

Markarian 1018



Meredith Powell

Bernd Husemann & **CARS** team

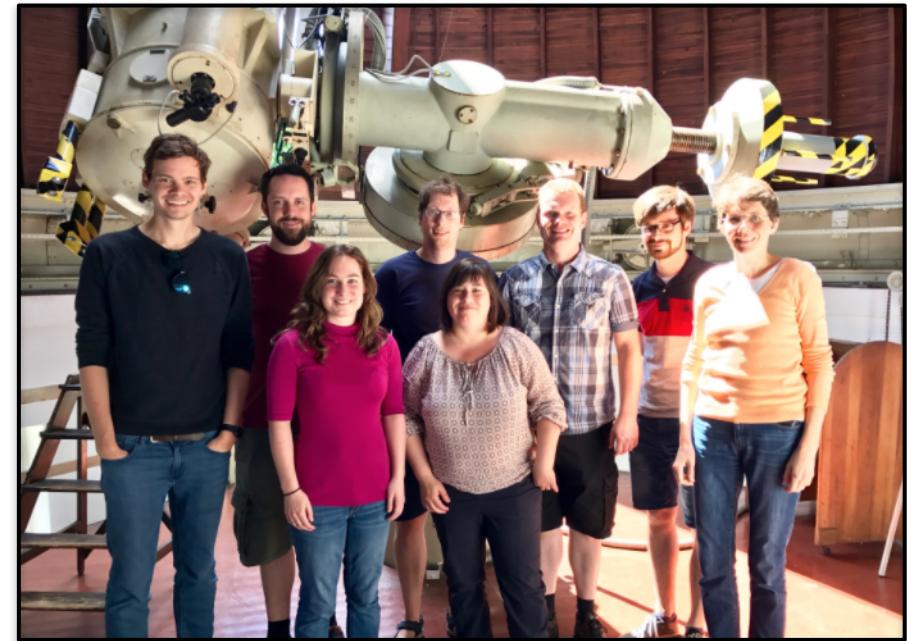
AGN Variability 2017





CARS Team

- Bernd Husemann, PI (MPIA)
- Rebecca McElroy (U. of Sydney)
- Mirko Krumpe (AIP)
- Tanya Uruttia (AIP)
- Grant Tremblay (Yale)
- Francois Combes (Obs. de Paris)
- Scott Croom (U. of Sydney)
- Andreas Eckart (U. of Cologne)
- Gerold Busch (U. of Cologne)
- Timothy Davis (Cardiff U.)
- Jason Dexter (MPE)
- Dimitri Gadotti (ESO)
- Justus Neumann (AIP)
- Miguel Perez-Tores (IAA)
- Meredith Powell (Yale)
- Julia Scharwachter (Gemini Obs)



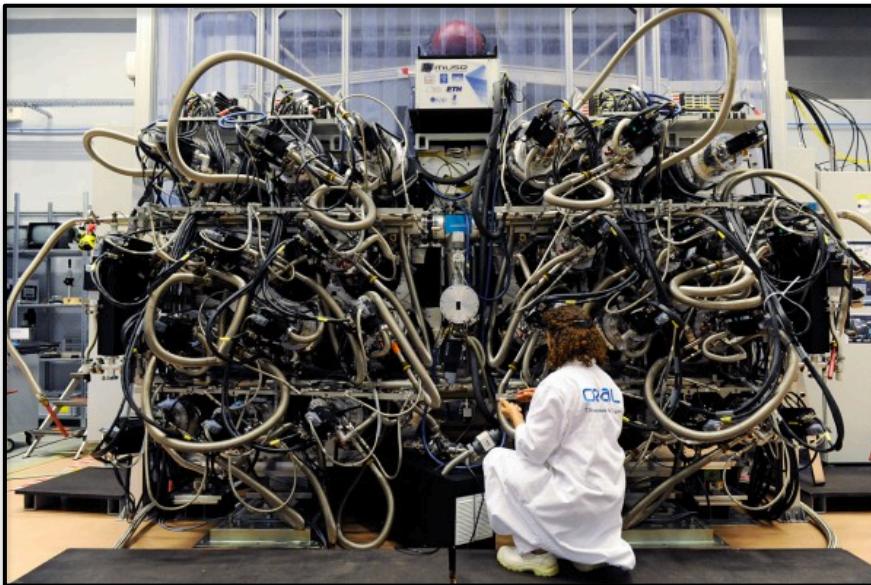


CARS Survey

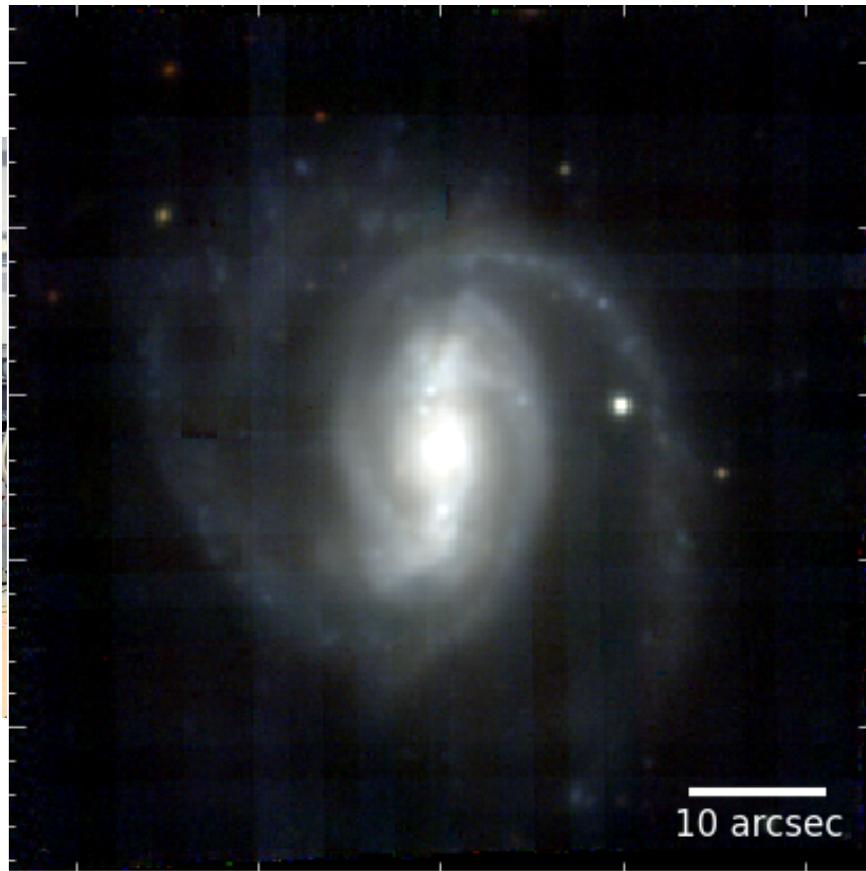
- 40 nearby type 1 AGN
 $0.01 < z < 0.06$
- Observed with the MUSE IFU on the VLT
- Growing array of spatially resolved multiwavelength data
- Goals:
 - Characterize link between SMBH and host galaxy
 - Create reference dataset for high-z AGN

MUSE IFU

- 1 arcmin FOV
- 4700-9300 Å
- 0.2" spatial sampling
- 90,000 spectra!

