



Prominence Effects on Habitability

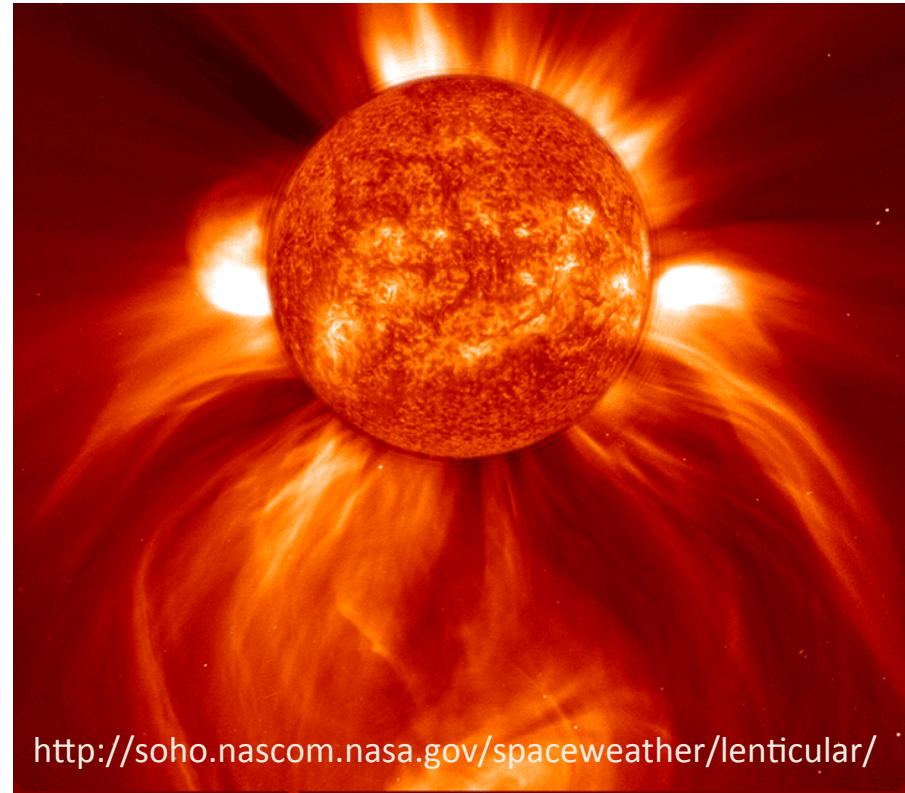
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Outline



- **What we know so far**
- **What about stellar storms?**
- **Prominence
expulsion**
- **Some examples**
- **Joining the dots**



Habitability as we know it...



“Habitable Zone”

- Not too hot, not too cold
- Liquid water
- Planetary atmosphere



**Planetary
magnetosphere
and
other protective
“spheres”**

The Host Star's impacts on Habitability



- **Stellar activity**
- **Stellar winds**
- **Magnetosphere impact**
- **CMEs**
- **UV radiation**
- **...**



Solar/Stellar Storms



- **Solar storms violently disrupt:**
 - **Communication**
 - **Electricity supply**
 - **Technology in general**
- **We should be taken into account for intelligent life on other planets?**

