



JWST Observatory Commissioning

Lee Feinberg, GSFC

Ritva Keski-Kuha, Joe Howard, Alden Jurling, Tom Zielinski, Bruce Dean, GSFC

Scott Acton, Scott Knight, Erin Wolf, Ball

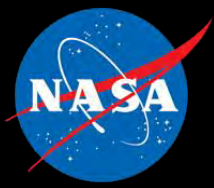
Paul Reynolds, Charlie Atkinson, NGC

Marshall Perrin, Matt Lallo, StScI



December 25th, 2021: French Guiana





December 25th, 2021: Baltimore StSci

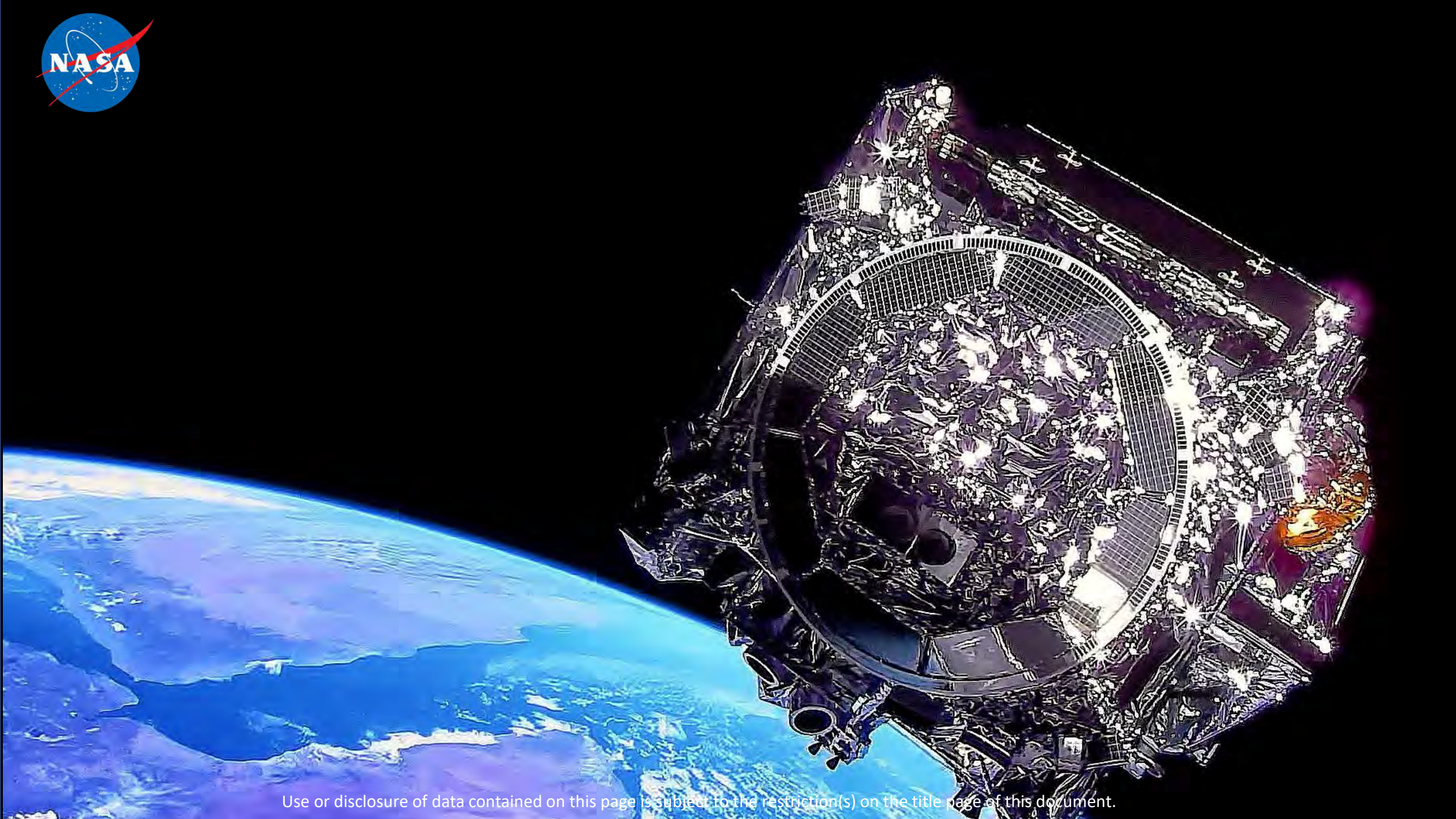


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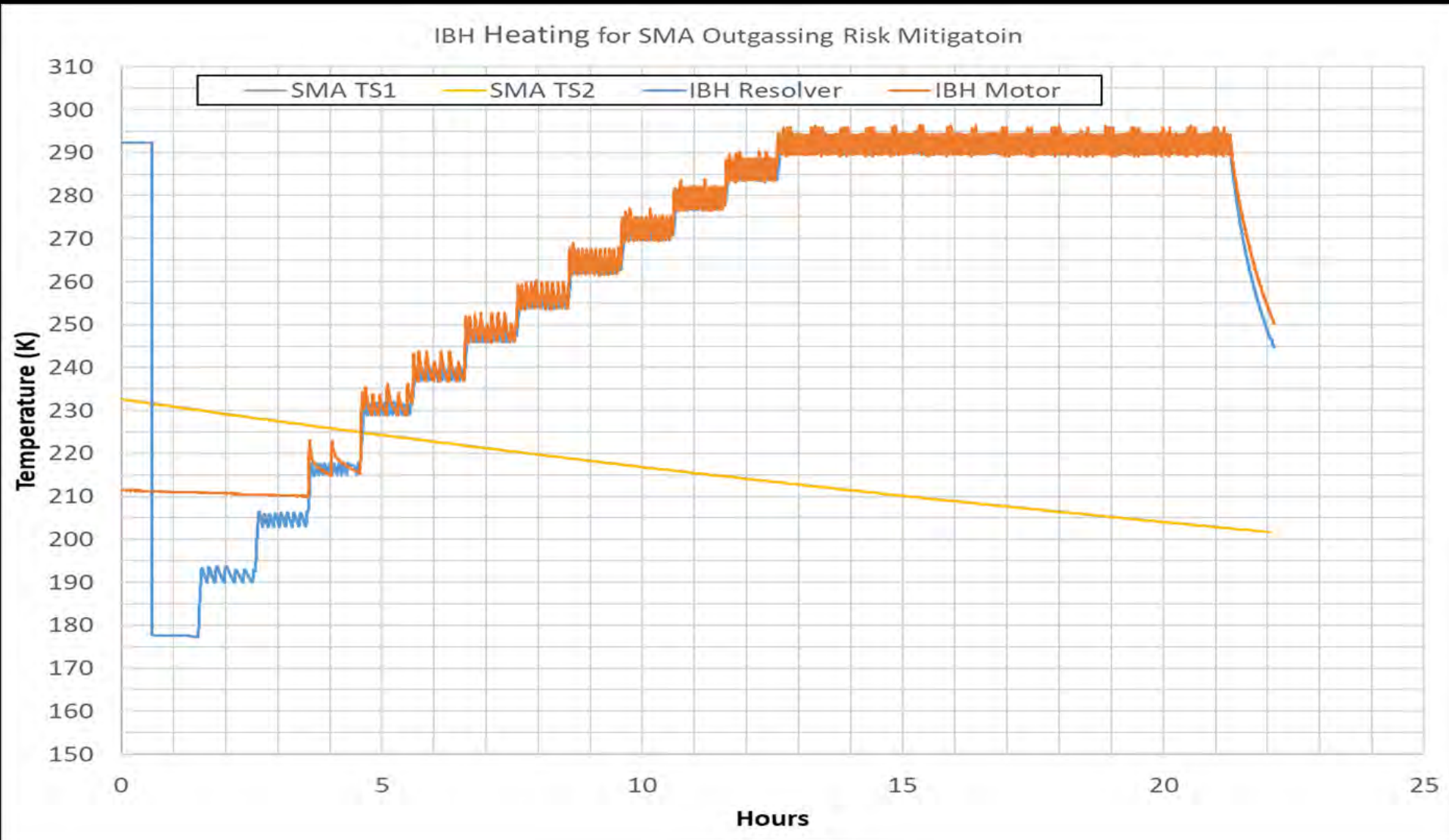
Launch and Ascent (view from the Ariane camera)





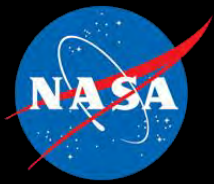
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On day after launch, performed bakeout of inboard hinge heaters to dry out water. This hinge has a direct view of the secondary mirror and could have iced the secondary mirror once it was cold enough.

