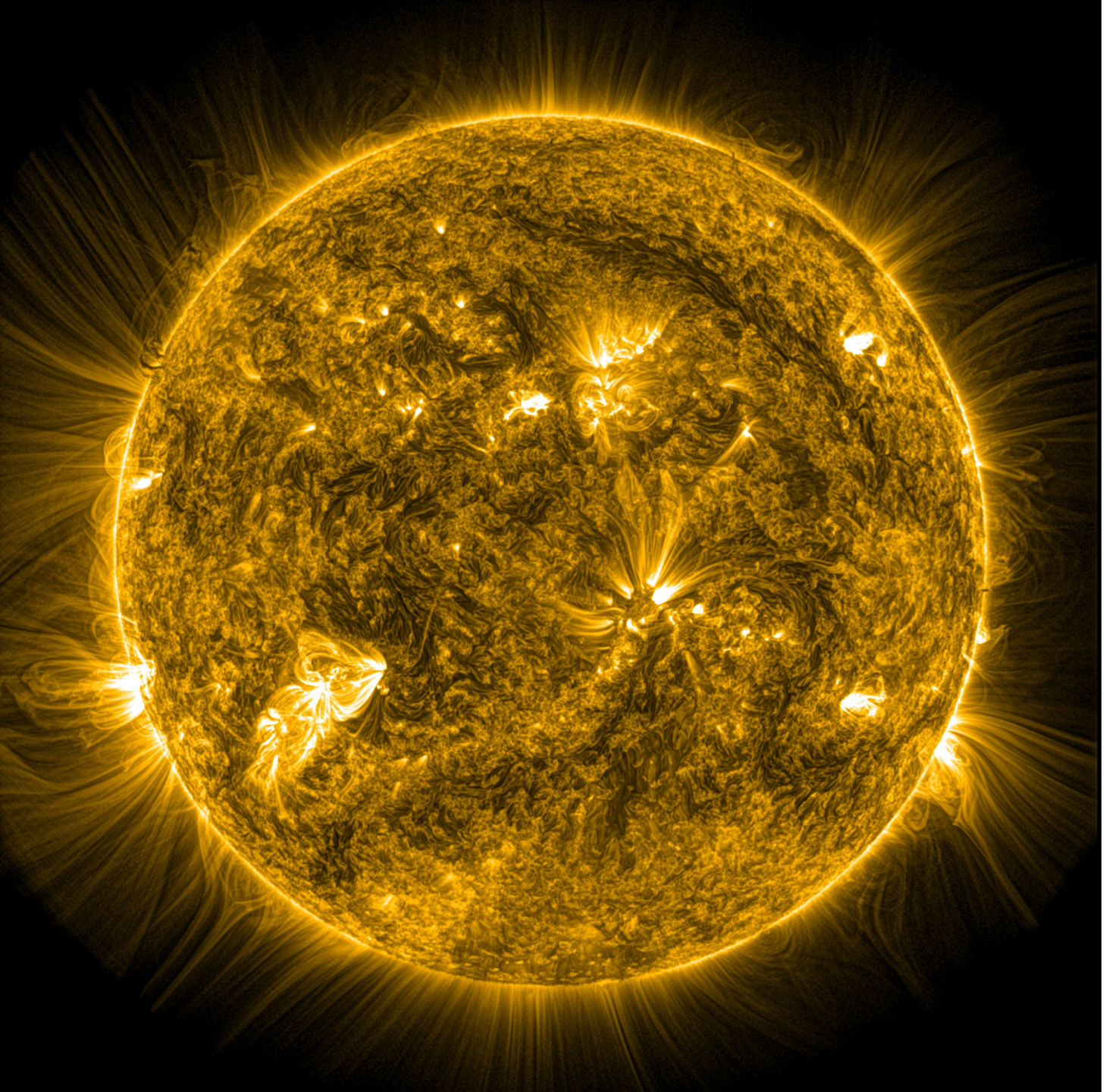


Insights into the solar wind from the low corona

2nd Science Meeting

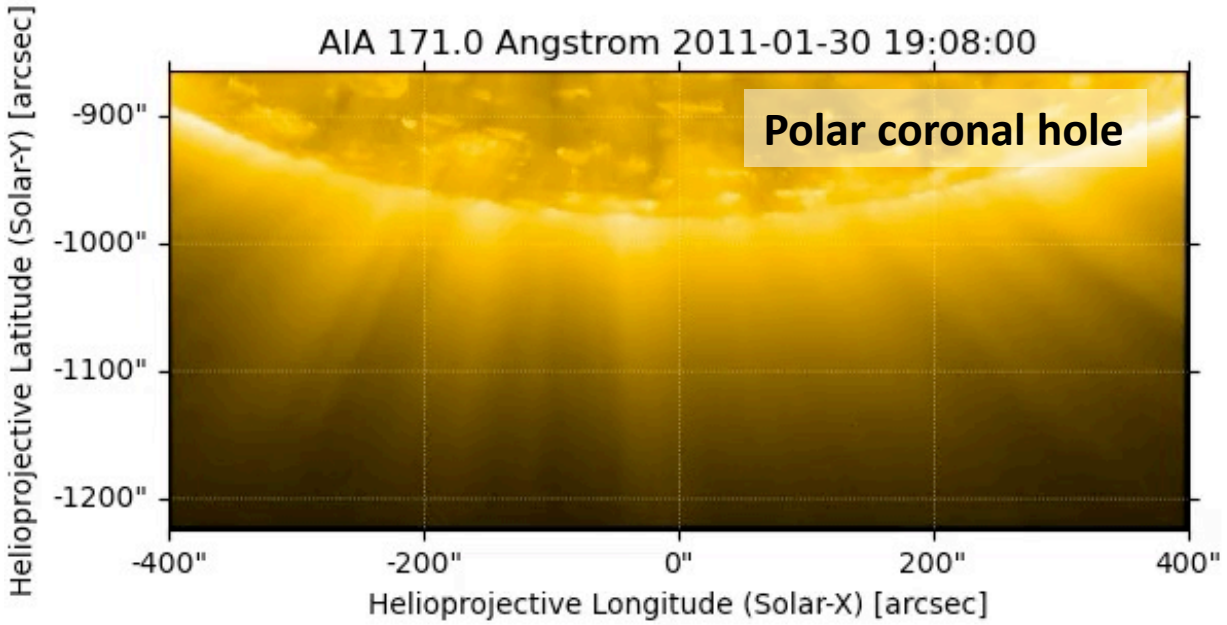
Richard J. Morton
Northumbria University, UK

