

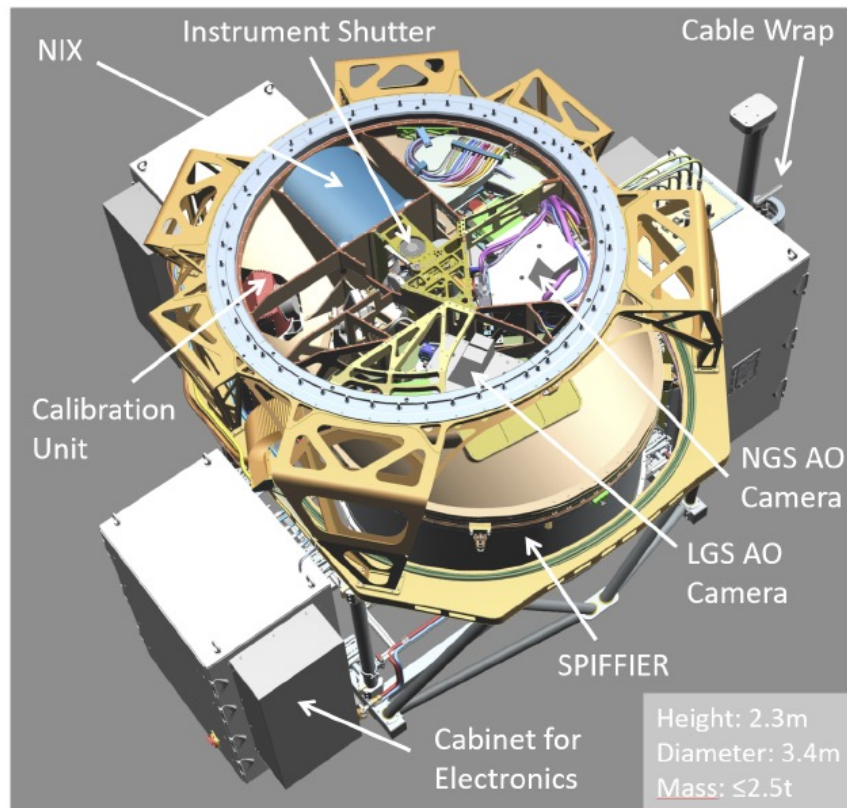
ERIS

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What is ERIS?

- Mounted on Cassegrain of UT4
- Near IR IFU SPIFFIER (“recycled” SINFONI)
 - SINFONI IFU
 - New gratings
 - New high resolution grating
- New near-IR camera NIX
 - Replacing NACO
 - Imager (2x2 K)
 - SAM, APP, FPC, LSS
- Shared SCAO system for NGS and LGS
 - High Strehl

ERIS - Overview



<https://www.eso.org/sci/facilities/paranal/instruments/eris/inst.html>



Offered Modes (P111)

- AO modes: noAO, NGS, LGS (seeing enhancer is not yet offered)
- SPIFFIER – all gratings and plate scales
- NIX imaging – 13mas and 27mas cameras, all filters
- NIX APP – 13mas camera, narrow-band K and L-band filters only, pupil tracking only.
- NIX – Fast and slow readout modes
- Sidereal targets only
- Field tracking only, except for NIX APP observations

