



**STScI** | SPACE TELESCOPE  
SCIENCE INSTITUTE

EXPANDING THE FRONTIERS OF SPACE ASTRONOMY

# JWST Science & Operations Center status

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JWST User Committee  
December 9<sup>th</sup>, 2020



## Outline

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- Development status and milestones
- Cycle 1 proposal support
- Rehearsal activities
- Conclusions



## Overall status

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- STScI is still in mandatory work from home because of COVID-19.
- Rehearsals and training events have been conducted with onsite presence of critical staff.
- Major delivery milestones have been met on schedule.
- We have received Cycle 1 General Observer Proposals and we are getting ready to review and process them.



## HQ Milestones involving STScI

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- Complete Cycle 1 General Observer Proposal reviews March 2021
- Launch Readiness Exercise #2 March 2021
- Launch Readiness Exercise #4 July 2021
- Operational Readiness Review August 2021

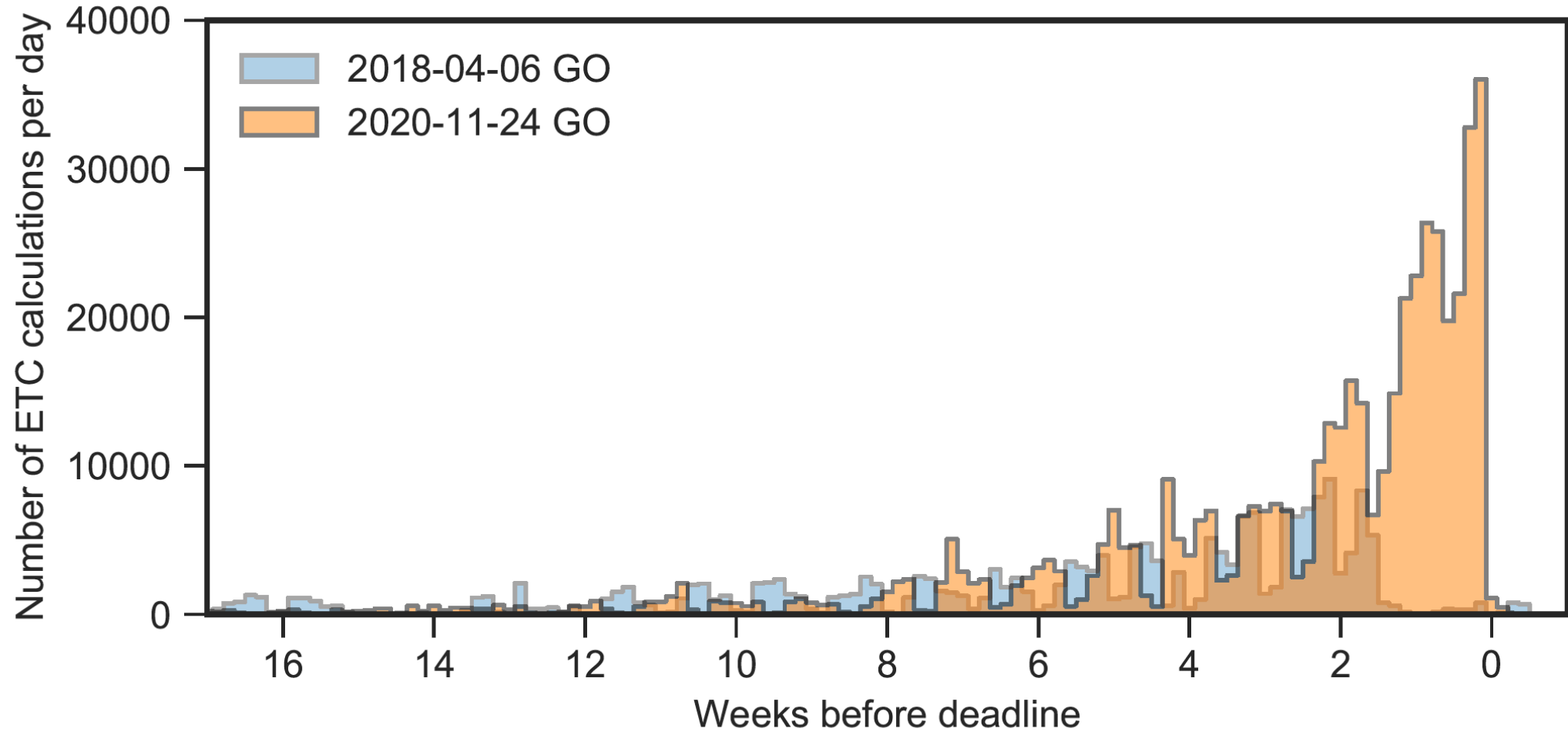


## S&OC & Subsystem Status (pending GS&O approval)

Subsystem	Build	Development Completion Date	I&T Completion Date	Status	% of Requirements Delivered to Date	% of Requirements Verified to Date
