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# Spectrophotometry with StarDICE

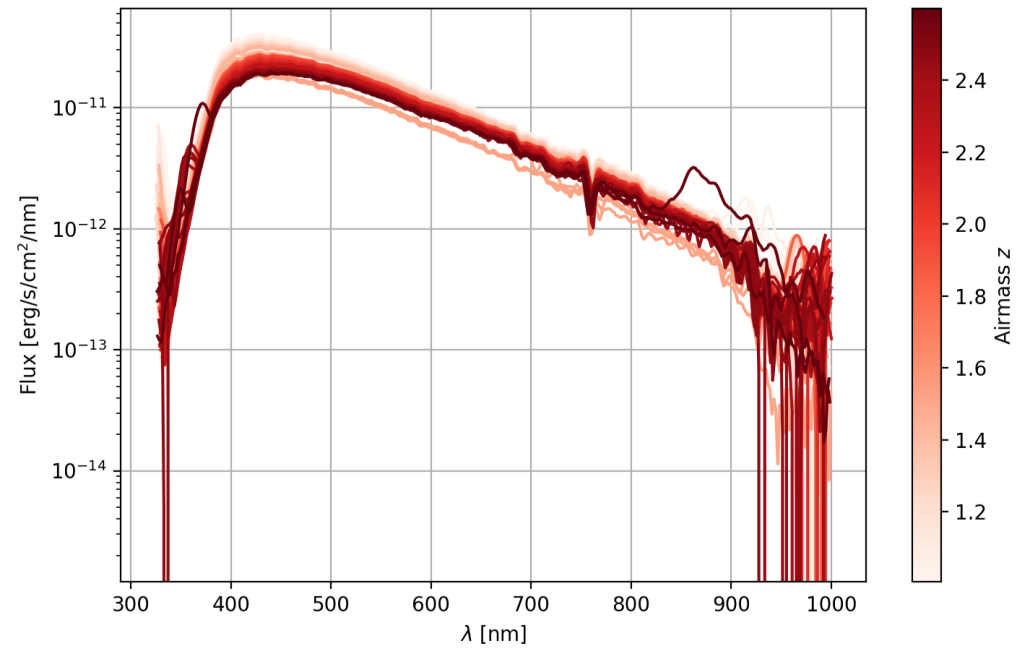
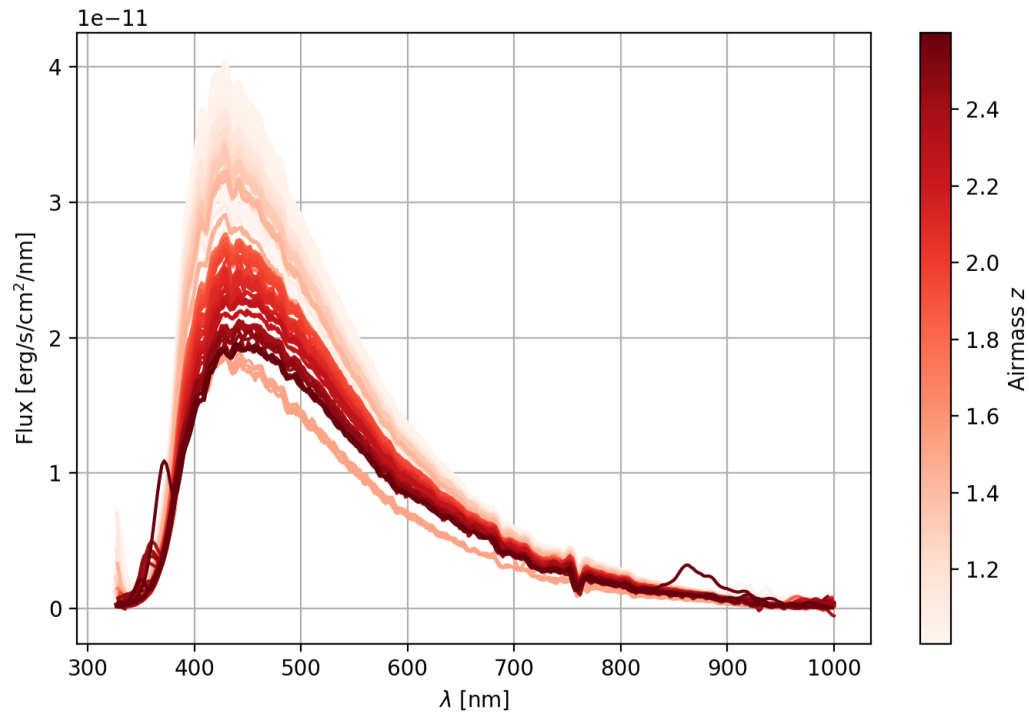
# Outline

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1. StarDICE spectra
  2. PSF stories
  3. Open questions

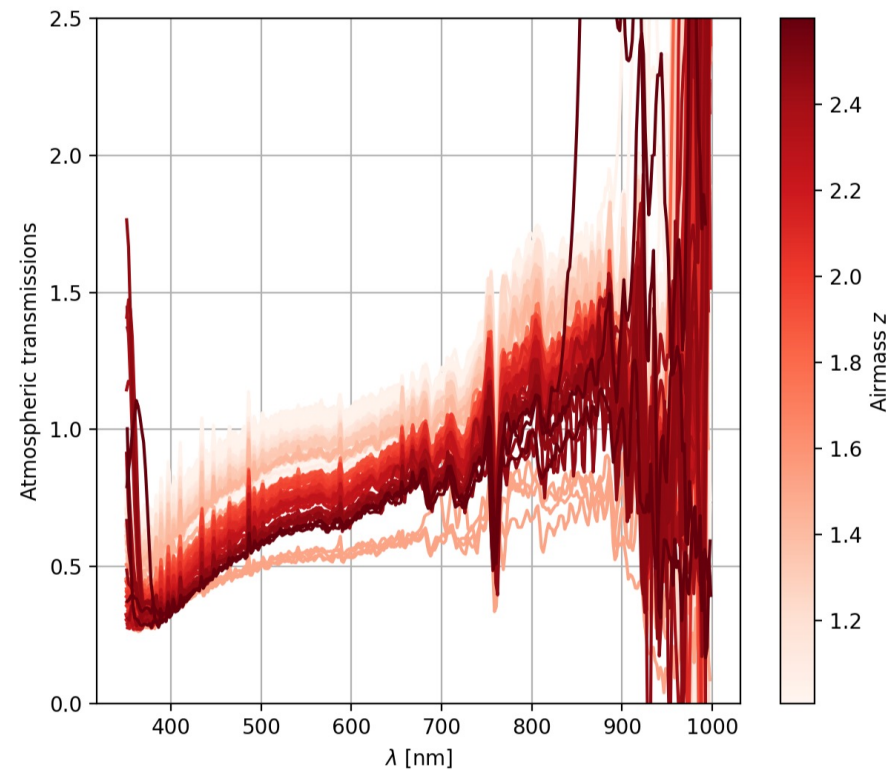
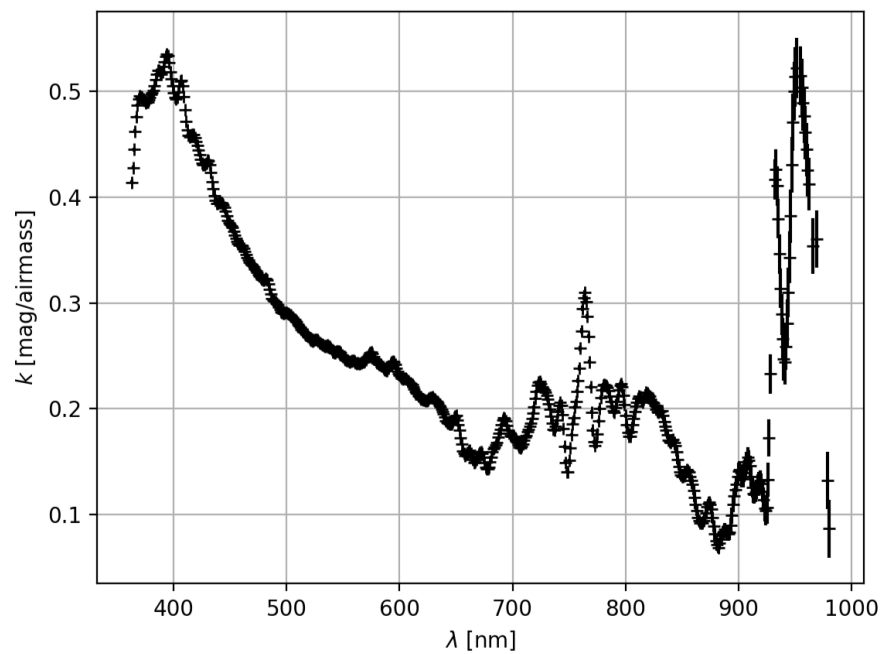
# HD93521