Not offered – should come next calls

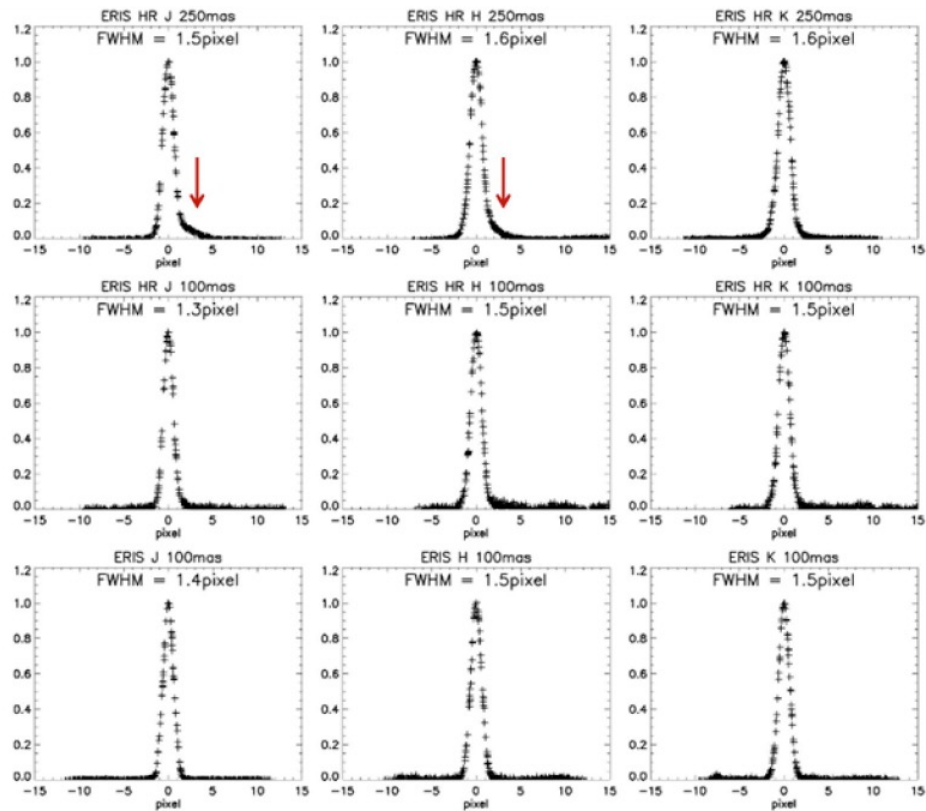
- **P112**

- SAM
- Non-sidereal and differential tracking
- Extended magnitude range for NGS (RP<11) / LGS (RP=7-18)
- Seeing enhancer
- NIX windowing

