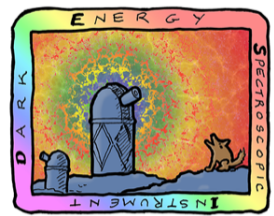# DESI Re-commissioning Analysis

Aaron Meisner (NSF's NOIRLab)
on behalf of the DESI Commissioning team

June 2021 Virtual Collaboration Meeting
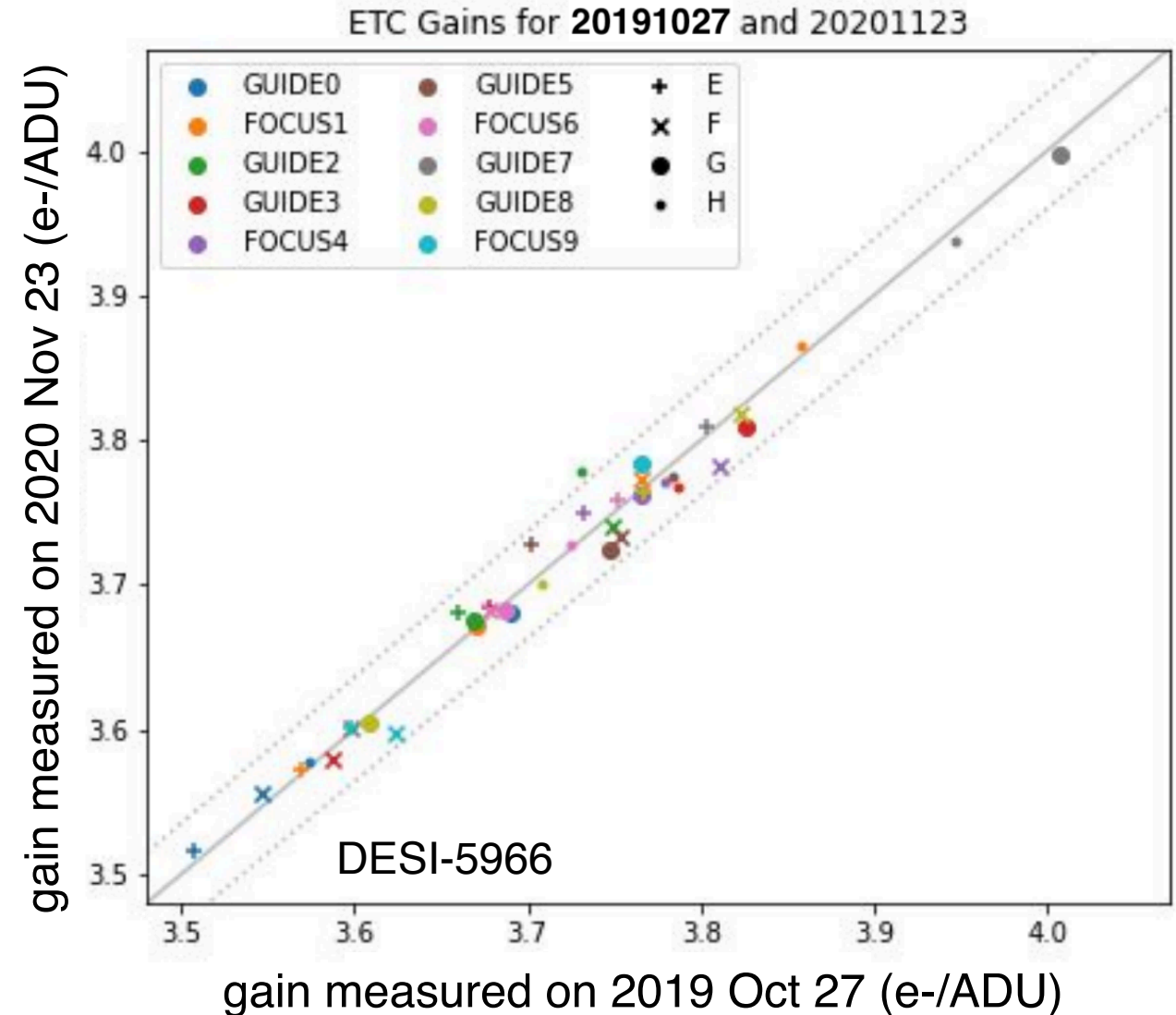
GFA re-characterization

