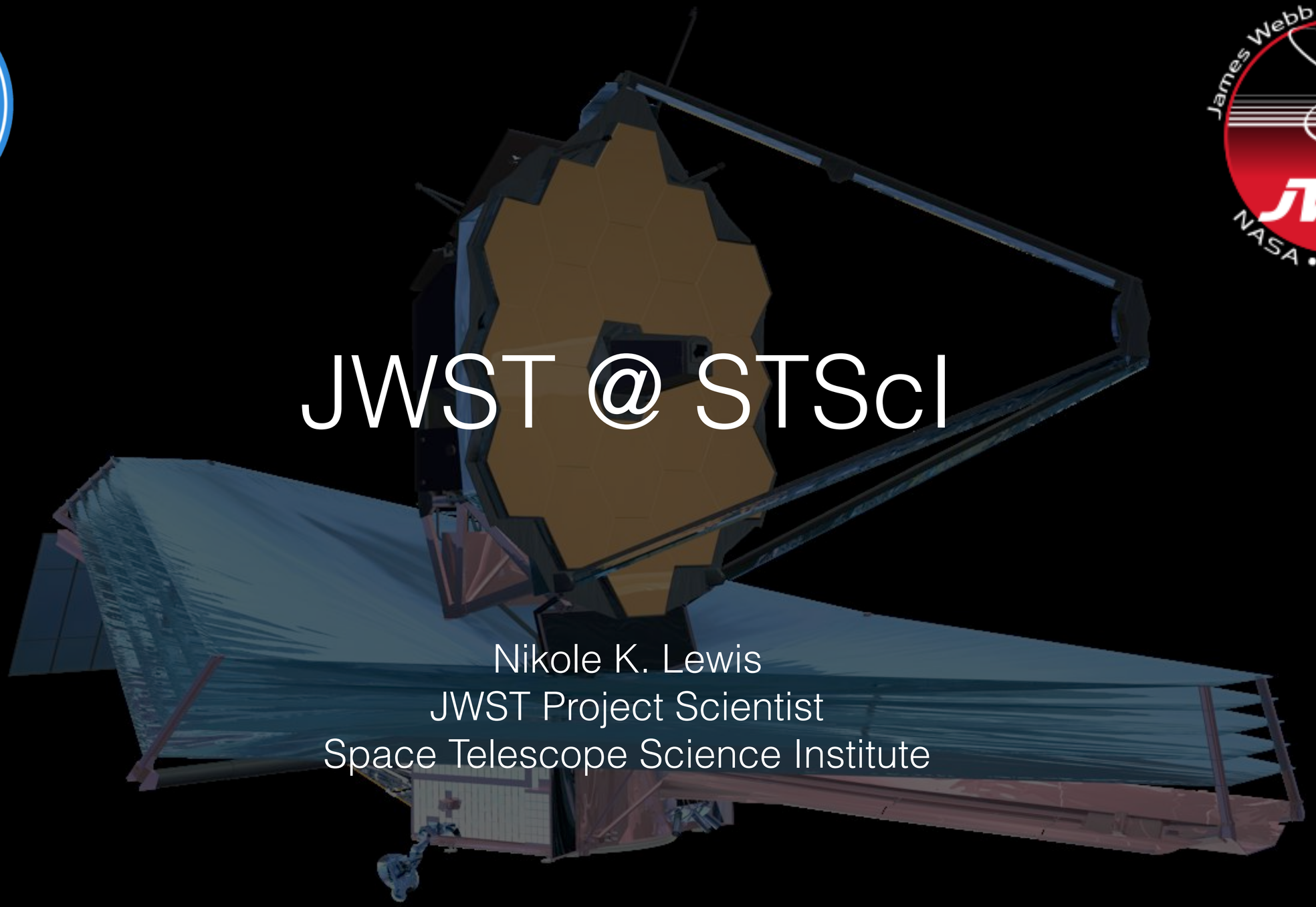
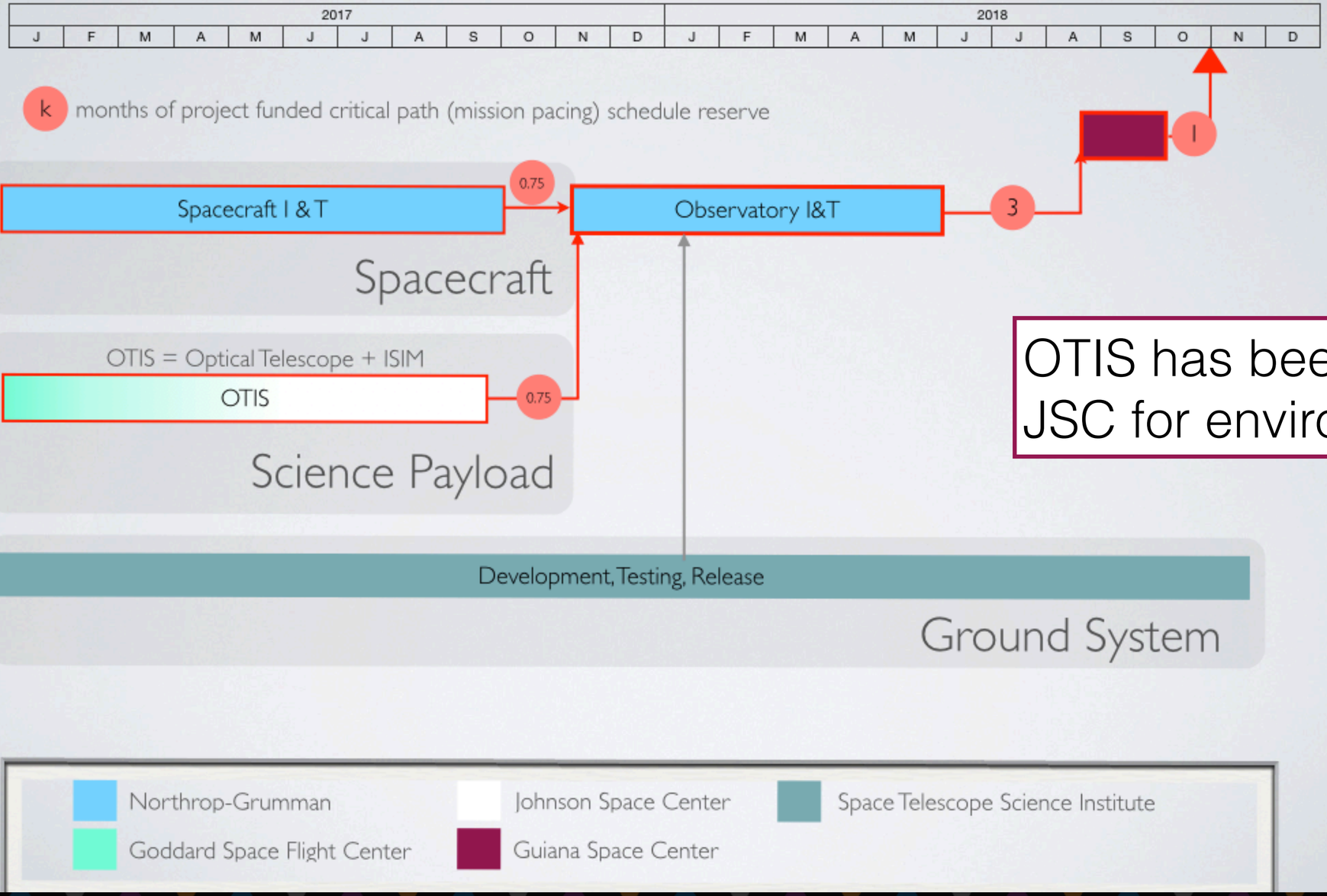


JWST @ STScI

Nikole K. Lewis
JWST Project Scientist
Space Telescope Science Institute

SIMPLIFIED SCHEDULE



OTIS has been shipped to JSC for environmental testing!

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STScI Operations Flow

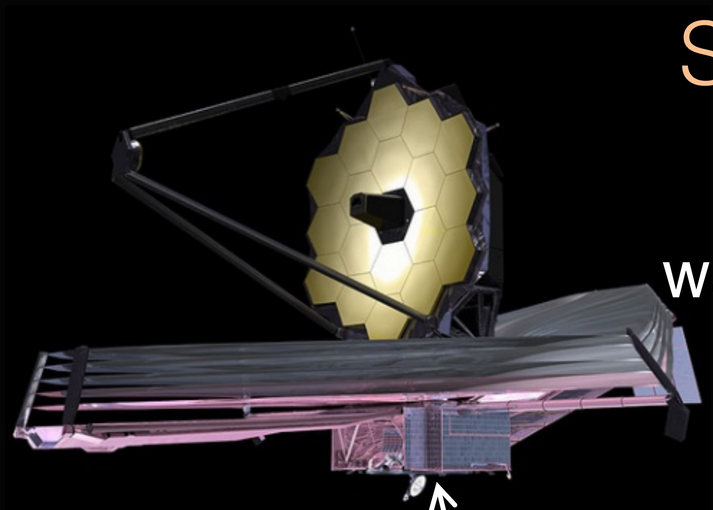
Proposal Preparation

PPS

Proposal Selection

Science Planning

Operations Scheduling



on-board scripts (OSS)
wavefront sensing (WFSC)

Flight Operations

FOS

Data Processing and User Tools

DMS

Data Archiving

AAS JWST EVENTS

Science Community and Public Outreach

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Recent Key JWST S&OC Events

- S&OC Release 1 Verified and Delivered, on track for timely delivery of flight build.
- First End-to-End Test of the Observatory Test Bed Simulator at STScI.
- Successful completion of Mission Operations Review
- Release of Suite of Proposal Tools at Winter 2017 AAS meeting.
- JWST Cycle 1 Science Programs Solicited (GTO and DD ERS) and Preliminary Descriptions Received.

JWST MOC @ STScI

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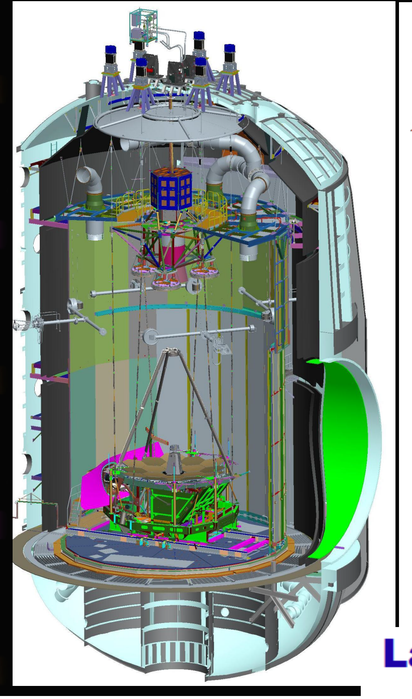
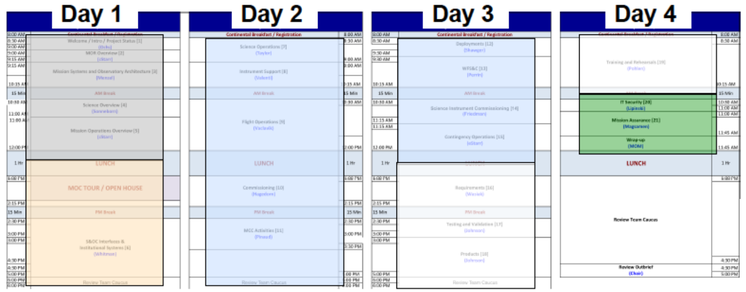
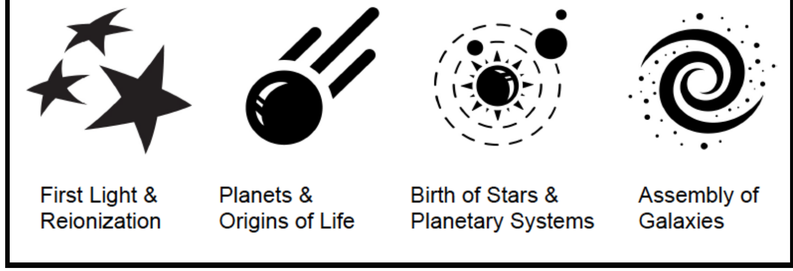


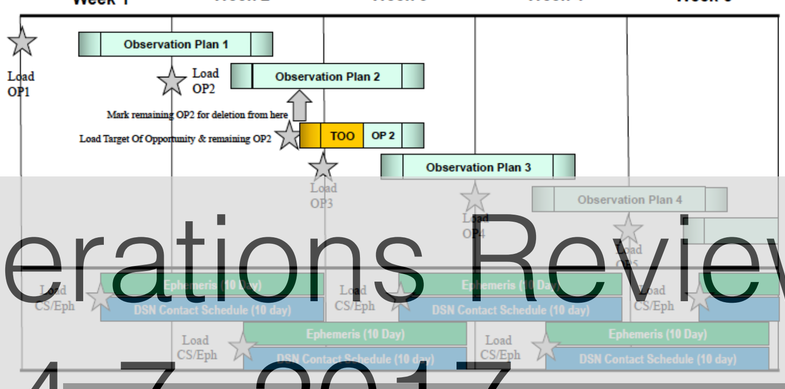
Review Flow



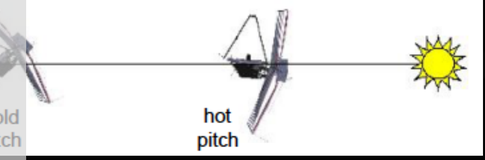
- What do we have to do?
- What do we have to do it with?
- How do we do it?
- How do we know we did it correctly?
- Who supports us?



