JWST Master Class Workshop

Cycle 1 Proposals

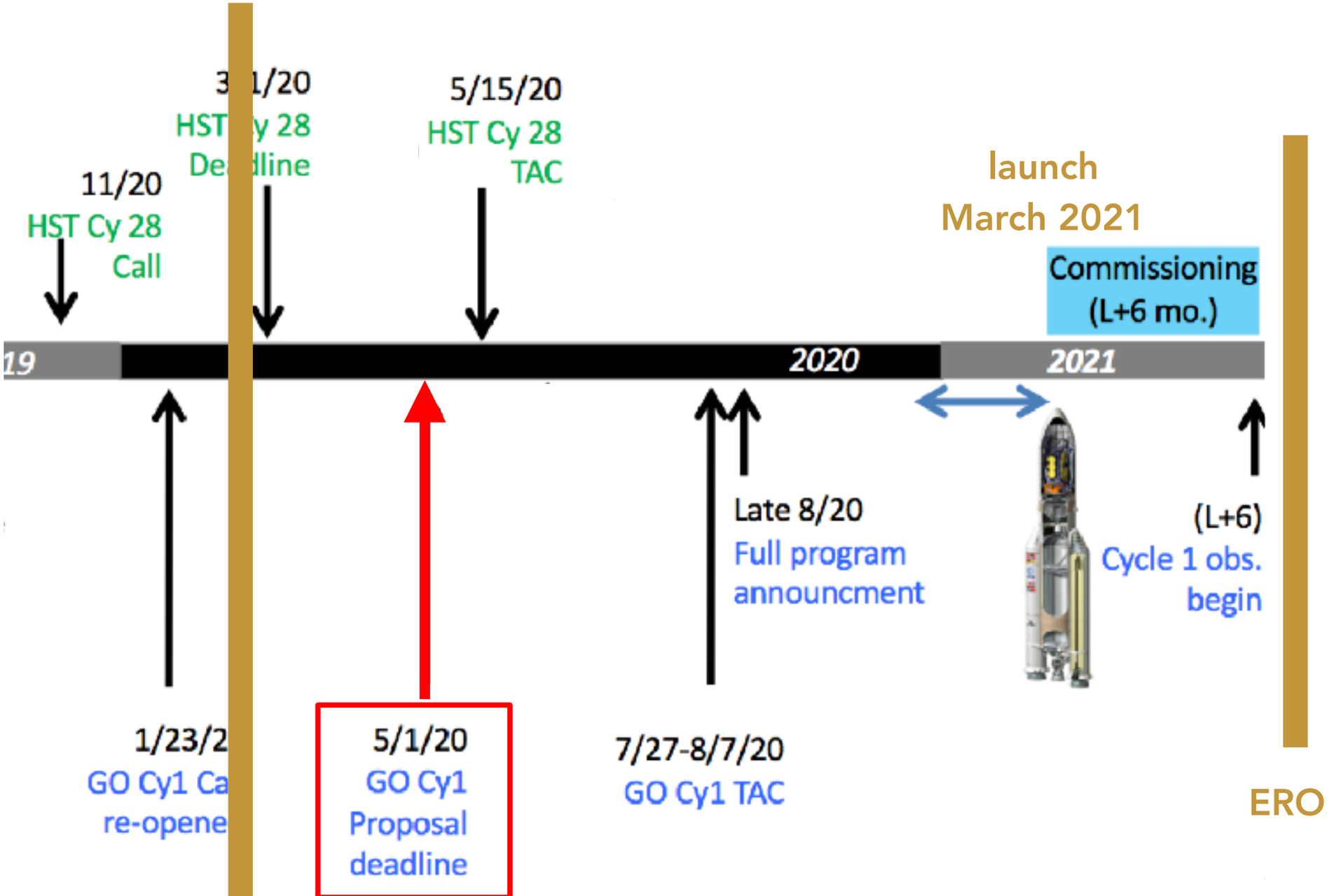
Hakim Atek (IAP)

PROGRAMME NATIONAL DE COSMOLOGIE ET GALAXIES

INSTITUT D'ASTROPHYSIQUE DE PARIS

Unité mixte de recherche 7095 CNRS - Sorbonne Université

The timeline



We are here

What to expect

- STScI anticipates receiving 1000 to 1600 proposals, and awarding approximately 300 recommended by the Time Allocation Committee (TAC) & Panels.