Prominence Expulsion

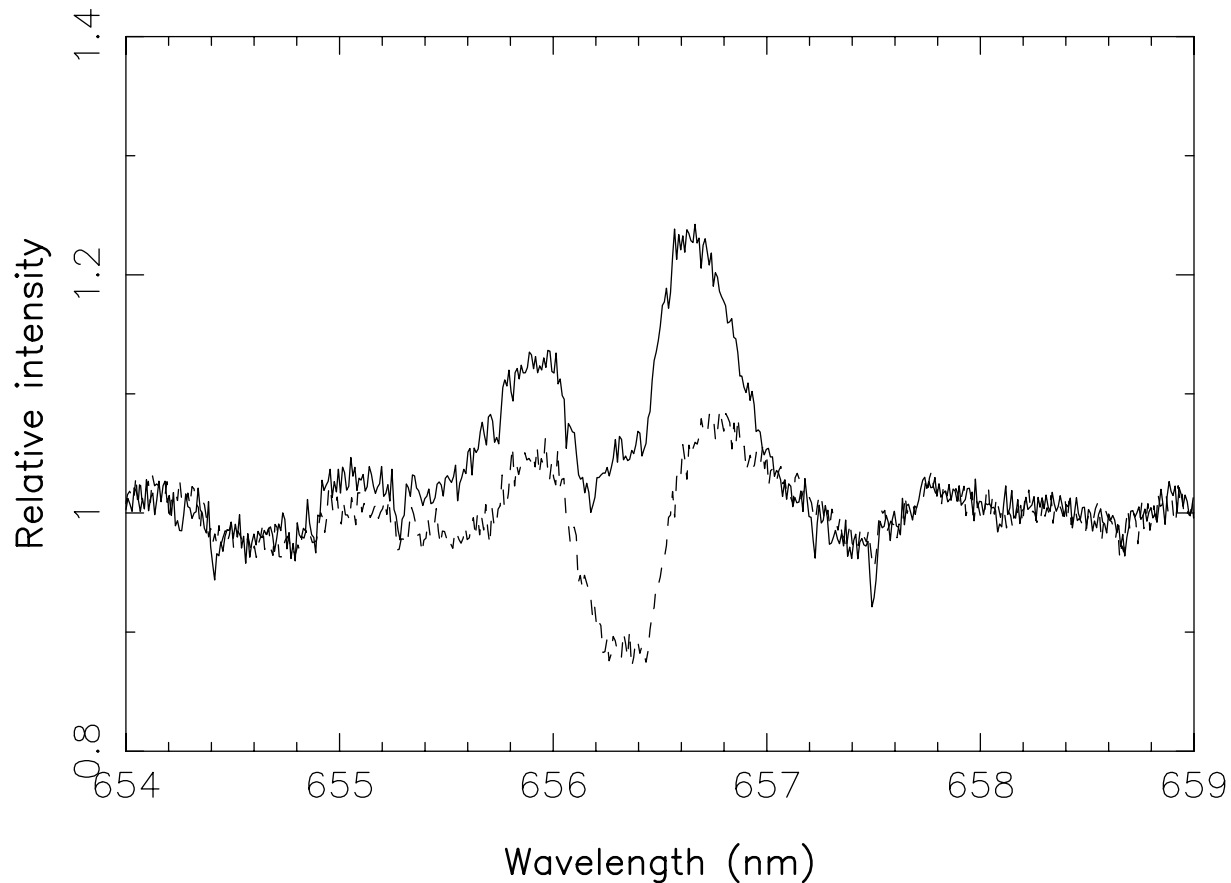


- **Loop prominences are thought to dictate the extent of the mass hurtled towards the Earth during solar storms**
- **Prominence expulsion occurs on other stars, and thus the mass of these prominences would dictate the strength of the resulting storms that would effect the surrounding planets.**