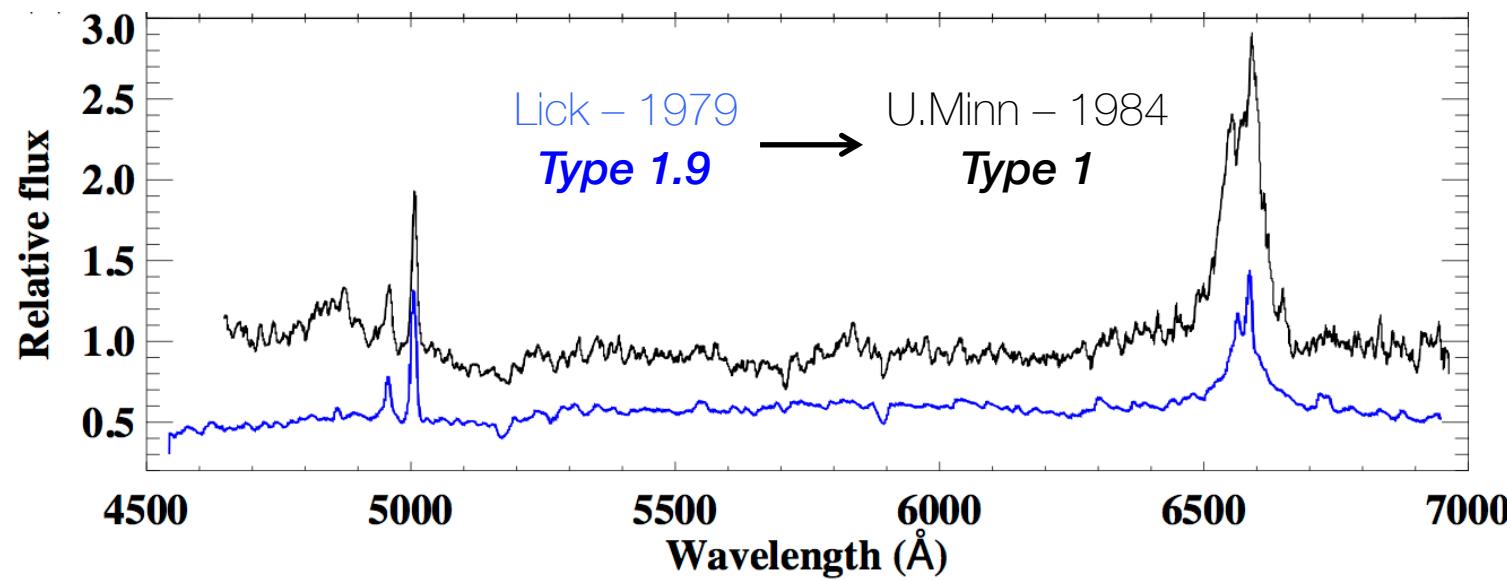


MUSE IFU

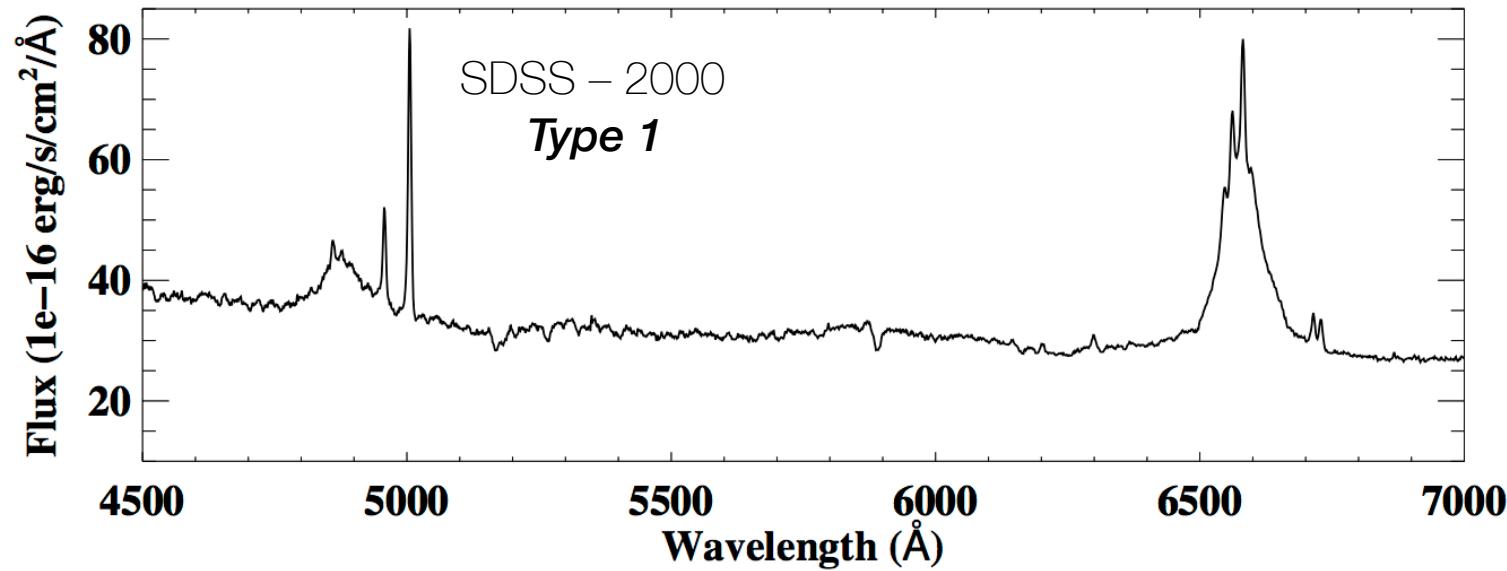


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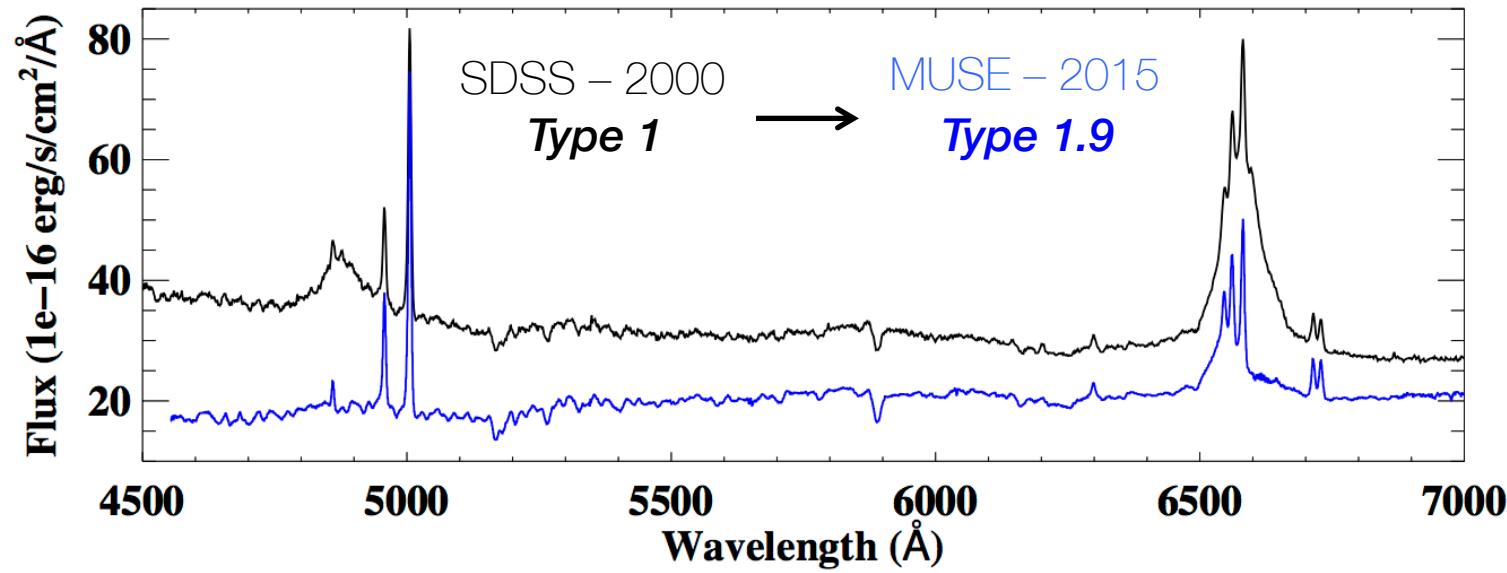
Mrk 1018