Standard Loads



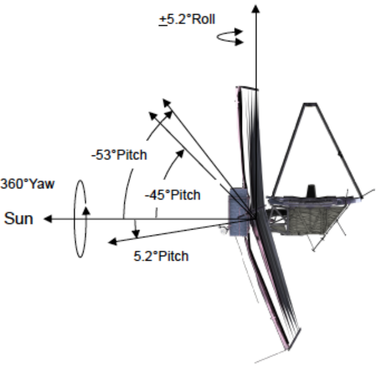
Thermal slew geometry

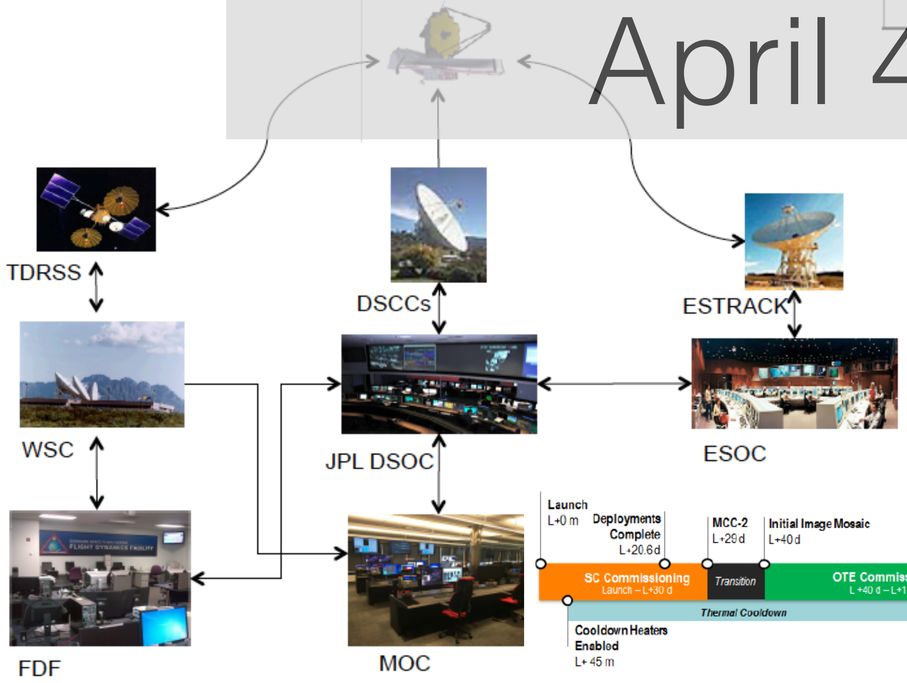


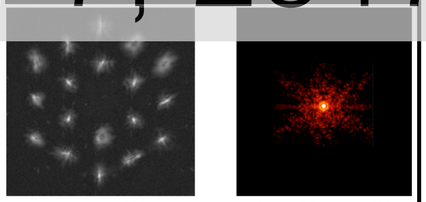
Mission Operations Review

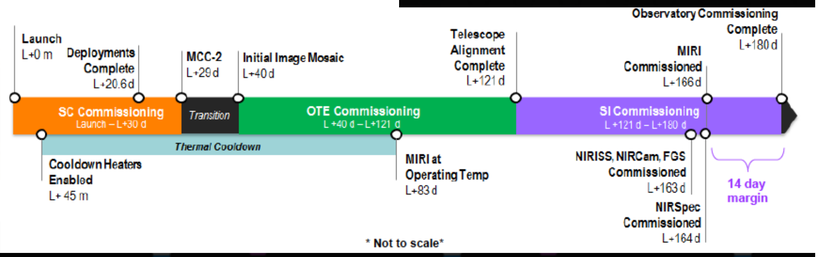
April 4-7, 2017

Launch Day Communications with JWST

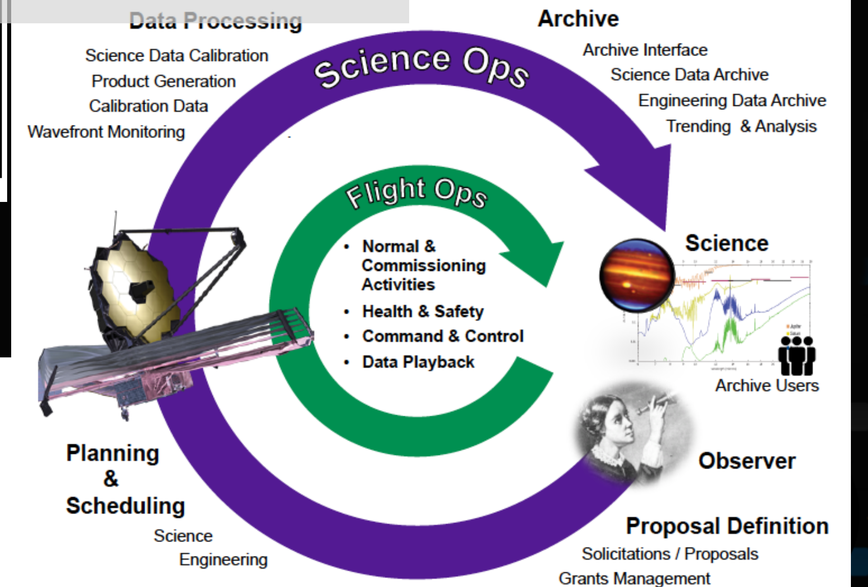


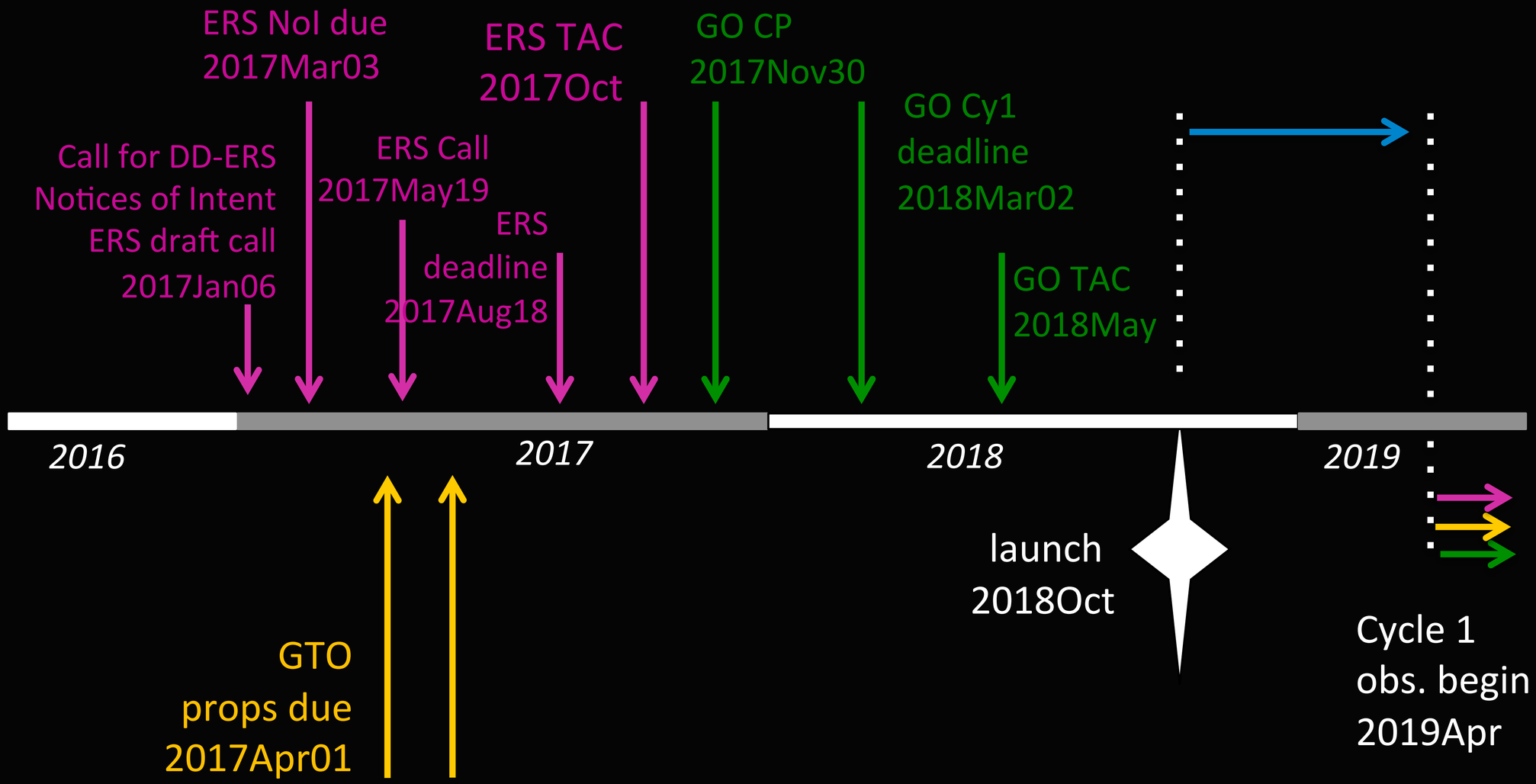






Science and Flight Mission Operations





JWST Science Timeline

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JWST@229th AAS

JWST Town Hall
January 5, 6.30-8.00pm

JWST EVENTS

JWST User Tools and Calls for Proposals/ NOIs Released!

