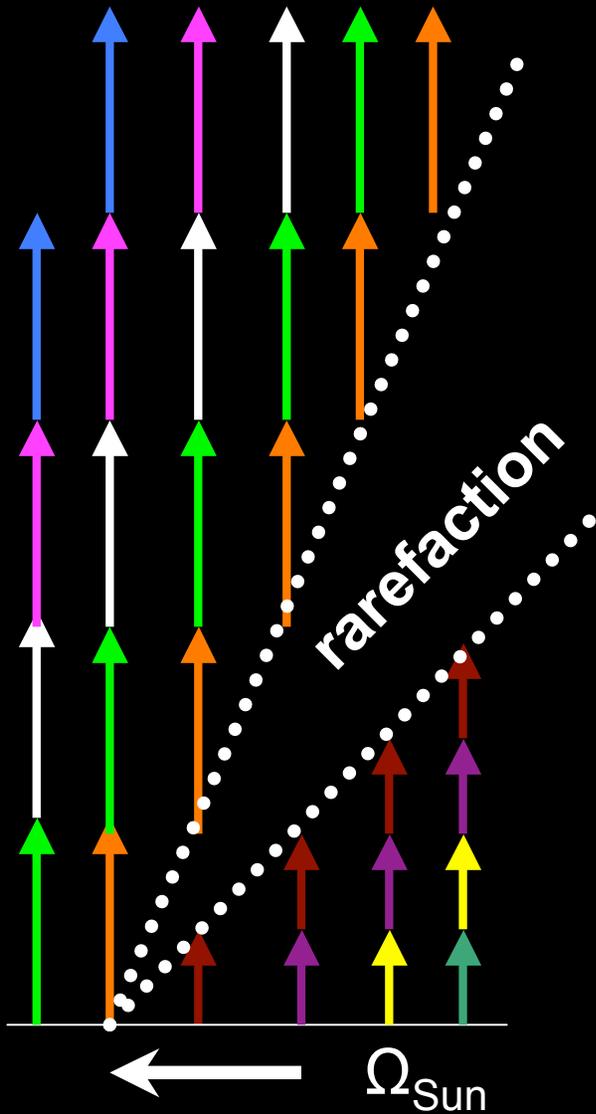


Rarefaction Regions

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Rarefaction Regions



This cartoon represents the flow from a very tiny fraction of the source surface over time. Arrows of matching color come from the same source at the Sun.

Previous Studies

Geiss *et al.* (1995) and Zurbuchen *et al.* (1999) use solar wind composition data to show a gradual transition from fast to slow solar wind.

