Alice Data Review
New Horizons KEM 1 v3.0

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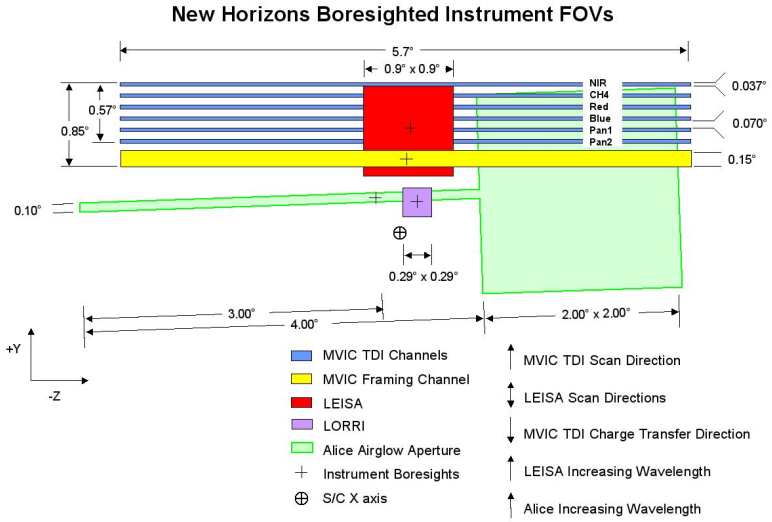
Overview

- Review of nh_a_alice_2_KEM1_v3.0 and nh_a_alice_3_KEM1_v3.0
- Previously reviewed nh_x_alice 2_KEM1_v1.0, nh_x_alice_3_KEM1_v1.0, nh_a_alice_2_KEM1_v2.0, nh_a_alice_3_KEM1_v2.0
- New submission includes data through 03-03-2019, 21:51 UTC (S/C Time)

1. **No major issues preventing database from use and data look good**
2. **All issues identified in February review addressed**
3. **No minor issues of note**

Brief P-Alice Instrument Overview

- P-Alice is an ultraviolet spectrograph sensitive from 520 to 1870 Angstroms
- A “lollipop” shaped slit is used (wide on top, narrow on bottom)
- Detector has 1024 columns in the spectral dimension, 32 rows in the spatial dimension.



Boresight Locations

	Rot abt Y (deg)	Rot abt Z (deg)	Rot abt X (deg)
S/C	0.00	0.00	
Ralph/MVIC Frame	-0.07	-0.74	
Ralph/MVIC P2	-0.08	-0.92	
Ralph/MVIC NIR	-0.08	-1.50	
Ralph/LEISA	-0.11	-1.04	
LORRI	-0.17	-0.32	
Alice Airglow	0.21	-0.37	2.00

Axes are S/C coordinates, as projected onto sky.

-X is into page; +X is out of page.

During MVIC TDI and LEISA scans, s/c rotates about the -Z axis.

Diagram is to scale. Based on pre-flight and in-flight alignments specified in nh_v110.tf.