Data Analysis Workshop
January 3

Ask-an-Expert at the STScI Booth

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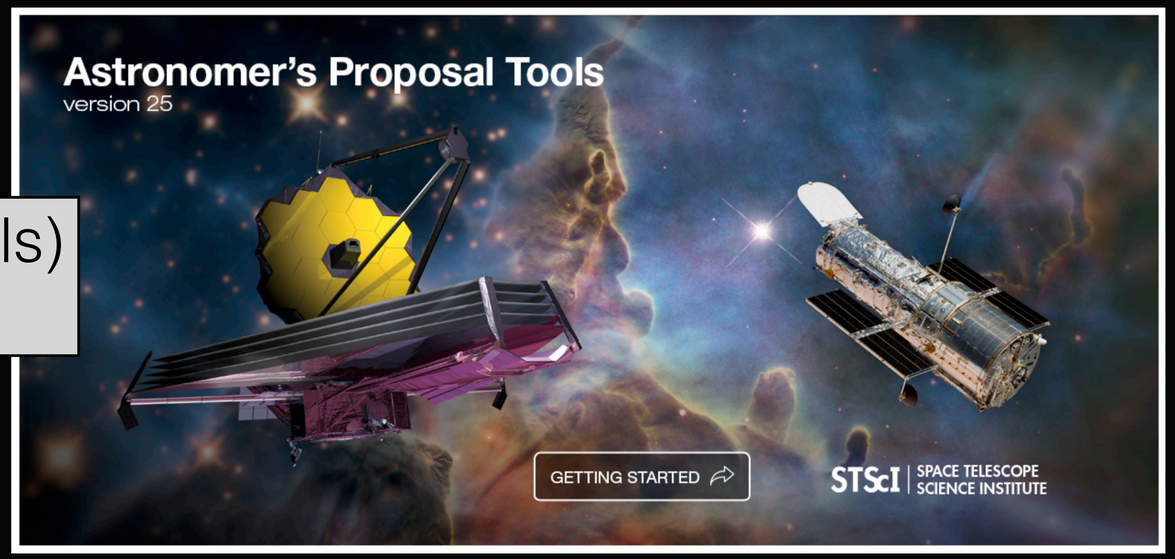
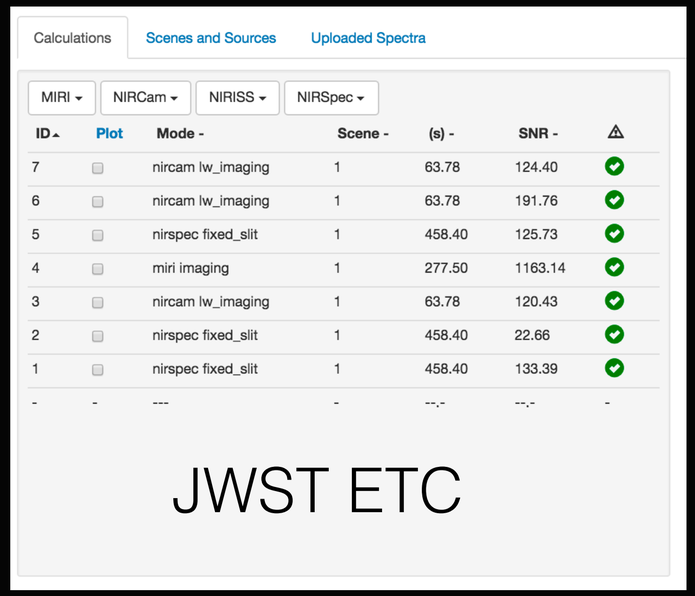
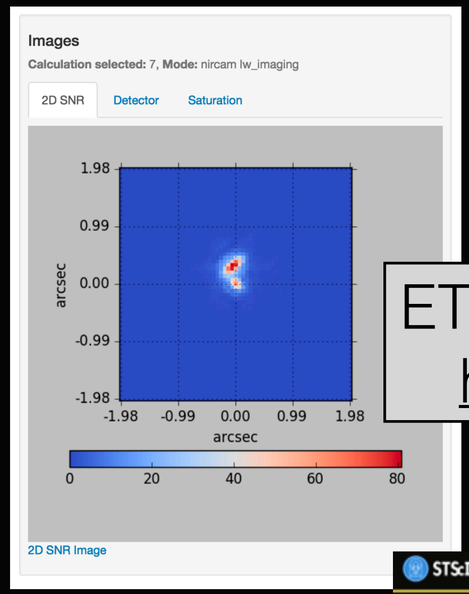
User Tool Releases

APT 25.0.5 (Includes Parallels)
http://apt.stsci.edu



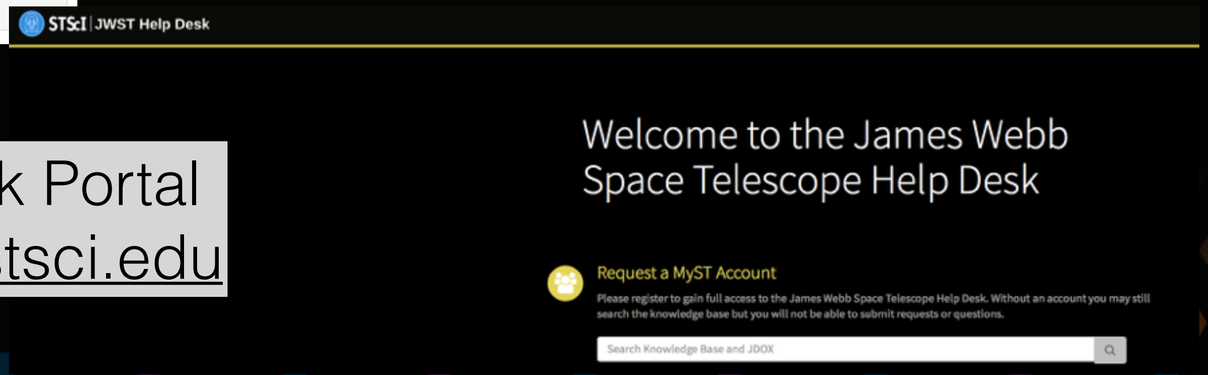


JWST ETC



ETC WebApp Flight Release
https://jwst.etc.stsci.edu

JWST Help Desk Portal
https://jwsthelp.stsci.edu



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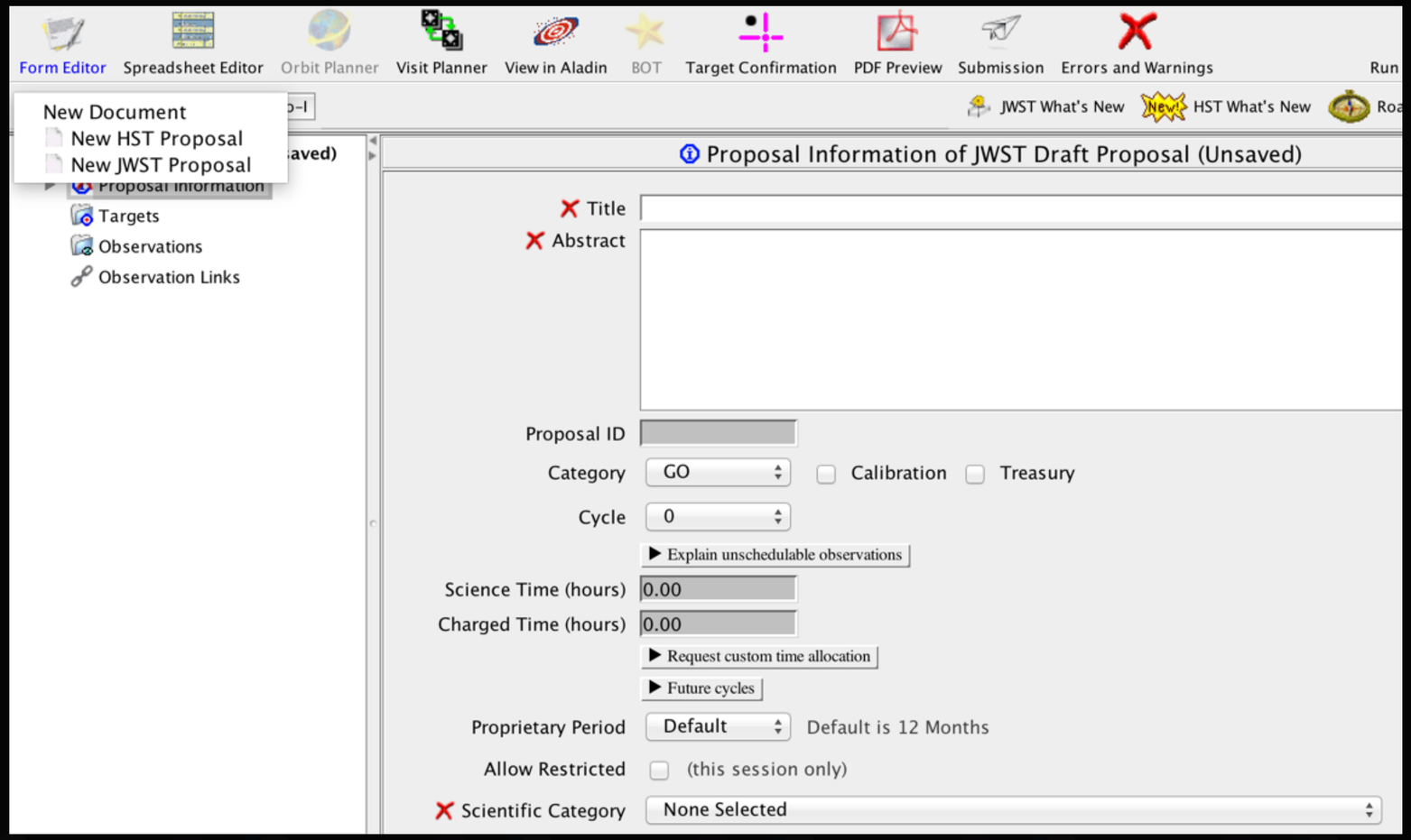
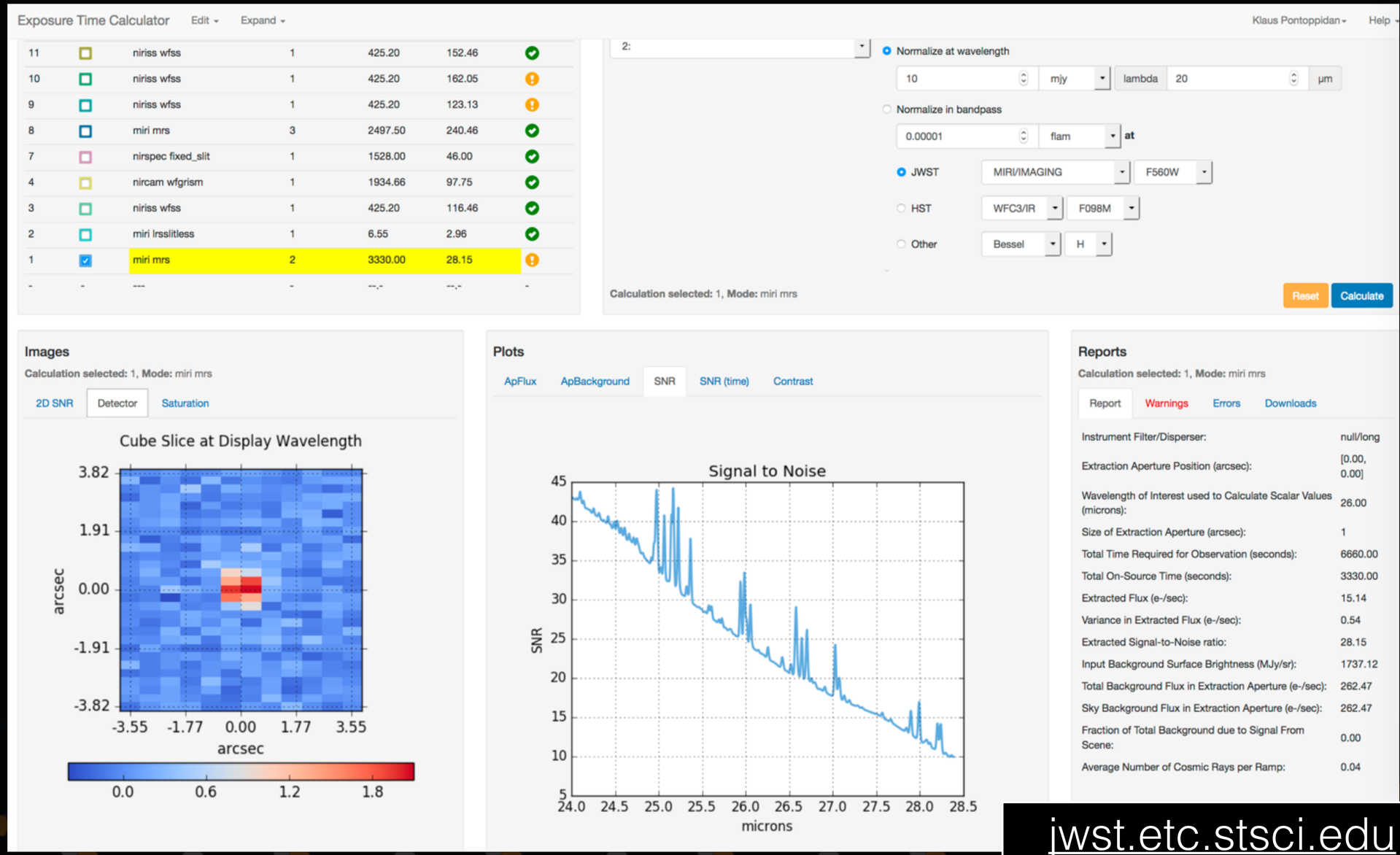
The JWST Astronomer's Proposal Tool (APT)

- Familiar to HST users
- To be used to define JWST observing programs and submit JWST proposals.
- Development releases of JWST APT available together with HST APT