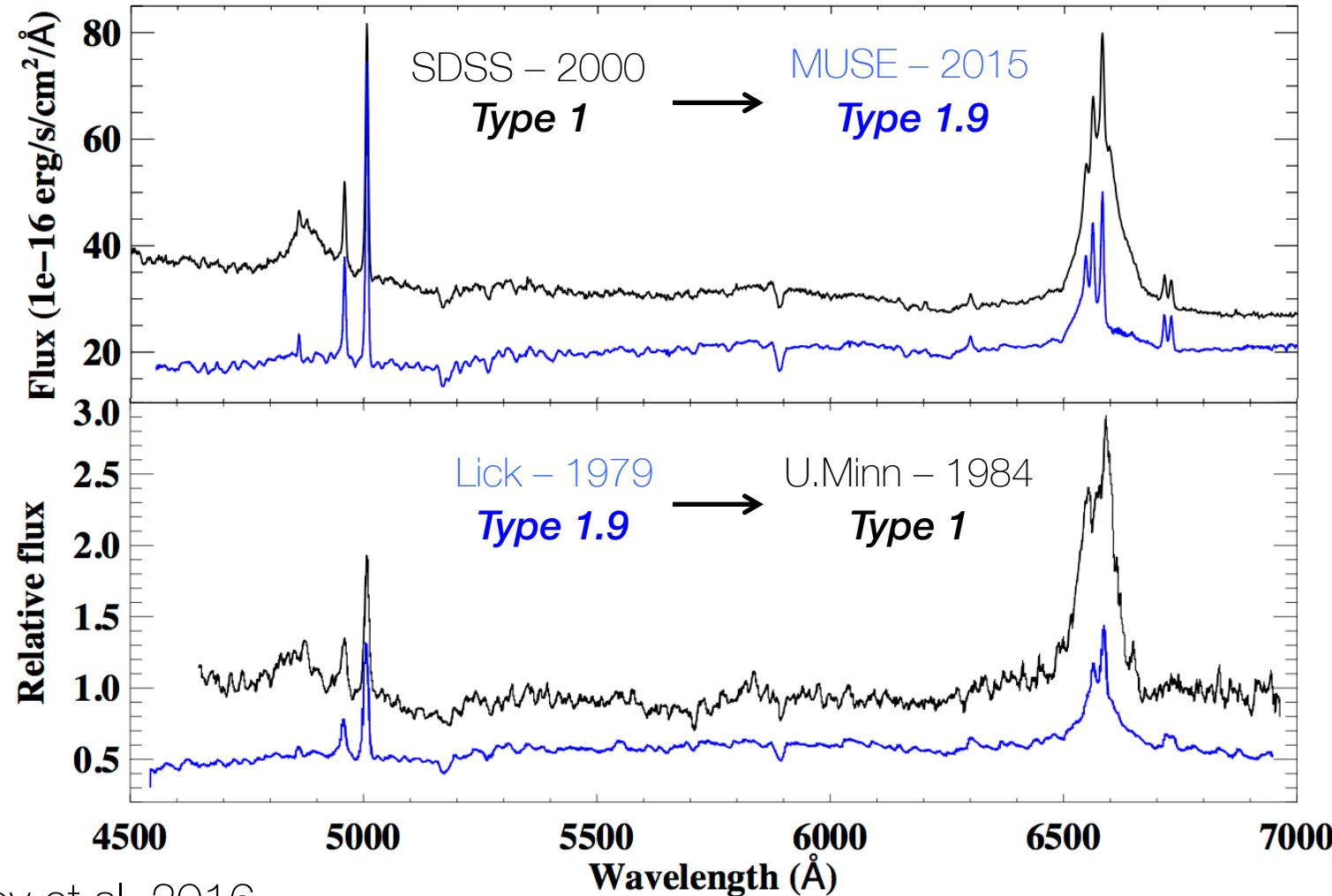
Mrk 1018



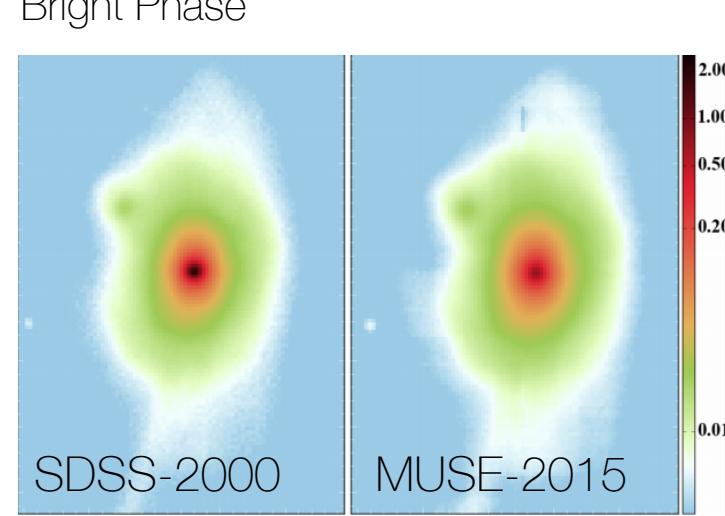
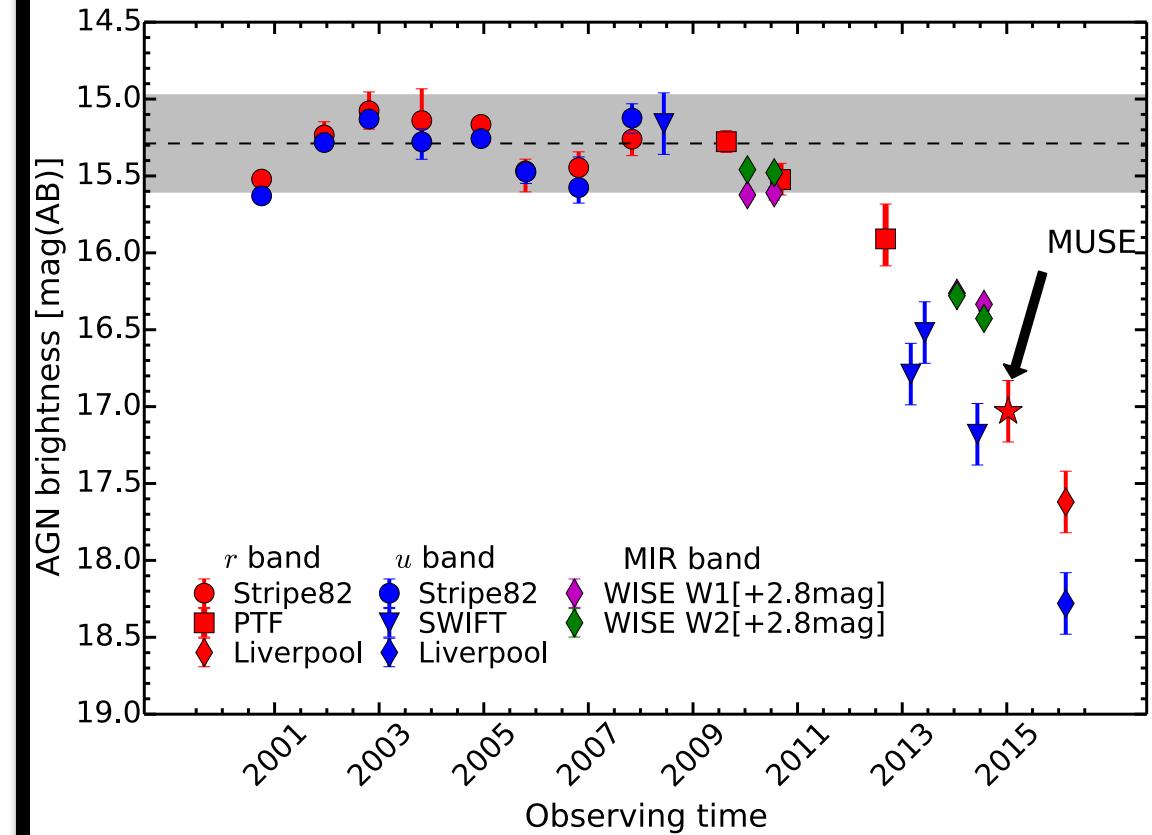
Mrk 1018



Mrk 1018



Light Curve



Type 1.9 → Type 1 → Type 1.9

— 30 Years —

Cause?

