2759 - NIRISS Exploration of the Atmospheric diversity of Transiting exoplanets (NEAT)

Cycle: 2, Proposal Category: GTO

INVESTIGATORS

Name	*Institution*
Dr. David Lafreniere (PI) (CSA Member)	**Universite de Montreal**

OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
L231-32d				
	1	transit	NIRISS Single-Object Slitless Spectroscopy	(1) L-231-32

ABSTRACT

NEAT is a program aimed at acquiring, primarily with the JWST NIRISS SOSS mode, transit and eclipse observations of a large sample of exoplanets that span the full available range of equilibrium temperatures (300-3000 K) and masses (1 MEarth-10 MJup) for planets amenable to atmospheric characterization. Our observations will measure the abundance of the molecules and aerosols present in the exoplanets' atmosphere and determine the vertical temperature structure of the hottest targets. These results will allow us to address fundamental issues such as the formation process and formation location of these close-in planets, the presence and characteristics of particulate clouds, and non-equilibrium chemistry effects that might be at play in their atmosphere. For rocky planets in our sample we intend to place some of the first constraints on the mean molecular weight – and hence bulk composition – of their atmospheres. In particular, we will observe multiple transits of the potentially habitable earth-like planets TRAPPIST-1 d & f. For two targets, WASP-121b and LTT 9779b, we will acquire observations continuously throughout a full orbital period to constrain their temperature-pressure profile as a function of longitude and study how heat is absorbed and redistributed in their atmosphere. Most of our observations will be conducted as part of cycle 1, bur our final target, L231-32d, will be observed in cycle 2 and is the subject of this program.

OBSERVING DESCRIPTION

We will observe one transit of L231-32d using NIRISS SOSS.

A PA range constraint is used to avoid contamination from other field sources. A phase time constraint is used to time the observtion to the transit event. The out-of-transit to in-transit observing time ratio was set to 2:1.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	L-231-32	RA: 04 33 39.8638 (68.4160992d) Dec: -51 57 26.75 (-51.95743d) Equinox: J2000	Proper Motion RA: 83.0820 mas/yr Proper Motion Dec: -269.8035 mas/yr Parallax: 0.0444899" Epoch of Position: 2016	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[M dwarfs]
Extended=NO

Observation

Proposal 2759, Observation 1: transit

Thu Jul 04 00:00:09 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRISS Single-Object Slitless 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.

(Exposure) 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.

(Visit 1:1) Warning (Form): Visit schedulable, but most scheduling windows are when JWST is pointed in direction of greatest micrometeoroid impact risk. This is likely due to scheduling special requirements.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	L-231-32	RA: 04 33 39.8638 (68.4160992d) Dec: -51 57 26.75 (-51.95743d) Equinox: J2000	Proper Motion RA: 83.0820 mas/yr Proper Motion Dec: -269.8035 mas/yr Parallax: 0.0444899" Epoch of Position: 2016	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[M dwarfs]
Extended=NO

Acquisition

#	Target	Acquisition Mode	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	SAME	SOSSFAINT	F480M	NISRAPID	5	1	1	0.293	122262.3

Template

Subarray	Include Short First Exposure and F277W Exposure?
SUBSTRIP256	false

Spectral Elements

#	Readout Pattern	Groups/Int	Integrations/Exp	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	NISRAPID	3	1055	1	1055	23206.286	206475.1

Special Requirements

Phase 0.986515 to 0.990182 with period 11.379573 Days and zero-phase 2458389.68186 HJD
Aperture PA Range 246 to 276 Degrees (V3 245.43873283 to 275.43873283)
Time Series Observation
No Parallel Attachments