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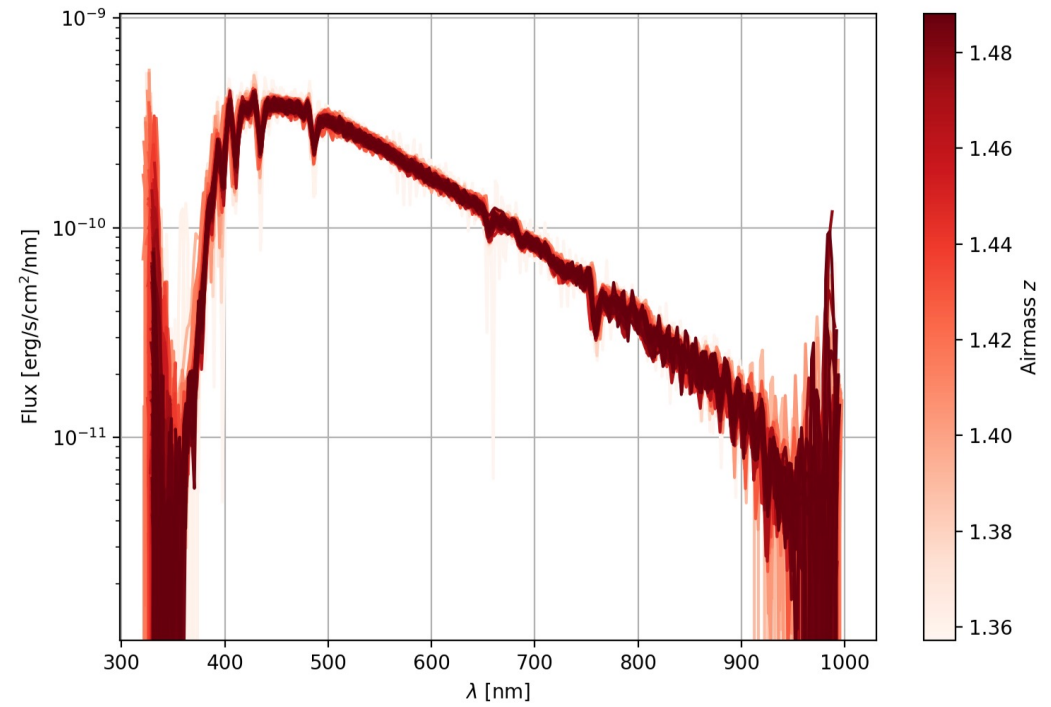
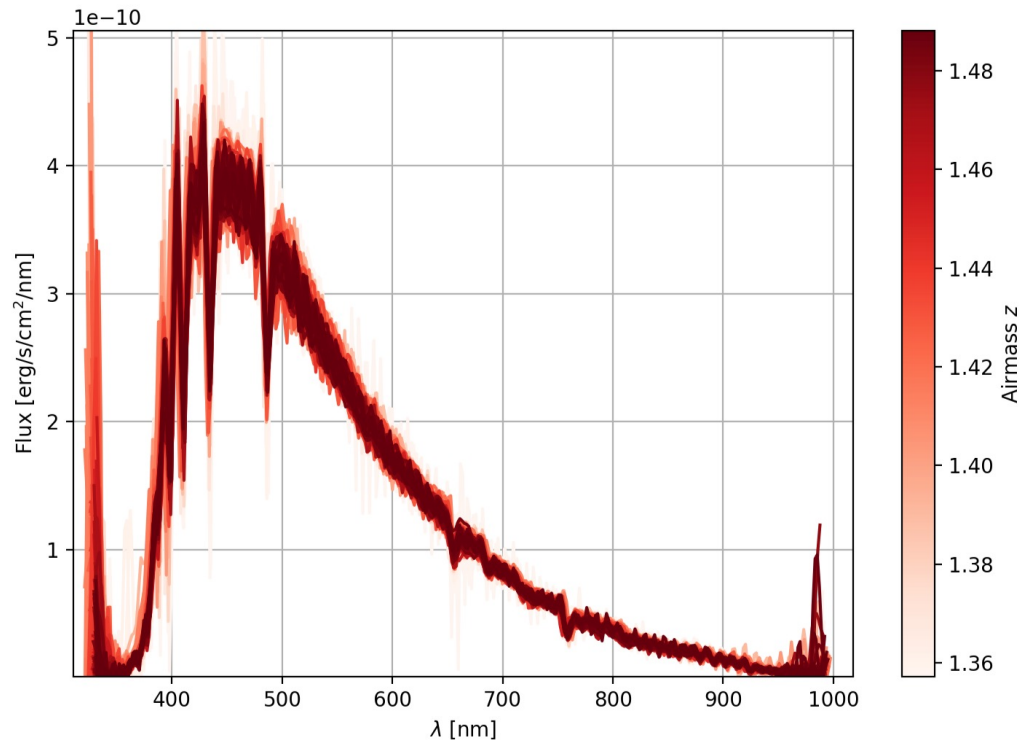
# Atmosphere by airmass regression or direct spectra division

