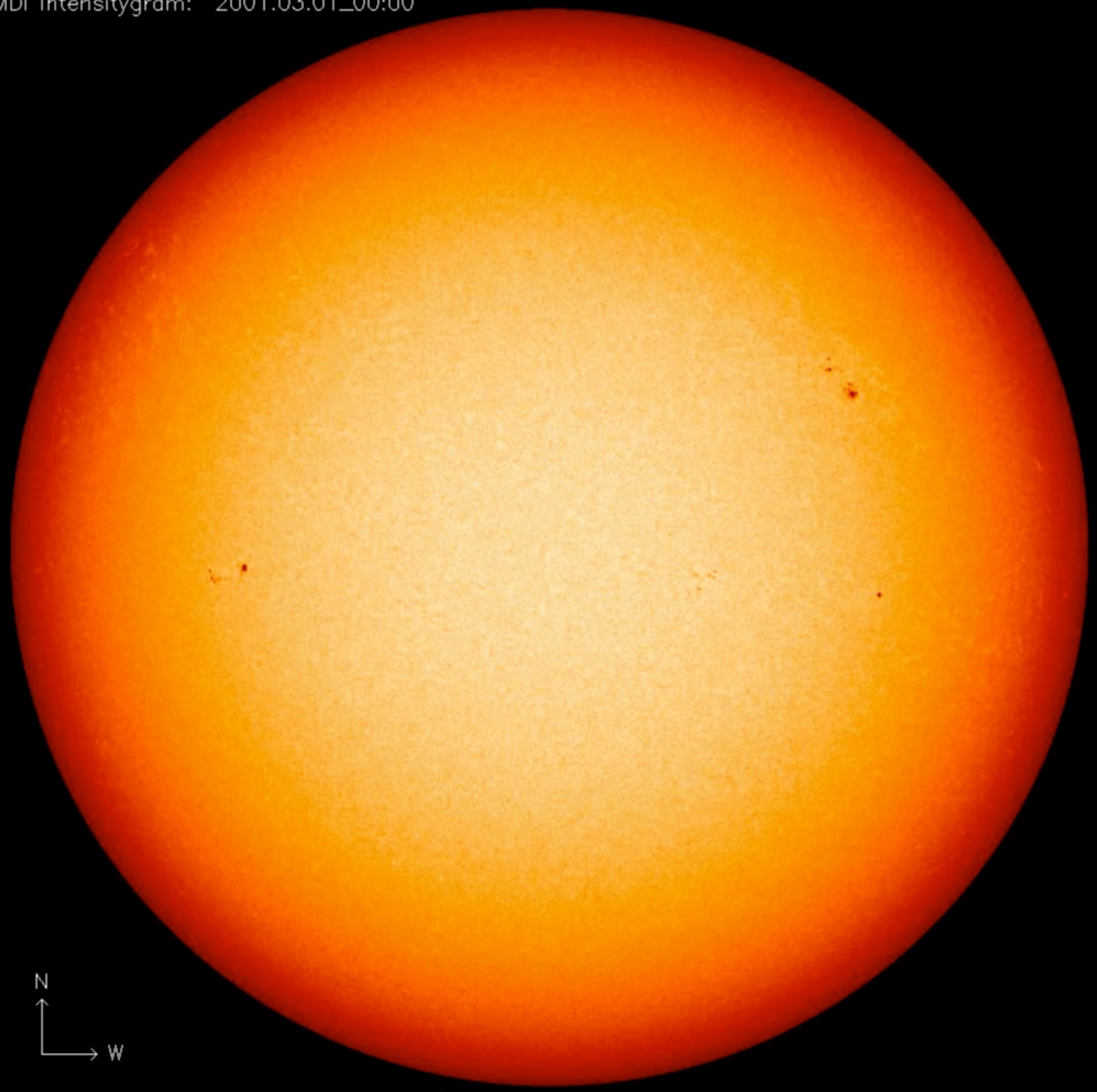


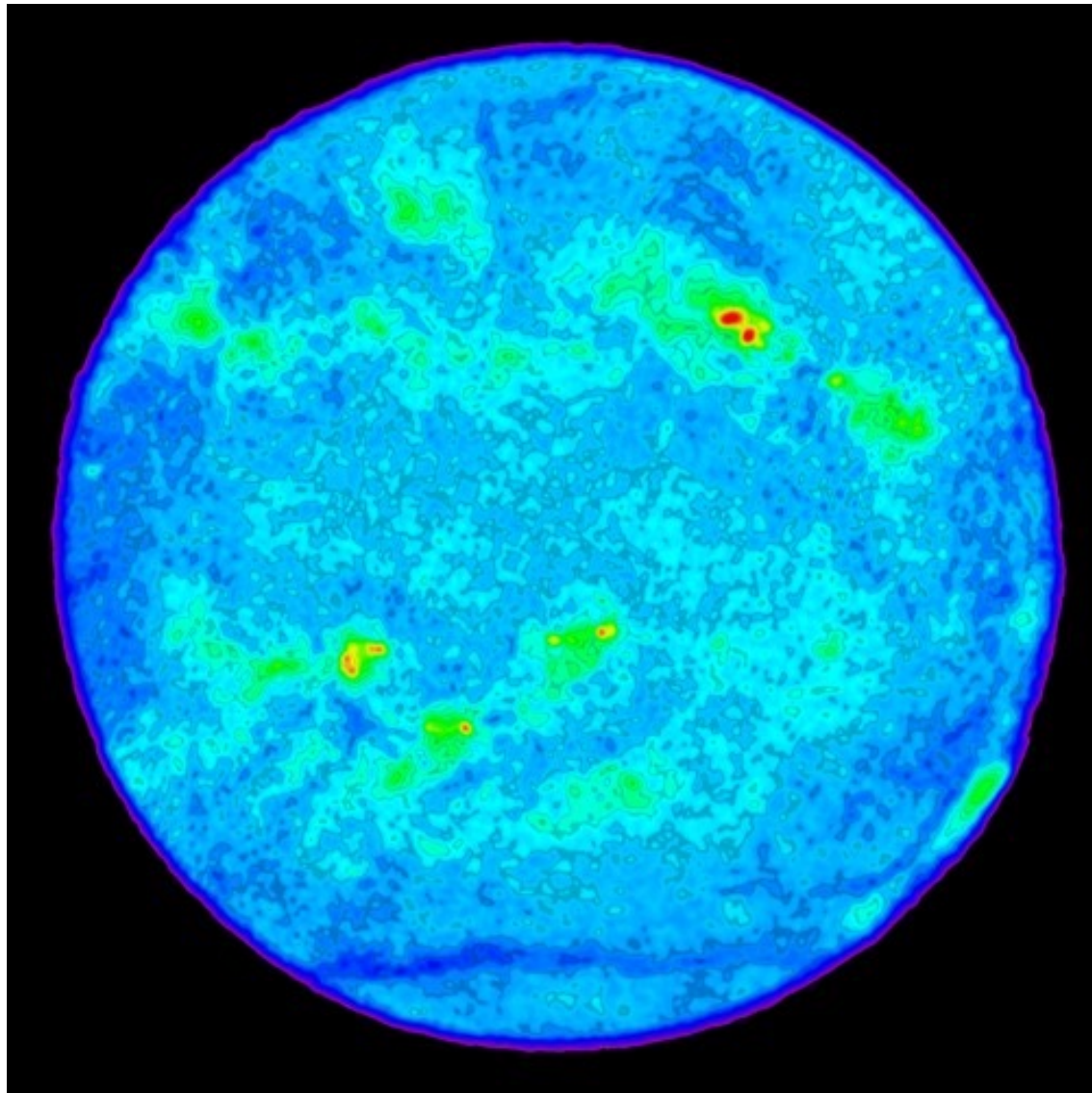
Solar and Heliospheric Radio Astronomy

- Solar activity
- Loops and Flares
- Coronal Mass Ejections
- Space Weather