- Approximately 6000 hours of observing time will be available for the Cycle 1 General Observer (GO), which include ~2000 hours in oversubscription to maximize scheduling efficiency.

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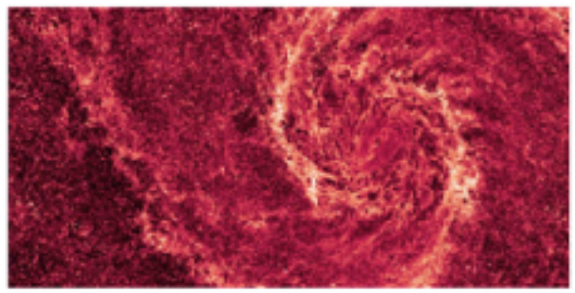
Resources for Crafting Your Proposals

The information provided here in the science planning section can help you learn more about the various JWST programs, including their deadlines and other important dates, and JWST user committees. General information about proposal planning tools is designed to help you prepare your proposals. Links to more technical resources, as well as to simulated data, are also provided.

Calls for Proposals & Policy

Get information on the various programs for JWST Observers

Learn More



Proposal Planning Toolbox

Access tools and data simulations to help you craft a JWST proposal.

Learn More

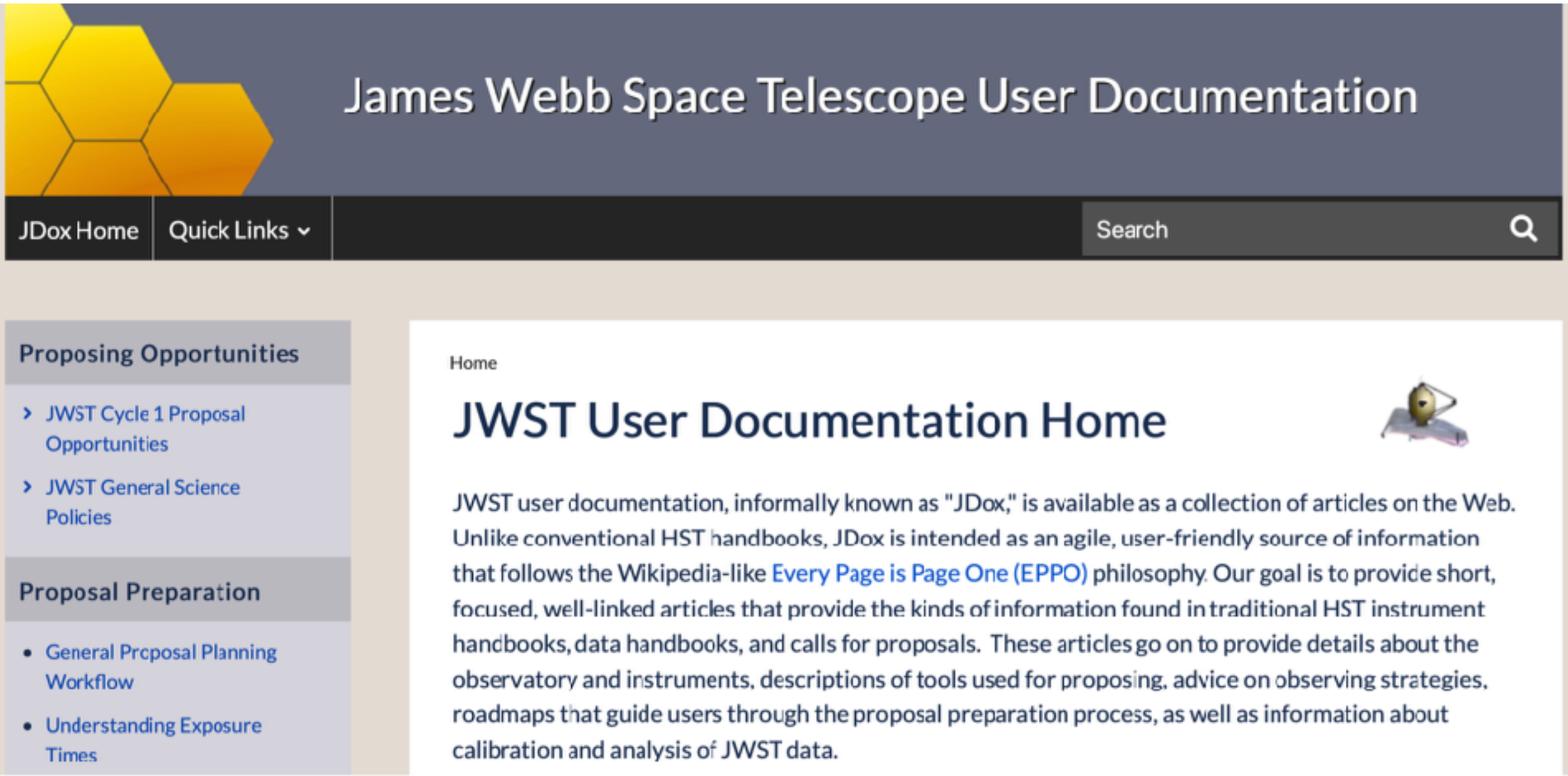
JWST User Committees

Learn about JWST user committees, their membership, and meetings.

Learn More

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

Where to find the information



Opportunities available in Cycle 1

	Size Category	Additional Category	Additional Status	Additional Special Status
General Observer (GO) Program	Small	Joint- HST	Long-term	Time-constrained
		Calibration		Target of Opportunity
	Medium			Solar System
		Survey	Treasury	Coordinated parallel
	Large			Pure Paralel
				Pre-Imaging

General Observer (GO) Proposals

Depending on size, GO proposals fall into the different categories:

- **Small Proposals** are requests of up to 25 hours. We anticipate approximately 3500 hours for Cycle 1. These proposals are reviewed and recommended by topical panels. Small proposals have a default of 12 months of exclusive access rights.
- **Medium Proposals** (25 to 75 hours) are expected to receive ~1500 hours in Cycle 1. These proposals will also be reviewed by topical panels. They also have a default of 12 months of exclusive access rights.
- **Large Proposals** (>75 hours) are expected to receive approximately 1000 hours (shared with Treasury programs), and will be reviewed by the TAC, which is the chairs panel. They have no default exclusive access period, but may request one in the proposal.

General Observer (GO) Proposals

