



A Christmas 2018 Update:

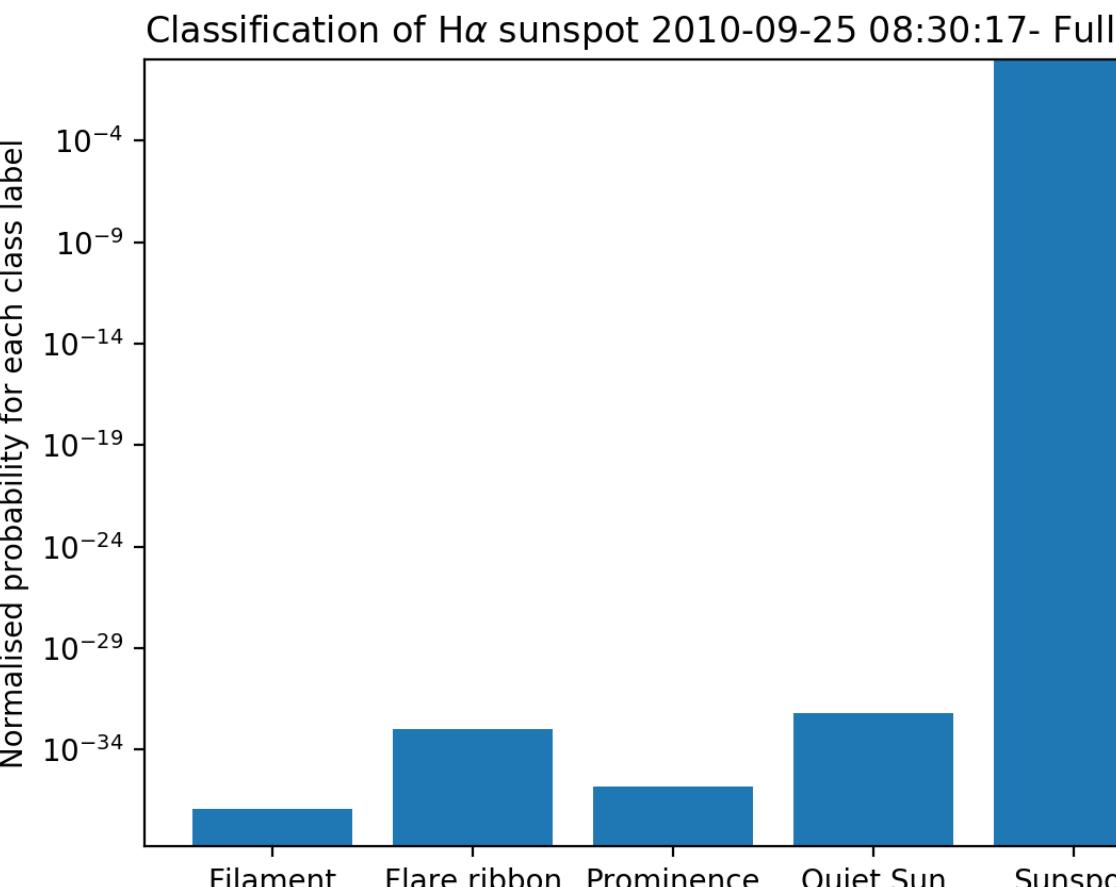
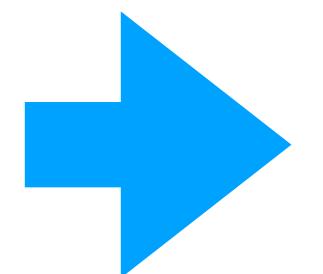
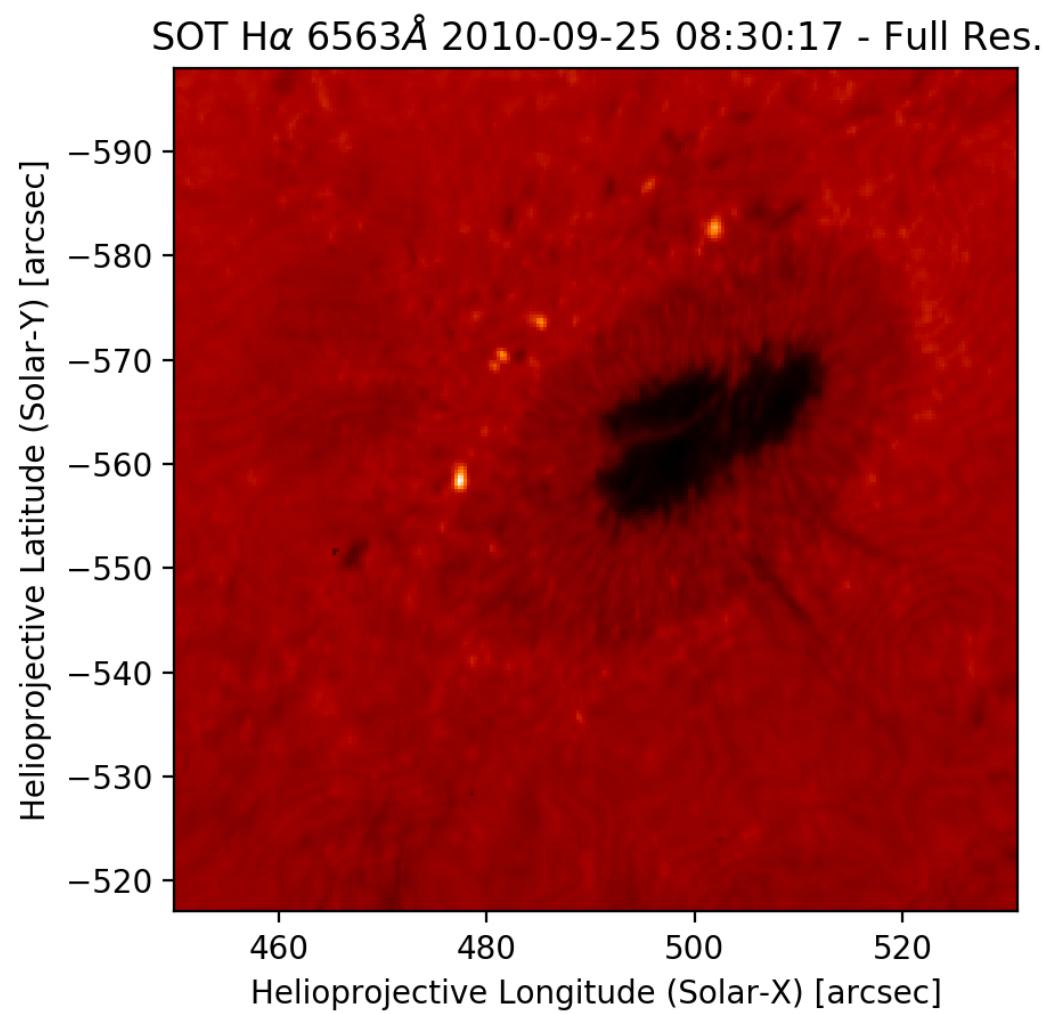