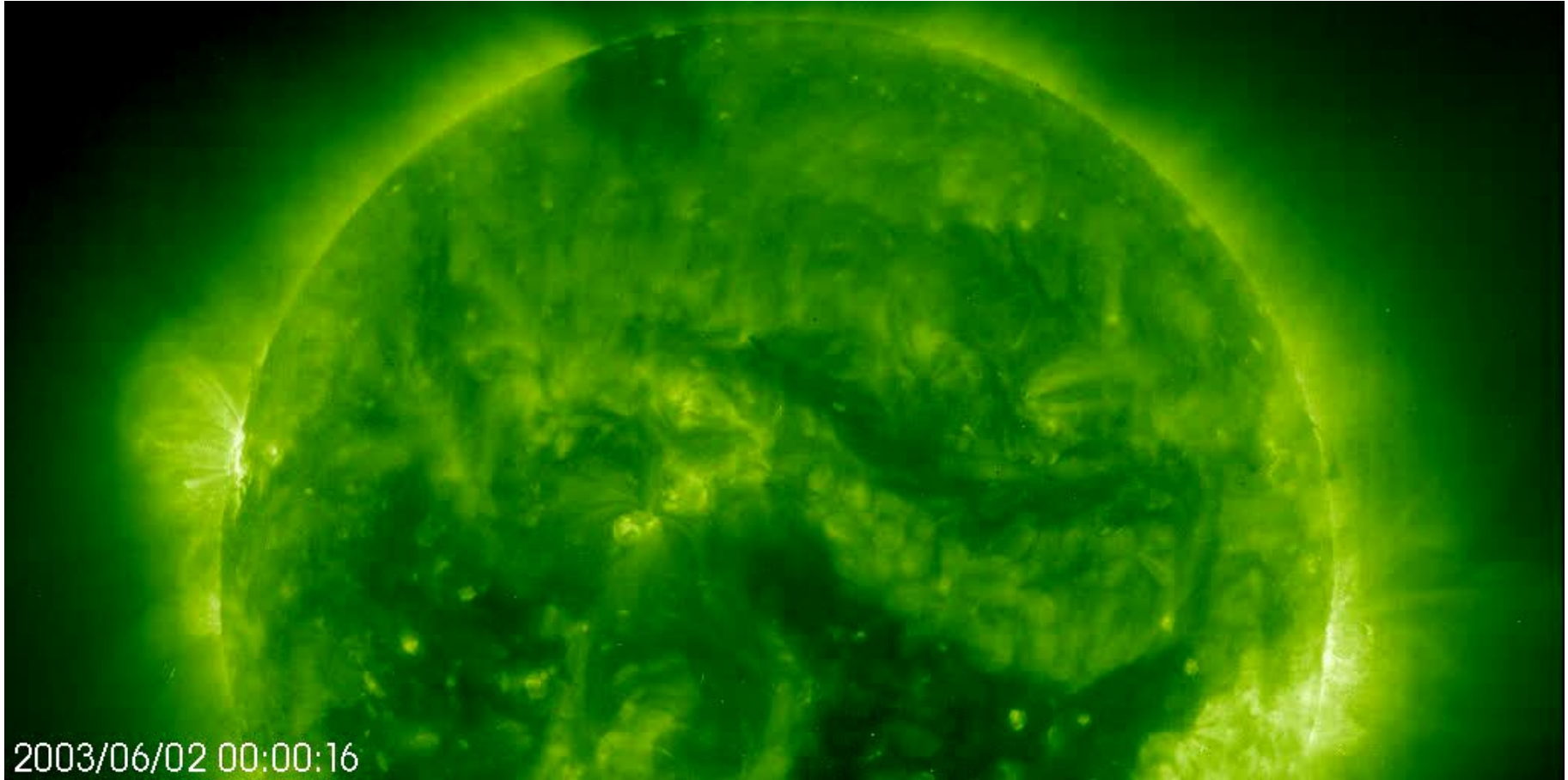
MDI Intensitygram: 2001.03.01_00:00



N
↑
→ W



VLA radio image at 5 GHz
<http://images.nrao.edu/506>



2003/06/02 00:00:16

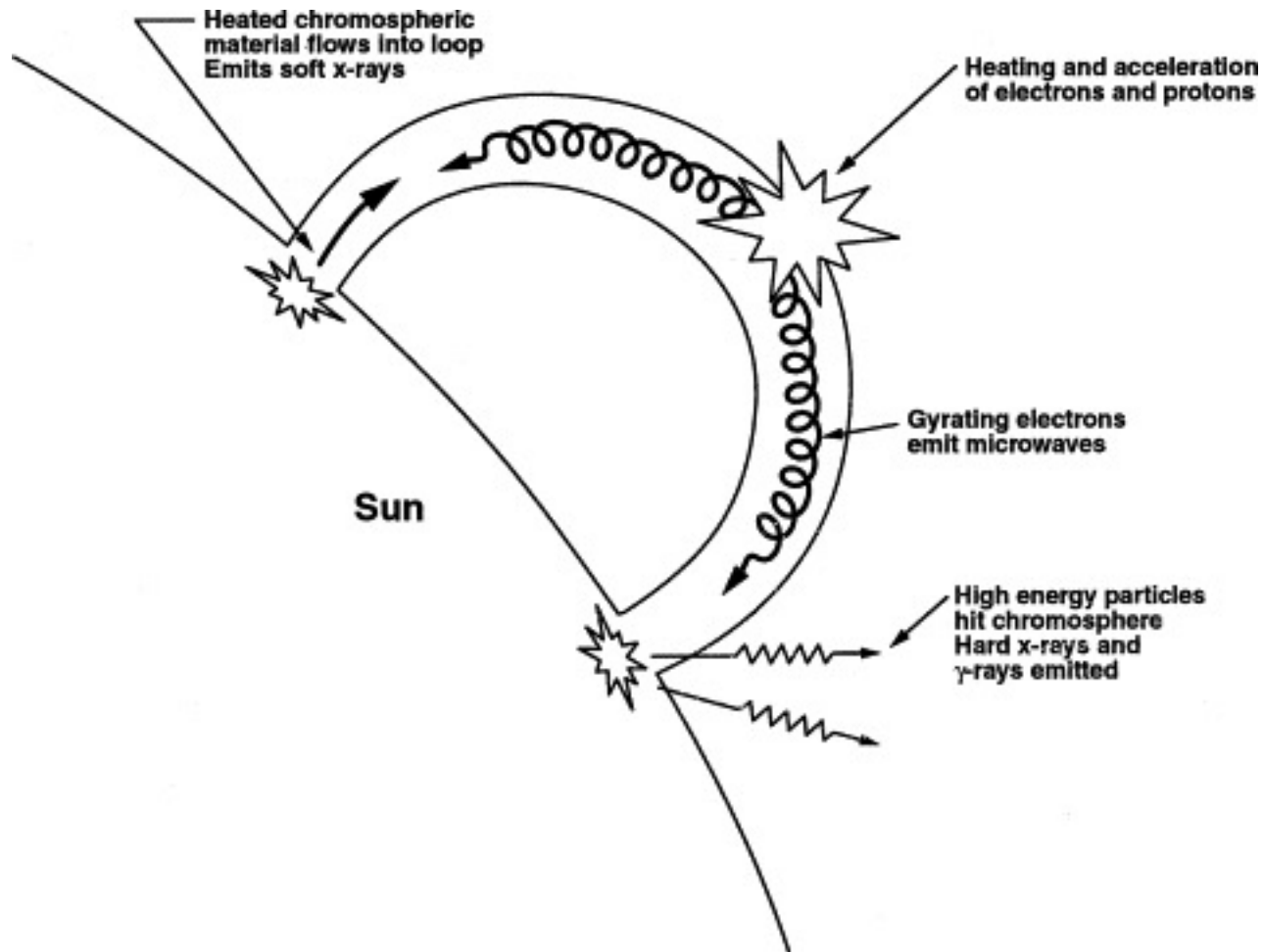
