

NLTE diagnostics (Inversions)

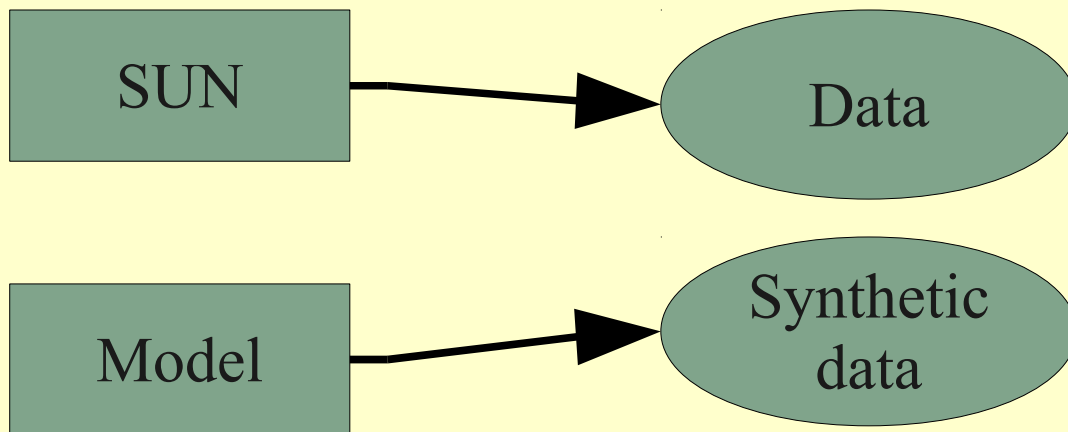
Mar-2010

Héctor Socas Navarro
Instituto de Astrofísica de Canarias

- The word “inversion” may be misleading

$$I(\lambda) = \int K(\lambda) A(x) dx$$

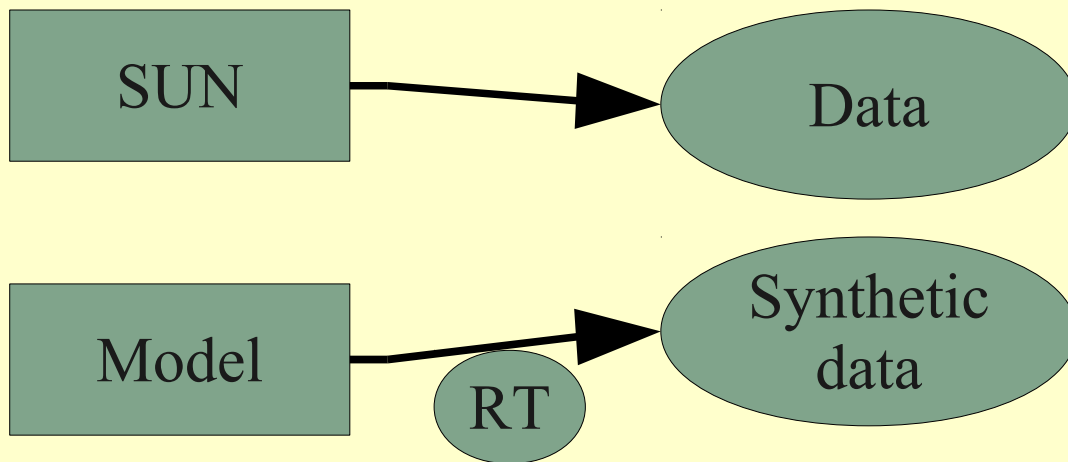
- Perhaps “fitting” is more appropriate



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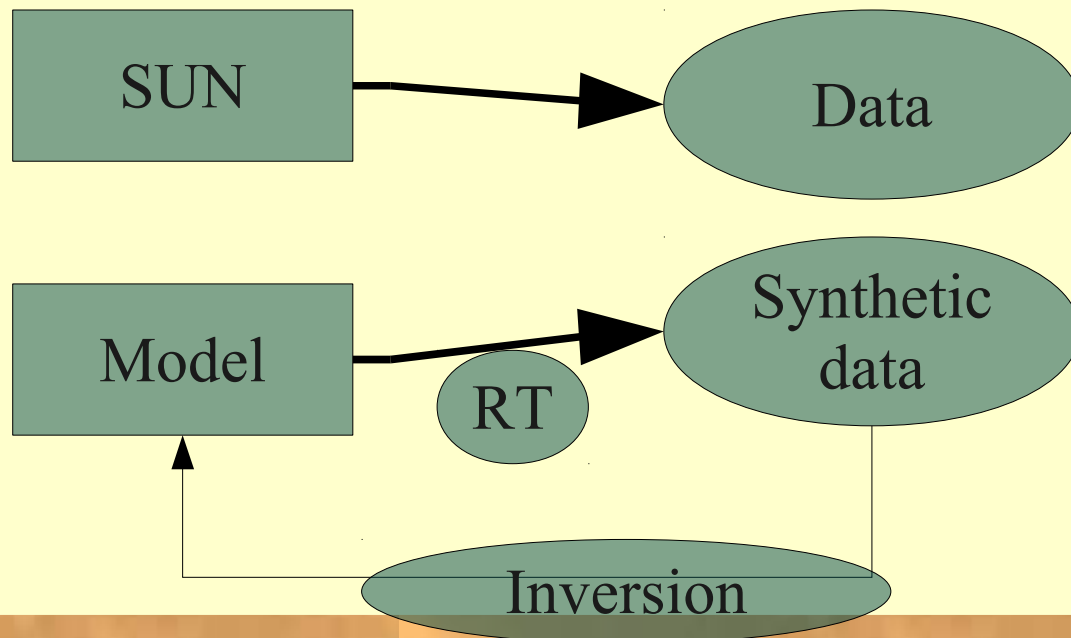
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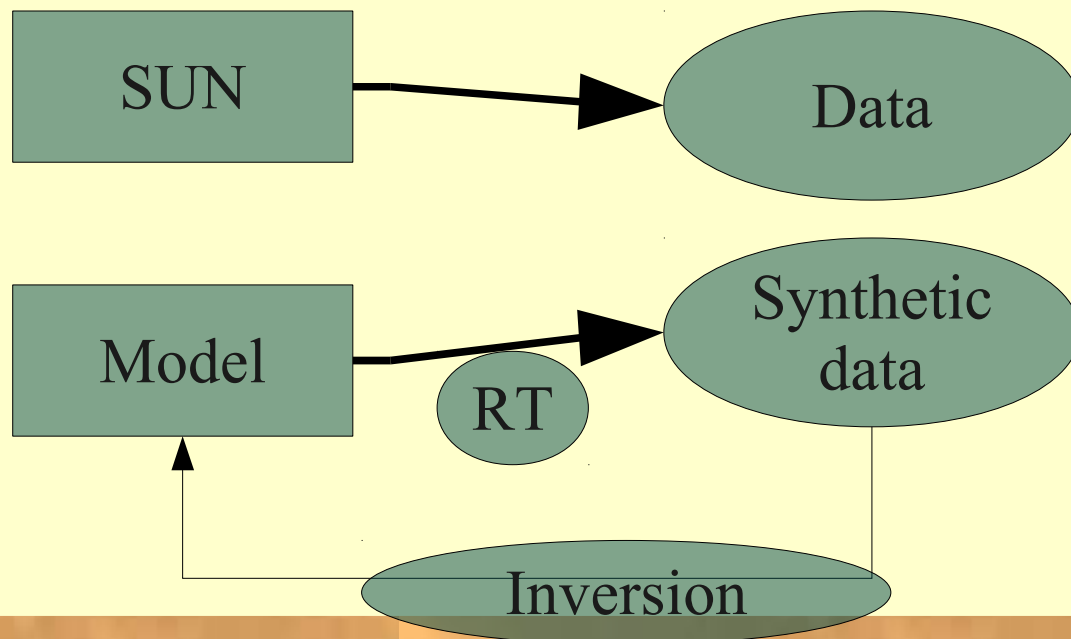
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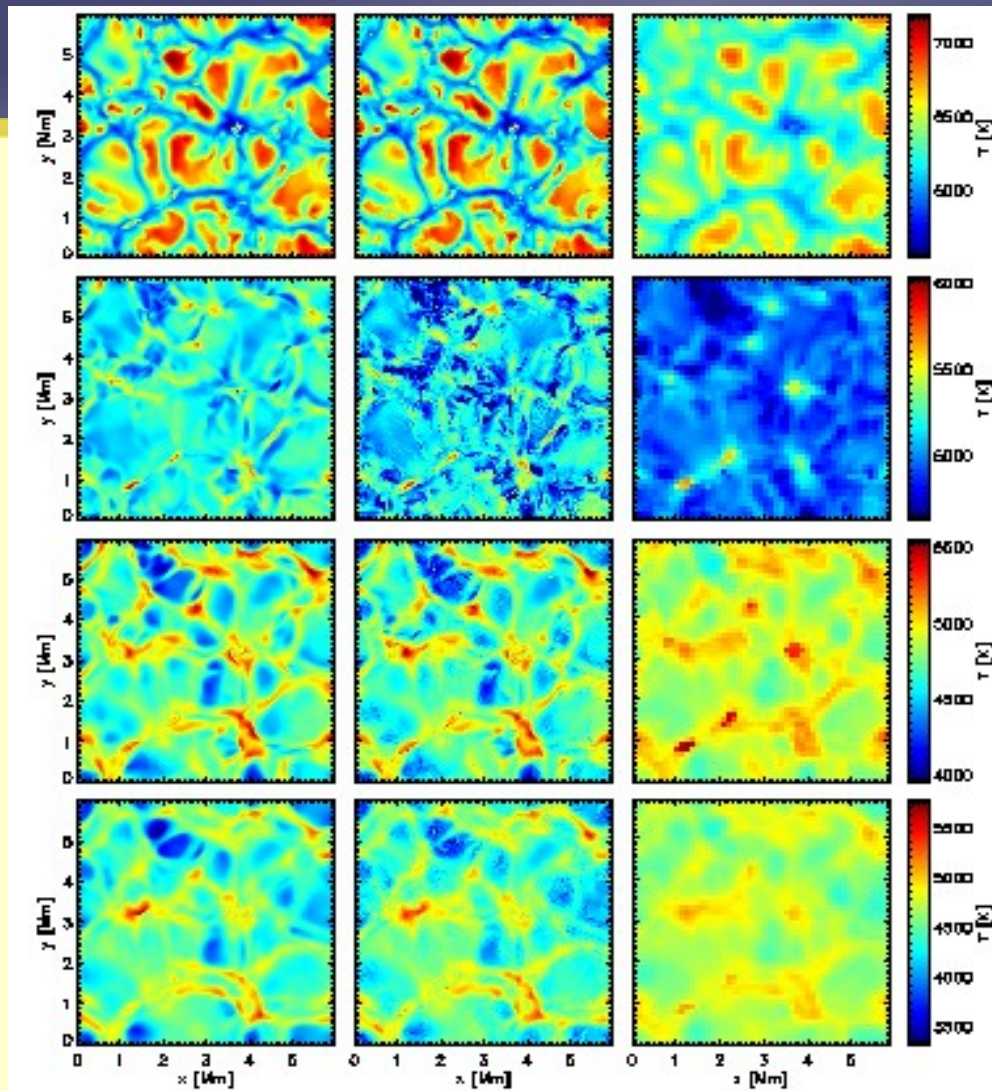
- Perhaps “fitting” is more appropriate