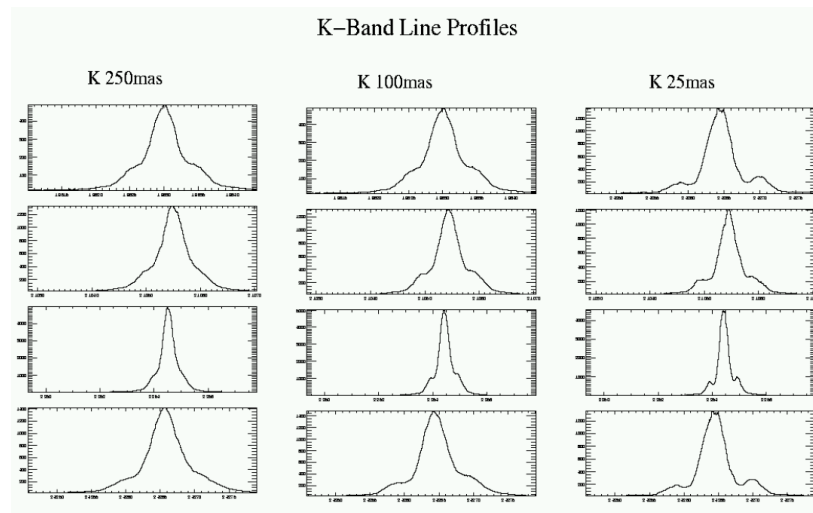
- **P113**

- FPC - coronagraphy
- LSS – long slit
- Pupil tracking for NIX imaging, IFS

ERIS SPIFFIER: Spectral Resolution - LSF

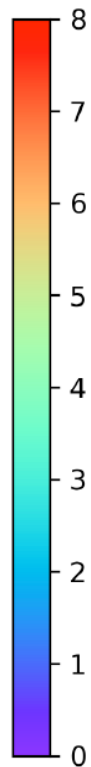
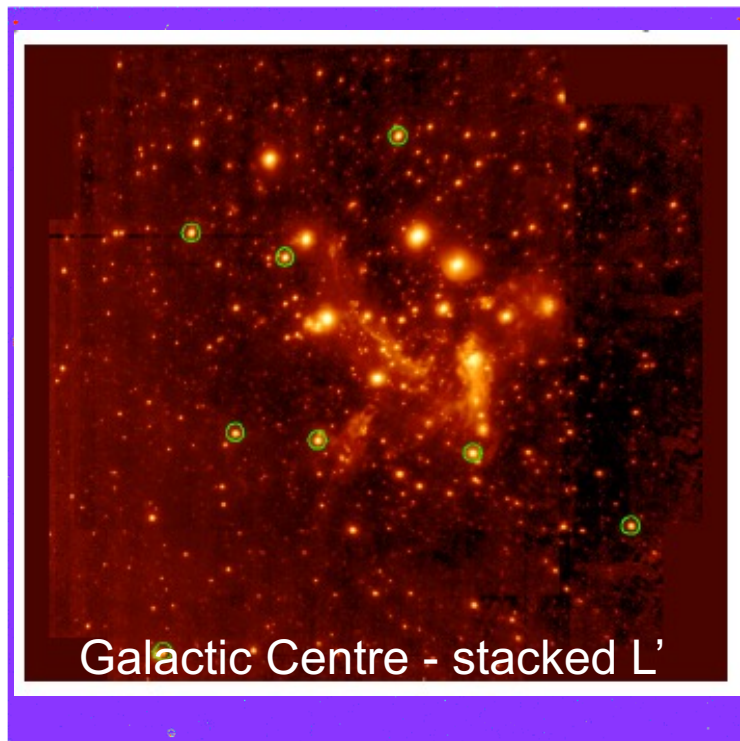


