

RSIG Telecon

Project Technical Status

November 22, 2021

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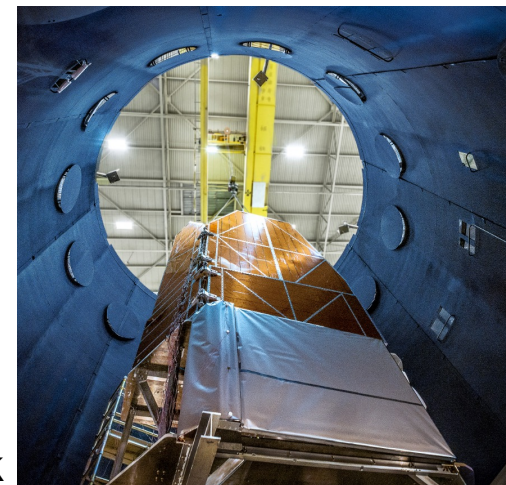
- NASA GODDARD SPACE FLIGHT CENTER • JET PROPULSION LABORATORY •
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Project Technical Status



- Launch Vehicle selection process to begin soon
 - SpaceX Falcon Heavy, ULA Vulcan
 - Initial coupled-loads analyses completed, some iterations in progress
 - Can be used for any final design load changes where applicable (initial designs had to be conservative); used for defining final test environments
 - Interface agreements baselined with NASA Launch services
 - Launch environments, separation system, trajectory details including attitude during coast phase, separation momentum, etc.

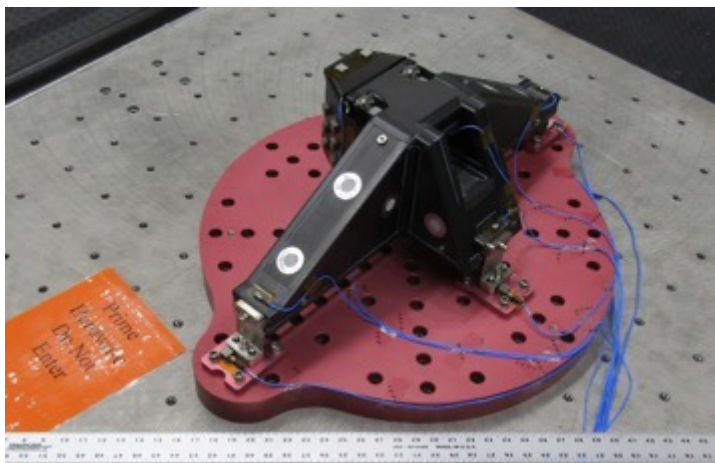
SASS EDU in
SES chamber



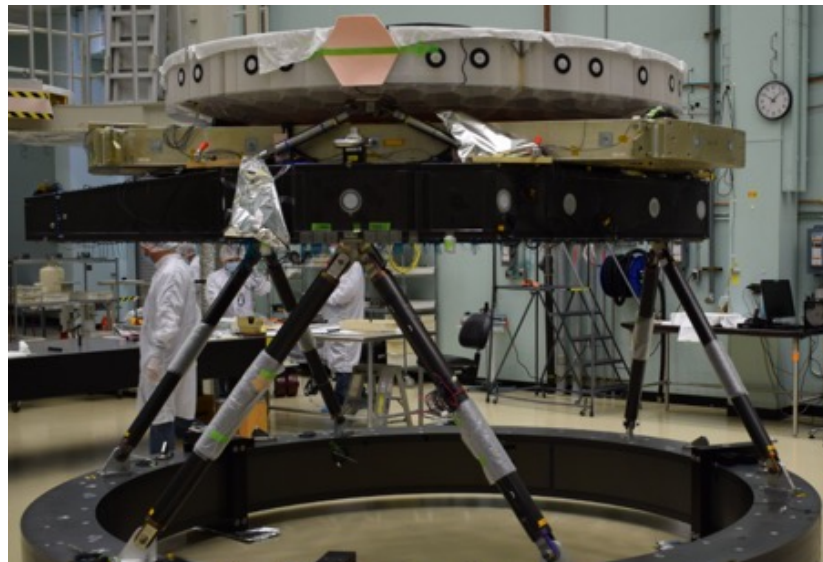
- Spacecraft
 - Passed its CDR in September
 - Nearly all parts out for procurement
 - Still lingering supply chain issues, but generally on track
 - Engineering units for nearly all subsystems built and tested
 - ACS modeling shows we are meeting slew & pointing performance

