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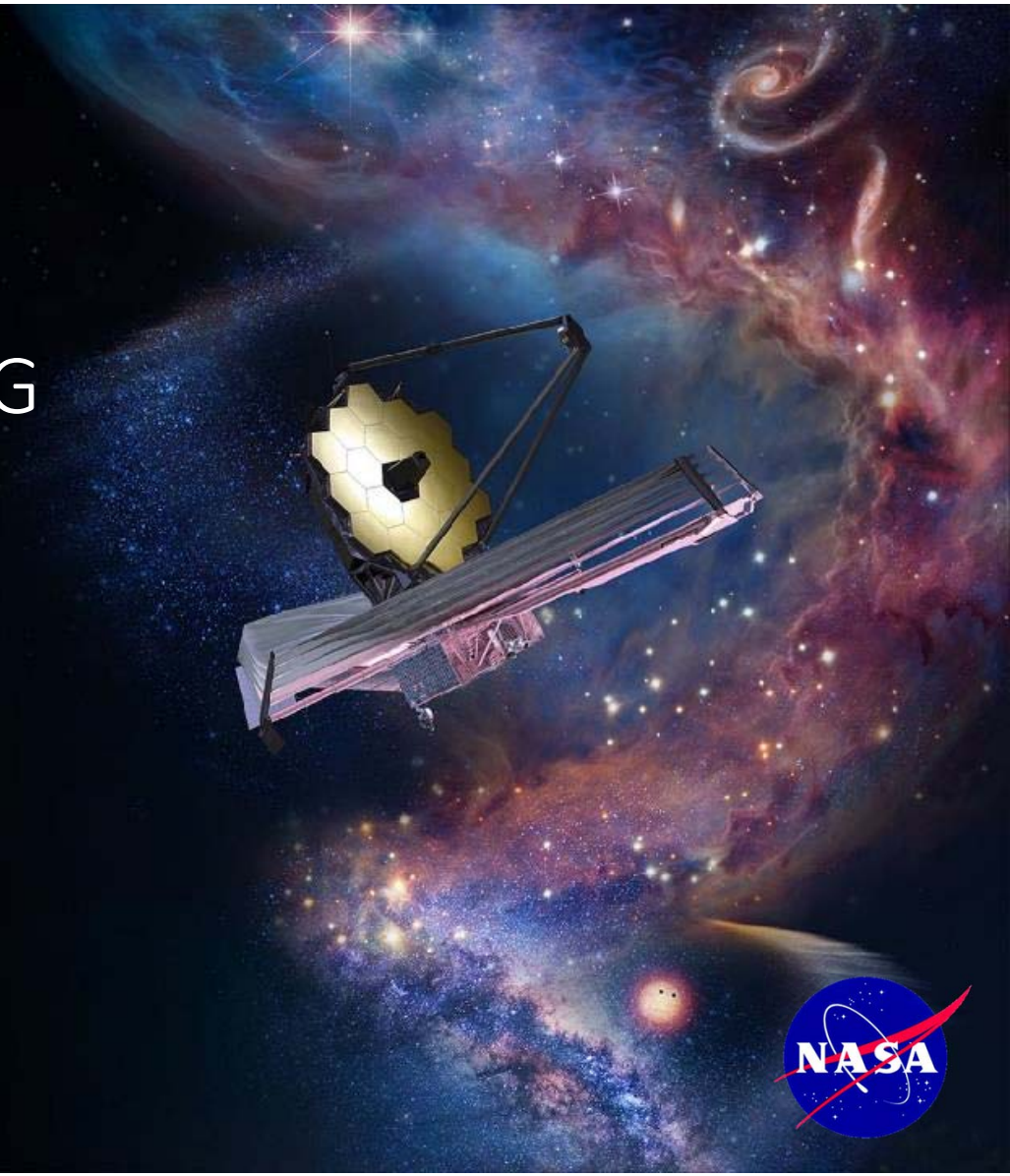
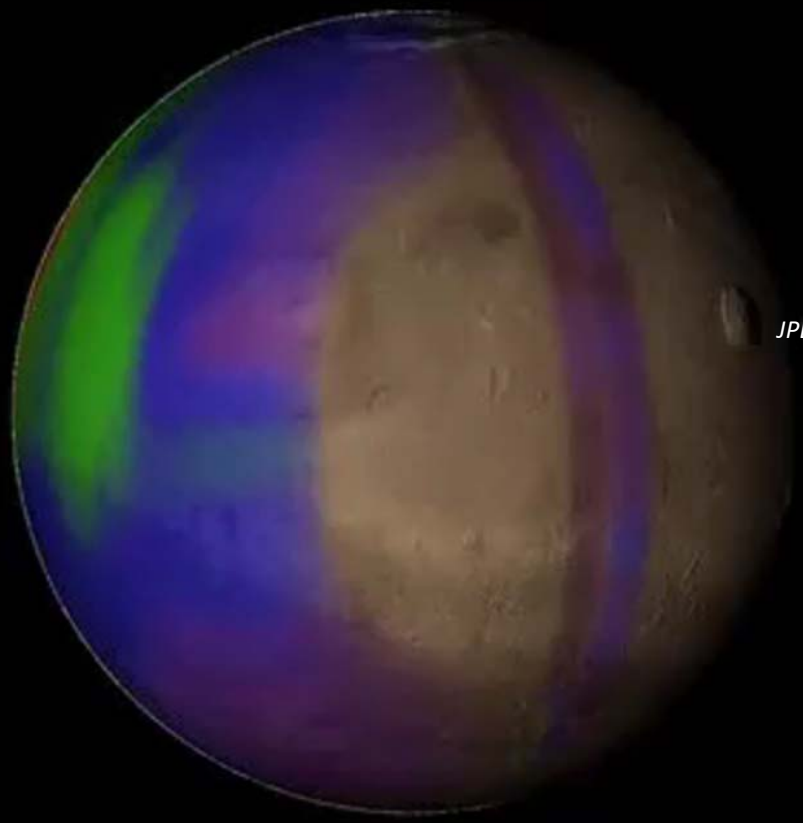
The James Webb Space Telescope – Update for MEPAG February 2020