Radio Heliographs

- Most solar observations at radio wavelengths undertaken by dedicated radio ‘heliographs’

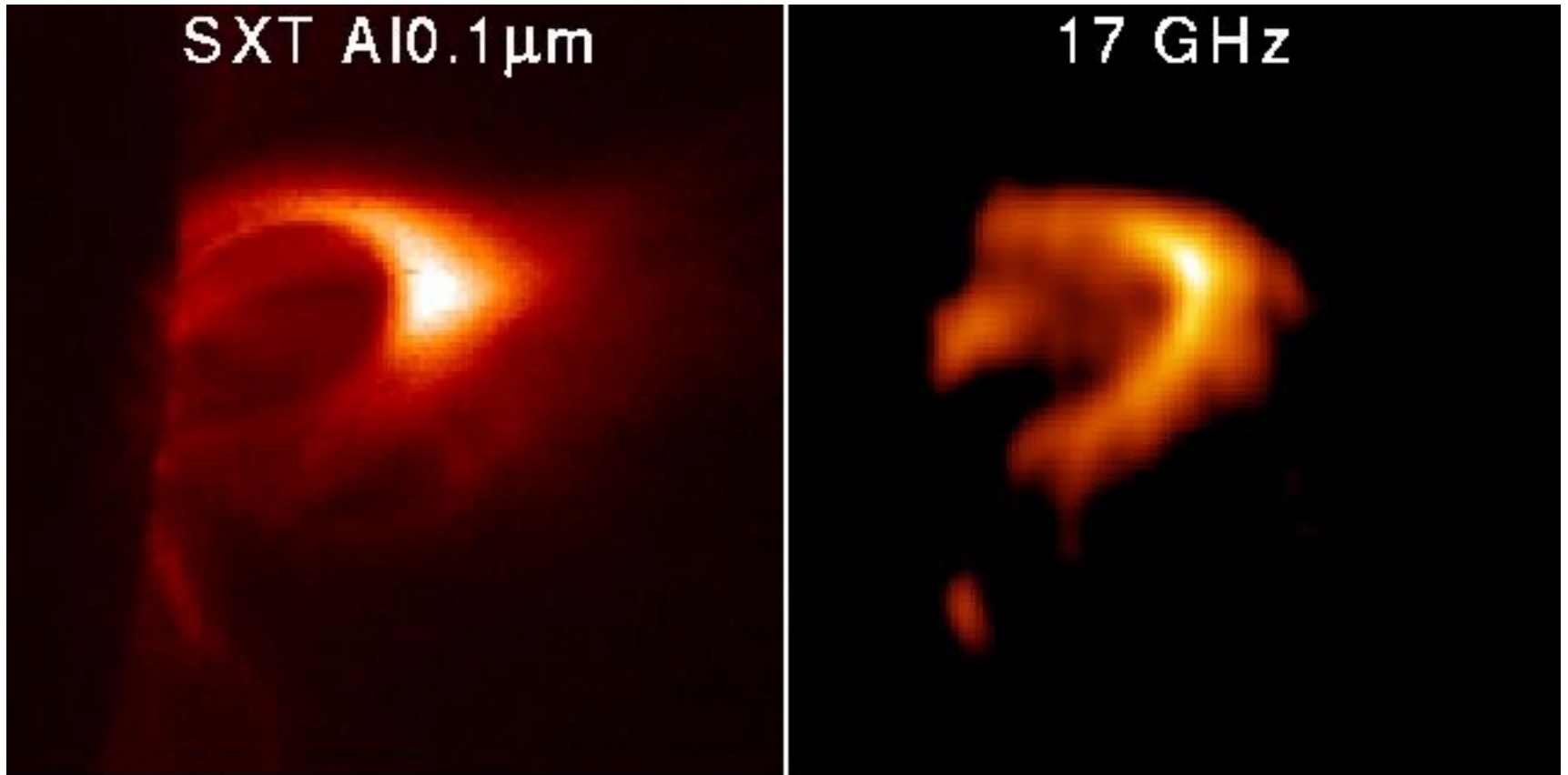
Nobeyama
84 x 0.8 m
500 m baseline
17 GHz



