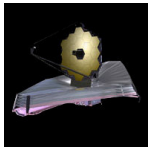

1331 - Transit Spectroscopy of TRAPPIST-1e

Cycle: 1, Proposal Category: GTO

INVESTIGATORS

Name	*Institution*
Dr. Nikole Lewis (PI)	**Cornell University**
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Dr. Mark Clampin (CoI)	NASA Goddard Space Flight Center
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Dr. Jeff A. Valenti (CoI)	Space Telescope Science Institute
Dr. Kevin Stevenson (CoI)	The Johns Hopkins University Applied Physics Laboratory

OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
TRAPPIST-1e				
	1	Prism Transit 1	NIRSpec Bright Object Time Series	(1) TRAPPIST-1
	2	Prism Transit 2	NIRSpec Bright Object Time Series	(1) TRAPPIST-1
	3	Prism Transit 3	NIRSpec Bright Object Time Series	(1) TRAPPIST-1
	4	Prism Transit 4	NIRSpec Bright Object Time Series	(1) TRAPPIST-1
	104	Prism Transit 4	NIRSpec Bright Object Time Series	(1) TRAPPIST-1

ABSTRACT

We will construct the transmission spectra of this planet. Transmission studies will be conducted from 0.6-5 microns using four transit observations (when the planet passes in front of the host star). The transmission for this planets atmosphere will be obtained using NIRSpec SLIT1600 Prism.

OBSERVING DESCRIPTION

Ephemeris from Updated to Values from Agol et al. 2021

Transit duration = 0.9293±0.0043 hours

Center of transit time = 2457257.82771±0.00041 BJD_TDB

Orbital Period = 6.101013±0.000035

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	TRAPPIST-1	RA: 23 06 30.3652 (346.6265217d)	Proper Motion RA: 930.788 mas/yr	
		Dec: -05 02 36.70 (-5.04353d)	Proper Motion Dec: -479.038 mas/yr	
		Equinox: J2000	Parallax: 0.0802123"	
			Epoch of Position: 2016	

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

Updated based on Astrometry from Gaia DR3
Category=Star
Description=[Exoplanets, M dwarfs]
Extended=NO

Observation

Proposal 1331, Observation 1: Prism Transit 1 Tue Aug 29 23:00:27 GMT 2023

Diagnostic Status: Warning

Observing Template: NIRSpec Bright Object Time Series

Comments: 2021-11-02 05:29:18.407881 d at -2 minutes.
2021-11-08 07:52:53.870213 b at +91 minutes.
2021-11-14 10:16:20.087723 b at +11 minutes. d at -76 minutes.
2021-11-20 12:44:09.306810 b at -75 minutes.
2021-11-26 15:07:03.037847
2021-12-02 17:30:44.634511
2021-12-08 19:57:58.170348
2022-06-03 16:58:16.917520
2022-06-09 19:19:12.021680
2022-06-15 21:41:12.876245
2022-06-22 00:00:47.023625
2022-06-28 02:22:12.540590
2022-07-04 04:43:15.334325
2022-07-10 07:03:48.665700
2022-07-16 09:23:59.878670
2022-07-22 11:46:08.941247
2022-10-28 01:27:29.774337
2022-11-03 03:48:59.265492
2022-11-09 06:11:50.490971
2022-11-15 08:35:14.548485
2022-11-21 10:56:46.285972
2022-11-27 13:20:08.529021
2022-12-03 15:43:54.013697
2022-12-09 18:06:13.098349
2023-06-04 15:51:08.863148
2023-06-10 18:14:07.346523
2023-06-16 20:36:18.914647
2023-06-22 23:02:22.812434
2023-06-29 01:25:00.991769
2023-07-05 03:47:05.388753
2023-07-11 06:12:18.051342
2023-07-17 08:35:06.425916
2023-10-29 00:53:49.223940
2023-11-04 03:16:59.371037

Diagnostics

(Prism Transit 1 (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.

(Prism Transit 1 (Obs 1)) Warning (Form): Record ETC Wkbk.Calc ID used to verify target acquisition.

