

Roseland  
Centre  
for Solar  
Physics

# An IRIS Optically Thin View of the Dynamics of the Solar Chromosphere

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IRIS-9, Göttingen June 27 2018

IRIS-9, Göttingen, 25-29 June 2018

Contributed Talk

2. Chromospheric heating and dynamics

## An IRIS Optically Thin View of the Dynamics of the Solar Chromosphere

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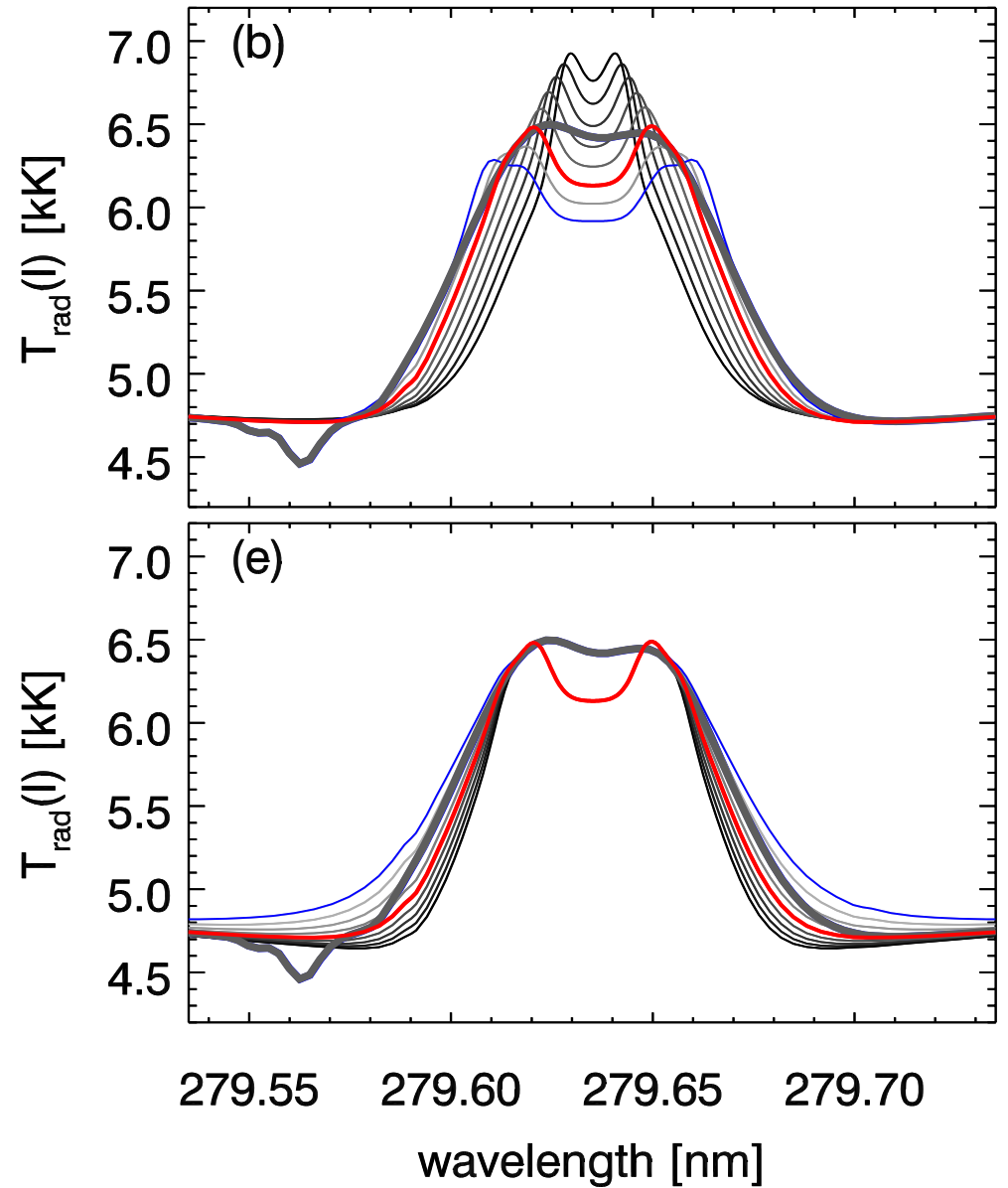
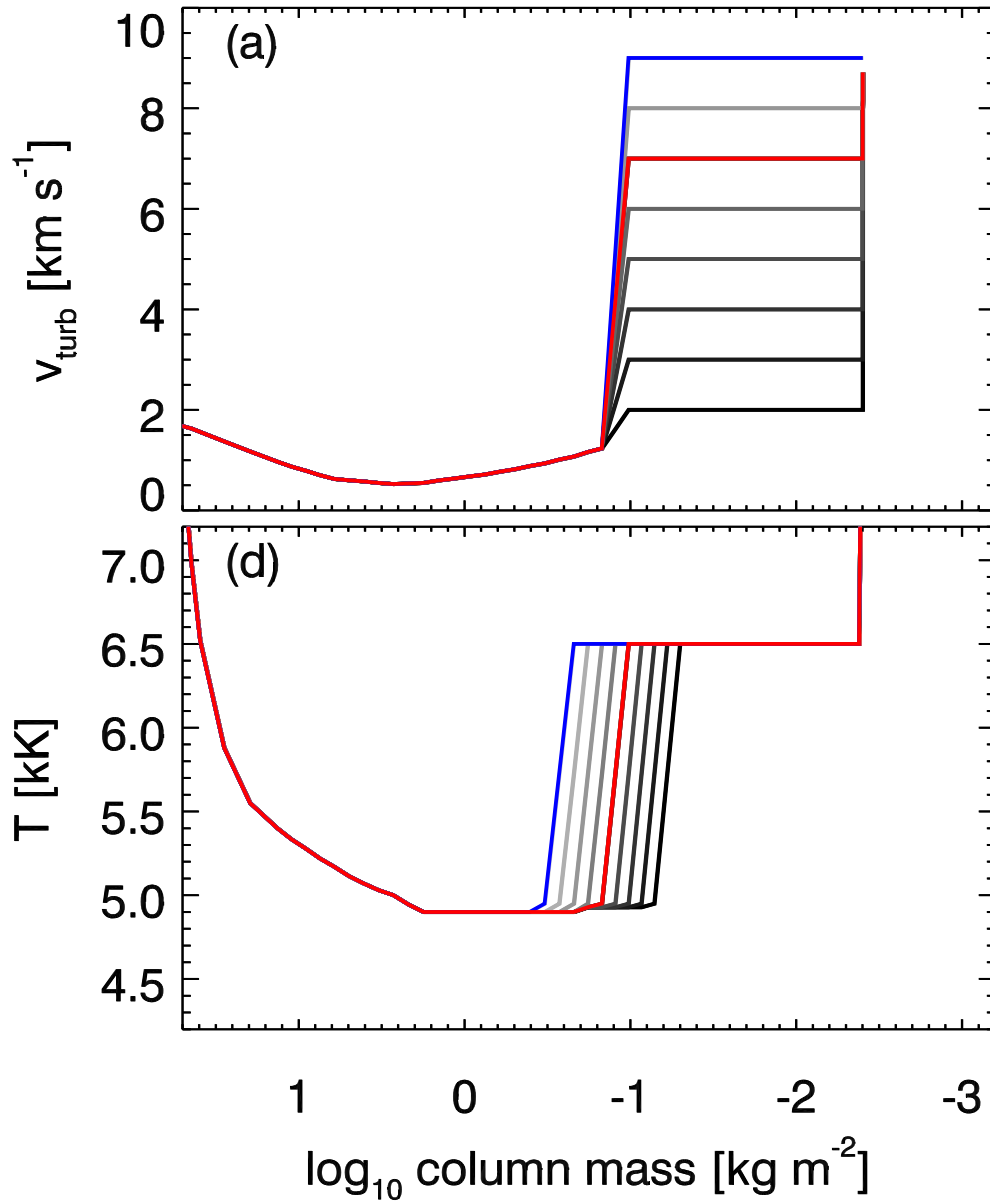
We analyze the formation of the O I 1356 and Cl I 1351 lines and show that they are formed in the mid-chromosphere and are optically thin. Their non-thermal line-widths are thus a direct measure of the velocity field along the line of sight. We use this insight to analyze a large set of observations from the Interface Region Imaging Spectrograph (IRIS) to study the dynamics of the Solar Chromosphere.

