



# 1731 - Variability and Abundance of Hydration on M-Type Asteroid (16) Psyche: The search for water on the largest metallic asteroid

Cycle: 1, Proposal Category: GO

## INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
<b>Dr. Stephanie Jarmak (PI)</b>	<b>Southwest Research Institute</b>	<b>stephanie.jarmak@swri.org</b>
Tracy M Becker (CoI)	Southwest Research Institute	tracy.becker@swri.org
Dr. Zoe A. Landsman (CoI)	University of Central Florida Board of Trustees	zoelandsman@ucf.edu
Dr. Kurt David Retherford (CoI)	Southwest Research Institute	kretherford@swri.edu
Dr. Chick Woodward (CoI)	University of Minnesota - Twin Cities	chickw024@gmail.com
Maggie McAdam (CoI)	Northern Arizona University	maggiemcadam@gmail.com
Dr. Andrew S. Rivkin (CoI)	The Johns Hopkins University Applied Physics Laboratory	andy.rivkin@jhuapl.edu
Dr. Linda Elkins-Tanton (CoI)	Arizona State University	ltelkins@asu.edu
Dr. Casey Honniball (CoI)	NASA Goddard Space Flight Center	casey.i.honniball@nasa.gov

## OBSERVATIONS

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
Visit 1				
	1	Visit 1: NIRSpec	NIRSpec IFU Spectroscopy	(1) PSYCHE
	2	OFFSET - Visit 1: NIR Spec	NIRSpec IFU Spectroscopy	(2) PSYCHE-OFFSET
	3	Visit 1: MIRI	MIRI Medium Resolution Spectroscopy	(1) PSYCHE
	4	OFFSET - Visit 1: MIRI	MIRI Medium Resolution Spectroscopy	(2) PSYCHE-OFFSET
Visit 2				
	5	Visit 2: NIRSpec	NIRSpec IFU Spectroscopy	(1) PSYCHE

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
	6	OFFSET - Visit 2 NIR Spec	NIRSpec IFU Spectroscopy	(2) PSYCHE-OFFSET
	7	Visit 2: MIRI	MIRI Medium Resolution Spectroscopy	(1) PSYCHE
	8	OFFSET - Visit 2: MIR I	MIRI Medium Resolution Spectroscopy	(2) PSYCHE-OFFSET

## ABSTRACT

Our current understanding of Solar System evolution hinges on interpreting the history of the asteroids. M-type asteroids in particular potentially represent the exposed cores of differentiated planetesimals, but there is insufficient data to claim with certainty that these asteroids are purely metallic. Previous detections of hydration and phyllosilicates on their surfaces further complicate the assumed composition of these asteroids. We propose to observe (16) Psyche, the prototypical M-type asteroid and target of the upcoming NASA Discovery mission 'Psyche', to quantify the amount and variability of hydration present on (16) Psyche's surface and to unambiguously determine if the hydration is a result of hydroxyl or water molecules. Our program will obtain high SNR, high spectral resolution, near to mid-IR spectra of (16) Psyche to detect and contemporaneously observe the entire 3-micron and 6-micron absorption and emission bands attributed to hydroxyl and/or water, potentially uniquely identifying water for the first time. We propose to observe (16) Psyche with a total of two visits using the NIRSpec Integral Field Unit and MIRI Medium Resolution Spectroscopy instruments to obtain spectra from two, distinct hemispherical regions and thereby measure any global variability of the hydration features. JWST's unique capability to measure the entire 3 and 6-micron bands on the largest M-type asteroid will unambiguously identify the presence of water or hydroxyl on (16) Psyche, constraining (16) Psyche's surface composition and impact history, providing critical context for the upcoming 'Psyche' mission and interpretations of hydration features observed on asteroids.

## OBSERVING DESCRIPTION

Observe (16) Psyche with JWST to quantify the amount and variability of hydration present on (16) Psyche's surface and unambiguously identify the presence of water molecules if present through the measurement of the entire 3-micron and 6-micron spectral regions during two observation visits. The proposed observation plan includes a total of two visits using the NIRSpec Integral Field Unit (IFU) and MIRI Medium Resolution Spectroscopy (MRS) instruments. The purpose of the two visits is to obtain spectra from two, distinct hemispherical regions of (16) Psyche's surface and thereby measure any global variability of the 3-micron and 6-micron features.