NICOLE RT:

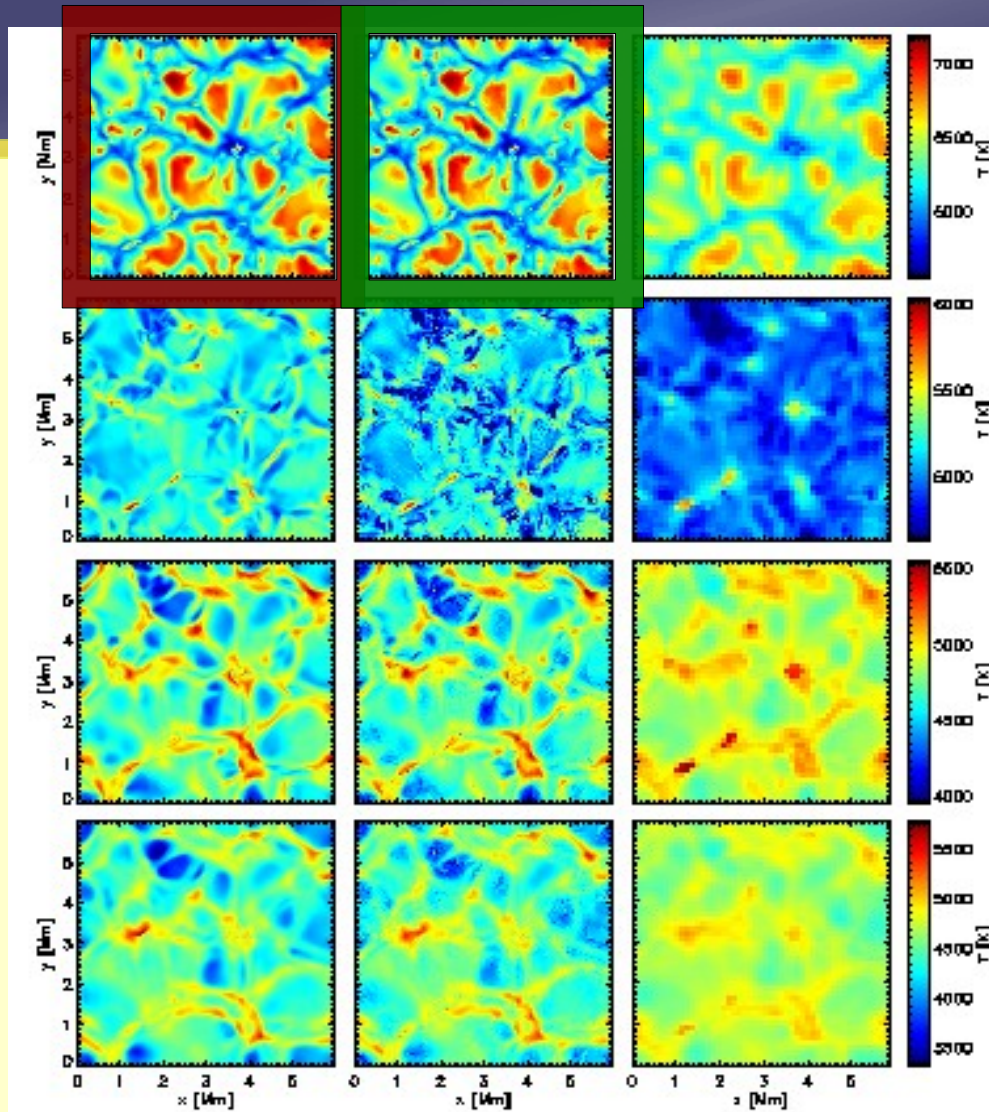
- Full NLTE 1 atom
- Blends (LTE)
- Stokes
- Time independent
- 1.5D