(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)	TRAPPIST-1	RA: 23 06 30.3652 (346.6265217d)	Proper Motion RA: 930.788 mas/yr	
		Dec: -05 02 36.70 (-5.04353d)	Proper Motion Dec: -479.038 mas/yr	
		Equinox: J2000	Parallax: 0.0802123"	
			Epoch of Position: 2016	

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

Updated based on Astrometry from Gaia DR3
Category=Star
Description=[Exoplanets, M dwarfs]
Extended=NO

Acquisition

#	Target	TA Method	Subarray	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	SAME	WATA	SUB32	F110W	NRSRAPID	3	1	1	0.08	

Template

Subarray
SUB512

Spectral Elements

#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	PRISM/CLEAR	NRSRAPID	5	10497	1	1	10497	14458.988	

Special Requirements

Between Dates 21-NOV-2021:00:00:00 and 16-JUL-2023:00:00:00
Between Dates 18-JUL-2023:00:00:00 and 05-NOV-2023:00:00:00
Phase 0.9828665261 to 0.9896975297 with period 6.09964055227565 Days and zero-phase 2459856.16714253 HJD
Time Series Observation
No Parallel Attachments

Observation

Proposal 1331, Observation 2: Prism Transit 2 Tue Aug 29 23:00:27 GMT 2023

Diagnostic Status: Warning

Observing Template: NIRSpec Bright Object Time Series

Comments: 2021-11-02 05:29:18.407881 d at -2 minutes.
2021-11-08 07:52:53.870213 b at +91 minutes.
2021-11-14 10:16:20.087723 b at +11 minutes. d at -76 minutes.
2021-11-20 12:44:09.306810 b at -75 minutes.
2021-11-26 15:07:03.037847
2021-12-02 17:30:44.634511
2021-12-08 19:57:58.170348
2022-06-03 16:58:16.917520
2022-06-09 19:19:12.021680
2022-06-15 21:41:12.876245
2022-06-22 00:00:47.023625
2022-06-28 02:22:12.540590
2022-07-04 04:43:15.334325
2022-07-10 07:03:48.665700
2022-07-16 09:23:59.878670
2022-07-22 11:46:08.941247
2022-10-28 01:27:29.774337
2022-11-03 03:48:59.265492
2022-11-09 06:11:50.490971
2022-11-15 08:35:14.548485
2022-11-21 10:56:46.285972
2022-11-27 13:20:08.529021
2022-12-03 15:43:54.013697
2022-12-09 18:06:13.098349
2023-06-04 15:51:08.863148
2023-06-10 18:14:07.346523
2023-06-16 20:36:18.914647
2023-06-22 23:02:22.812434
2023-06-29 01:25:00.991769
2023-07-05 03:47:05.388753
2023-07-11 06:12:18.051342
2023-07-17 08:35:06.425916
2023-10-29 00:53:49.223940
2023-11-04 03:16:59.371037

Diagnostics

(Prism Transit 2 (Obs 2)) 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.

(Prism Transit 2 (Obs 2)) Warning (Form): Record ETC Wkbk.Calc ID used to verify target acquisition.

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	TRAPPIST-1	RA: 23 06 30.3652 (346.6265217d)	Proper Motion RA: 930.788 mas/yr	
		Dec: -05 02 36.70 (-5.04353d)	Proper Motion Dec: -479.038 mas/yr	
		Equinox: J2000	Parallax: 0.0802123"	
			Epoch of Position: 2016	

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

Updated based on Astrometry from Gaia DR3
Category=Star
Description=[Exoplanets, M dwarfs]
Extended=NO

Acquisition

#	Target	TA Method	Subarray	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	SAME	WATA	SUB32	F110W	NRSRAPID	3	1	1	0.08	

Template

Subarray
SUB512

Spectral Elements

#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	PRISM/CLEAR	NRSRAPID	5	10497	1	1	10497	14458.988	

Special Requirements

Between Dates 21-NOV-2021:00:00:00 and 16-JUL-2023:00:00:00
Between Dates 18-JUL-2023:00:00:00 and 05-NOV-2023:00:00:00
Phase 0.9828665261 to 0.9896975297 with period 6.09964055227565 Days and zero-phase 2459856.16714253 HJD
Time Series Observation
No Parallel Attachments