Download Latest Version at http://apt.stsci.edu

JWST Exposure Time Calculator



jwst.etc.stsci.edu

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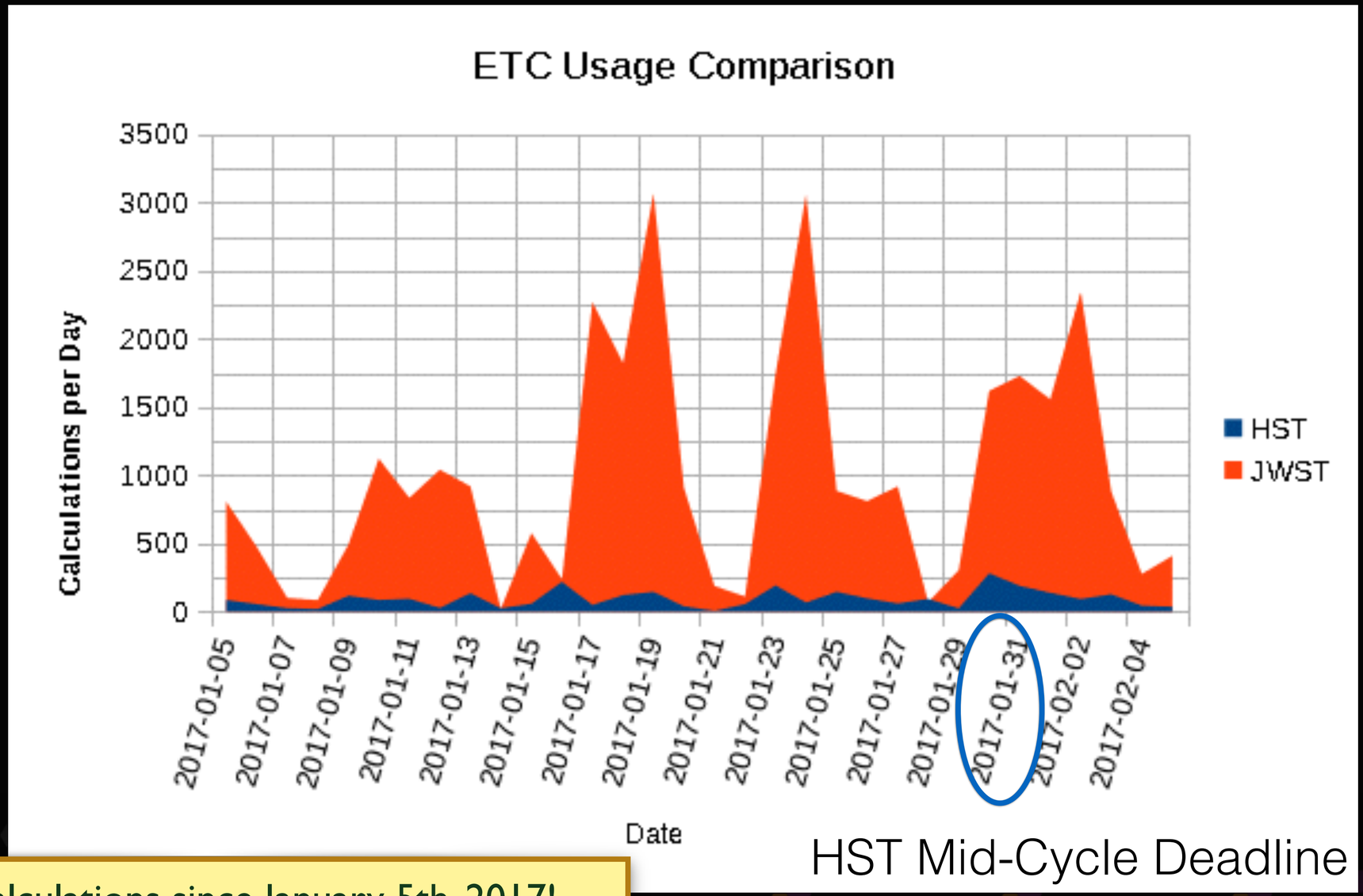
JWST Exposure Time Calculator



HST Mid-Cycle Deadline

100,000+ Calculations since January 5th, 2017!

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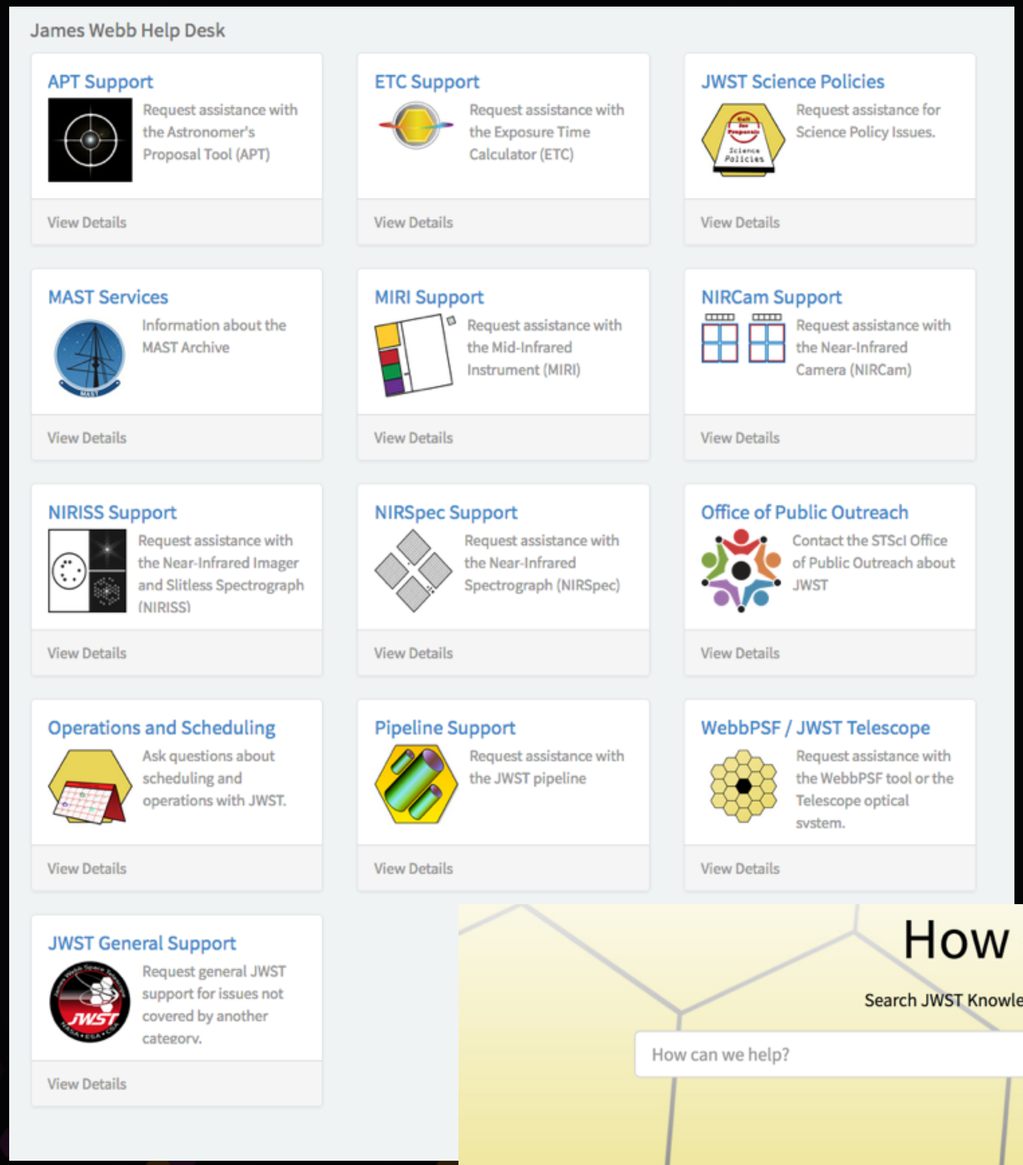
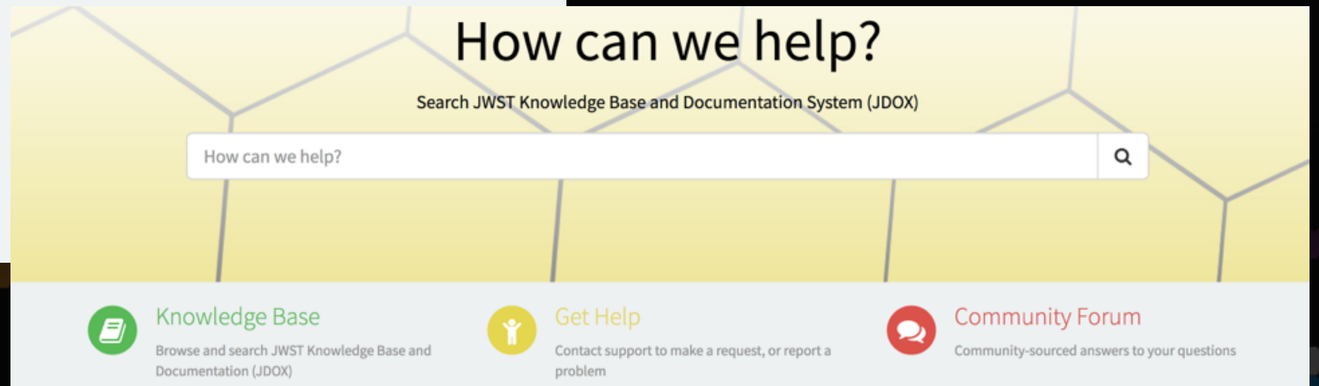
JWST Help Desk



jwsthelp.stsci.edu

160+ help tickets have already been received and resolved!



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JWST User Documentation (JDox)

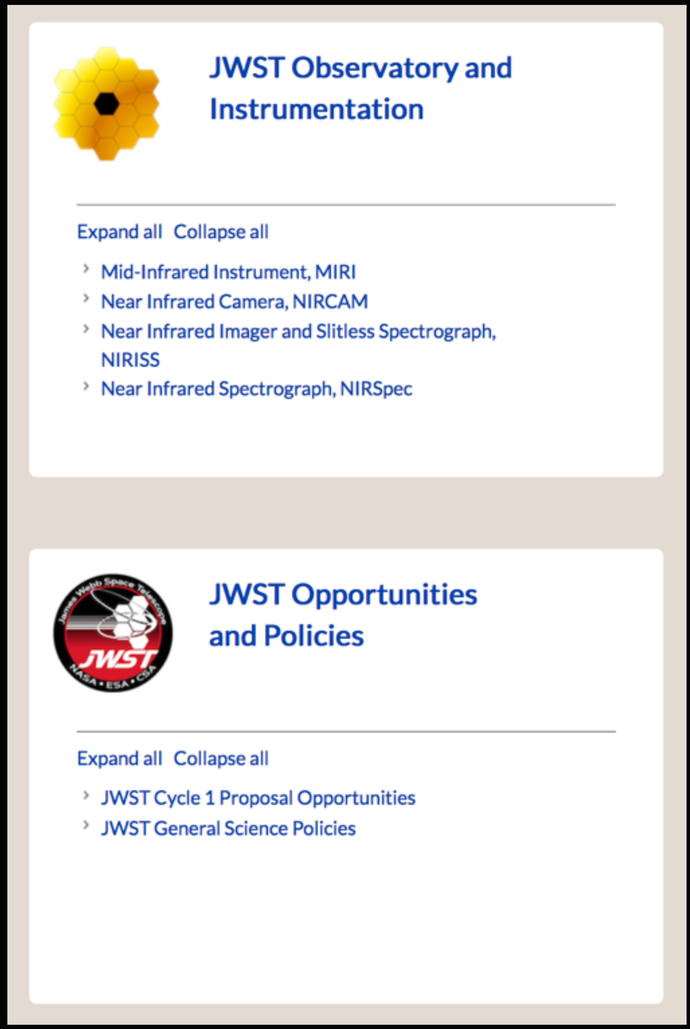
A New Paradigm for JWST User Documentation

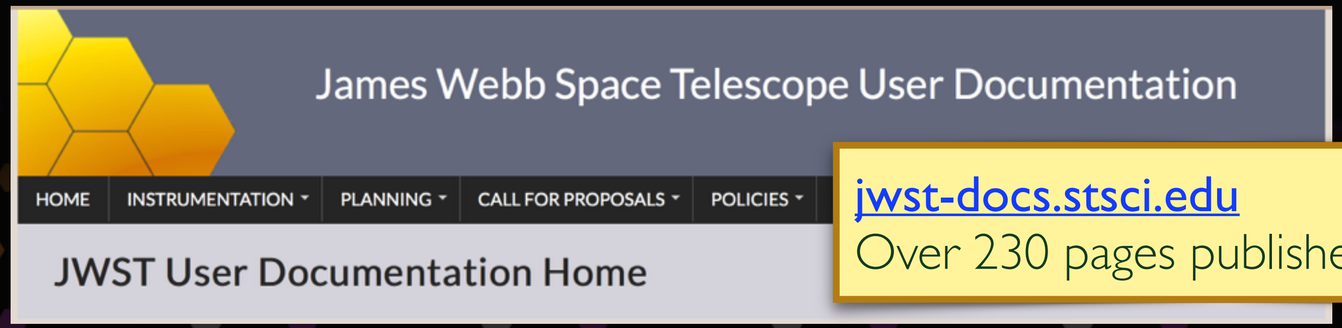
New documentation system: “Every page is page one”
- Short articles
- Self-contained, one-level information
- Hyperlinked network rather than monolithic handbook

Think Wikipedia (but it’s not a wiki)

Multiple conceptual spaces: Background articles, planning cookbooks, science policy, engineering specs

Incremental releases (as articles are written and reviewed), beginning with instruments, APT, ETC articles





jwst-docs.stsci.edu
Over 230 pages published to date!