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# T(z) vs V<sub>turb</sub>

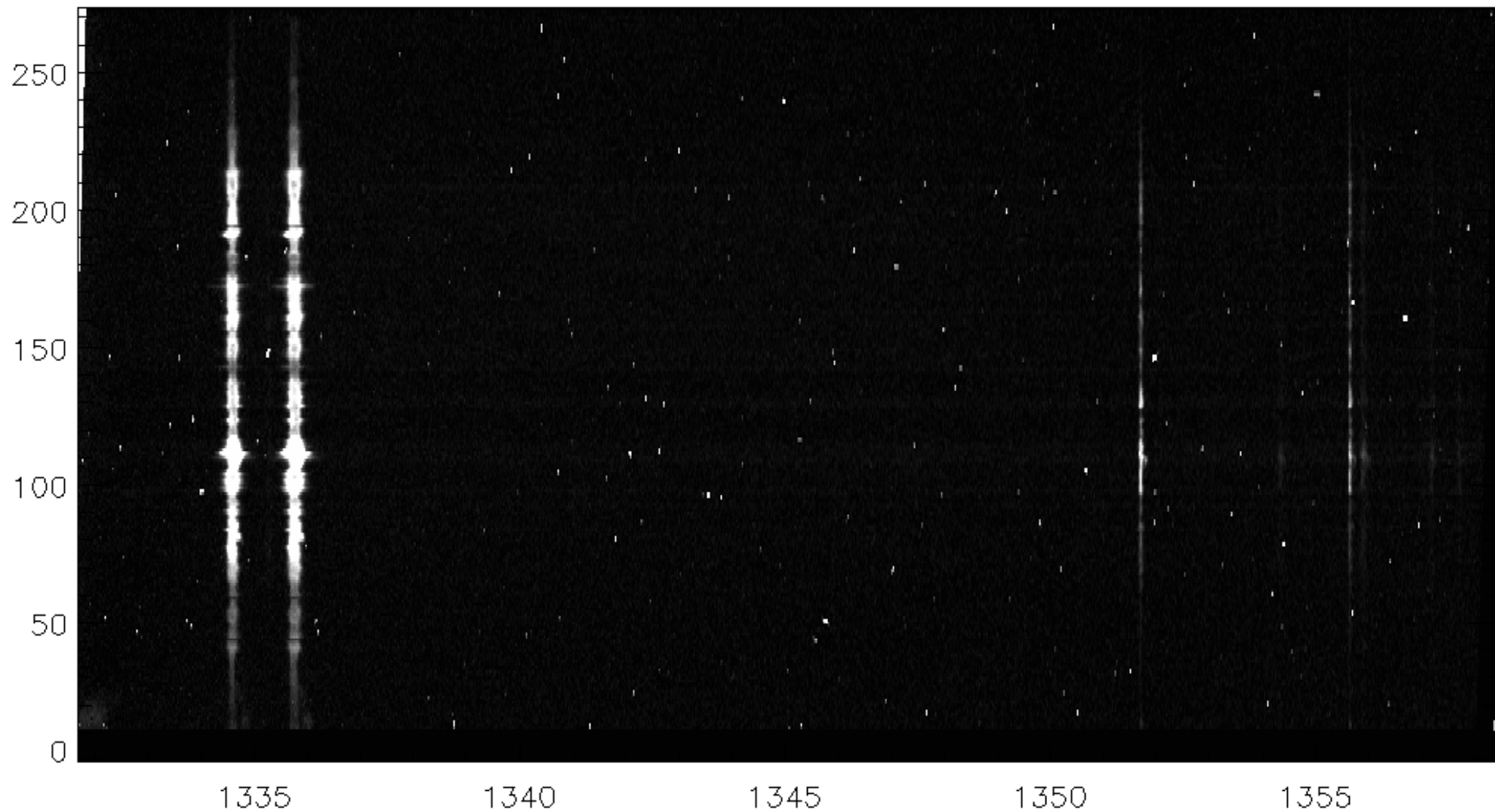


R ● C S

C II  
1334.5 1335.7

