

Using Low and Middle corona ground-based observations to connect solar source regions to PUNCH. These provide unique diagnostics of:

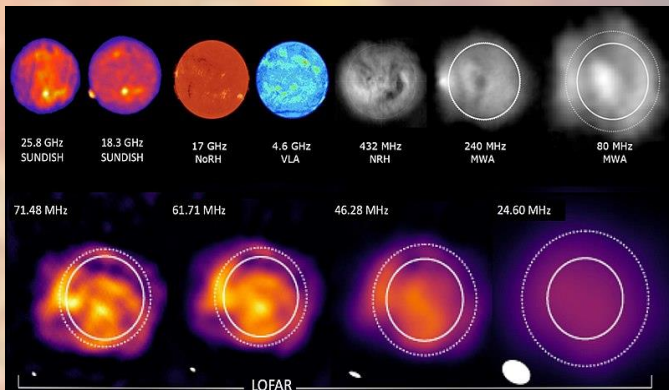
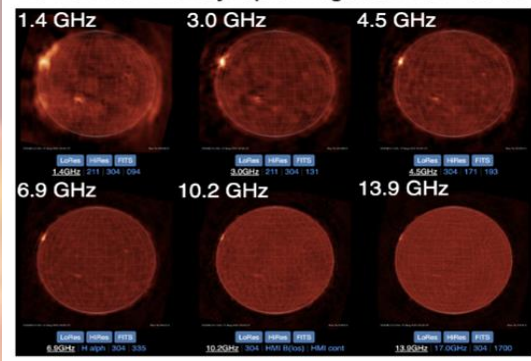
- Coronal magnetic field ‘measurements’
- Magnetic field morphologies
- Plasma conditions: LOS density, LOS Doppler velocity, Temperature
- Sites of High energy particles
- Magnetic reconnection sites
- CME observations from onset into the middle corona

Connect ambient and dynamic coronal structures from their source regions to PUNCH

Provide critical information on coronal heating, solar wind formation, CME formation and dynamics, sites of solar energetic particle formation

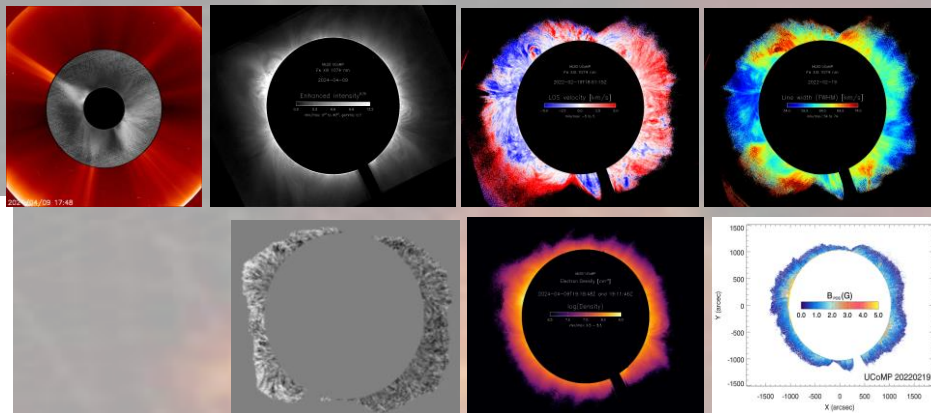
Plasma, Energetic Particles, Magnetic Reconnection from NJIT Radio