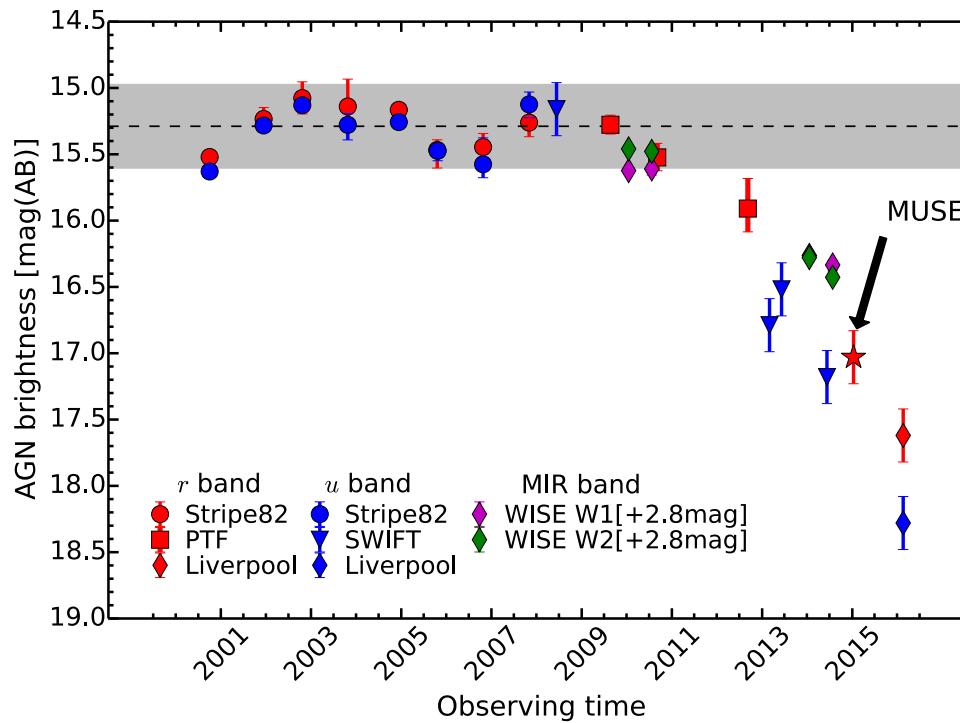
Cause?

- TDE?



Cause?

- ~~TDE?~~

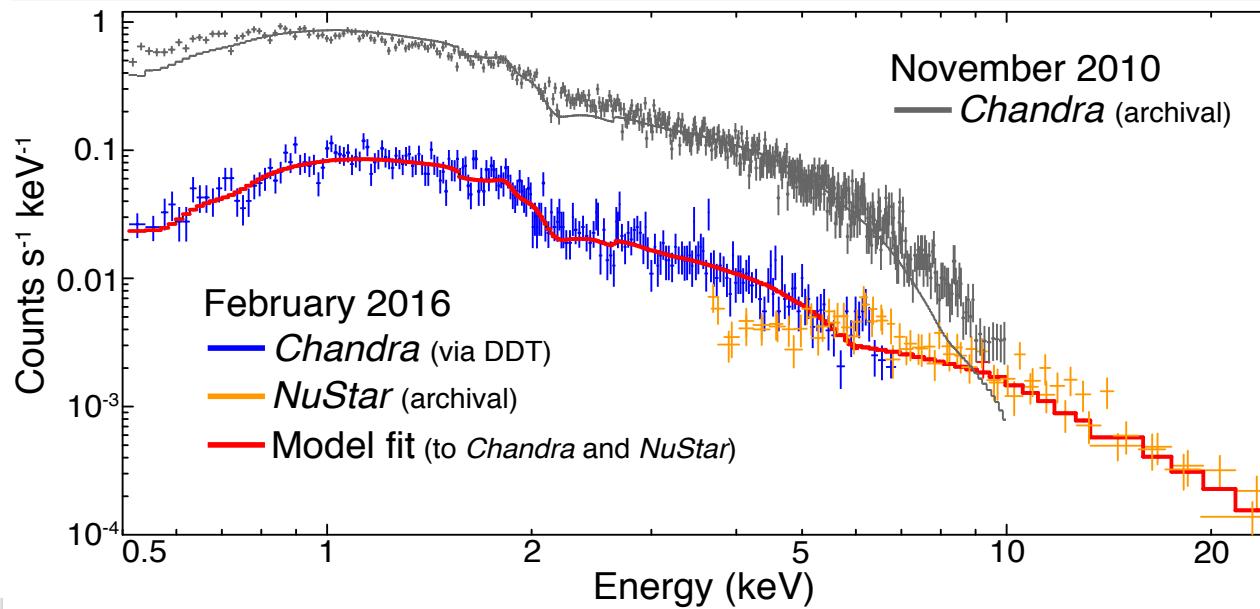


Cause?

- ~~TDE~~
- Obscuration?

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- ~~Obscuration?~~

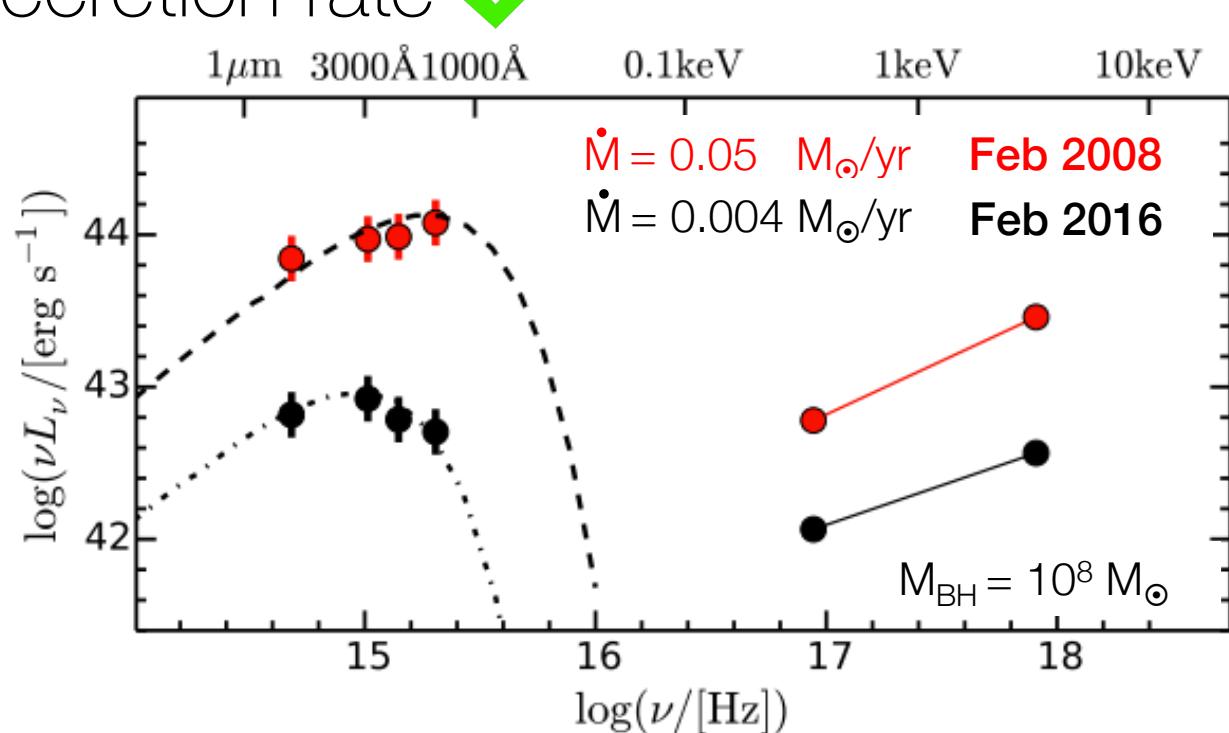


Cause?

- ~~TDE~~
- ~~Obscuration~~
- Change in accretion rate

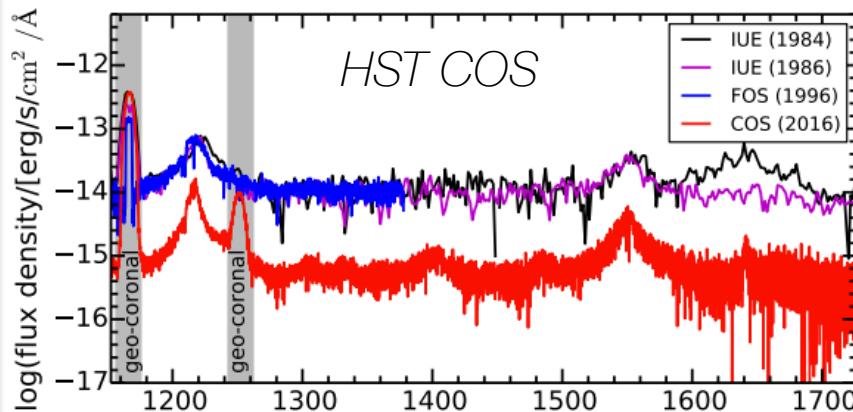
Cause?