The following gratings of the NIRSpec IFU are required to measure the depth and shape of the 3-micron feature: G140H/F100LP, G235H/F170LP, and G395H/F290LP. To characterize the 6-micron feature requires the MIRI MRS Channel 1 Medium wavelength filter. For each visit to (16) Psyche, ~172 s of observation time is planned for each NIRSpec IFU filter and ~633 s for the MIRI observation. The exposure time is set by 3 groups

## JWST Proposal 1731 (Created: Friday, February 3, 2023 at 7:00:29 PM Eastern Standard Time) - Overview

per integration with a 4-point dither for the NIRSpec observations and 57 groups per integration with a 4-point dither for the MIRI observations. Each observation also includes a nod off scene with the aperture centered on the source. For the NIRSpec observations the Full Frame subarray and the NRSRAPID readout pattern are used. For the MIRI observations the FULL subarray and the FAST readout pattern are used. The ETC tool verified that these parameters would yield the maximum SNR without saturating the instrument for the brightest possible magnitude of (16) Psyche within the observable date ranges and that the SNR threshold is still met for the dimmest magnitude of (16) Psyche.

In order to search for hemispheric heterogeneity, the two visits will need to take place during different epochs so distinct regions of (16) Psyche are visible. For the first observable date range of April 11 – June 5 2022 the possible observations would be primarily equatorial. For the second and third observable date ranges of February 6 - March 31 2023 and June 20 - August 14 2023, the possible observations would be primarily polar. Therefore, we require the first visit to occur during the first available date range and the second visit to occur during either the second or third available date range.

Proposal 1731 - Targets - Variability and Abundance of Hydration on M-Type Asteroid (16) Psyche: The search for water on the larges...

Solar System Targets	#	Name	Level 1	Level 2	Level 3
	(1)	PSYCHE	TYPE=ASTEROID,A=2.923595549197139,E=0.1393 384271405424,I=3.092472666018101 .O=150.40760051435,W=228.9721614956426,M=41.7 2696012121644,EQUINOX=J2000,EPOCH=01-DEC- 2000:00:00:00,EpochTimeScale=TDB		
<i>Comments: Extended=NO</i>					
(2)	PSYCHE-OFFSET	TYPE=ASTEROID,A=2.923595549197139,E=0.1393 384271405424,I=3.092472666018101 .O=150.40760051435,W=228.9721614956426,M=41.7 2696012121644,EQUINOX=J2000,EPOCH=01-DEC- 2000:00:00:00,EpochTimeScale=TDB	TYPE=POS_ANGLE,RAD=180,ANG=90,REF=SUN		
<i>Comments: Extended=NO</i>					

Proposal 1731 - Observation 1 - Variability and Abundance of Hydration on M-Type Asteroid (16) Psyche: The search for water on the ...

Sat Feb 04 00:00:29 GMT 2023

<b>Observation</b>	<p><b>Proposal 1731, Observation 1: Visit 1: NIRSpec</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Observing Template: NIRSpec IFU Spectroscopy</p> <p>Background Observations:[OFFSET - Visit 1: NIRSpec (Obs 2)]</p>											
	<p>(Visit 1:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p> <p>(Visit 1:1) Informational (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.</p>											
<b>Diagnostics</b>												
<b>Solar System Targets</b>	<b>#</b>	<b>Name</b>	<b>Level 1</b>			<b>Level 2</b>			<b>Level 3</b>			
	(1)	PSYCHE	TYPE=ASTEROID,A=2.923595549197139,E=0.1393 384271405424,I=3.092472666018101 .O=150.40760051435,W=228.9721614956426,M=41.7 2696012121644,EQUINOX=J2000,EPOCH=01-DEC- 2000:00:00:00,EpochTimeScale=TDB									
<p><i>Comments: Extended=NO</i></p>												
<b>Template</b>	<b>TA Method</b>											
	NONE											
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>		<b>Size</b>	<b>Starting Point</b>			<b>Number of Points</b>	<b>Points</b>			
	1	4-POINT-DITHER										
<b>Spectral Elements</b>	<b>#</b>	<b>Grating/Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Leakcal</b>	<b>Dither</b>	<b>Autocal</b>	<b>Total Dithers</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1	G140H/F100LP	NRSRAPID	3	1	false	true	NONE	4	4	171.788	
	2	G235H/F170LP	NRSRAPID	3	1	false	true	NONE	4	4	171.788	
	3	G395H/F290LP	NRSRAPID	3	1	false	true	NONE	4	4	171.788	
<b>Special Requirements</b>	<p>Between Dates 06-FEB-2023:00:00:00 and 14-AUG-2023:00:00:00</p> <p>Sequence Observations 1, 2, Non-interruptible</p> <p>DEFAULT WINDOW: ANGULAR RATE PSYCHE FROM JWST LESS THAN 0.03</p>											