Stefanie Milam
Deputy Project Scientist for Planetary Science
NASA Goddard Space Flight Center



WEBB JAMES WEBB SPACE TELESCOPE

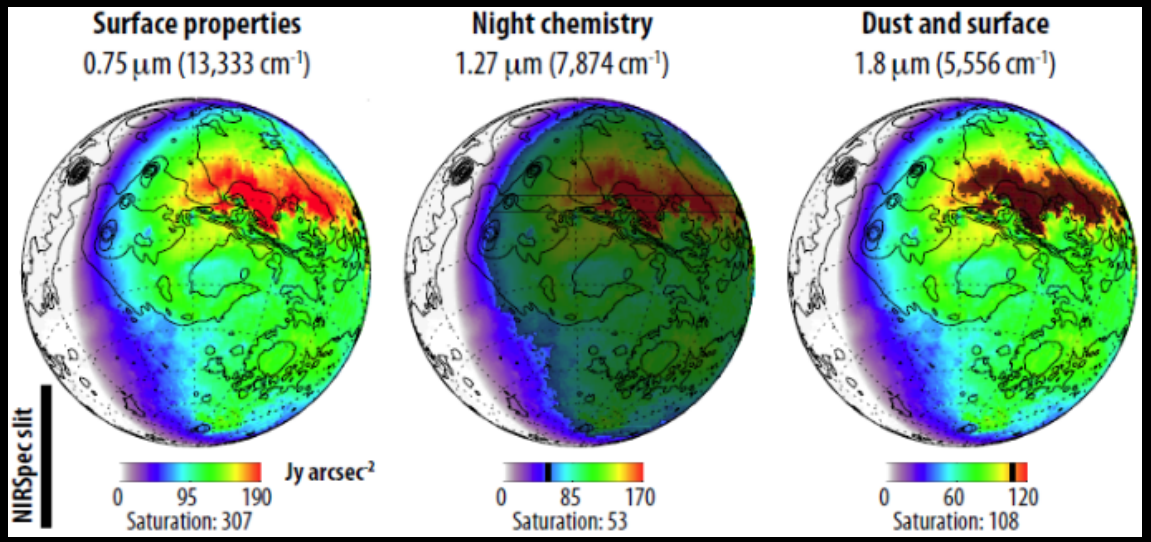
Methane Maps with JWST

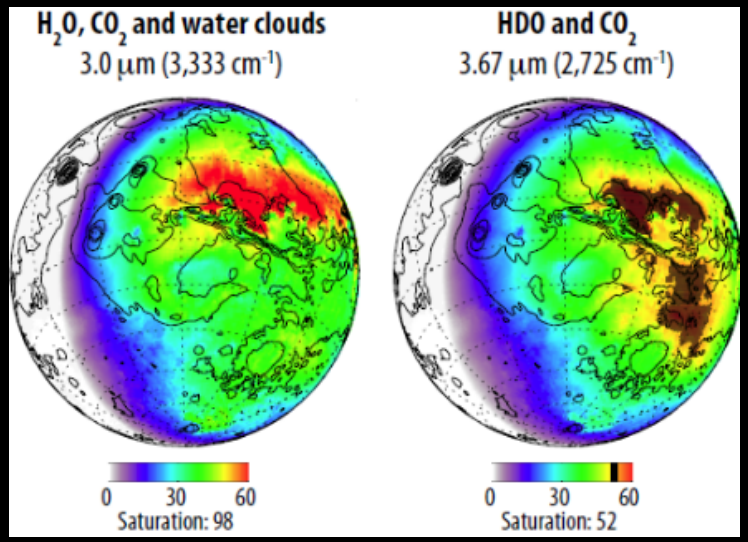


JPL webmaster note: Video removed from posted .pdf, contact presenter to see original.

NIRSpec
Narrow Slit
0.2”x3.3”