- The **Treasury Programs** are designed to create datasets of lasting value to the mission, by solving multiple scientific problems while simultaneously enabling a variety of compelling investigations. **They should also provide scientific products that go beyond what will be produced by the JWST calibration pipeline.** There is no size limit— proposals can be both Large and Treasury. Treasury status programs have no exclusive access periods

- The **Long Term Programs** scientifically require observing time to be split over more than one cycle to accomplish science goals. They may request up to 3 cycles— no continuation proposal. There is no size limit.

General Observer (GO) Special Observation Types and Restrictions

- Observations of **Solar System objects** are limited due to the limited field of regard. The Sun, Mercury, Venus, Earth, and Moon cannot be observed due to the orientation of the sunshade.
- **Target of Opportunity** (ToO) observations are of transient phenomena that occur at unexpected times and locations. These programs are activated when alerted by the Principal Investigator (PI).
- **Time Constrained observations** require execution within a constrained time period, e.g., observations of specific phases of variable stars, exoplanet transits, and some solar system phenomena.
- **Time Series observations** fall in this category.
- **Time Critical observations** are those that require an activation at a precise time, specified to within a window of 1 hour. These observations carry an overhead of 60 minutes per activation.

General Observer (GO) Special Observation Types and Restrictions

- **Science parallel observations** involve simultaneous operation of two instruments into increase science return.
- **Coordinated parallels** are from a single program, to achieve complementary observations. Coordinated parallels have pre-defined APT templates.
- **Pure parallels** involve separate, distinct programs, not necessarily with the complementary goals

General Observer (GO) Special Observation Types and Restrictions

- **Follow-up observations of JWST pre-imaging.** Same-cycle follow-up spectroscopic observations of sources identified through JWST NIRCam imaging programs are permitted. For example, a proposal may request imaging with NIRCam as a means of identifying a specific type of target (e.g. high redshift galaxies) for subsequent spectroscopy with NIRSpec.