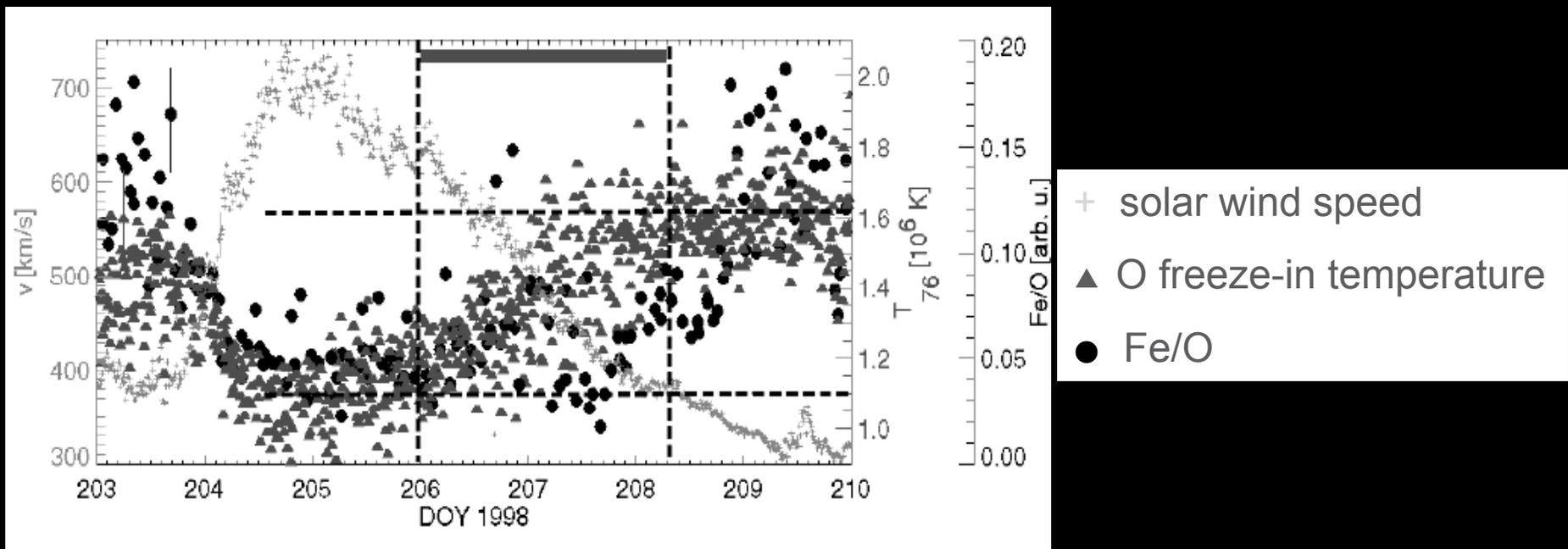
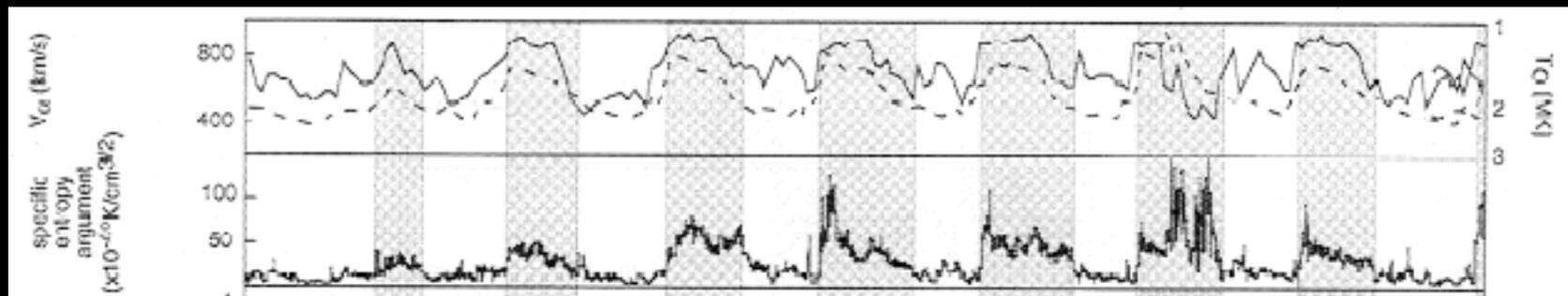


Figure 2 from Zurbuchen *et al.* 1999

Previous Studies

Burton et al. 1999 found that an abrupt drop in the proton specific entropy argument accompanies transitions from fast to slow solar wind outside at Ulysses.

We looked in the PLASTIC proton data for a similar entropy argument decrease at fast to slow transitions, but as often as not it was absent (Simunac et al. in the Solar Wind 12 proceedings).