Flight Operations Subsystem (FOS)	6.5	8/7/2020	8/21/2020	Delivered	99%	95%
	6.5.1 & 6.5.2	November 2020	December 2020	In Development		
	TBD	-	-	-		
Operations Scripts Subsystem (OSS)	8.2	12/16/19	8/31/2020	Delivered	100% (Level 4 implemented)	97% (Level 4 verified)
	8.3	9/28/2020	November 2020	In Test		
	8.4	TBD	-	Planning		
Proposal Planning Subsystem (PPS)	14.11	6/4/2020	August 2020	Delivered	100%	99%
	14.12	August 2020	November 2020	In Test		
	14.13	December 2020	February 2021	Planning		
	15	March 2021	April 2021	-		
Wavefront Sensing & Control (WFS&C) Software Subsystem	6.4	5/29/2020	7/10/2020	Delivered	100%	100%
	7.0	January 2021	February 2021	Planning		
Project Reference Database Subsystem (PRDS)	4.17	5/28/2020	6/16/2020	Sustaining Engineering Release (In Development)	100%	100%
	4.18	-	-			
Data Management Subsystem (DMS)	7.4	11/24/19	2/28/20	Delivered	99%	99%
	7.5	6/18/2020	7/24/2020	Delivered		
	7.6	9/25/2020	10/30/2020	Delivered		
	7.7	January 2021	February 2021	In Planning		
	8.0	March 2021	April 2021	-		
S&OC Releases	R2.1		4/30/2020	Delivered	100%	98%
	R2.2		April 2021	Planning		



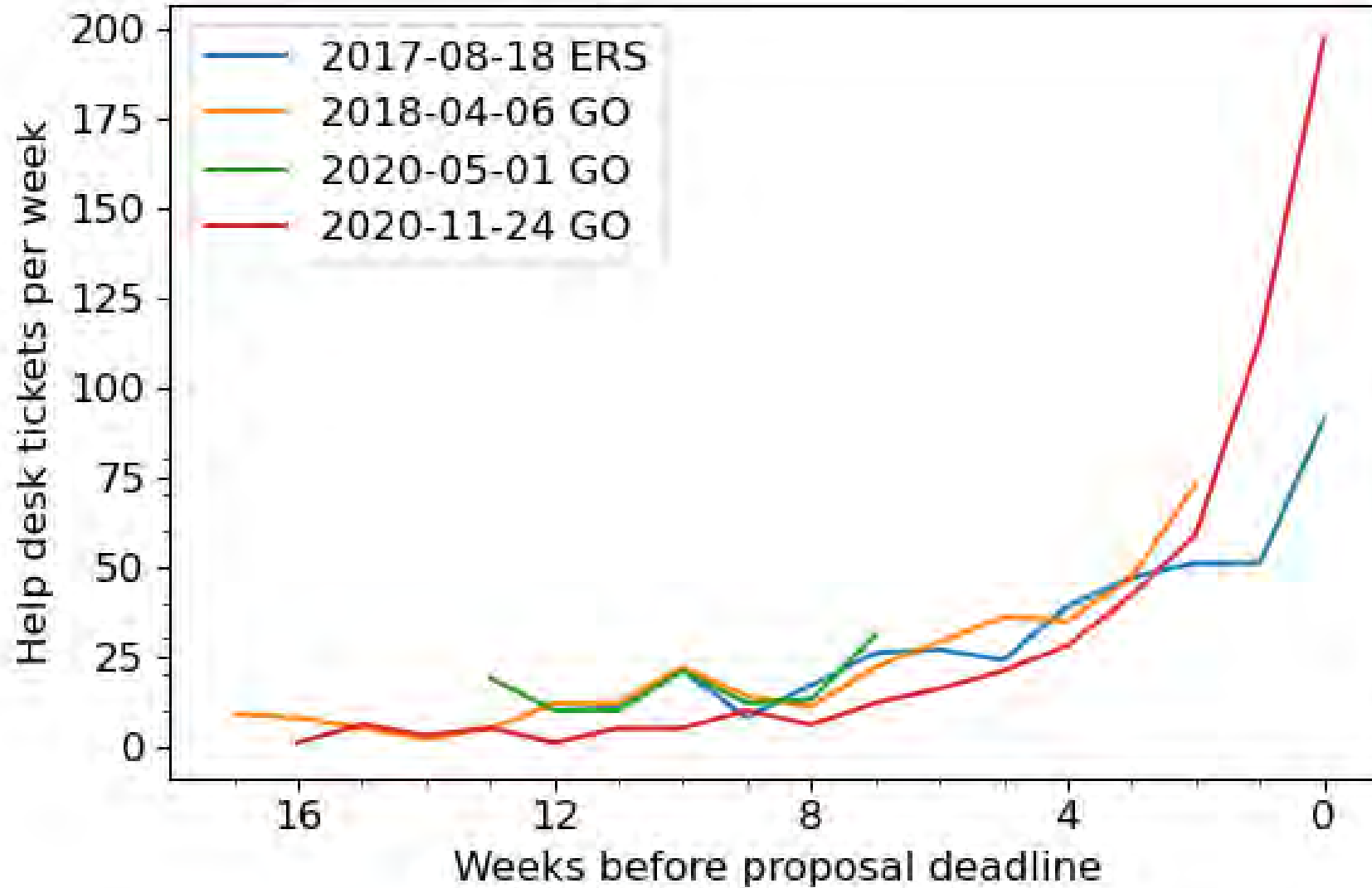
## A metric for Community Engagement : Exposure time Calculations