DARK ENERGY
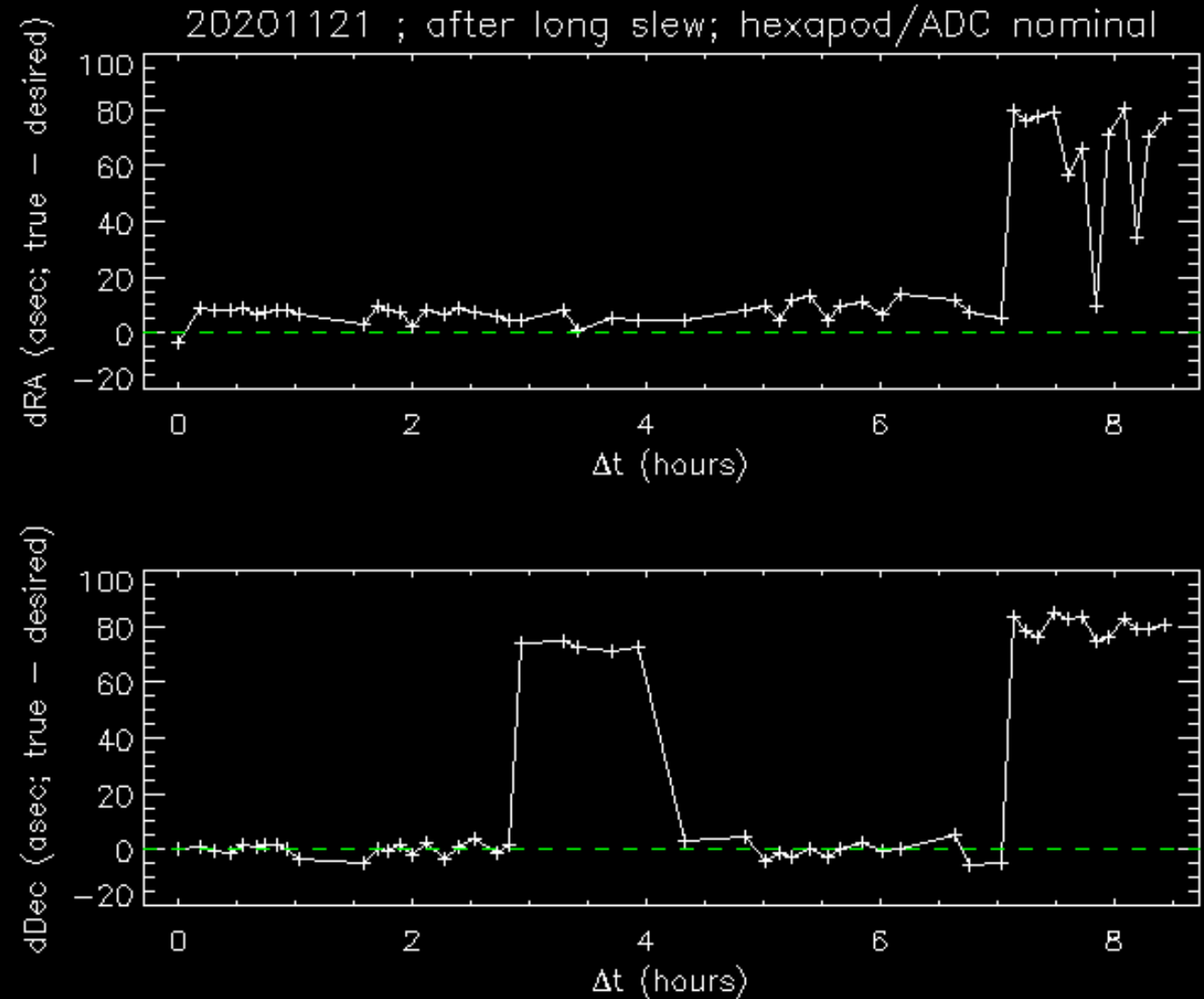SPECTROSCOPIC
INSTRUMENT
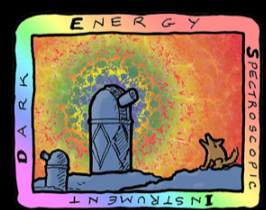
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- Re-verify guide-focus-alignment (GFA) camera performance
- Gather various basic data sets (darks, biases, dense stellar field for photometric zeropoints, …)
- Gains and throughput consistent with fall 2019 to within ~1%, similar read noise and A/D conversion

ETC Gains for **20191027** and 20201123

Legend:
- GUIDE0
- FOCUS1
- GUIDE2
- GUIDE3
- FOCUS4
- GUIDE5
- FOCUS6
- GUIDE7
- GUIDE8
- FOCUS9
- E (+)
- F (×)
- G (●)
- H (·)

gain measured on 2020 Nov 23 (e-/ADU)

gain measured on 2019 Oct 27 (e-/ADU)