An illustration



“Real” Inversion Hinode

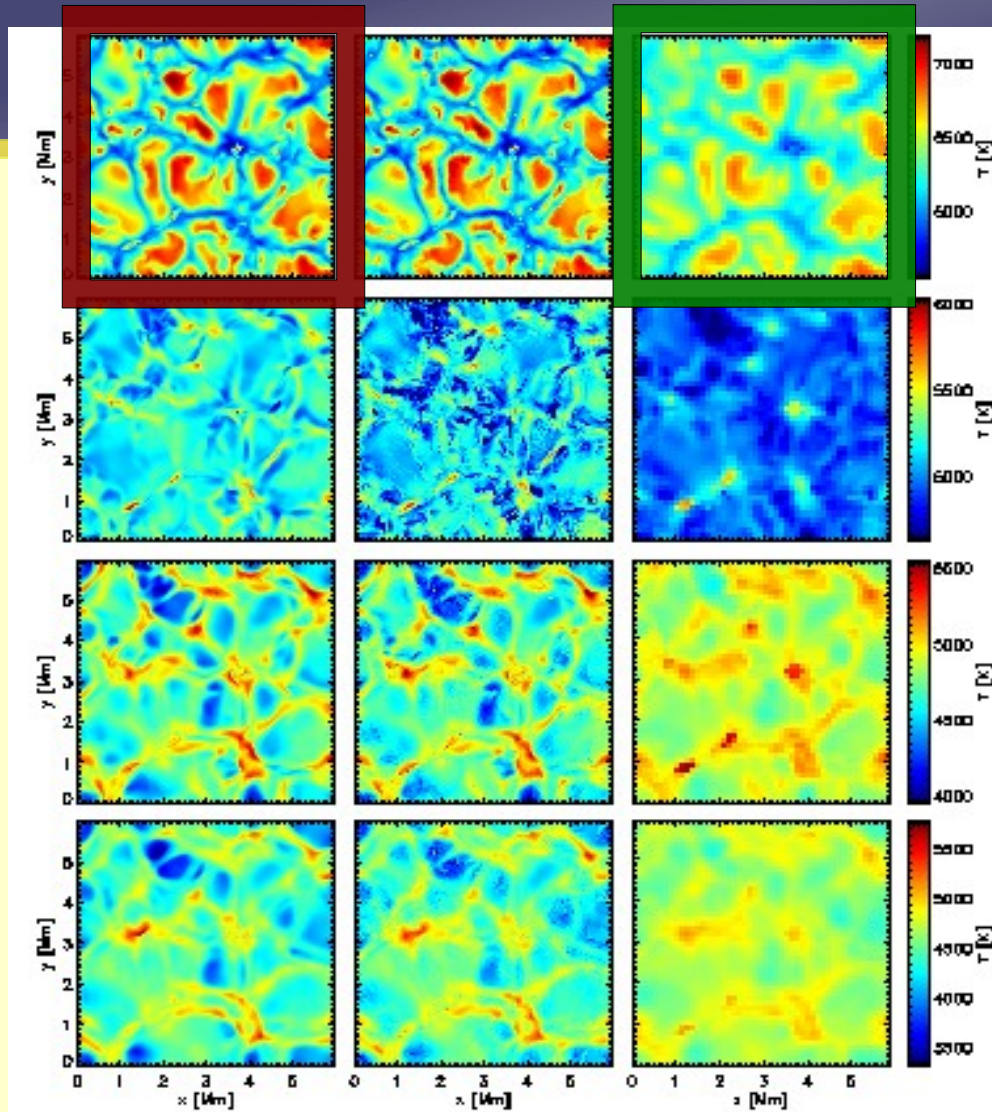
An illustration



“Real” Inversion Hinode

Limitations of the code

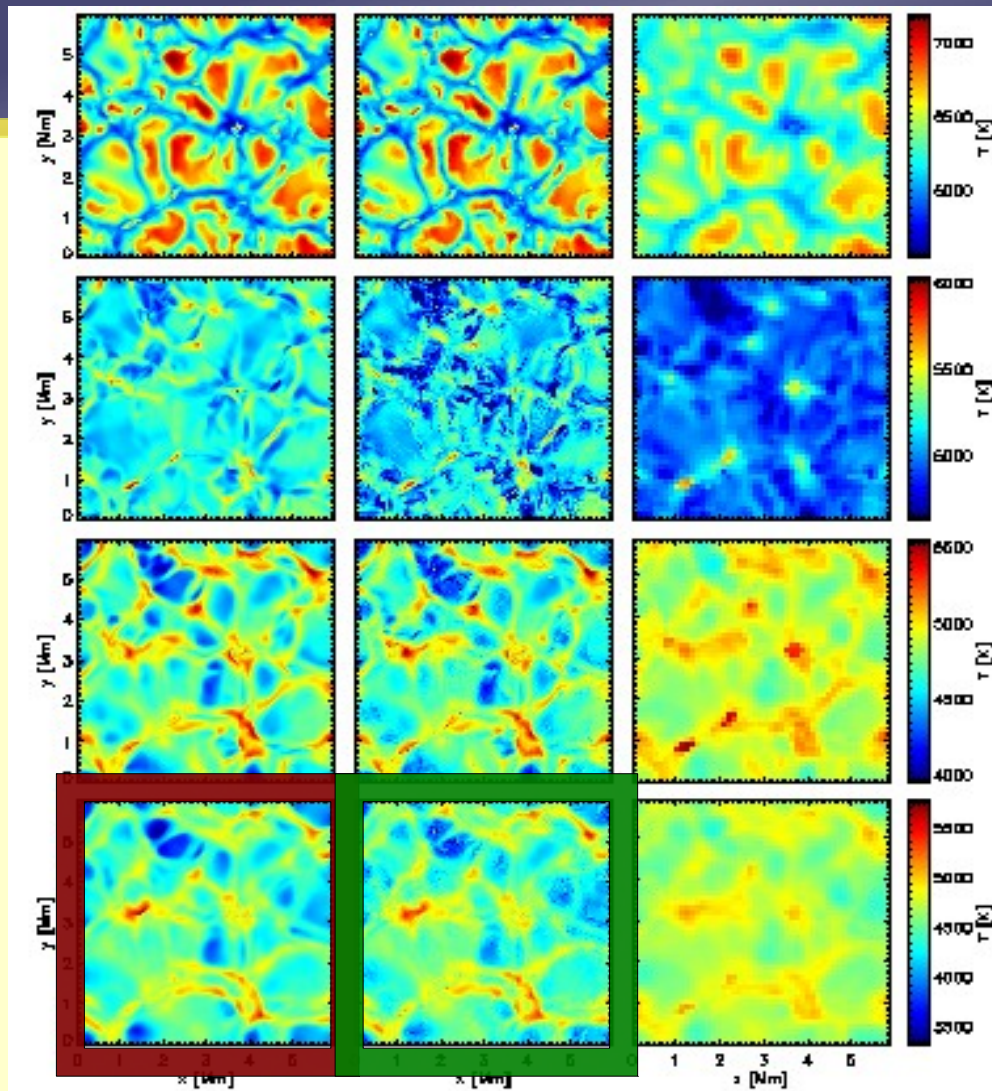
An illustration



“Real” Inversion Hinode

