James Webb Space Telescope Workshop
AAS Meeting – Honolulu, HI
January 3, 2020

Overview

Tony Roman
JWST Science Planning Timeline

Cycles 1 & 2 Call for Proposals

- 6/25/2019: GTO and ERS Cy1 proposals submitted
- 1/23/2020: GO Call re-opened
- 5/1/2020: GO Cy1 prop. due
- 7/27/-8/7/2020: GO Cy1 TAC
- 3/30/2021: Launch
- L+9: GTO Cycle 2 deadline
- L+11: GO Cy2 Call
- L+13: GO Cy2 deadline

Commissioning (L+6 mo.)
DD ERS observations
L+15
GO Cy2 TAC
Workshop Format

- JDox
- ETC sessions
- APT sessions
  - Instruction/Demo
  - Exercises
Workshop Staff - JDox

Stephanie La Massa
Workshop Staff - APT

Tony Roman
Overview

Bill Januszewski
Targets

Beth Perriello
Defining Observations

Elizabeth Nance
Special Requirements

Amber Armstrong
Aladin & Mosaics

Michael Leveille
Visit Planner & Time Accounting
Topics Not Covered in Detail

• APT-Independent Target Visibility Tools
• Webb PSF Tool
• Space Telescope Image Product Simulator (STIPS)
• NIRSpec Micro-Shutter Assembly Planning Tool
• Moving Targets
• Parallels
APT-Independent Target Visibility Tools

- These tools are intended as “quick look” or pre-planning aids prior to performing detailed schedulability checks in APT.
  - Ex: ToO, a supernova goes off; is it visible to JWST now, and how long can I monitor it before losing visibility?
  - Ex: Timing possibilities for NIRCam pre-imaging and NIRSpec MSA follow-up spectroscopy: What windows are available and how long are they?
  - Ex: Many coronagraphy applications that involve observations at specific angles and/or angular offsets.
- The tools provide insight into available visibility windows AND the available position angles versus time for the various JWST instruments.
- There are currently two tools available:
  - General Target Visibility Tool – a command-line tool that provides visibility windows and reference PAs for all four science instruments (plus FGS and observatory V3 axis) all in one go.
  - Coronagraphic Visibility Tool – a GUI-based tool that provides general visibility windows for NIRCam and MIRI plus additional coronagraphic instrument mode support.
- Distributed as part of the STScI AstroConda python distribution
- More information
Webb PSF Tool

- Simulate point spread functions for JWST

Space Telescope Image Product Simulator (STIPS)

• Features
  • generate custom NIRCam and MIRI imaging simulations of stellar populations
  • select the number of stars they want, their spatial distribution, their distance, the star formation history, the chemistry, the IMF, and the binary fraction
  • perform astrometry and photometry on the images to optimize science programs
• Available at https://jwst-docs.stsci.edu/other-tools/space-telescope-imaging-product-simulator
NIRSpec Micro-Shutter Assembly Planning Tool

• NIRSpec Micro-Shutter Assembly (MSA) has ~250,000 shutters

• For a given pointing and orientation, the MSA Planning tool helps determine which shutters to open.

• Indicates which shutters are stuck open and stuck closed.

• Splinter session later in the conference
Moving Targets

• JWST can track moving targets up to a rate of at least 30 milliarcseconds/second.

• Solar system target specification
  • Different from fixed or generic targets.
  • Similar to HST

• Past workshops on observing solar system targets with JWST
  • Division of Planetary Sciences 51st Meeting
    • September 15-20, 2019 – Geneva, Switzerland
  • Planning Solar System Observations with JWST
    • December 13-15, 2017 - ESTEC
  • Planning Solar System Observations with JWST
    • November 13-15, 2017 - STScI
  • Division of Planetary Sciences 49th Meeting
    • October 15-20, 2017 - Provo, UT
Coordinated Parallels

- Operate two science instruments at the same time in the same observing program

<table>
<thead>
<tr>
<th>MIRI Imaging</th>
<th>NIRCam Imaging</th>
<th>NIRSpec Multi-Object Spectroscopy</th>
<th>NRIISS Wide Field Slitless Spectroscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIRCam Imaging</td>
<td>MIRI Imaging</td>
<td>NIRCam Imaging</td>
<td>MIRI Imaging</td>
</tr>
<tr>
<td>NRIISS Wide Field Slitless Spectroscopy</td>
<td>NRIISS Imaging</td>
<td></td>
<td>NIRCAM Imaging</td>
</tr>
<tr>
<td></td>
<td>NRIISS Wide Field Slitless Spectroscopy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
• Operate two science instruments at the same time different observing programs

• Identify prime observations that can accept a parallel from another program.

• Pure parallel observers choose to which primes they want to match their parallels.
YouTube

- JWST Observer Channel
  - www.youtube.com/JWSTObserver

- Training videos
  - APT
  - ETC
  - MSA Planning Tool
  - Science Instruments Topics
Further Questions

• JWST Proposing Open House
  • Part 1 – Integral Field Unit Observing
    • Sunday, January 5, 2020, 9:30am – 11:30am
  • Part 2 – Grism Observing
    • Monday, January 6, 2020, 9:30am – 11:30am
  • Part 3 – NIRSpec Micro-Shutter Array
    • Tuesday, January 7, 2020, 9:30am – 11:30am

• Ask any of the STScI staff here today.

• Visit the STScI exhibit this week.

• JWST Help Desk: jwsthelp.stsci.edu