Observation

Proposal 1331, Observation 3: Prism Transit 3 Tue Aug 29 23:00:27 GMT 2023

Diagnostic Status: Warning

Observing Template: NIRSpec Bright Object Time Series

Comments: 2021-11-02 05:29:18.407881 d at -2 minutes.
2021-11-08 07:52:53.870213 b at +91 minutes.
2021-11-14 10:16:20.087723 b at +11 minutes. d at -76 minutes.
2021-11-20 12:44:09.306810 b at -75 minutes.
2021-11-26 15:07:03.037847
2021-12-02 17:30:44.634511
2021-12-08 19:57:58.170348
2022-06-03 16:58:16.917520
2022-06-09 19:19:12.021680
2022-06-15 21:41:12.876245
2022-06-22 00:00:47.023625
2022-06-28 02:22:12.540590
2022-07-04 04:43:15.334325
2022-07-10 07:03:48.665700
2022-07-16 09:23:59.878670
2022-07-22 11:46:08.941247
2022-10-28 01:27:29.774337
2022-11-03 03:48:59.265492
2022-11-09 06:11:50.490971
2022-11-15 08:35:14.548485
2022-11-21 10:56:46.285972
2022-11-27 13:20:08.529021
2022-12-03 15:43:54.013697
2022-12-09 18:06:13.098349
2023-06-04 15:51:08.863148
2023-06-10 18:14:07.346523
2023-06-16 20:36:18.914647
2023-06-22 23:02:22.812434
2023-06-29 01:25:00.991769
2023-07-05 03:47:05.388753
2023-07-11 06:12:18.051342
2023-07-17 08:35:06.425916
2023-10-29 00:53:49.223940
2023-11-04 03:16:59.371037

Diagnostics

(Prism Transit 3 (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.

(Prism Transit 3 (Obs 3)) Warning (Form): Record ETC Wkbk.Calc ID used to verify target acquisition.

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	TRAPPIST-1	RA: 23 06 30.3652 (346.6265217d)	Proper Motion RA: 930.788 mas/yr	
		Dec: -05 02 36.70 (-5.04353d)	Proper Motion Dec: -479.038 mas/yr	
		Equinox: J2000	Parallax: 0.0802123"	
			Epoch of Position: 2016	

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

Updated based on Astrometry from Gaia DR3
Category=Star
Description=[Exoplanets, M dwarfs]
Extended=NO

Acquisition

#	Target	TA Method	Subarray	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	SAME	WATA	SUB32	F110W	NRSRAPID	3	1	1	0.08	

Template

Subarray
SUB512

Spectral Elements

#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	PRISM/CLEAR	NRSRAPID	5	10497	1	1	10497	14458.988	

Special Requirements

Between Dates 21-NOV-2021:00:00:00 and 16-JUL-2023:00:00:00
Between Dates 18-JUL-2023:00:00:00 and 05-NOV-2023:00:00:00
Phase 0.9828665261 to 0.9896975297 with period 6.09964055227565 Days and zero-phase 2459856.16714253 HJD
Time Series Observation
No Parallel Attachments

Observation

Proposal 1331, Observation 4: Prism Transit 4 Tue Aug 29 23:00:27 GMT 2023

Diagnostic Status: Warning

Observing Template: NIRSpec Bright Object Time Series

Comments: 2021-11-02 05:29:18.407881 d at -2 minutes.
2021-11-08 07:52:53.870213 b at +91 minutes.
2021-11-14 10:16:20.087723 b at +11 minutes. d at -76 minutes.
2021-11-20 12:44:09.306810 b at -75 minutes.
2021-11-26 15:07:03.037847
2021-12-02 17:30:44.634511
2021-12-08 19:57:58.170348
2022-06-03 16:58:16.917520
2022-06-09 19:19:12.021680
2022-06-15 21:41:12.876245
2022-06-22 00:00:47.023625
2022-06-28 02:22:12.540590
2022-07-04 04:43:15.334325
2022-07-10 07:03:48.665700
2022-07-16 09:23:59.878670
2022-07-22 11:46:08.941247
2022-10-28 01:27:29.774337
2022-11-03 03:48:59.265492
2022-11-09 06:11:50.490971
2022-11-15 08:35:14.548485
2022-11-21 10:56:46.285972
2022-11-27 13:20:08.529021
2022-12-03 15:43:54.013697
2022-12-09 18:06:13.098349
2023-06-04 15:51:08.863148
2023-06-10 18:14:07.346523
2023-06-16 20:36:18.914647
2023-06-22 23:02:22.812434
2023-06-29 01:25:00.991769
2023-07-05 03:47:05.388753
2023-07-11 06:12:18.051342
2023-07-17 08:35:06.425916
2023-10-29 00:53:49.223940
2023-11-04 03:16:59.371037

Diagnostics

(Prism Transit 4 (Obs 4)) 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.