JWST User Documentation (JDox)

James Webb Space Telescope User Documentation

HOME | INSTRUMENTS | PLANNING | CALL FOR PROPOSALS | POLICIES | DATA | Search

... / MIRI Observing Modes

MIRI Low Resolution Spectroscopy

Last Updated Mar 22, 2017

Low-resolution spectroscopy is an observing mode for JWST's Mid-Infrared Instrument (MIRI) that offers slit and slitless spectroscopy from 5 to 12 µm.

MIRI

Mid-Infrared Instrument

Introduction

MIRI's low-resolution spectrometer (LRS; Kendrew et al. 2015) offers both slit and slitless spectroscopy from 5 to 12 µm using a double prism mounted in the MIRI filter wheel, designed to provide a spectral resolving power of R = 40 at 5 µm, and R = 160 at 10 µm for compact sources (<2"). The long-wavelength limit for this mode is determined by the combined throughput of the prisms and the slit mask, which drops off steeply from a peak of around 80% at 8–9 µm to just 25% at 12 µm. Point source sensitivity will be nearly a factor of 10× better when using the slit.

Users should ultimately use the Exposure Time Calculator for all sensitivity calculations.

On this page

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JWST Calls for Proposals/NOIs

JWST Opportunities and Policies

JWST Cycle 1 Proposal Opportunities

The James Webb Space Telescope will offer proposal opportunities for General Observers (GO), Guaranteed-Time Observers (GTO), and Early Release Science Programs (DD ERS) during Cycle 1. JWST Cycle 1 observations will commence in Spring 2019, with Cycle 1 proposals deadlines in 2017/2018.

We invite scientists to participate in the first cycle of investigations with the James Webb Space Telescope (JWST). JWST is an international collaboration between NASA, the European Space Agency (ESA), and the Canadian Space Agency (CSA). JWST is operated and managed by AURA's Space Telescope Science Institute (STScI). The links below provide information, policies, deadlines, and instructions for proposing opportunities with JWST in Cycle 1.

- Guaranteed Time Observation (GTO) Program [PDF]
- Director's Discretionary Early Release Science (DD ERS) Program [PDF]
  - Call for Notices of Intent to propose
  - Call for Proposals
- General Observer (GO) and Archival Research (AR) Program

Important Dates

Release of the Cycle 1 Call for GTO Proposals	January 6, 2017
Release of the Cycle 1 Call for ERS Letters of Intent	January 6, 2017
ERS Letters of Intent due	March 3, 2017
Cycle 1 GTO Science Descriptions and Observation Specifications due	April 1, 2017
Release of the Cycle 1 Call for ERS Proposals	May 19, 2017
APT version 25.2 Released (with final Cycle 1 overhead calculations)	June 1, 2017
GTO Observation Specifications Published (public)	June 15, 2017
GTO APT Technical Reviews and Revisions Begin	July 28, 2017
ERS Proposal Deadline	August 18, 2017
GTO APT Technical Reviews and Revisions End	September 15, 2017
ERS Results Released	November 2017
Release of the Cycle 1 Call for GO Proposals	November 30, 2017
GTO APT Files Published (public)	December 15, 2017
ERS APT Files Published (public)	December 2017
Cycle 1 GO Proposal Deadline	March 2, 2018

https://jwst-docs.stsci.edu/display/JSP/JWST+Cycle+1+Proposal+Opportunities

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The JWST Director's Discretionary Early Release Science (DD ERS) Program

STScI Director Ken Sembach will allocate ~500 hours of Director's Discretionary time for Early Release Science (DD-ERS) to

- *accelerate the diffusion of JWST know-how, and*
- *expand early opportunities for the community to gain experience with JWST data and scientific analysis.*

Early resources are allocated to support up to 15 teams. Proposals will be selected in research areas spanning the science themes of JWST :

200 Notices of Intent to Propose to Director's Discretionary Early Release Science (DD ERS) Program Received!

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The JWST Director's Discretionary Early Release Science (DD ERS) Program

Total of 3,665 Named Investigators/Collaborators
Average of 18 Scientists per Team
Largest Team is 119 Investigators
2,379 Unique Investigators/Collaborators
477 New User Investigators/Collaborators

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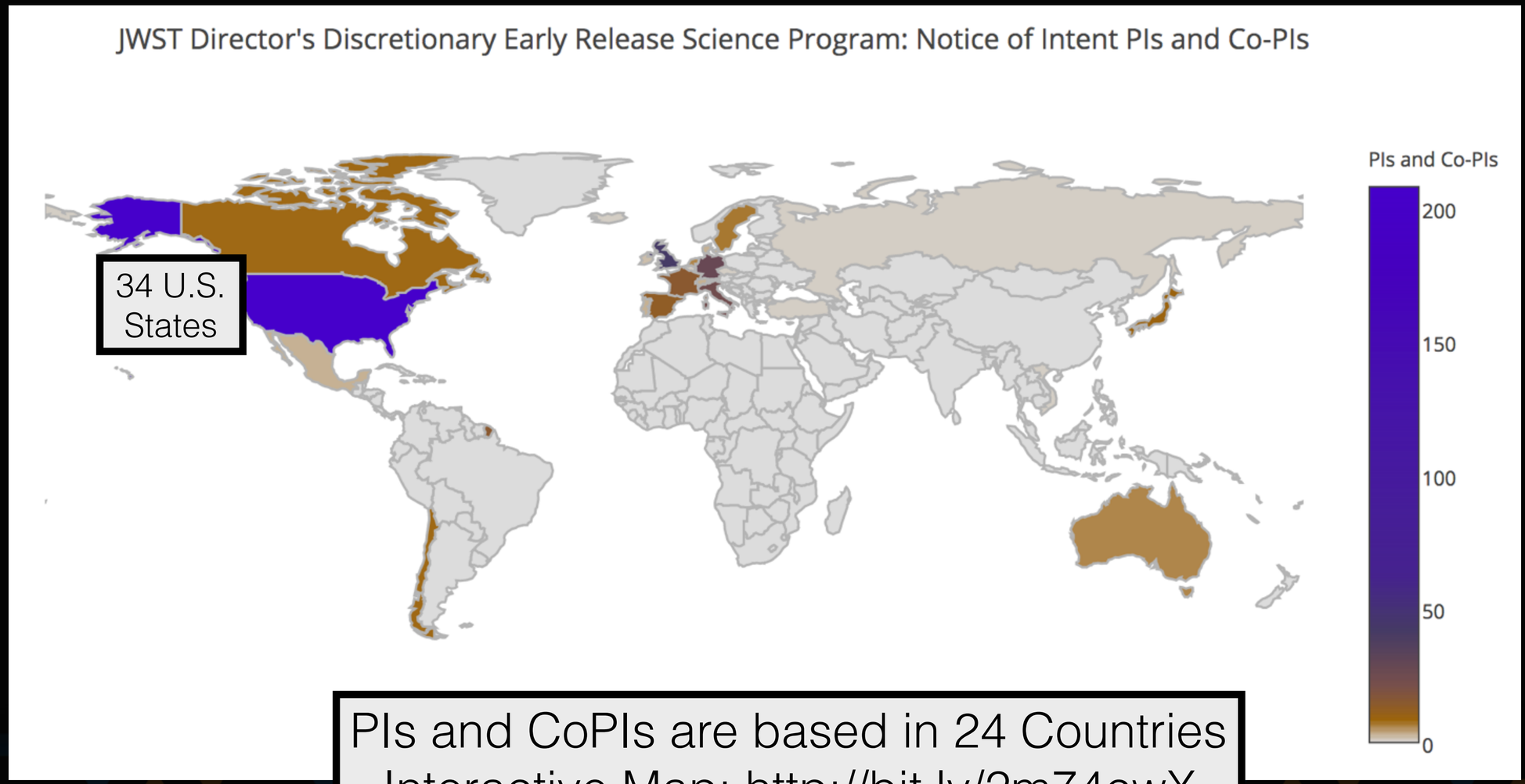
The JWST Director's Discretionary Early Release Science (DD ERS) Program



PIs and CoPIs are based in 24 Countries
Interactive Map: http://bit.ly/2m74cwX

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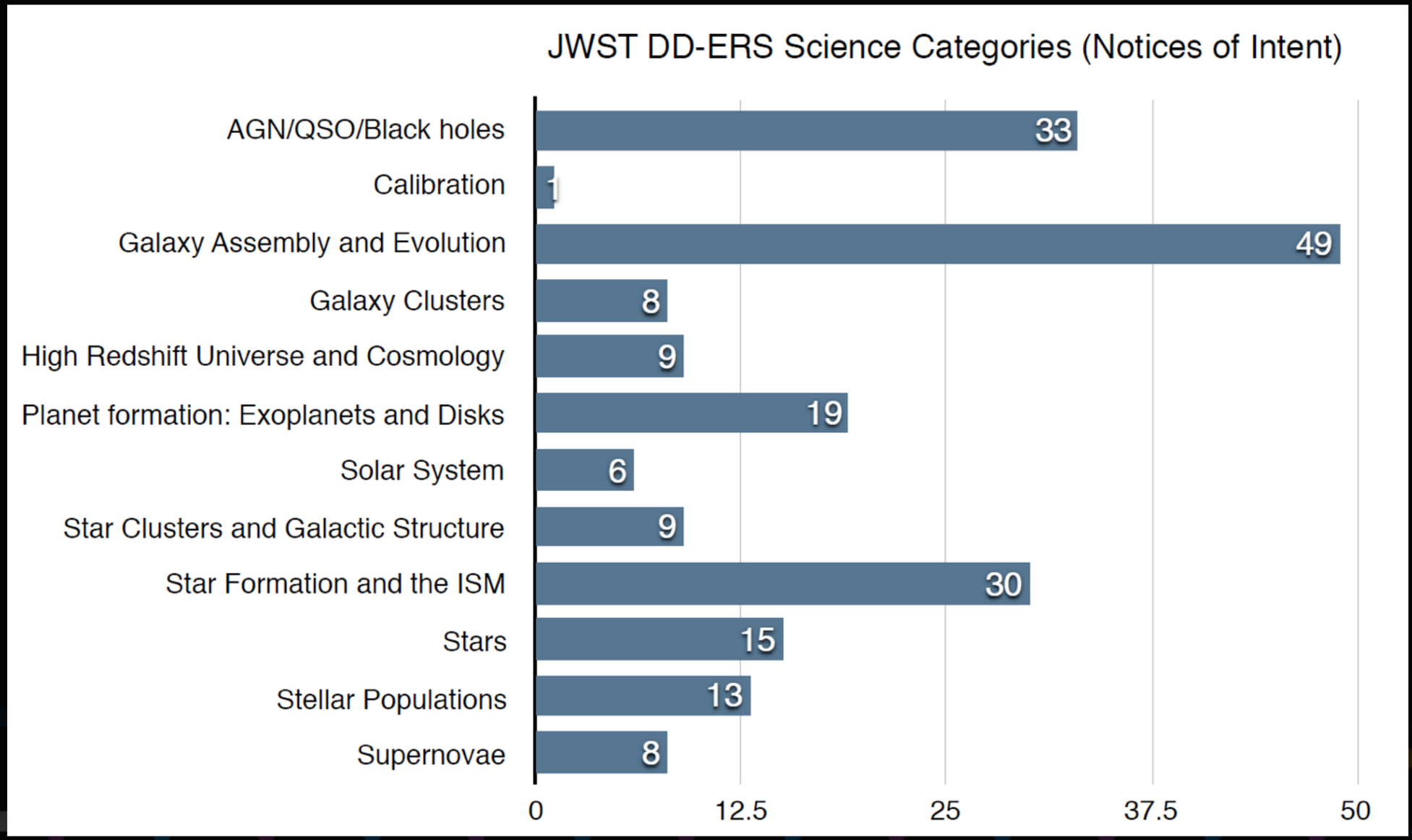
The JWST Director's Discretionary Early Release Science (DD ERS) Program



