STScI | SPACE TELESCOPE SCIENCE INSTITUTE

EXPANDING THE FRONTIERS OF SPACE ASTRONOMY

Near Infrared Camera (NIRCam)

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NIRCam Status

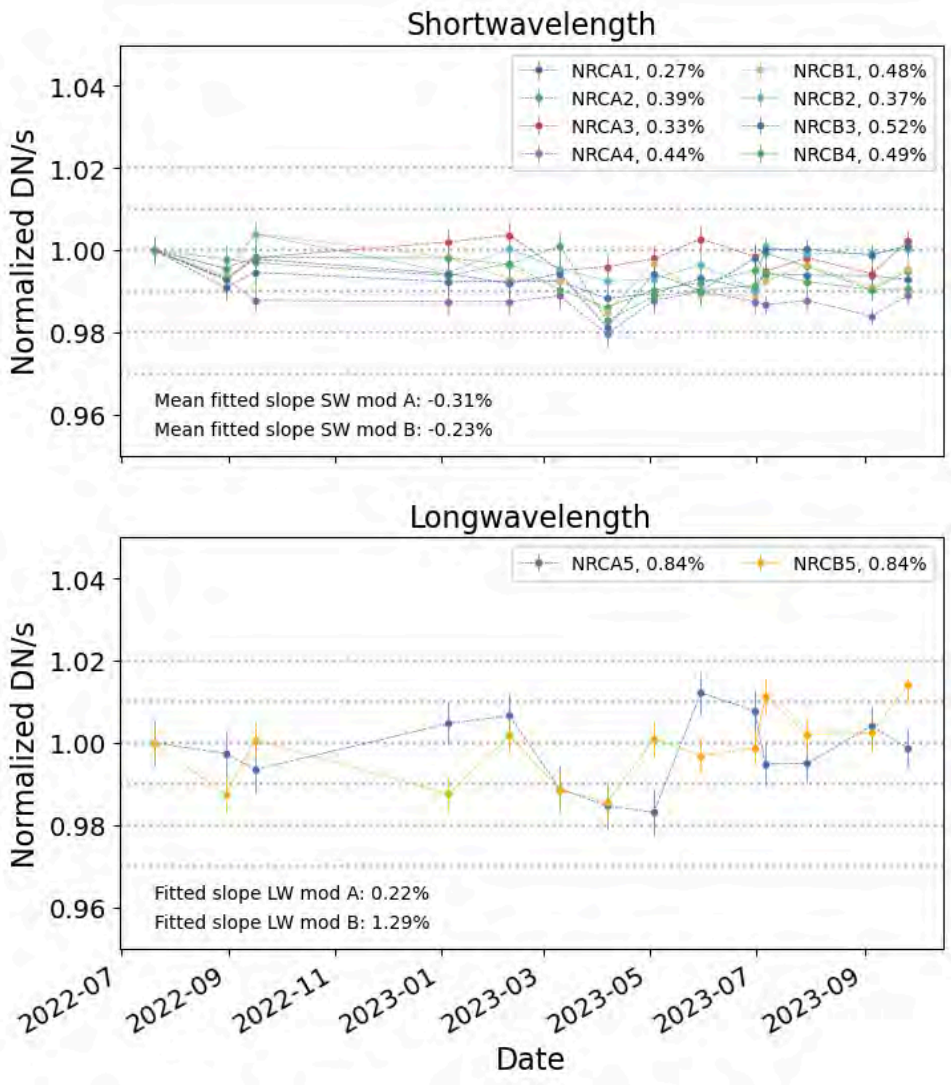
- NIRCam is performing well!
- No anomalies to report
- Ramping up work to support enabling use of the Dispersed Hartman Sensor (DHS) for NIRCam grism time series in Cycle 4
- Supported updates for S&OC 6.2/OSS 9.2, including new global alignment and distortion parameters, and new on-board flats to fix the recent TA failures (starting in late summer/fall)
    - Further TA failure mitigation strategies being investigated
- Continuing user support and documentation updates
    - New JDox page with recommendations for correcting 1/f noise
    - New technical report: “Improved Flat Field Reference Files for Cycle 1”
    - Two refereed papers in progress detailing absolute flux for imaging and spectroscopic calibrations
    - Wrapping up development of notebooks to help with pipeline processing and data analysis, including: imaging, TSO, WFSS, and coronagraphy

NIRCam Calibration Efforts

- New shortwave (SW) flat-fields based on Cycle 1 data delivered in September
- New coronagraphic flux calibration derived from Cycle 1 calibration data delivered in October
- New dark current, readnoise, and superbias reference files for all apertures delivered in January
- New distortions and pixel area maps delivered in February for all imaging modes, corresponding to improved alignment and distortion parameters in the SIAF
- New jump step parameter files delivered in February to turn on snowball flagging for all modes, which should result in more complete flagging of snowball-affected pixels and better ramp-fitting results
- Finalizing analysis of persistence calibration data and decay patterns, and developing predictive model to flag (and possibly correct) persistence. Efforts include investigating operational strategies to further mitigate persistence.

NIRCam Trending

- NIRCam is stable to <1% based on repeat observations of a standard star
  - Target is not currently visible, so updated values will be available in Spring 2024
- Readnoise and bias monitors using the latest darks remain steady
- Background levels also remain steady, within ~5% of predictions
  - Background RMS and model comparison trending recently incorporated into our JWQL automated background monitor
- Dark current monitor is undergoing improvements and should be available soon
  - Higher cadence of darks being planned for Cycle 3 will improve our monitoring and help catch new bad pixels more quickly



Analysis: Martha Boyer

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