Proposal 1731 - Observation 2 - Variability and Abundance of Hydration on M-Type Asteroid (16) Psyche: The search for water on the ...

Sat Feb 04 00:00:29 GMT 2023

<b>Observation</b>	<p>Proposal 1731, Observation 2: OFFSET - Visit 1: NIRSpec</p> <p><b>Diagnostic Status: Warning</b></p> <p>Observing Template: NIRSpec IFU Spectroscopy</p> <p>Background Observation For: [Visit 1: NIRSpec (Obs 1)]</p>											
<b>Diagnostics</b>	(Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
<b>Solar System Targets</b>	#	Name	Level 1			Level 2			Level 3			
	(2)	PSYCHE-OFFSET	TYPE=ASTEROID,A=2.923595549197139,E=0.1393384271405424,I=3.092472666018101,O=150.40760051435,W=228.9721614956426,M=41.72696012121644,EQUINOX=J2000,EPOCH=01-DEC-2000:00:00:00,EpochTimeScale=TDB			TYPE=POS_ANGLE,RAD=180,ANG=90,REF=SUN						
	<i>Comments: Extended=NO</i>											
<b>Template</b>	<p>TA Method</p> <p>NONE</p>											
<b>Dithers</b>	#	Dither Type		Size		Starting Point		Number of Points		Points		
	1	4-POINT-DITHER										
<b>Spectral Elements</b>	#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Leakcal	Dither	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1	G140H/F100LP	NRSRAPID	3	1	false	true	NONE	4	4	171.788	
	2	G235H/F170LP	NRSRAPID	3	1	false	true	NONE	4	4	171.788	
	3	G395H/F290LP	NRSRAPID	3	1	false	true	NONE	4	4	171.788	
<b>Special Requirements</b>	<p>Sequence Observations 1, 2, Non-interruptible</p> <p>DEFAULT WINDOW: ANGULAR RATE PSYCHE-OFFSET FROM JWST LESS THAN 0.03</p>											

Proposal 1731 - Observation 3 - Variability and Abundance of Hydration on M-Type Asteroid (16) Psyche: The search for water on the ...

Sat Feb 04 00:00:29 GMT 2023

<b>Observation</b>	<b>Proposal 1731, Observation 3: Visit 1: MIRI</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observations:[OFFSET - Visit 1: MIRI (Obs 4)]												
	(Visit 1: MIRI (Obs 3)) Warning (Form): Imager Filter overlap. (Visit 3:1) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 3:1) Informational (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.												
<b>Diagnostics</b>													
<b>Solar System Targets</b>	<b>#</b>	<b>Name</b>	<b>Level 1</b>				<b>Level 2</b>				<b>Level 3</b>		
	(1)	PSYCHE	TYPE=ASTEROID,A=2.923595549197139,E=0.1393 384271405424,I=3.092472666018101 .O=150.40760051435,W=228.9721614956426,M=41.7 2696012121644,EQUINOX=J2000,EPOCH=01-DEC-2000:00:00:00,EpochTimeScale=TDB										
Comments: Extended=NO													
<b>Acquisition</b>	<b>#</b>											<b>Target</b>	
	1											NONE	
<b>Template</b>	<b>AcqFilter</b>	<b>Primary Channel</b>				<b>Simultaneous Imaging</b>				<b>Imager Subarray</b>			
		CHANNEL1				YES				FULL			
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>				<b>Optimized For</b>				<b>Direction</b>			
	1	4-Point				POINT SOURCE				NEGATIVE			
<b>Spectral Elements</b>	<b>#</b>	<b>Wavelength Range</b>	<b>Detector</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Exposures/Dith</b>	<b>Dither</b>	<b>Total Dithers</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1		IMAGER	F1280W	FASTR1	57	1	1	Dither 1	4	4	632.709	
	1	MEDIUM(B)	MRSLONG		FASTR1	57	1	1	Dither 1	4	4	632.709	
	1	MEDIUM(B)	MRSSHORT		FASTR1	57	1	1	Dither 1	4	4	632.709	

