

LUCY MVIC Review

PDS4

Yuna Kwon, Oct 16, 2025

Overview

Documentation/ancillaries

- The `Bundle.xml` file opens properly in the PDS viewer.
- The `readme.txt` file clearly summarizes the data contents and their organization, making it very helpful for navigating the dataset.
- The `xml` files in the document folder open properly in the PDS viewer.

data_donaldjohanson_calibrated

Data Sanity Check

- All image files open properly in the PDS viewer, ds9, and Python.
- The ancillary data in FITS labels and tables looked reasonable.
- Confirmed:
 - All 5 sets of calibration—raw images—calibrated images share identical dimensions (both 3D and 2D) within each set, with consistent labels and properly aligned orientation in the x—y plane.

data_donaldjohanson_calibrated

Data Sanity Check

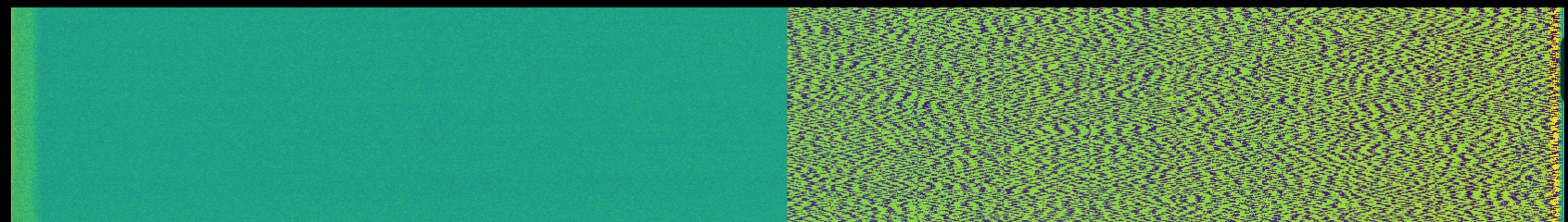
- Confirmed:
 - FITS grammar complies with the IVOA FITS standards.

data_donaldjohanson_calibrated

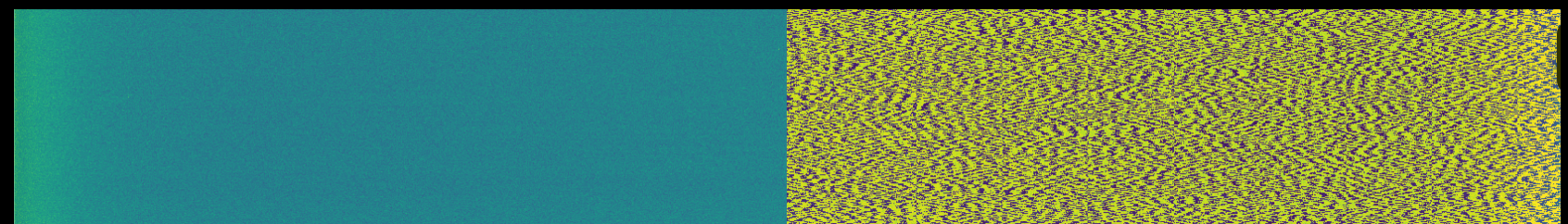
Data Sanity Check

- The half-and-half pattern and clusters of negative pixels on the right side, seen in Bands 3, 5, and 6, but are not shown in the corresponding calibration files. —> *Question: Where did these artifacts come from?*