OLD
SINFONI - 2016

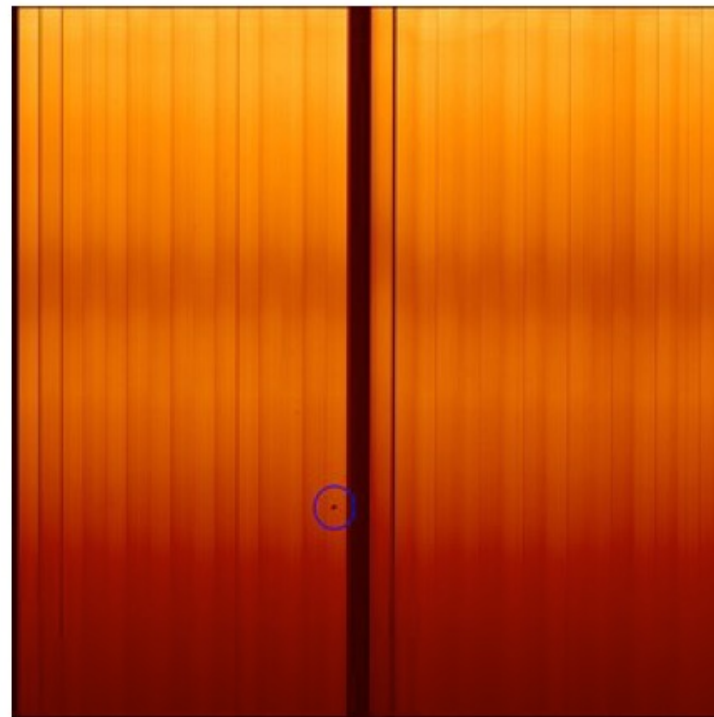


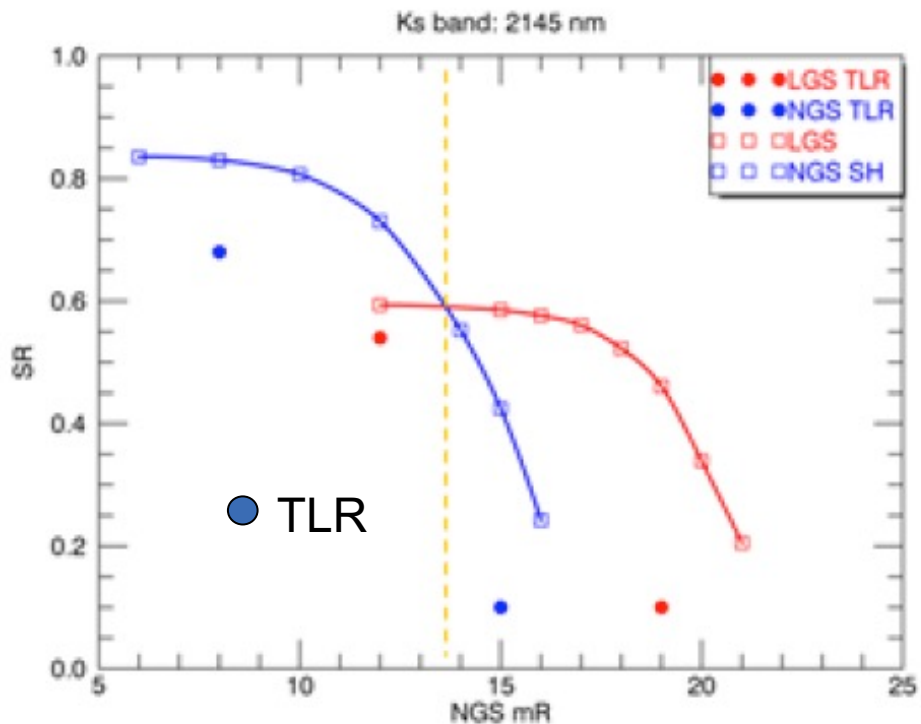
Bad pixels

NIX BPM NN Counts



SPIFFIER





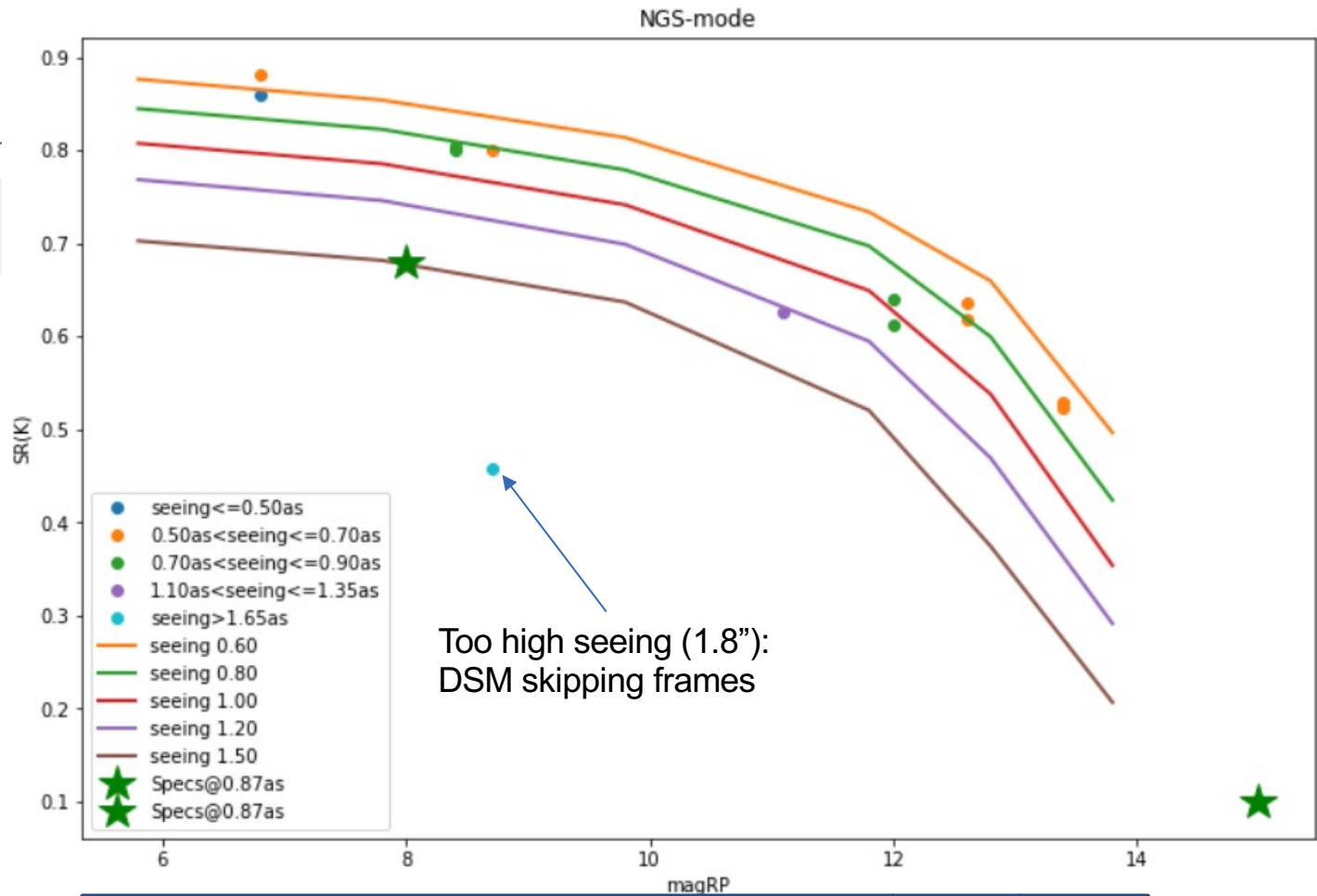
Simulations

Offered in P111:

	Gaia BP	Gaia RP	Off-axis?	K-band Strehl	Airmass Limit	TCAT (DIMM) Limit
NGS	≤ 19	NGS: 1 - 11	0° - 60° ($< 30''$ recommended)	< 0.85	< 1.9	$\leq 85\%$ ($\leq 1.4''$)
LGS	≤ 19	TT star: 7 - 17	0° - 60°	< 0.6	< 1.9	$\leq 85\%$ ($\leq 1.4''$)