- All optics coated and meet specs
- PM is mounted on the aft metering structure
- SM Assembly is integrated and completed optical testing
- Secondary Mirror Support Tubes have been tested, preparing bonding of end fittings
- Aft Optics Structure struts completed
- Aft Optics Module
 - FM1, FM2 mounting in progress
 - Tertiary Mirror Assembly undergoing optical testing
- Tertiary Collimator Assembly
 - Pick Off Mirror Assembly Structure sine burst testing completed
 - TOMA structure, Tip/Tilt/Fold structure, TOMA struts completed
 - Tip/Tilt/Fold actuator testing completed
- Thermal control and alignment drive electronics being assembled

Telescope



Pick-Off Mirror Assembly Structure in sine burst (X-axis)



Primary Mirror Assembly mounted to Telescope System Support Ring



Alignment Drive Electronics Circuit Card Assembly



Complete TOMAS—ready for post-cure and thermal cycle

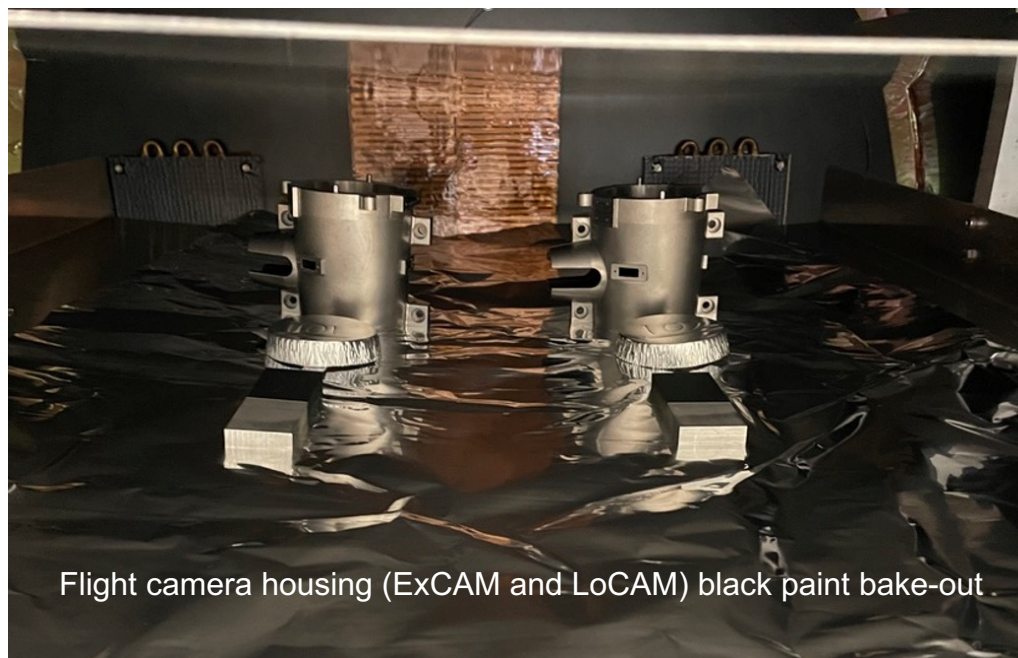


Tertiary Mirror Assembly in ambient optical test

- Three EMCCDs delivered to JPL for testing
- Now have 3 DMs in process suitable for flight
- Flight camera radiation shield parts on hand
- Four OAP mirrors delivered
- Finished Fast Steering Mirror EDU testing
- EDU Precision Alignment Mechanism passed protoflight/Qual testing
- Thermal system fabrication proceeding
- Camera electronics fabrication close to completion at ABB/NuVu