Prominence Technique

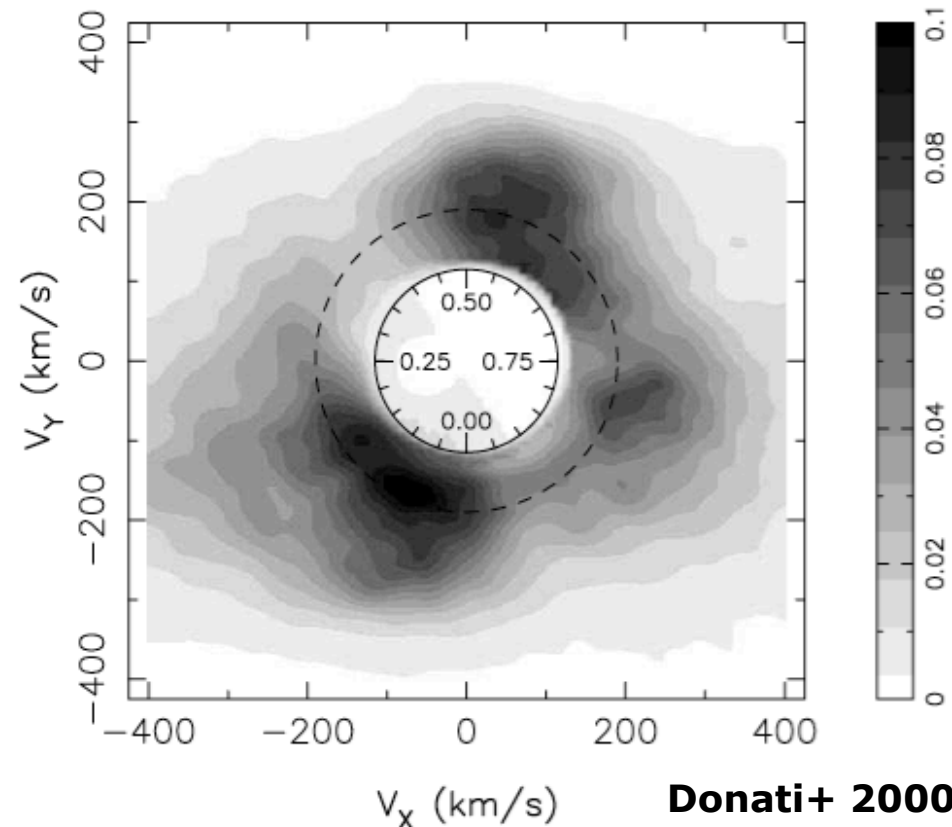
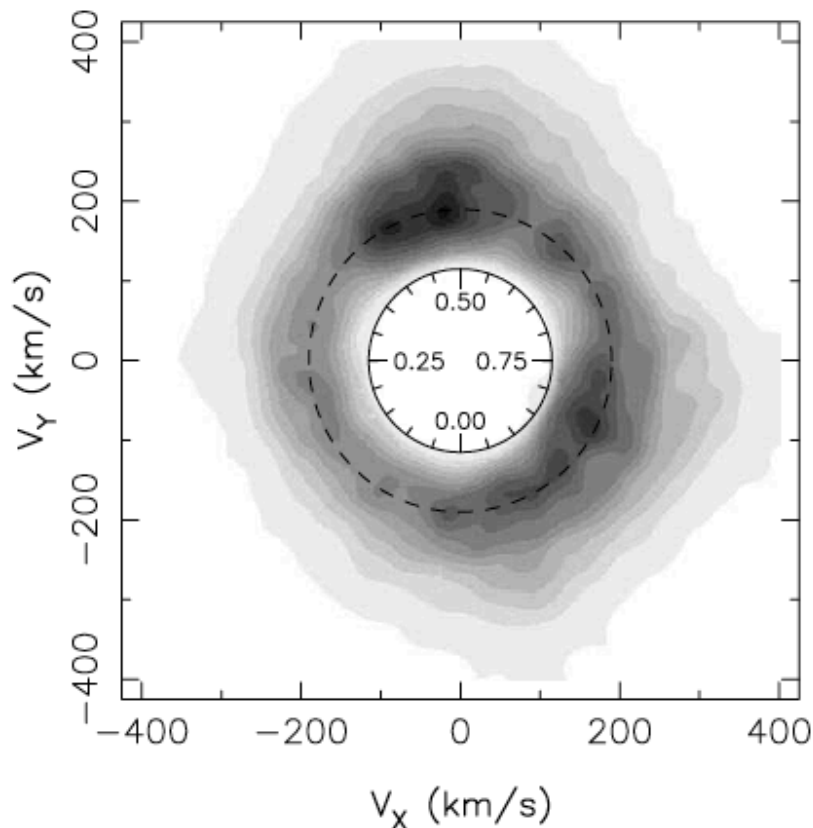