Proposal 1731 - Observation 3 - Variability and Abundance of Hydration on M-Type Asteroid (16) Psyche: The search for water on the ...

Special Requirements

Between Dates 06-FEB-2023:00:00:00 and 14-AUG-2023:00:00:00

Sequence Observations 3, 4, Non-interruptible

DEFAULT WINDOW: ANGULAR RATE PSYCHE FROM JWST LESS THAN 0.03

Proposal 1731 - Observation 4 - Variability and Abundance of Hydration on M-Type Asteroid (16) Psyche: The search for water on the ...

Sat Feb 04 00:00:29 GMT 2023

<b>Observation</b>	<b>Proposal 1731, Observation 4: OFFSET - Visit 1: MIRI</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observation For: [Visit 1: MIRI (Obs 3)]												
	(OFFSET - Visit 1: MIRI (Obs 4)) Warning (Form): Imager Filter overlap. (Visit 4:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Diagnostics</b>													
<b>Solar System Targets</b>	<b>#</b>	<b>Name</b>	<b>Level 1</b>				<b>Level 2</b>				<b>Level 3</b>		
	(2)	PSYCHE-OFFSET	TYPE=ASTEROID,A=2.923595549197139,E=0.1393 384271405424,I=3.092472666018101 ,O=150.40760051435,W=228.9721614956426,M=41.7 2696012121644,EQUINOX=J2000,EPOCH=01-DEC- 2000:00:00:00,EpochTimeScale=TDB  <i>Comments: Extended=NO</i>				TYPE=POS_ANGLE,RAD=180,ANG=90,REF=SUN						
<b>Acquisition</b>	<b>#</b>											<b>Target</b>	
	1											NONE	
<b>Template</b>	<b>AcqFilter</b>	<b>Primary Channel</b>				<b>Simultaneous Imaging</b>				<b>Imager Subarray</b>			
		CHANNEL1				YES				FULL			
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>				<b>Optimized For</b>				<b>Direction</b>			
	1	4-Point				POINT SOURCE				NEGATIVE			
<b>Spectral Elements</b>	<b>#</b>	<b>Wavelength Range</b>	<b>Detector</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Exposures/Dith</b>	<b>Dither</b>	<b>Total Dithers</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1		IMAGER	F1280W	FASTR1	57	1	1	Dither 1	4	4	632.709	
	1	MEDIUM(B)	MRSLONG		FASTR1	57	1	1	Dither 1	4	4	632.709	
	1	MEDIUM(B)	MRSSHORT		FASTR1	57	1	1	Dither 1	4	4	632.709	

Proposal 1731 - Observation 4 - Variability and Abundance of Hydration on M-Type Asteroid (16) Psyche: The search for water on the ...

Special Requirements

Sequence Observations 3, 4, Non-interruptible

DEFAULT WINDOW: ANGULAR RATE PSYCHE-OFFSET FROM JWST LESS THAN 0.03

Proposal 1731 - Observation 5 - Variability and Abundance of Hydration on M-Type Asteroid (16) Psyche: The search for water on the ...