Limitations of the instrument

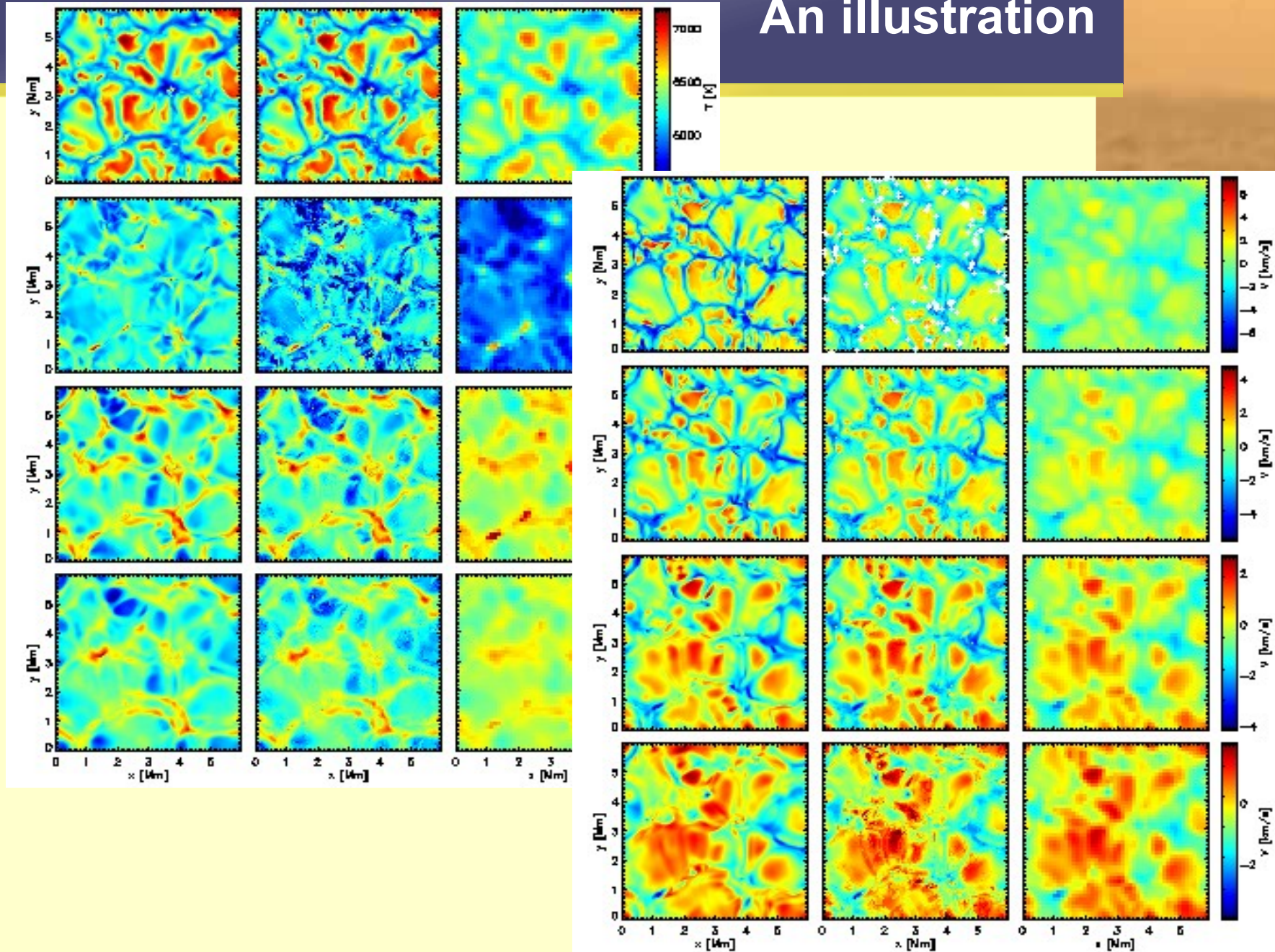
An illustration



“Real” Inversion Hinode

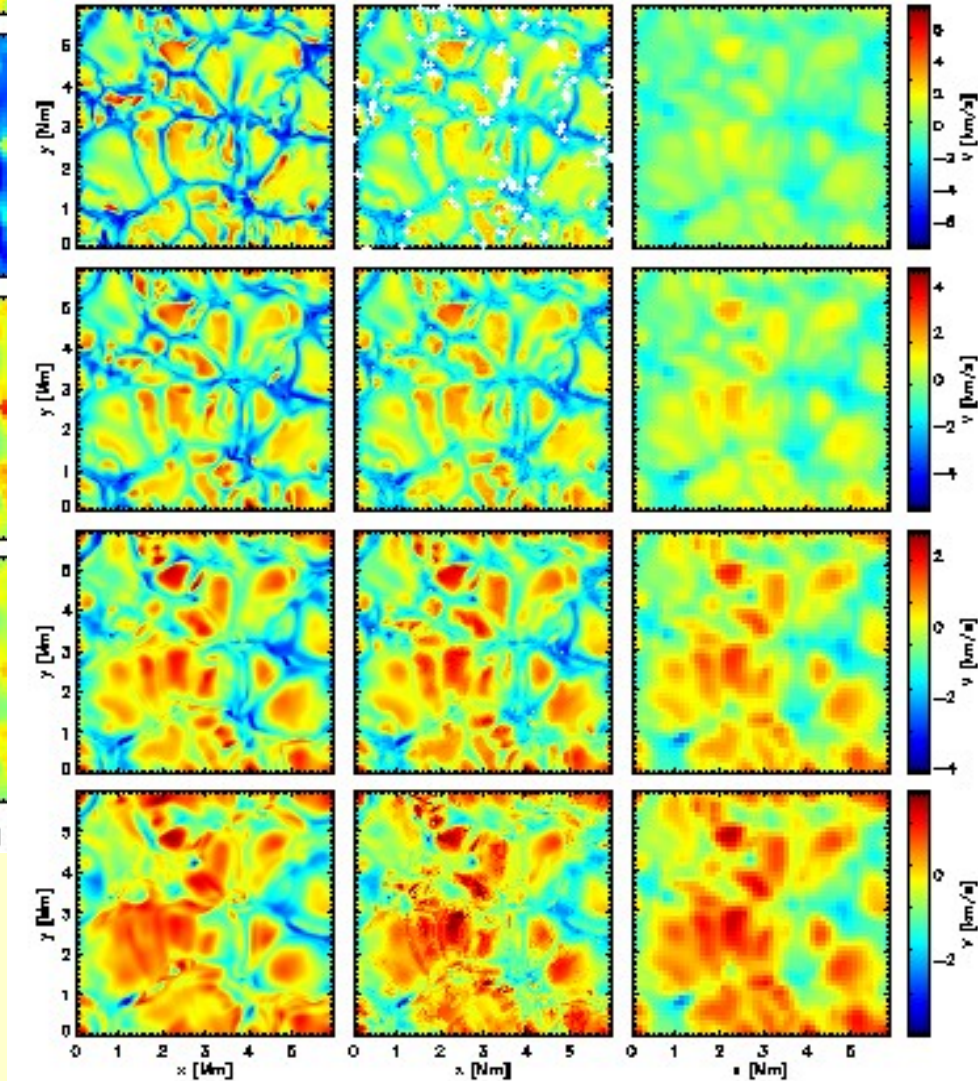
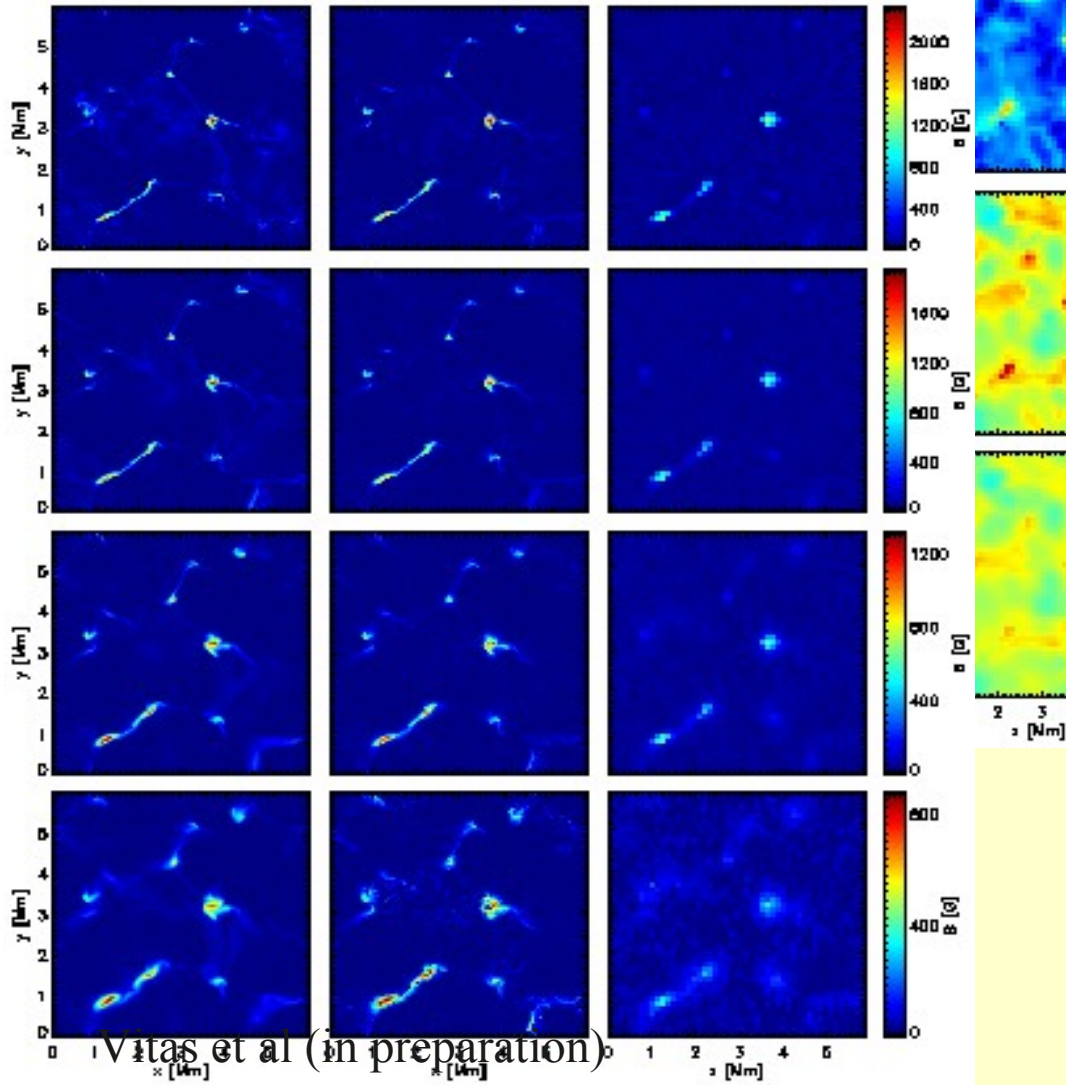
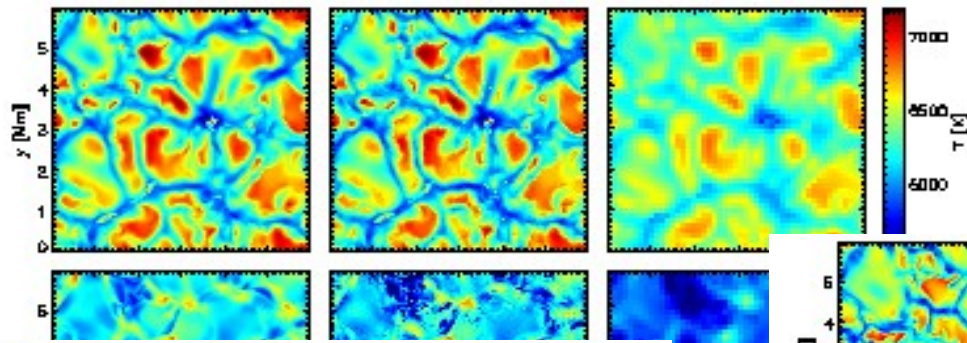
Limitations of the data

