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EXPANDING THE FRONTIERS OF SPACE ASTRONOMY

NIRSpec status update

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Status & recent work

- the instrument is performing well, no significant anomalies
- reference file updates
 - detector-level files (darks, biases, bad pixels) based on cycle 1 & 2 data
 - updated barshadow correction files for MOS extended-source calibration
 - revised MOS S- and F-flat files -> improved flux calibration for all dispersers
- user support highlights
 - new JDOx pages detailing the instrument model and flux calibration chain, revised/restructured known issues pages
 - IFU pipeline processing demo notebooks
- pipeline updates & fixes of note
 - improved automated extraction aperture centering for FS & MOS data (based on the planned source slit position)
 - implemented the Rauscher “NSClean” algorithm to remove correlated noise from the “picture frame” effect and $1/f$; available for all modes as an optional step
 - issue with NaN error arrays mitigated with new F-flat reference files that have realistic errors
 - fixed bug in MOS pathloss correction for slits with > 3 shutters

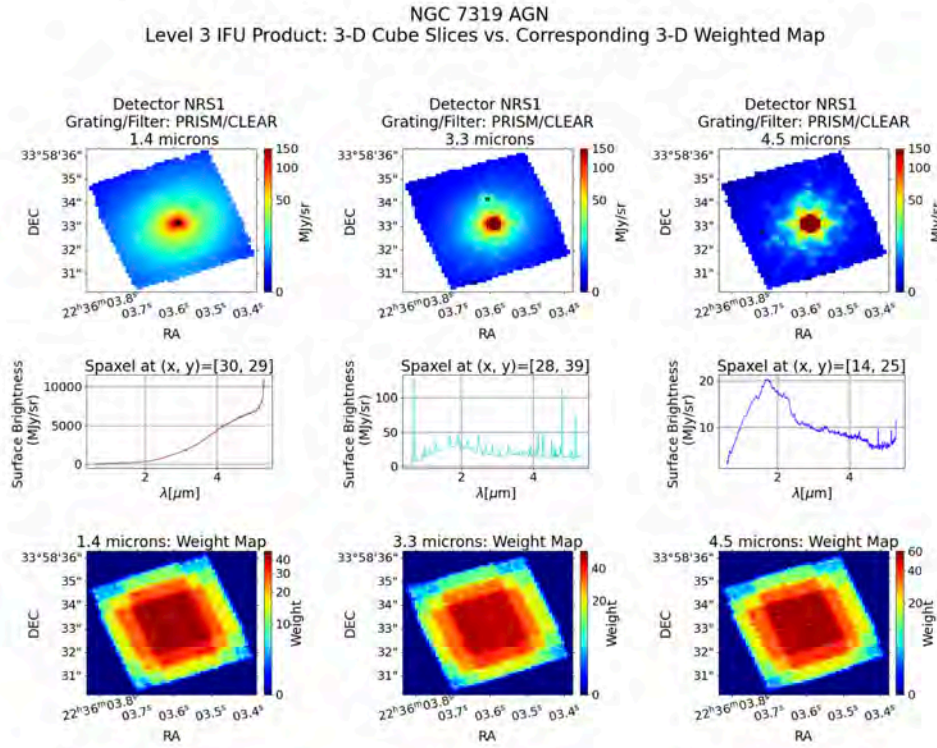


work in progress

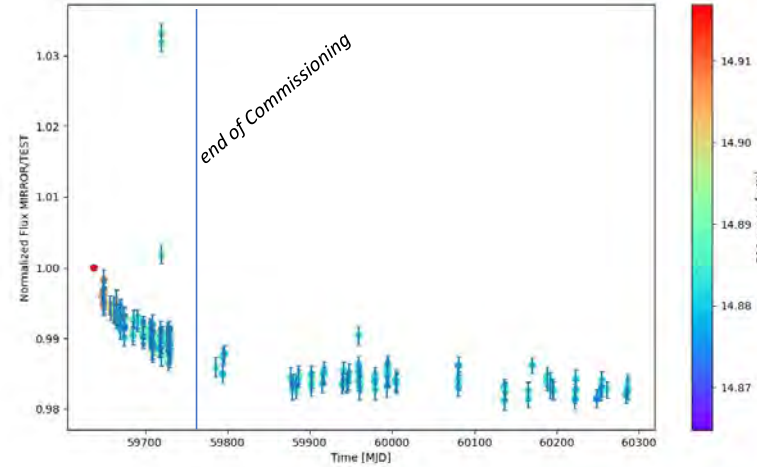
- reference file updates expected in the next few months
 - new parameter reference files that set the default weighting for resampling
 - detector-level files (darks, biases, bad pixels) based on further cycle 2 data
 - FS & MOS pathloss files
- pipeline and calibration plans
 - working on a fix for the wavelength correction for offset point sources in MOS data (correction not being applied to resampled data)
 - optimization of detector-level processing parameters (e.g., CR detection)
 - investigating issues with resampling (outlier rejection, weighting options, undersampling, LSF, flux conservation)
 - cycle 3 calibration plans: assessment of the MOS flux & wavelength calibration field dependence, deep investigation of IFU LSF and field distortion, expanded sample of spectrophotometric standards, continued monitoring of instrument model, GWA tilt calibration, and MSA operability
- notebooks in development: NSClean demos for all modes, demos of general MOS, FS, BOTS pipeline processing, master background demo for MOS & IFU



extras

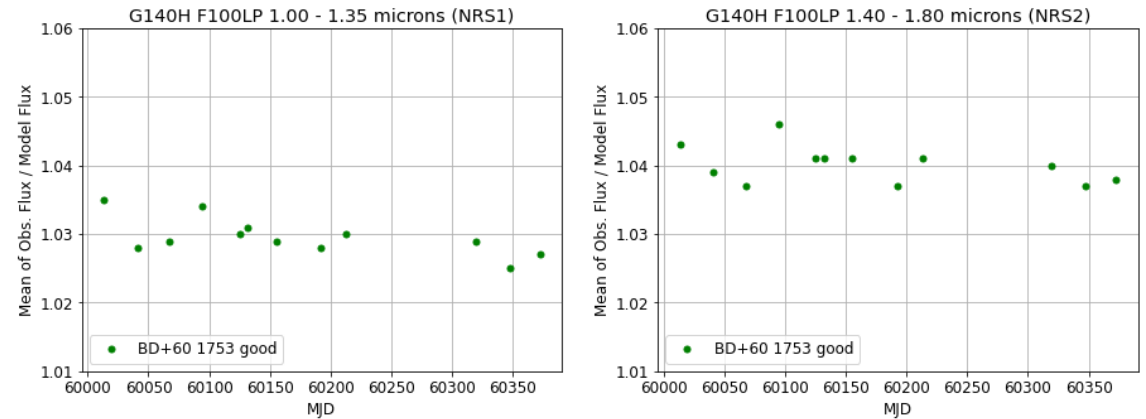


excerpt from IFU pipeline demo notebook
(K. Glidic)



throughput monitoring
from internal lamp
exposures
(P. Zeidler)

instrument throughput
stable to within ~1%



monitoring of A-star standard w S1600A1 slit, G140H+F100LP
(C. Proffitt)



The Great NIRSpec Branch

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