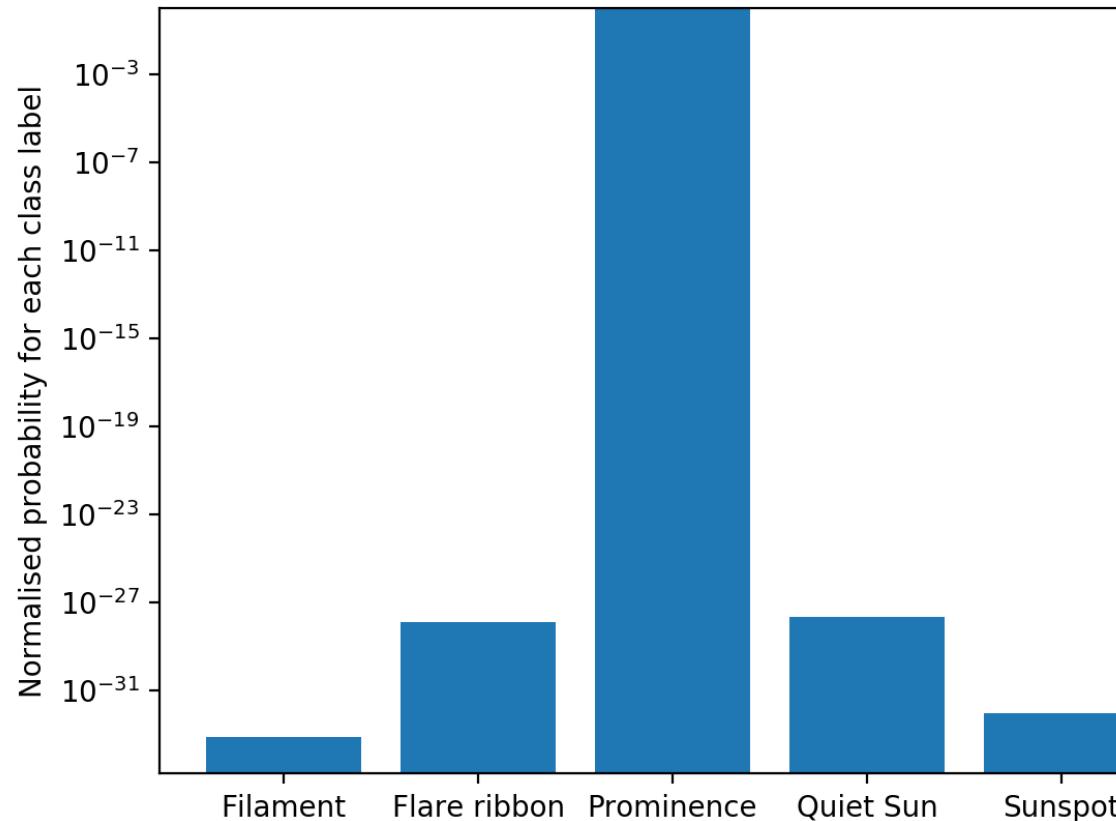
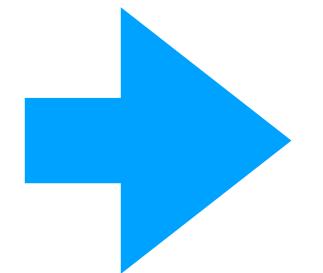
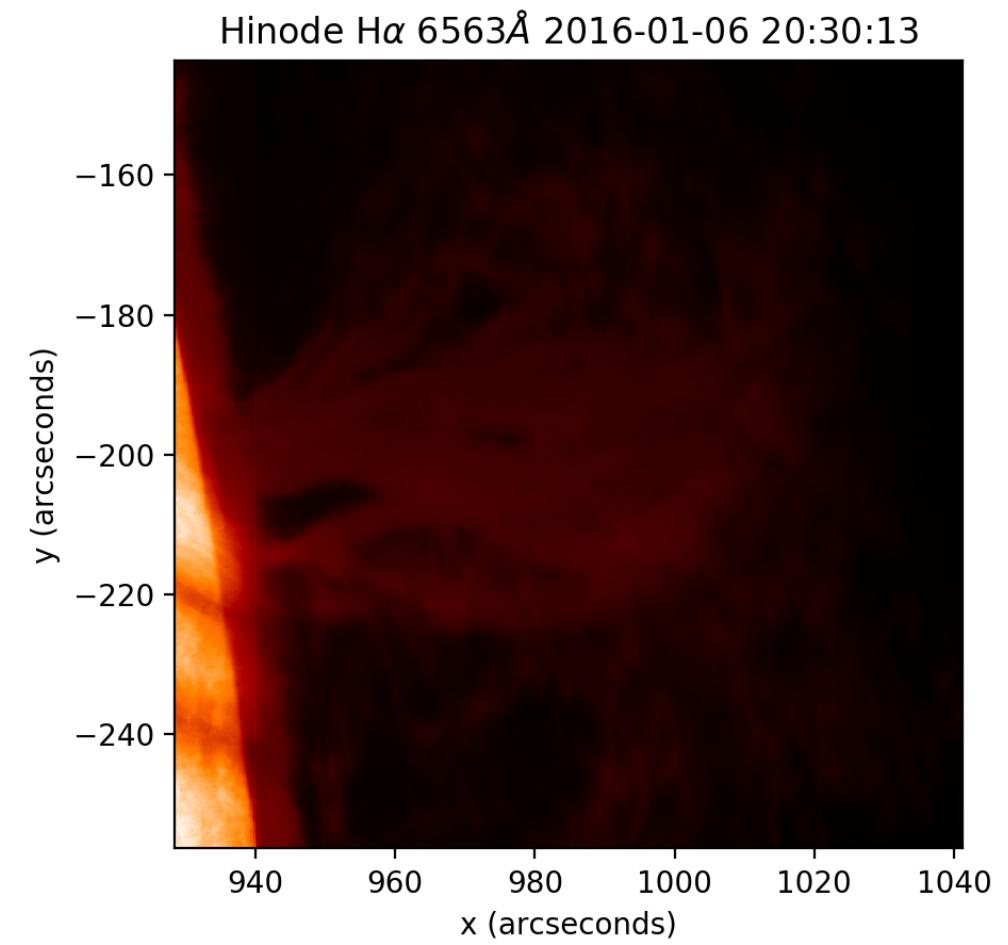
Applications of deep learning in solar observations