- **Tomog - Maps H-alpha variations**



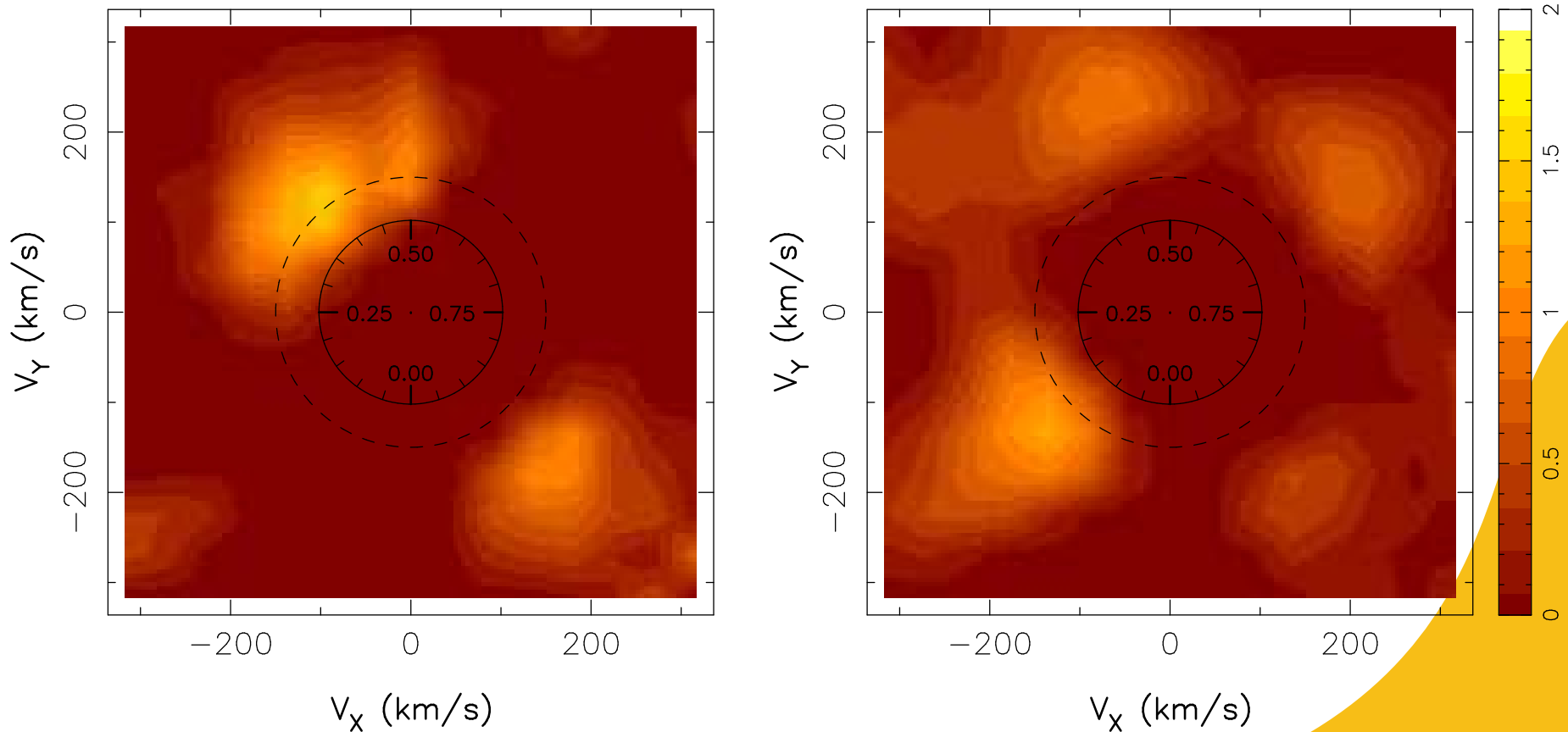
Examples of Prominence Active Stars

LQ Lup – full ring prominence system (variable)