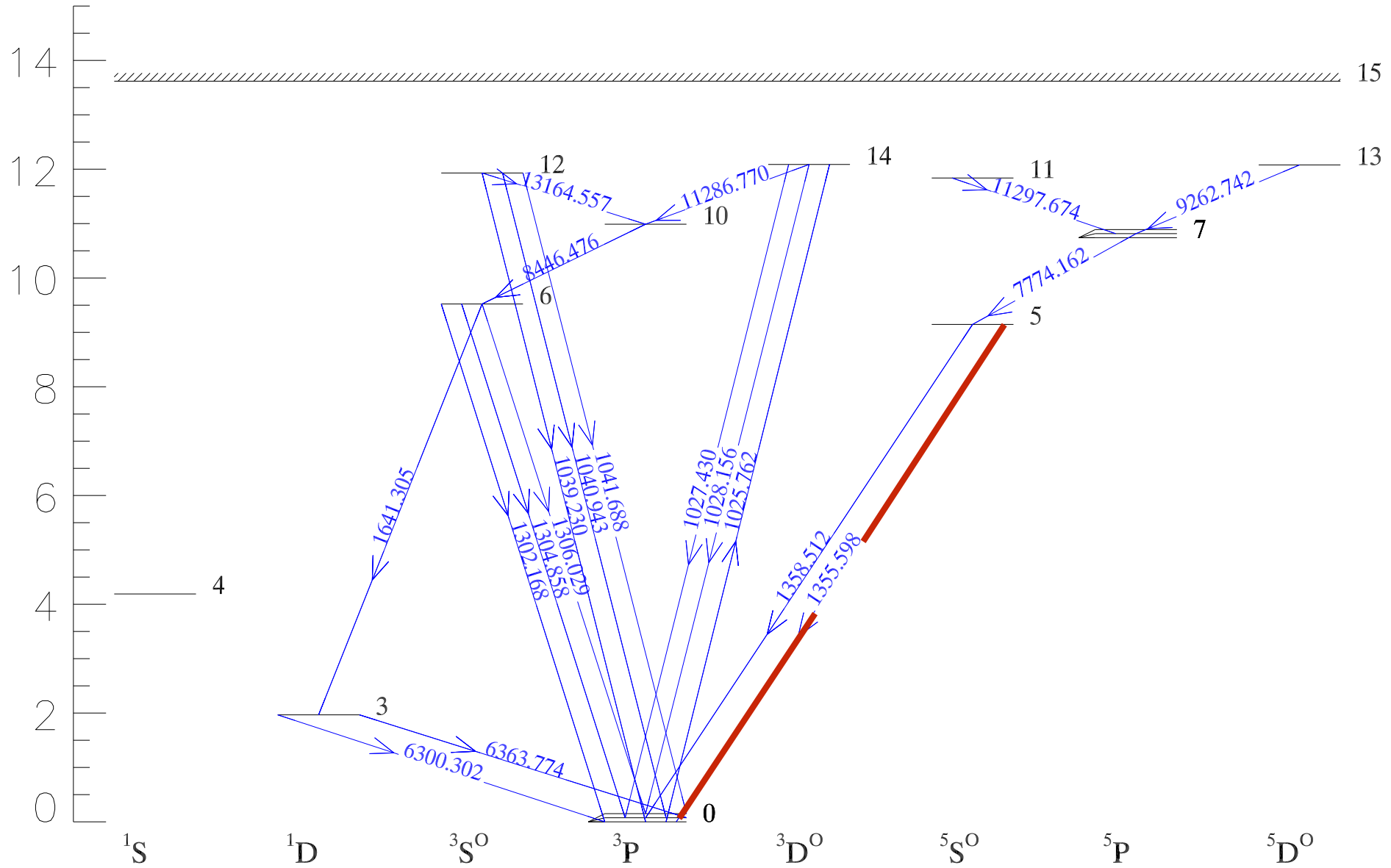
C I  
1351.6

O I  
1355.6



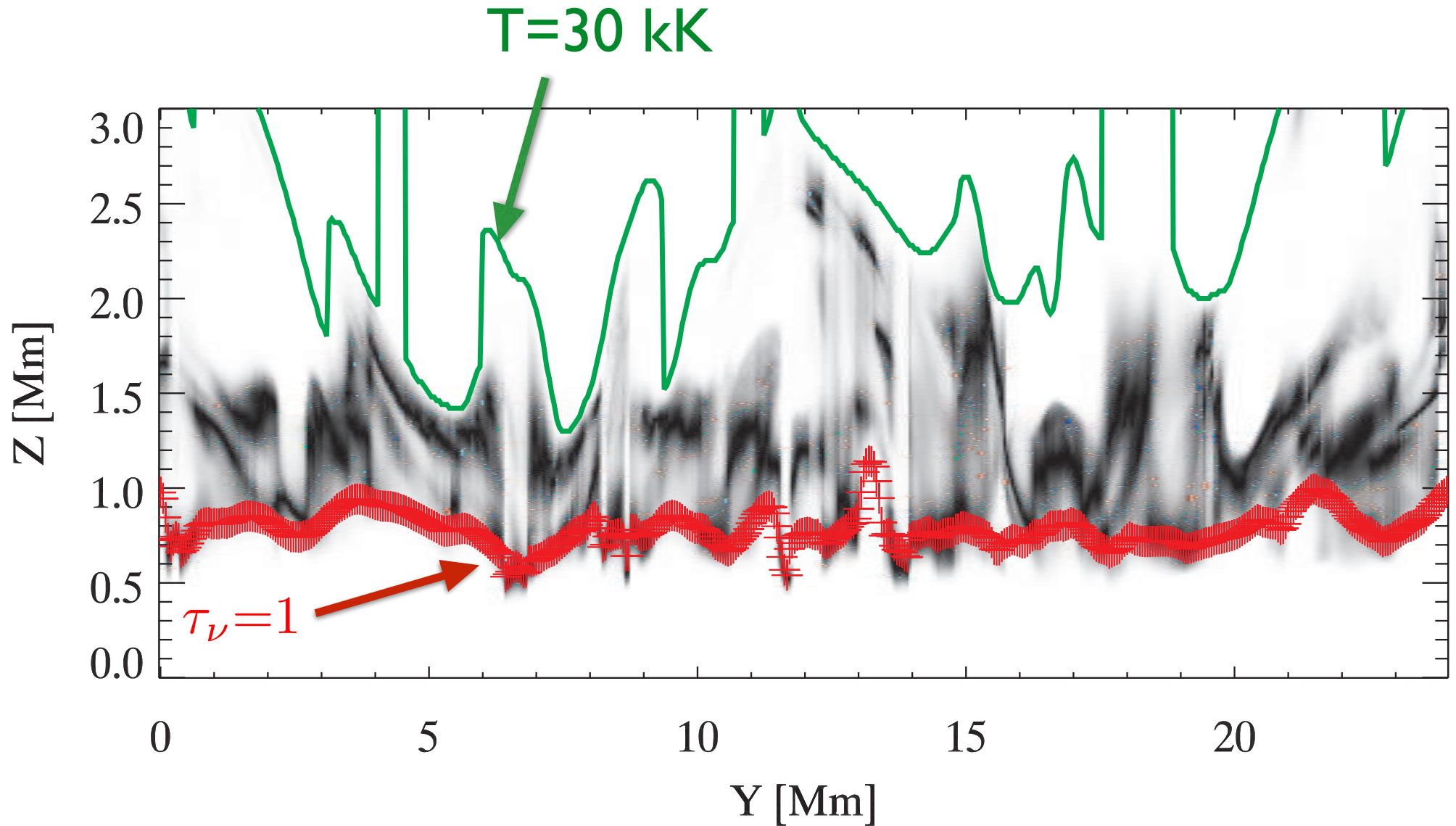
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# O I 1356