From Mumma et al. 2009





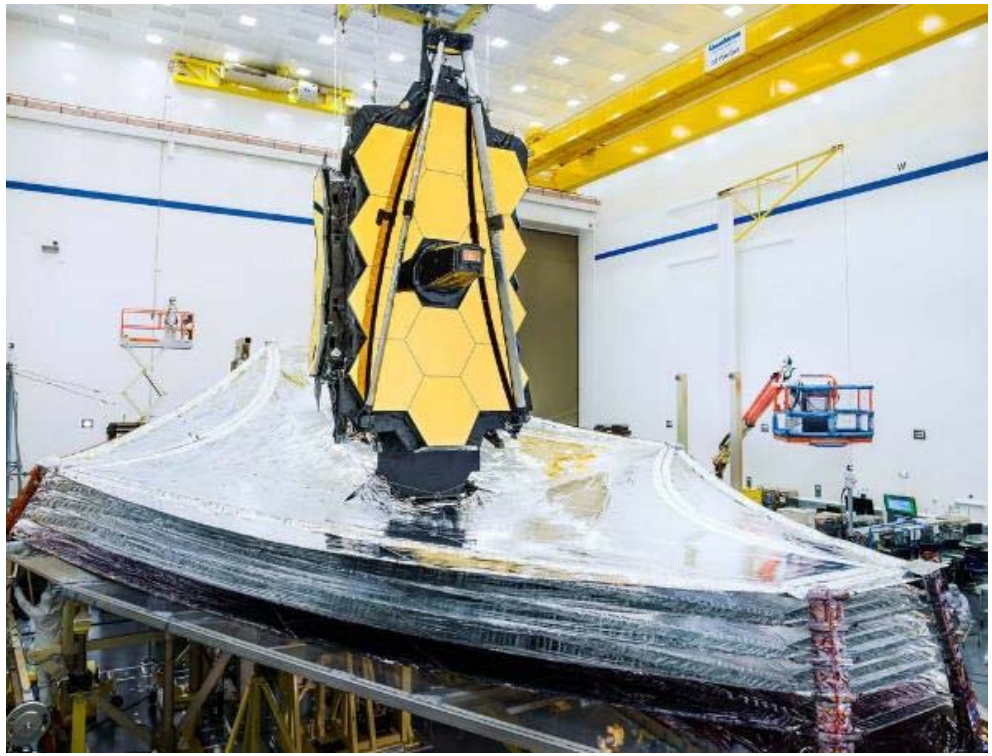
Villanueva et al. 2016

JWST Status and Cycle 1 Call for Proposals

- Completing folding observatory for Environmental Testing (vibe and acoustics) to occur this summer.
- Full Deployment and Stow then prepare for shipment late 2020.