(Prism Transit 4 (Obs 4)) Warning (Form): Record ETC Wkbk.Calc ID used to verify target acquisition.

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	TRAPPIST-1	RA: 23 06 30.3652 (346.6265217d)	Proper Motion RA: 930.788 mas/yr	
		Dec: -05 02 36.70 (-5.04353d)	Proper Motion Dec: -479.038 mas/yr	
		Equinox: J2000	Parallax: 0.0802123"	
			Epoch of Position: 2016	

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

Updated based on Astrometry from Gaia DR3
Category=Star
Description=[Exoplanets, M dwarfs]
Extended=NO

Acquisition

#	Target	TA Method	Subarray	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	SAME	WATA	SUB32	F110W	NRSRAPID	3	1	1	0.08	

Template

Subarray
SUB512

Spectral Elements

#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	PRISM/CLEAR	NRSRAPID	5	10497	1	1	10497	14458.988	

Special Requirements

Between Dates 21-NOV-2021:00:00:00 and 16-JUL-2023:00:00:00
Between Dates 18-JUL-2023:00:00:00 and 05-NOV-2023:00:00:00
Phase 0.9828665261 to 0.9896975297 with period 6.09964055227565 Days and zero-phase 2459856.16714253 HJD
Time Series Observation
No Parallel Attachments

Observation

Proposal 1331, Observation 104: Prism Transit 4 Tue Aug 29 23:00:27 GMT 2023

Diagnostic Status: Warning

Observing Template: NIRSpec Bright Object Time Series

Comments: 2021-11-02 05:29:18.407881 d at -2 minutes.
2021-11-08 07:52:53.870213 b at +91 minutes.
2021-11-14 10:16:20.087723 b at +11 minutes. d at -76 minutes.
2021-11-20 12:44:09.306810 b at -75 minutes.
2021-11-26 15:07:03.037847
2021-12-02 17:30:44.634511
2021-12-08 19:57:58.170348
2022-06-03 16:58:16.917520
2022-06-09 19:19:12.021680
2022-06-15 21:41:12.876245
2022-06-22 00:00:47.023625
2022-06-28 02:22:12.540590
2022-07-04 04:43:15.334325
2022-07-10 07:03:48.665700
2022-07-16 09:23:59.878670
2022-07-22 11:46:08.941247
2022-10-28 01:27:29.774337
2022-11-03 03:48:59.265492
2022-11-09 06:11:50.490971
2022-11-15 08:35:14.548485
2022-11-21 10:56:46.285972
2022-11-27 13:20:08.529021
2022-12-03 15:43:54.013697
2022-12-09 18:06:13.098349
2023-06-04 15:51:08.863148
2023-06-10 18:14:07.346523
2023-06-16 20:36:18.914647
2023-06-22 23:02:22.812434
2023-06-29 01:25:00.991769
2023-07-05 03:47:05.388753
2023-07-11 06:12:18.051342
2023-07-17 08:35:06.425916
2023-10-29 00:53:49.223940
2023-11-04 03:16:59.371037

Diagnostics

(Prism Transit 4 (Obs 104)) 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.

(Prism Transit 4 (Obs 104)) Warning (Form): Record ETC Wkbk.Calc ID used to verify target acquisition.

(Visit 104:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	TRAPPIST-1	RA: 23 06 30.3652 (346.6265217d)	Proper Motion RA: 930.788 mas/yr	
		Dec: -05 02 36.70 (-5.04353d)	Proper Motion Dec: -479.038 mas/yr	
		Equinox: J2000	Parallax: 0.0802123"	
			Epoch of Position: 2016	

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

Updated based on Astrometry from Gaia DR3
Category=Star
Description=[Exoplanets, M dwarfs]
Extended=NO

Acquisition

#	Target	TA Method	Subarray	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	SAME	WATA	SUB32	F110W	NRSRAPID	3	1	1	0.08	

Template

Subarray
SUB512

Spectral Elements

#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	PRISM/CLEAR	NRSRAPID	5	10497	1	1	10497	14458.988	

Special Requirements

Between Dates 21-NOV-2021:00:00:00 and 16-JUL-2023:00:00:00
Between Dates 18-JUL-2023:00:00:00 and 05-NOV-2023:00:00:00
Phase 0.9828665261 to 0.9896975297 with period 6.09964055227565 Days and zero-phase 2459856.16714253 HJD
Time Series Observation
No Parallel Attachments