

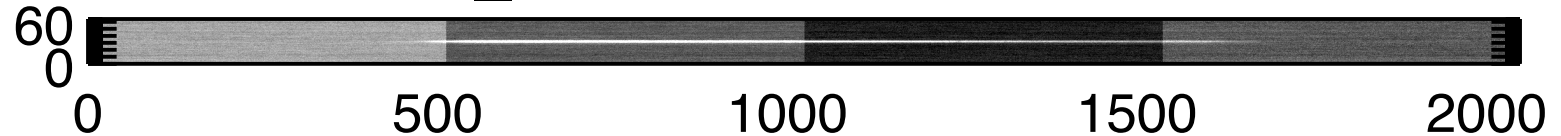
# NIRCam TSO Data Simulations

Everett Schlawin

# Pynrc Data Simulator – Jarron Leisenring

<https://github.com/JarronL/pynrc>

NRCN\_2017-05-17T14h54m01.fits

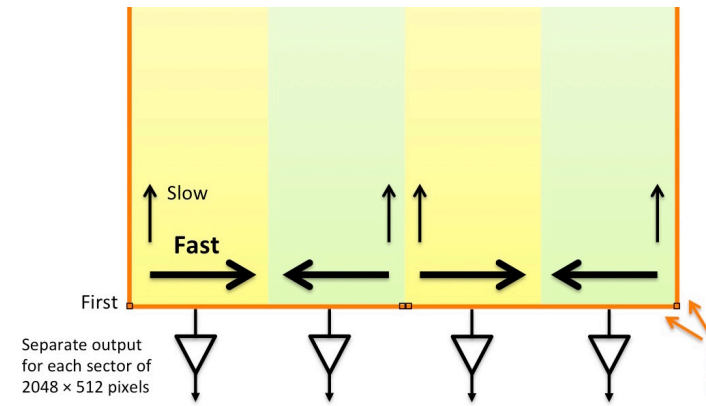


- Multi-use SNR, saturation, data simulation tool
- Bias, dark frames from CV3
- Uses NGHXRG (B Rauscher et al. 2015)
  - Bias drifts,  $1/f$ , alternating column & picture frame noise
- WebbPSF & PySynphot

# Not included in the simulated data:

- - Intrapixel Capacitance (IPC)
- - Post-pixel Coupling (PPC) due to ADC "smearing"
- - QE variations across a pixel's surface
- - Pixel non-linearity
- - Persistence effects
- - Optical distortions
- - Background roll off for grism data from the mirror edge
- - Telescope jitter