- **Launch late March 2021**. 6 months commissioning prior to full science operations.

- Operations: We are rehearsing every phase of JWST, from launch to deployments to mirror phasing, through to normal science operations. 14 rehearsals are scheduled for 2020.

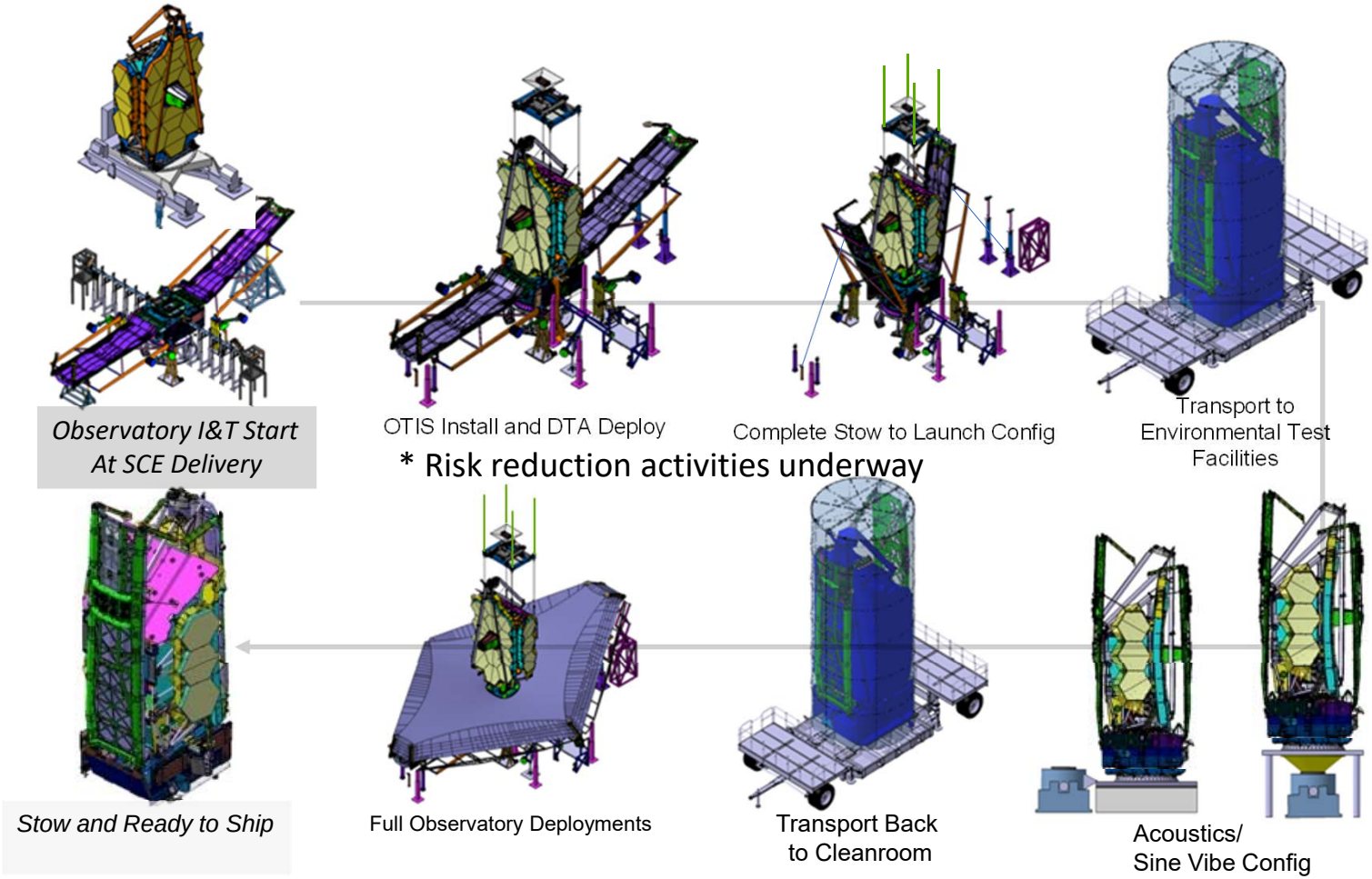
- Cycle 1 CfP was released Jan 23, 2020. **Deadline May 1, 2020.**