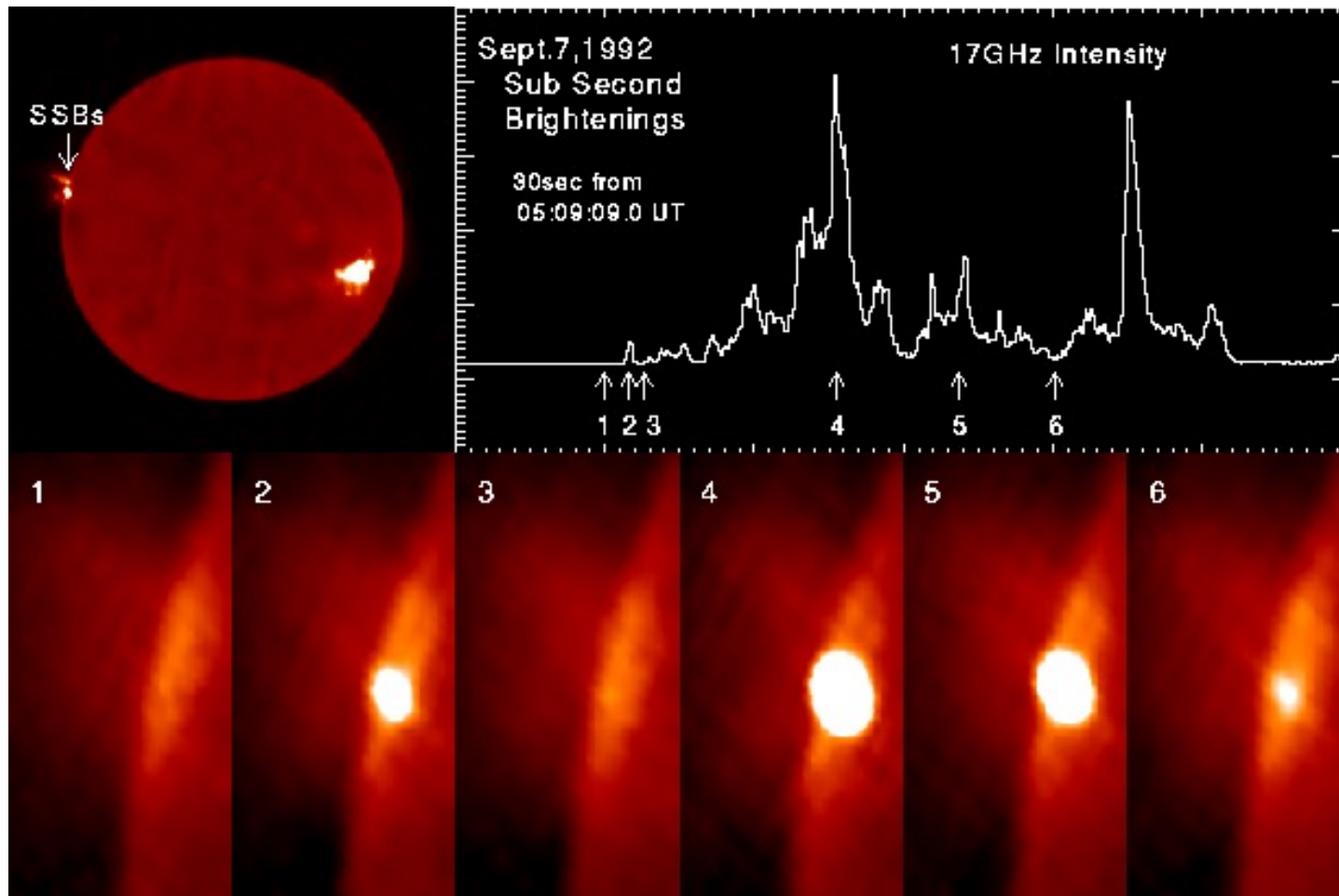
Gyro-synchrotron Emission



Magnetic Loops

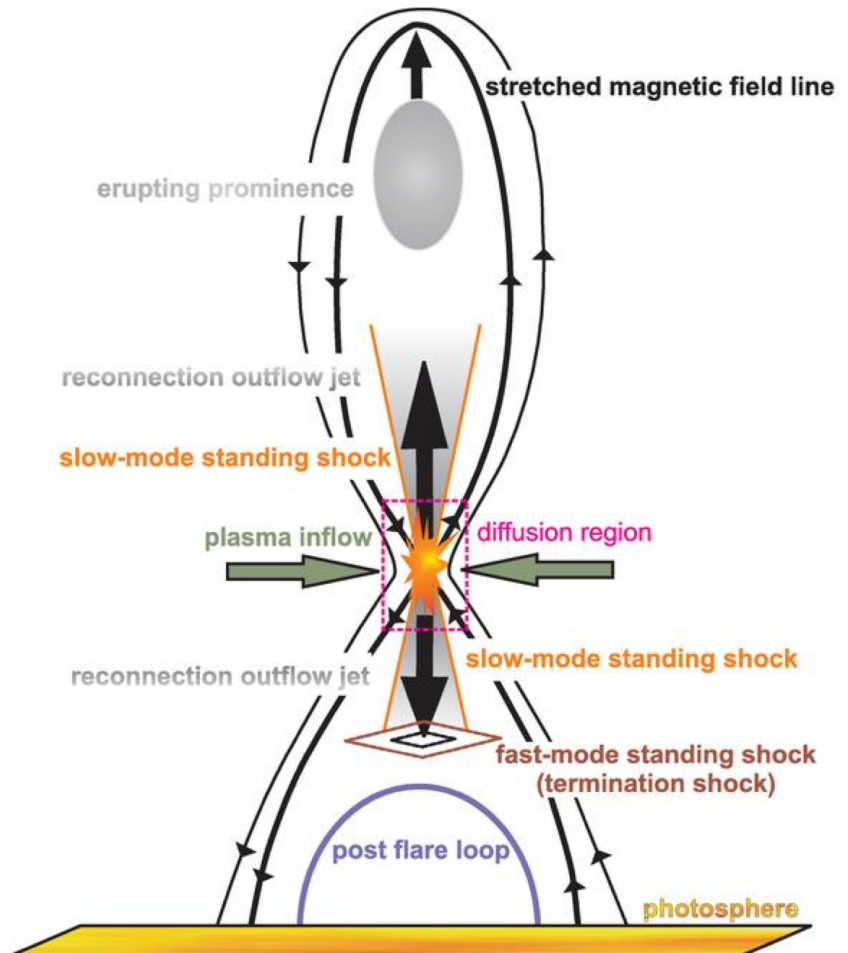