John Armstrong, Astronomy & Astrophysics Group



Science & Technology
Facilities Council





Filaments

Flares

Prominences

Quiet Sun

Sunspots

Precision

0.989

0.972

1

Recall

0.989

1

0.997

1

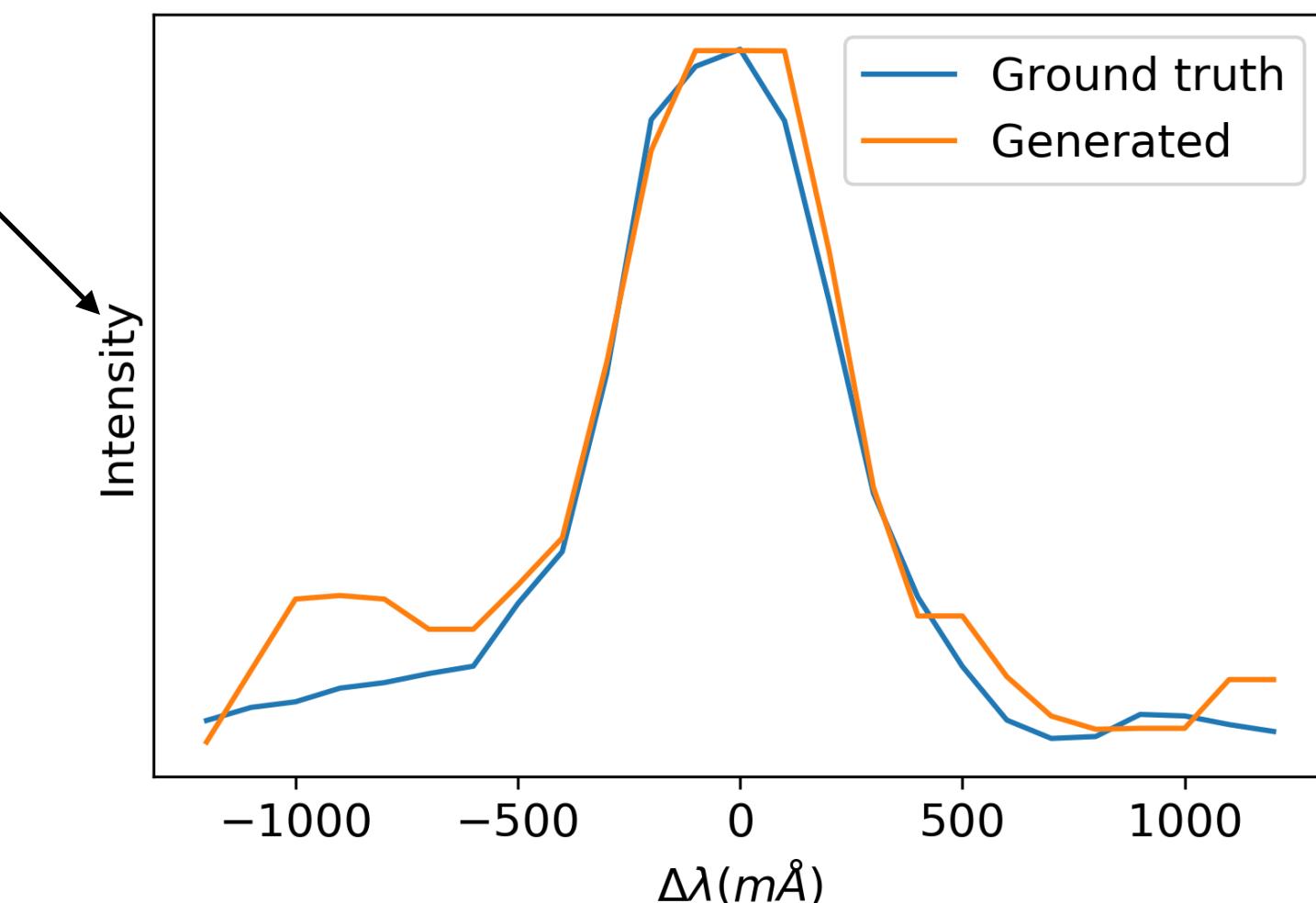
