elements

#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Leakcal	Dither	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	G395M/F290LP	NRSIRS2RAPID	30	1	false	true	NONE	4	4	1809.022	
2	G235M/F170LP	NRSIRS2RAPID	30	1	false	true	NONE	4	4	1809.022	