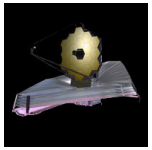

2498 - The Atmosphere of a 17Myr Old Hot Jupiter

Cycle: 1, Proposal Category: GO

INVESTIGATORS

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OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
Observation Folder				
	1	HIP67522b_transit	NIRSpec Bright Object Time Series	(1) HIP67522

ABSTRACT

Transmission spectroscopy measurements of exoplanets have rewritten our understanding of the atmospheres of giant planets. However, existing observations provide little direct information about how these atmospheres form or evolve, as the overwhelming majority of well-characterized systems are old or have unknown ages. We propose for JWST/NIRSpec BOTS transmission spectra of the recently-discovered young hot Jupiter, HIP 67522 b (17 Myr). The proposed transmission spectra of this young planet can be compared to the plethora of existing HST, and planned JWST data available on its older analogues, providing more direct constraints on the origins of features seen in mature hot Jupiters. Since the planet retains its natal atmosphere, we can detect chemical patterns that reveal where the planet formed in the disk. Thus, HIP 67522 b offers an exceptional window into the formation and early evolution of planetary systems.

OBSERVING DESCRIPTION

We propose to take a single NIRSpec BOTS transit spectrum of the young hot-Jupiter HIP67522 b in the G395H/F290LP filter/disperser combination. The target is quite bright, so a nearby acquisition source is selected also.

The transit is ~5 hours long, and we require 1 hour on each side for out-of-transit baseline estimation. We have selected the number of observation groups that maximises ths SNR without exceeding 50% of the full-well depth in any pixel, and also set the number of integrations to span the ~7 hour window.

Proposal 2498 - Targets - The Atmosphere of a 17Myr Old Hot Jupiter

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	HIP67522	RA: 13 50 6.2402 (207.5260008d) Dec: -40 50 9.23 (-40.83590d) Equinox: J2000	Proper Motion RA: -0.002541505982966705 sec of time/yr Proper Motion Dec: -0.022425000020120933 arcsec/yr Epoch of Position: 2015.5	
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *Category=Star* *Description=[G dwarfs]* *Extended=NO*				
(2)	GAIADR36113920619134017152	RA: 13 50 5.9913 (207.5249637d) Dec: -40 50 43.54 (-40.84543d) Equinox: J2000	Proper Motion RA: 5.130 mas/yr Proper Motion Dec: -5.118 mas/yr Epoch of Position: 2016.0	
Comments: This star is to be used as acquisition for Hip67522, which is too bright for WATA mode *Category=Star* *Description=[K dwarfs]*				

Observation

Proposal 2498, Observation 1: HIP67522b_transit

Wed Jan 25 17:02:08 GMT 2023

Diagnostic Status: Warning

Observing Template: NIRSpec Bright Object Time Series

Comments: This is a transit spectroscopy time series

Diagnostics

(HIP67522b_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
(1)	HIP67522	RA: 13 50 6.2402 (207.5260008d) Dec: -40 50 9.23 (-40.83590d) Equinox: J2000	Proper Motion RA: -0.002541505982966705 sec of time/yr Proper Motion Dec: -0.022425000020120933 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[G 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	2 GAIADR3611392 0619134017152	WATA	SUB32	CLEAR	NRSRAPID	3	1	1	0.08	145154.1

Template

Subarray
SUB2048

Spectral Elements

#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	G395H/F290LP	NRSRAPID	9	2703	1	1	2703	24436.417	61654

Special Requirements

Phase 0.9673706 to 0.9733576 with period 6.959469 Days and zero-phase 2458604.02421 HJD
Time Series Observation
No Parallel Attachments