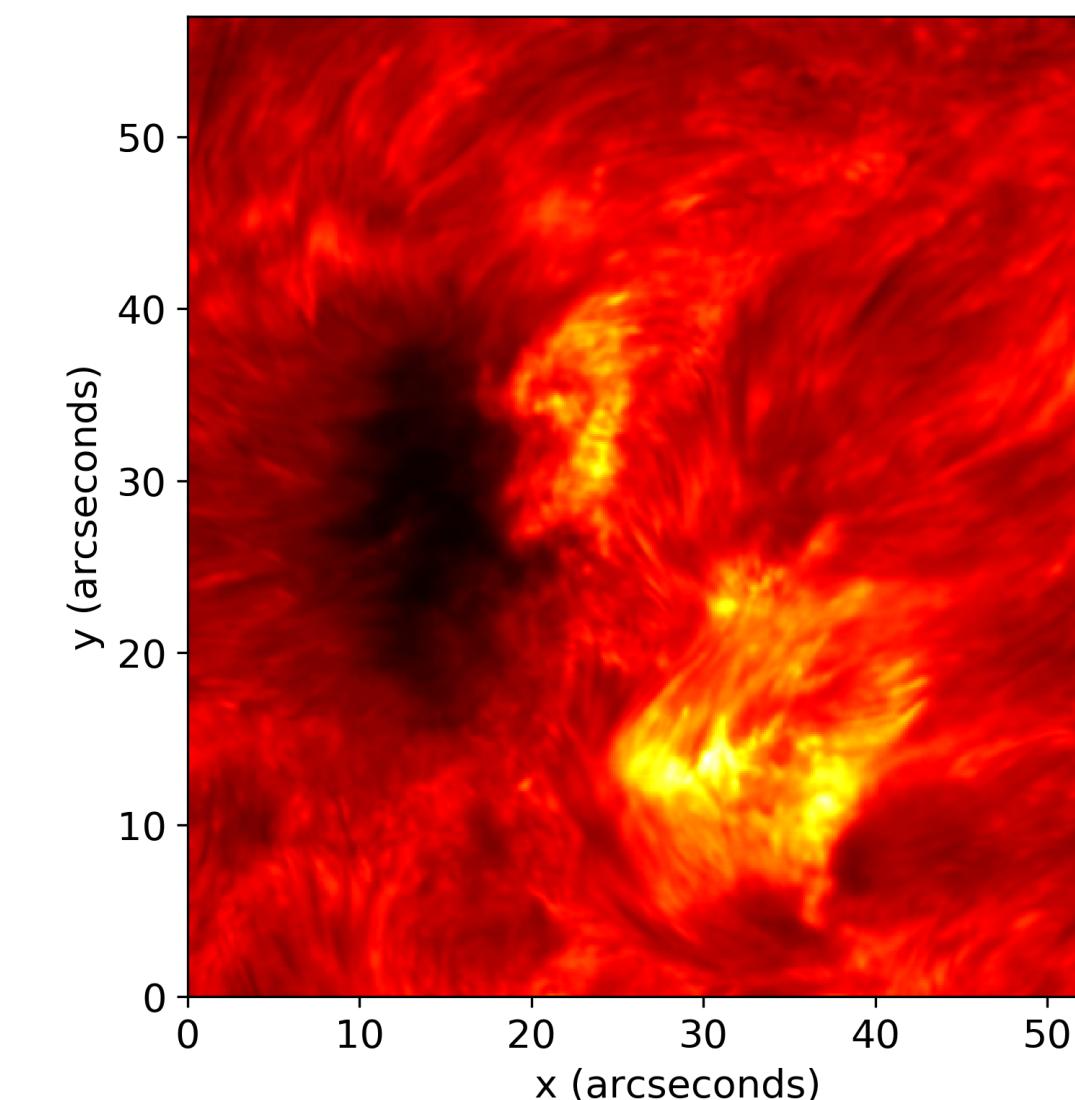
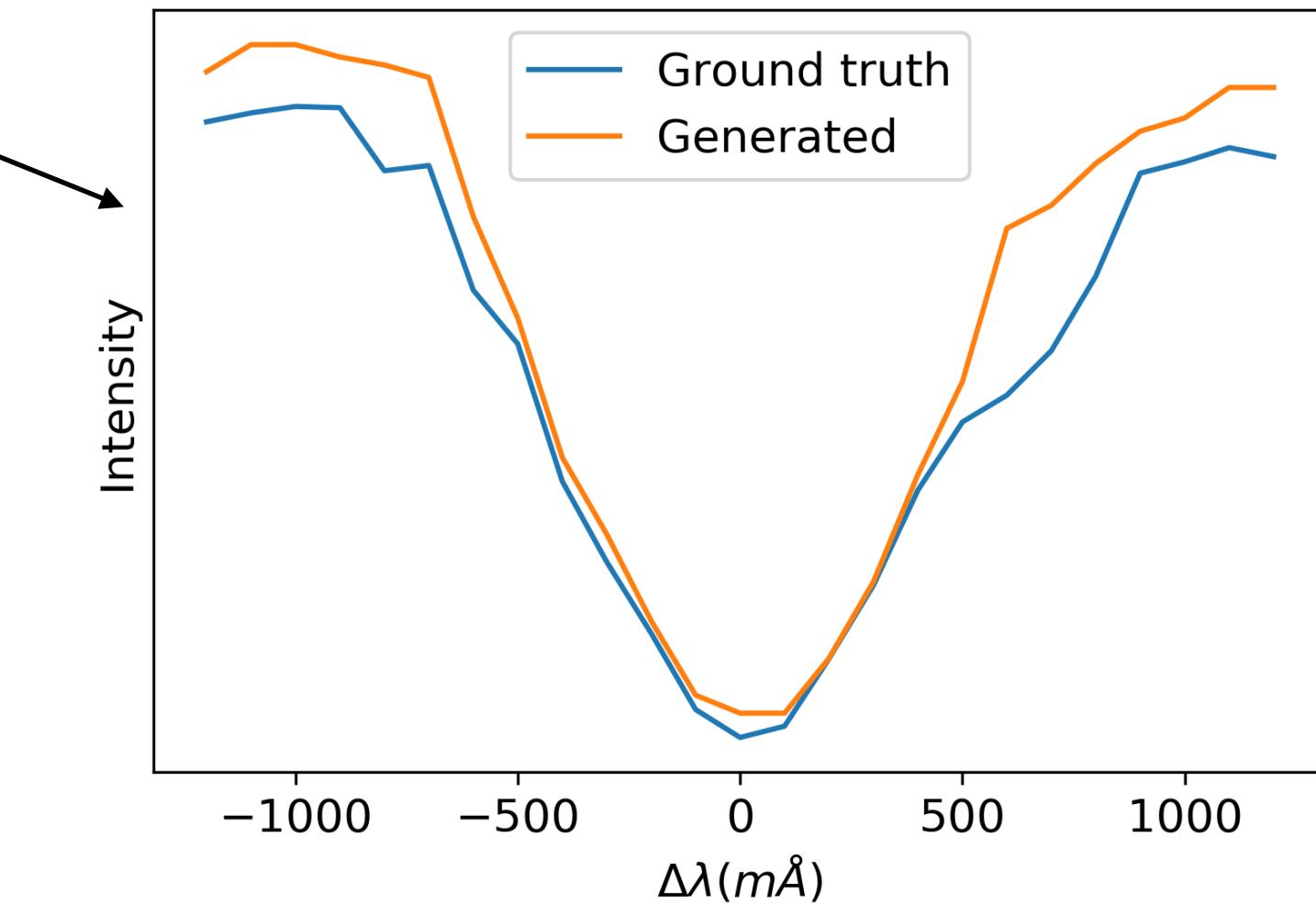