We actively managed the AWS resources to maintain the ETC responsiveness.



## A metric for Community Engagement : Help Desk Tickets





## Other STScI presentations

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- Klaus Pontoppidan will address in a separate presentation the status of data analysis and our plans to train the community in the use of our tools.
- Christine Chen will describe the Cycle 1 GO/AR submission statistics
- The STScI Instrument Leads (M. Robberto, E. Sabbi, M. Garcia Marin, S. La Massa) will describe the status for each instrument





## Rehearsals and exercises

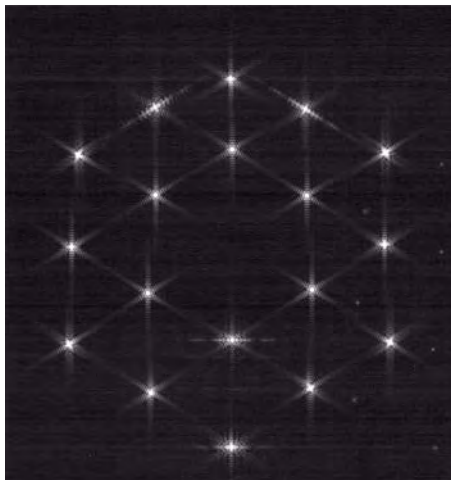
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- Tests with hardware: GSEG3 (July 2020) and GSEG4 (Feb 2021). We used the MOC to command the flight hardware. These tests are used to also verify requirements.
- Instrument mini-rehearsals: NIRCcam (August 2020), NIRSpec (September 2020), MIRI (October 2020). Training SI staff with processes and procedures.
- Wavefront Practices: applies practices on simulated data to train Ball-GSFC-STScI team to align the JWST OTE: WFTP7 (September 2020) and WFTP8 (October 2020)
- Normal Operations Exercise: these are tests to verify how we will operate JWST after the end of commissioning. Planning NO10 right now : 2 WFS&C, Station Keeping, Momentum unload, daily JTAA visits; FOT training, load 10-day OP, nominal load data processing; calibration and pure parallels.
- Launch preparation events: Launch Rehearsal Exercises, Integrated Crew Exercises. LRE1 took place in November 2020.

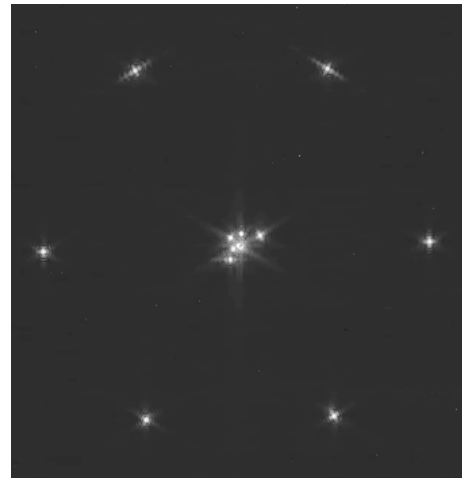


## Wavefront Team Practices

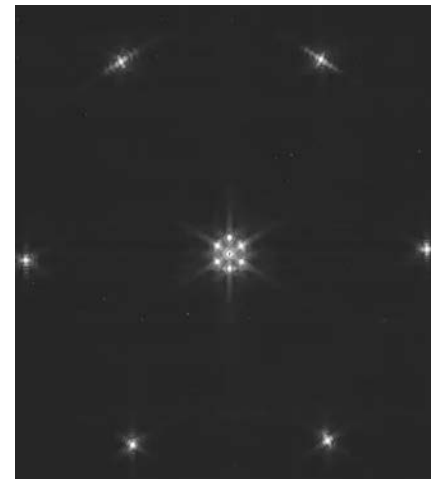
The example below is from the Wavefront Team Practice #7 (WFTP7, Sept 22–24, with Ball-GSFC-STScI participation). This was supported by extensive simulations.