Sat Feb 04 00:00:29 GMT 2023

<b>Observation</b>	<p><b>Proposal 1731, Observation 5: Visit 2: NIRSpec</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Observing Template: NIRSpec IFU Spectroscopy</p> <p>Background Observations:[OFFSET - Visit 2 NIRSpec (Obs 6)]</p>											
<b>Diagnostics</b>	<p>(Visit 5:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p> <p>(Visit 5:1) Informational (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.</p>											
<b>Solar System Targets</b>	#	Name	Level 1			Level 2			Level 3			
	(1)	PSYCHE	TYPE=ASTEROID,A=2.923595549197139,E=0.1393 384271405424,I=3.092472666018101 .O=150.40760051435,W=228.9721614956426,M=41.7 2696012121644,EQUINOX=J2000,EPOCH=01-DEC- 2000:00:00:00,EpochTimeScale=TDB									
	<i>Comments: Extended=NO</i>											
<b>Template</b>	<p><b>TA Method</b></p> <p>NONE</p>											
<b>Dithers</b>	#	Dither Type		Size	Starting Point			Number of Points	Points			
	1	4-POINT-DITHER										
<b>Spectral Elements</b>	#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Leakcal	Dither	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1	G140H/F100LP	NRSRAPID	3	1	false	true	NONE	4	4	171.788	
	2	G235H/F170LP	NRSRAPID	3	1	false	true	NONE	4	4	171.788	
	3	G395H/F290LP	NRSRAPID	3	1	false	true	NONE	4	4	171.788	
<b>Special Requirements</b>	<p>After Date 06-FEB-2023:00:00:00</p> <p>Sequence Observations 5, 6, Non-interruptible</p> <p>DEFAULT WINDOW: ANGULAR RATE PSYCHE FROM JWST LESS THAN 0.03</p>											

Proposal 1731 - Observation 6 - Variability and Abundance of Hydration on M-Type Asteroid (16) Psyche: The search for water on the ...

Sat Feb 04 00:00:29 GMT 2023

<b>Observation</b>	<p><b>Proposal 1731, Observation 6: OFFSET - Visit 2 NIRSpec</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Observing Template: NIRSpec IFU Spectroscopy</p> <p>Background Observation For: [Visit 2: NIRSpec (Obs 5)]</p>											
	(Visit 6:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
<b>Diagnostics</b>												
<b>Solar System Targets</b>	<b>#</b>	<b>Name</b>	<b>Level 1</b>			<b>Level 2</b>			<b>Level 3</b>			
	(2)	PSYCHE-OFFSET	TYPE=ASTEROID,A=2.923595549197139,E=0.1393 384271405424,I=3.092472666018101 .O=150.40760051435,W=228.9721614956426,M=41.7 2696012121644,EQUINOX=J2000,EPOCH=01-DEC- 2000:00:00:00,EpochTimeScale=TDB			TYPE=POS_ANGLE,RAD=180,ANG=90,REF=SUN						
<i>Comments: Extended=NO</i>												
<b>Template</b>	<b>TA Method</b>											
	NONE											
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>		<b>Size</b>	<b>Starting Point</b>			<b>Number of Points</b>	<b>Points</b>			
	1	4-POINT-DITHER										
<b>Spectral Elements</b>	<b>#</b>	<b>Grating/Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Leakcal</b>	<b>Dither</b>	<b>Autocal</b>	<b>Total Dithers</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1	G140H/F100LP	NRSRAPID	3	1	false	true	NONE	4	4	171.788	
	2	G235H/F170LP	NRSRAPID	3	1	false	true	NONE	4	4	171.788	
	3	G395H/F290LP	NRSRAPID	3	1	false	true	NONE	4	4	171.788	
<b>Special Requirements</b>	Sequence Observations 5, 6, Non-interruptible											
	DEFAULT WINDOW: ANGULAR RATE PSYCHE-OFFSET FROM JWST LESS THAN 0.03											

Proposal 1731 - Observation 7 - Variability and Abundance of Hydration on M-Type Asteroid (16) Psyche: The search for water on the ...