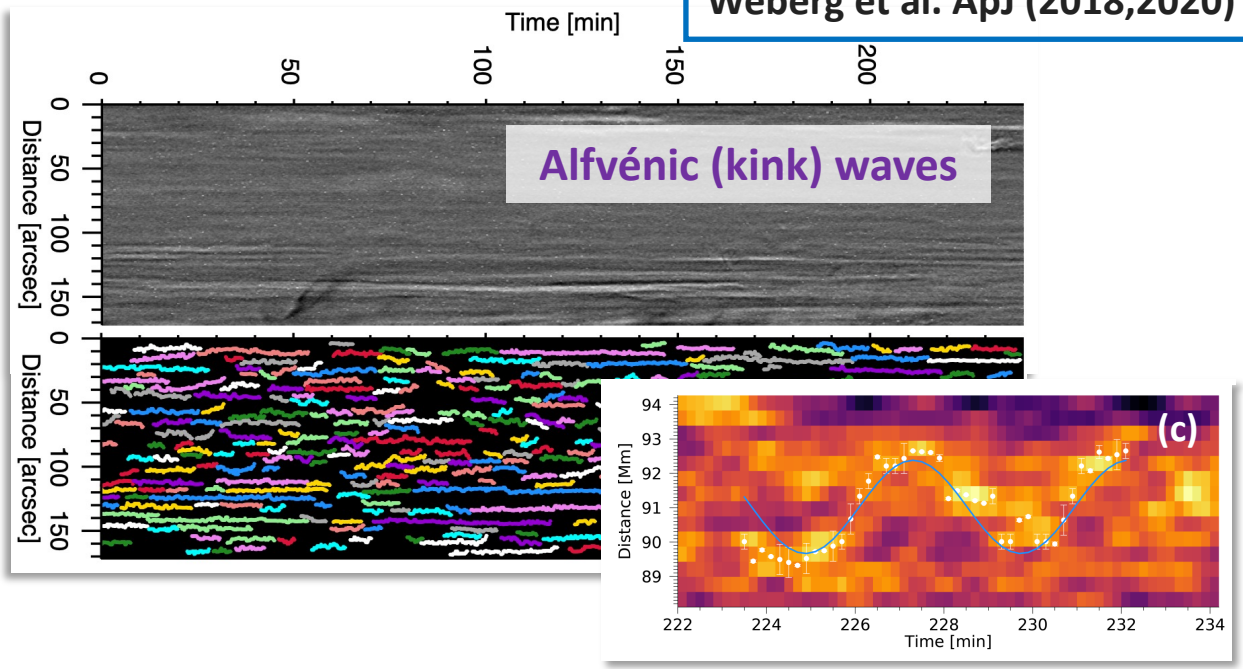
Northumbria University NEWCASTLE

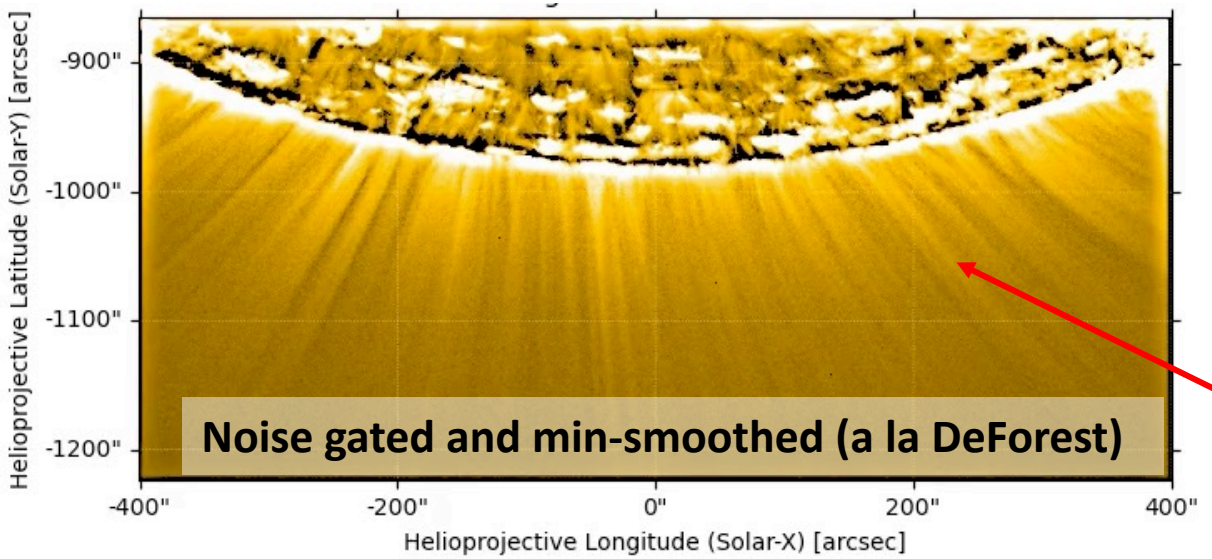
UK Research and Innovation

Fine-scale structure of the low corona

Weberg et al. ApJ (2018,2020)