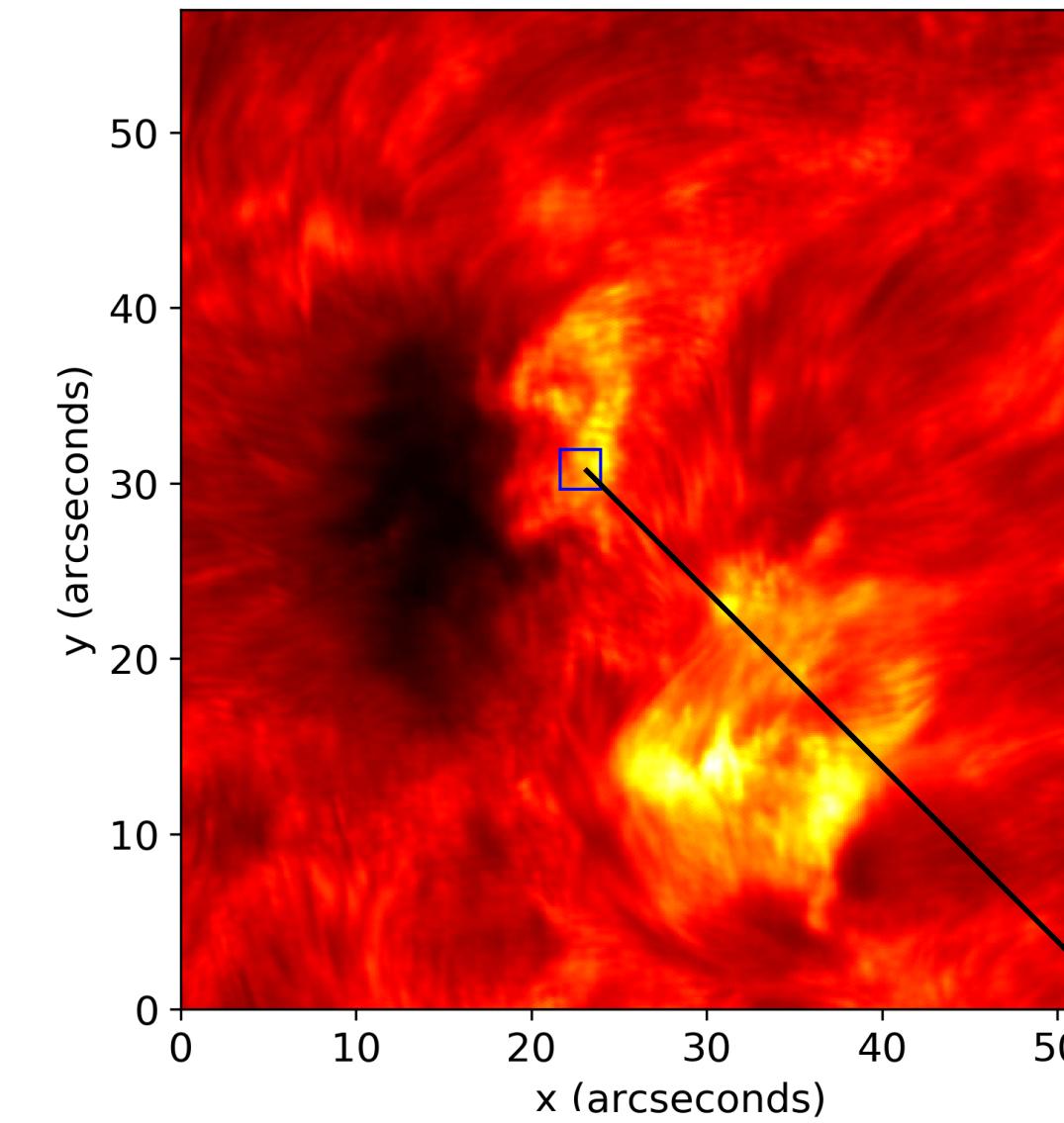
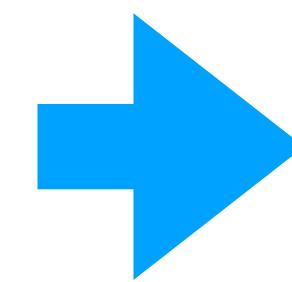
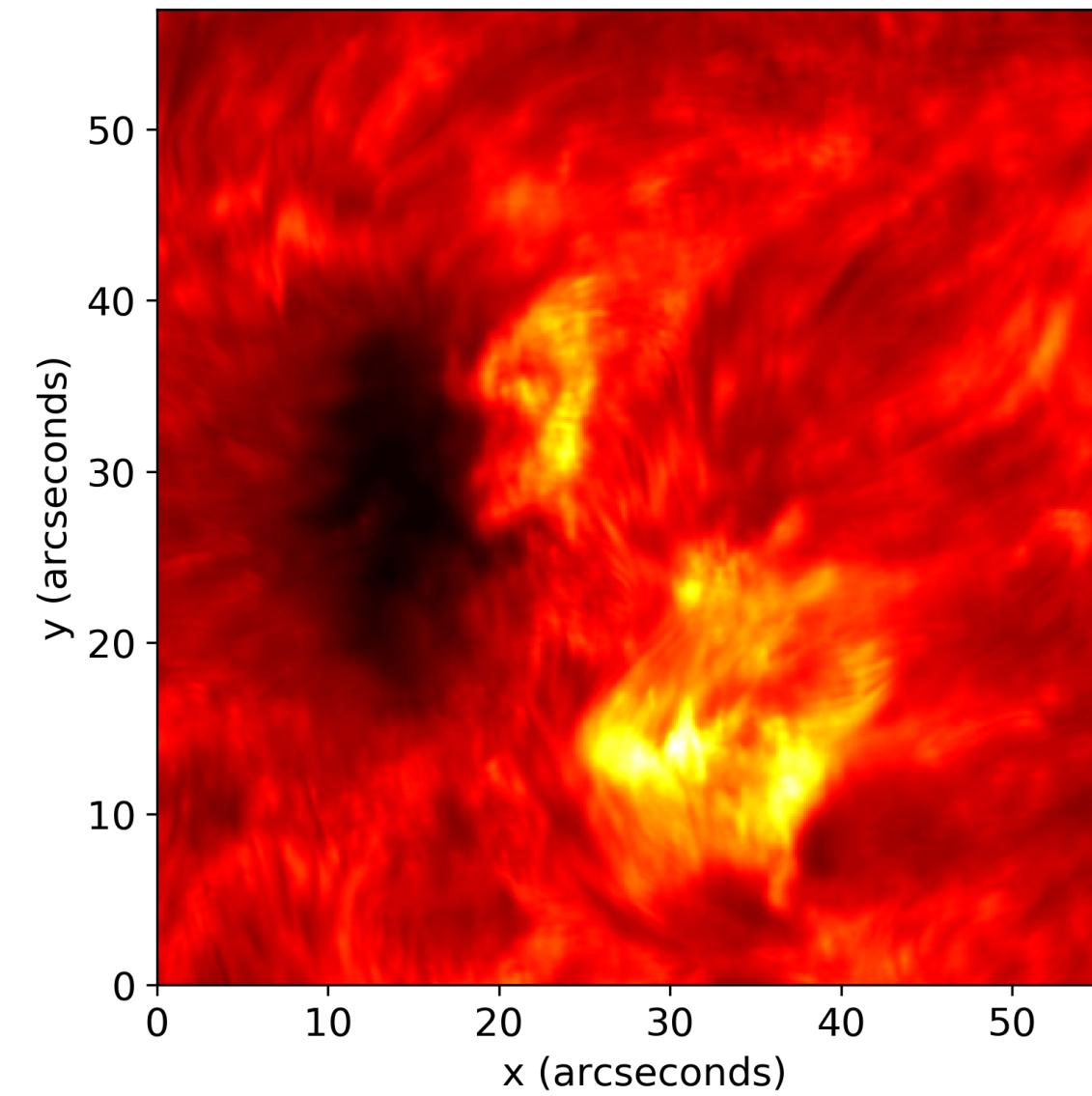
0.976