NGS-mode



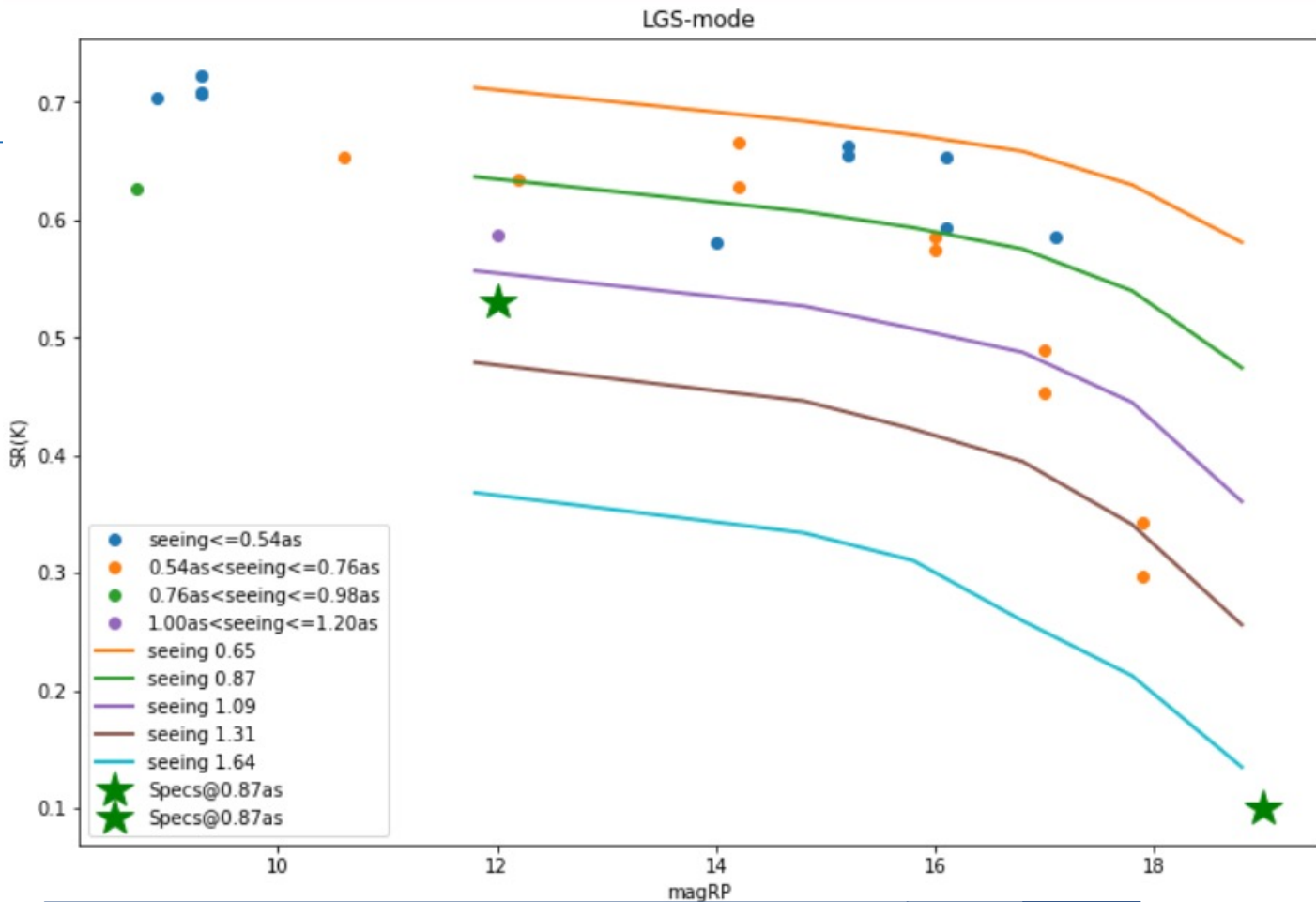
1000Hz – 500 modes

600Hz
500 m

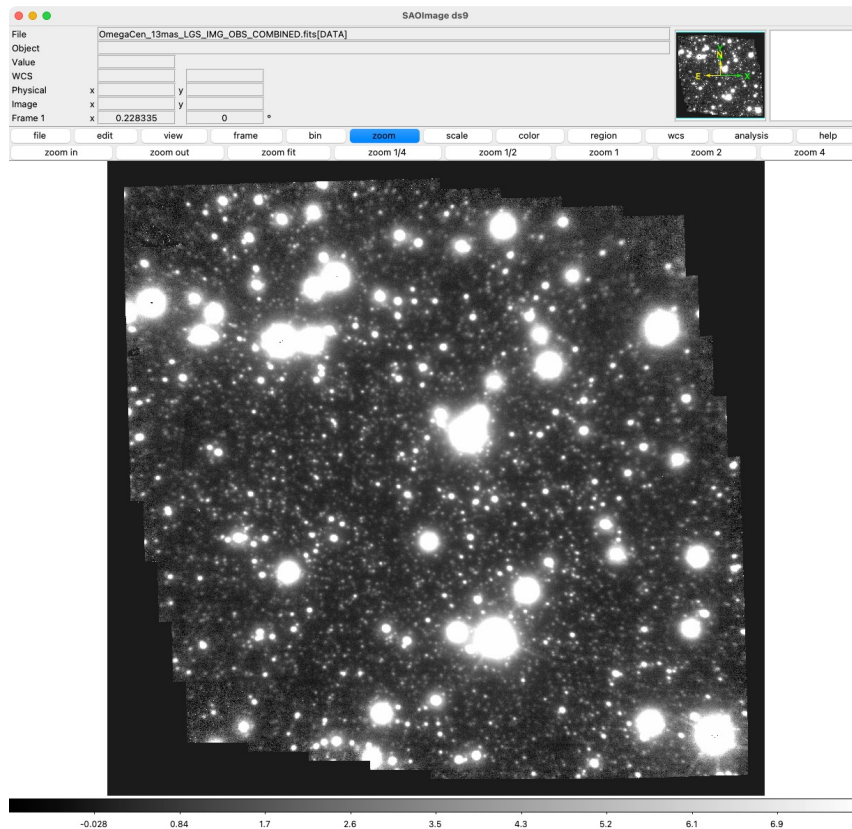