- ~~TDE~~
- ~~Obscuration~~
- Change in accretion rate ✓



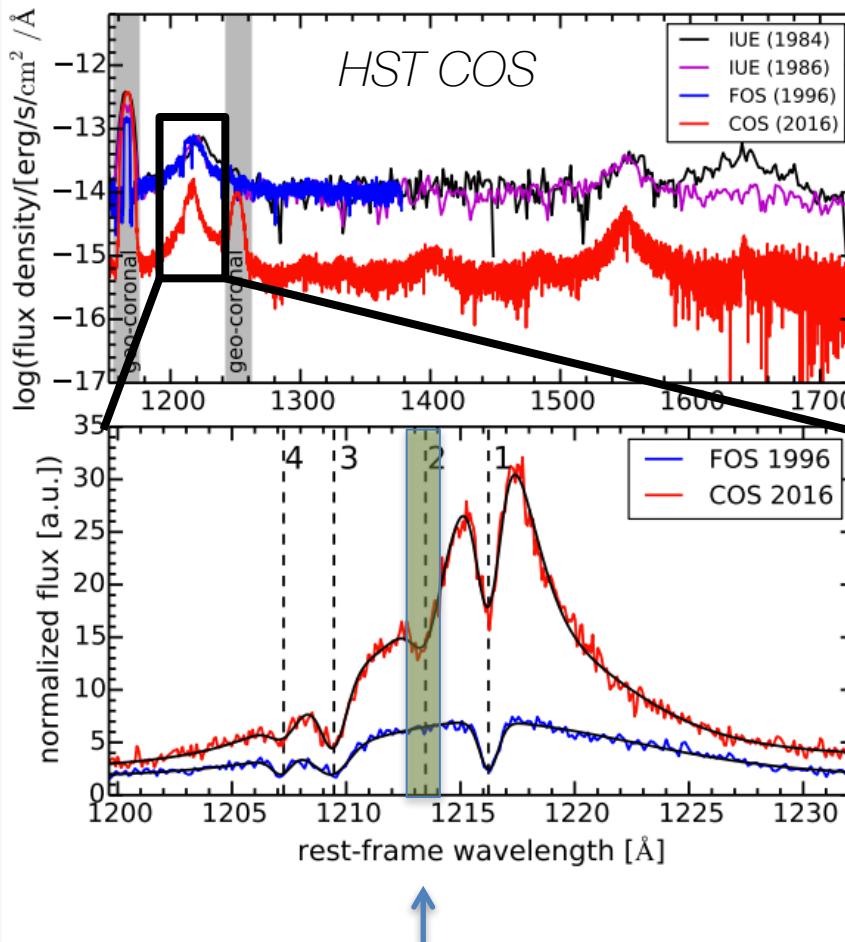
Emission Lines

UV



Emission Lines

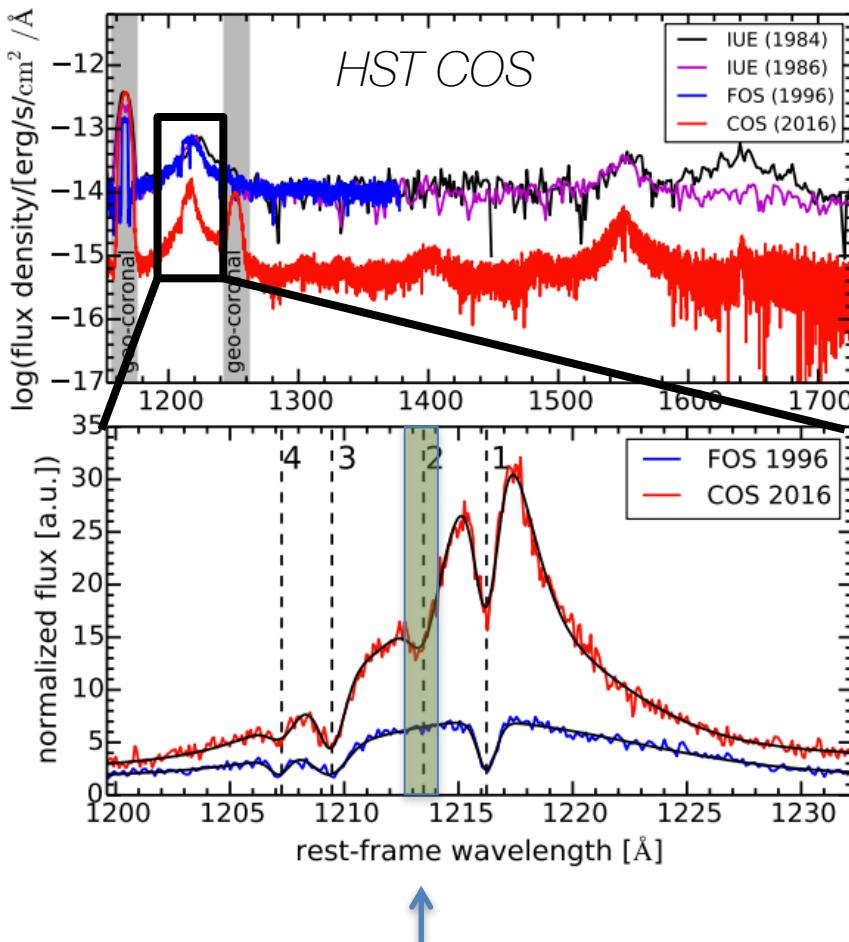
UV



New Ly- α absorption line

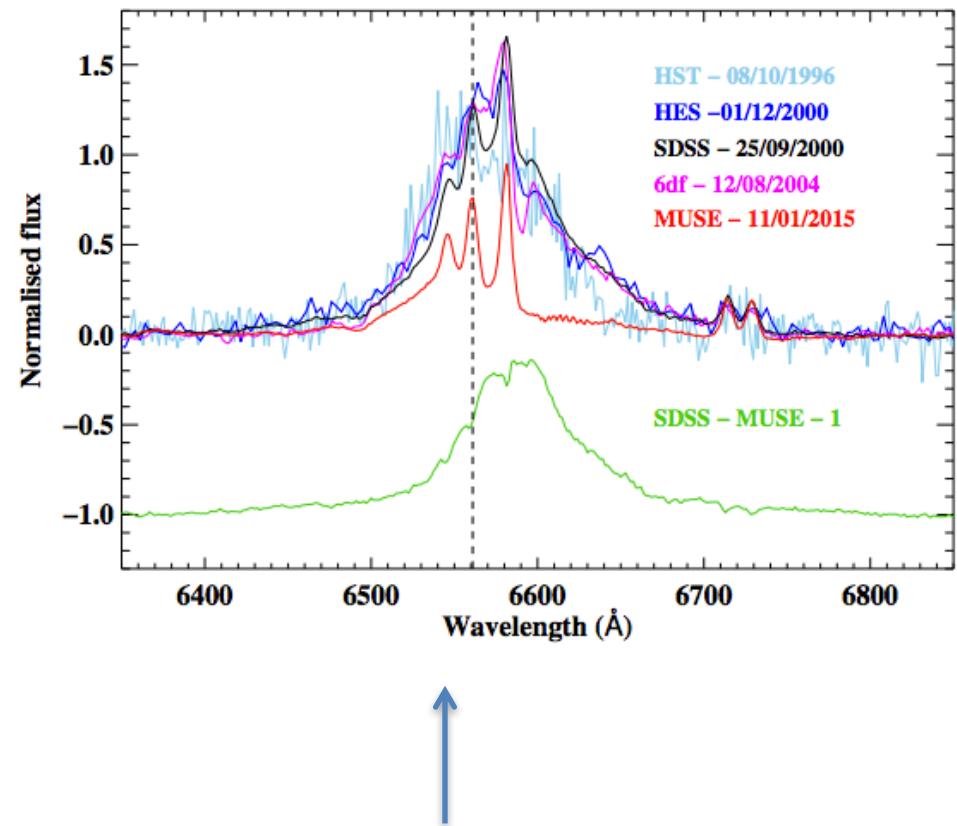