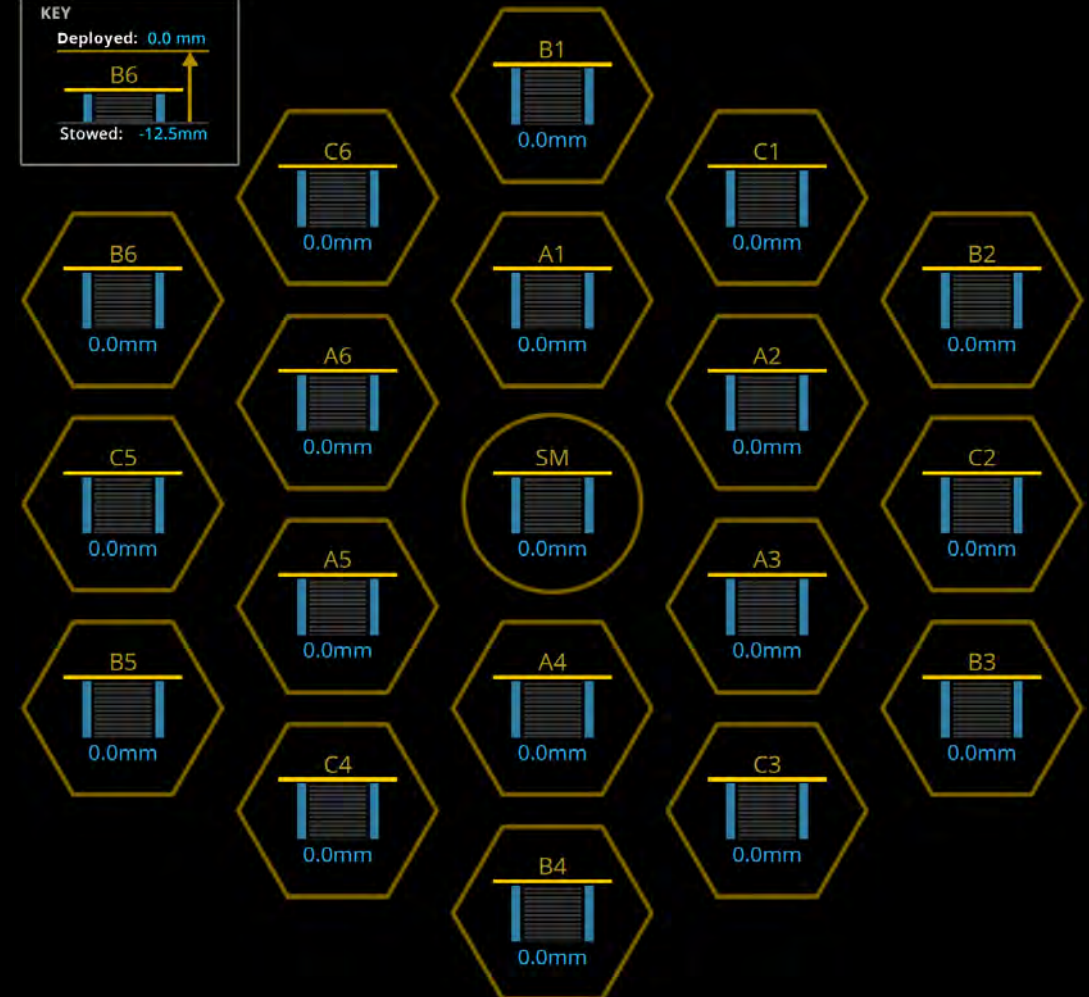


The background of the slide is a composite image of various spacecraft in space. At the top center, a row of five identical, compact spacecraft with yellow hexagonal solar panels is shown. To the left, several other spacecraft are depicted in various orientations, including one with a large blue solar panel. In the bottom left corner, a small, detailed image of a rocket launch is visible. On the right side, a large, detailed image of the James Webb Space Telescope is shown, featuring its large, gold-colored hexagonal primary mirror and complex support structure. The entire scene is set against a dark, star-filled background with some nebulae visible.

**178 Release Devices
50 Deployable Structures
Fully Successful**



Mirror Deployments with the Online Blog Tracker (from -12.5mm to 0mm position) “like watching grass grow”





Chia Mirror With Mirror Deployment Team On Shift (thanks to Jane Rigby)