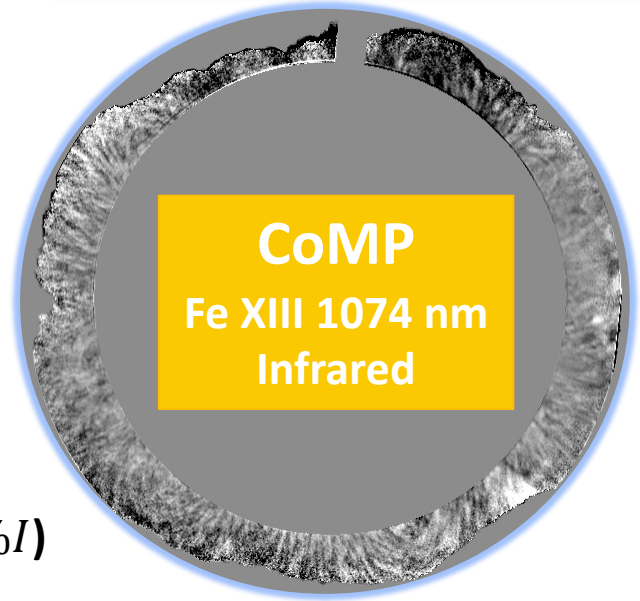




Corona structured transverse to B

For EUV emission $I \propto n_e^2$

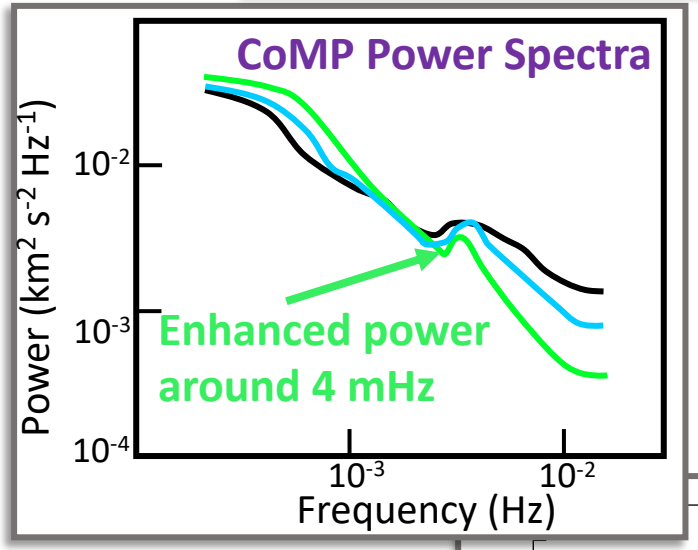
Density enhancements ($\sim 2\% I$)