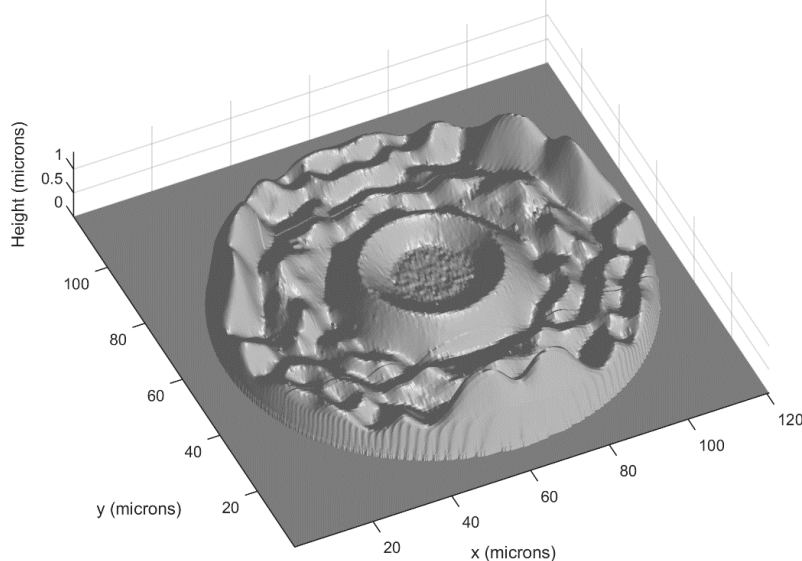


Camera radiation shield

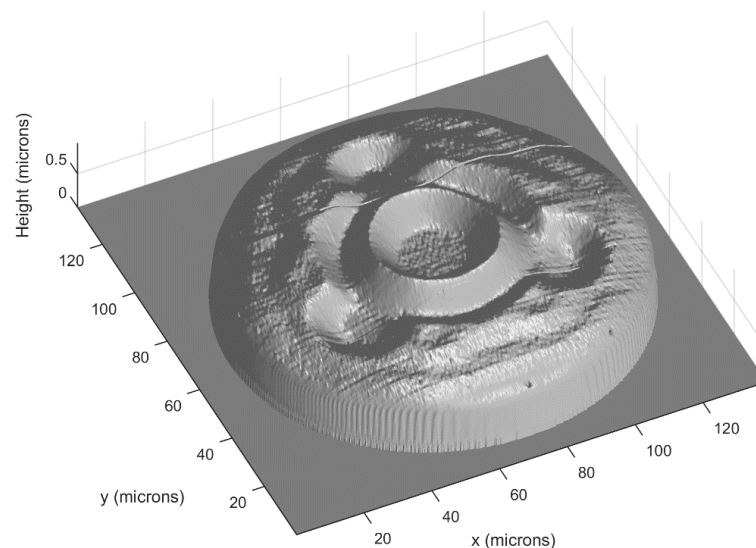


Flight camera housing (ExCAM and LoCAM) black paint bake-out

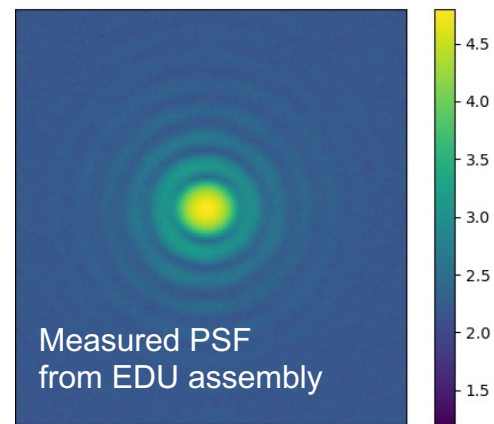
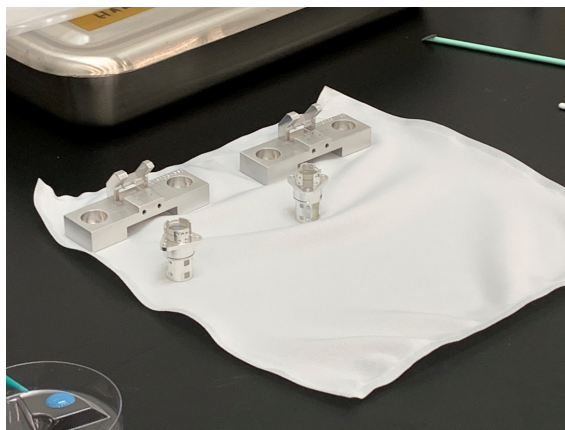
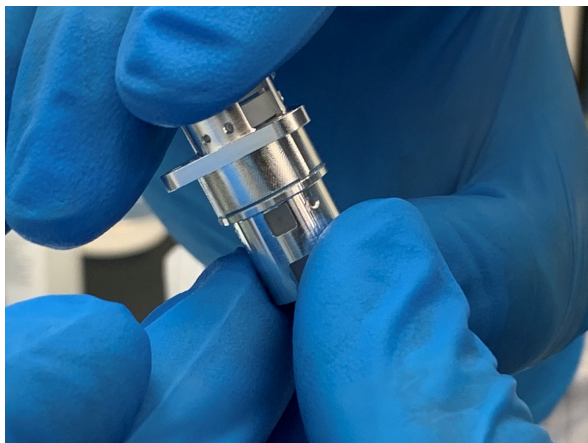
RHLCN3_R5C2_Band1_Stitched