EOVSA Full-Disk Synoptic Images on 2021-08-07

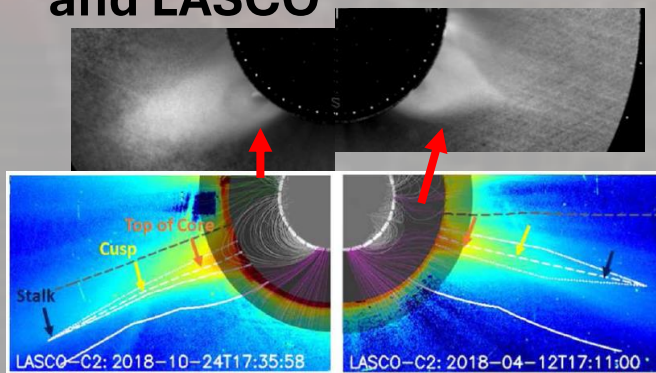


Magnetic Field and Plasma from MLSO

Below: Intensity, Doppler velocity, Line Width, Waves, Density, POS B-Field

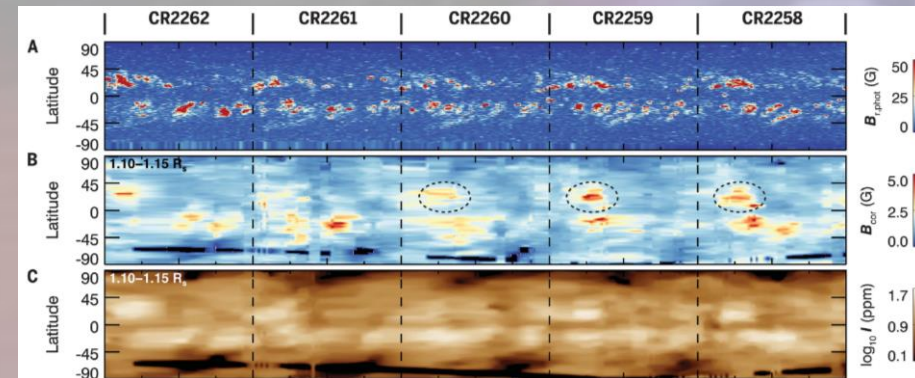


Connecting solar wind structures and speed with blob-tracking with K-Cor and LASCO

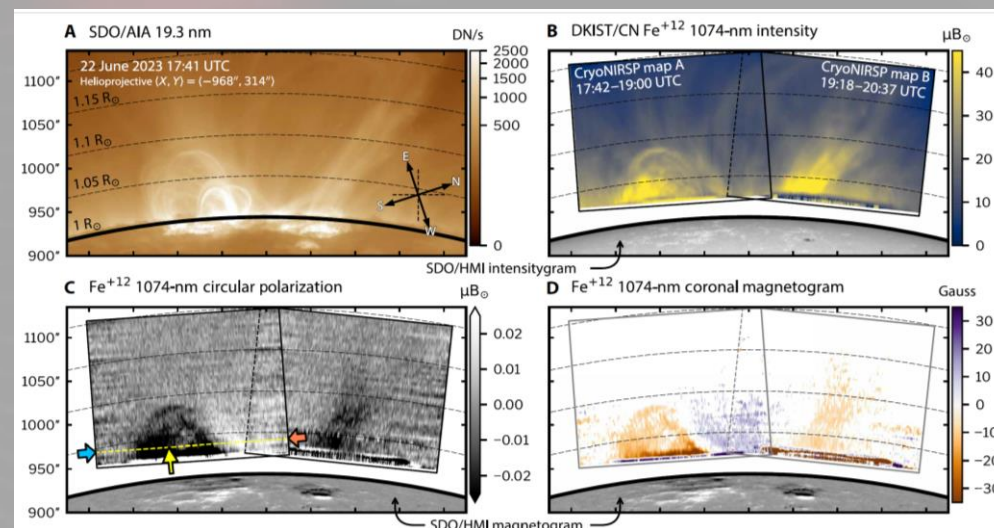


Coronal Magnetic Field Maps

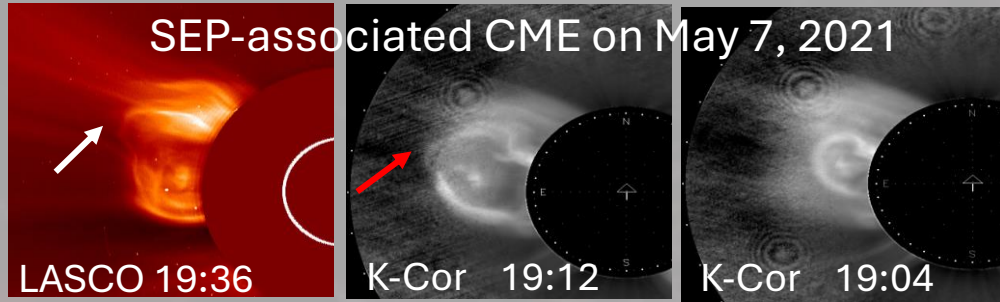
5 Carrington rotations of UCoMP POS magnetic field (middle panel) - Yang et al. 2024