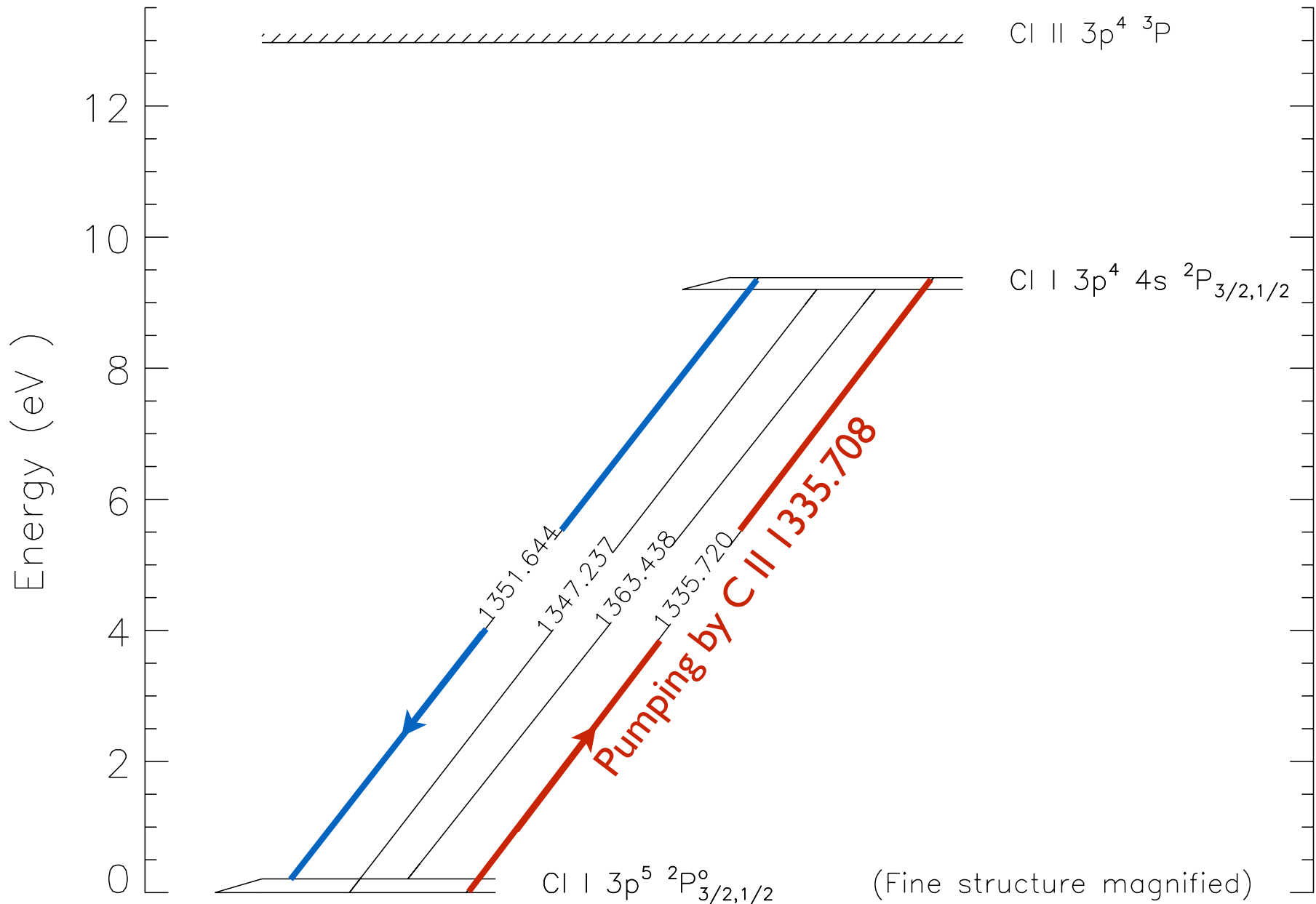
R ● C S

# O I 1356: Optically thin formation



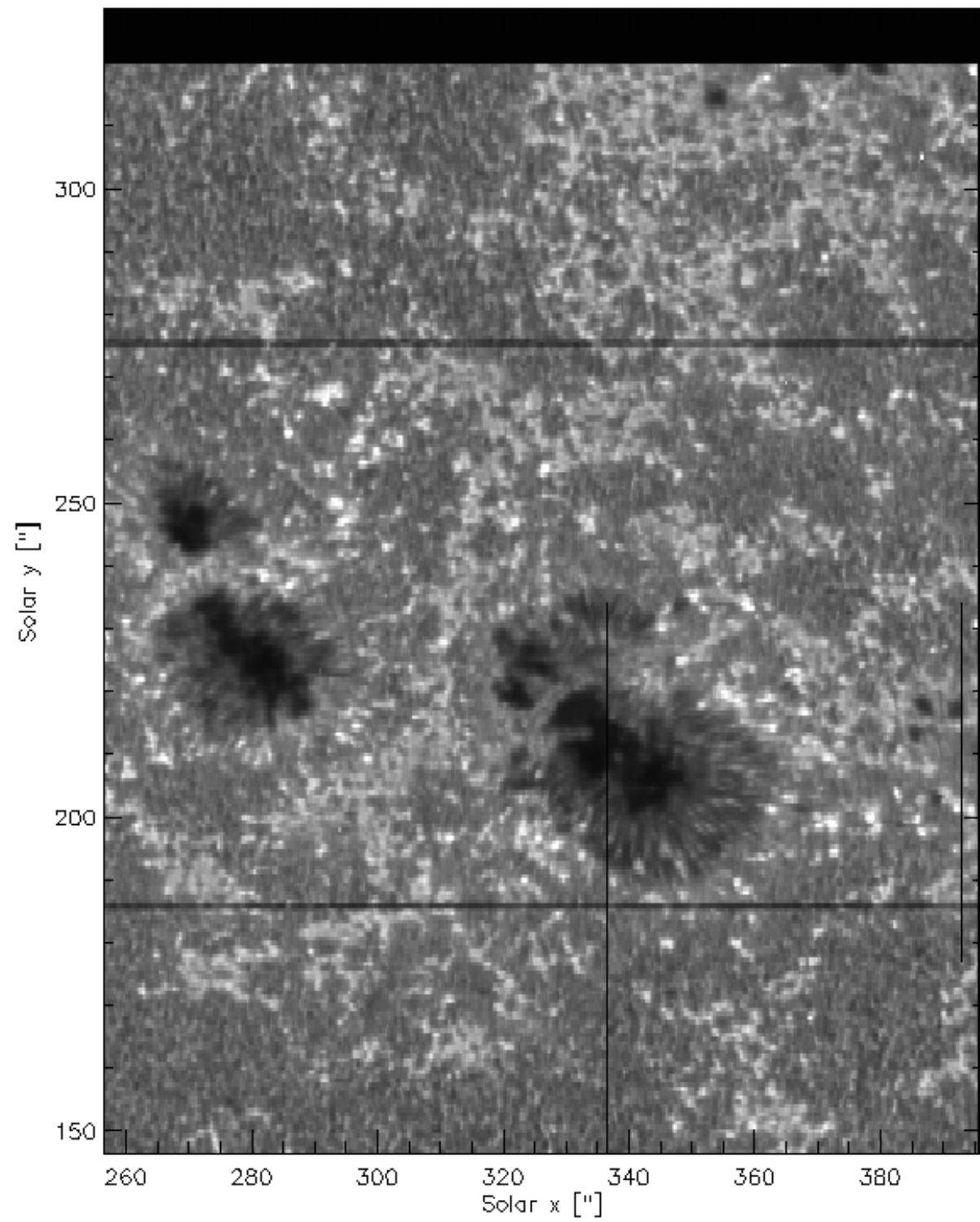
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# Cl I 1351.7