300Hz
300 m



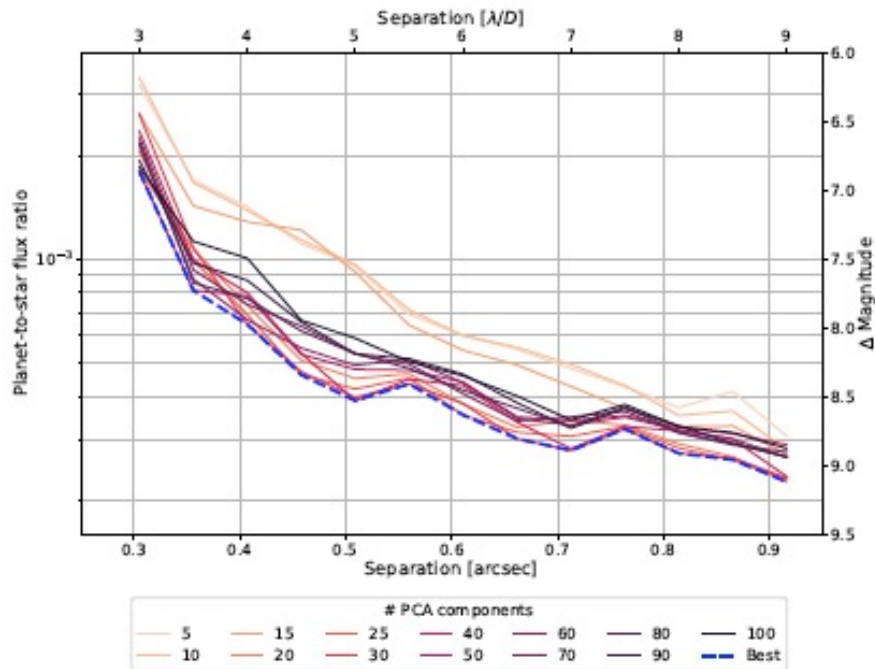
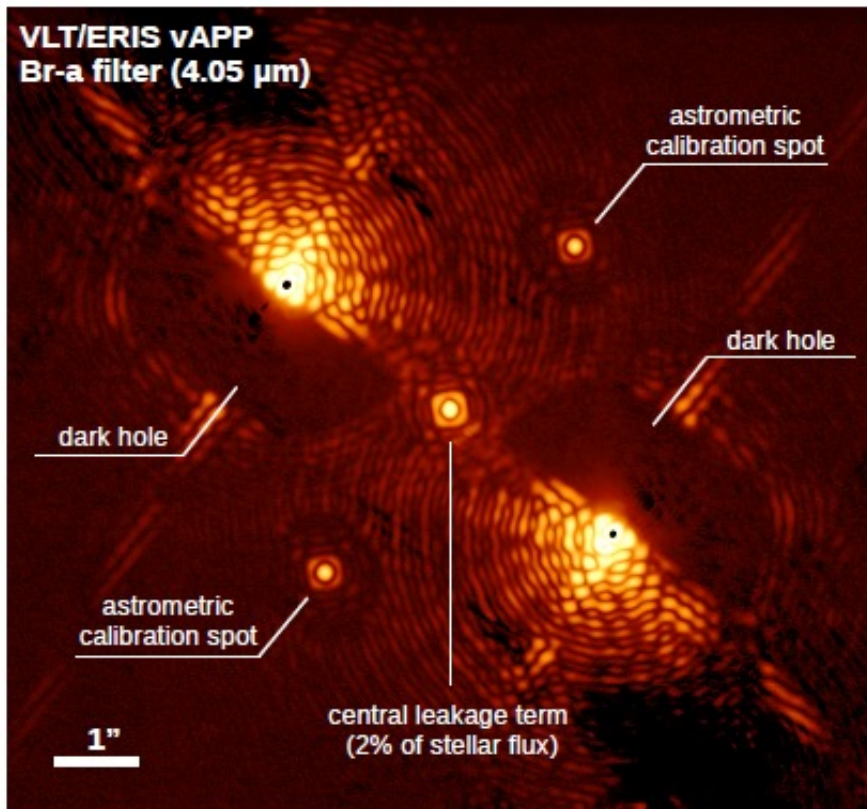
LGS-mode