DESI-5966

Bault, Kirkby, Meisner

DARK ENERGY SPECTROSCOPIC INSTRUMENT

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- 2020 pointing maps showed occasional pointing offsets of up to ~1 arcminute
- Traced to blips in communication between telescope servos and control system software
- New pointing map from 20210225 verifies that such occurrences have now been eliminated
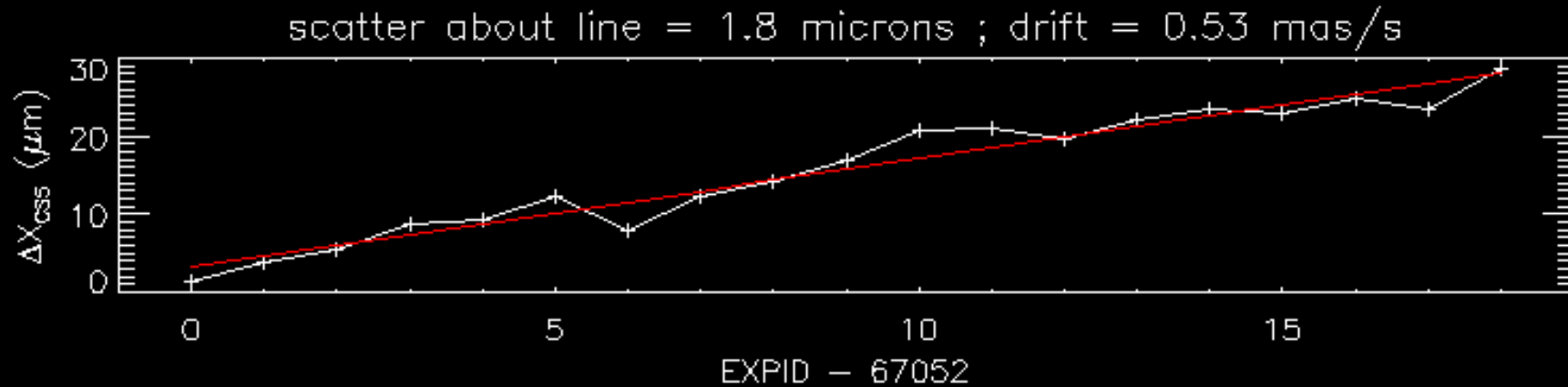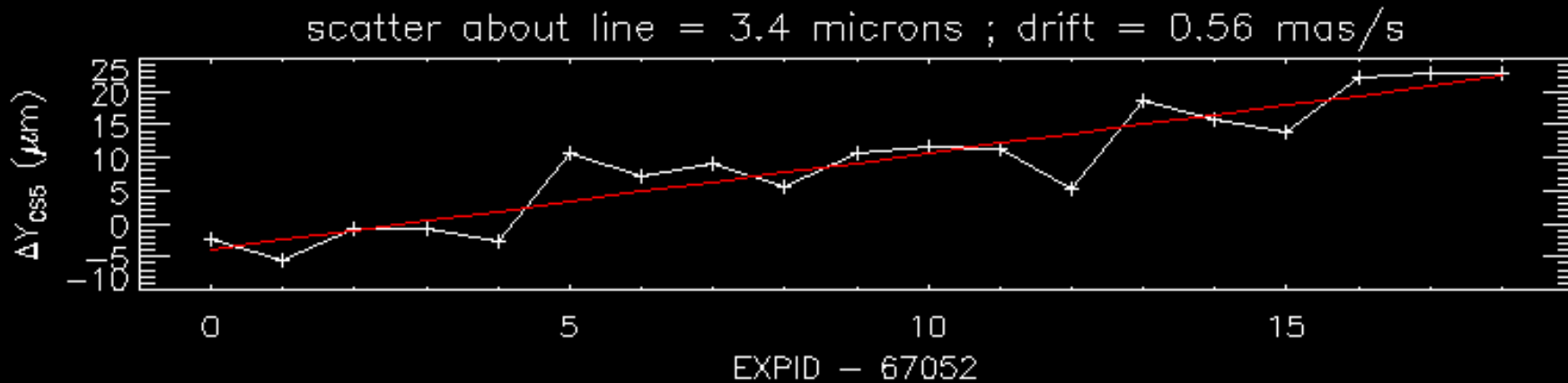

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DARK ENERGY
SPECTROSCOPIC
INSTRUMENT