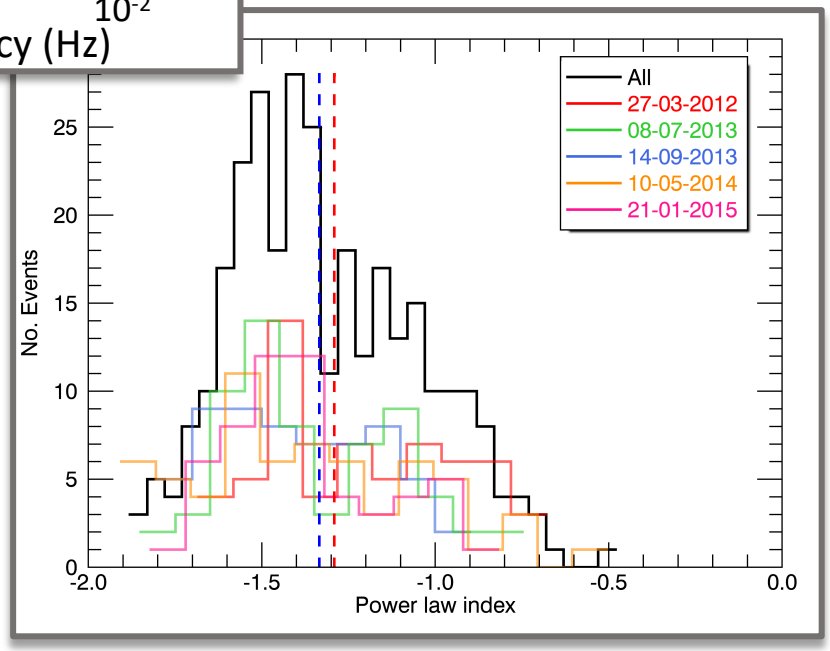


Turbulent driving and flows speeds

Nature of Alfvénic fluctuations

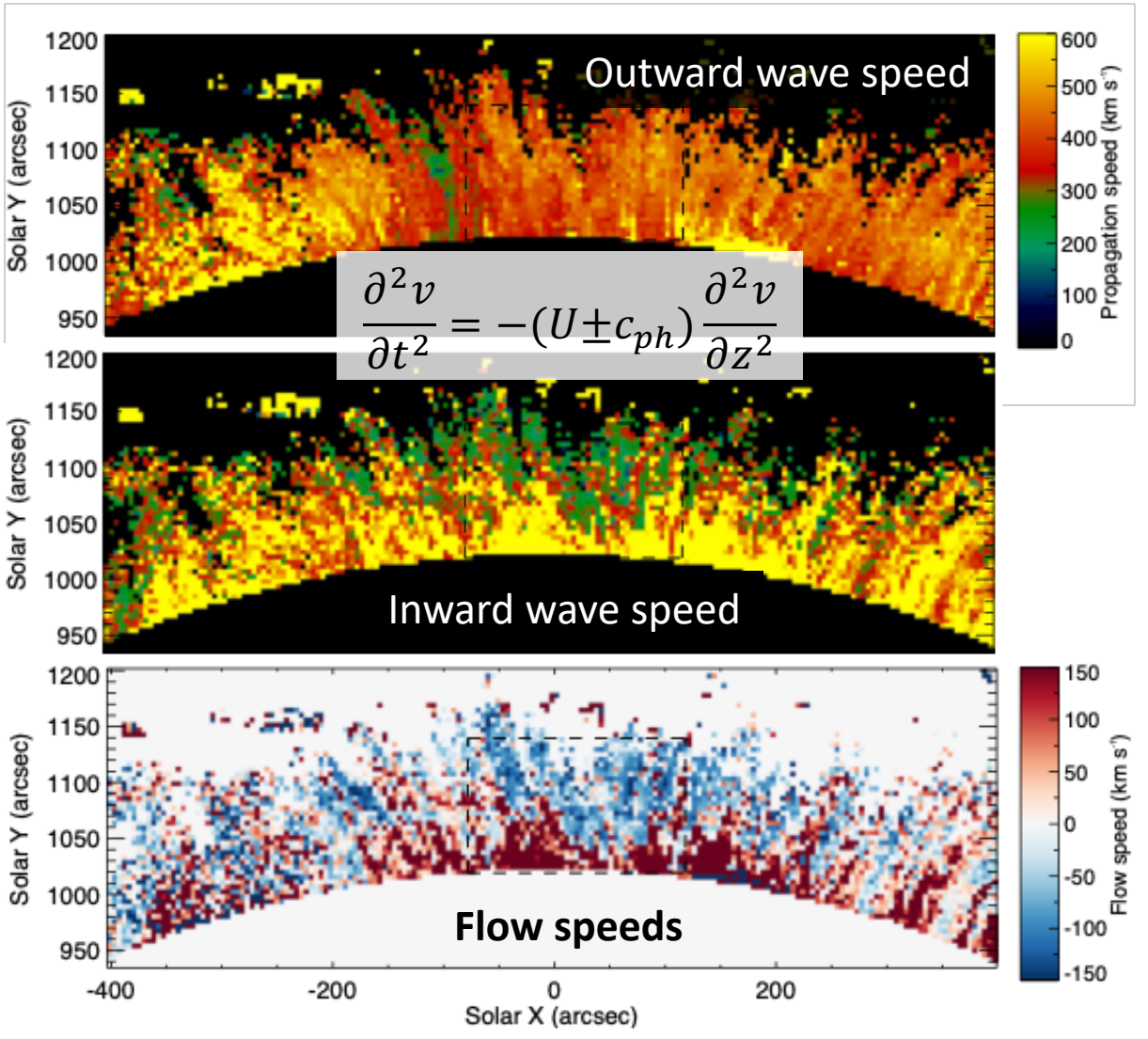
Signatures of turbulent driving near 0.1 R_S





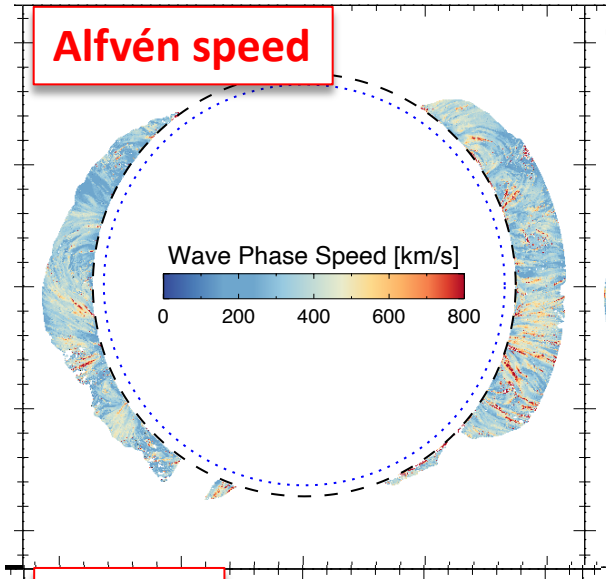
Morton et al. Nature Astronomy (2019)