Example: Omega Cen – 13 mas LGS



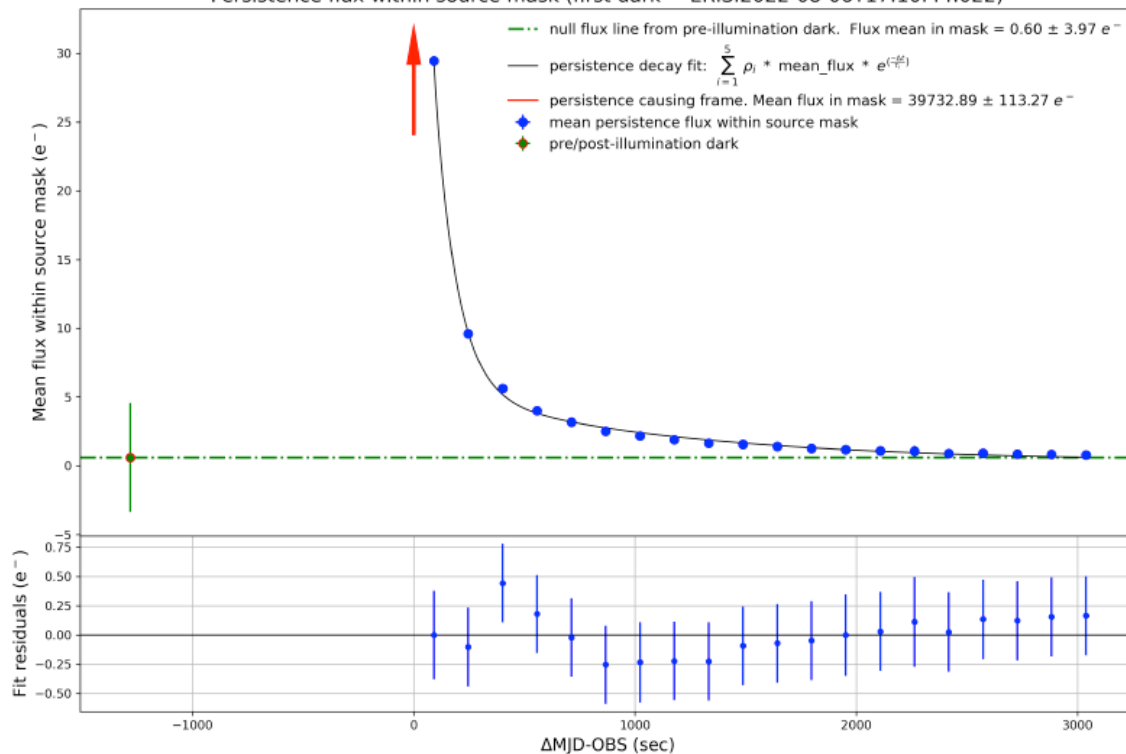
NIX on-sky APP PSF with Br- α filter.



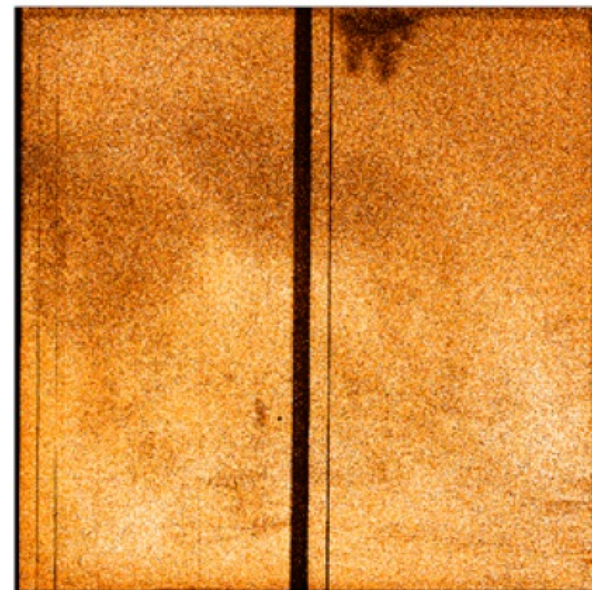
contrast curves measured in a 12-minute dataset on an L=2.2 star.

Persistence: SPIFFIER

Persistence flux within source mask (first dark = ERIS.2022-08-06T17:10:44.022)



2D persistence map after a 5-minute long flat exposure.



created 2022-08-10 11:22:22 m.neeser

- (Fully) working pipelines on (March 15, 2023)
 - SPFIFFIER
 - NIX
- Work on QC is proceeding
- Work on the Persistence images is also proceeding

Conclusions

- We successfully offer ERIS for P111
- Remaining modes will follow in the next calls