RHLCN3_R5C3_Band2_Stitched



Atomic force microscope images of Band 1 & Band 2 HLC masks



*Polarizers and lenses are contributions from JAXA

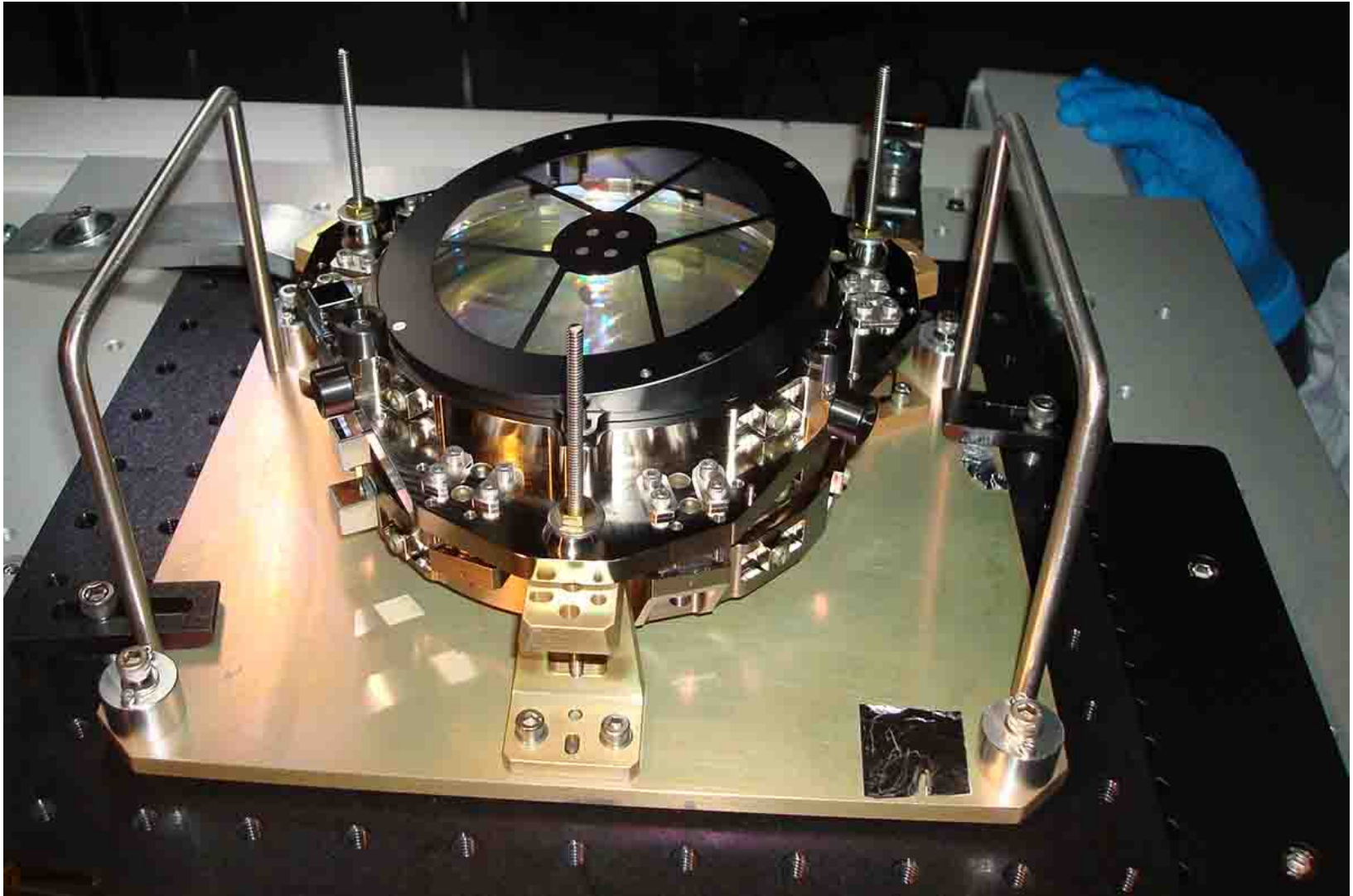
- Wide-Field Instrument
 - Optical bench received, Be element wheel received,
 - ETU FPA TVAC test complete, moving on to vibration testing
 - ETU FPA electronics assembly almost complete, will begin testing soon
 - ETU ACADIAs performing well. Flight version of ACADIA ASIC ready for production; modifications from ETU are slight.
 - Flight SCAs starting to be installed in flight mosaic plate