Calibrated



Raw



Calibration file

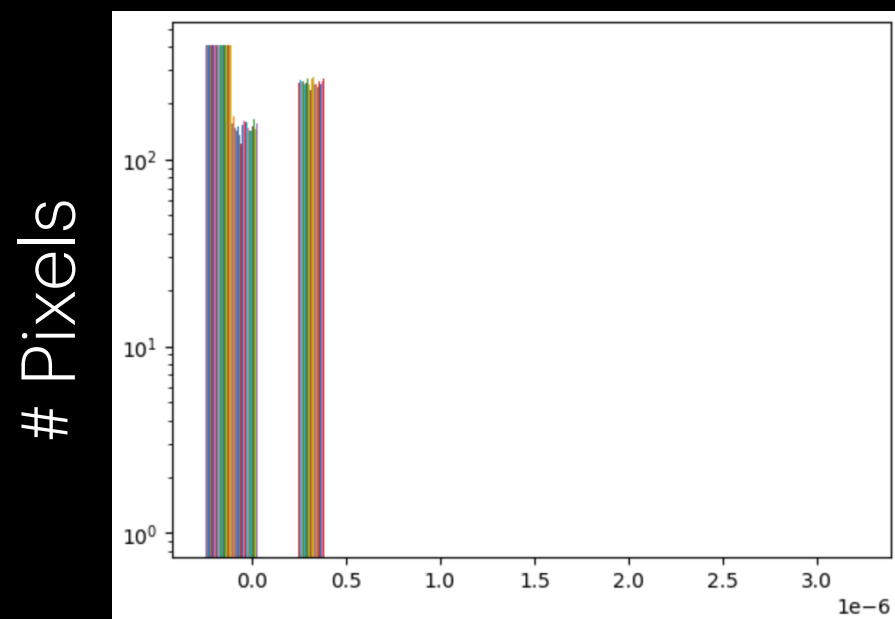


data_donaldjohanson_calibrated

Data Sanity Check

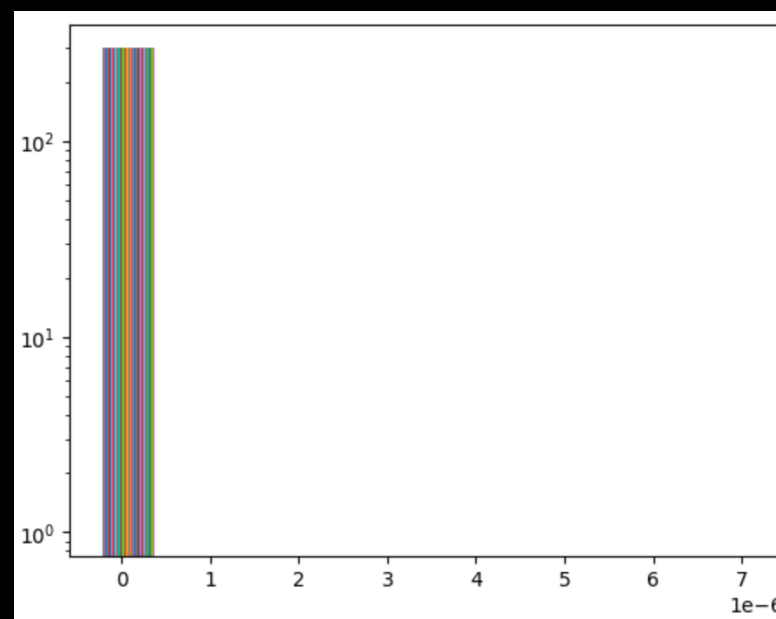
- The half-and-half pattern and clusters of negative pixels on the right side, seen in Bands 3, 5, and 6, but are not shown in the corresponding calibration files. —> *Question: Where did these artifacts come from?*

Band 3 (half)



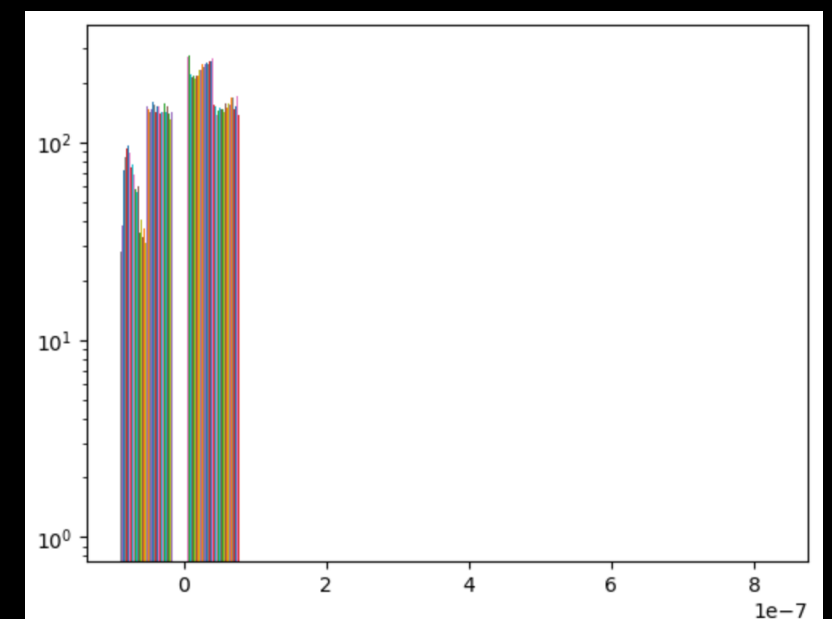
Pixel value

Band 5 (half)



Pixel value

Band 6 (half)



Pixel value

data_donaldjohanson_calibrated

Suggestions

- It would be helpful, though not essential, to include a short explanation of the 2D calibration coefficient (the 6 x 5024 arrays in the calibrated image bundles) for users, e.g., clarifying what the rows and columns represent.

Row #	0 : calibration	1 : calibration	2 : calibration	3 : calibration	4 : calibration
0	3.23579e-10	3.24037e-10	3.2447e-10	3.2488e-10	3.25265e-10
1	2.34446e-09	2.34755e-09	2.35048e-09	2.35324e-09	2.35584e-09
2	2.83404e-09	2.83973e-09	2.84513e-09	2.85021e-09	2.855e-09
3	1.2968e-09	1.29972e-09	1.30248e-09	1.30509e-09	1.30755e-09
4	1.18097e-09	1.18293e-09	1.18479e-09	1.18655e-09	1.1882e-09
5	2.84462e-09	2.85021e-09	2.8555e-09	2.86049e-09	2.86518e-09

- The same suggestion applies to the Background Table.
- It would also help include simple equations in the overview showing how the background & calibration coefficients are applied during calibration to produce the final calibrated outputs.
- It would be nice to briefly mention why some raw images were excluded from the final list.