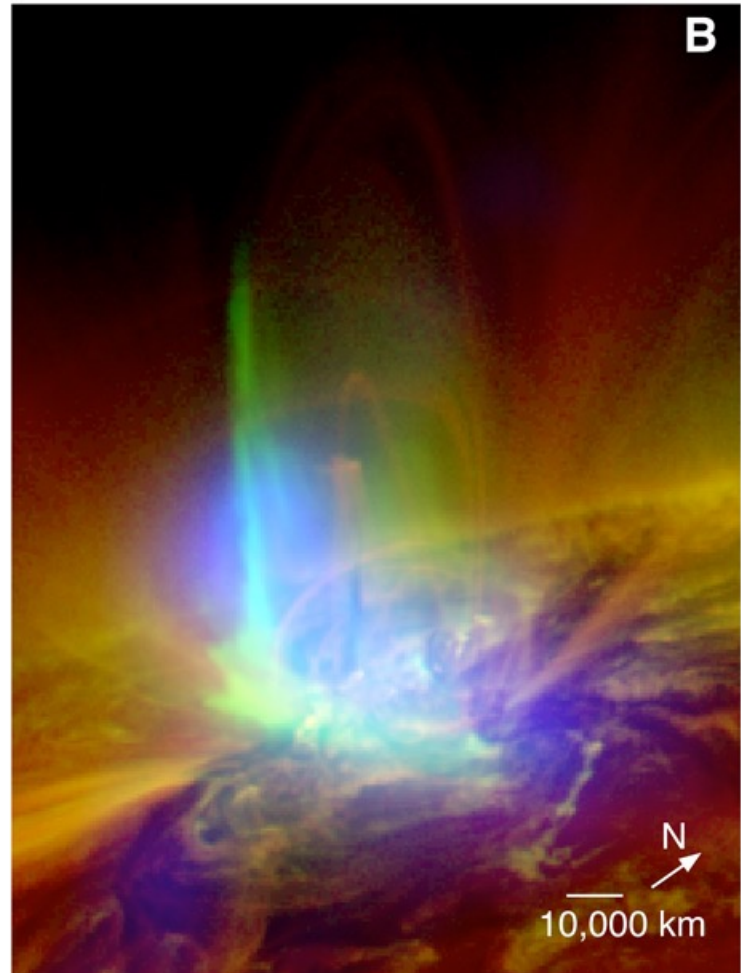
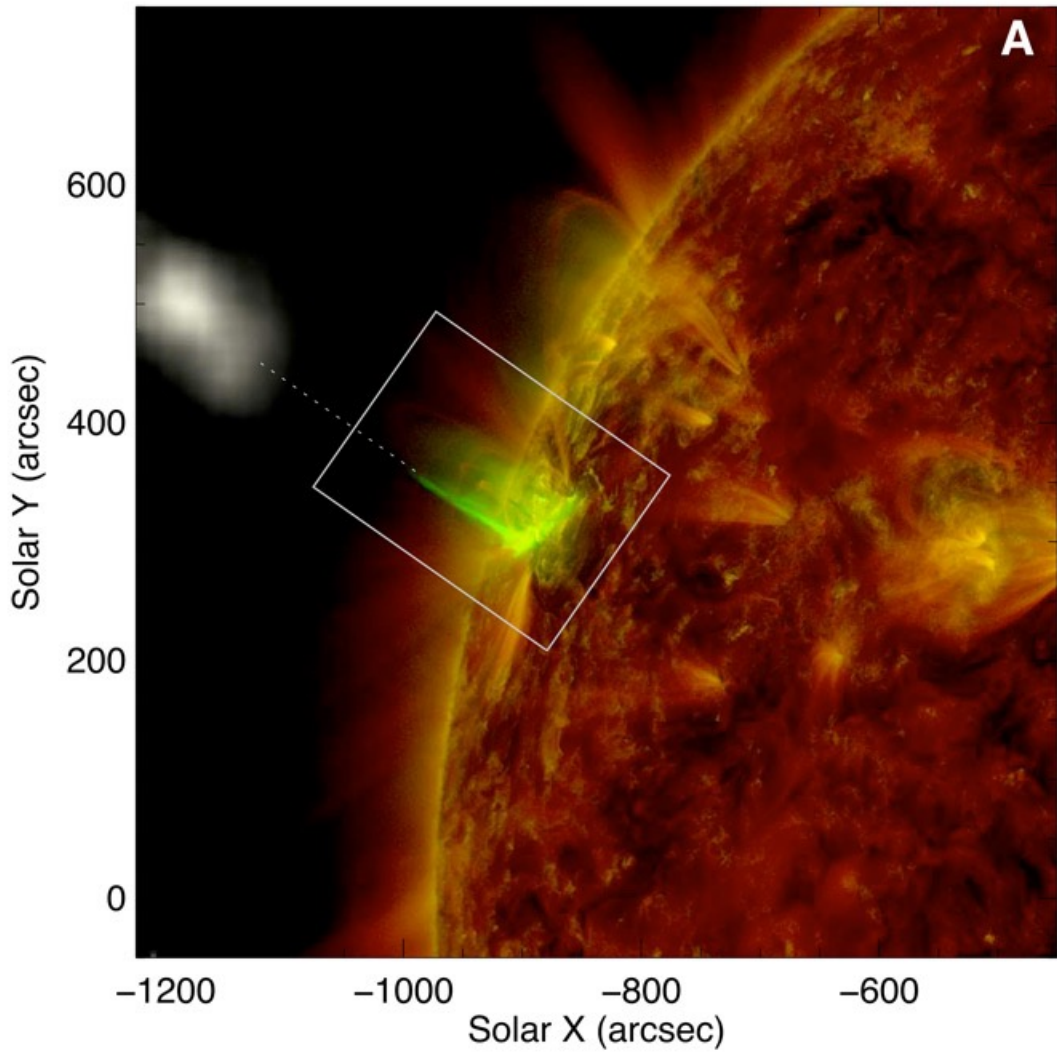
Solar Flares



