

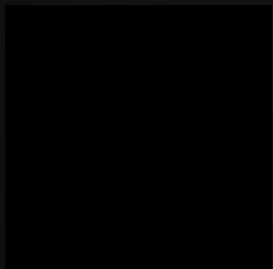
JWST Update

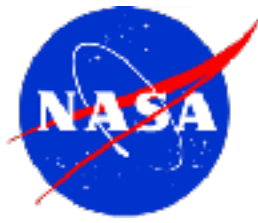
Astrophysics Advisory Committee
30-March-2022

Eric P. Smith
JWST Program Scientist
Astrophysics Division Chief Scientist



25-December-2021





Deployments

- All deployments completed successfully
 - ▶ 29 Spacecraft Element (incl. sunshield)
 - ▶ 24 Optical Telescope Element

A deployment is defined as one count for each collection of releases needed to separate a unit's interfaces and one count for each full deploy movement of a unit



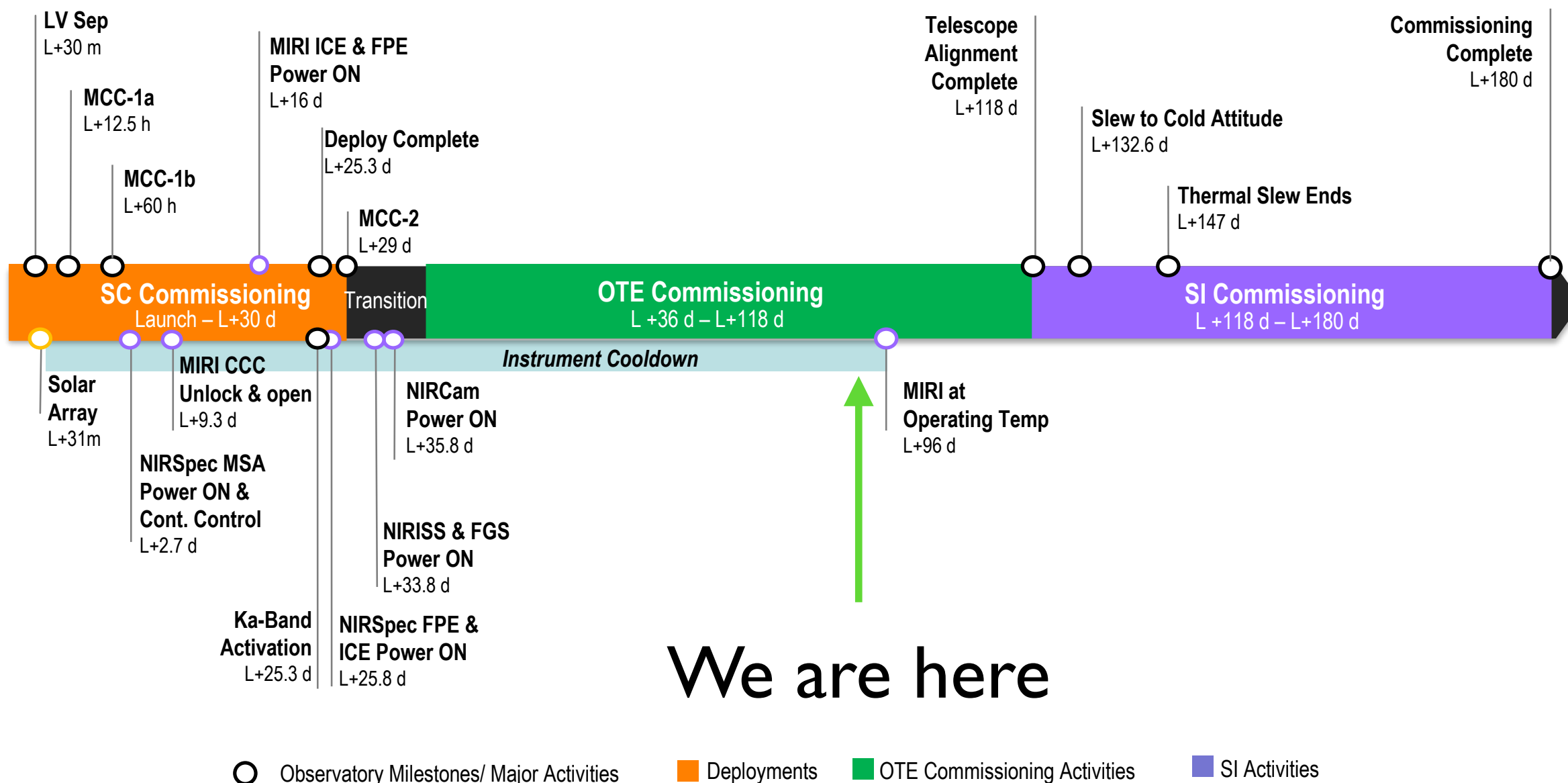
Commissioning Determines:

- JWST is ready for science operations by verifying;
 - the spacecraft is working correctly
 - the observatory is working correctly
 - the science instruments are working correctly
 - the science instruments can be calibrated
- Commissioning is not calibration. Calibration happens during Cycle 1, interspersed with the science program.
- SI commissioning checks out all 4 SIs (NIRCam, NIRSpec, MIRI, and NIRISS), and all 17 science modes.

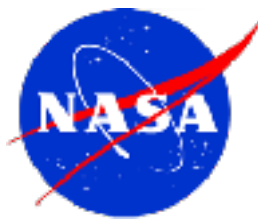
Slide courtesy J. Rigby, GSFC



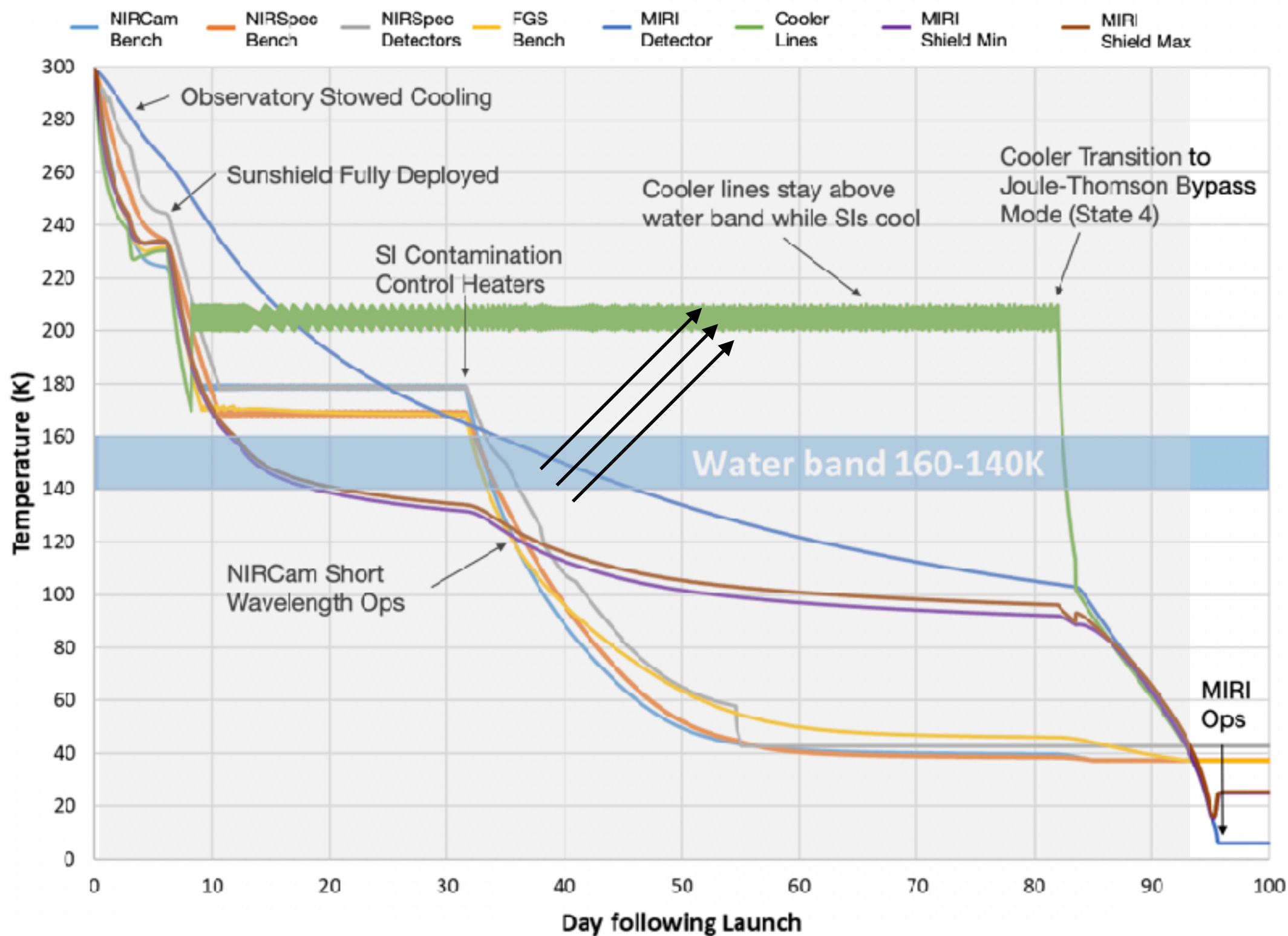
Commissioning



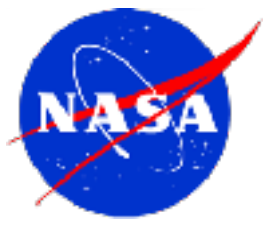
We are here



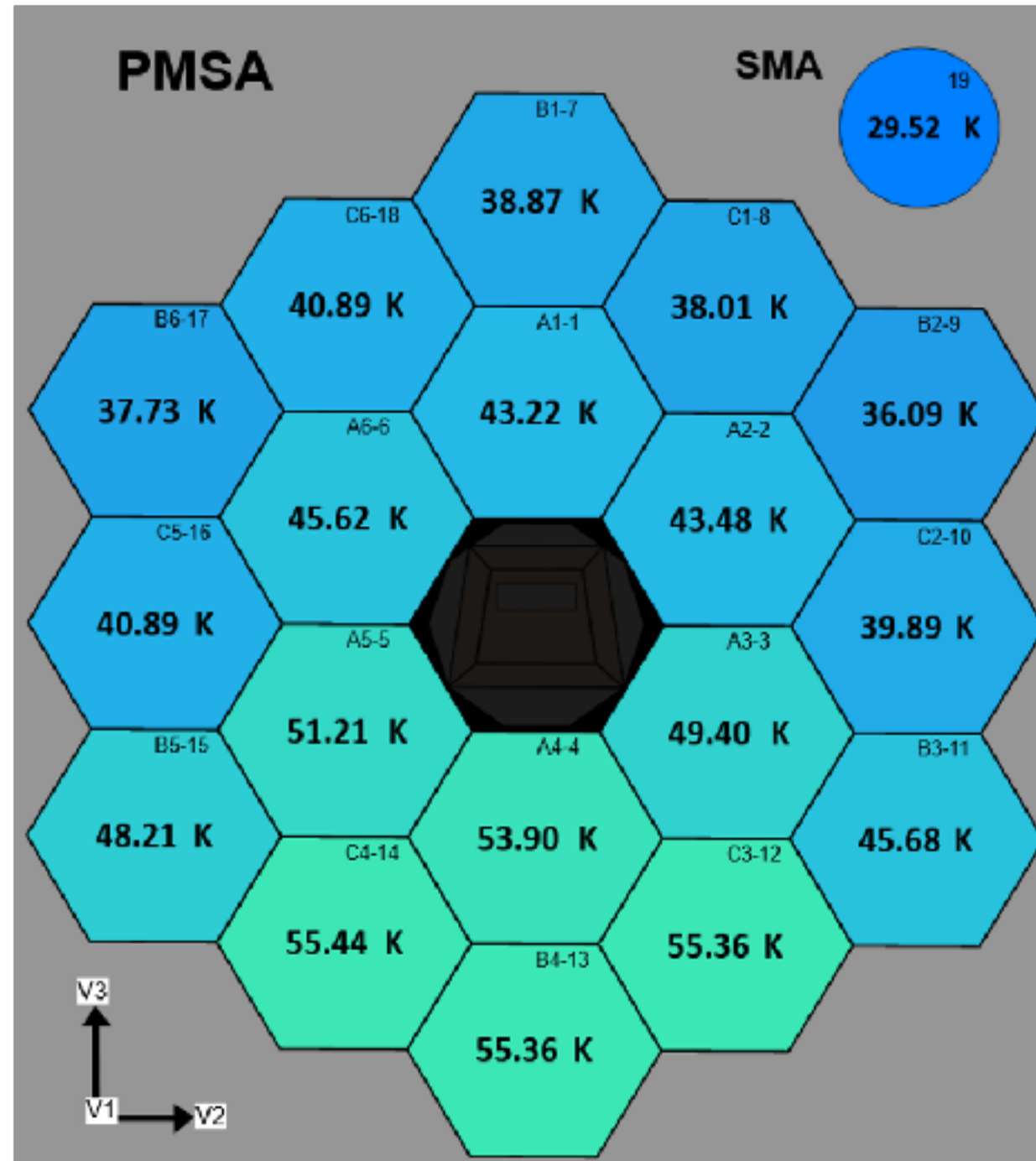
Cooling Drives Commissioning



March 2022 APAC



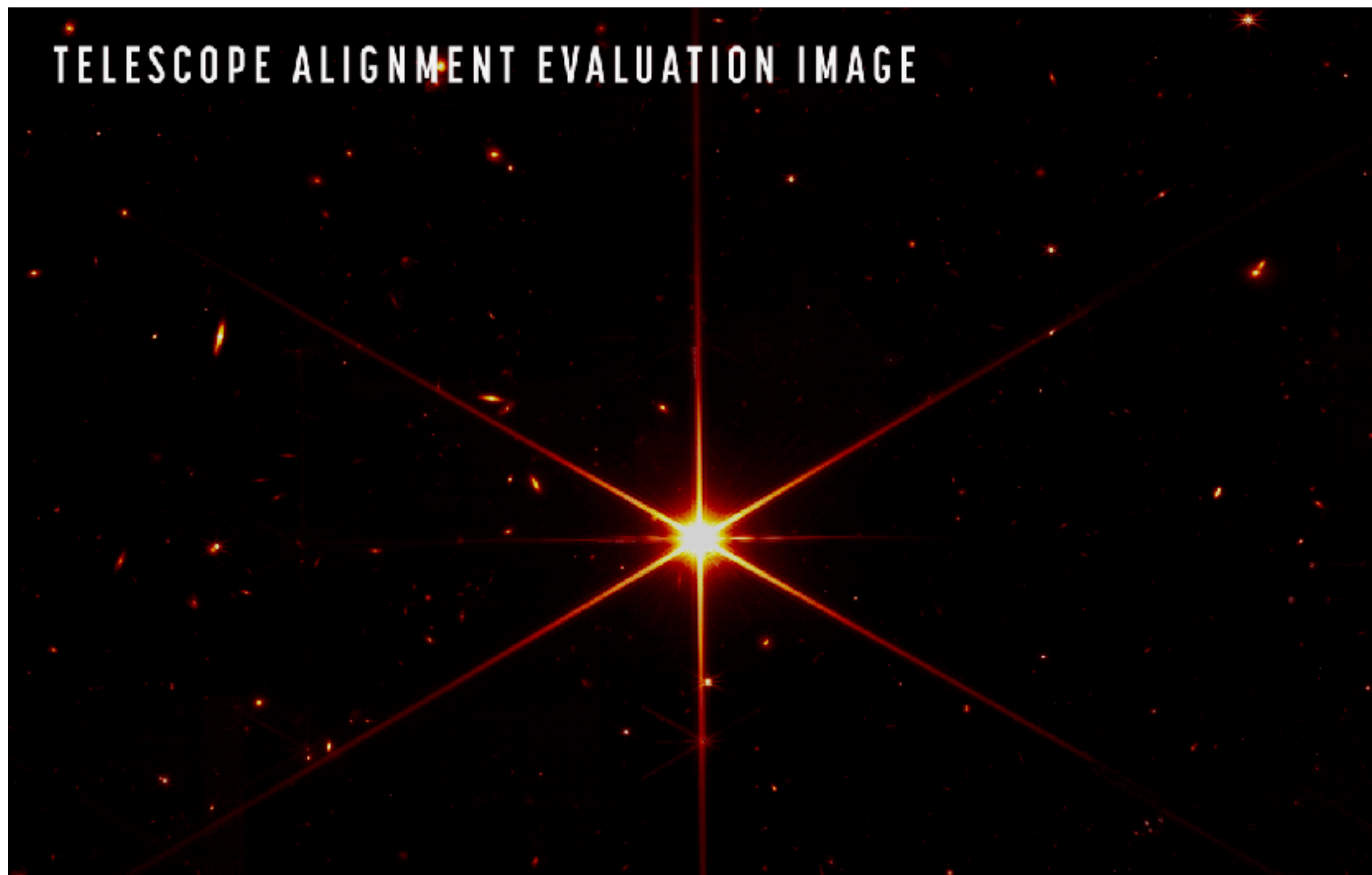
Mirror Cooldown





15 Minutes of Fame:

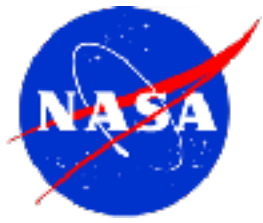
2MASS J17554042+6551277





Focusing Webb

- Focusing movie will go here



Preliminary Performance Measures

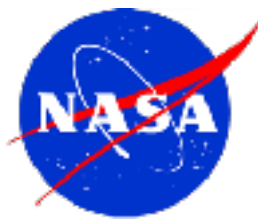
- 2 micron FWHM (NIRCam only focus) 0.07”
- NIR backgrounds (0.7-2.7 microns) match prelaunch predictions
- NIRCam throughput matches prelaunch measurements
- All NIRCam instrument mechanisms exercised, remaining: NIRSpec & NIRISS focus, MIRI