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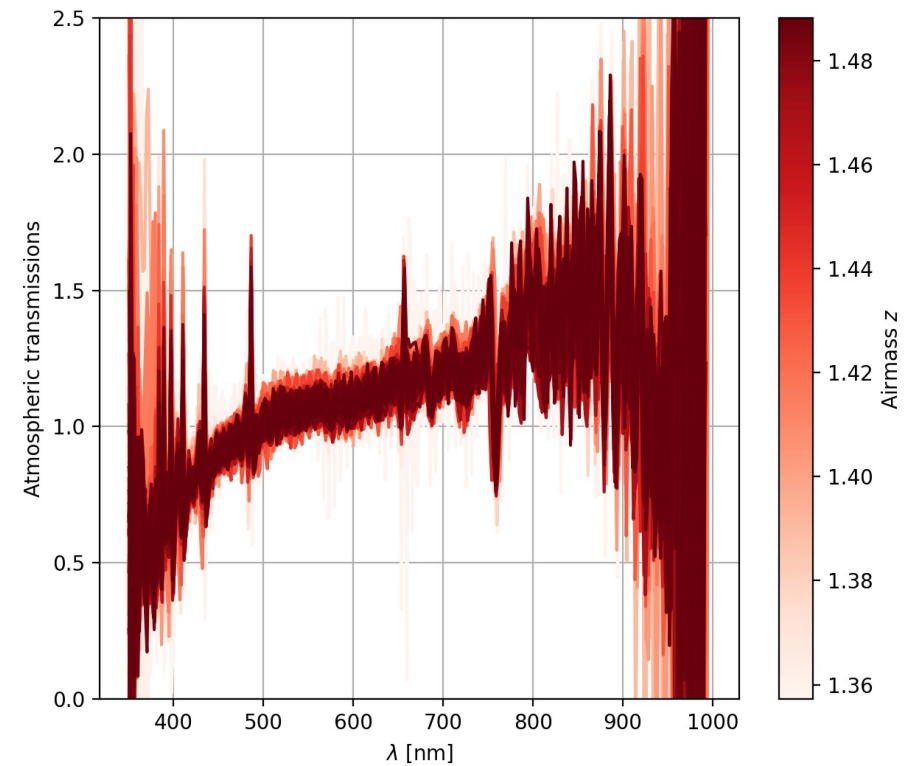
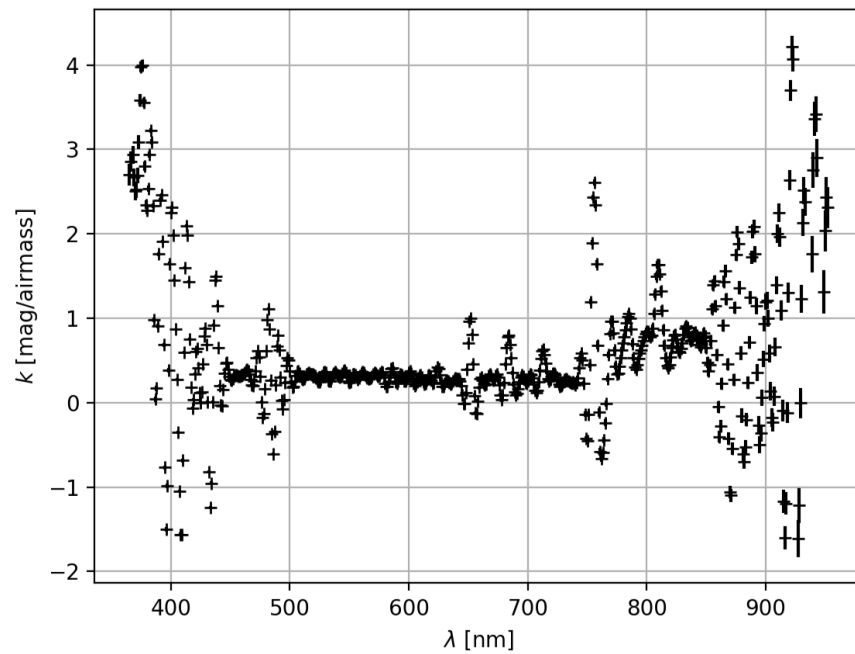
# Delta Ursa Minor

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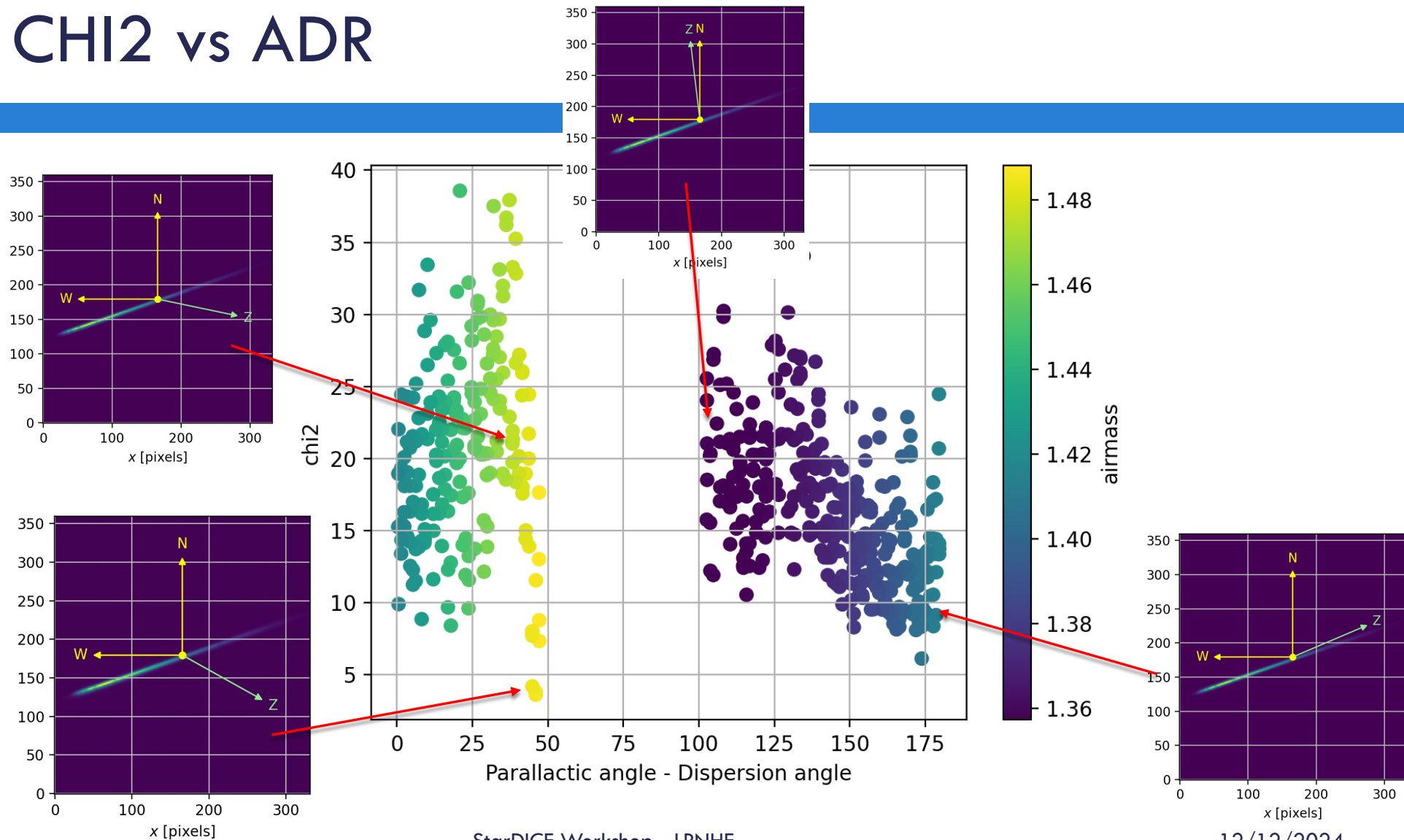