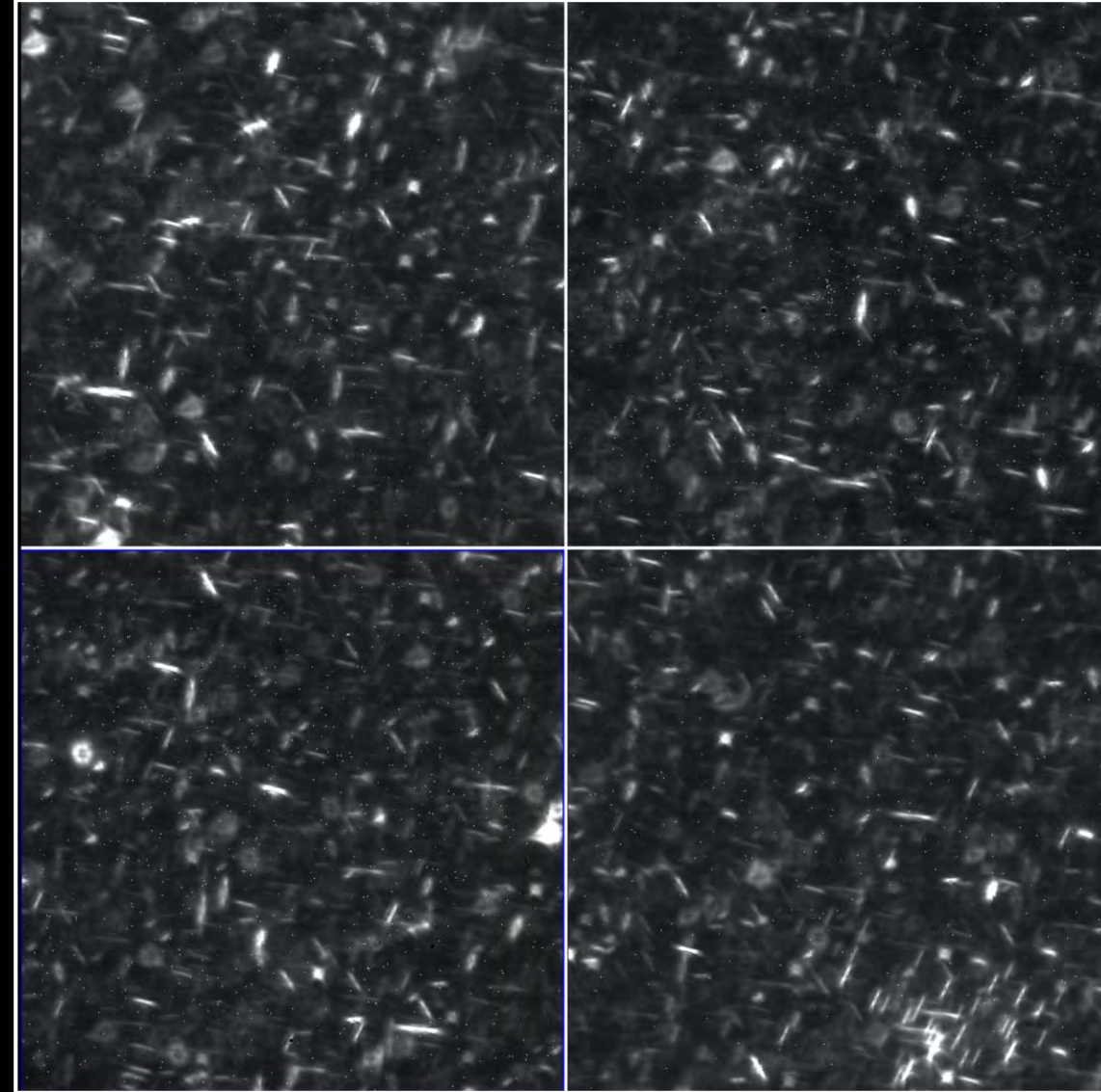
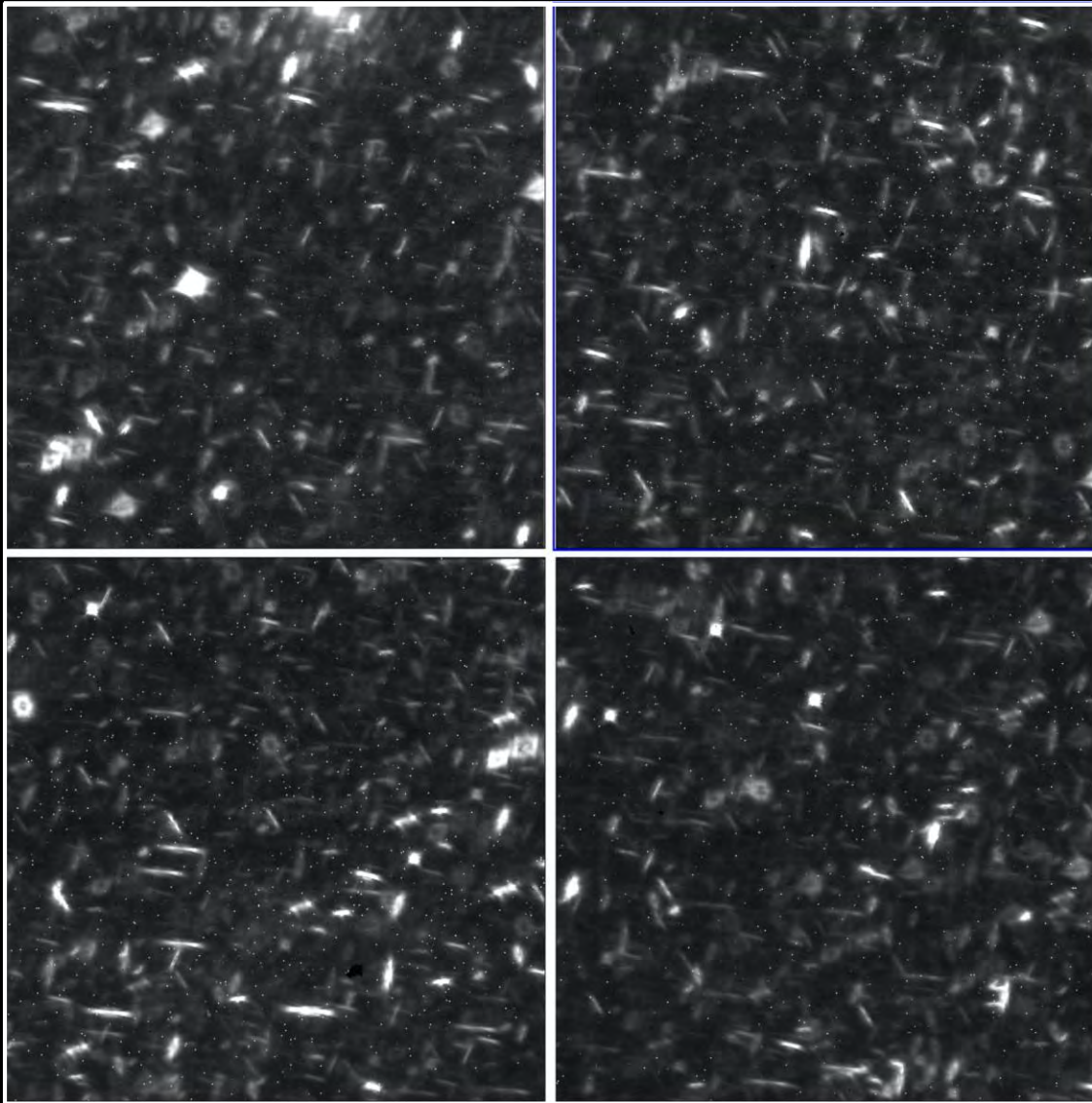
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NIRCAM TEST IMAGE

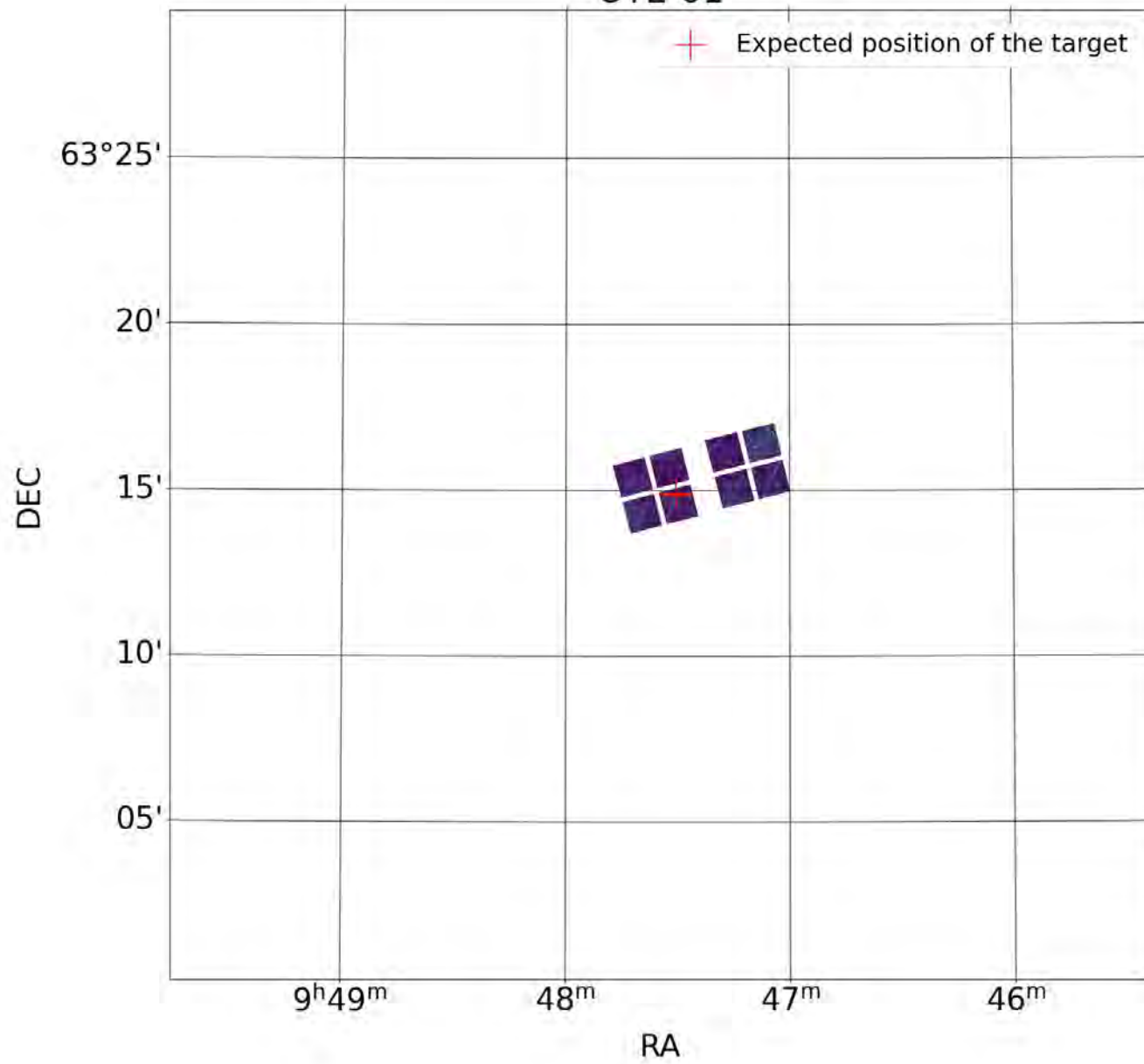
LARGE MAGELLANIC CLOUD, FEBRUARY 2ND, 2022