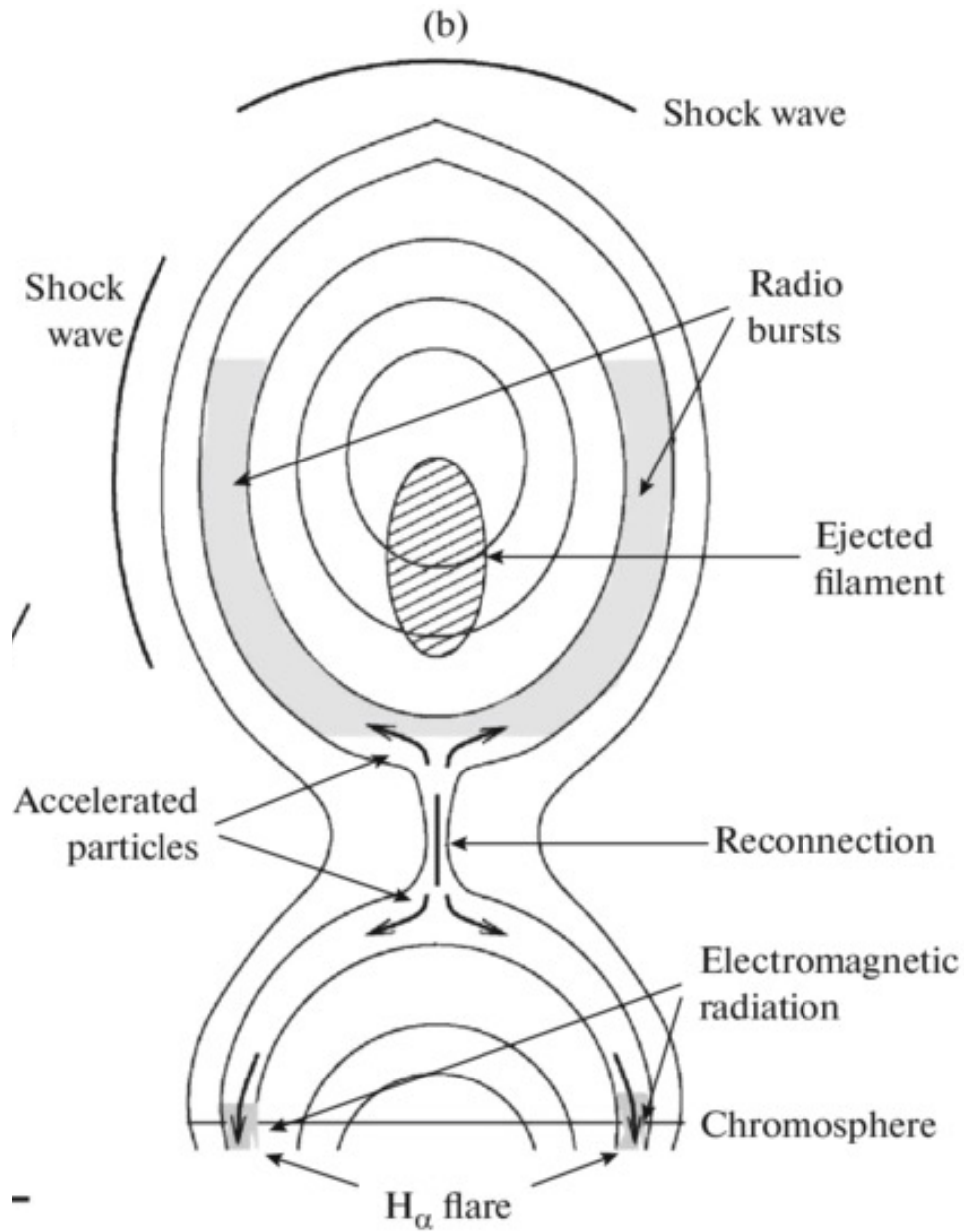
Magnetic Reconnection

- Understanding the physics of reconnection events requires high time and spatial resolution as well as high dynamic range



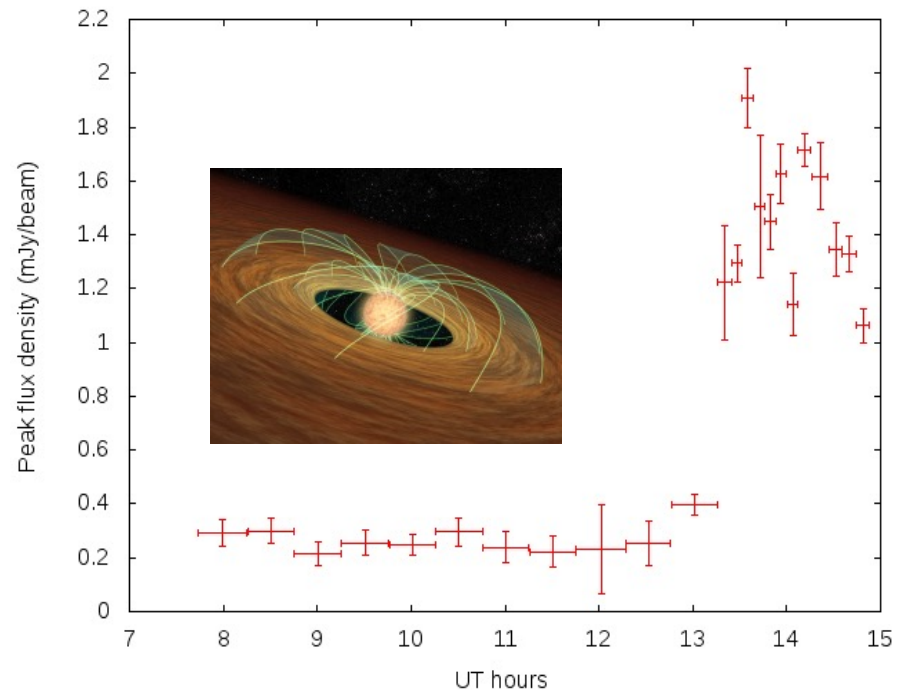


Blue: Radio (VLA), Red/Green EUV, White (X-ray)