  The proposal must include the imaging observation defined in APT, and specify the expected number density and magnitude distribution in the anticipated discovery of new targets.

Director Discretionary Proposals

- Nominally, up to 10% of the available JWST time in any cycle may be reserved for **Director's Discretionary (DD)** time allocations. A substantial fraction has already been given to DD ERS programs.
- **DD proposals** allow the timely follow-up of transient phenomena or other new discoveries that could not have been plausibly proposed for in response to the Cycle 1 call.
- **DD proposals** will be accepted at any time during Cycle 1, post-commissioning.

Proposal Submission - dual anonymous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NASA changes how it divvies up telescope time to reduce gender bias

The switch to double-blind peer review will affect roughly 650 scientists working on projects worth an estimated US$55 million.

- STScI uses a dual anonymous proposal review for both JWST and HST.
- The identity of proposers are not known to reviewers in the process of scientific ranking.
- This requires thought in crafting proposals.

Proposal Submission & Review

- Proposers craft and submit their proposals with the APT to include the technical description of their request (instrument setups, orbit planning and scheduling constraints, etc.) and a separate Scientific Justification and Observation Description (PDF) section.
- Proposals are distributed to reviewers a few weeks after the proposal deadline for preliminary grading.
- Results of the grading determine what proposals are carried forward to the in-person review (triage).
- In person review discusses proposals not eliminated in the triage, to arrive at a scientific ranking, recommending awards up to a nominal orbit allocation.
- The Director makes awards based on these recommendations.

Proposal Submission & Review

Proposers must submit a **Team Expertise and Background** exposition with their Phase I submission. This section is separated from the main body of the proposal, not anonymous, and will be used in a final stage of the review after the scientific ranking is completed.

Proposal Review Process

- The Time Allocation Committee (TAC) review will span two weeks.
- Week 1: “Galactic” topics; Week 2: “Extragalactic”.
- ~10 topical panels will meet each week, Monday through mid-day Wednesday, to review GO small and medium, and AR proposals.
- Panel chairs will review Large, Treasury, and AR Legacy proposals mid-Wednesday through Friday.
- Recommendations will be approved at the Director’s review, approximately 1 to 2 weeks after the Extragalactic TAC. The ESA Senior Representative is present at the Director’s review.
- Full program to be announced in late-August 2020.
- All proposals will require a technical review. Most reviews will take place in late-2020 to prepare the Cycle 1 Long Range Plan (LRP).