# Atmosphere by airmass regression or direct spectra division

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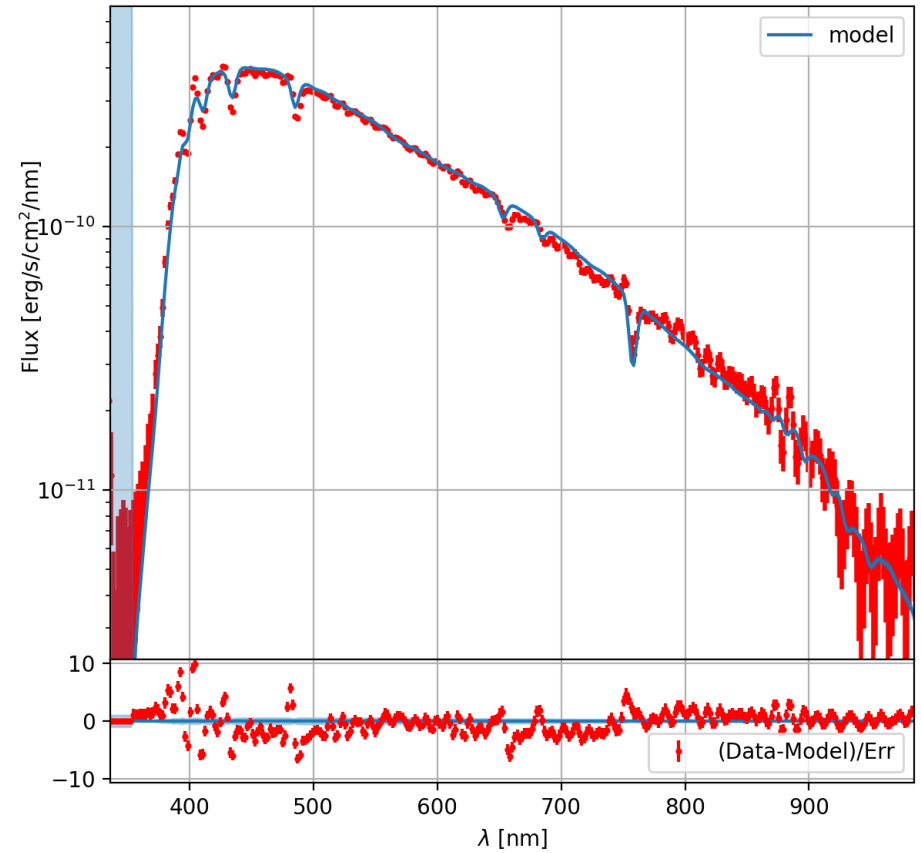
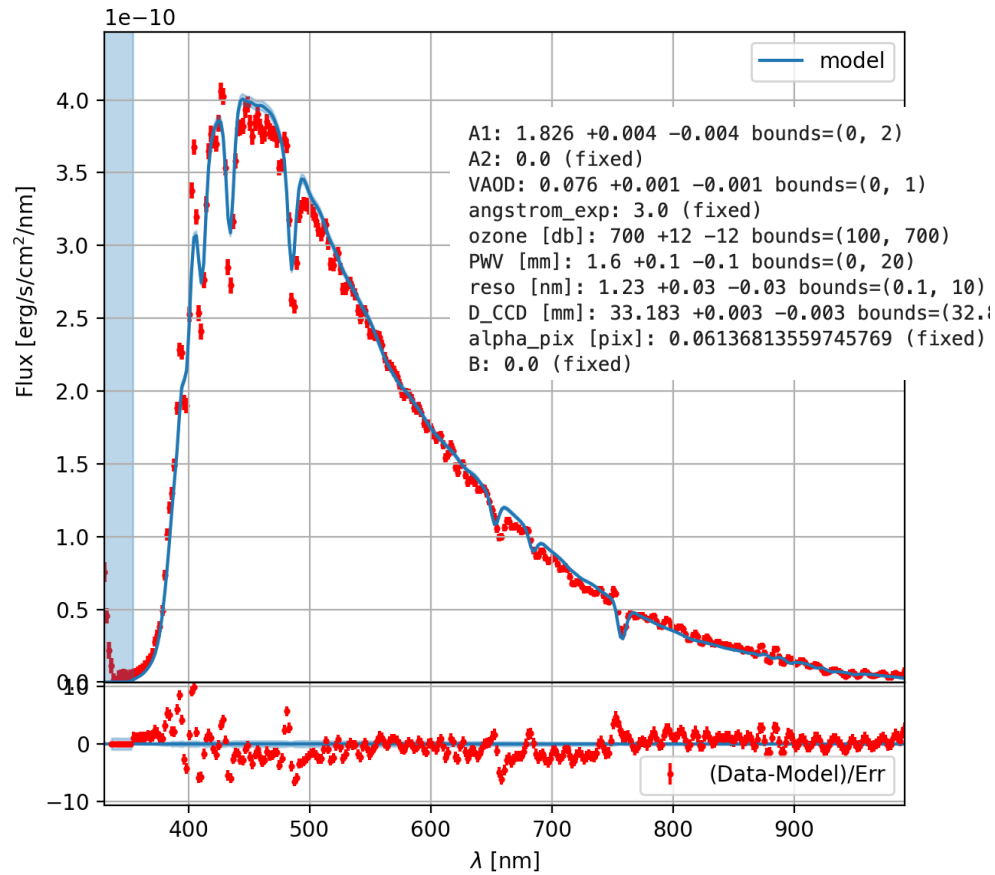