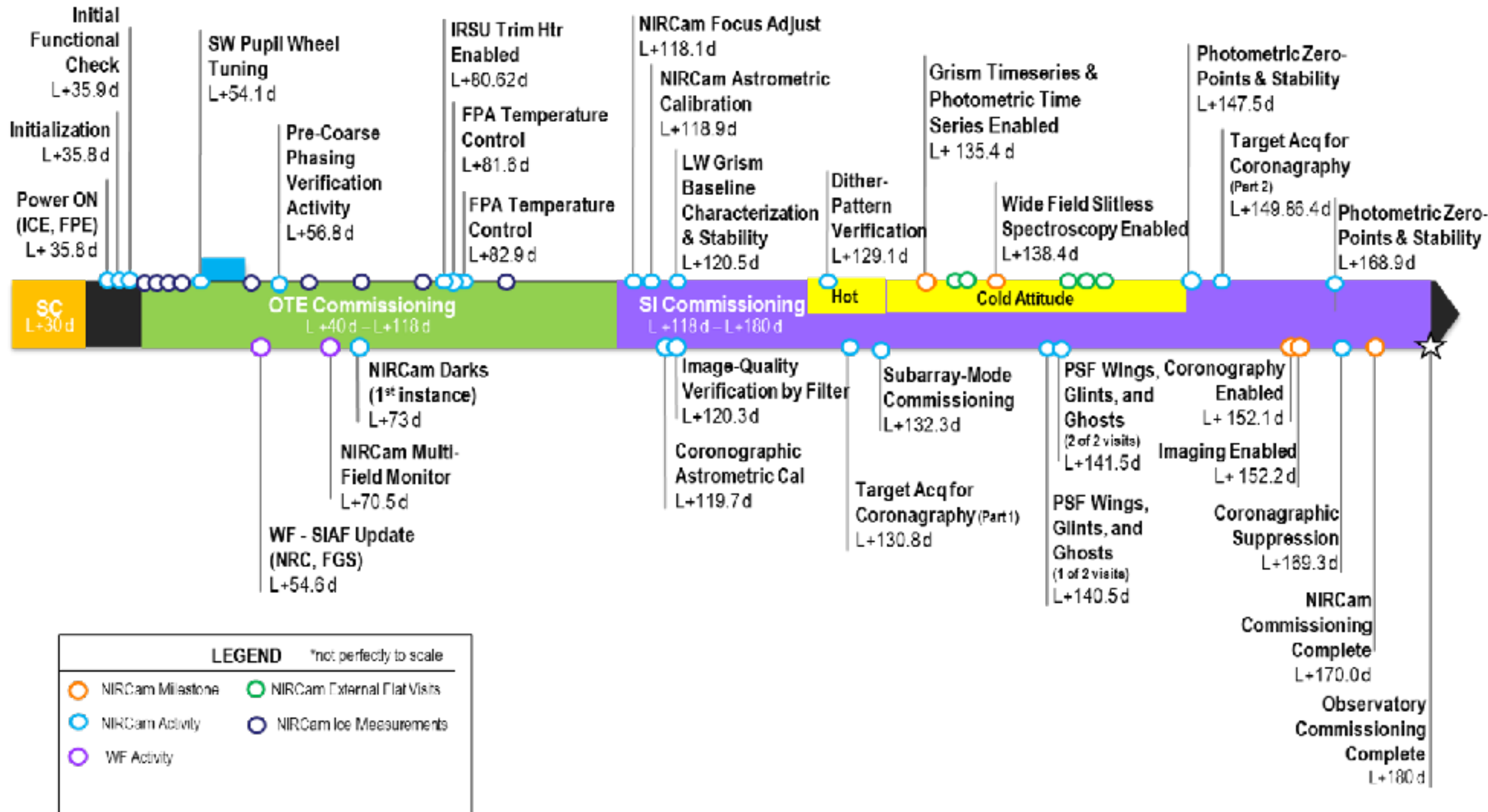
Commissioning Timeline

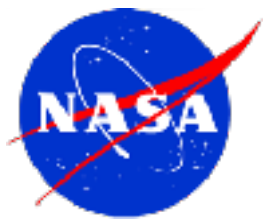
- The CAST” lays out each step of JWST commissioning.
- (CAST = Commissioning Activity Sequence Timeline)
- There are 730 high-level steps in the timeline.
- These are broken down into:
 - ~2800 steps for deployments and spacecraft ✓
 - ~5400 steps for the telescope
 - ~1500 steps for the science instruments