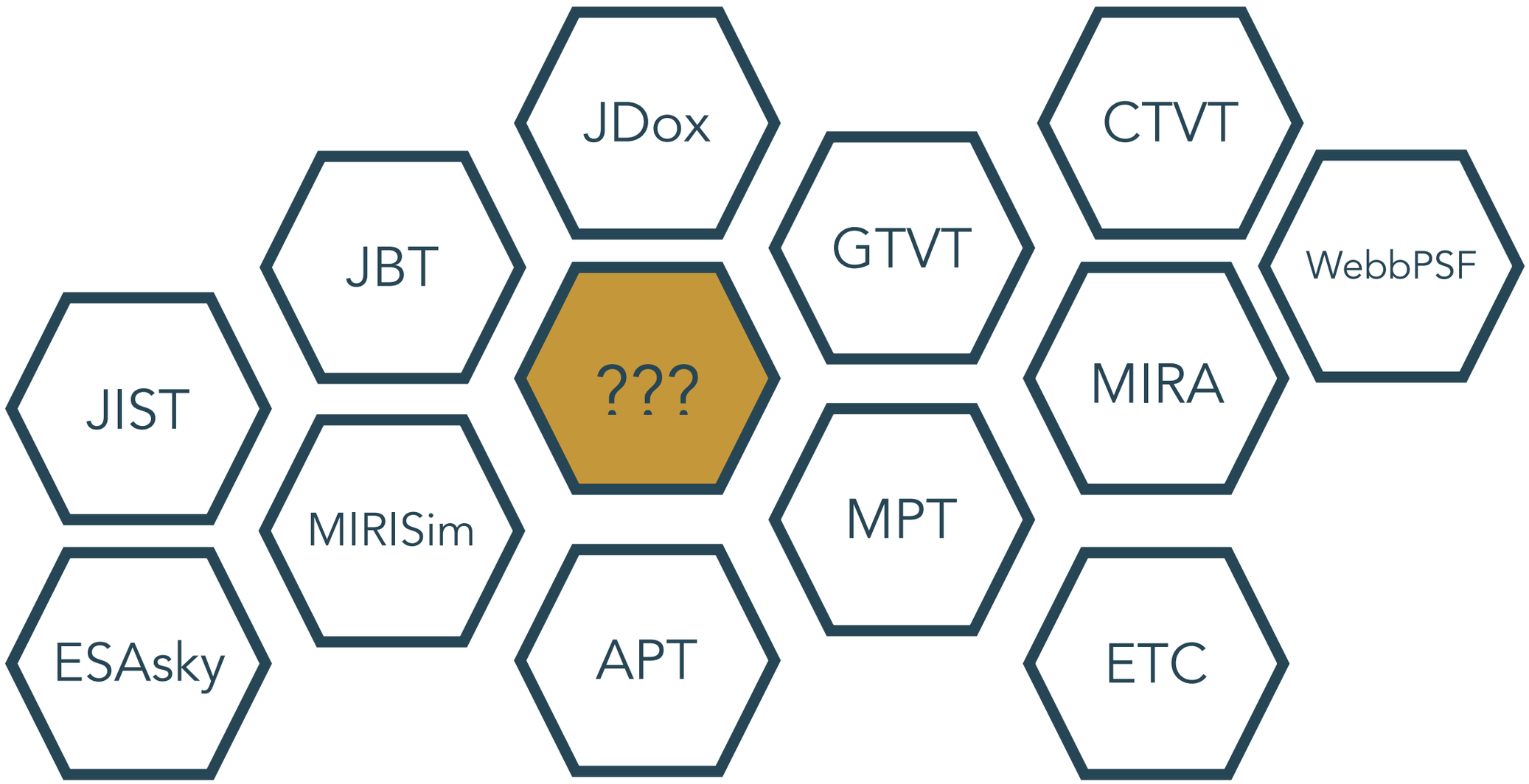
What happens if the launch slips

- The JWST Space Telescope Users Committee (JSTUC) recommended the following:

"With the new Cycle 1 call scheduled for in January 2020, we strongly recommend that the call not be cancelled once it is opened. Although there is no indication that any further delay in launch is expected, the potential science impact of such a slip could be mitigated by advising proposers for Cycle 1 GO time to discuss how their science would be impacted by a delay in observations. Impact could be further mitigated by allowing a mechanism for PIs to change targets in the event of a delayed observing window."

Preparing a JWST proposal: where do I start ?!

- The JWST proposal toolbox has a large number of resources, some of them specific to certain observing modes or science cases



First impressions: what can JWST do?

- Become familiar with JDox, the JWST documentation:
  - https://jwst-docs.stsci.edu/
  - The menu on the left points to useful pages to start with:

- Starting guide
- Observatory and instruments capabilities
- Examples of roadmaps for science programs
- Available tools

Downselect: pick the instrument(s)/mode(s)

- Identify the instruments and observing modes you need to address your science goals