 - Flight grism aligned & bonded – will begin optical testing soon
 - Flight prism in midst of alignment & bonding
 - sRCS passed its mechanical design review; most electrical parts in-hand; boards out for procurement
- Performance modeling
 - Thus far we are meeting long-standing estimates of throughput, optical quality
 - Will be updating models as we characterize flight hardware

WFI Optical Bench

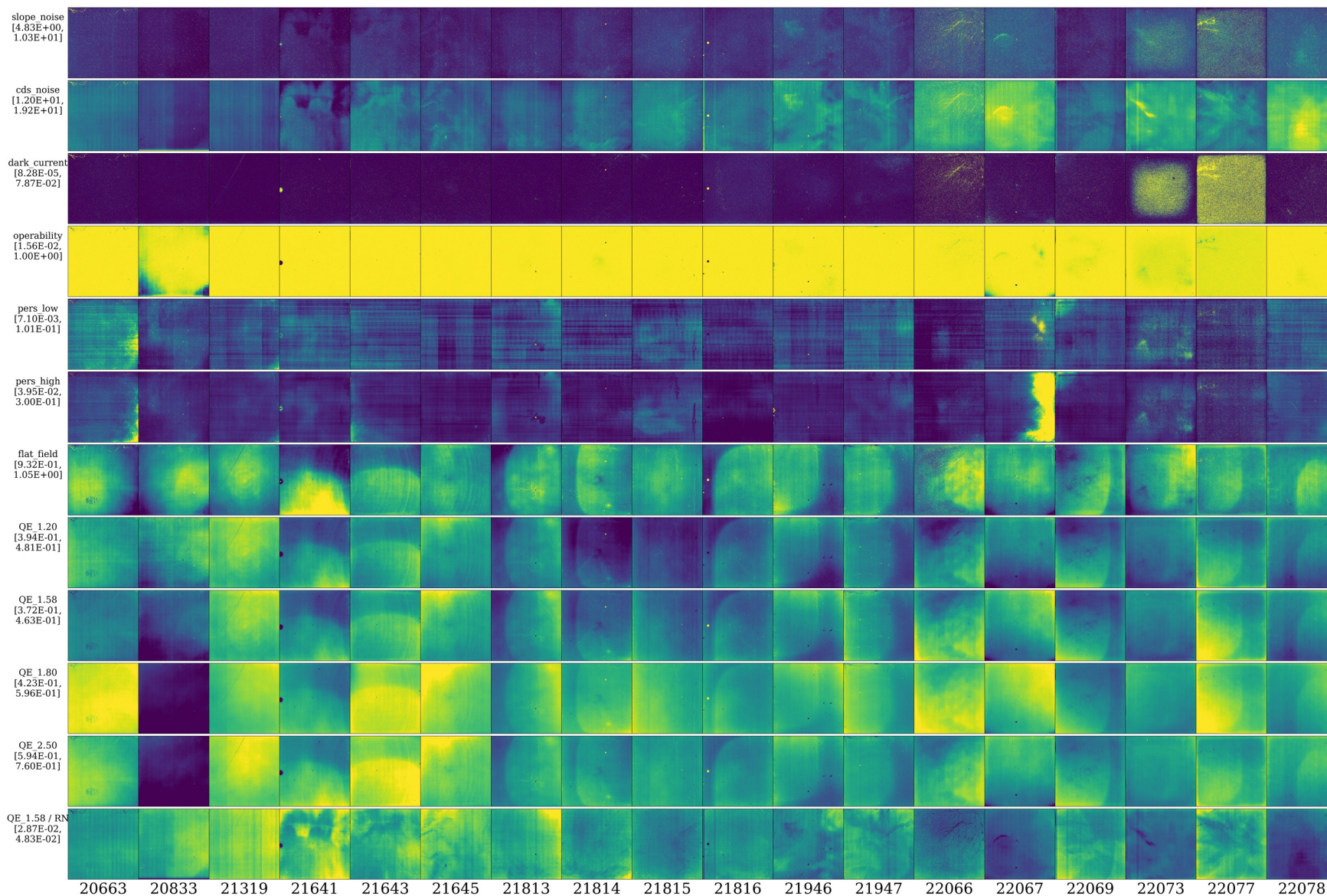