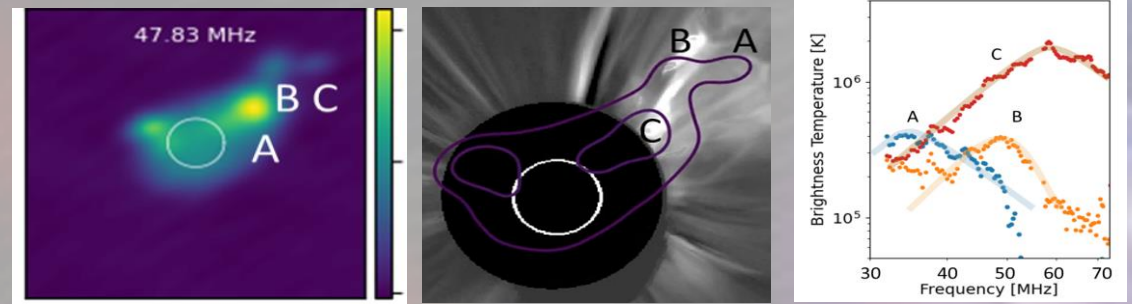
DKIST CryoNRSP first coronal magnetogram (lower right) - Schad et al. 2024



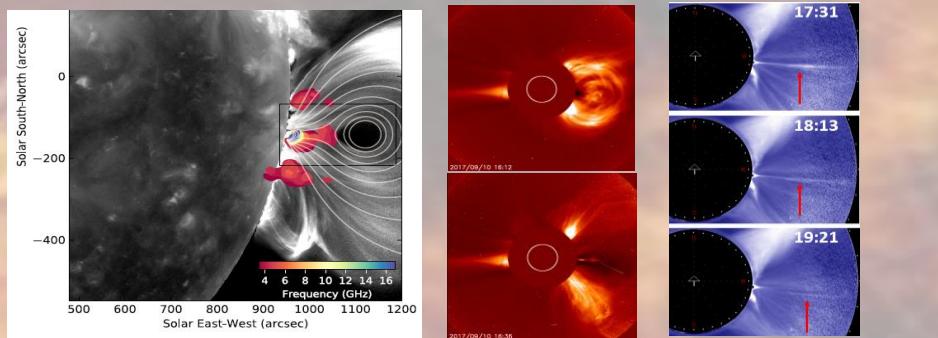
Identify CME-shock formation



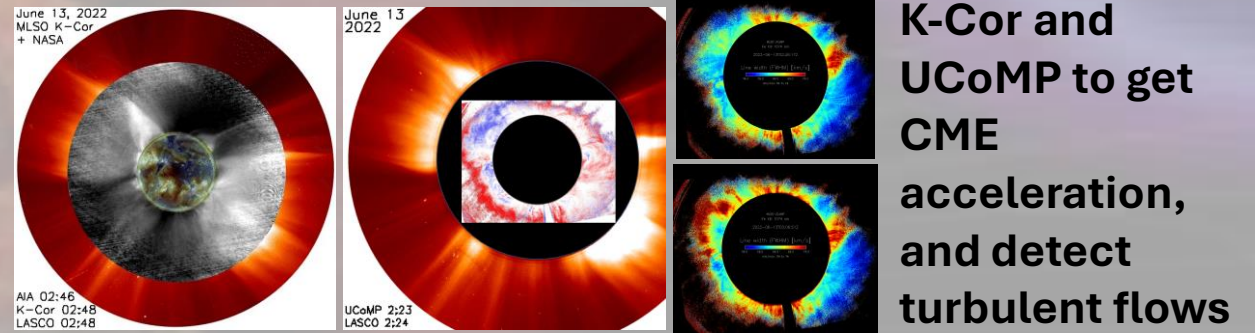
Radio Imaging Spectroscopy to obtain Brightness Temperature of dynamic events



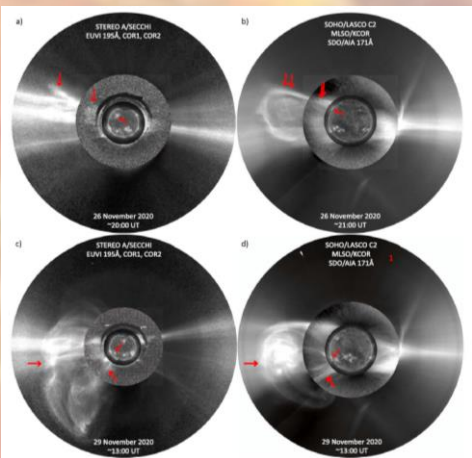
Radio: Detect Magnetic Reconnection sites



Track plasma dynamics of CMEs



Connect Parker Solar Probe (PSP) to Sun Using K-Cor, and NASA data to identify interacting CMEs seen in PSP



EOVSA Radio Imaging locates accelerating electrons