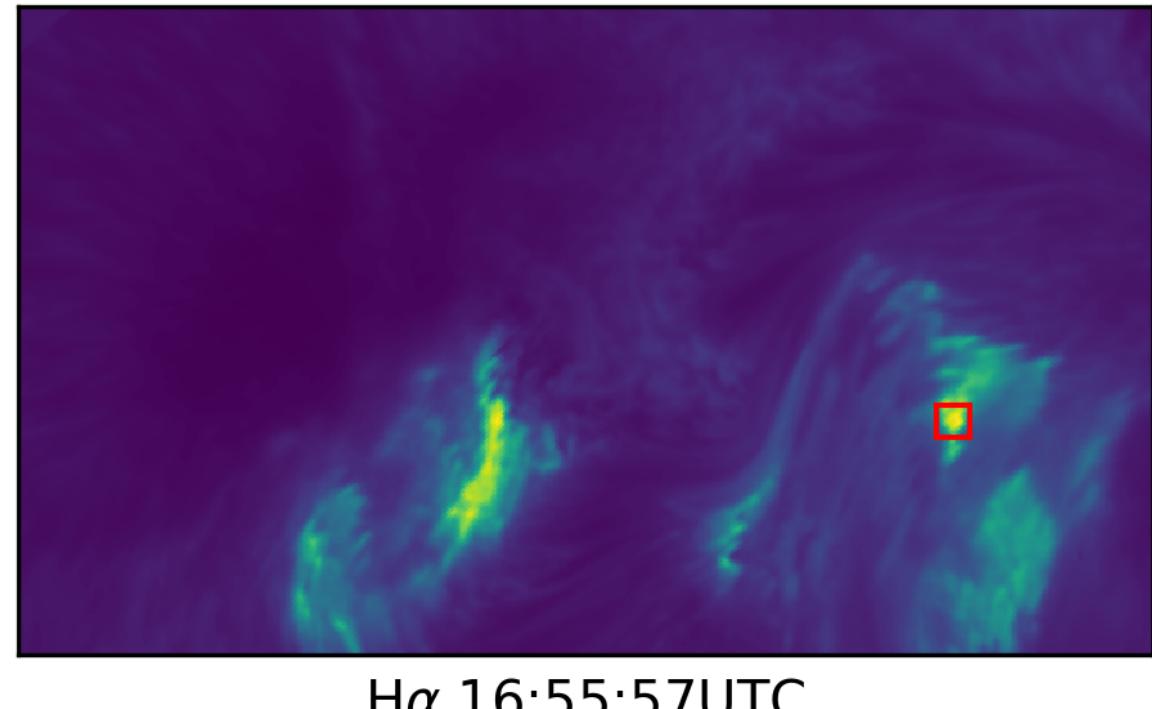
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0.997