An illustration



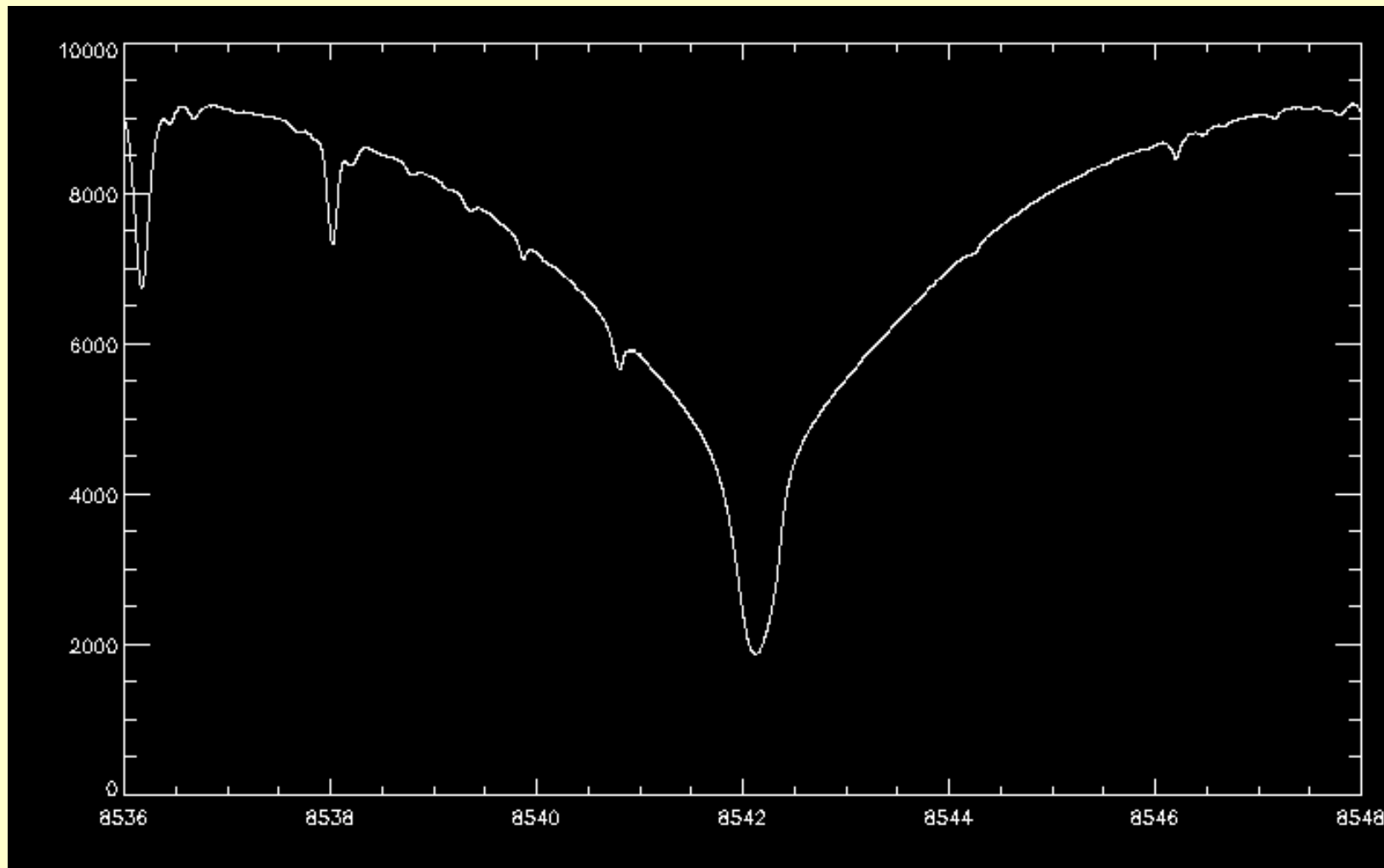
Vitas et al (in preparation)