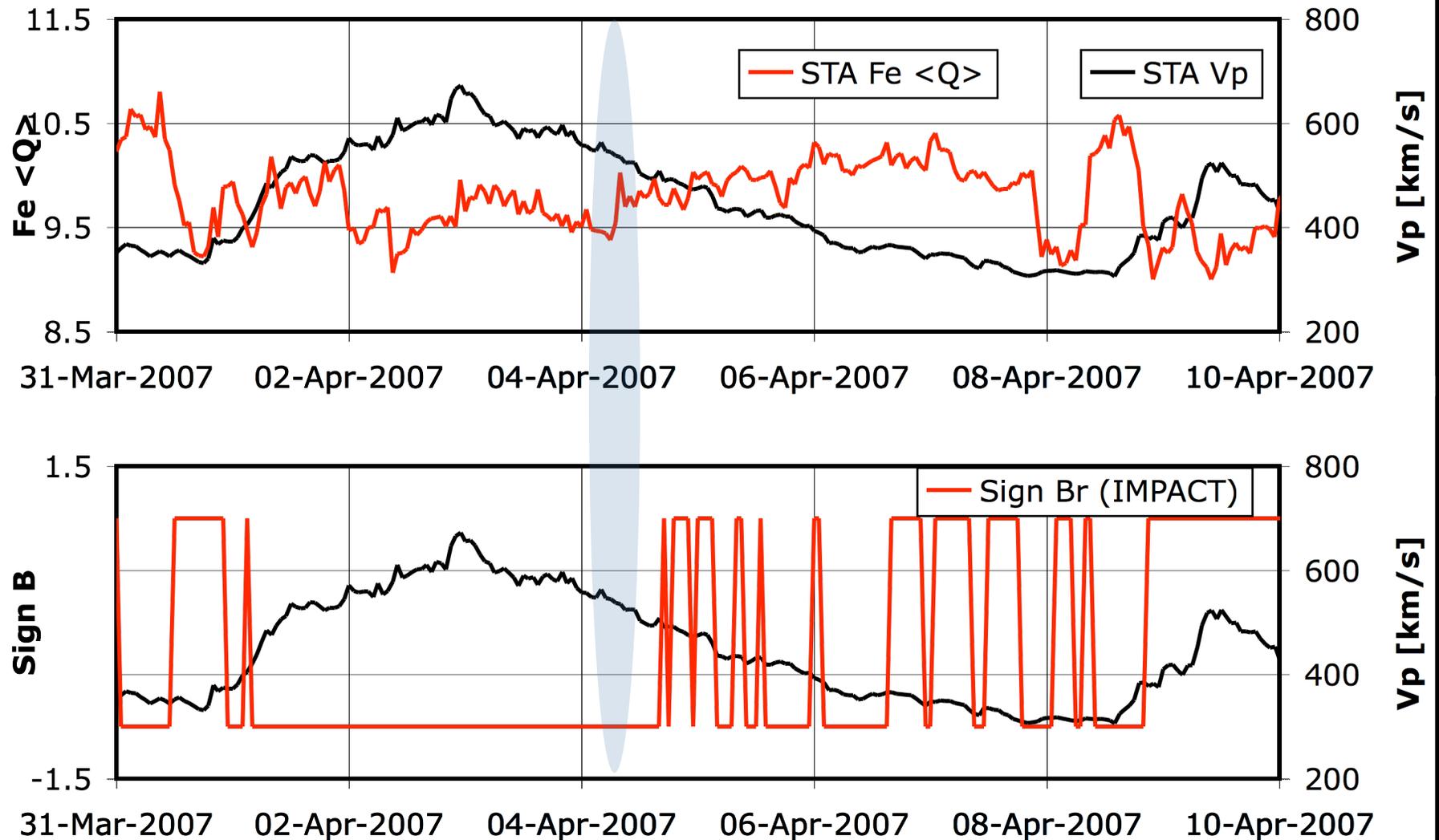


From figure 2 of Burton et al. 1999

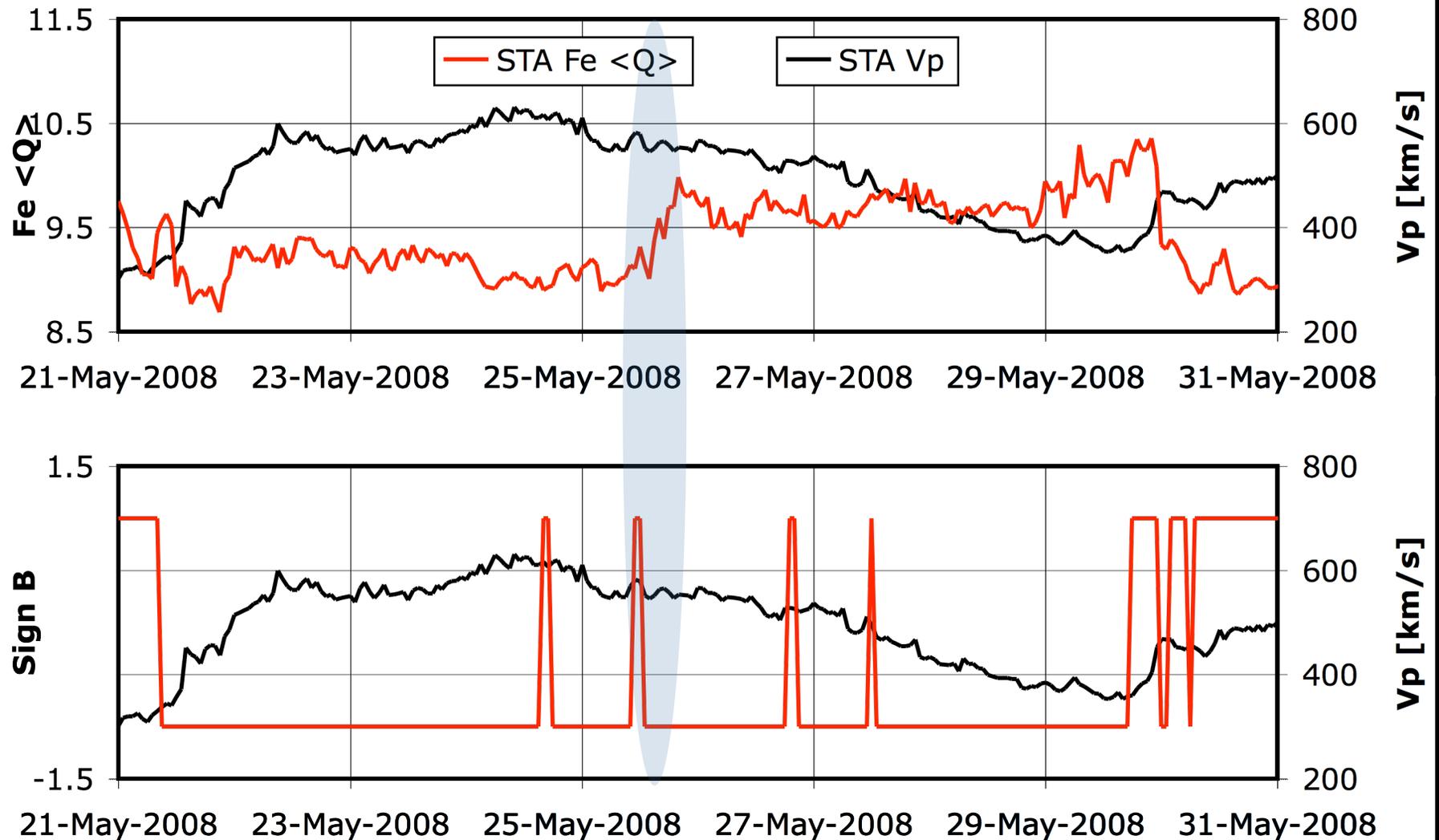
Is there some other parameter we could use to identify the fast-to-slow transition near 1 AU?

How about the average iron charge state $\text{Fe} \langle Q \rangle$?

Example 1: April 2007



Example 2: May 2008



Summary and Future Work

- By quick visual inspection of the PLASTIC-A data from April 2007 through June 2008, an abrupt increase in Fe $\langle Q \rangle$ is observed in about 2/3 of fast-to-slow transitions, where “abrupt” is ~ 12 hours or less
- A more quantitative approach is necessary, and comparison with other composition data
- Check to see if the less abrupt Fe $\langle Q \rangle$ transitions consistently correspond to cases when we are not approaching the current sheet.

Thank you.