# CHI2 vs ADR

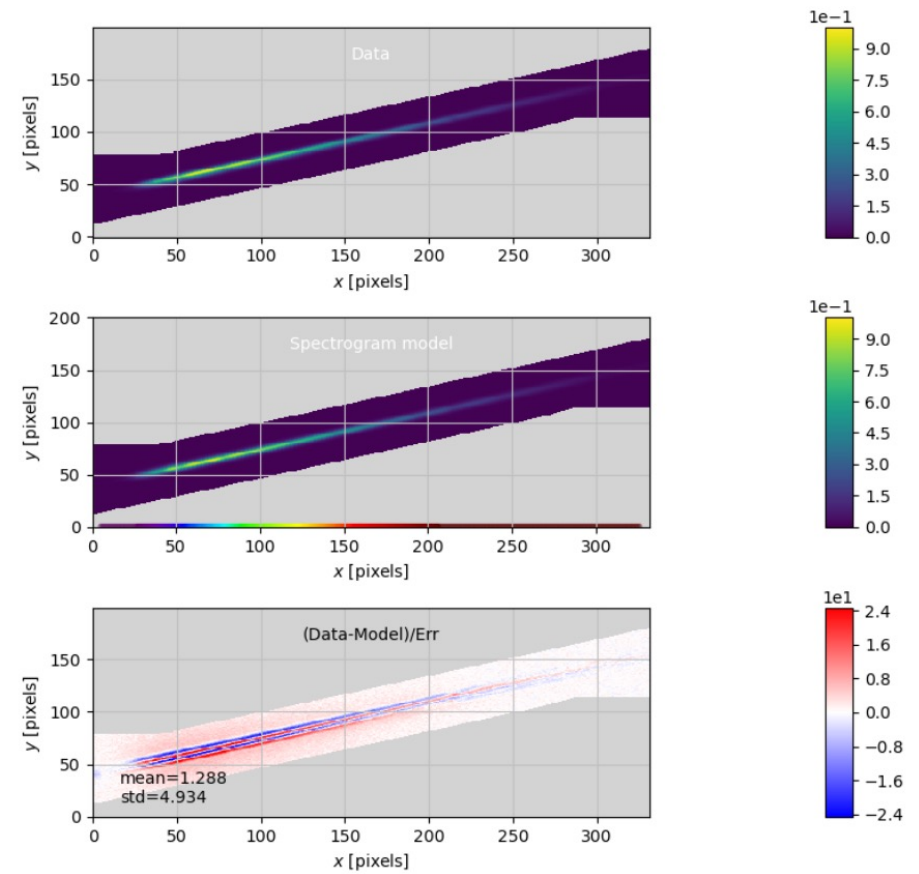
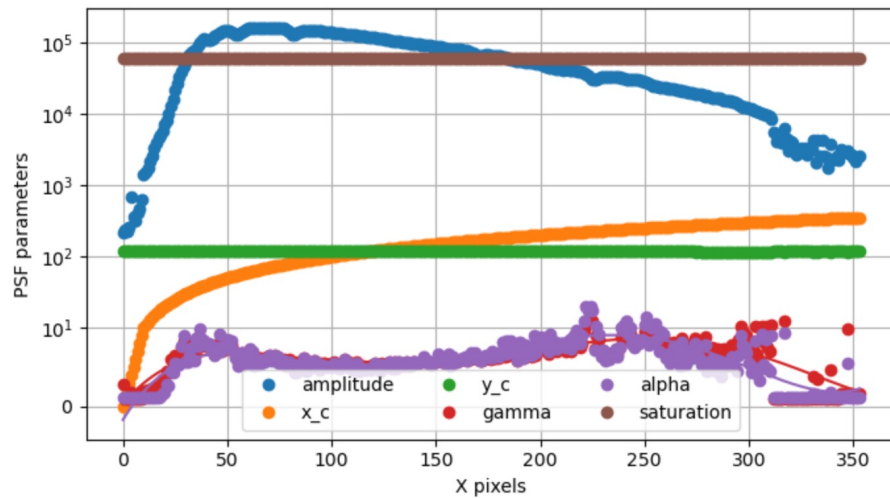


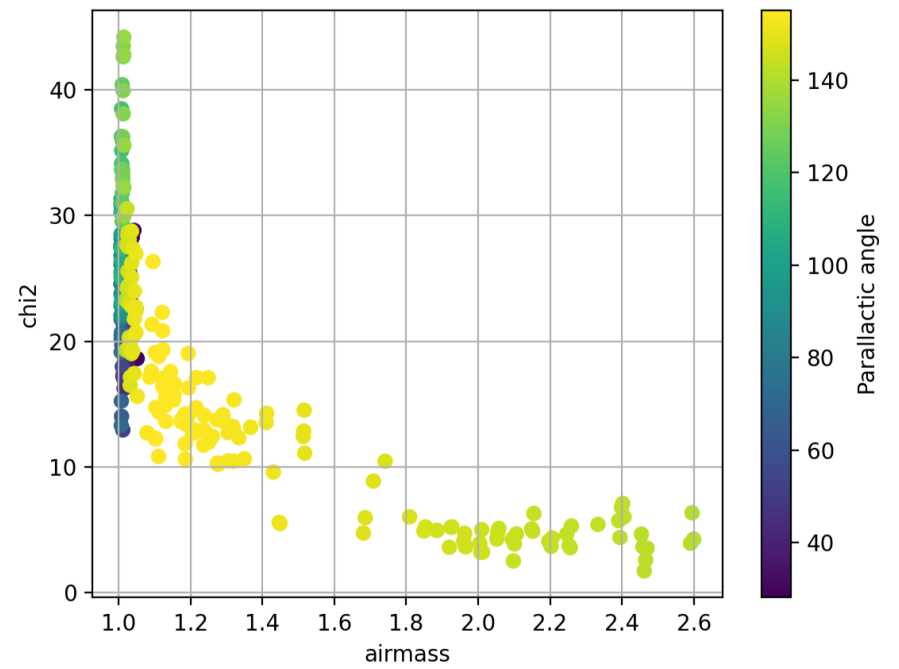
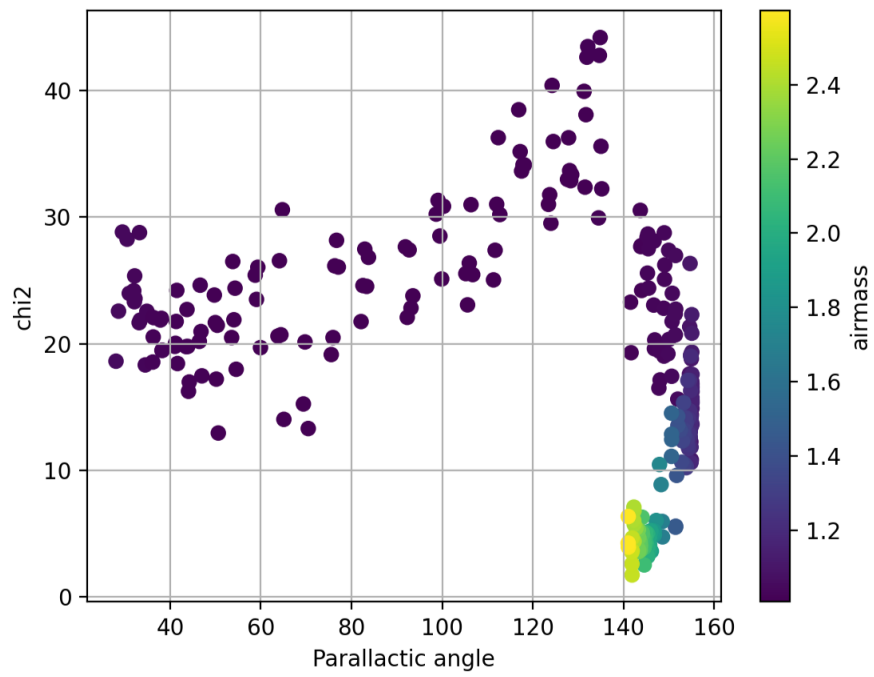
# Atmospheric fit