Emission Lines

UV



New Ly- α absorption line

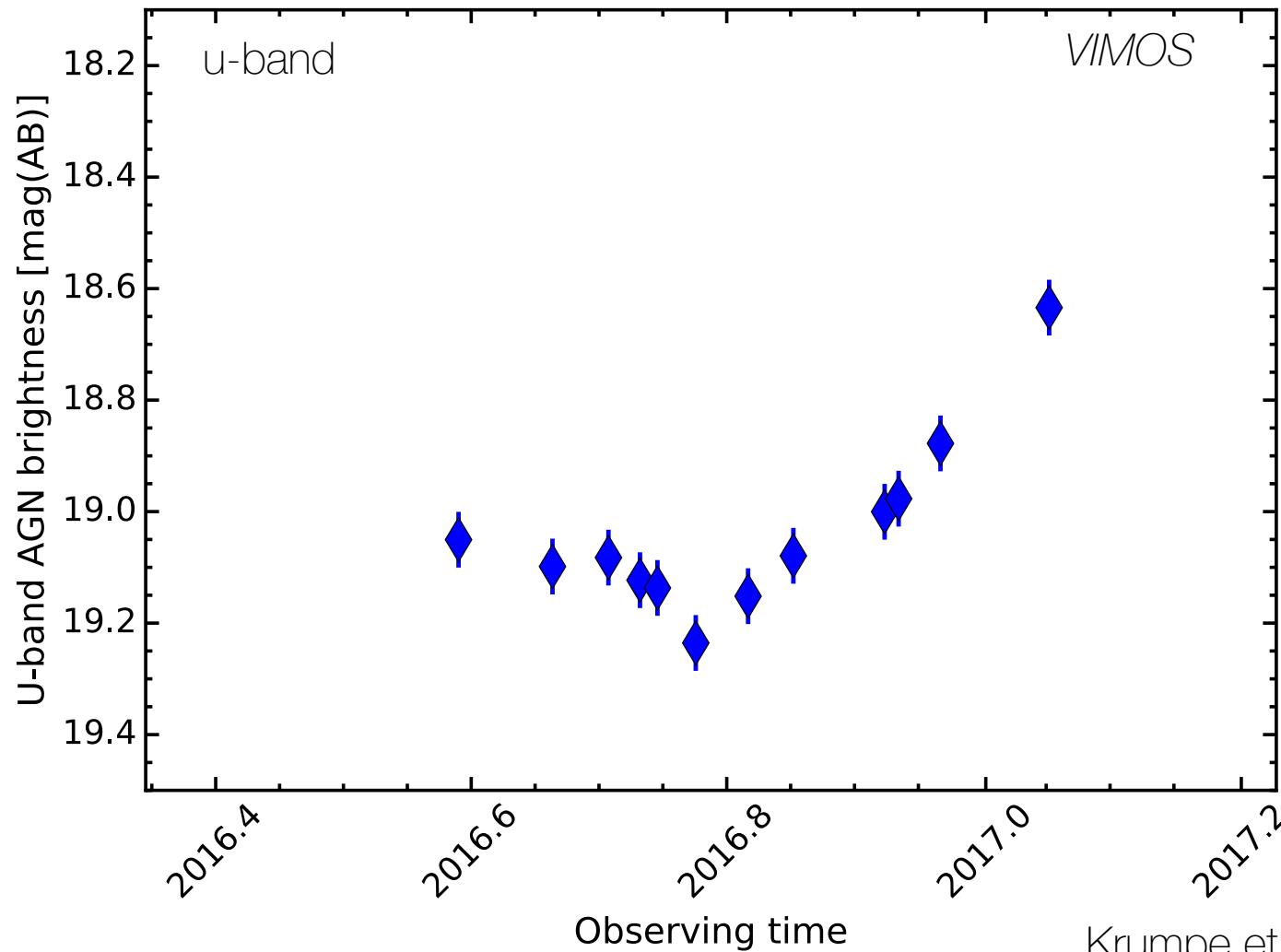
H- α line comparison



Blueshifted H- α broadline

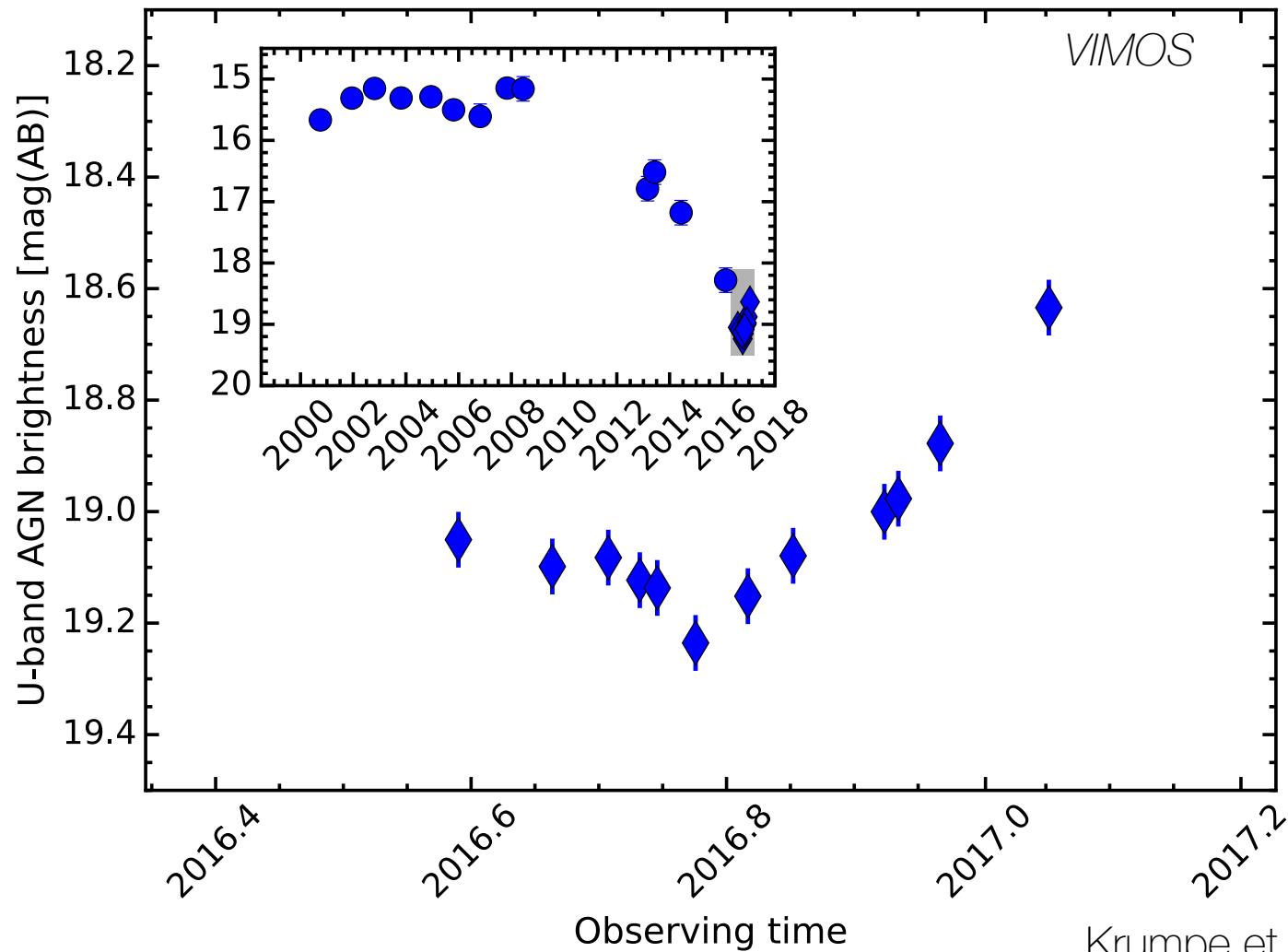
Recent Changes...

Recent Changes...