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OTE-01



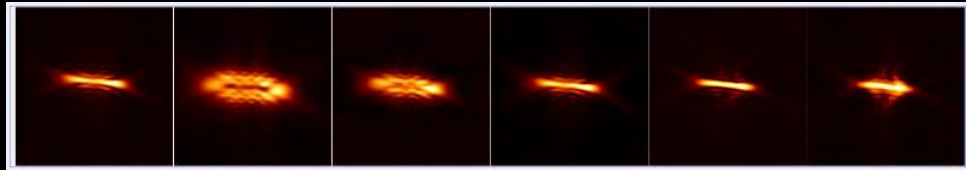


Initial Image Mosaic





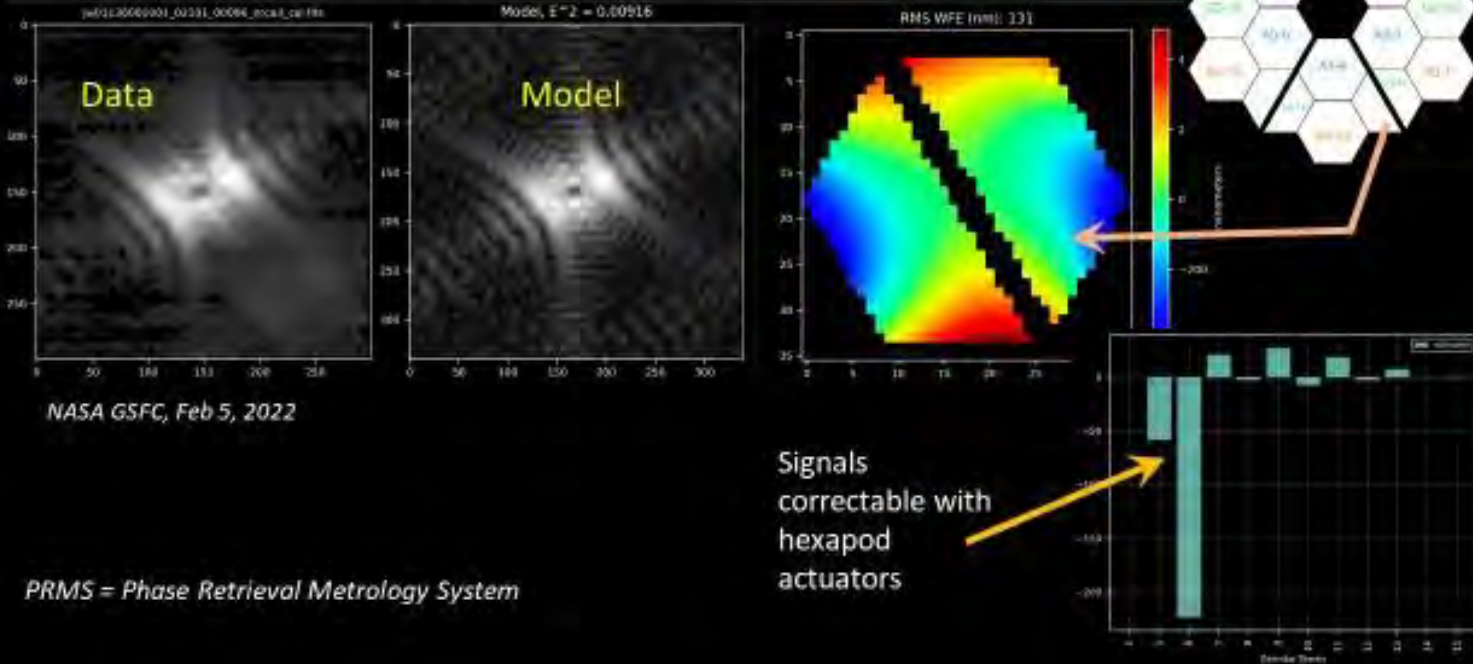
Focus Sweep: Early Mirror Zero G Crosscheck



Early Secondary
Mirror Focus Sweep

Recovering Mirror Surface Shape

Individual Segment results, C3-12



Crosschecks of the “blurry images”