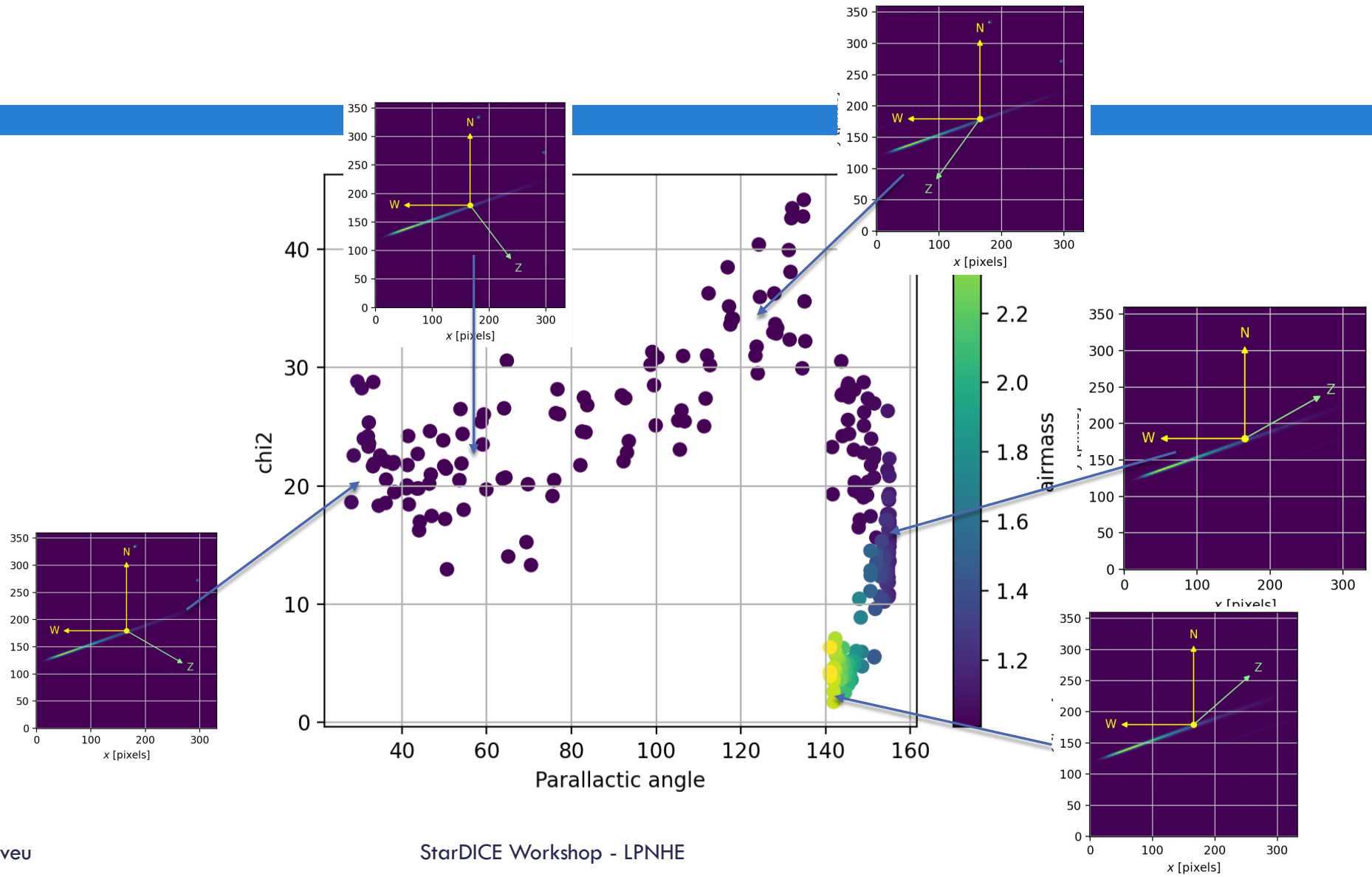
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## PSF stories