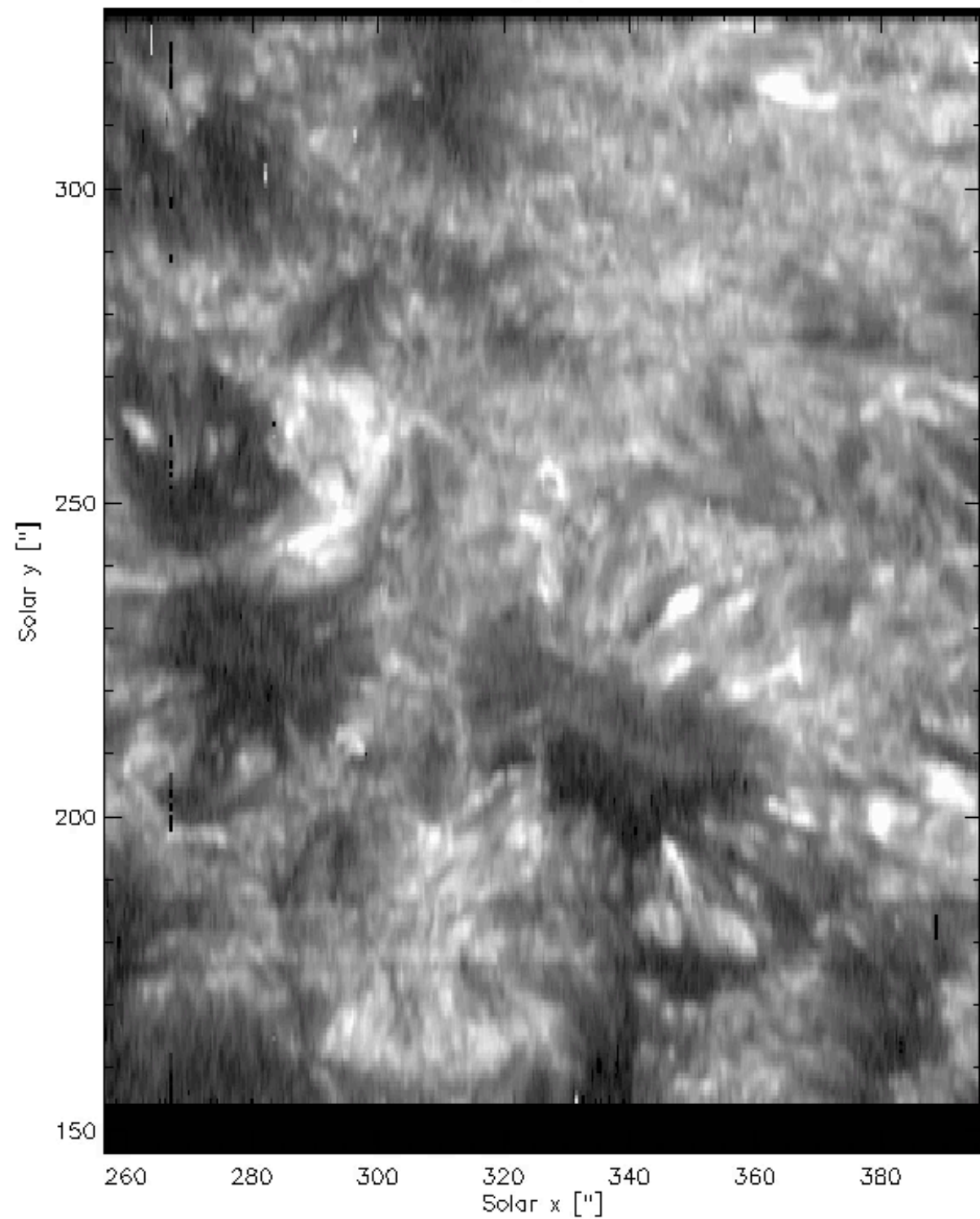


R ● C S



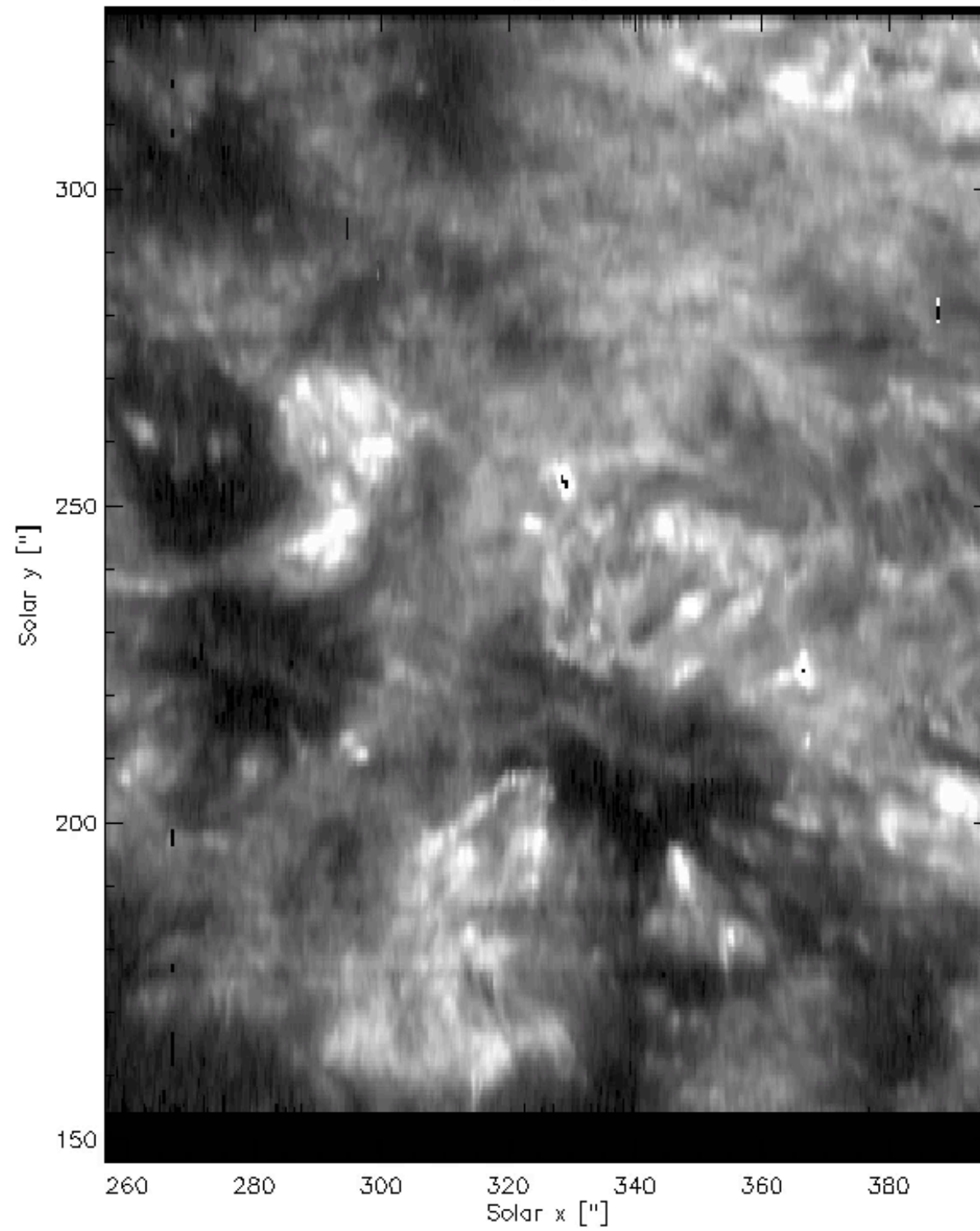


O I I



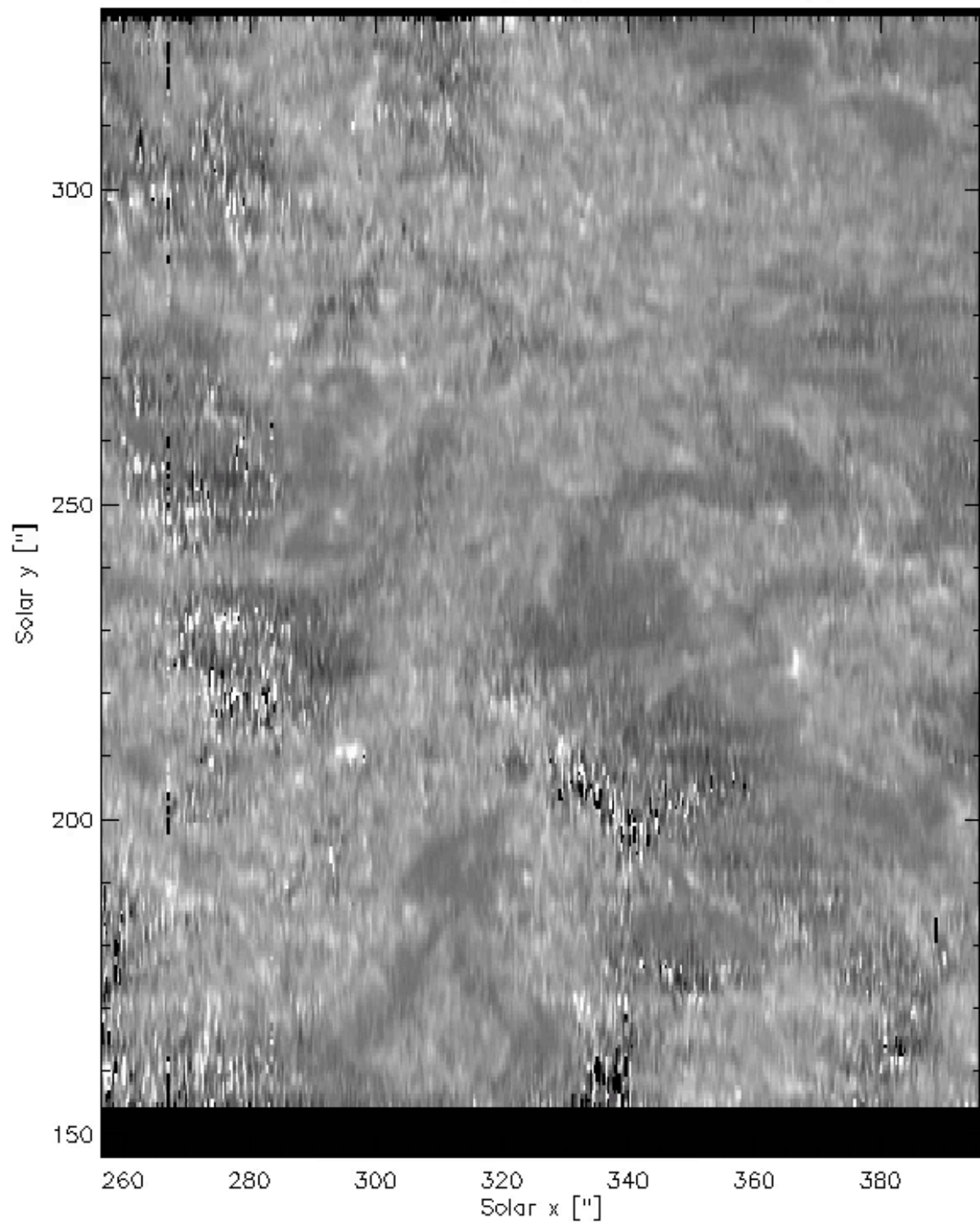