Slide courtesy J. Rigby, GSFC



Example: NIRCam

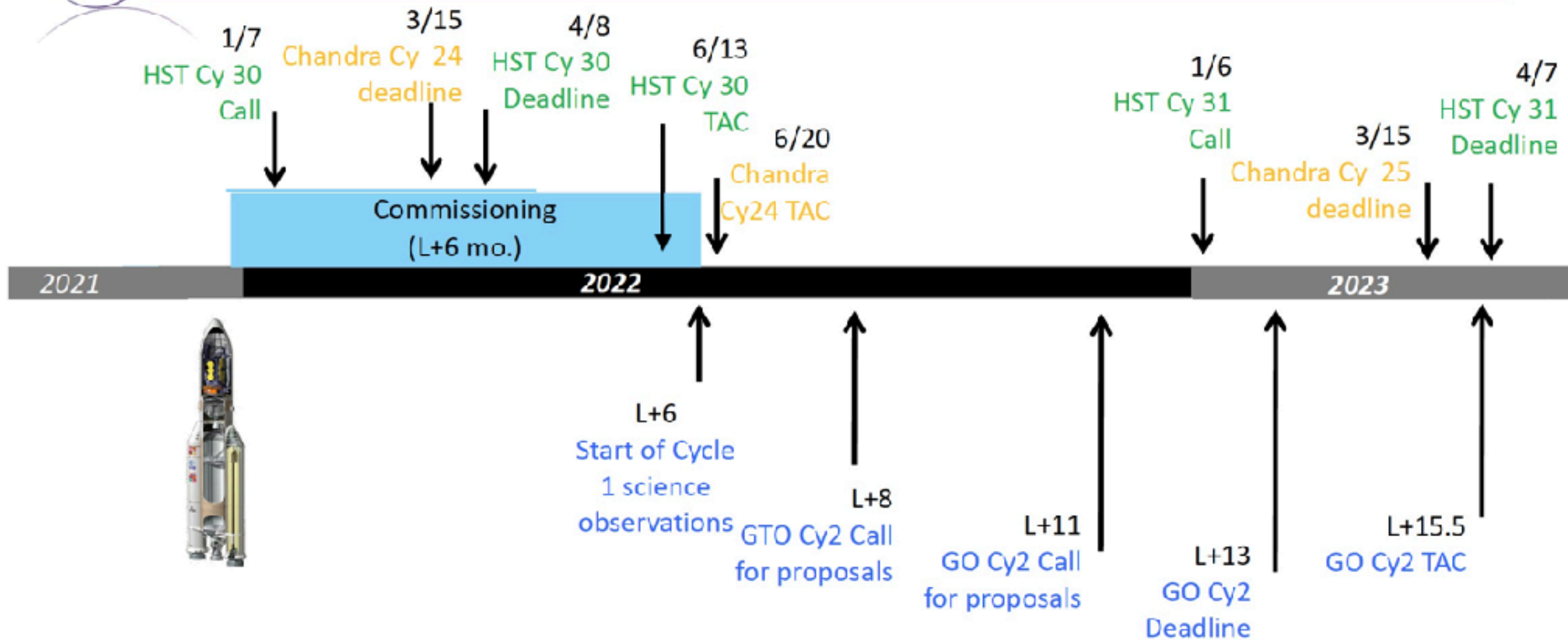




Science Timeline



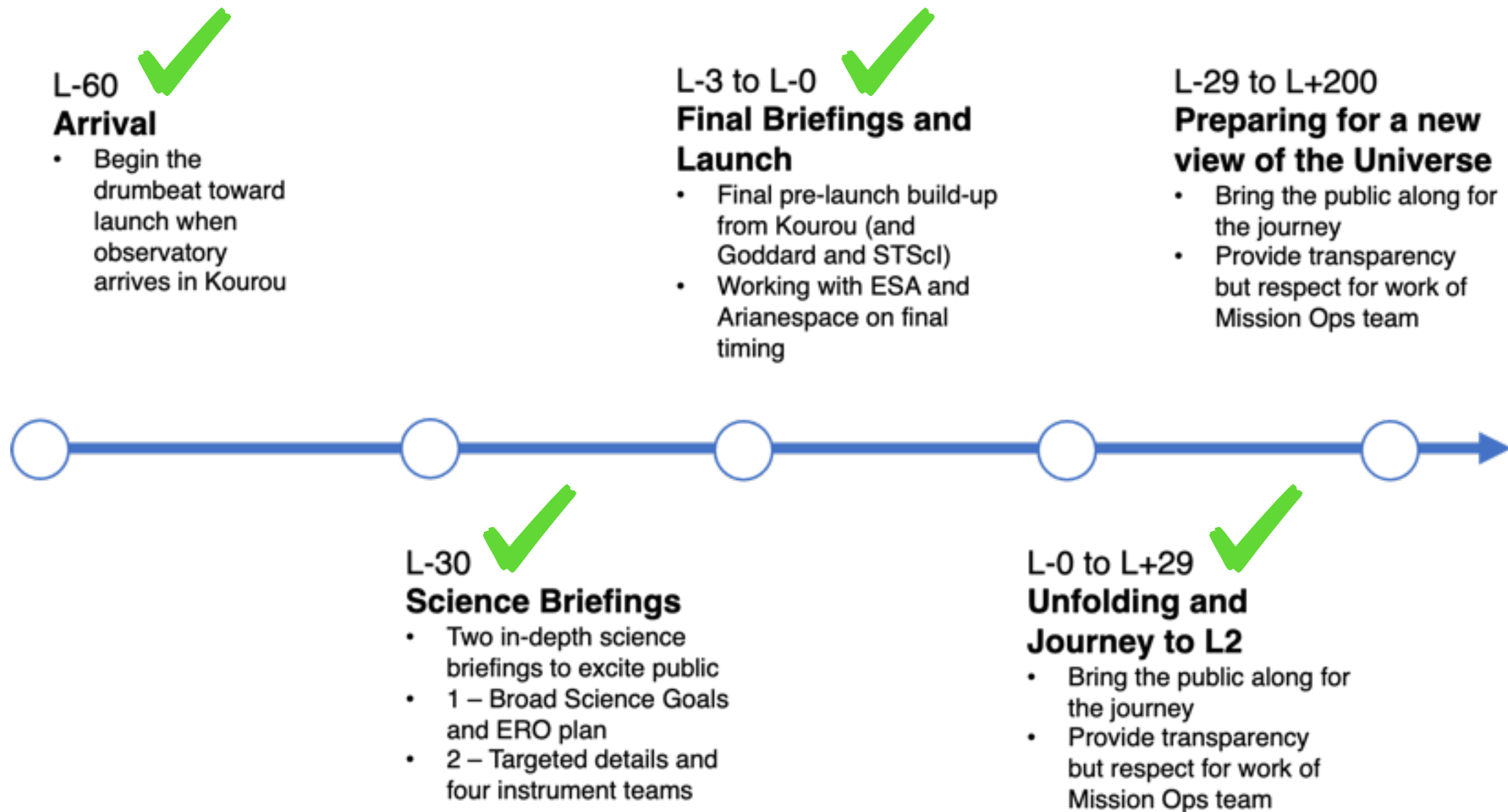
JWST Science Timeline



HST & Chandra dates are estimates



Media Events





Webb online



Webb Blog — blogs.nasa.gov/webb

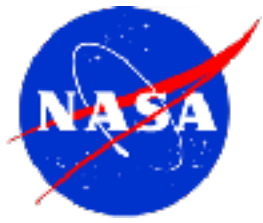
nasa.gov/webb

- Twitter: @NASAWebb, @JWSTObserver
- Facebook: nasawebb
- YouTube: NASAWebbTelescope
- Flickr: nasawebbtelescope
- Instagram: nasawebb



Where is Webb

<https://jwst.nasa.gov/content/webbLaunch/whereIsWebb.html>



Summary

- Webb commissioning continues to proceed on schedule
- Observatory health is good
- Observatory performance thus far meets performance goals
- Cycle I science begins July 2022



Backup

There are seventeen SI modes.