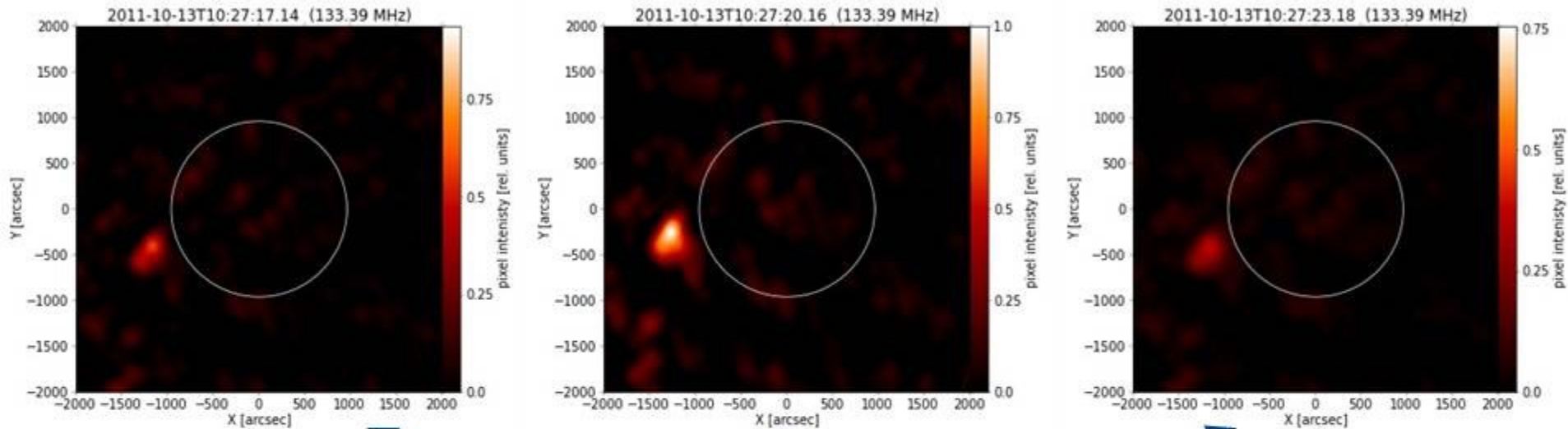


Magnetic Flares

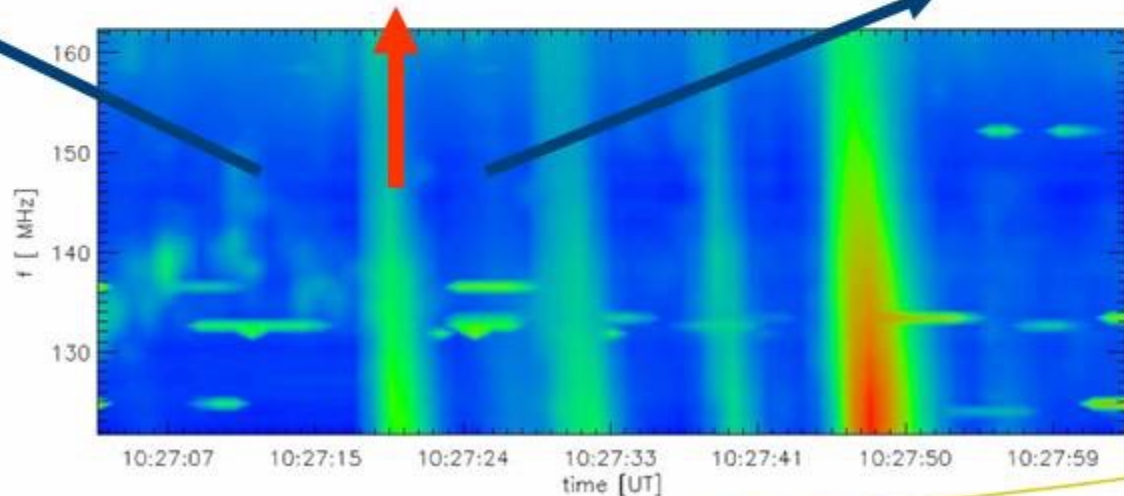
- Magnetic flares seen many other areas of astrophysics
 - Stars
 - Interacting binaries
 - Forming stars
 - AGN



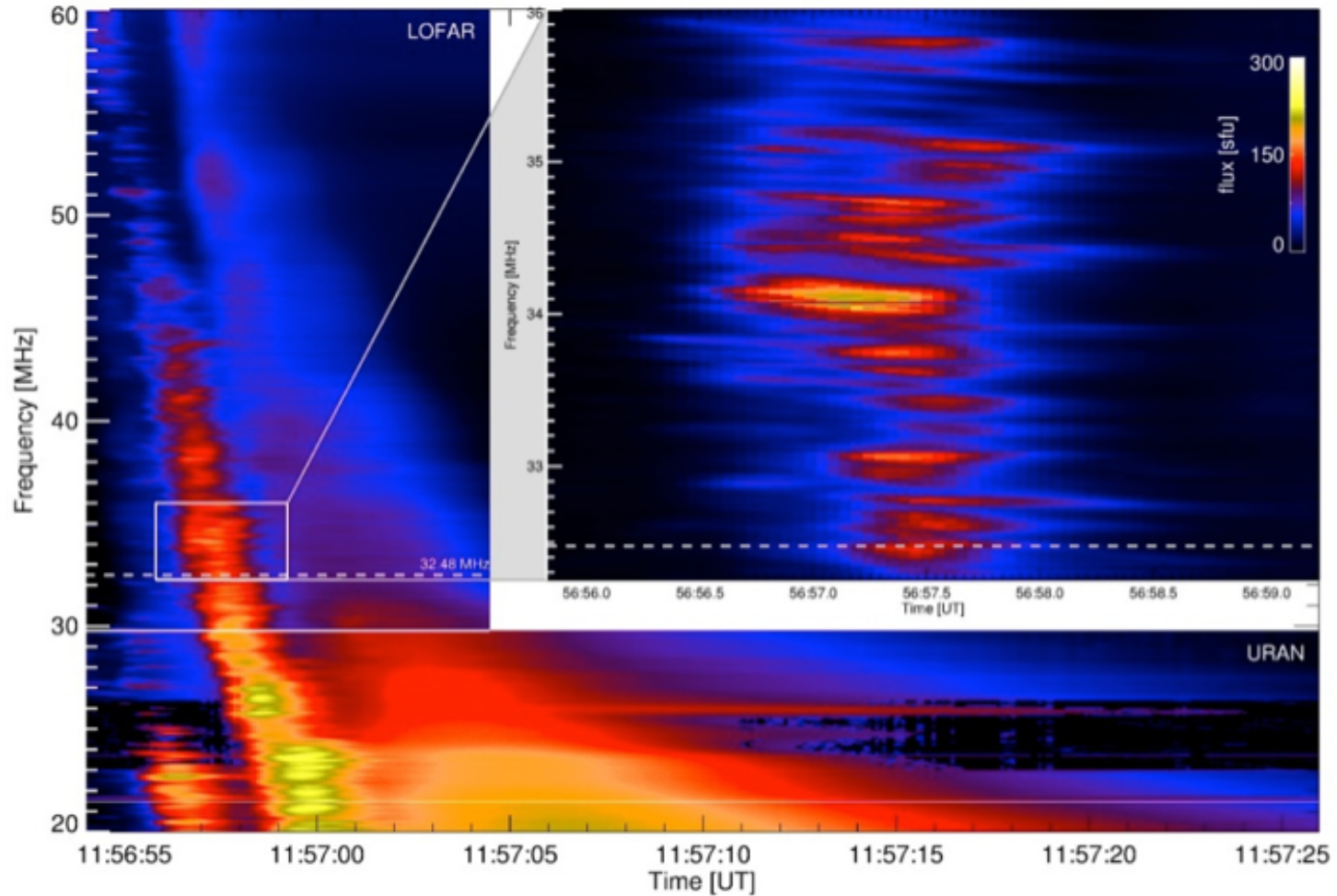
Low Frequency Observations



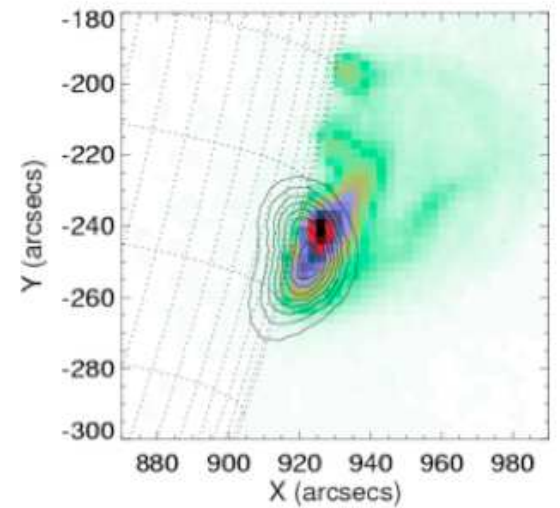
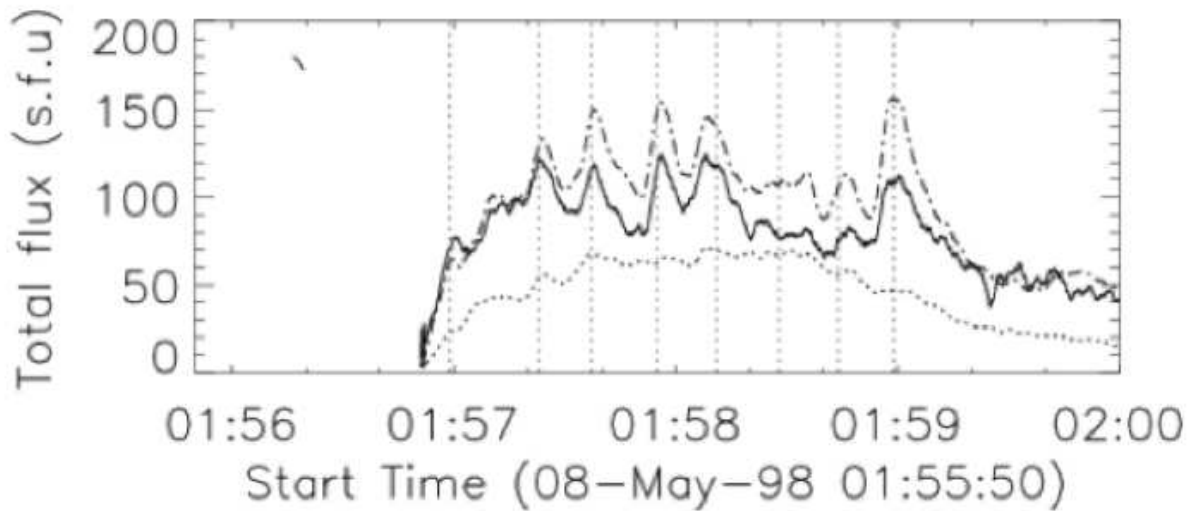
Dynamic
Spectrum