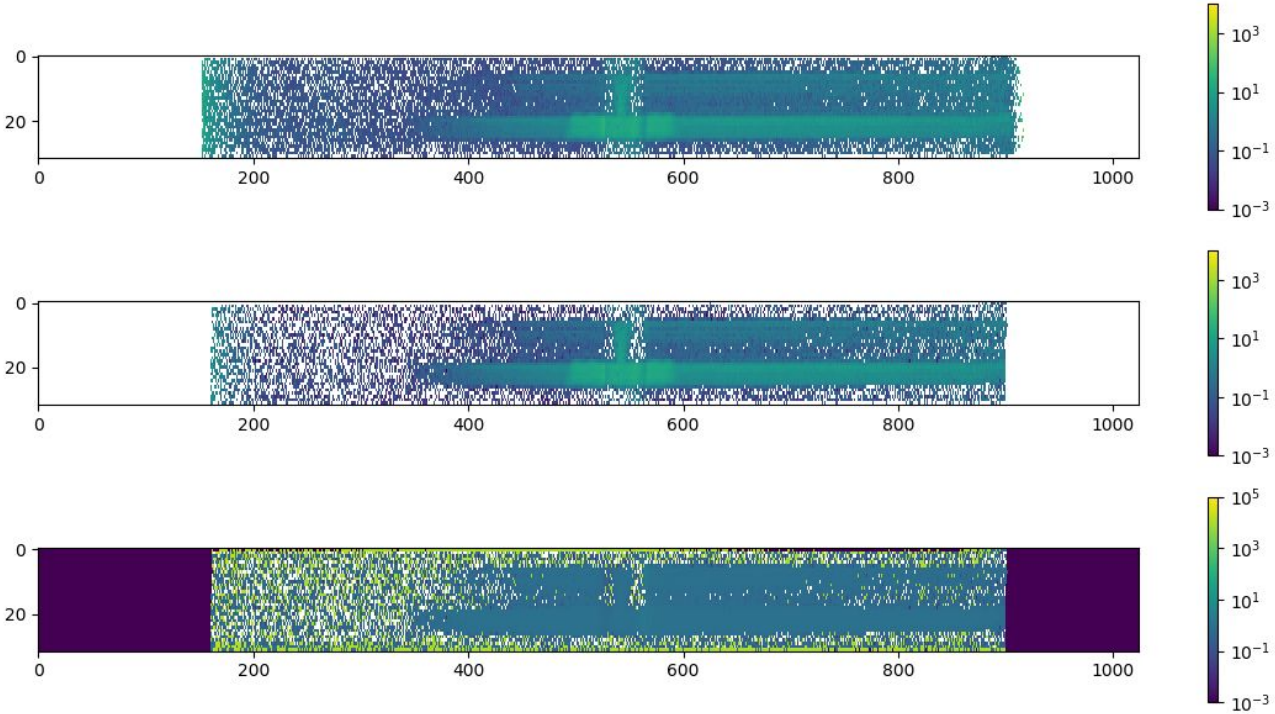
H. Throop/SwRI, 21-Sep-2007

Data Review

Usability

- All .fits files accessed using Python and astropy.io.fits
  - All eng files calibrated according to ICD
  - All sci files accessed, both data and headers
  - Log file with machine readability available
  - PNGs with both user-calibrated, science files, and differences available on request
  - Python code available as well
- All .lbl files checked with Python script for machine readability
  - Log available upon request
- Select files checked in NASAView/DS9 to ensure _eng.fits files matched _sci.fits files
  -