Sat Feb 04 00:00:29 GMT 2023

<b>Observation</b>	<b>Proposal 1731, Observation 7: Visit 2: MIRI</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observations:[OFFSET - Visit 2: MIRI (Obs 8)]												
	(Visit 2: MIRI (Obs 7)) Warning (Form): Imager Filter overlap. (Visit 7:1) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 7:1) Informational (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.												
<b>Diagnostics</b>													
<b>Solar System Targets</b>	<b>#</b>	<b>Name</b>	<b>Level 1</b>				<b>Level 2</b>				<b>Level 3</b>		
	(1)	PSYCHE	TYPE=ASTEROID,A=2.923595549197139,E=0.1393 384271405424,I=3.092472666018101 .O=150.40760051435,W=228.9721614956426,M=41.7 2696012121644,EQUINOX=J2000,EPOCH=01-DEC-2000:00:00:00,EpochTimeScale=TDB										
Comments: Extended=NO													
<b>Acquisition</b>	<b>#</b>											<b>Target</b>	
	1											NONE	
<b>Template</b>	<b>AcqFilter</b>	<b>Primary Channel</b>				<b>Simultaneous Imaging</b>				<b>Imager Subarray</b>			
		CHANNEL1				YES				FULL			
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>				<b>Optimized For</b>				<b>Direction</b>			
	1	4-Point				POINT SOURCE				NEGATIVE			
<b>Spectral Elements</b>	<b>#</b>	<b>Wavelength Range</b>	<b>Detector</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Exposures/Dith</b>	<b>Dither</b>	<b>Total Dithers</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1		IMAGER	F1280W	FASTR1	57	1	1	Dither 1	4	4	632.709	
	1	MEDIUM(B)	MRSLONG		FASTR1	57	1	1	Dither 1	4	4	632.709	
	1	MEDIUM(B)	MRSSHORT		FASTR1	57	1	1	Dither 1	4	4	632.709	

Proposal 1731 - Observation 7 - Variability and Abundance of Hydration on M-Type Asteroid (16) Psyche: The search for water on the ...

Special Requirements

After Date 06-FEB-2023:00:00:00

Sequence Observations 7, 8, Non-interruptible

DEFAULT WINDOW: ANGULAR RATE PSYCHE FROM JWST LESS THAN 0.03

Proposal 1731 - Observation 8 - Variability and Abundance of Hydration on M-Type Asteroid (16) Psyche: The search for water on the ...

Sat Feb 04 00:00:29 GMT 2023

<b>Observation</b>	<b>Proposal 1731, Observation 8: OFFSET - Visit 2: MIRI</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observation For: [Visit 2: MIRI (Obs 7)]												
	(OFFSET - Visit 2: MIRI (Obs 8)) Warning (Form): Imager Filter overlap. (Visit 8:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Diagnosics</b>													
<b>Solar System Targets</b>	<b>#</b>	<b>Name</b>	<b>Level 1</b>				<b>Level 2</b>				<b>Level 3</b>		
	(2)	PSYCHE-OFFSET	TYPE=ASTEROID,A=2.923595549197139,E=0.1393 384271405424,I=3.092472666018101 ,O=150.40760051435,W=228.9721614956426,M=41.7 2696012121644,EQUINOX=J2000,EPOCH=01-DEC- 2000:00:00:00,EpochTimeScale=TDB  Comments: Extended=NO				TYPE=POS_ANGLE,RAD=180,ANG=90,REF=SUN						
<b>Acquisition</b>	<b>#</b>											<b>Target</b>	
	1											NONE	
<b>Template</b>	<b>AcqFilter</b>	<b>Primary Channel</b>				<b>Simultaneous Imaging</b>				<b>Imager Subarray</b>			
		CHANNEL1				YES				FULL			
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>				<b>Optimized For</b>				<b>Direction</b>			
	1	4-Point				POINT SOURCE				NEGATIVE			
<b>Spectral Elements</b>	<b>#</b>	<b>Wavelength Range</b>	<b>Detector</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Exposures/Dith</b>	<b>Dither</b>	<b>Total Dithers</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1		IMAGER	F1280W	FASTR1	57	1	1	Dither 1	4	4	632.709	
	1	MEDIUM(B)	MRSLONG		FASTR1	57	1	1	Dither 1	4	4	632.709	
	1	MEDIUM(B)	MRSSHORT		FASTR1	57	1	1	Dither 1	4	4	632.709	

Proposal 1731 - Observation 8 - Variability and Abundance of Hydration on M-Type Asteroid (16) Psyche: The search for water on the ...

Special Requirements

Sequence Observations 7, 8, Non-interruptible

DEFAULT WINDOW: ANGULAR RATE PSYCHE-OFFSET FROM JWST LESS THAN 0.03