R ● C S

Cl I I

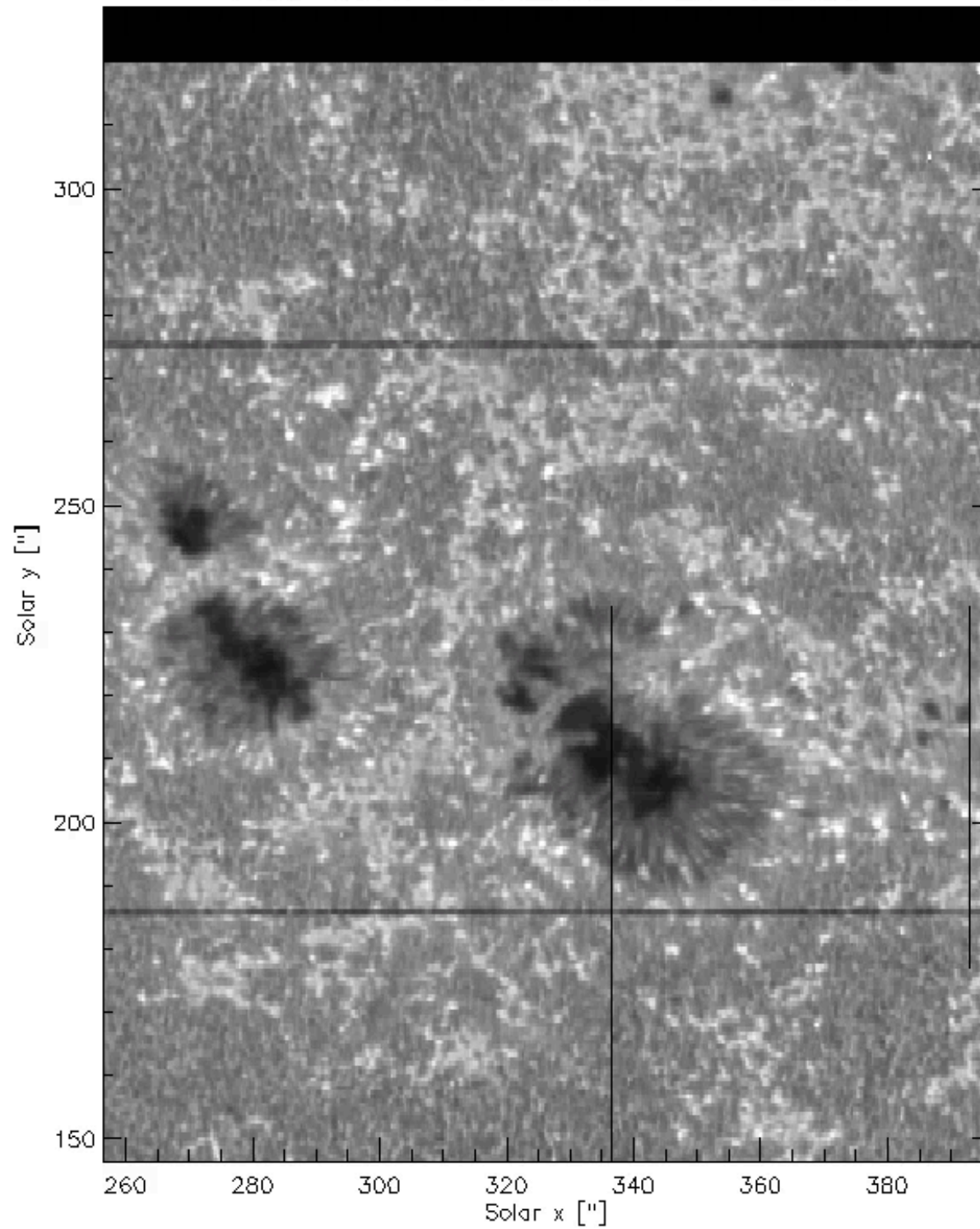


R ● C S

O I w

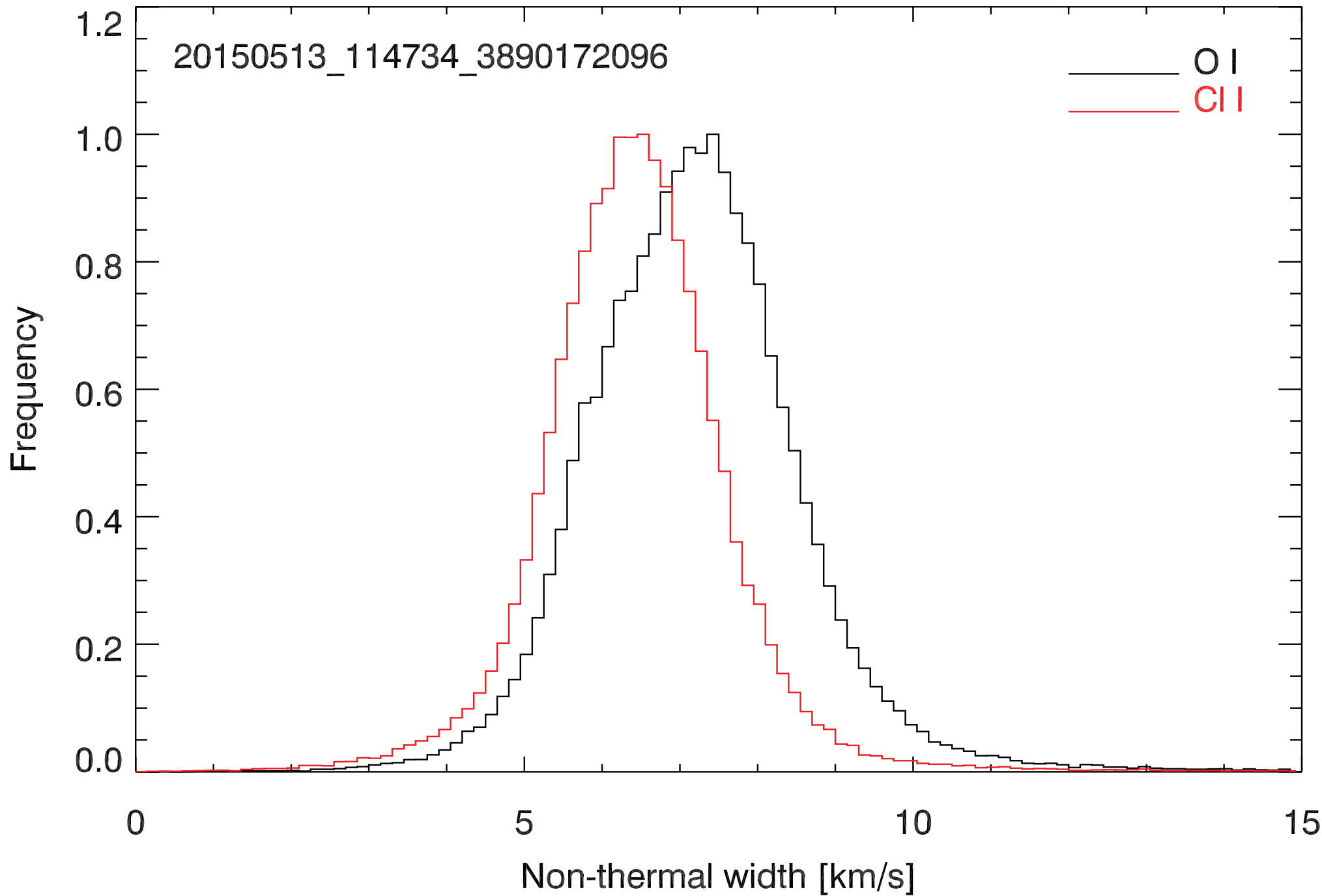


R ● C S