Showing Administrator First Light Images





SEGMENT IDENTIFICATION MOSAIC





NIRCAM ALIGNMENT SELFIE

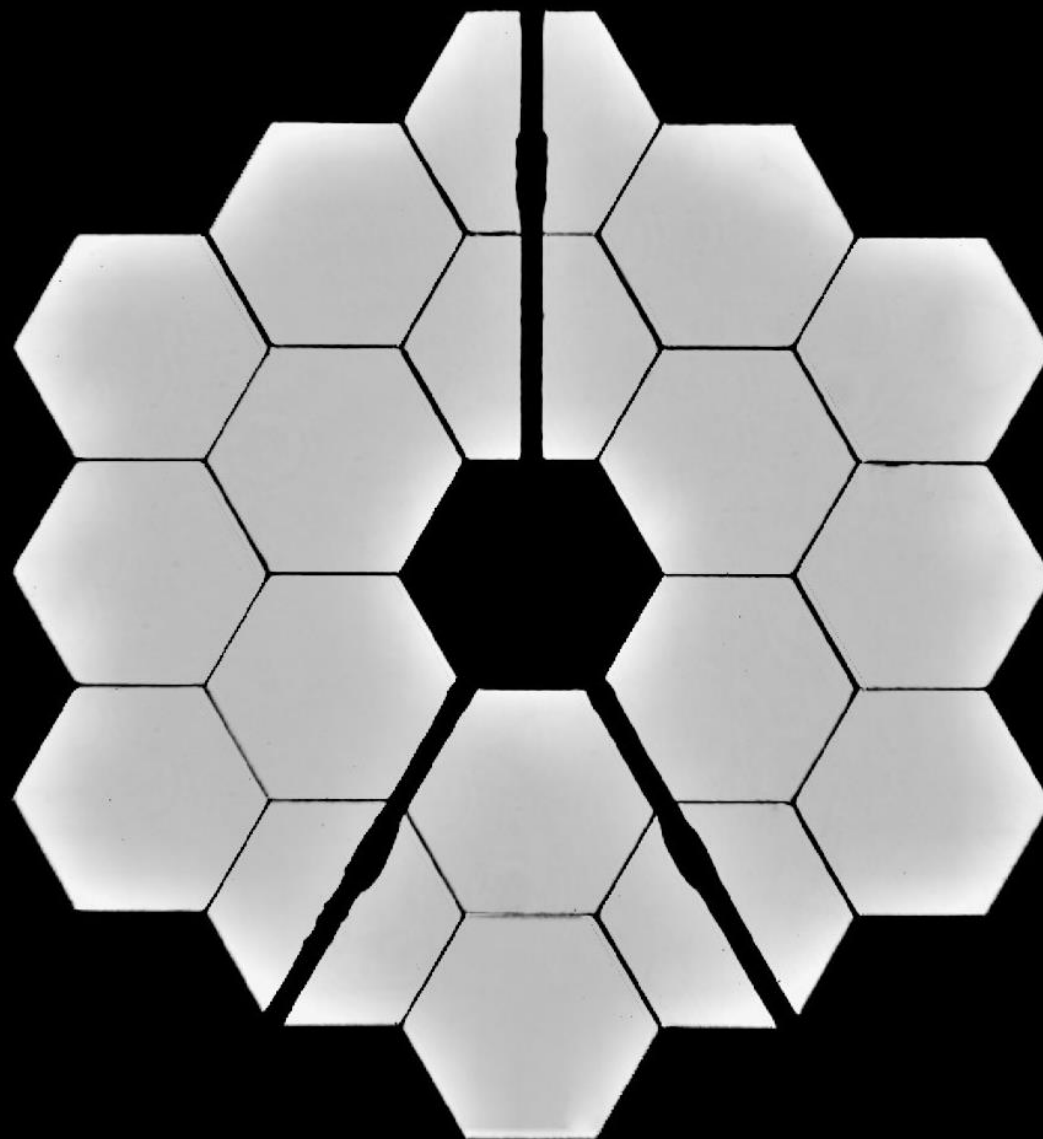
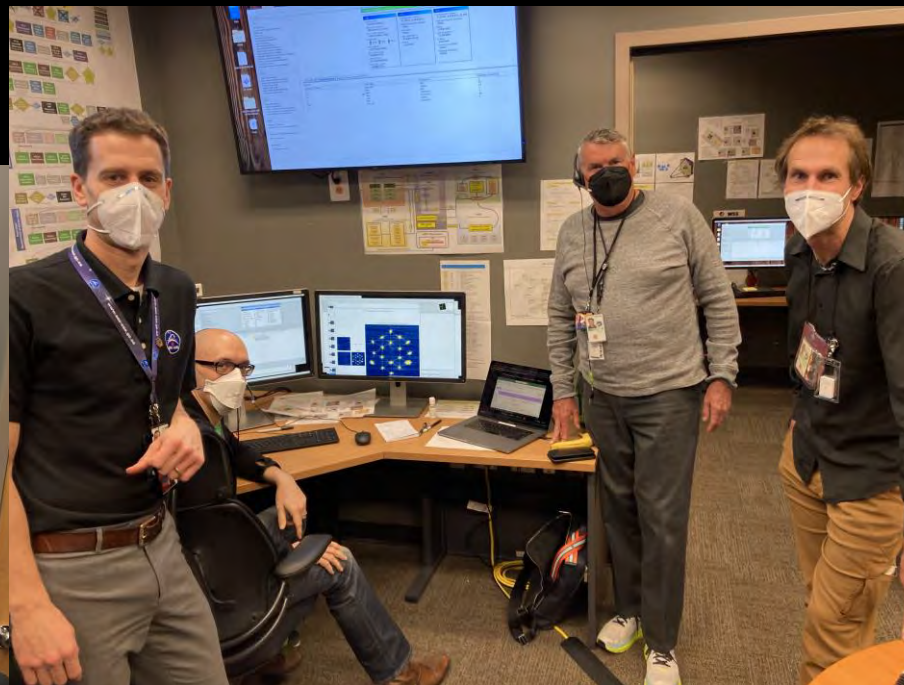




Image Array



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Fine Phasing: NIRCAM Weak Lens Data Phase Retrieval