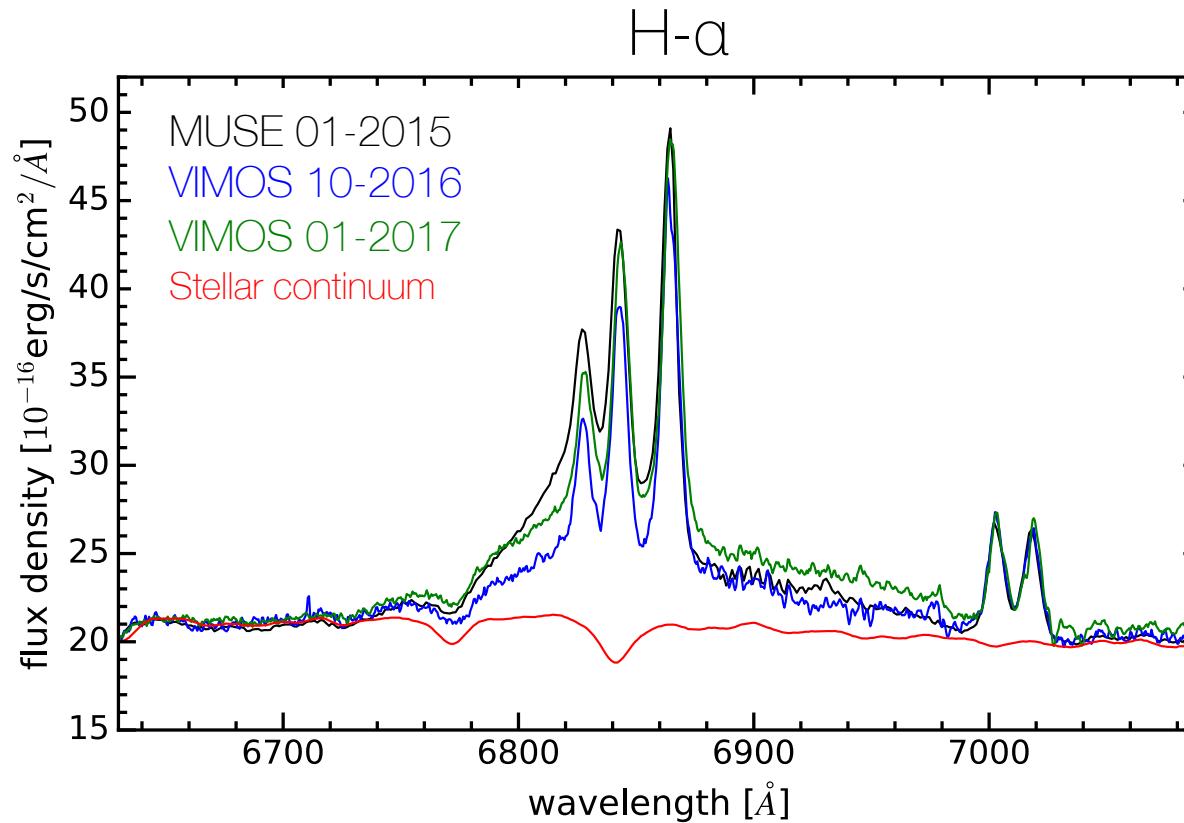
Krumpe et al. in prep.

Recent Changes...

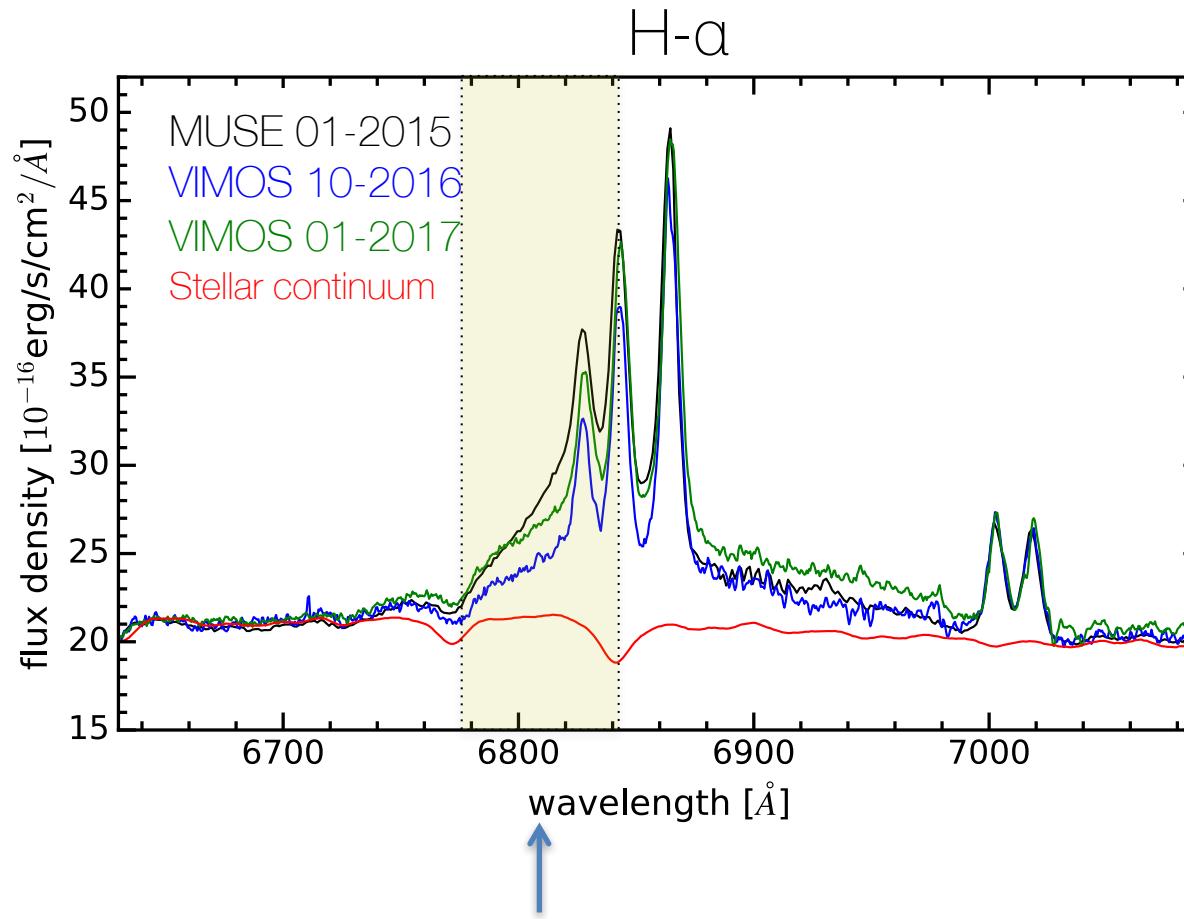


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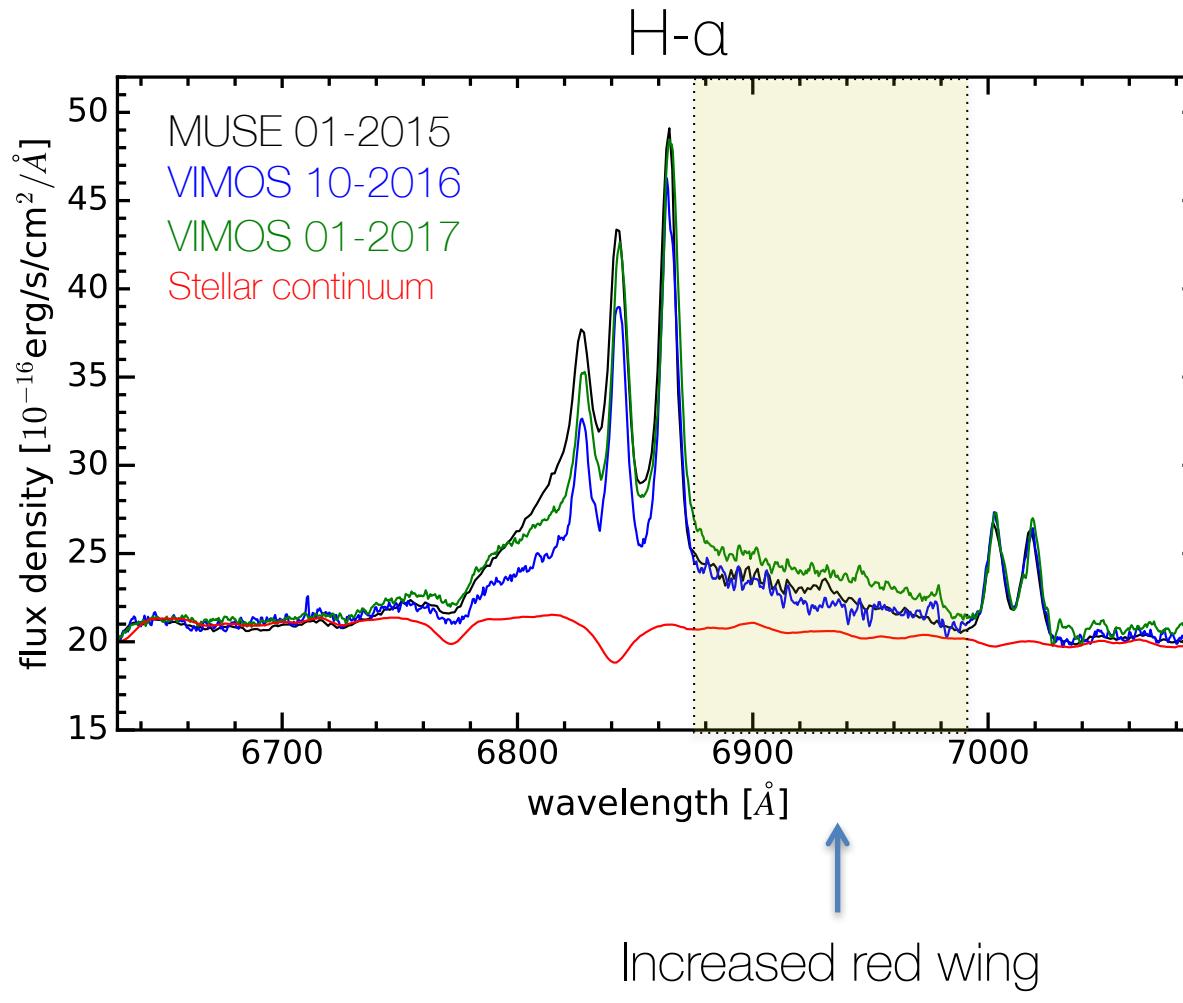
Recent Changes...