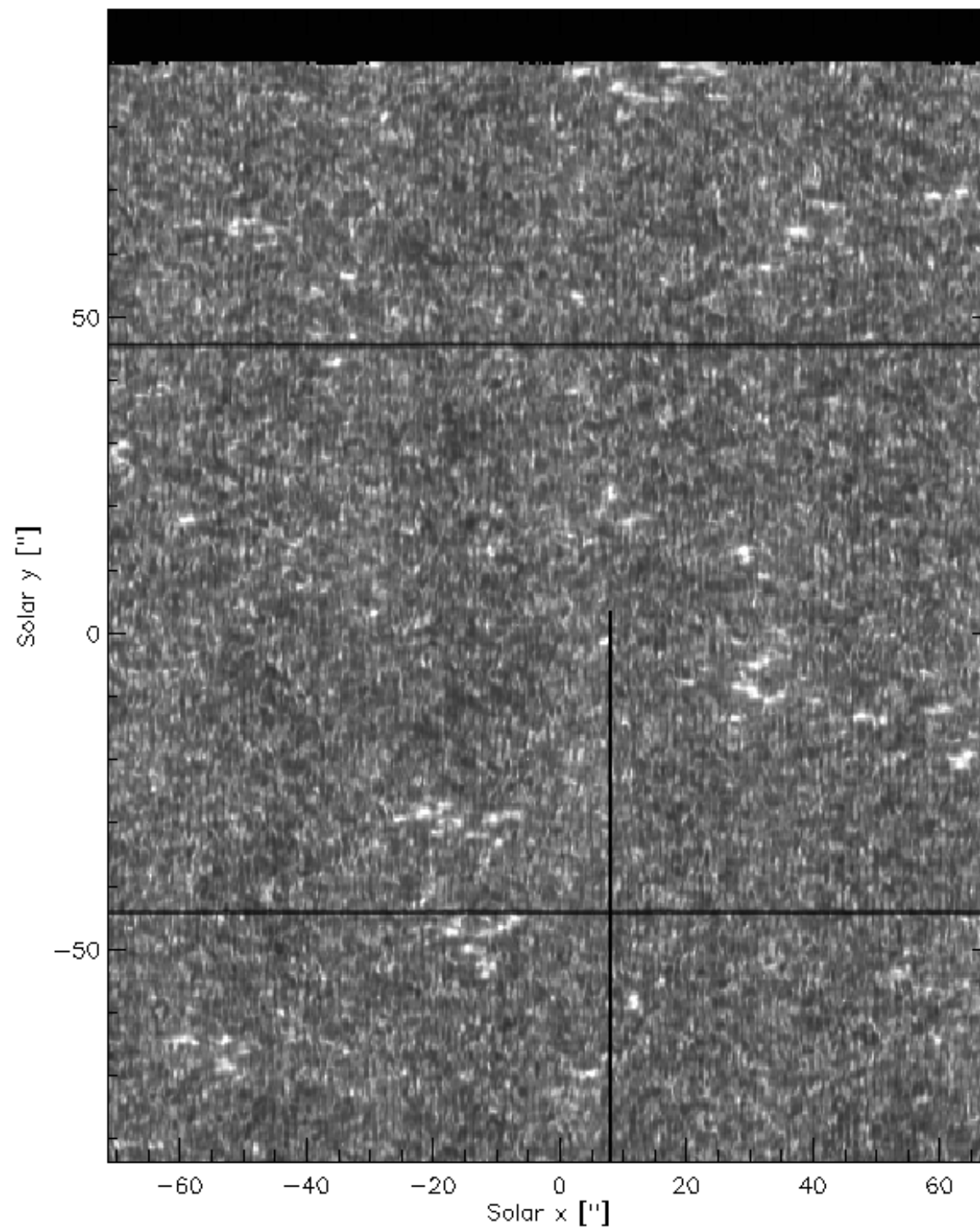
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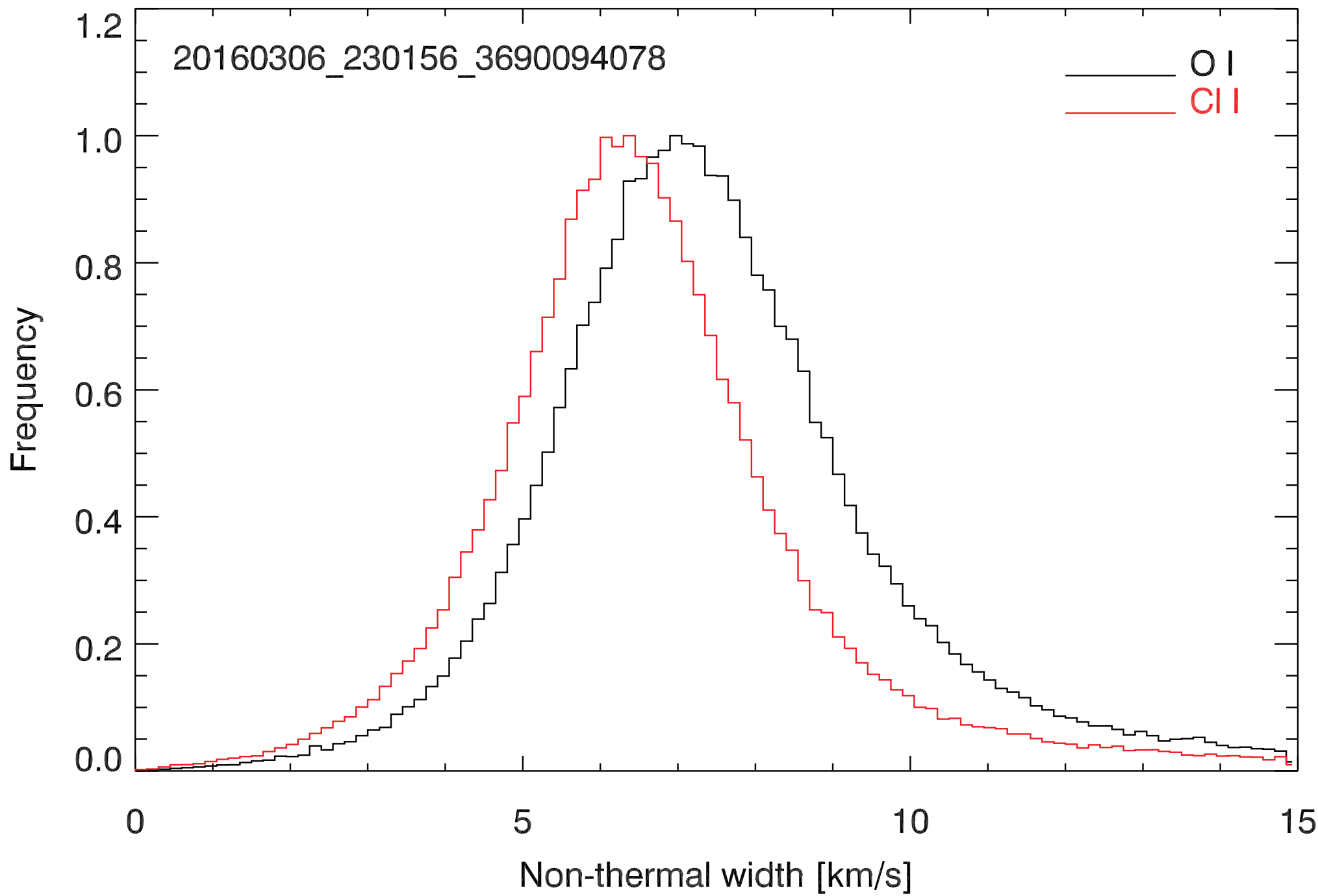
O I  
C II