-8λ

-4λ

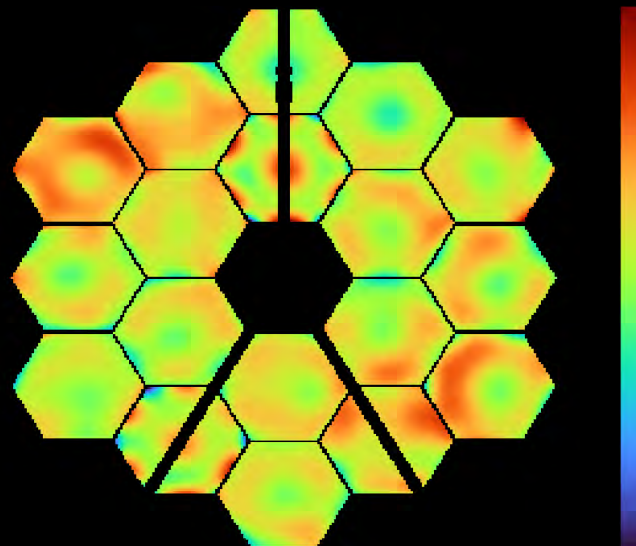
$+4\lambda$

$+8\lambda$

$+12\lambda$

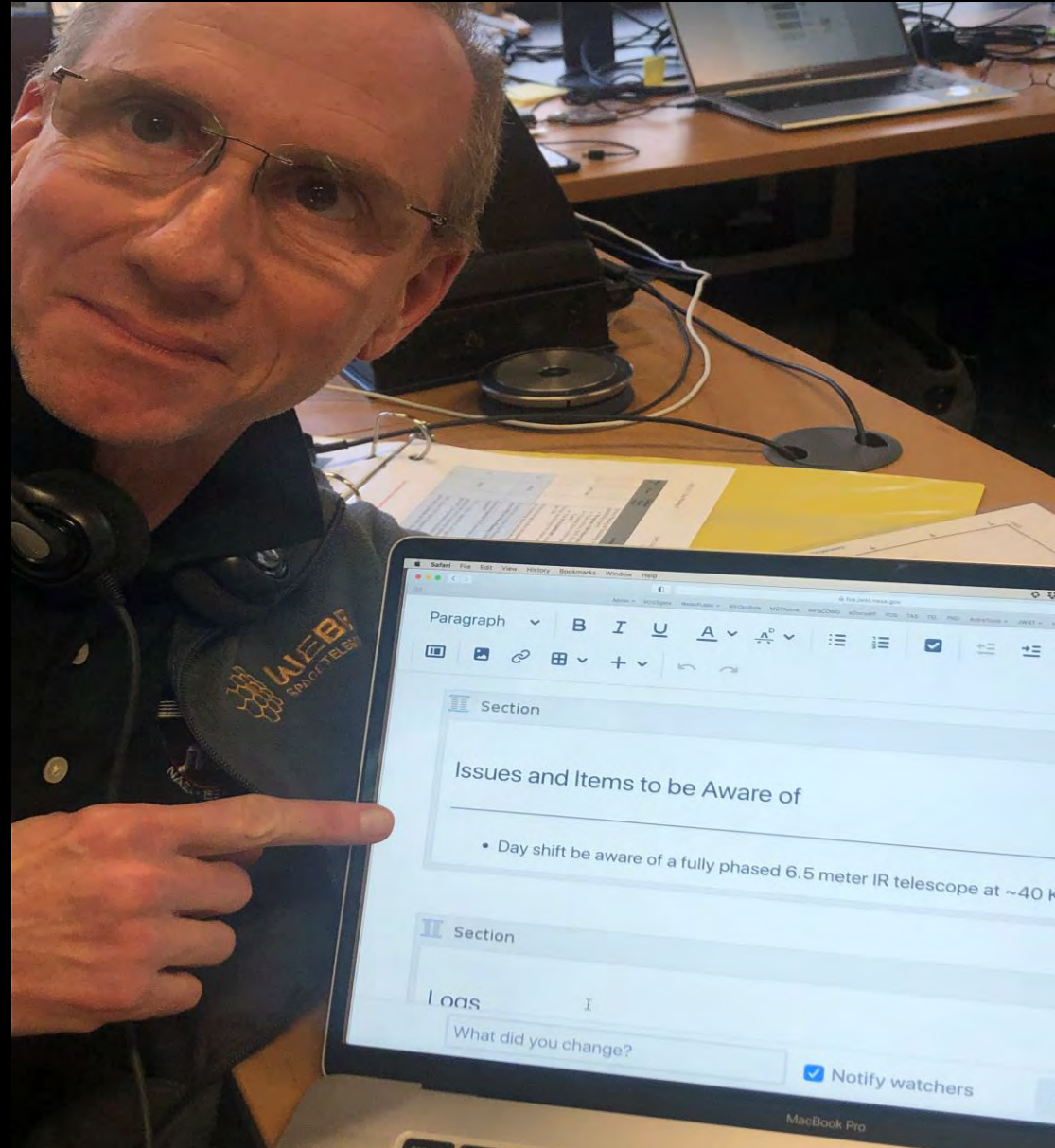
Images through Focus in NIRCAM

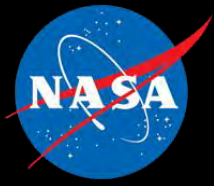
Phase Retrieval
T. Zielinski/GSFC





Fine Phasing 3 Graveyard Shift Report



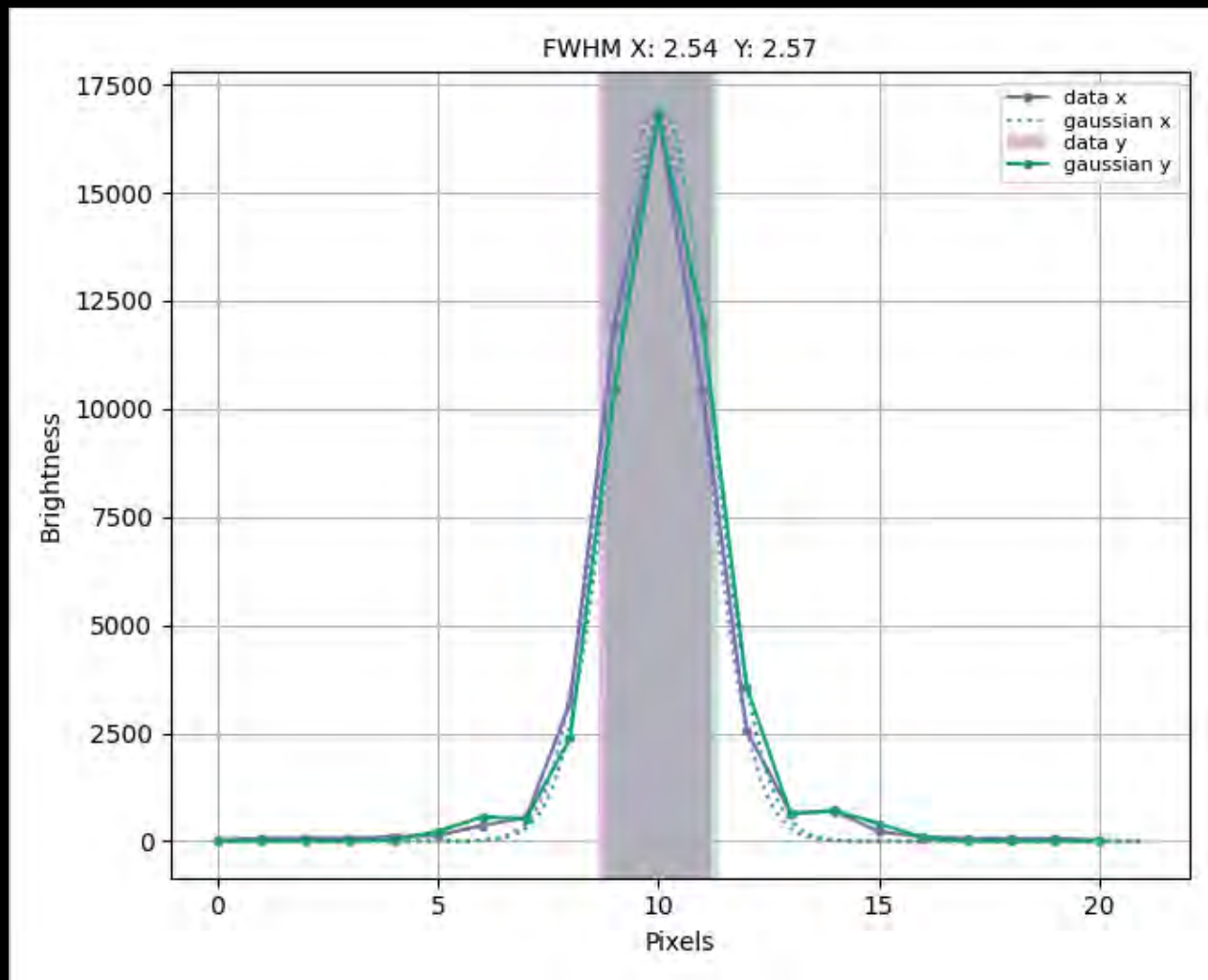


First Fine Phase Images in the MOC Conference Room



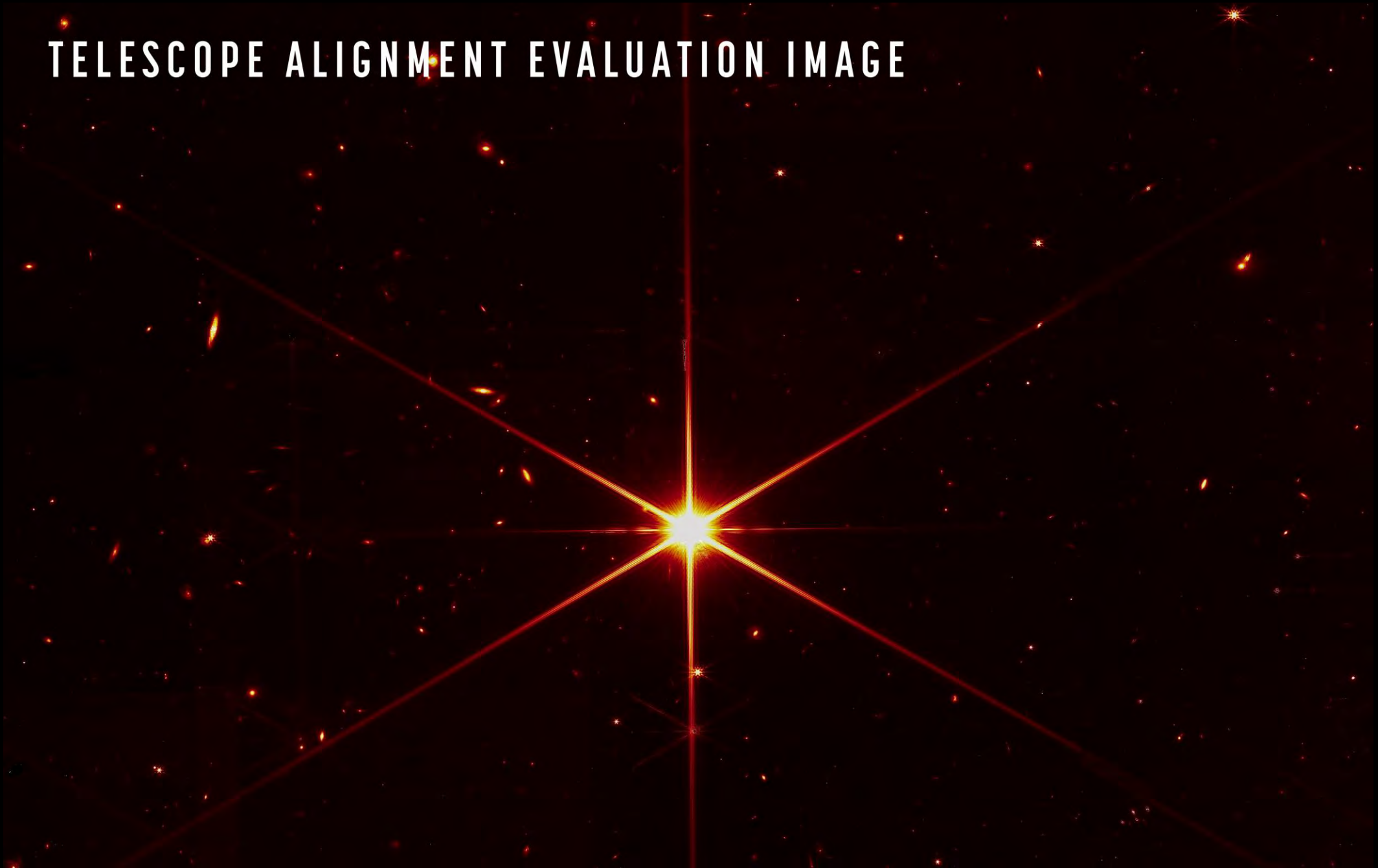


FWHM Assessment (most stars look this way) (NIRCAM F212N, 229 seconds subarray)