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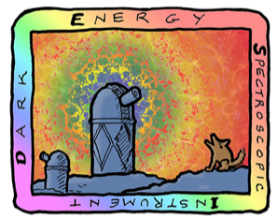
- Current pointing model has excellent performance (pointing offset RMS of a few arcseconds, open loop tracking drift <~ 1 milliarcsecond/second)
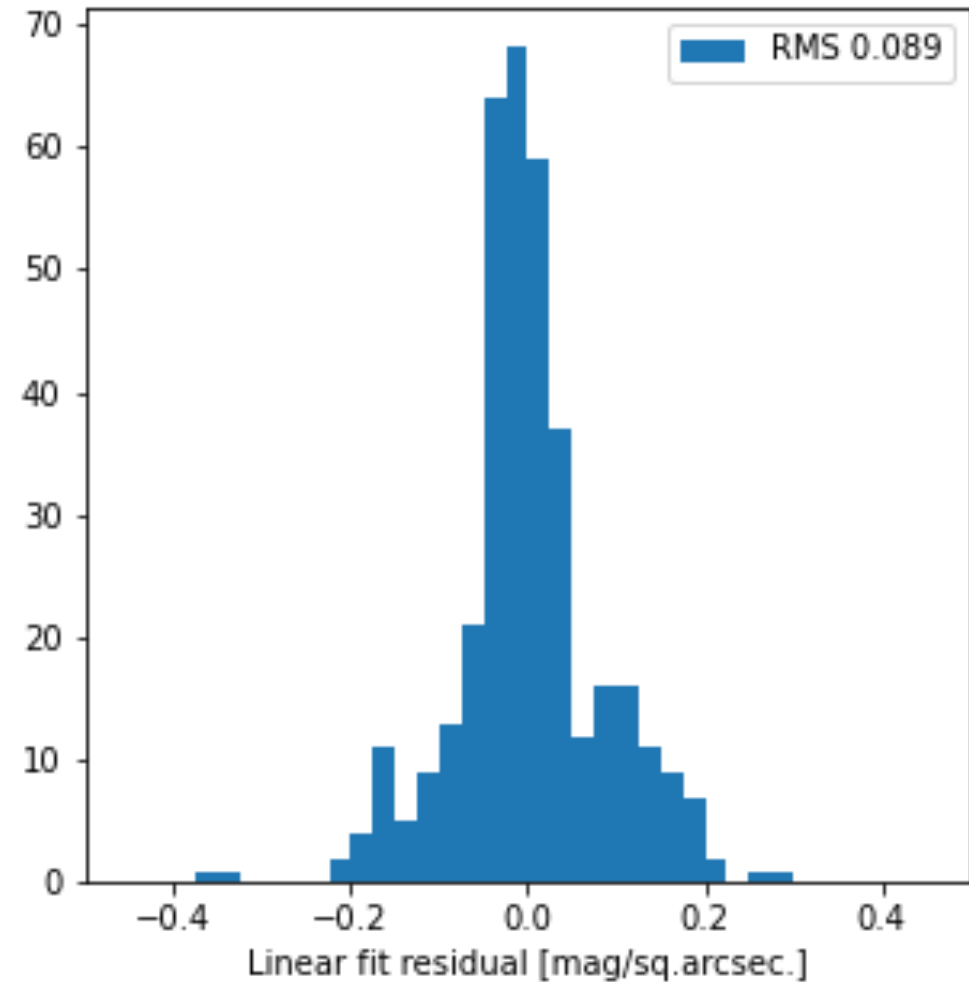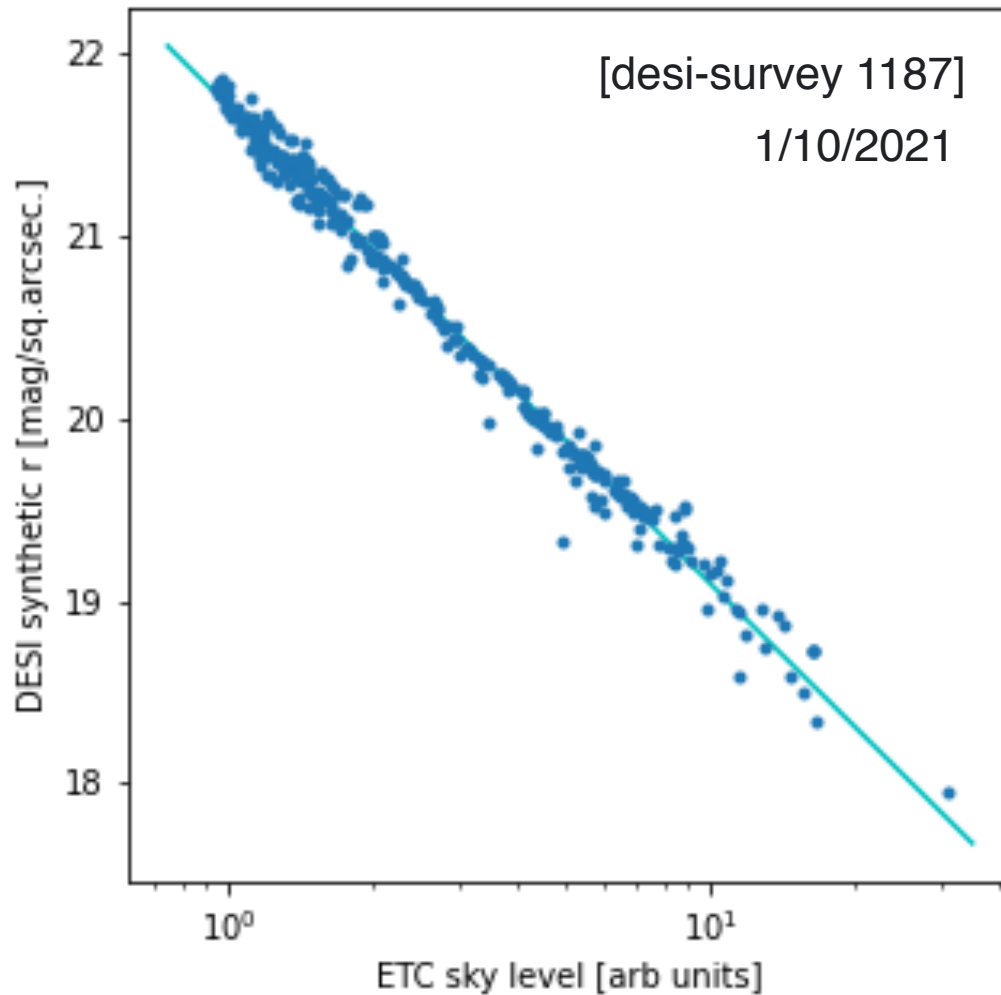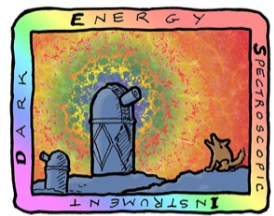