An illustration

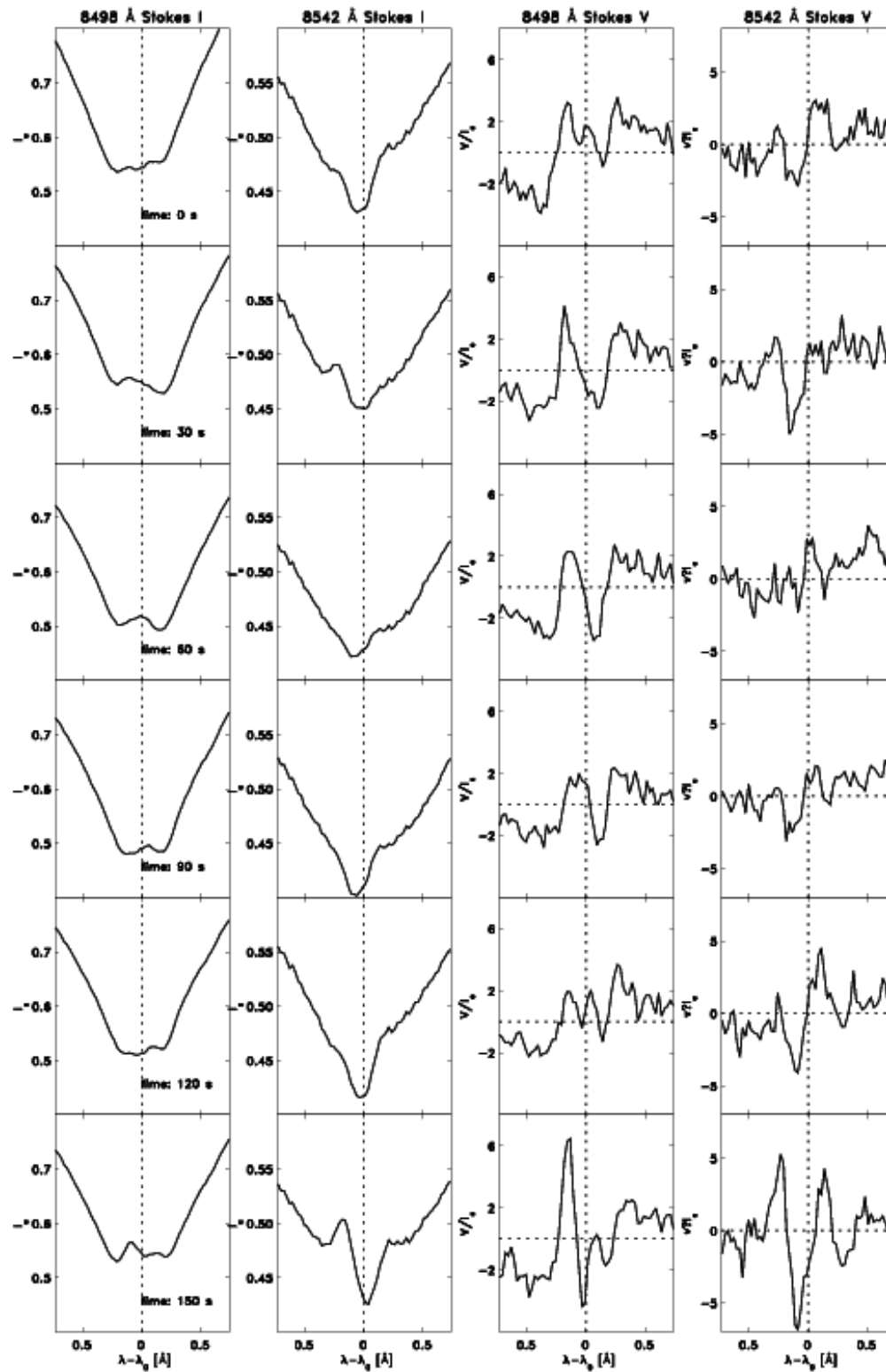
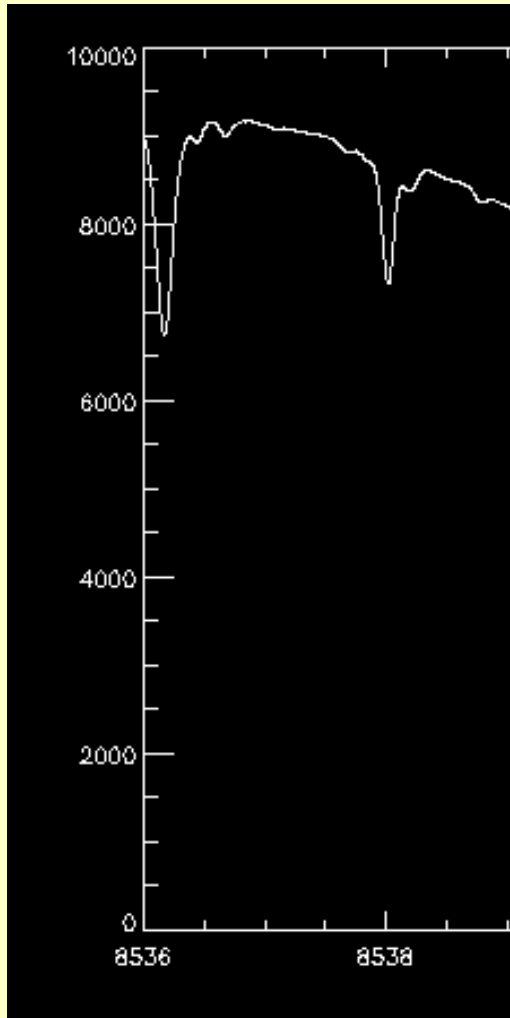


Vitas et al (in preparation)

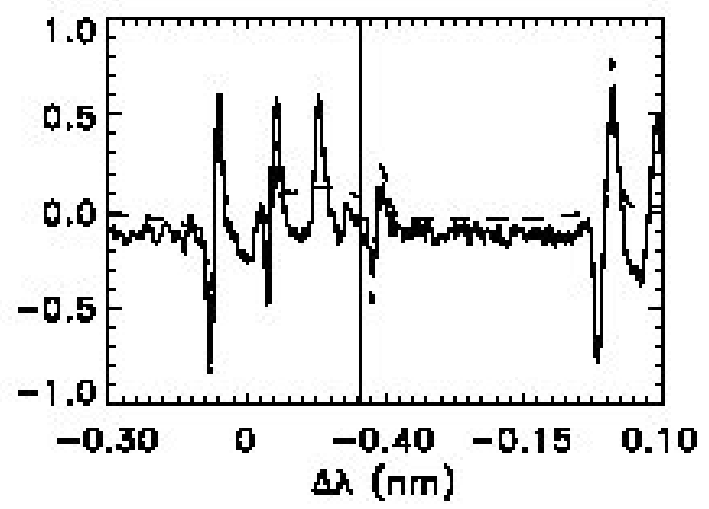
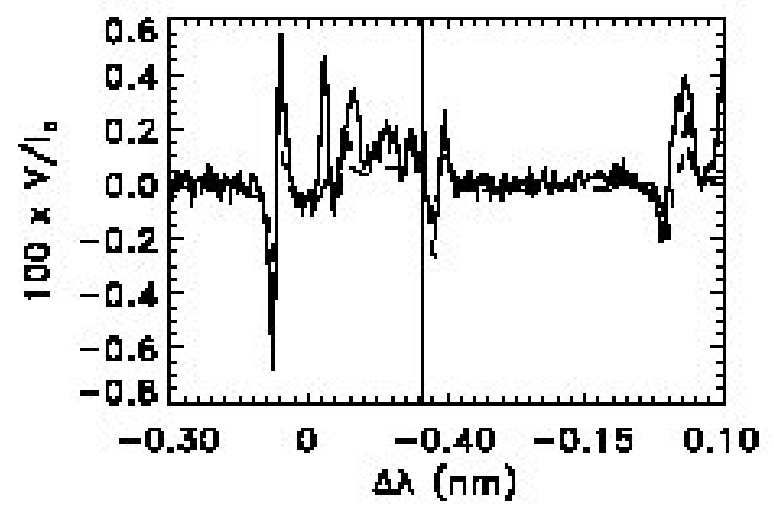
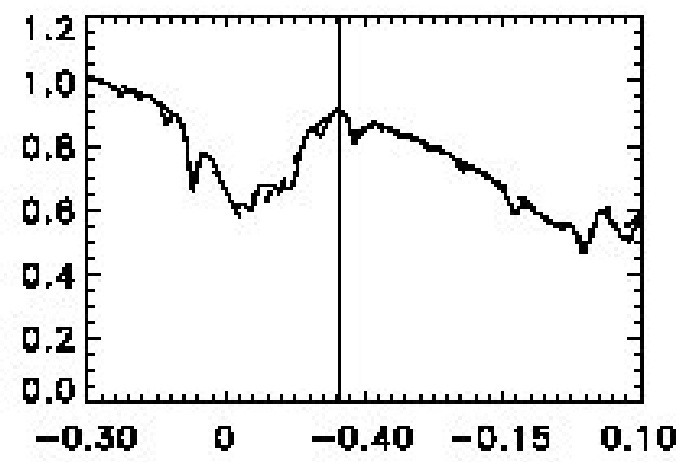
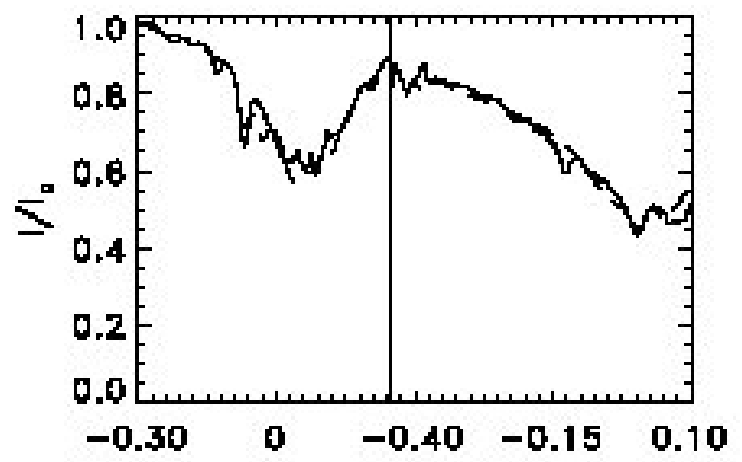
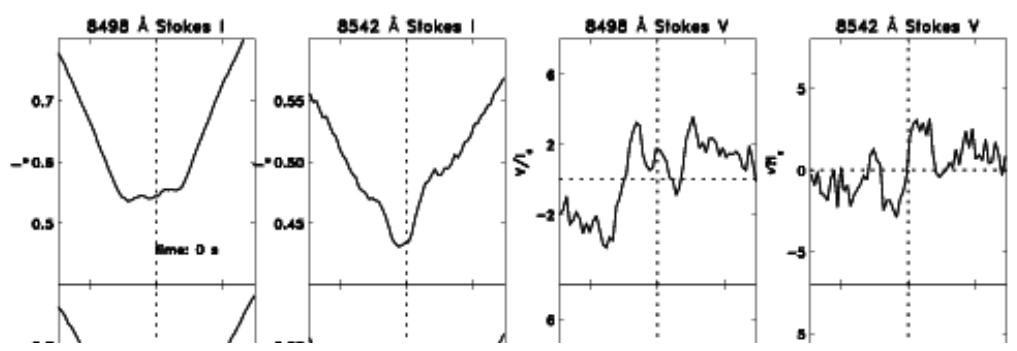
What do the lines look like?