NOTE: *Top-level tasks to go. Many activities are associated with each of these steps

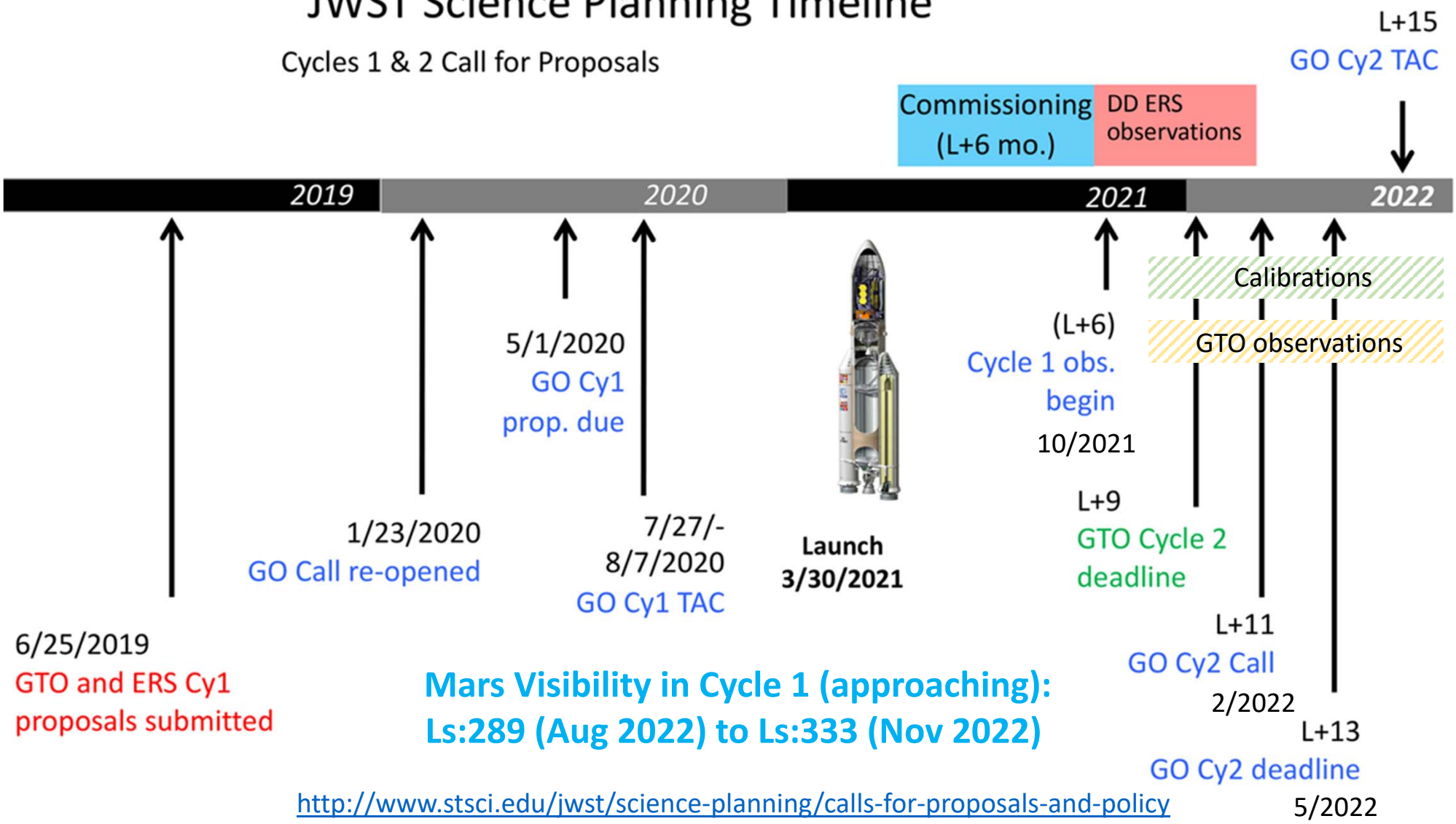
Observatory I&T Overview

OTIS Installation DTA Deploy and Stow CST-4 Acoustics Vibe CST-5 Post-Deploy Final Build/Ship Launch Site



* Risk reduction activities underway

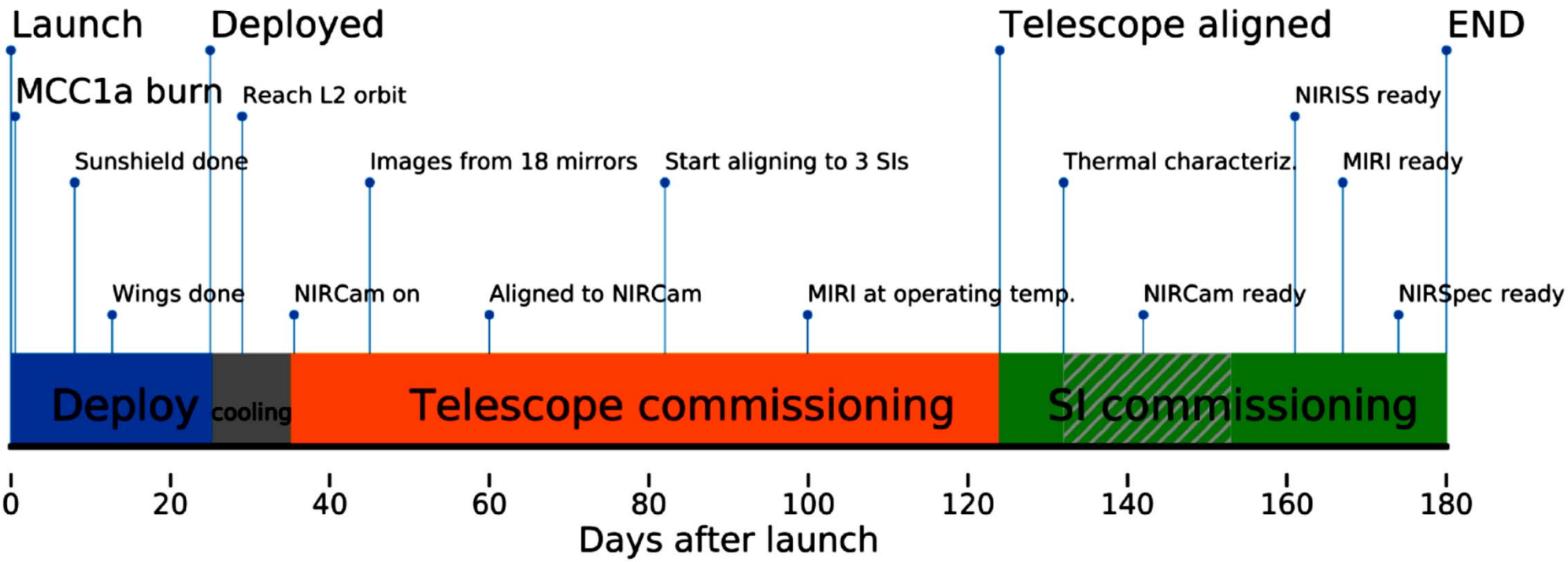
JWST Science Planning Timeline



Mars Visibility in Cycle 1 (approaching): Ls:289 (Aug 2022) to Ls:333 (Nov 2022)

http://www.stsci.edu/jwst/science-planning/calls-for-proposals-and-policy

Science-focused version of the Commissioning timeline



Using the 11/2019 timeline. Credit: NASA / Jane Rigby

Cycle 1 GO Proposal Call (Jan 23, 2020)