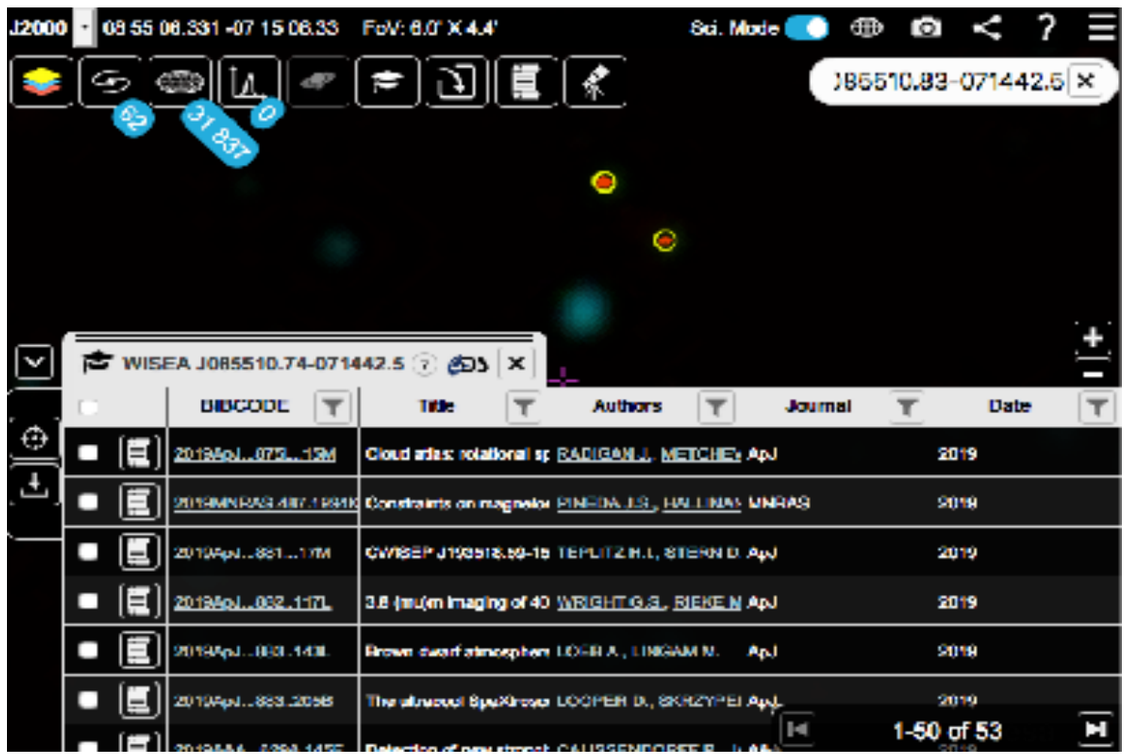
- Use JDox to get familiar with the documentation for that instrument:
  - Do operations involve dithering? Target acquisition? Mosaicking?
  - What are the detector readouts? Wavelength ranges? Sampling?

- Browse some example science programs and recommended observing strategies for that instrument/mode:
  - https://jwst-docs.stsci.edu/methods-and-roadmaps

Feasibility: did I select the right target? (1)