# Example Grism Images

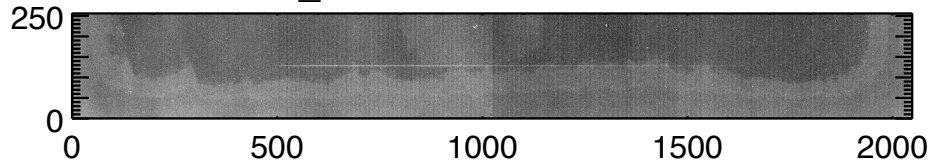


<https://jwst-docs.stsci.edu/display/JTI/NIRCam+Detector+Readout>

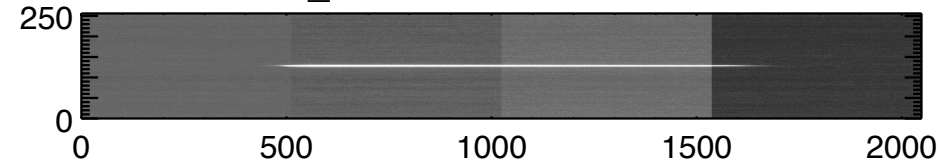
## Second Read

## Slope Images

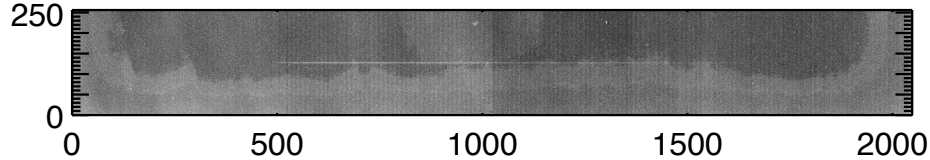
NRCN\_2017-05-17T15h31m20.fits



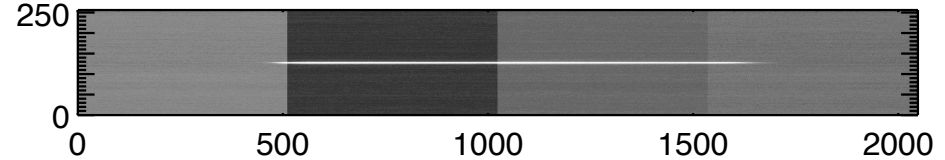
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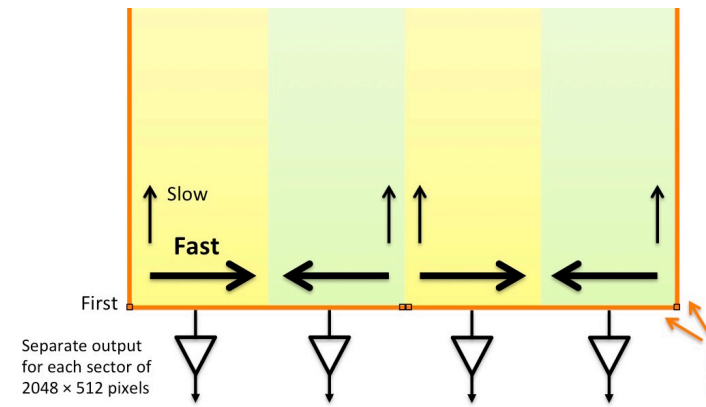
NRCN\_2017-05-17T15h31m24.fits



NRCN\_2017-05-17T15h31m24.fits



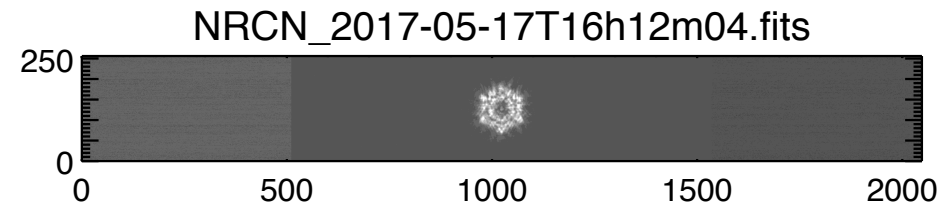
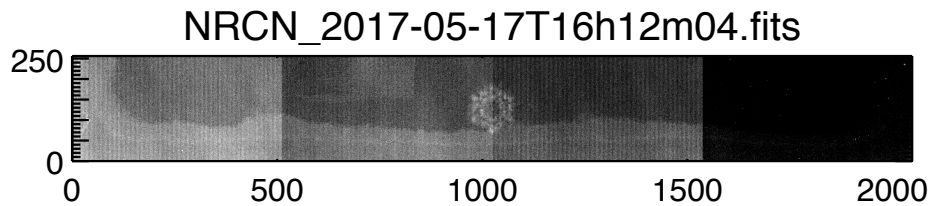
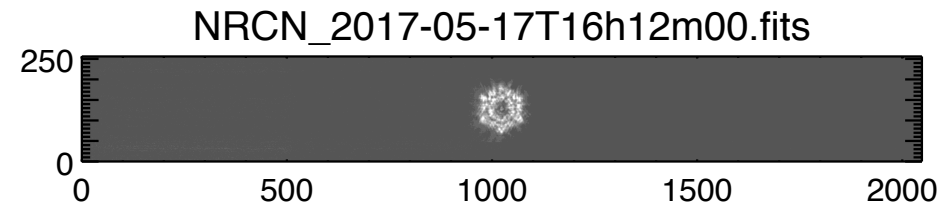
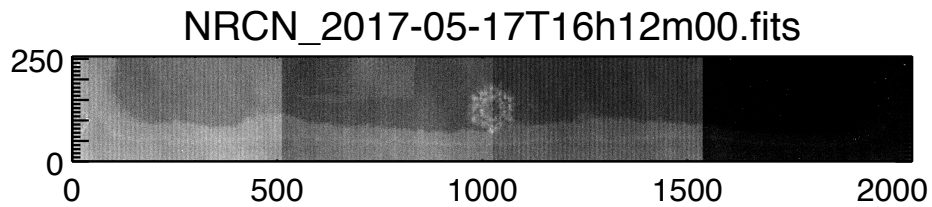
# Example Weak Lens Images