Program Category	Size	Estimated Allocation*
Small programs	≤ 25 hours	3,500 hours
Medium programs	>25 and ≤ 75 hours	1,500 hours
Large programs	>75 hours	1,000 hours

Cycle 1 call supports Calibration Proposals, Long-Term Proposals, Treasury Proposals, and Survey Proposals. We also invite proposals for Theory Programs, Data Science Software development, and **Archival Programs** to support analysis of calibration and the Director's Discretionary Early Release Science (DD-ERS) data and designated GTO programs.

http://www.stsci.edu/jwst/observing-programs/approved-gto-programs

JWST GTO Program

- GTO: Guaranteed Time Observations

- 2 Interdisciplinary Scientists with Solar System interests: H. Hammel and J. Lunine as well as NIRCam, NIRSpec and MIRI teams (partial)

- Hammel is dedicating 100% of her time to Solar System community
  - Asteroids, NEOs, Comets, **Mars**, Jupiter, Saturn (rings and small sats), Uranus, Neptune, Titan, KBOs, and Europa/Enceladus
  - Proprietary period waived for *most* of these data, including Mars

Details on GTO programs here:

https://jwst-docs.stsci.edu/display/JSP/JWST+GTO+Observation+Specifications

Future Proposal Training/Workshops

Master's Workshops

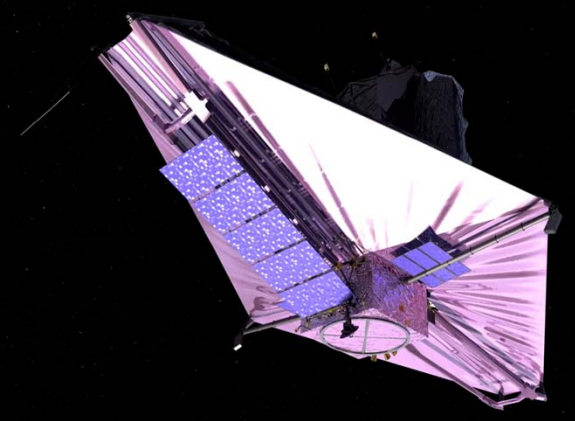
- http://www.stsci.edu/jwst/science-planning/proposal-training
- Estela Fernández-Valenzuela: Orlando, FL and at the Arecibo Observatory, PR
- Audrey Martin/Lauren McGraw – SS team member: Flagstaff, AZ
- Jacqueline Keane: Honolulu, HI
- Denise Stephens – SS team member: Provo, UT
- Katherine Follette/ Colette Salyk: Poughkeepsie, NY and Amherst, MA
- Simone Ieva (through ESA): Italy

ESA Workshops:

- https://www.cosmos.esa.int/web/jwst/results

Planets2020:

- ½ day workshop at end of meeting:
- https://conference.almaobservatory.org/planets2020/



Workshop in a Box

The ***Workshop in a Box*** is a compendium of training and support materials that have been adapted from those used during the JWST Master Class at STScI. These materials can be used for personal training or for organizing your own local proposal planning workshops. Links to the files are provided in the expandable sections below or you can download the entire set of materials in a zipped file. Of course, STScI also provides extensive help in the form of the JWST User Documentation system (JDox) as well as a series of short training videos for ETC, APT, and other resources, which are hosted on the JWST Observer YouTube channel. These materials are not duplicated in the ***Workshop in a Box*** materials.