Example Difference Image: ali_0408621227_0x4b2_sci

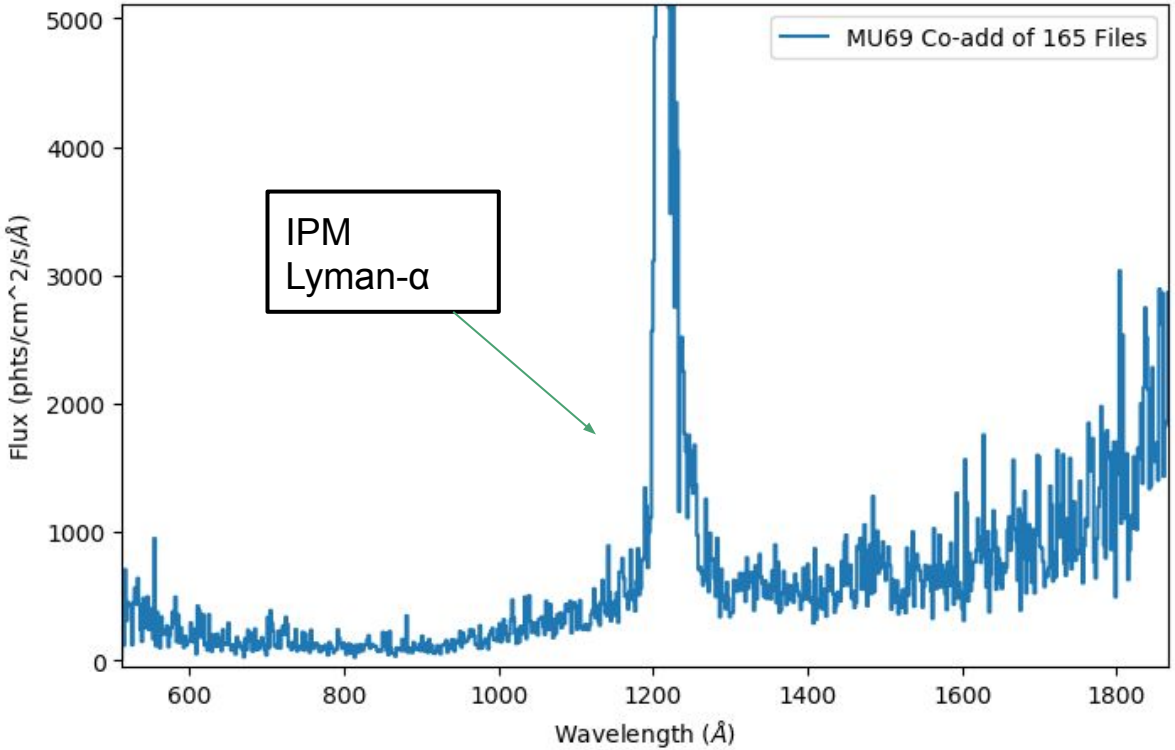


User Calibrated

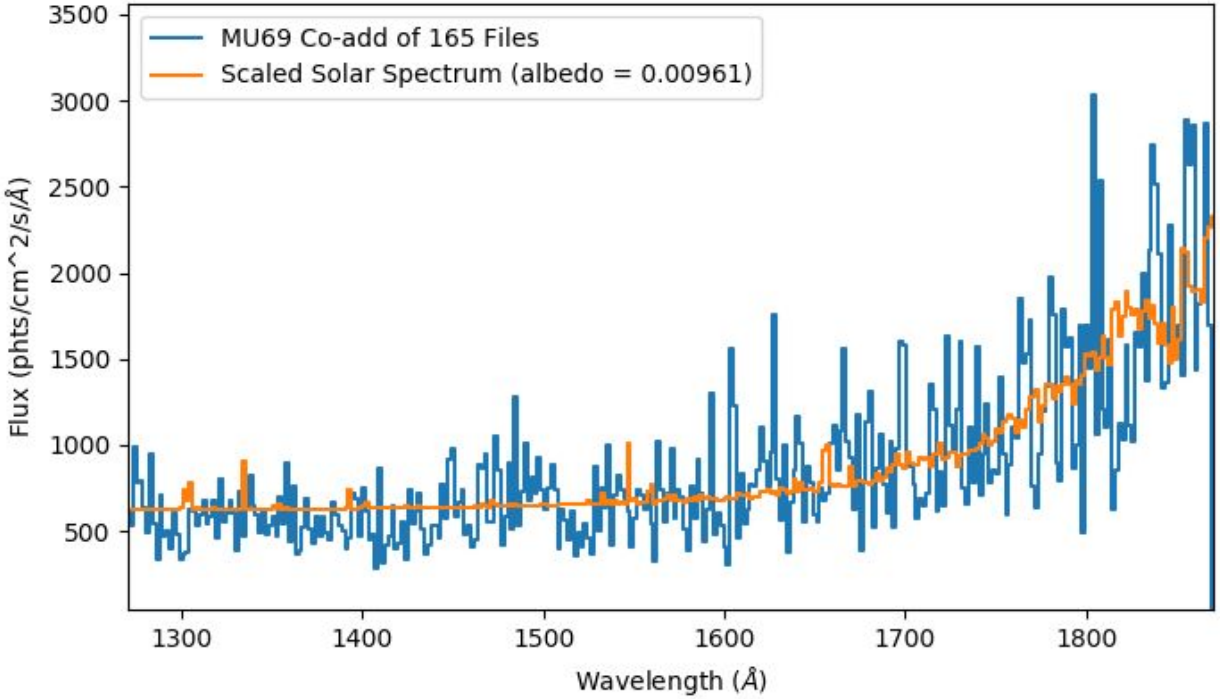
SOC Calibrated

Percent Difference