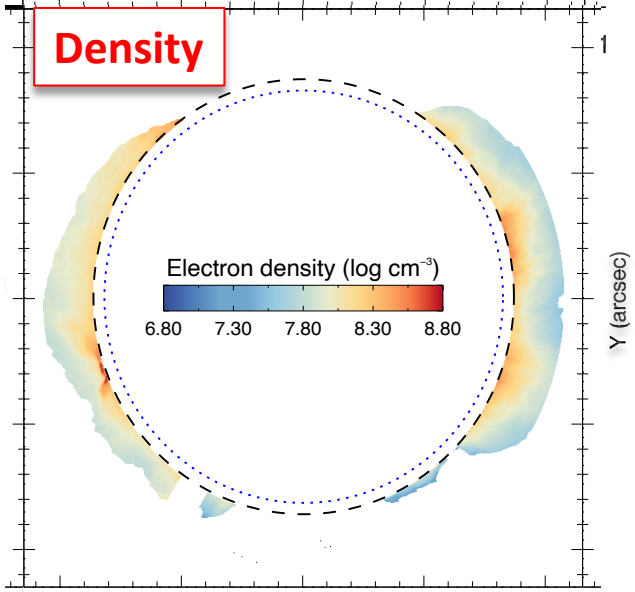
Morton et al. Nature Comms. (2015)



Young solar wind

Plasma structure in the low corona



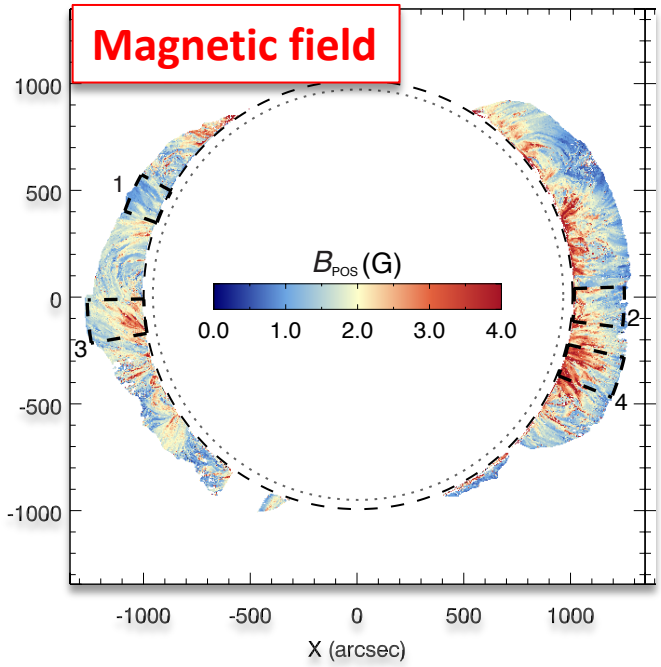


Ratio of 1074nm to 1079nm

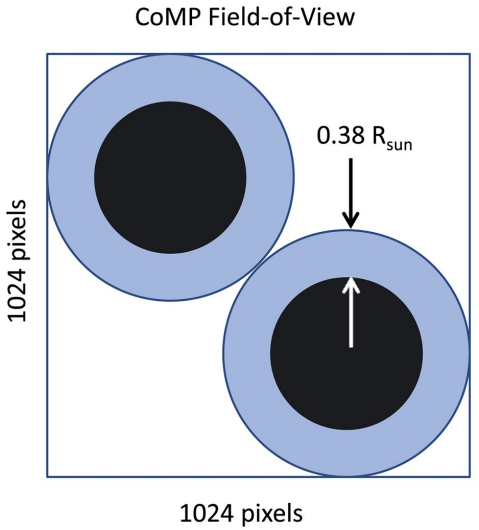
Yang et al. Science (2020)

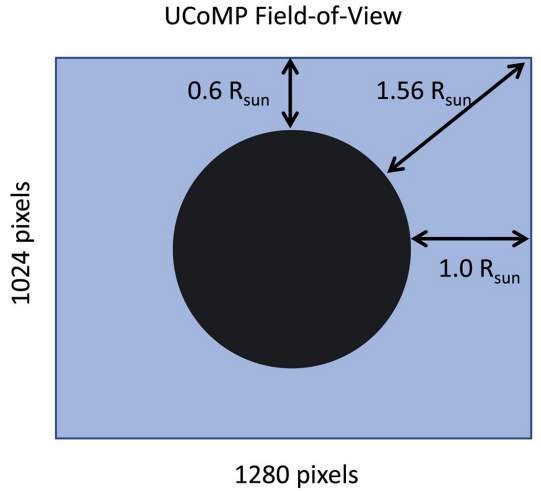
$$c_k^2 \approx \frac{B^2}{\mu_0 \langle \rho \rangle}$$

Average Alfvén speed



Future data





CoMP has been upgraded to uCoMP:

- A larger FOV
- A range of coronal lines (530 - 1083 nm).
- Improved spatial resolution (~3”- 4“)

Able to examine dynamics further out into corona. Cooler coronal lines will improve measurements in coronal holes.