# HG-AR lamp in a sphere

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J. Neveu

StarDICE Workshop - LPNHE

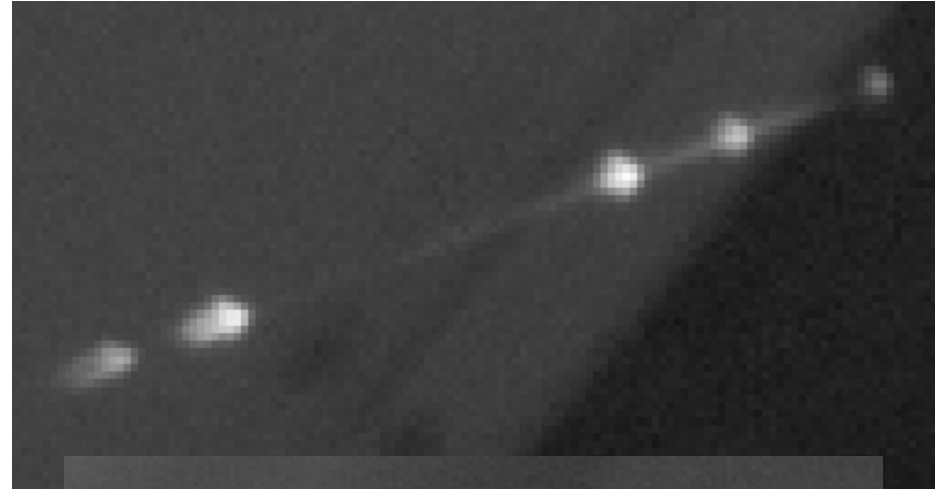
12/12/2024

# HG-AR lamp in a sphere

14



J. Neveu

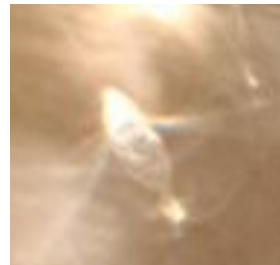


StarDICE Workshop - LPNHE

12/12/2024

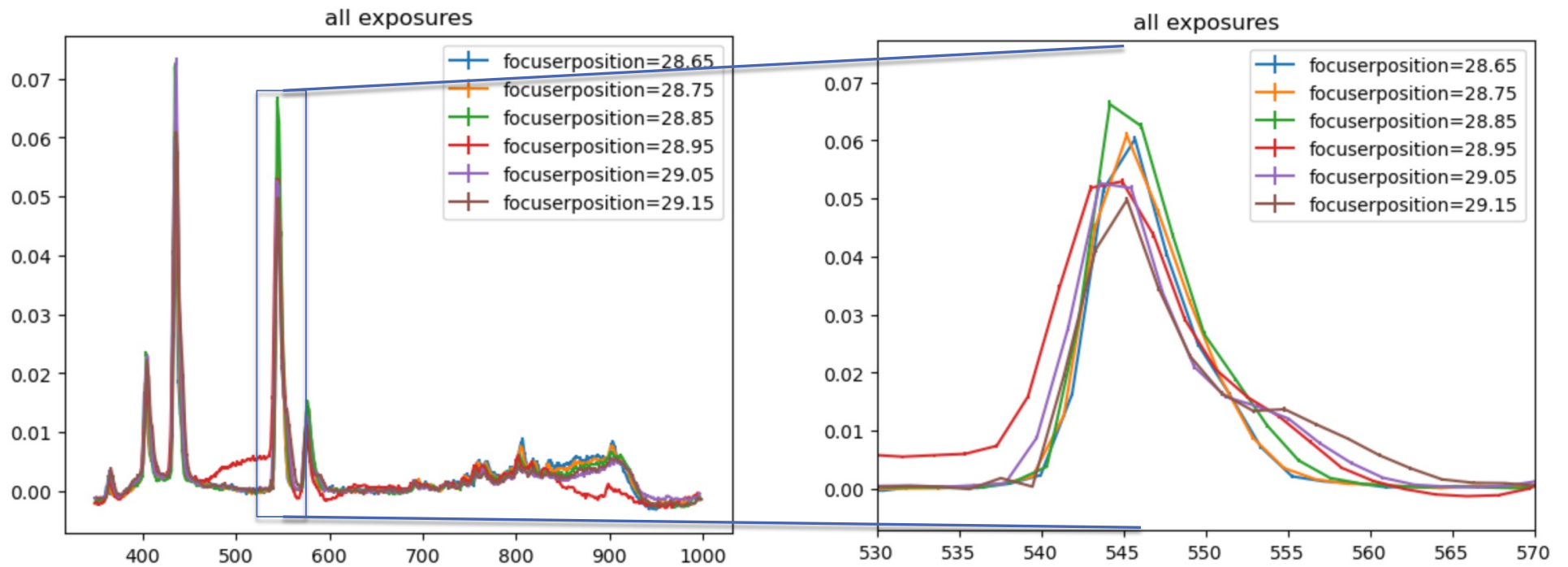
# PSF zoology

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# HG-AR lamp in a sphere

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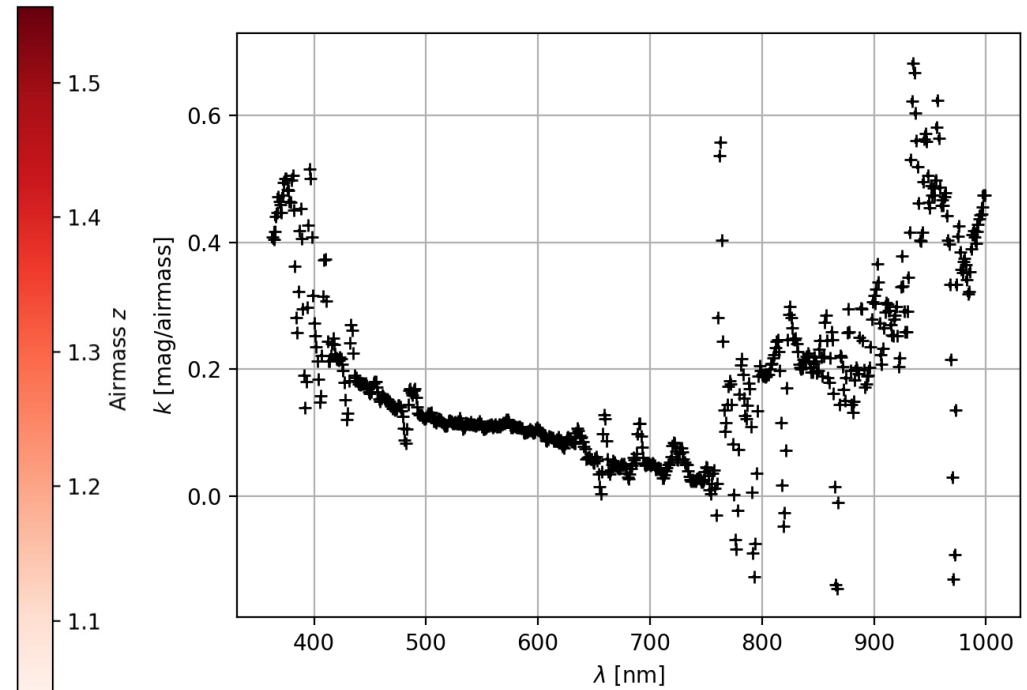
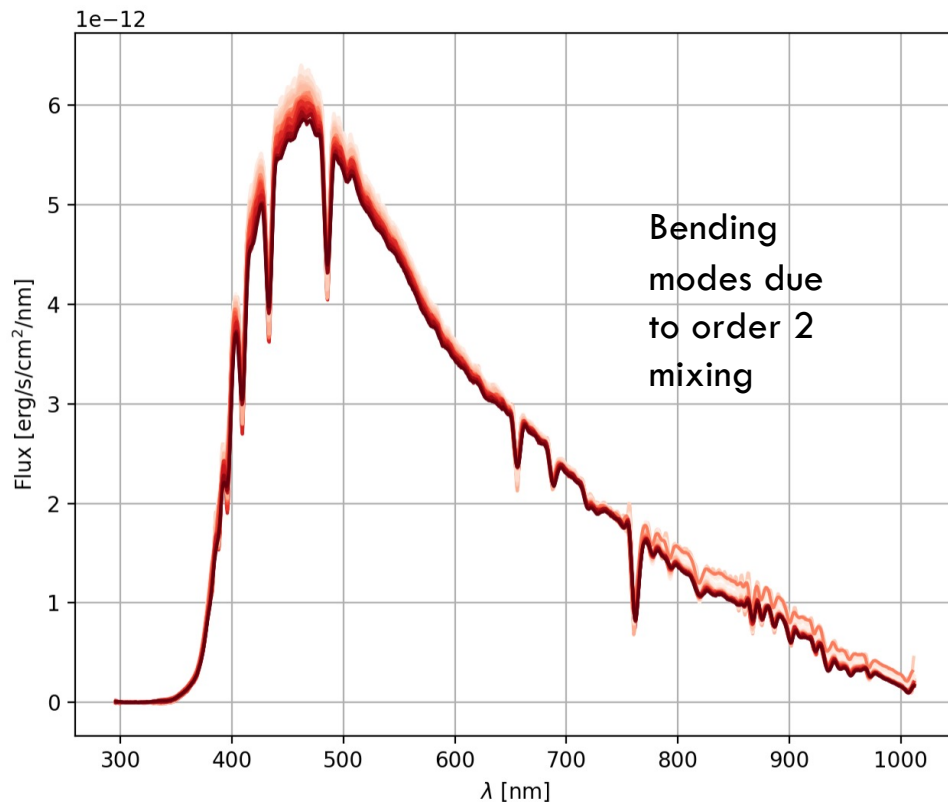