Expand All | Collapse All

Community Workshops (2020) [+]

Workshop-in-a-Box: Homework [+]

Workshop-in-a-Box: Overview Talks [+]

Workshop-in-a-Box: Takeaways [+]

Workshop-in-a-Box: Hands-on Support Materials [+]

Workshop-in-a-Box: Additional Support Materials [+]

Privacy - Terms

http://www.stsci.edu/jwst/science-planning/proposal-training

JWST Observer Tools: Observing Programs

https://jwst.stsci.edu/observing-programs

Program Information Lookup Tool

Find abstracts and APT files for approved programs.

Approved ERS Programs

To facilitate the sharing of "science-enabling products" in development by the 13 DD-ERS teams, we have recently published individual ERS program The standardized format of these pages makes it easy to review and compare the various ERS programs.

Approved GTO programs

List of all GTO programs,
and which have no exclusive access period.

GO Call for Proposals

Released!!!

JDox - https://jwst-docs.stsci.edu/display/HOM/JWST+User+Documentation+Home

James Webb Space Telescope User Documentation

HOME QUICK LINKS Search

Proposing Opportunities

- JWST Cycle 1 Proposal Opportunities
- JWST General Science Policies

Proposal Preparation

- Understanding Exposure Times
- General Proposal Planning Workflow
- Methods and Roadmaps
- Example Science Programs
- Recommended Observing Strategies
- Observatory Functionality
- Observatory Hardware

Proposing Tools

JWST Exposure Time Calculator Overview

- Astronomers Proposal Tool
- APT Observation Templates
- ETC to APT Interface
- JWST APT-ETC Connectivity
- Video Tutorials
- Other Tools
  - Backgrounds Tool
  - Target Visibility Tools
    - JWST General Target Visibility Tool Help
    - JWST Moving Target Visibility Tool Help

... / Target Visibility Tools

Observatory Functionality

JWST Moving Target Visibility Tool Help

The JWST Moving Target Visibility Tool (MTVT) is a command-line Python tool that provides quick-look assessments of moving target visibilities and position angles for all JWST instruments.

Page contents

- Introduction
- Installation and dependencies
- Usage tips
- MTVT command line examples
  - Evaluating planet visibility
  - Evaluating minor body visibility
  - The special case of comets
- MTVT outputs
- Credits
- References

Introduction

Main article: Target Visibility Tools
GTVT article: JWST General Target Visibility Tool Help
See also: JWST Position Angles, Ranges, and OffsetsSolar System Special Requirements
See also: JWST Observatory Coordinate System and Field of Regard

Planetary Spectrum Generator

Home | Target and geometry | Atmosphere and surface | Instrument | API | Retrieval | Help

https://psg.gsfc.nasa.gov/

Calculation template ⓘ	Load	Select template
Target and geometry ⓘ	Change	Target: GJ 1214b for date (2018/09/17 02:50 UT); geometry: Observatory from 14.6500 pc.
Atmosphere and surface ⓘ	Change	Surface pressure: 1.0 bar; Molecular weight: 2.36 g/mol; Atmospheric profile: Parmentier+2015; Kempton_1Xsolar_cond; Gases: H2,He,H2O,CH4; Surface temperature: 888.1 K; Albedo: 0.164; Emissivity: 0.836;
Instrument parameters ⓘ	Change	Wavelength range 0.4-20 um with a resolution of 200 RP. Molecular radiative-transfer enabled; Continuum flux module enabled;

Help | Reset | Download config-file | Generate Spectra

JWST Users Committee (JSTUC)

Representatives of the General Observer (GO) Community

James Bullock (Chair)
Kat Barger
Natalie Batalha
Saida Caballero-Nieves
Stephane Charlot (NIRSpec team member)
Duncan Farrah
Alistair Glasse (MIRI team member)
Tom Greene (NIRCam team member)
Amanda Hendrix
Kelsey Johnson
Heather Knutson
David Lafreniere (NIRISS team member)
Mario Mateo
Els Peeters
Laura Pentericci
Johan Richard
Tommaso Treu

http://www.stsci.edu/jwst/science-planning/user-committees/jwst-users-committee

A conduit for community feedback – so seek them out!

@NASAWebb

@webbtelescope

nasa.gov/webb
jwst.nasa.gov
webbtelescope.org

stefanie.n.milam@nasa.gov