End of Global Alignment

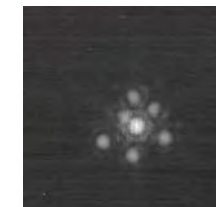


A segments stacked,  
B stacking in progress

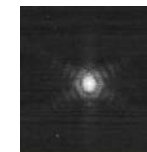


B segments in  
small array prior  
to stacking

(zoomed) C segments  
during cleaning of coarse  
mechanism error



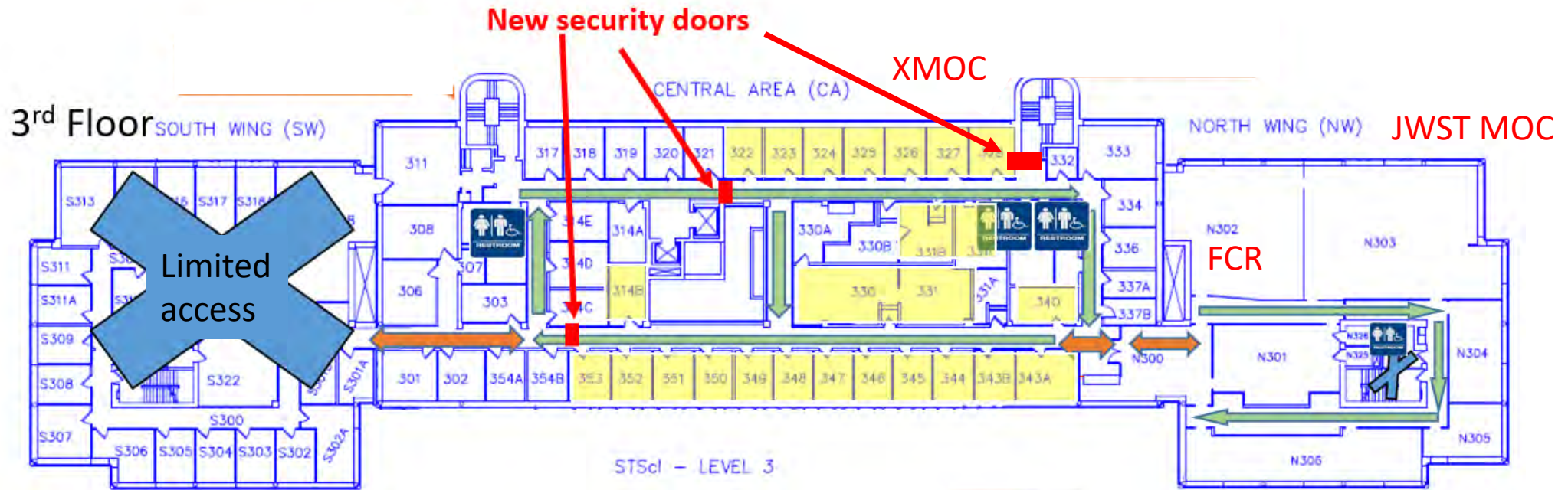
Final stacked  
(unphased) PSF





# Launch Readiness Exercise 1

- Carrying out LRE1 while minimizing COVID-related risks has forced us to re-evaluate occupancy of the MOC rooms and by implementing the XMOC : a temporary extension of the MOC footprint to accommodate in individual offices an additional 25 Eclipse workstations with voiceloops.





## Launch Rehearsal Exercise 1

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- Started on time and completed planned activities up to preparation for the MCC1a burn.
- A suspected COVID-19 case in the MOC led to the early termination of LRE1 (as planned in advance should that event take place)
- This was a very useful exercise to test COVID-19 protocols. It was the first event with 50 people in the MOC/xMOC since the start of the epidemic.
  - Lessons learned will inform planning for future events



## Conclusions - update

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- Work at STScI has continued to proceed as planned in every area.
- Activities in the MOC have restarted even though physical presence has been reduced and replaced by remote participation when possible.
- The Cycle 1 call for proposal is closed and we are ready to process and review the proposals.
- STScI will continue to support the mission schedule.