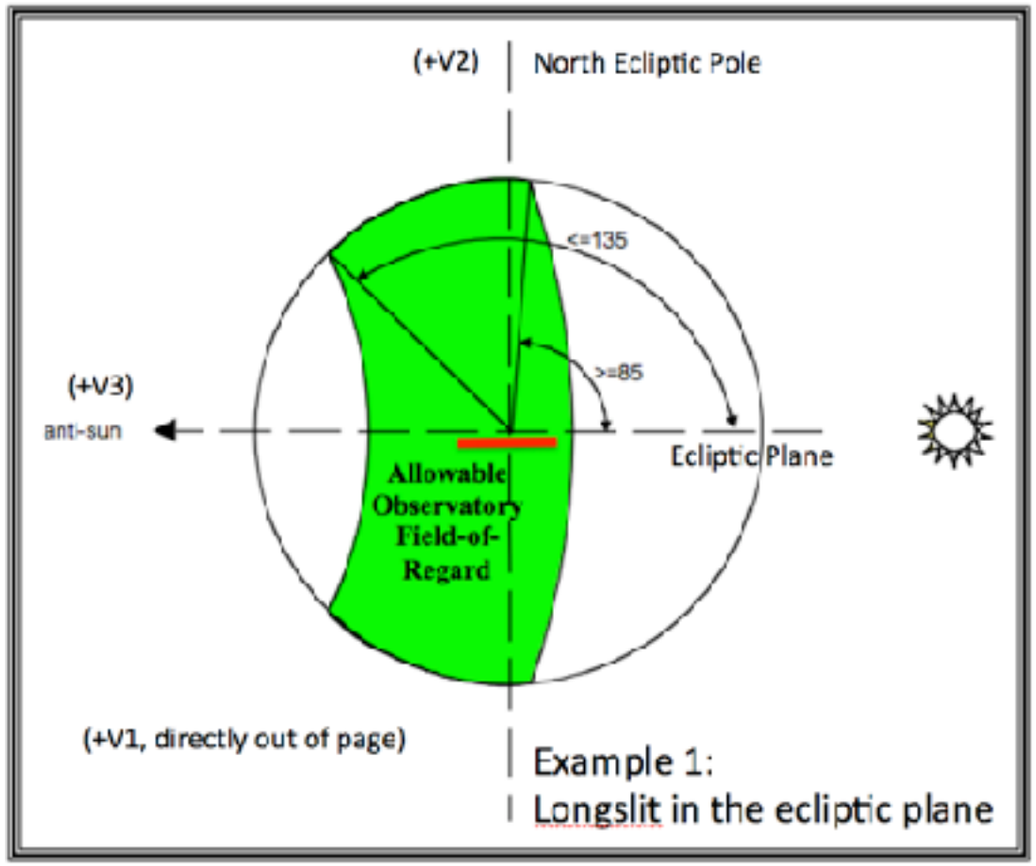
Availability

- MAST: check for duplications in JWST ERS/GTO
  - https://mast.stsci.edu/
- ESASky: check existing observations/publications with other space missions
  - https://sky.esa.int



Visibility

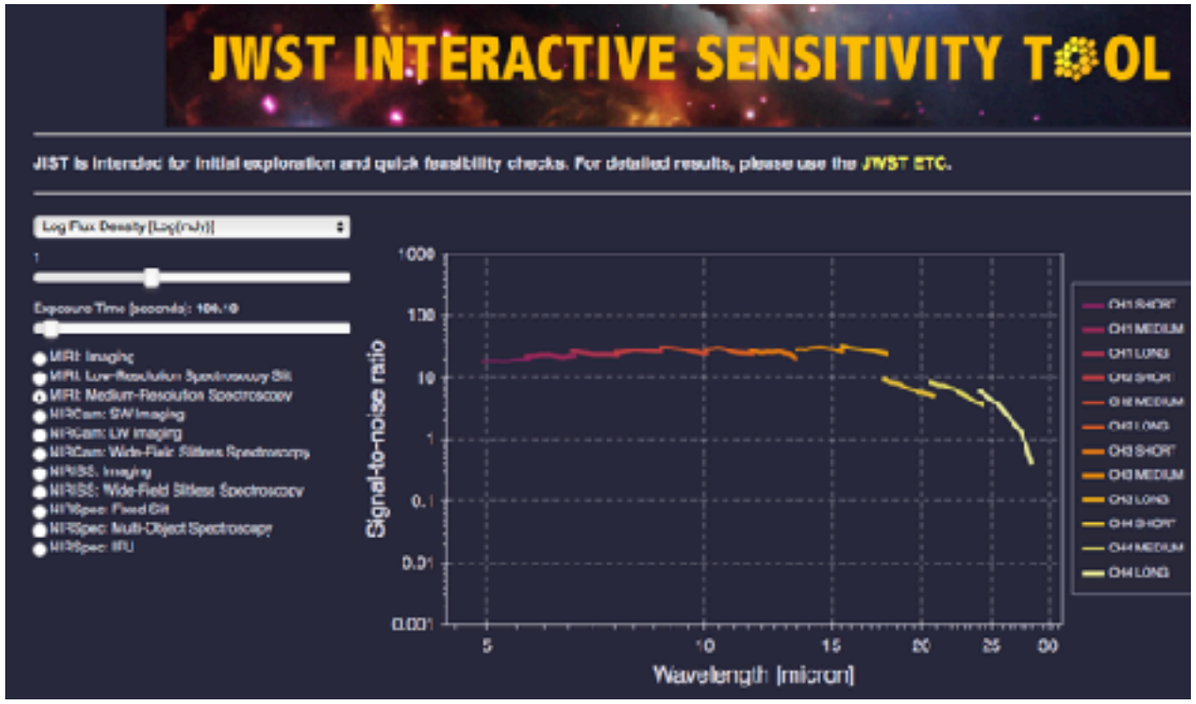
- Use the Target visibility tools (TVT) to check the targets visibility
  - General target (GTVT)
  - Coronagraphic (CVT)