<https://jwst-docs.stsci.edu/display/JTI/NIRCam+Detector+Readout>

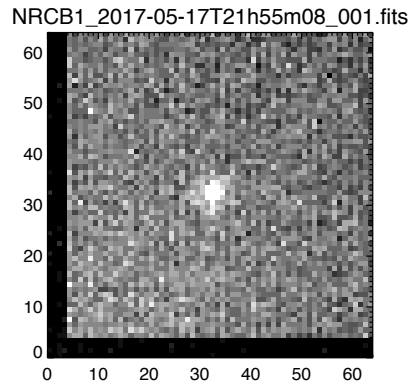
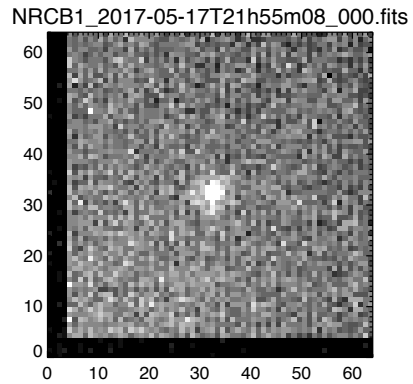
Second Read

Slope Images

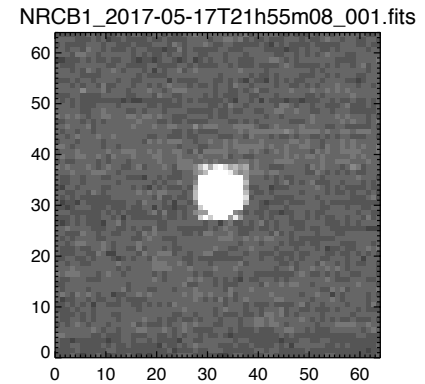
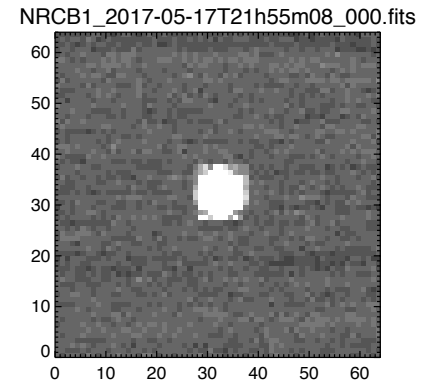


# Example Direct Images

## Second Read



## Slope Images



# Data Sets for Testing

- Source A: WASP-80
  - Grism Time Series Spectroscopy (2.5-4 $\mu$ m) and (4-5 $\mu$ m), 2048x256 subarray, STRIPE mode
  - Simultaneous Weak Lens Photometry
- Source B: WASP-62
  - Imaging Time Series, 64x64 subarray

# Status of Tasks

	Weak Lens	TSO imaging	Grism
Make headers & extensions for DMS tests	Done	Done	Done
Combine Ints into Exp	May 31	May 31	May 31
Make APT files for short test	Done	Done	Done
Make APT files and simulations for large data checks	May 31	May 31	May 31
Make APT files and simulations for Data Challenge	June	June	June



# Remaining Questions

- GROUP Binary table – necessary?