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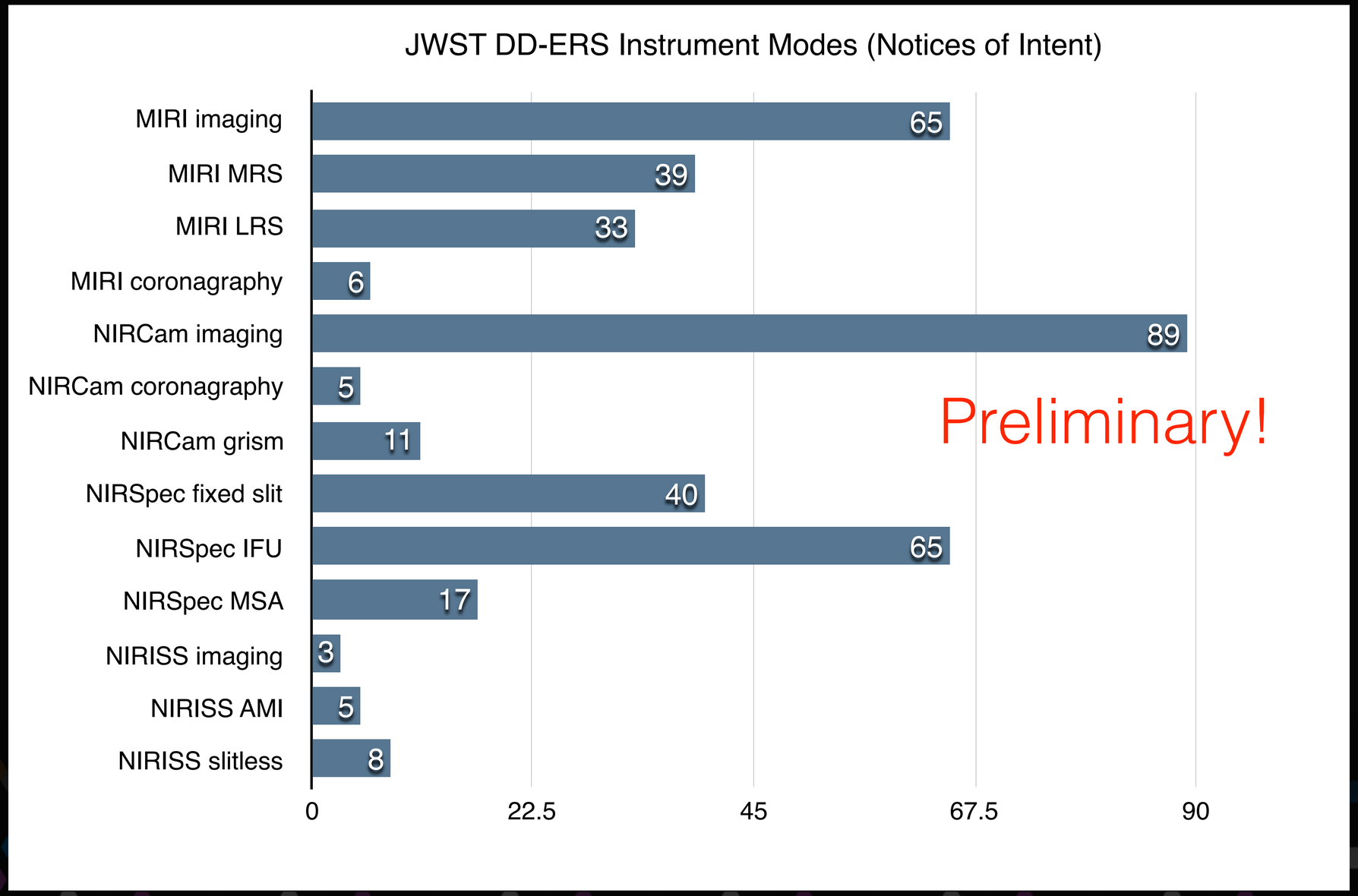
The JWST Director's Discretionary Early Release Science (DD ERS) Program



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Online Resources

jwst.stsci.edu

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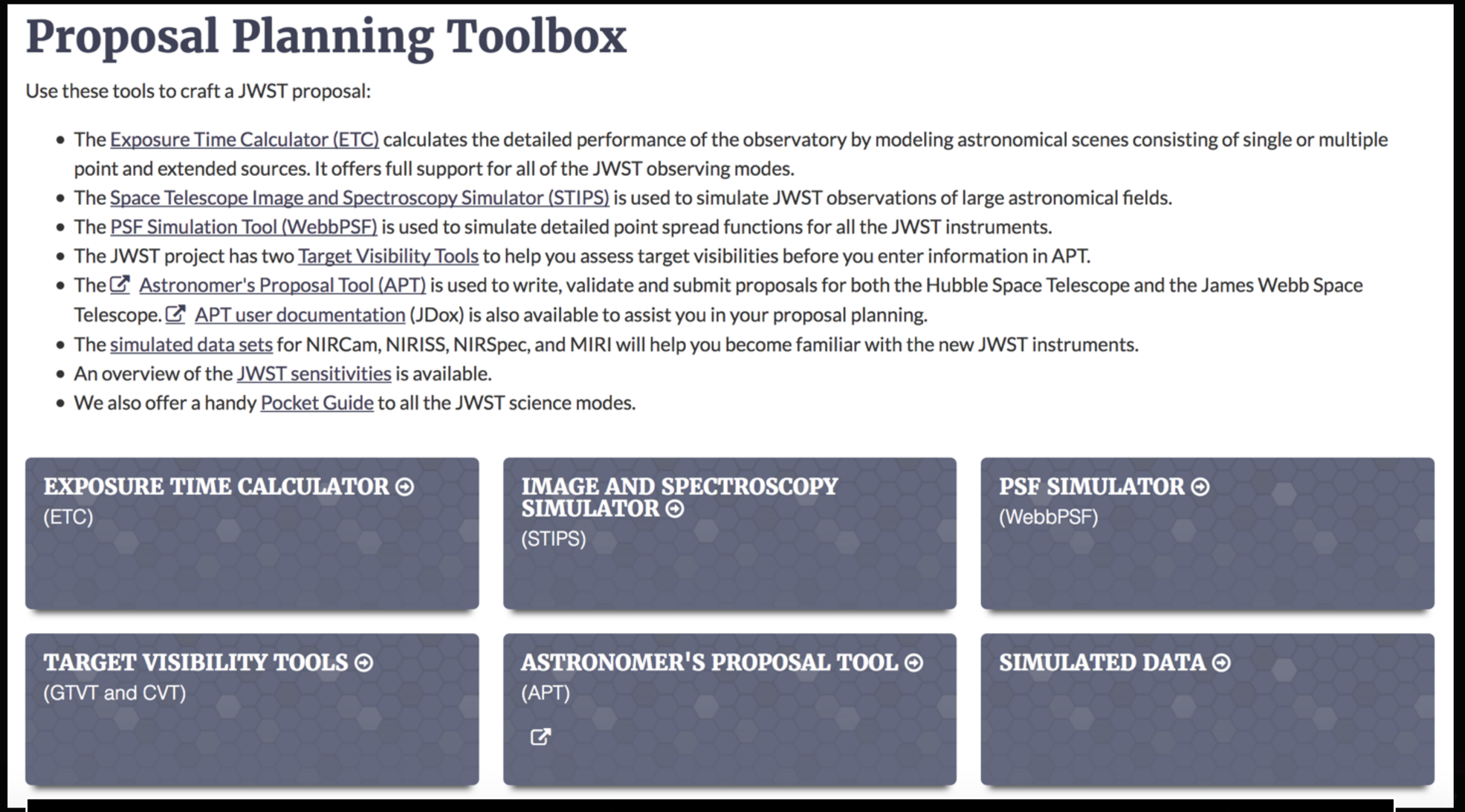
Online Resources



Proposal Planning Toolbox

Use these tools to craft a JWST proposal:

- The Exposure Time Calculator (ETC) calculates the detailed performance of the observatory by modeling astronomical scenes consisting of single or multiple point and extended sources. It offers full support for all of the JWST observing modes.
- The Space Telescope Image and Spectroscopy Simulator (STIPS) is used to simulate JWST observations of large astronomical fields.
- The PSF Simulation Tool (WebbPSF) is used to simulate detailed point spread functions for all the JWST instruments.
- The JWST project has two Target Visibility Tools to help you assess target visibilities before you enter information in APT.
- The Astronomer's Proposal Tool (APT) is used to write, validate and submit proposals for both the Hubble Space Telescope and the James Webb Space Telescope. APT user documentation (JDox) is also available to assist you in your proposal planning.
- The simulated data sets for NIRCam, NIRISS, NIRSpec, and MIRI will help you become familiar with the new JWST instruments.
- An overview of the JWST sensitivities is available.
- We also offer a handy Pocket Guide to all the JWST science modes.

EXPOSURE TIME CALCULATOR
(ETC)

IMAGE AND SPECTROSCOPY SIMULATOR
(STIPS)

PSF SIMULATOR
(WebbPSF)

TARGET VISIBILITY TOOLS
(GTVT and CVT)

ASTRONOMER'S PROPOSAL TOOL
(APT)

SIMULATED DATA

jwst.stsci.edu/science-planning/proposal-planning-toolbox

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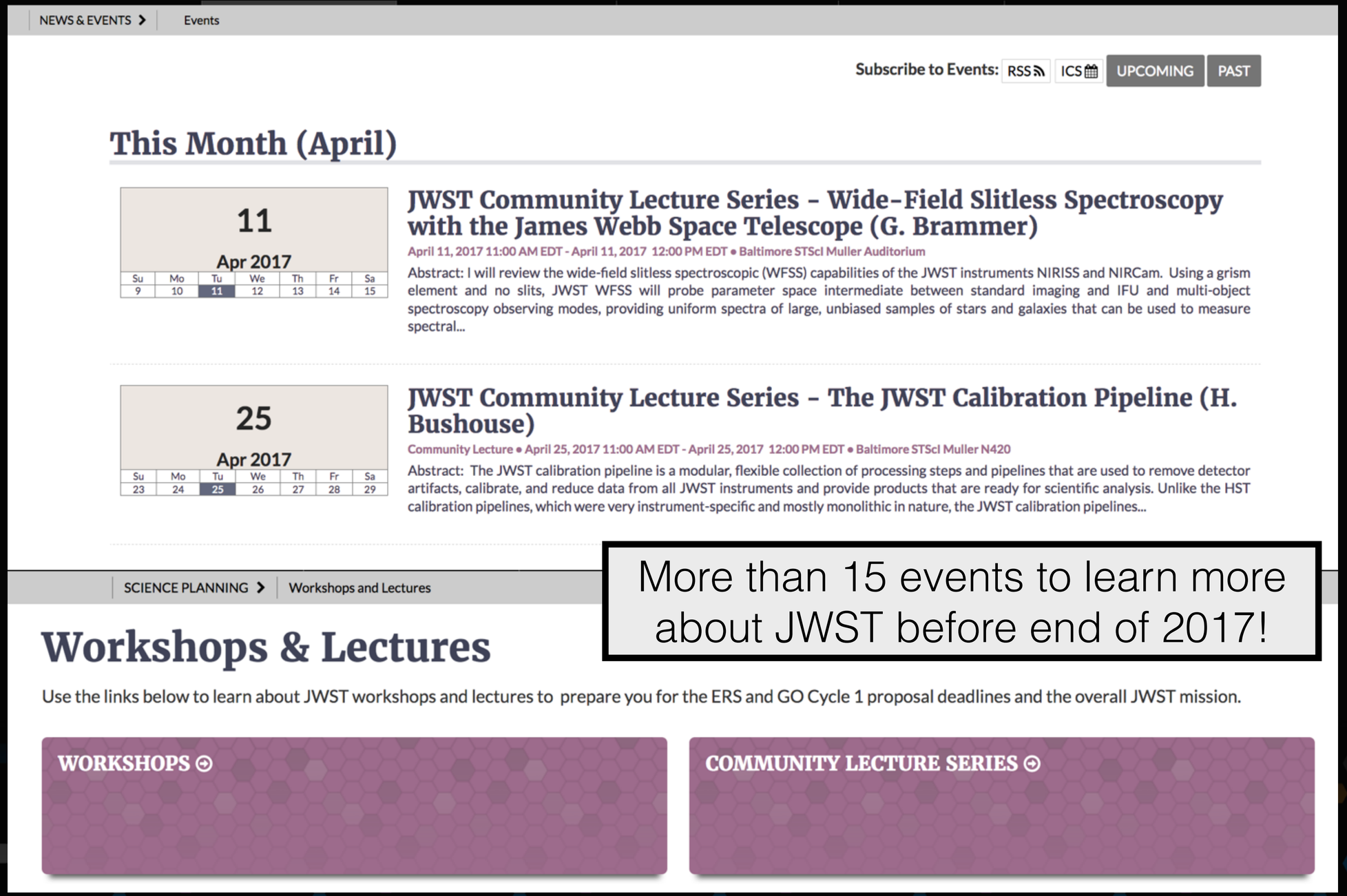
Online Resources



More than 15 events to learn more about JWST before end of 2017!