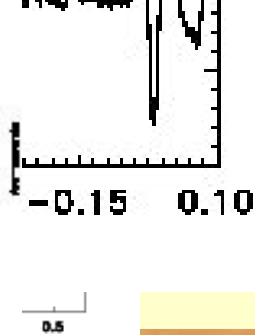
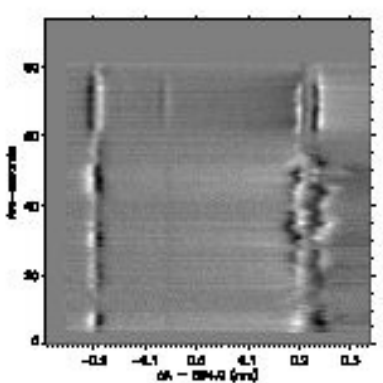
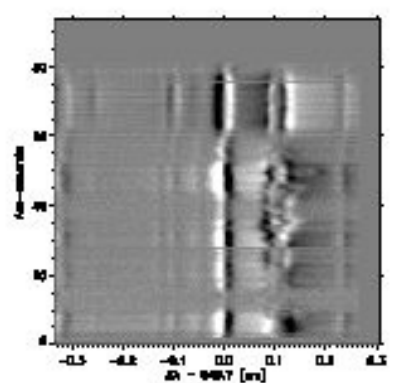
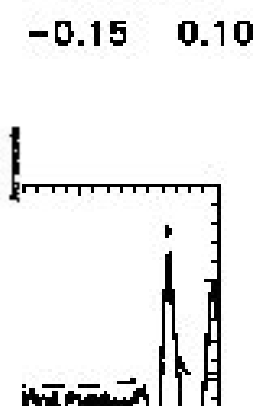
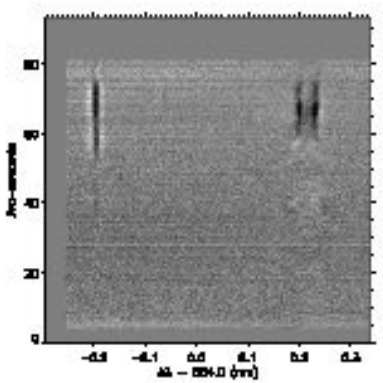
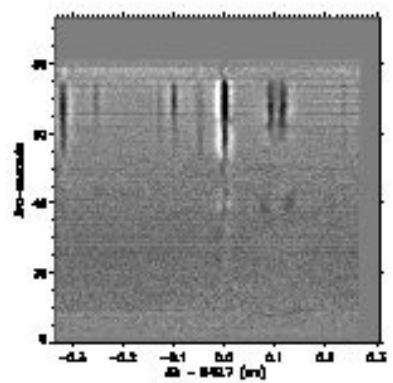
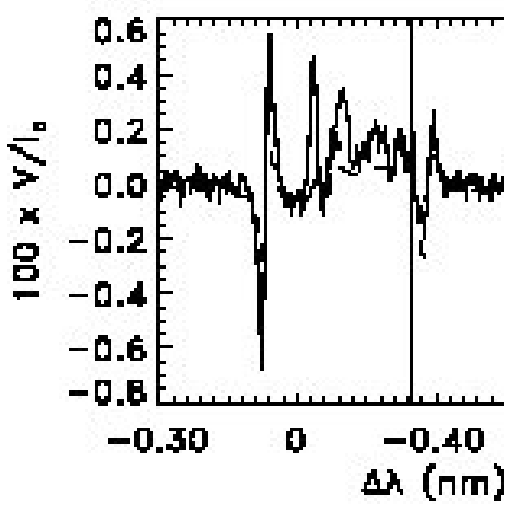
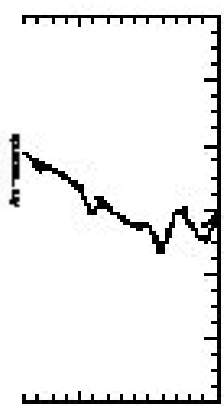
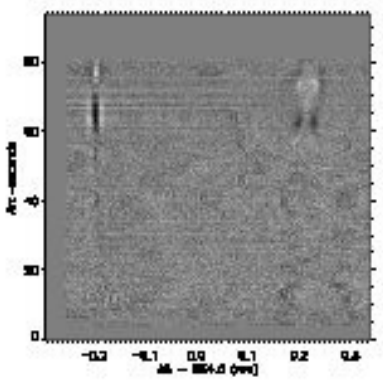
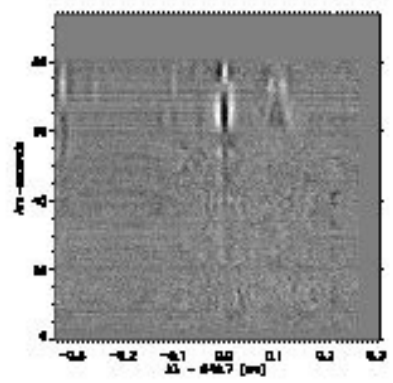
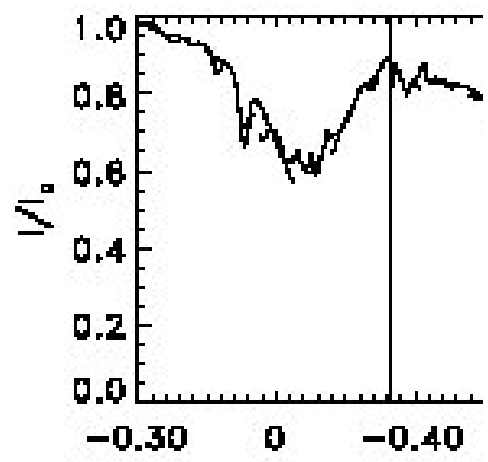
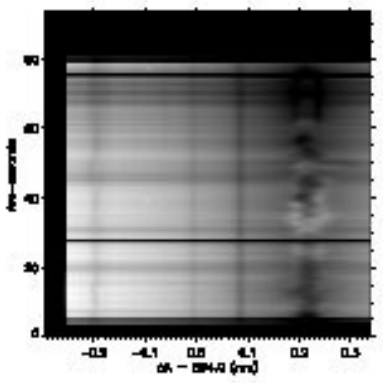
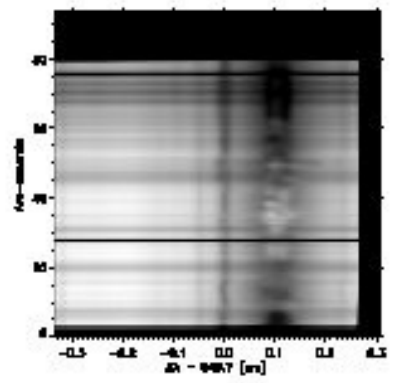
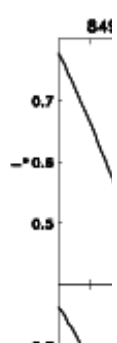
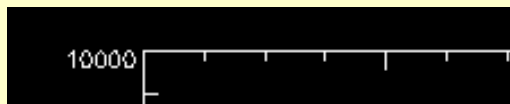
ok like?