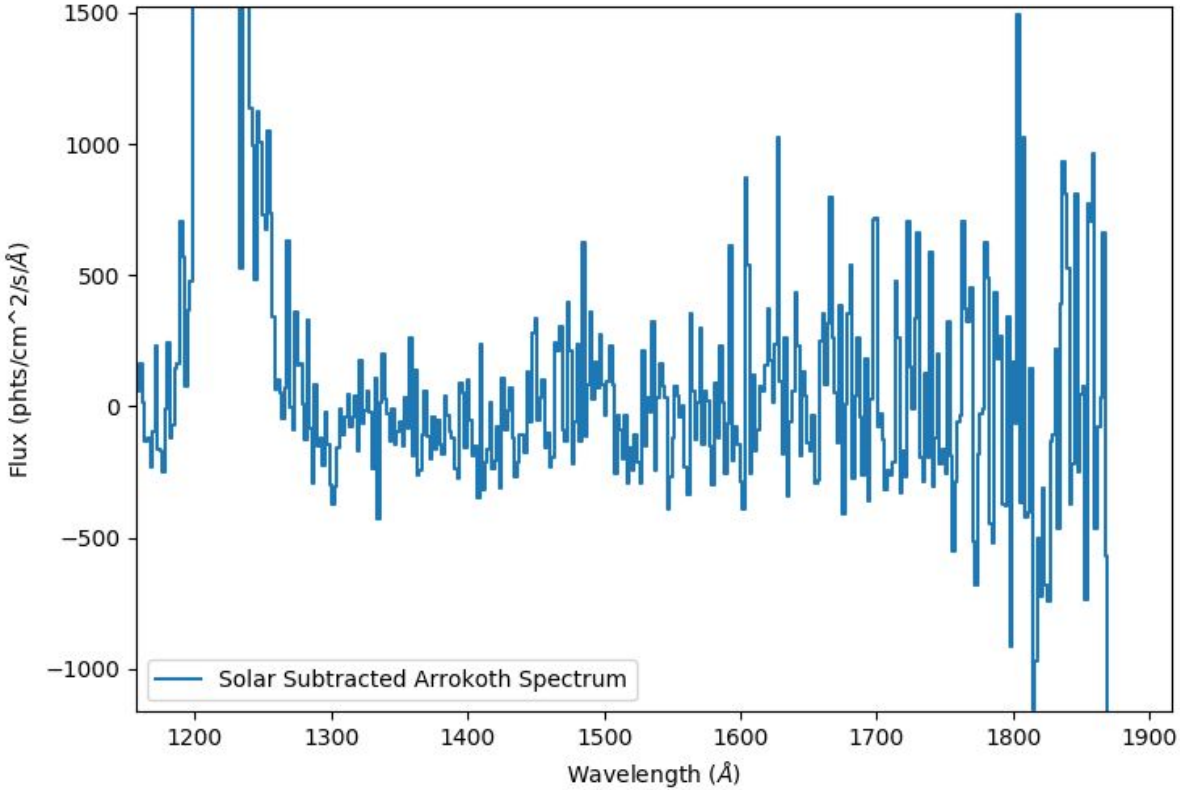
Arrokoth Co-Added Spectrum (Narrow Slit Rows Only)



Arrokoth Solar Reflectance Fit (a_{UV}=0.01)



Arrokoth Emissions Search



Major Issues

1. None

Minor Issues

1. None