MIRI

- Imaging
- low-resolution spectroscopy (LRS)
- medium-resolution spectroscopy (MRS)
- coronagraphic imaging

NIRSpec:

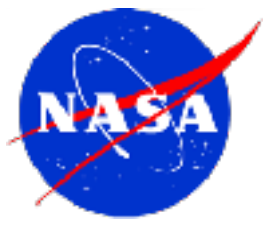
- Multi-object spectroscopy
- Fixed slit spectroscopy
- integral field unit spectroscopy
- Bright object time series

NIRCam:

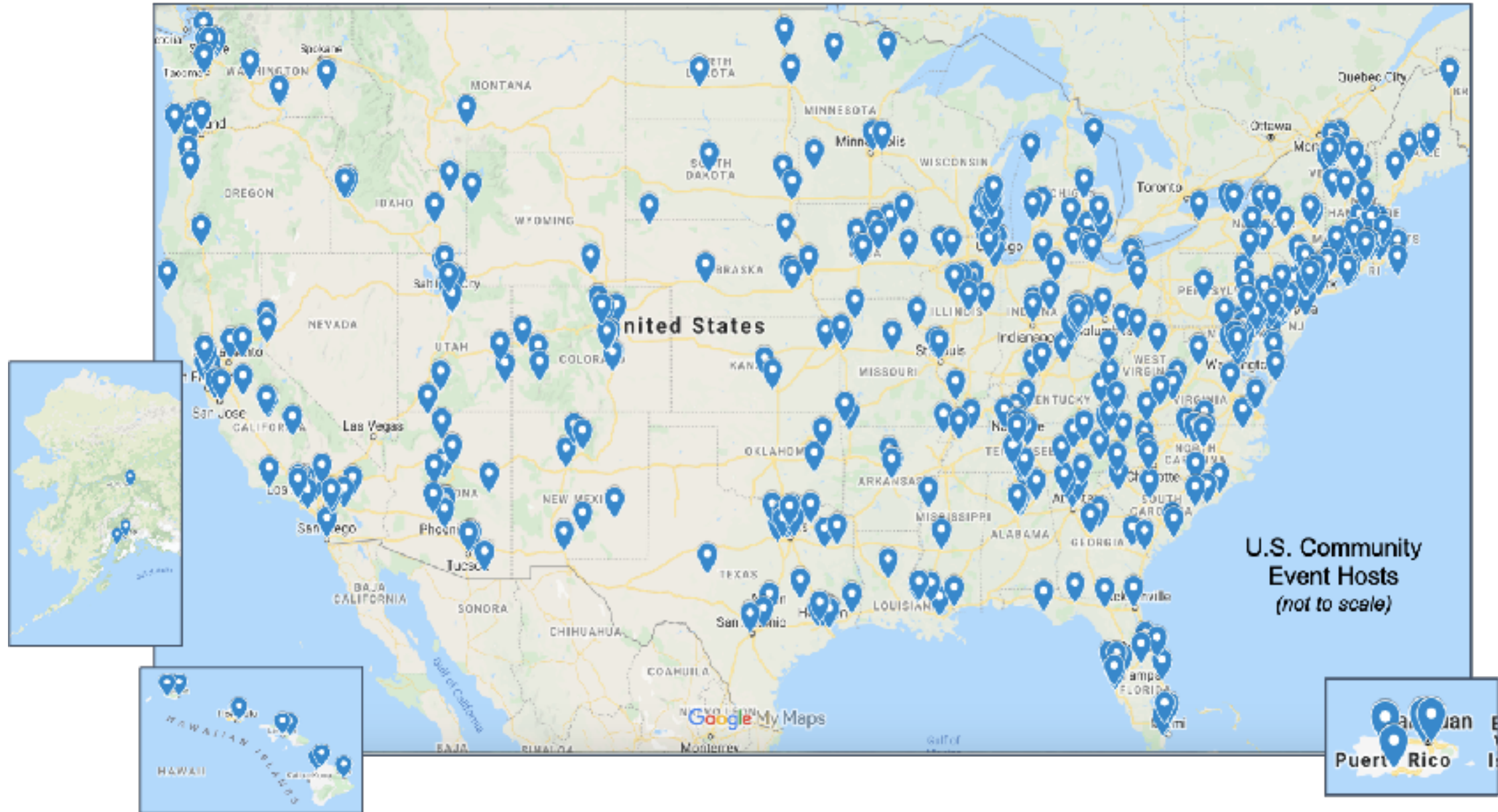
- Imaging
- Wide-field slitless spectroscopy
- coronagraphy
- time-series observations, imaging
- time-series observations, grism

NIRISS:

- single object slitless spectroscopy
- wide field slitless spectroscopy
- aperture masking interferometry
- imaging (in parallel only)



Webb Community Events



~620 host sites registered
Events run from September to January
Locally run, but NASA provides expert speakers and materials upon request