ok like?



ok like?



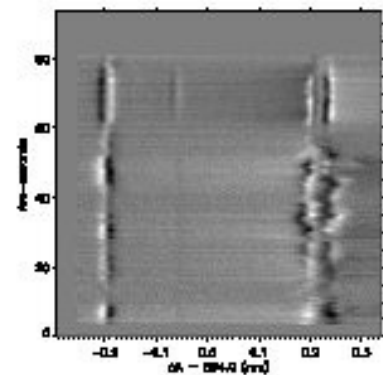
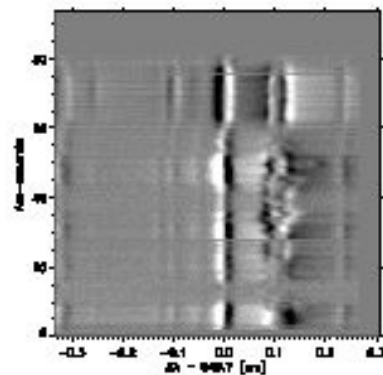
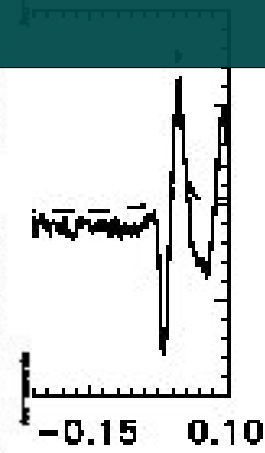
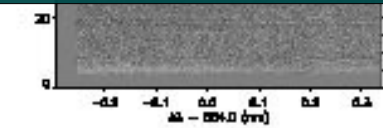
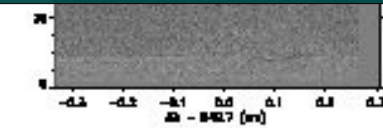
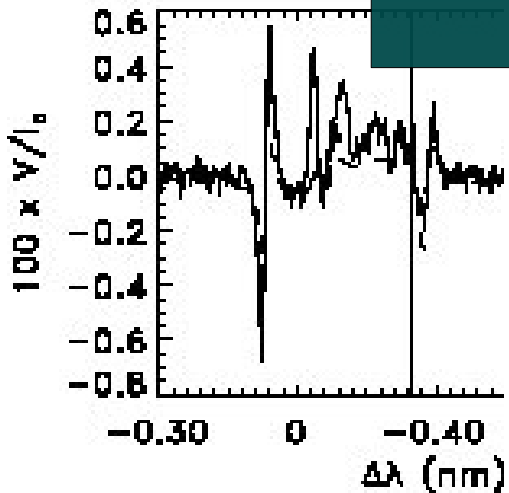
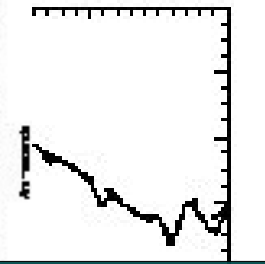
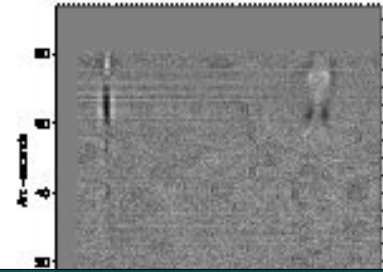
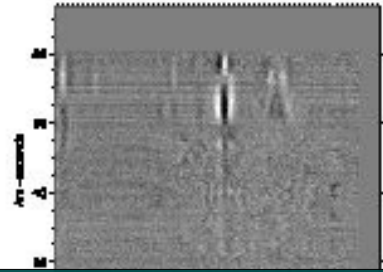
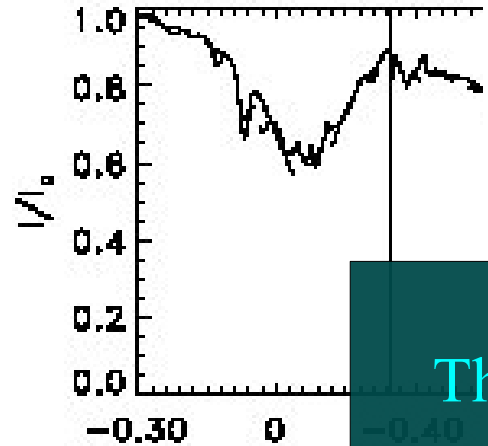
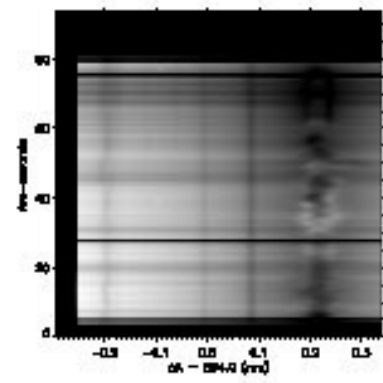
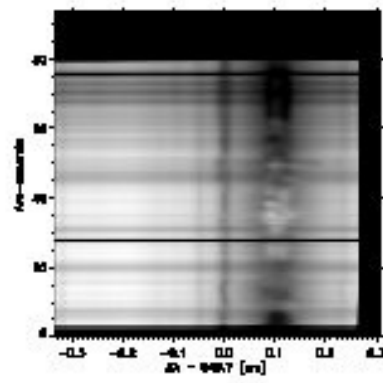
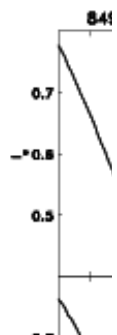
0.5

0.5

ok like?

The CaII lines are probably the ones that exhibit the richest variety of shapes in the whole solar visible spectrum

10000



● Possibilities

- Aim for B and v only
 - Find a “virtual” model, interpret only B and v as “real”
- Aim for thermal properties as well
 - Interpret model as “real”