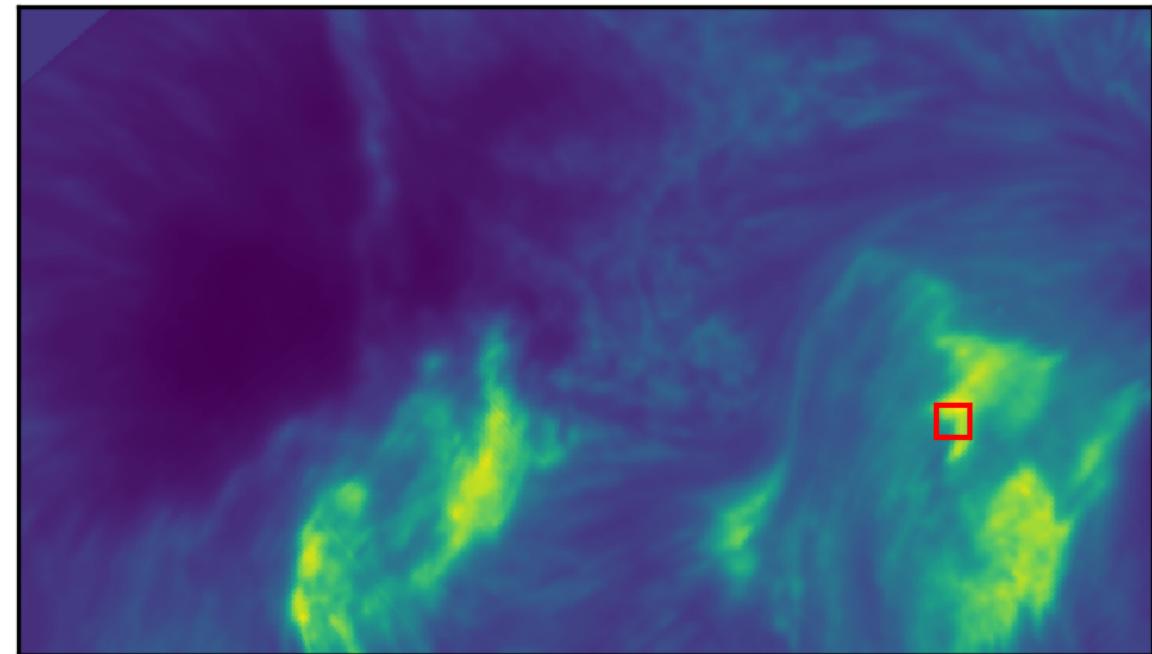


Correcting for Atmospheric Seeing in Flare Observations

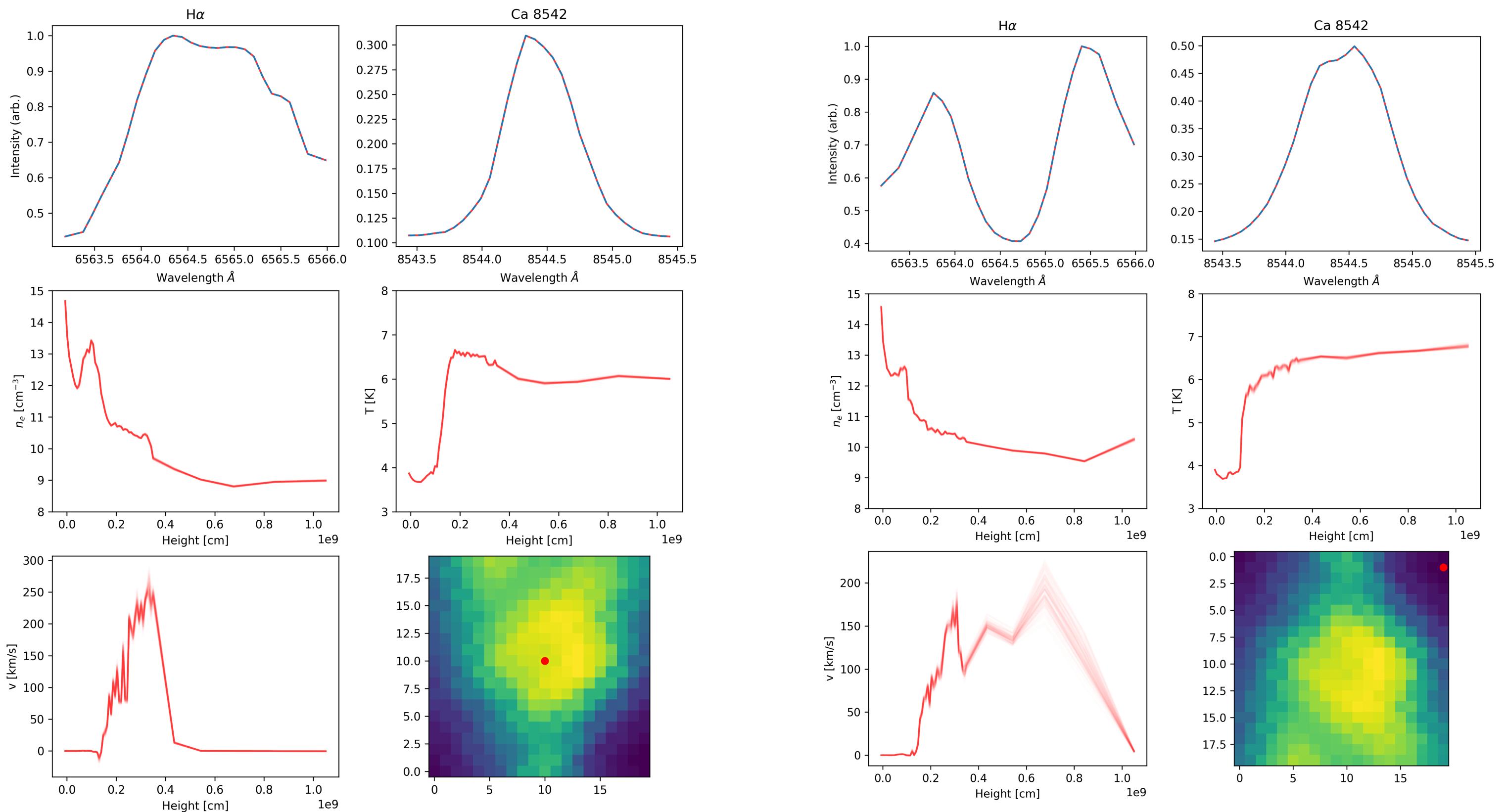




H α 16:55:57UTC



Ca II 16:56:02UTC



- Set up flare inversion to work on all pixels in an image
- Perform inversion on all available flare datasets to see if there are velocity shift patterns across the chromosphere during a flare
- Include more line profiles in inversion model to better constrain the chromosphere/corona transition region and the corona itself
- Use instance segmentation to track post-flare ribbons
- Set up pipeline of correcting for seeing → tracking → inversion