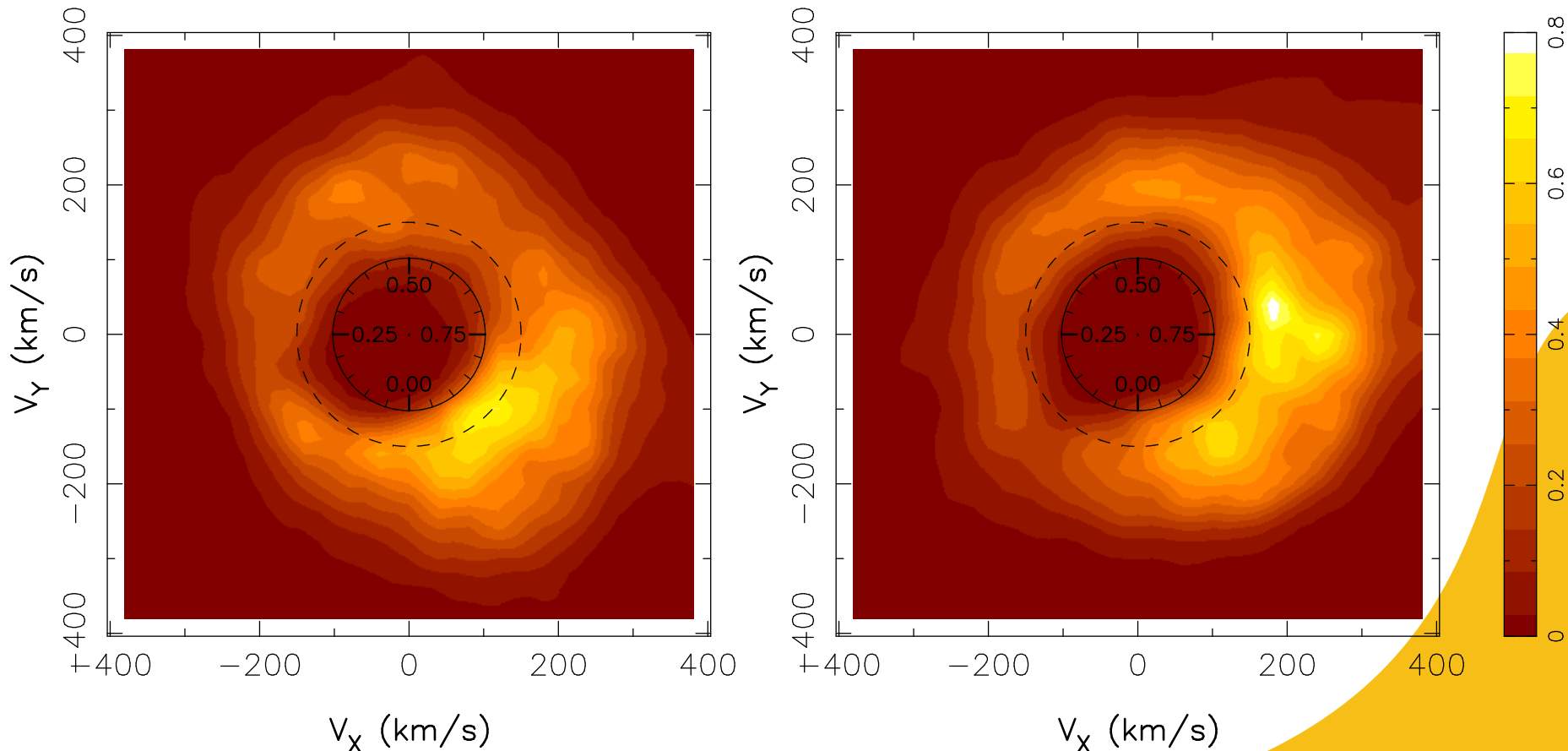
Not so Prominence-Active Star

HIP89829 – intermittent prominence system

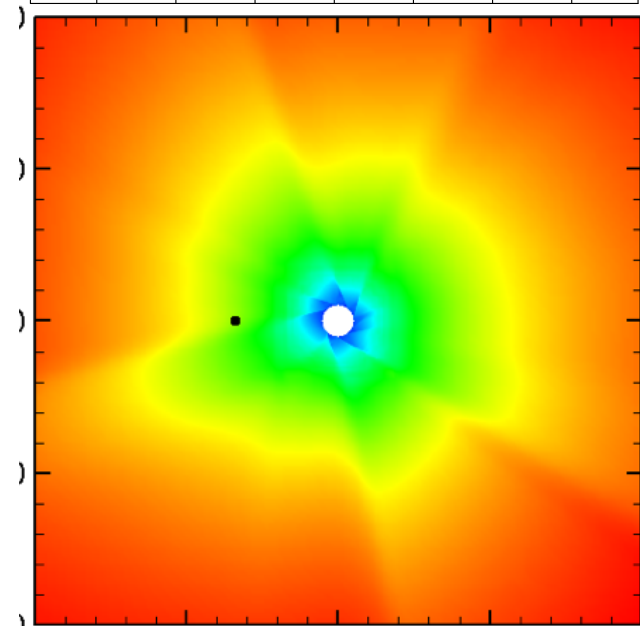
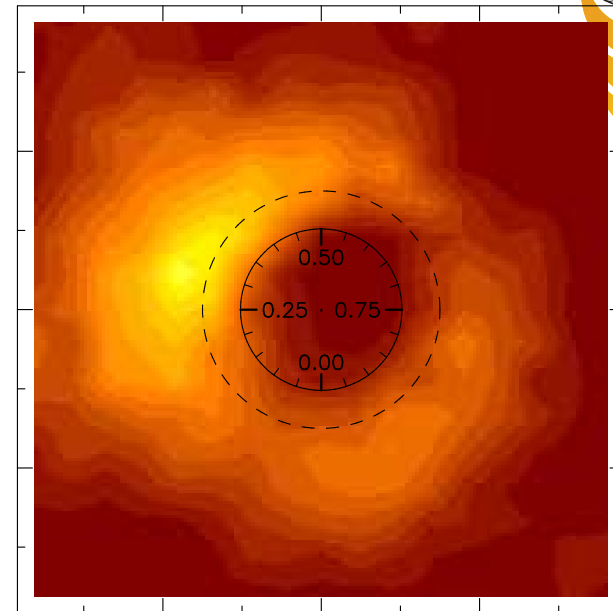