scatter about line = 1.8 microns ; drift = 0.53 mas/s

scatter about line = 3.4 microns ; drift = 0.56 mas/s

DESI-6132

Abareshi, Meisner

Sky Monitor sky brightness

[desi-survey 1187]
1/10/2021

plots from David Kirkby

Guider performance and field rotation

guide error RMS histogram

Night 18-19-20-21 Dec

Field Rotation Histogram

RA Guide RMS (med: 78 mas)
Dec Guide RMS (med: 63 mas)
2D Guide RMS (med: 99 mas)

Field Rotation Rate (med: 0.021 arcsec/min)

number of guide sequences

number of guide sequences
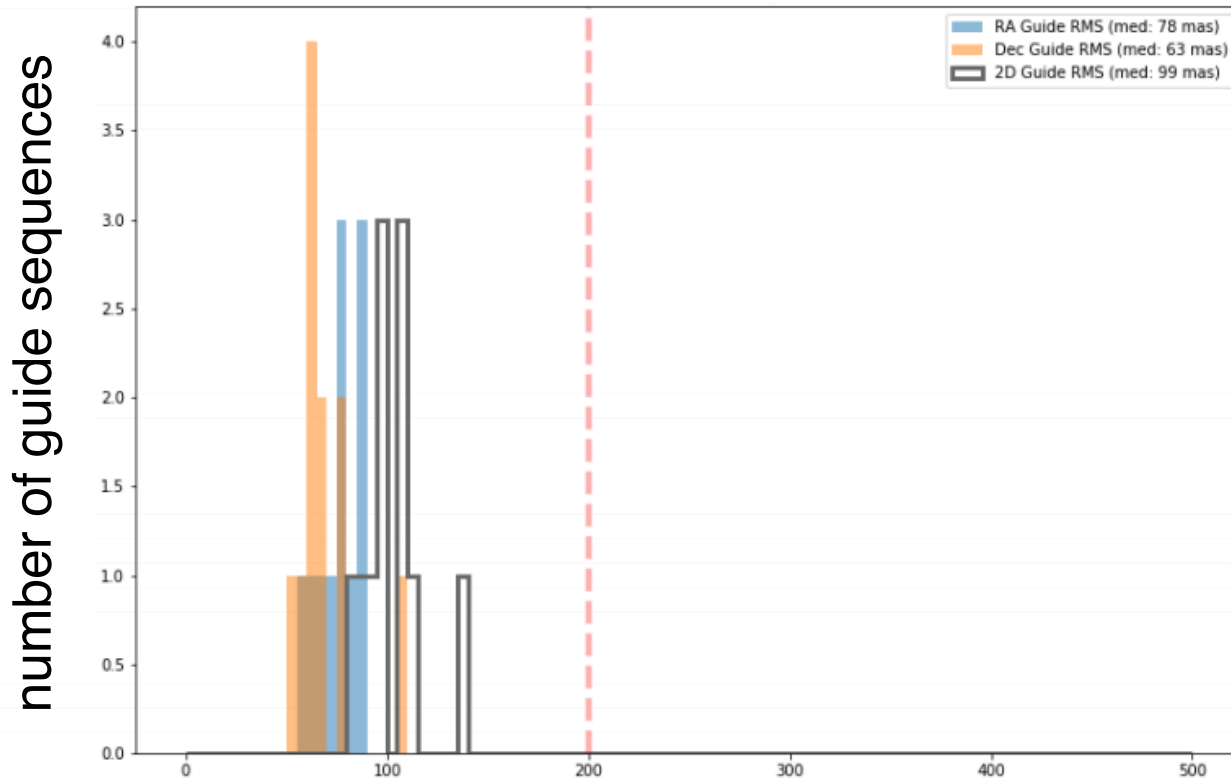
guide error RMS (milliarcseconds)
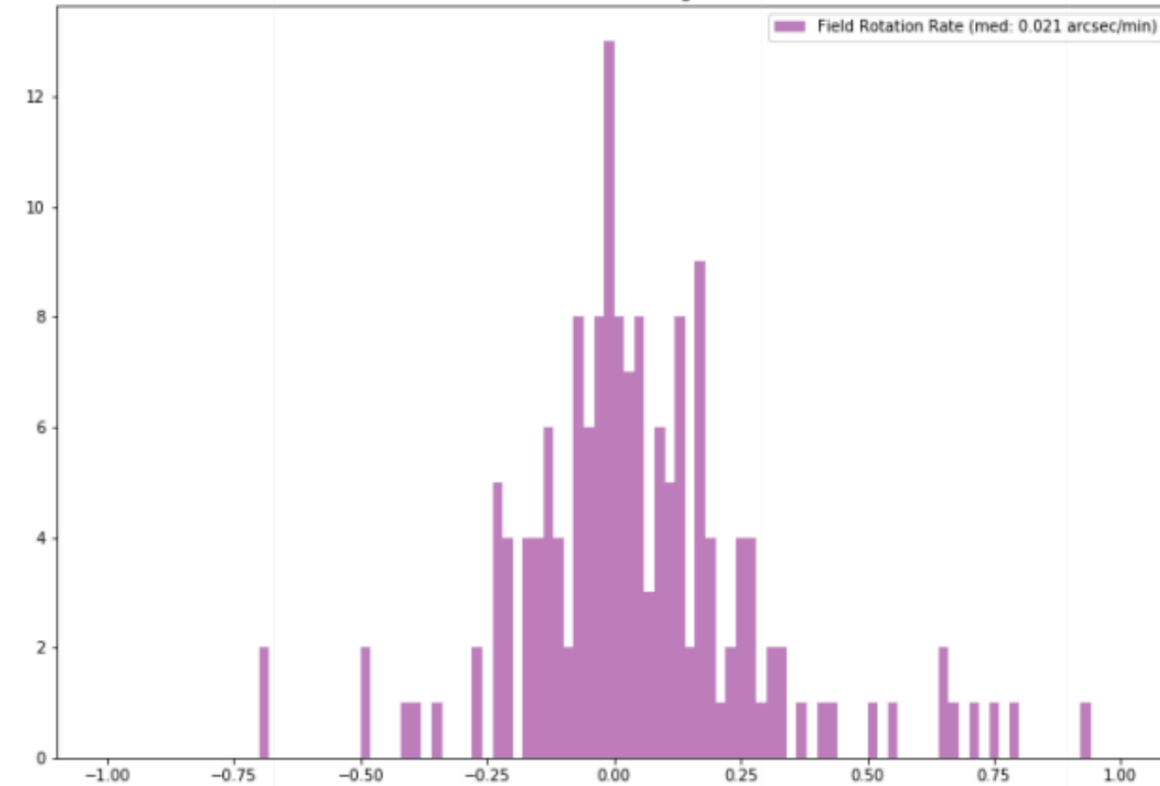
residual field rotation (asec/minute)