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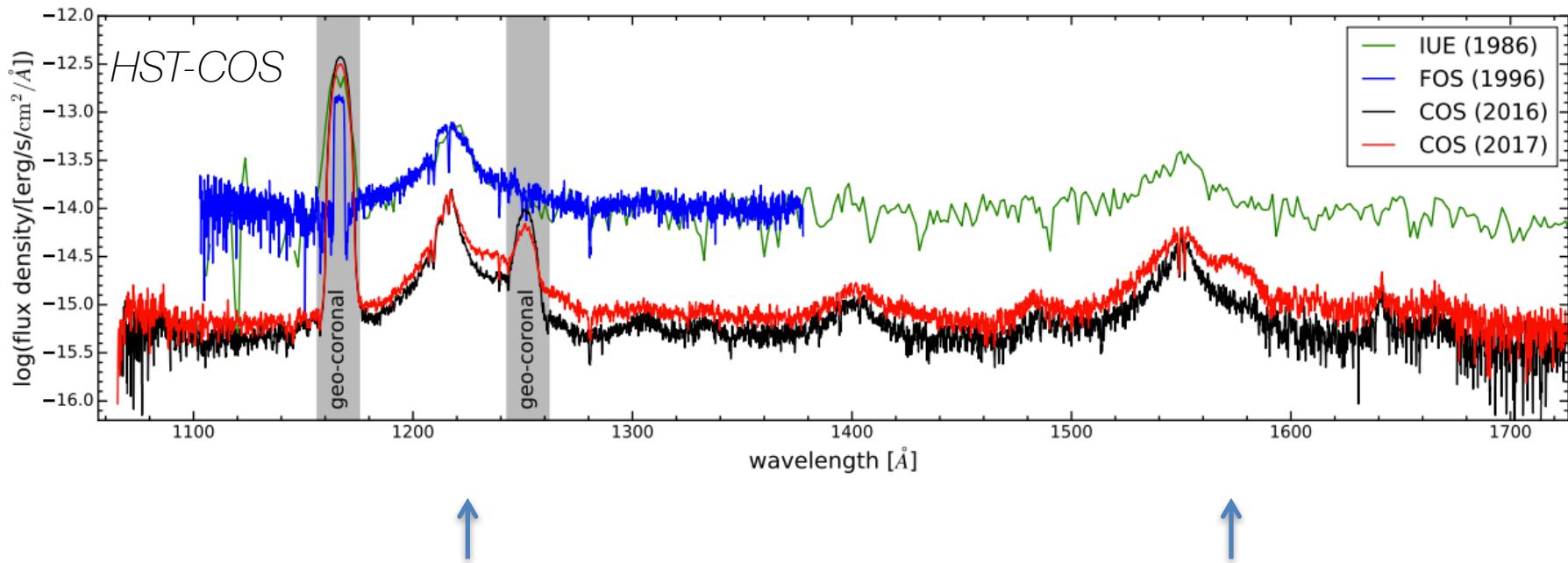
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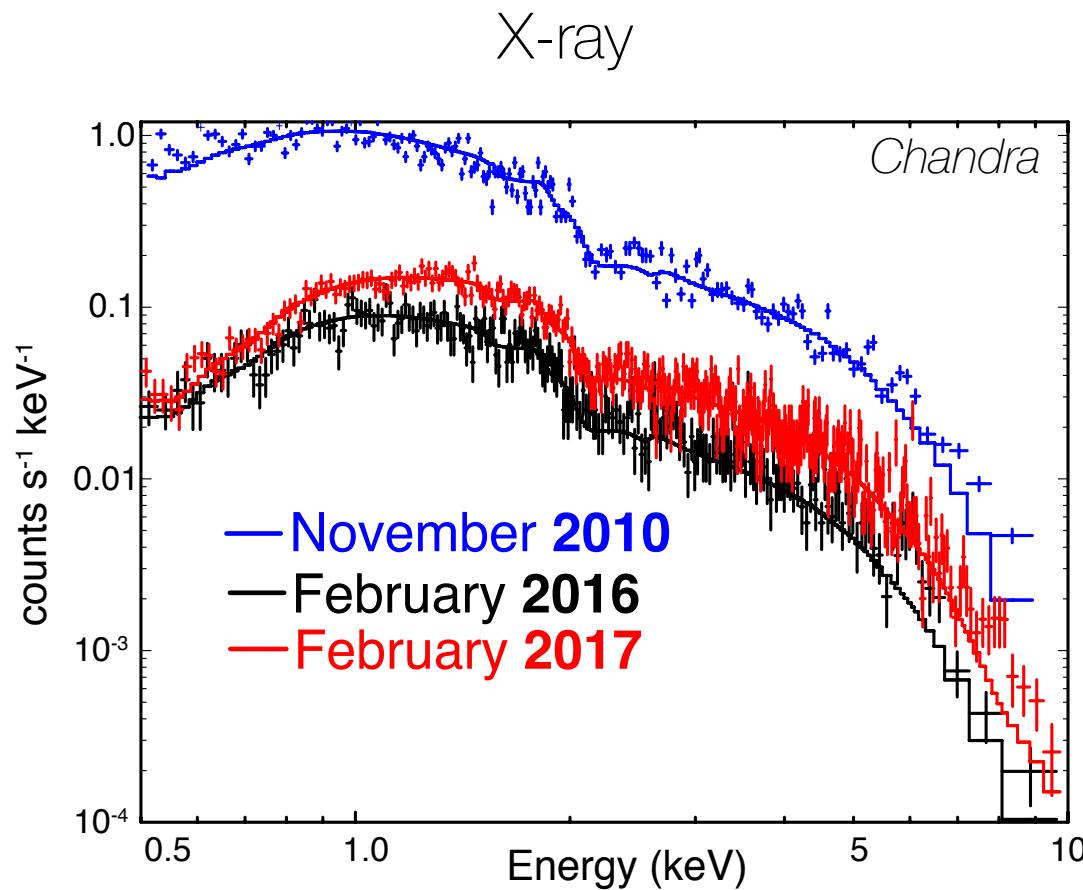
UV



New red bumps in both Lyman- α and CIV

Krumpe et al. in prep.

Recent Changes...





Summary

- Mrk 1018 undergoing major accretion reconfiguration
 - Obscuration and TDE ruled out
- Possible scenarios
 - Onset & shutdown of outflow
 - Interactions in binary SMBH system
 - ???
- Stay tuned!



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