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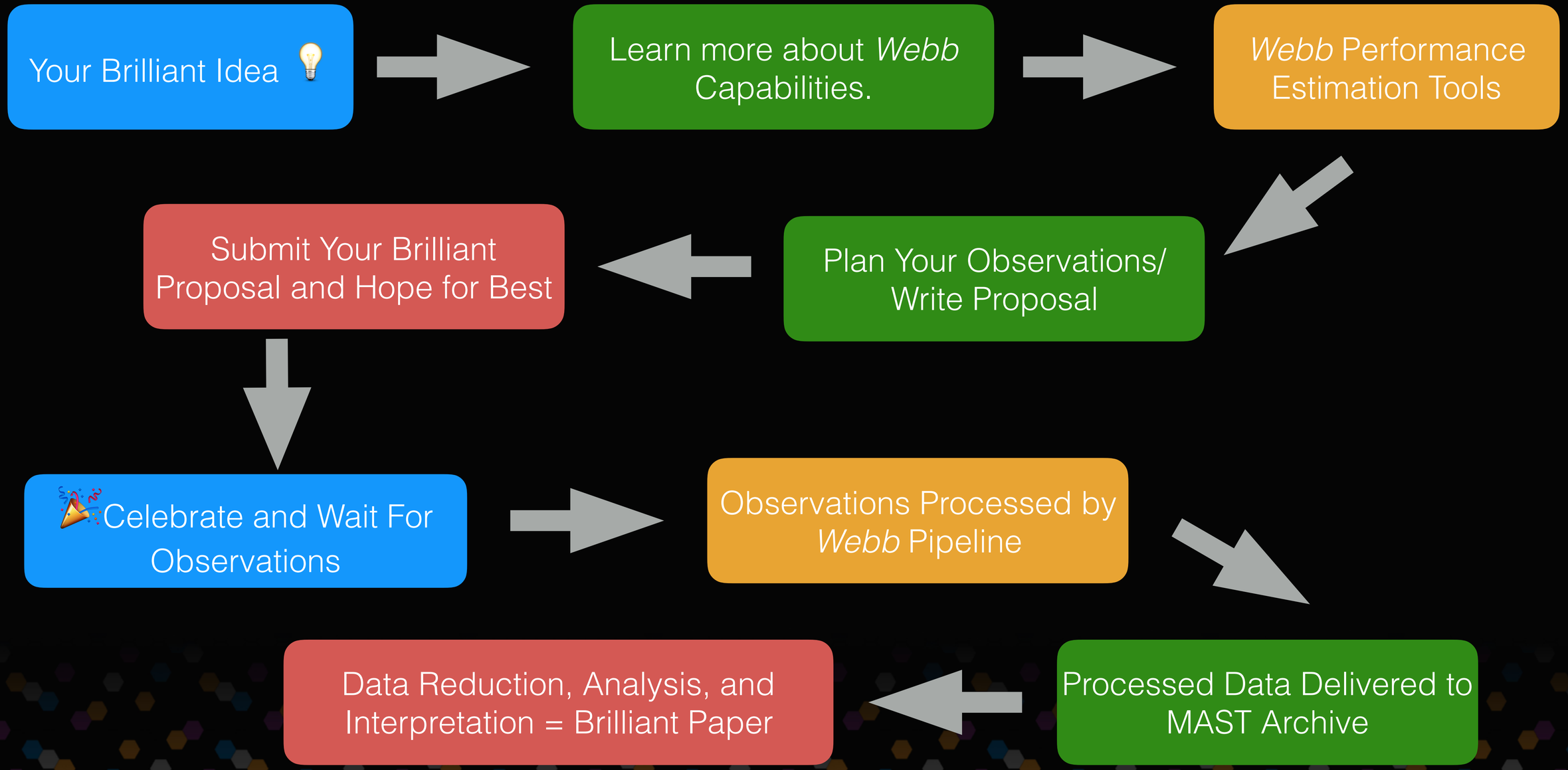
Life-cycle of your observations with *Webb*



Observations Processed by *Webb* Pipeline

The *Webb* Pipeline Architecture

Pipeline Availability

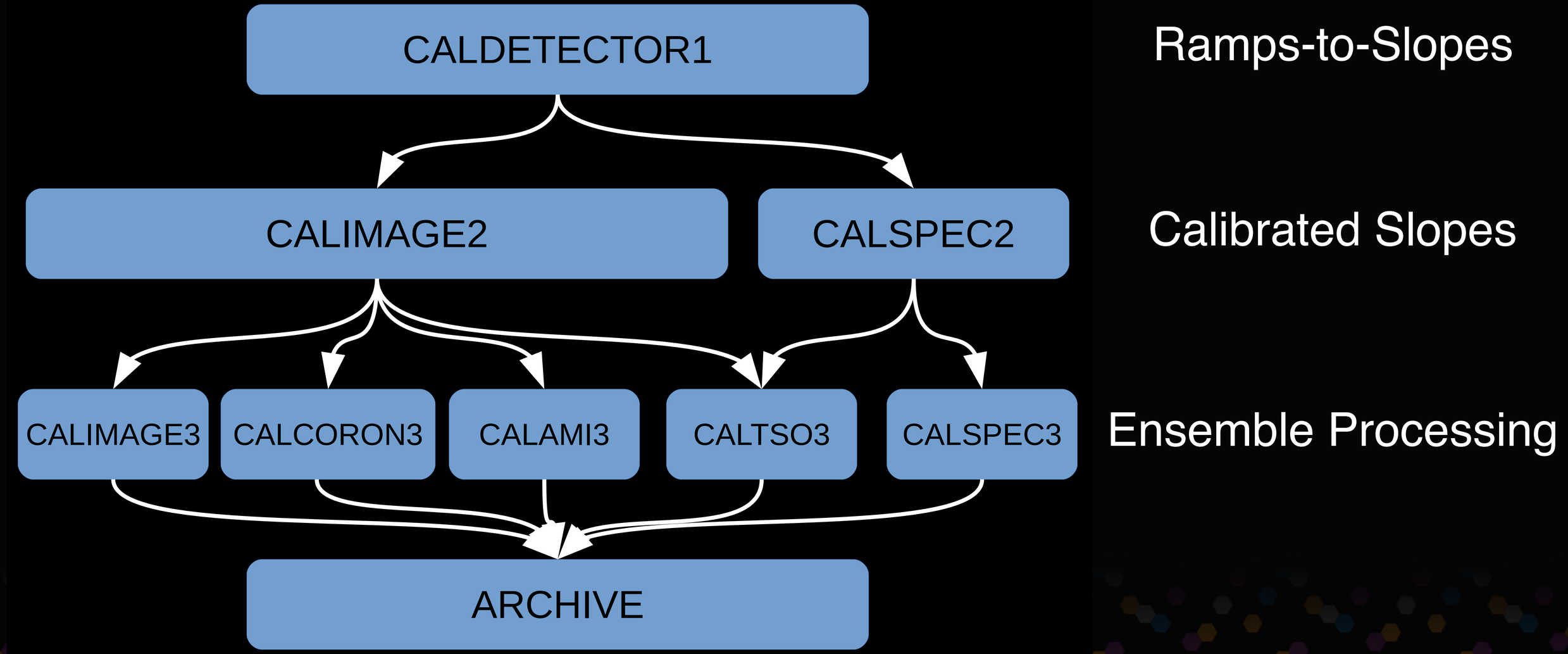
- Written in python
- Freely available
- Easily configurable
- Users can rerun all or part of the pipeline
- Users can replace specific modules
- Hosted on github
- Based on astropy

Data Products

- Raw data
- Intermediate stage data
- Final data
  - Best quality from an automated pipeline
  - “browse-quality” data in Spitzer-speak
  - Flux, wavelength, and position calibrated
- Any user can rerun the pipeline offline
  - Changed parameters to specific steps
  - Replace a step with a user written version