Flight grism



WFI Flight Detector Properties

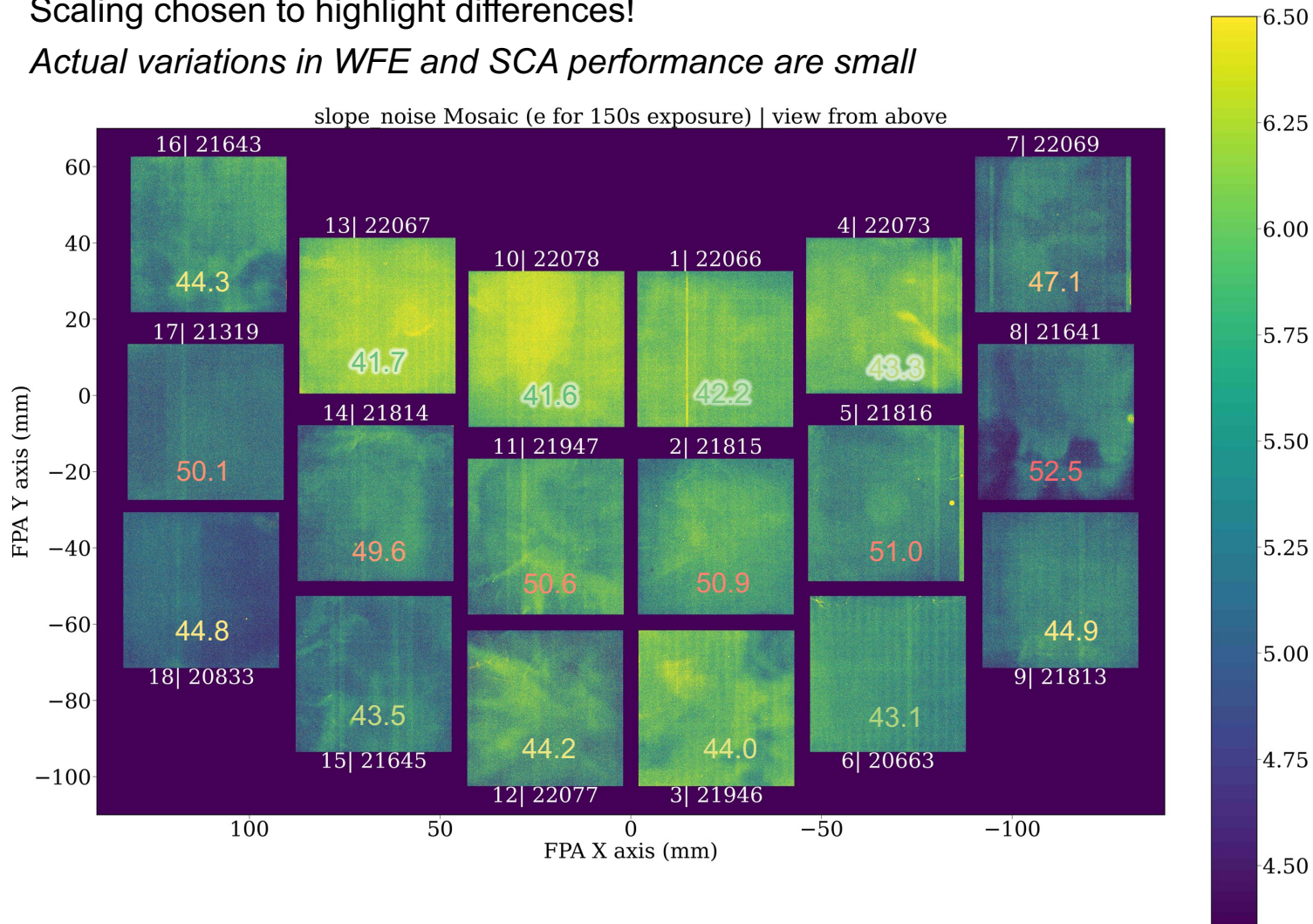
(color scale stretched to show small differences)



SCA Placement in Focal Plane



- **Provisional SCA placement chosen to optimize survey uniformity**
 - Slope noise maps shown; mean WFE for each SCA in insets
 - Scaling chosen to highlight differences!
 - *Actual variations in WFE and SCA performance are small*



THE END

THE END OF THE BEGINNING!