plots from Santi Serrano
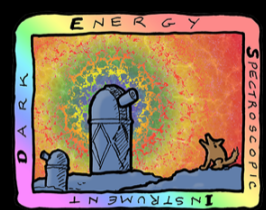
DARK ENERGY
SPECTROSCOPIC
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20201214 — 20210503; 1162956 images
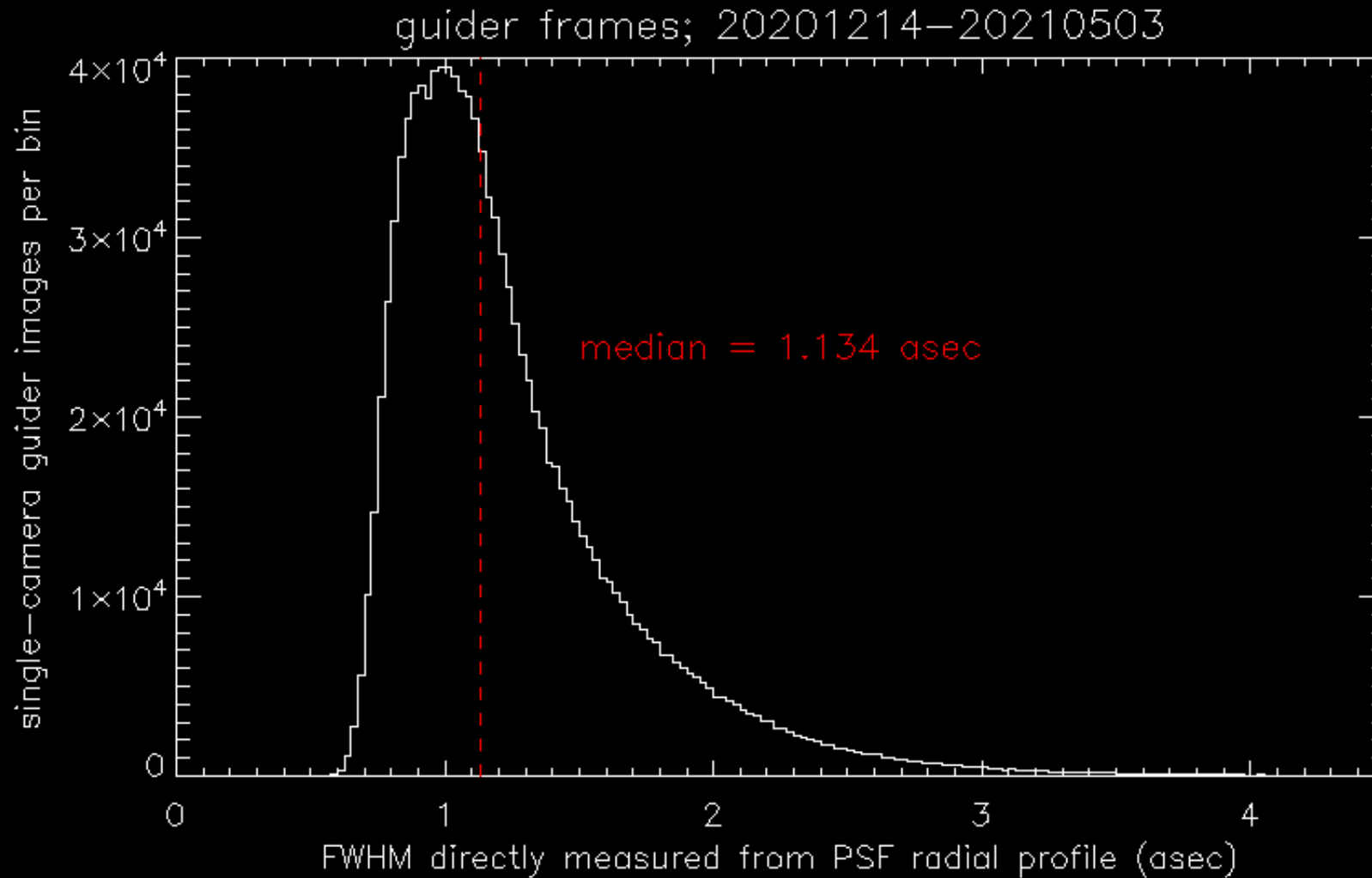
white: Moffat β = 3.5 model

red: median

yellow: 16th, 84th percentiles

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guider frames; 20201214–20210503