Star is 77 milli-arcseconds wide

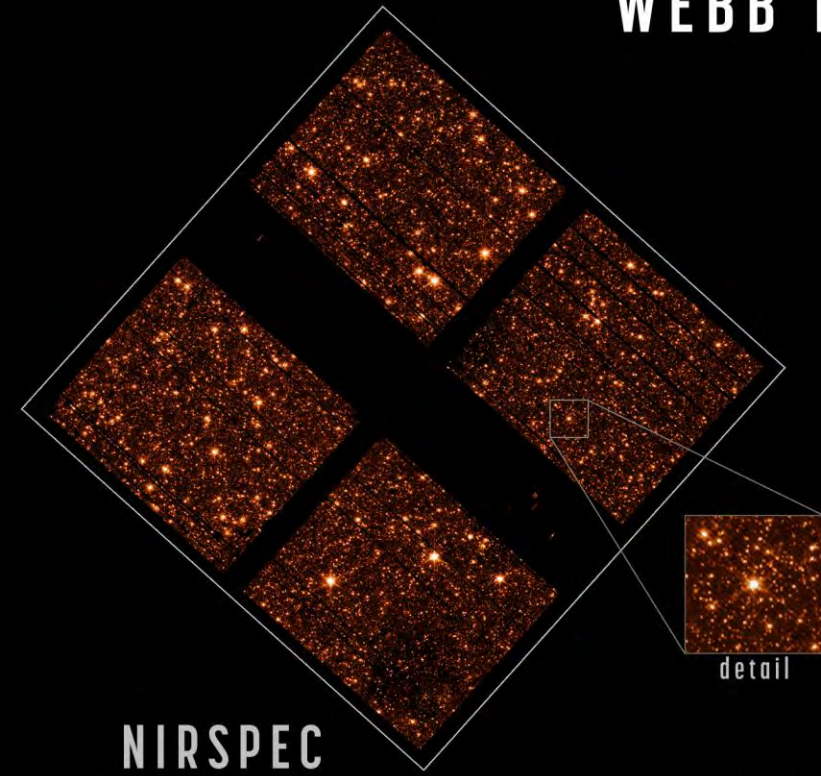
TELESCOPE ALIGNMENT EVALUATION IMAGE



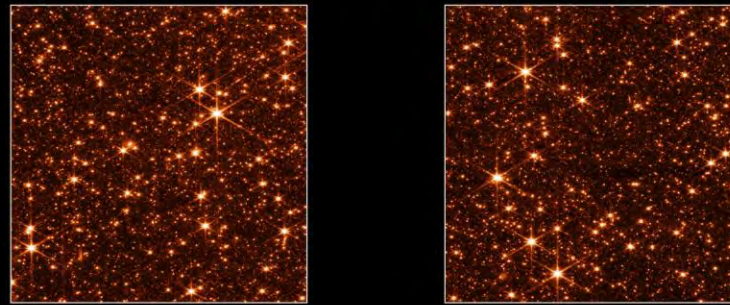


WEBB TELESCOPE IMAGE SHARPNESS CHECK

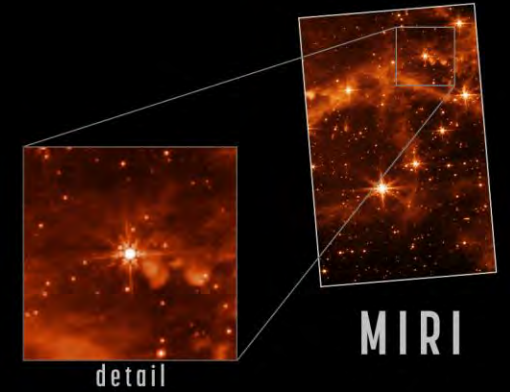
NIRSPEC



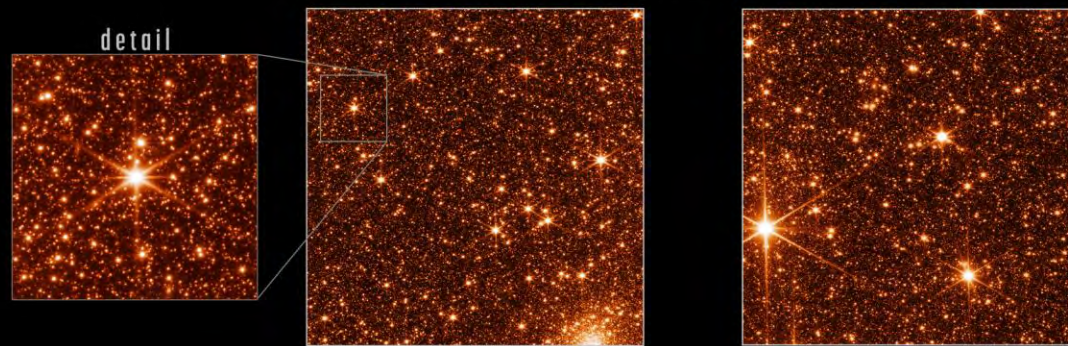
NIRCAM



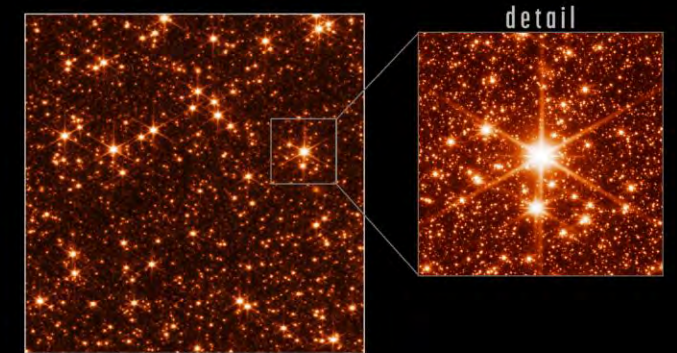
MIRI



FINE GUIDANCE SENSOR

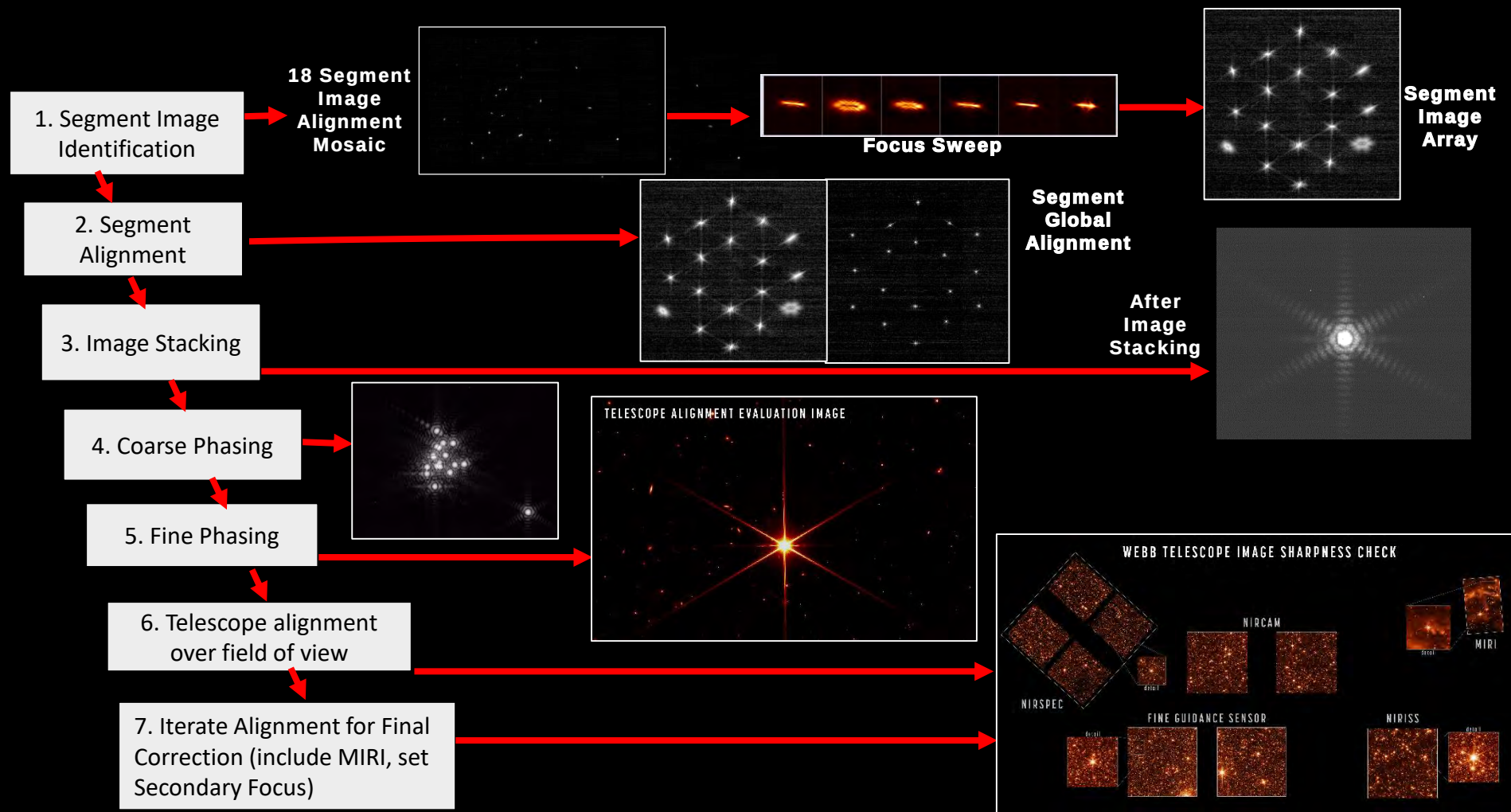


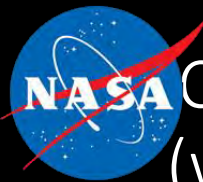
NIRISS





Telescope Alignment Summary





Current static WFE is 59nm in NIRCAM
(with stability we are diffraction limited
at 1um!!)

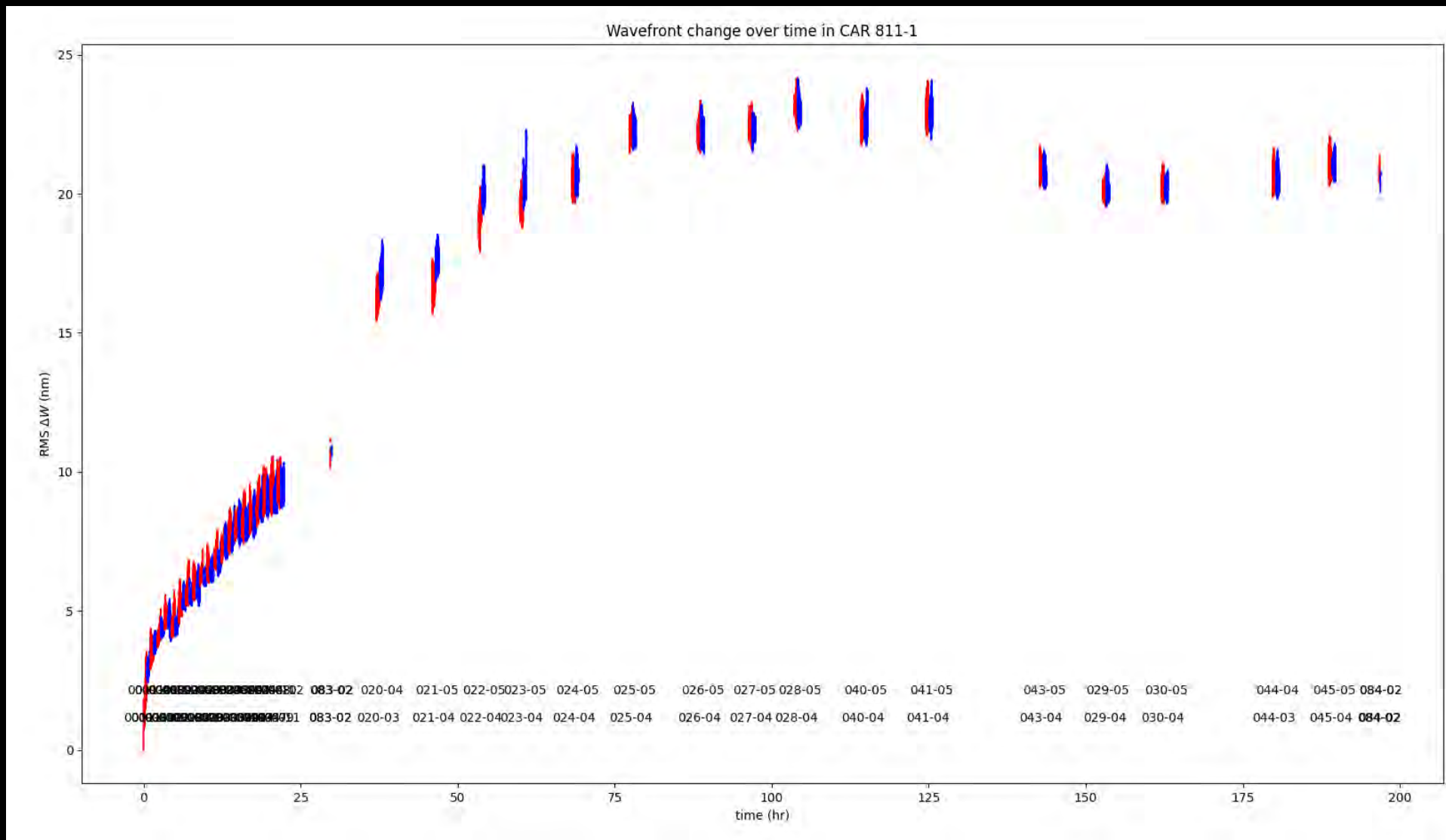
Image Quality: Wavefront Error (End of Life)

SI FOV	Requirement	Current**
NIRCAM A	<150	126
NIRCAM B	<150	132