Feasibility: did I select the right target? (2)

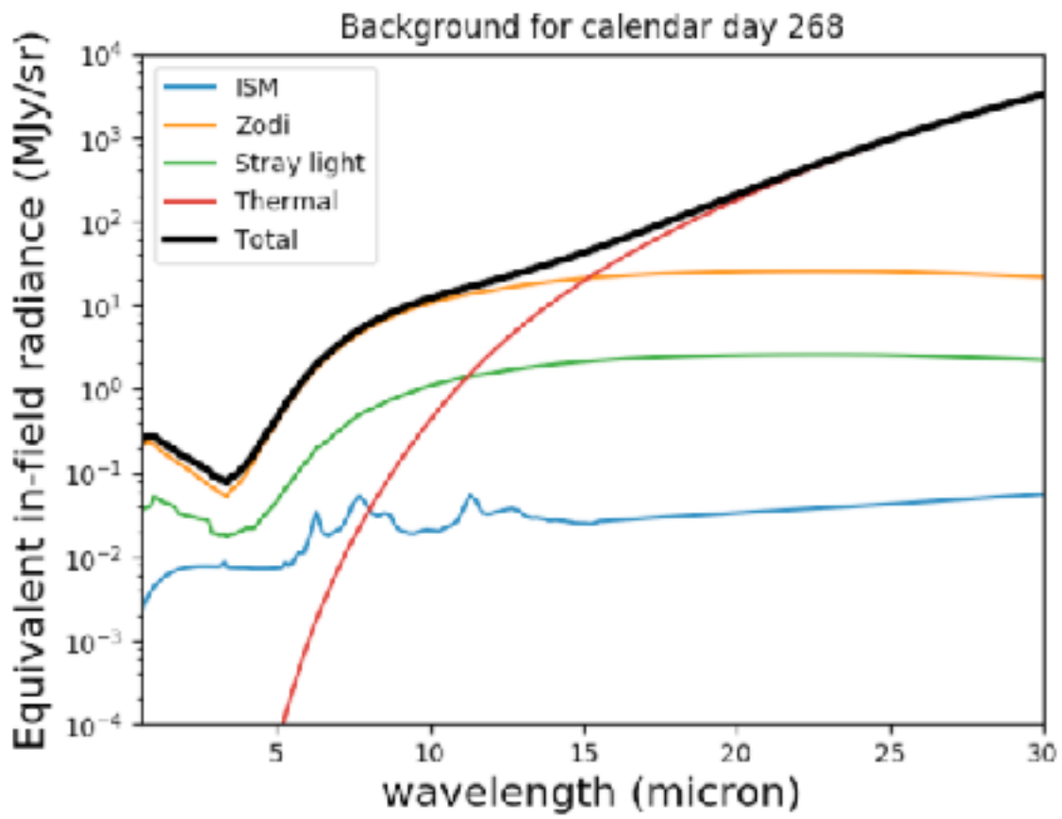
Sensitivity

- JIST: JWST Interactive Sensitivity Tool works as a quick-look tool to explore the feasibility of observations for any mode
  - https://jist.stsci.edu/



Background

- JBT: JWST Backgrounds Tool can be used to estimate the impact of the background on the schedulability of observations
  - Available through pip or github



Which tools do I need to propose?

- Exposure Time Calculator (ETC)
  - https://jwst.etc.stsci.edu/
  - The ETC should be used to determine the exposure parameters needed to achieve the signal-to-noise for the science target

- Astronomer's Proposal Tool (APT)
  - The APT is where you will set up your program and submit your proposal
  - http://www.stsci.edu/scientific-community/software/astronomers-proposal-tool-apt/

A step further: what else is available?

- You may want to use other available tools to better understand JWST capabilities, improve your proposal, or get ready for the data
  - Simulated data:
    - http://www.stsci.edu/jwst/science-planning/proposal-planning-toolbox/simulated-data
  - Simulators: WebbPSF, Mirage, Awesimsoss, MIRISIM, ExoCTK, Pandexo
    - https://jwst-docs.stsci.edu/jwst-other-tools

- Run into an issue? Remember, there is help!
  - https://stsci.service-now.com/jwst

Suggestion of a roadmap to submission