R ● C S

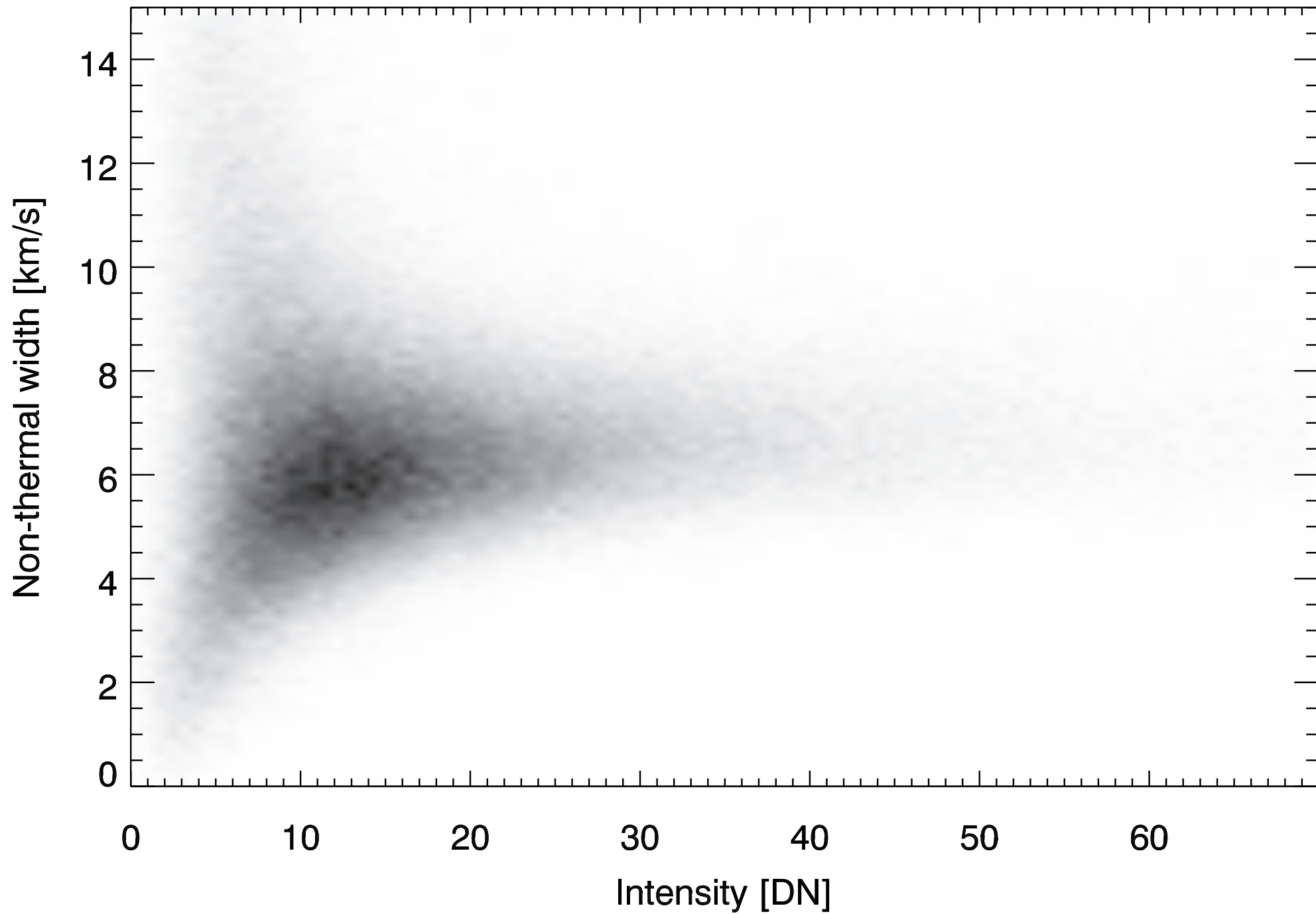
QS





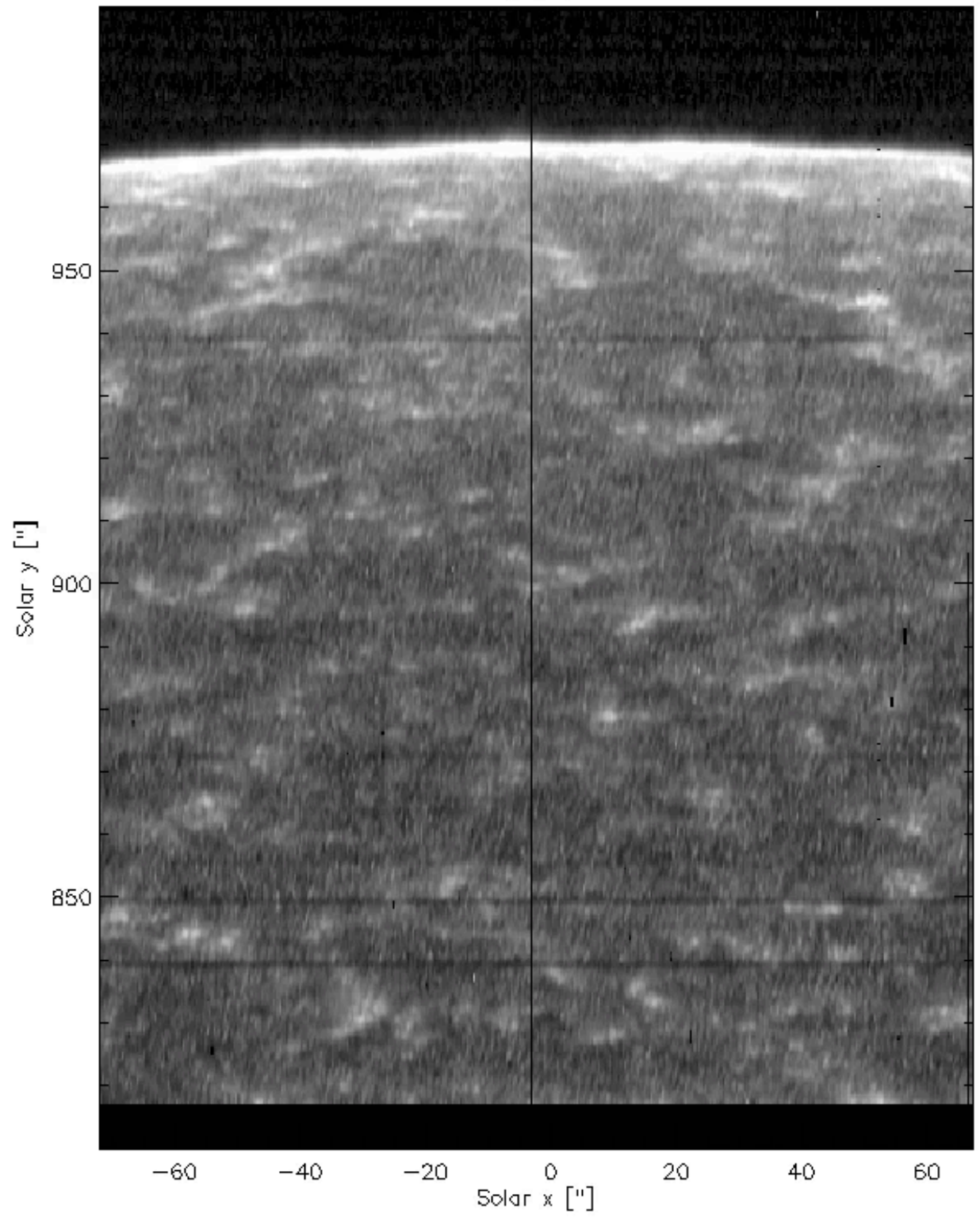
R ● C S





R ● C S

O I I



R ● C S

# Conclusions

- OI 1356 optically thin
- CII 1352 mostly thin at disk centre, not at limb
- Plage:  $V_{\text{turb}}=6$  km/s, narrow distribution
- QS, internetwork:  $V_{\text{turb}}$  close to zero in darkest areas