The 546nm emission line is less strange at some focus position



# AuxTel: HD2811 with high SNR along a full night

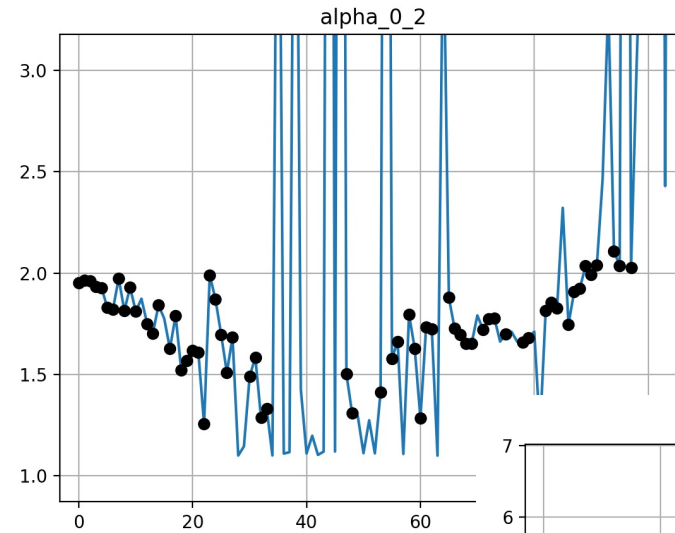
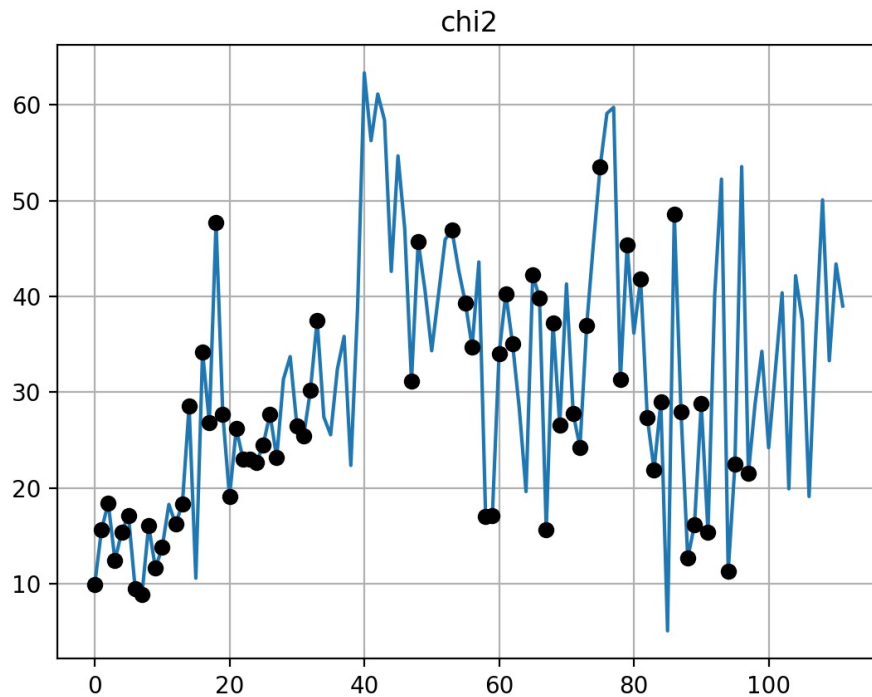
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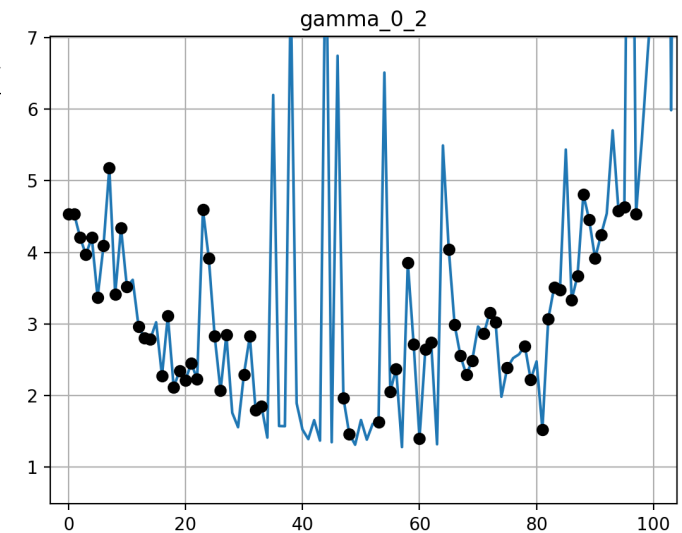
# AuxTel: HD2811 with high SNR along a full night

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## Chi2 variations with airmass



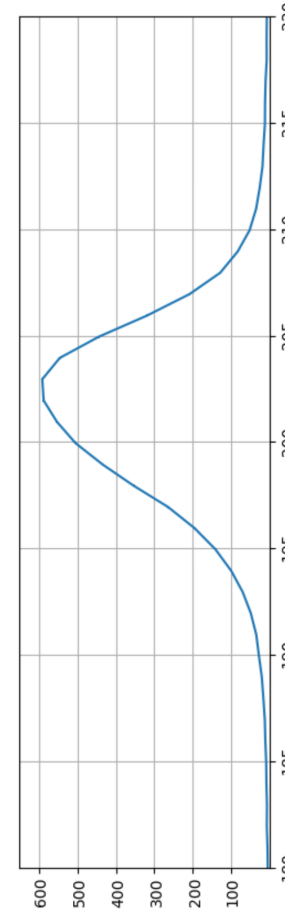
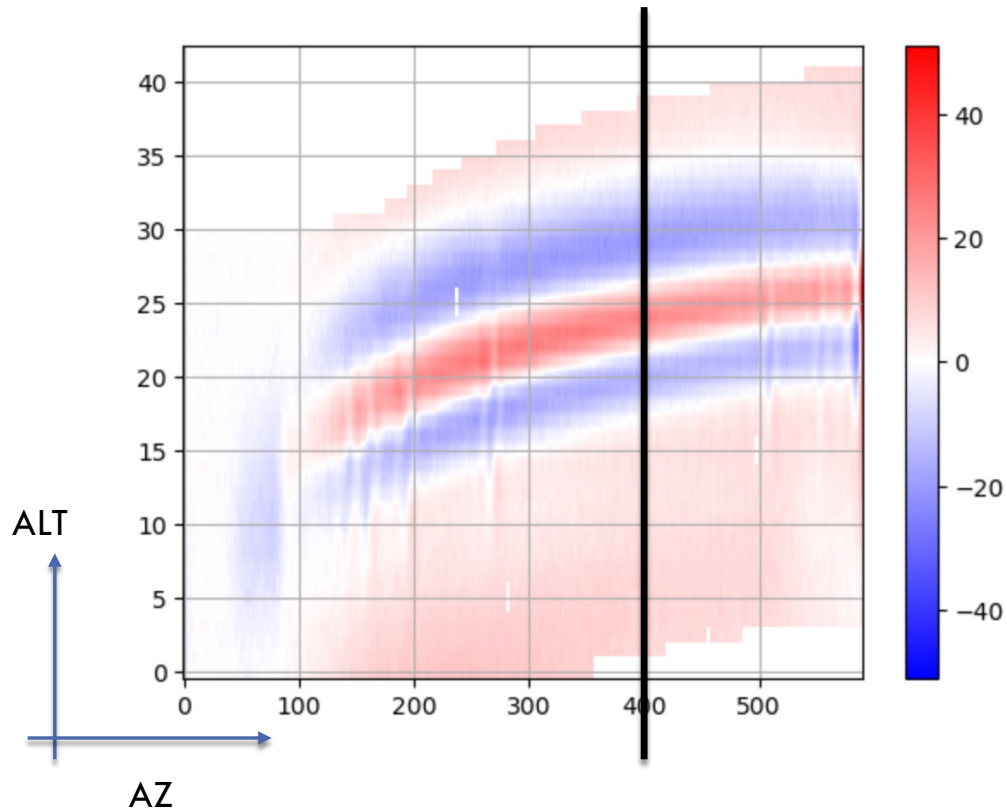
Order 2 PSF parameters change similarly  
 $\Rightarrow$  Problems with unmixing diffraction orders that impact ALL wavelength range



# AuxTel: HD281 1 residuals

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(Data – model)/err from 300 to 720nm



Slice at x=400 along  
Elevation axis

=> Clear assymetry

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# Open questions

# Open questions

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- Spectrophotometry issues are now similar in AuxTel and StarDICE
- PSF modelling is the next bottleneck (PhD?)
  - ▣ Impact on the shape of the spectra and thus on atmospheric analysis of “wide” features (aerosols, ozone)
  - ▣ How to get info on the PSF() shape?
- Second order demixing with forward modeling is fragile
  - ▣ How to improve the model?