median = 1.134 asec

single-camera guider images per bin

FWHM directly measured from PSF radial profile (asec)
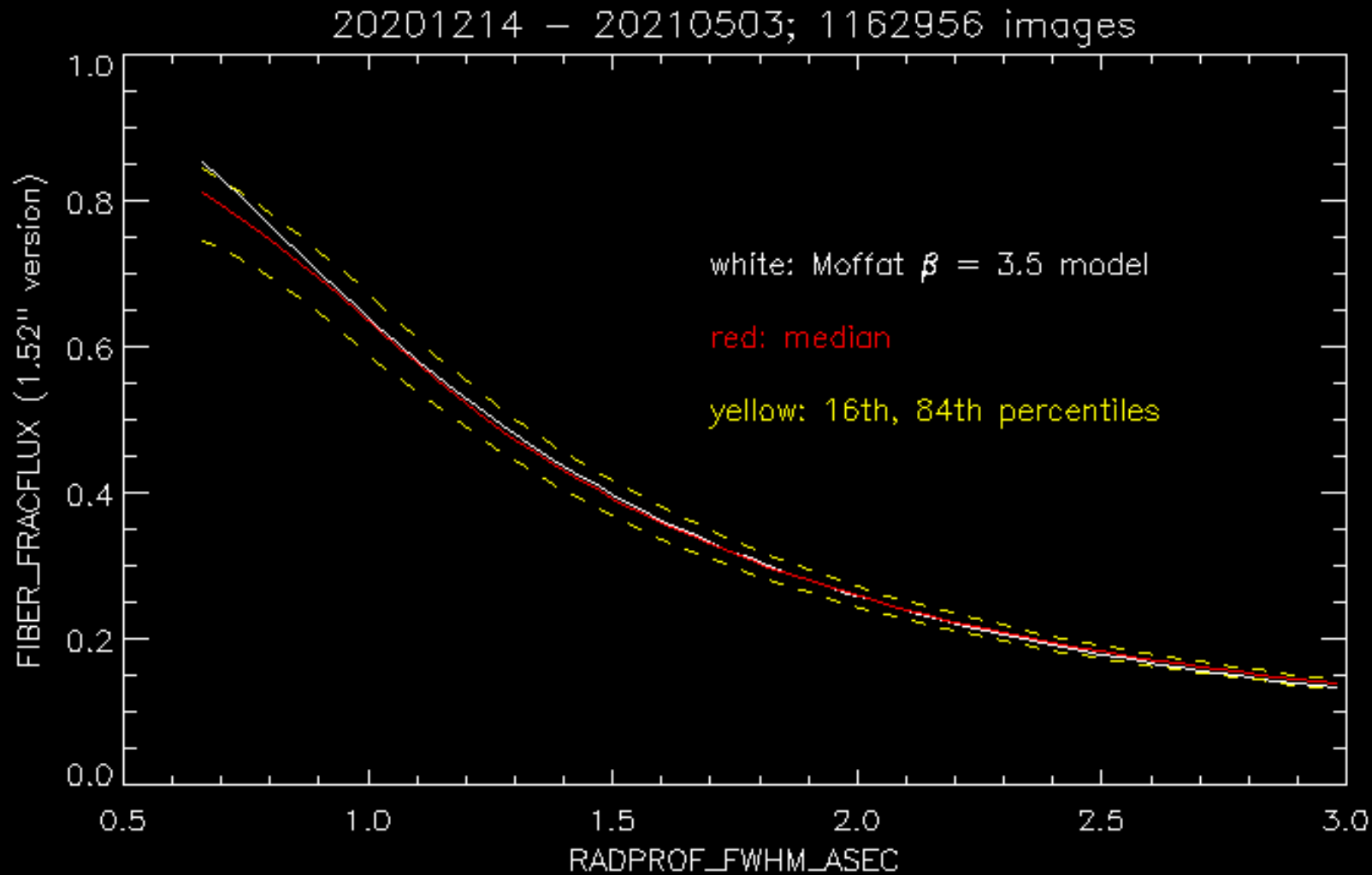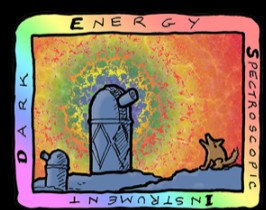
Rockosi, Li, Meisner

DARK ENERGY SPECTROSCOPIC INSTRUMENT
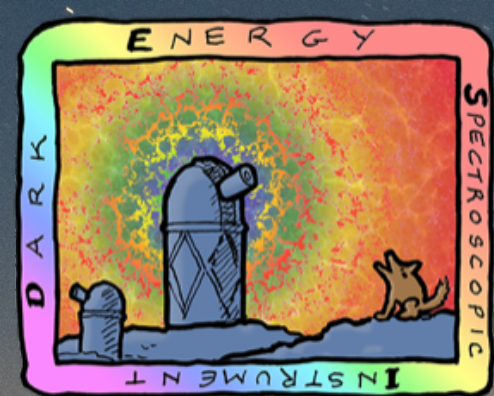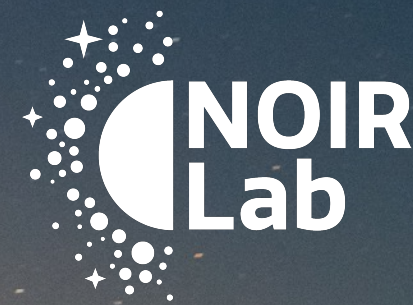
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