Observations Processed by *Webb* Pipeline

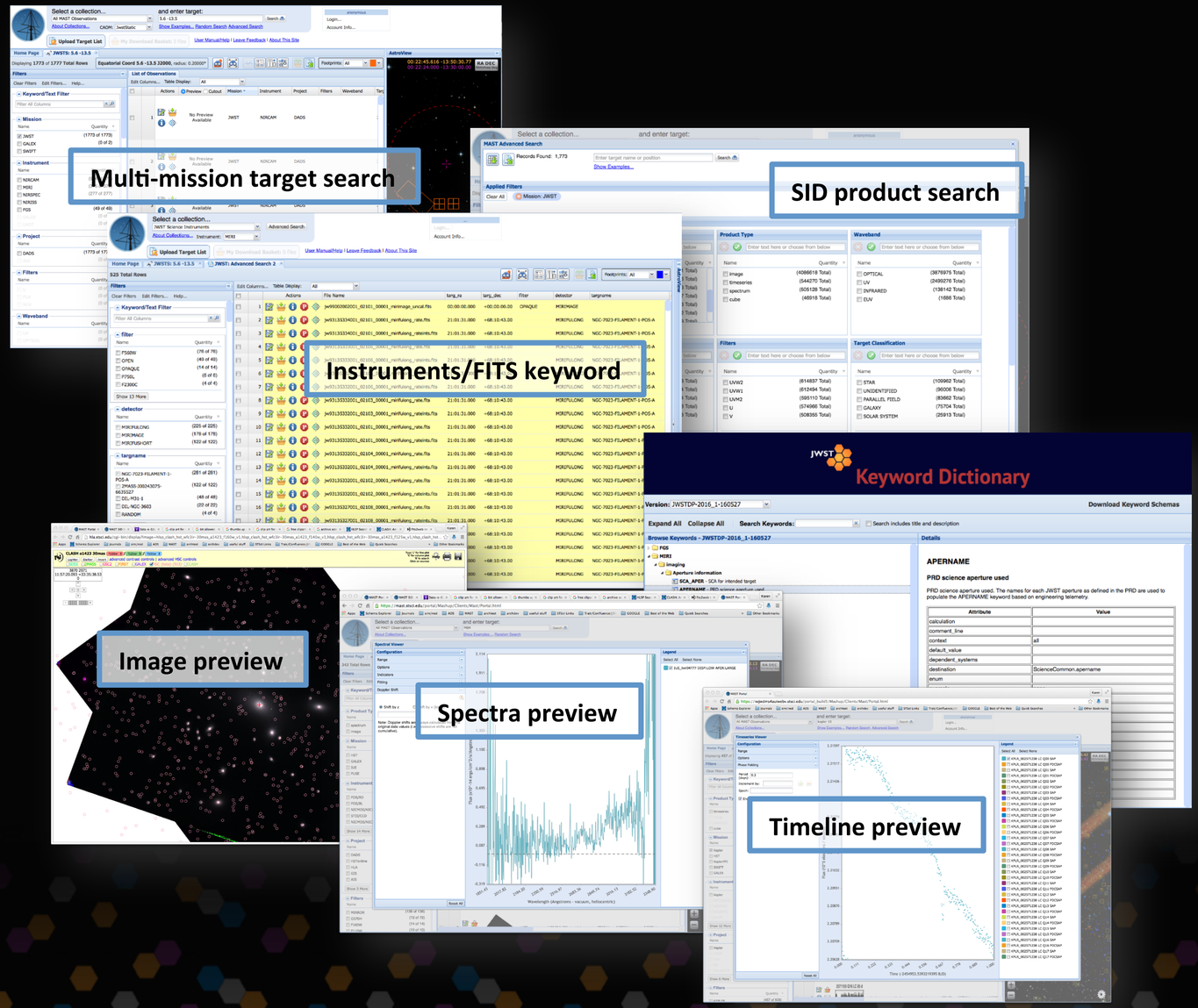
The *Webb* Pipeline Architecture



Processed Data Delivered to MAST Archive

The MAST Archive in the Era of JWST

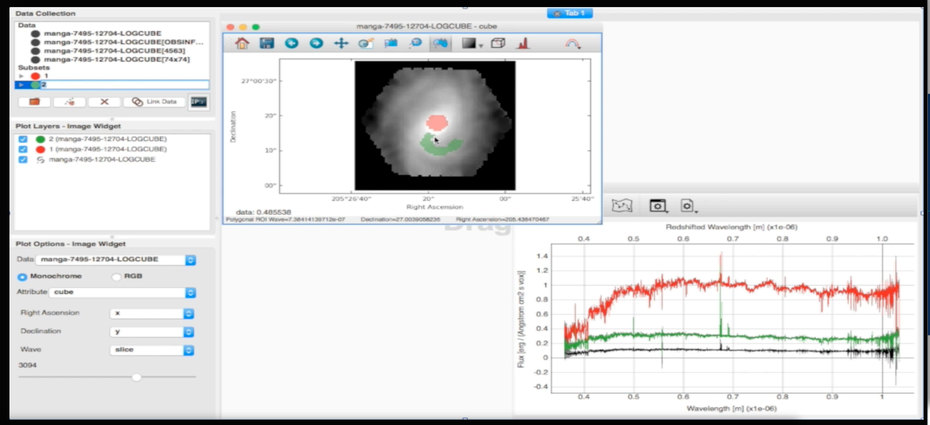
- Common Archive Observation Model (CAOM)
- JWST-specific views
- Distribution (URL & Curl-scripts)
- Subscription Service
- High Level Science Products (HLSP)
- Digital Object Identifier (DOI): Linking Data to Papers
  - Starting with AAS journals

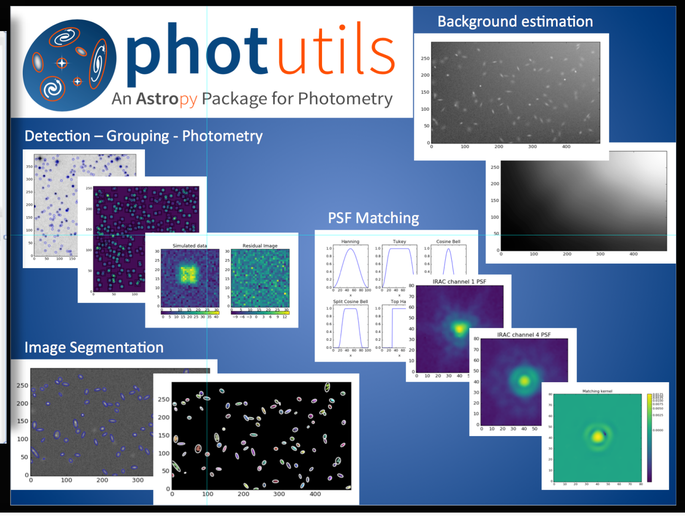


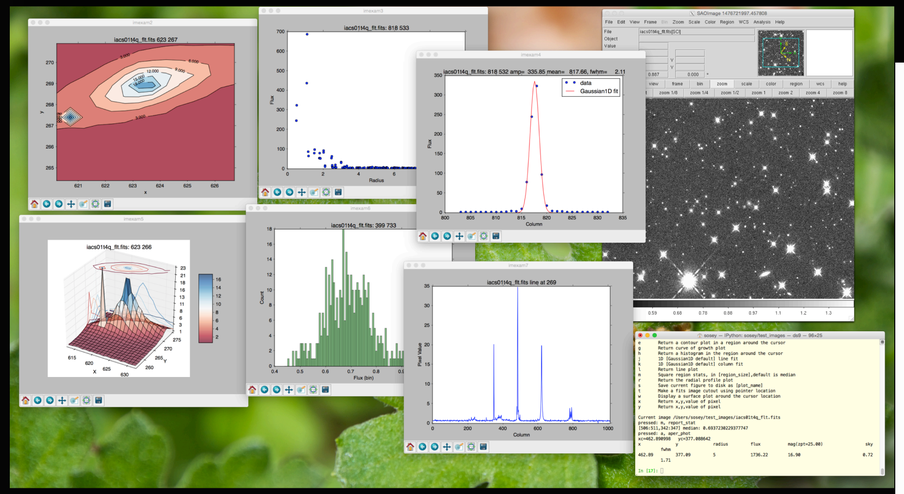
Data Reduction, Analysis, and Interpretation = Brilliant Paper

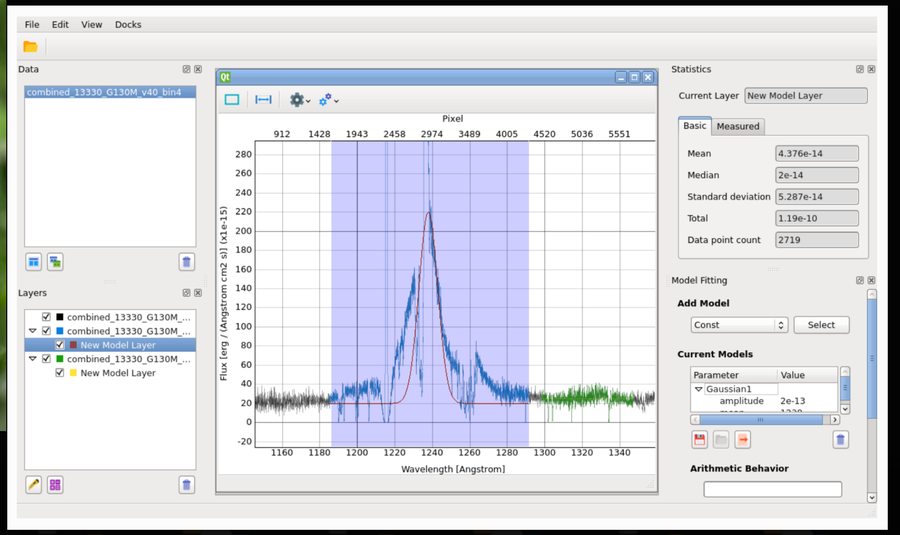
JWST Data Analysis Tools

- Flexible, Modular tools
- In Python
- Supporting JWST data structures
- Simple installation









jwst.stsci.edu/science-planning/data-analysis-toolbox

Leveraging Web and Social Media to Engage User Community

jwst.stsci.edu

JWST Observer

@JWSTObserver

STScI

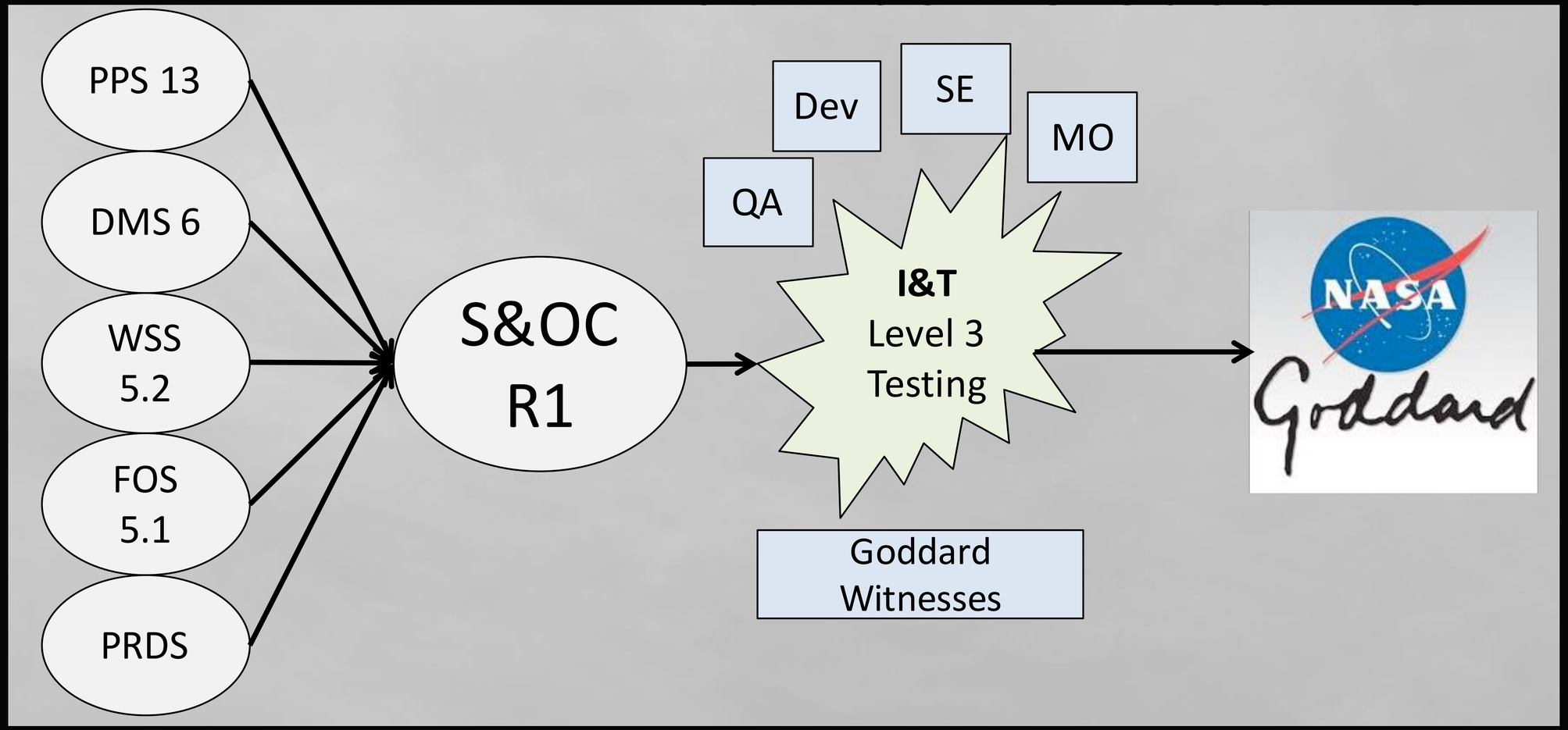
Back-up Slides

S&OC & Subsystem Status

Subsystem	Build	Development completion date	I&T completion date	Status	% of requirements delivered to date	% of requirements verified to date
Data Management Subsystem (DMS)	5	October 2015	May 2016	I&T completed	89%	65%
	6	May 2016	December 2016	I&T Completed		
	7*	December 2016	April 2017	In I&T		
	7.1	November 2017	February 2018	In Development		
Proposal Planning Subsystem (PPS)	12	October 2015	April 2016	I&T completed	97%	81%
	13	April 2016	December 2016	I&T Completed		
	14*	December 2016	April 2017	In I&T		
	14.1	January 2017	June 2017	In Development		
Wavefront Sensing & Control (WFS&C) Software Subsystem	5.1	March 2016	May 2016	All requirements completed	100%	100%
	6*	January 2017	May 2017	In I&T		
	6.1	December 2017	February 2018	Planned		
Flight Operations Subsystem (FOS)	5	March 2016	July 2016	I&T completed	83%	48%
	6	February 2017	July 2017	In Development		
	6.1*	August 2017	December 2017	In Development		
Operations Scripts Subsystem (OSS)	5	May 2016		Level 2 certification testing completed	73% Level 2 certified	58% Level 3 certified
	6*	March 2017	August 2017	In Development		
Project Reference Database Subsystem (PRDS)	4.12*	July 2016	July 2016	Latest Sustaining Engineering release	100%	100%

*Flight Build

S&OC Release 1



Recent End-to-End Test with OTB Simulator Approaching Readiness for JWST Launch, Commissioning and Cycle 1 Science

STScI

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