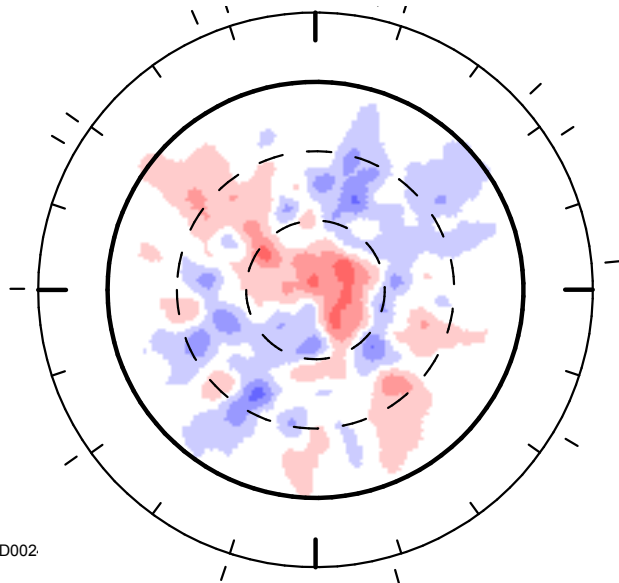
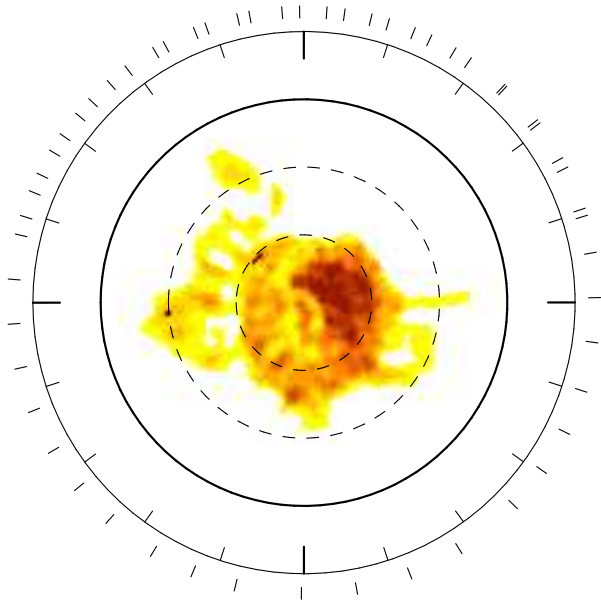


Somewhere in-between

AP 149 – one sided prominence system



Join the Dots



Nicholson+ submitted



THOUGHTS & QUESTIONS?