NIRISS	<180	133
FGS1	<186	133
FGS2	<186	123
MIRI	<421	177
NIRSpec	<238	156

**EOL uses measured data except for stability and end of life
Includes recent micrometeoroids (future predictions on reassessment)



Stability over 8 days: fantastic





OZO COFFEE

ARTIST
68
SERIES



URSA MAJOR

A dark roast, inspired by the night sky.
DARK CHOCOLATE | SMOKEY | RICH & CHEWY

12oz. (340g) Whole Bean Coffee

 **Go, Webb, Go!**
The Hidden Universe Awaits

THE STEVEN MULLER BUILDING





JWST Telescope: Two decades of amazing teamwork!



Brush
Wellman/Materion



Ball



OTIS/JSC/Harris



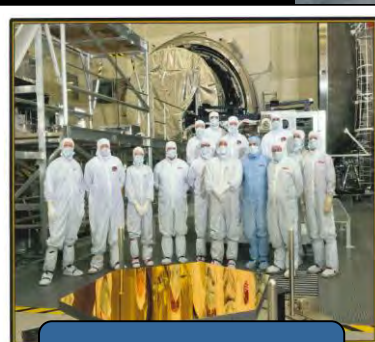
StScI/Ball/GSFC



Tinsley



GSFC OTE/CoC Team



MSEC XRCE



Orbital ATK



Axsys Technologies



QCI