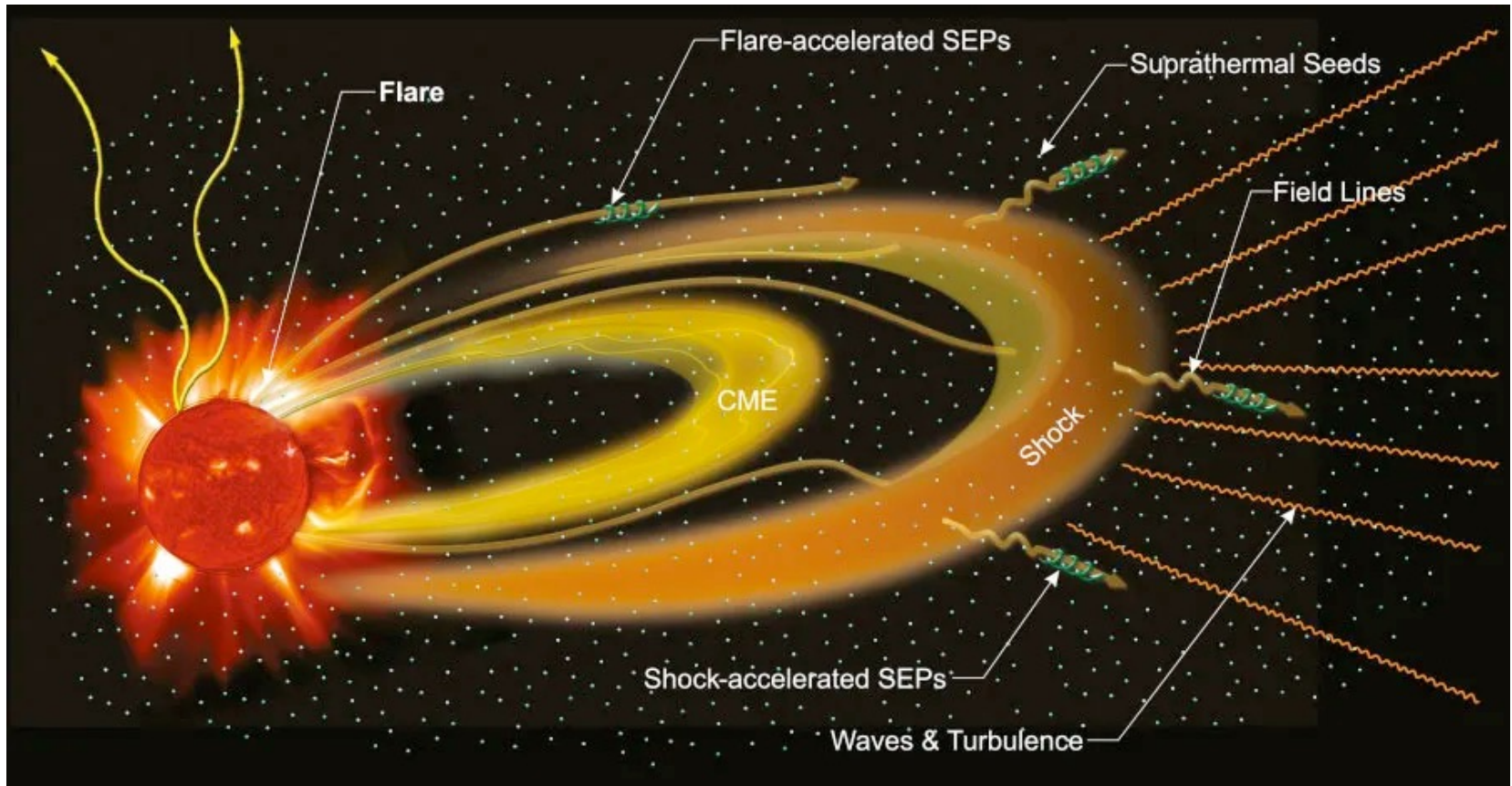
Plasma Waves



MHD Waves



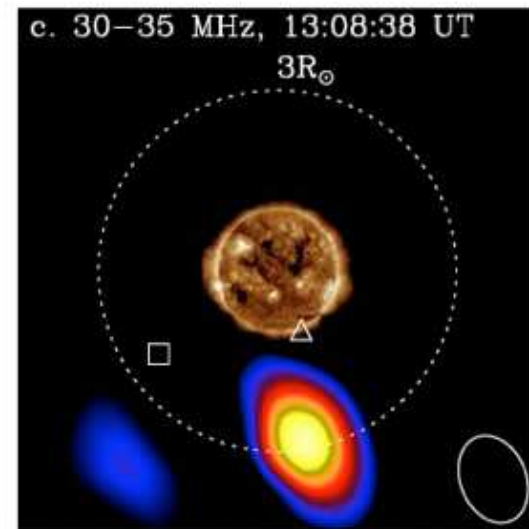
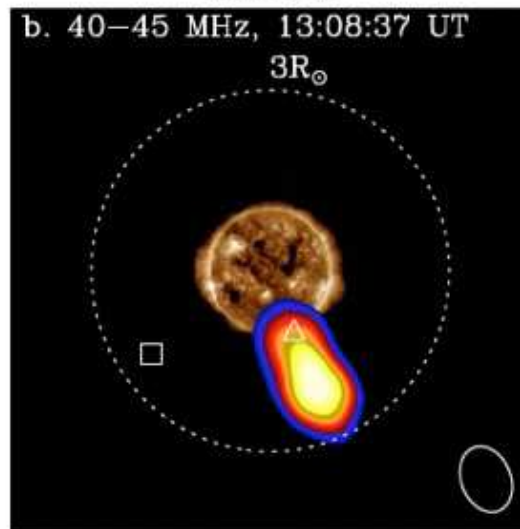
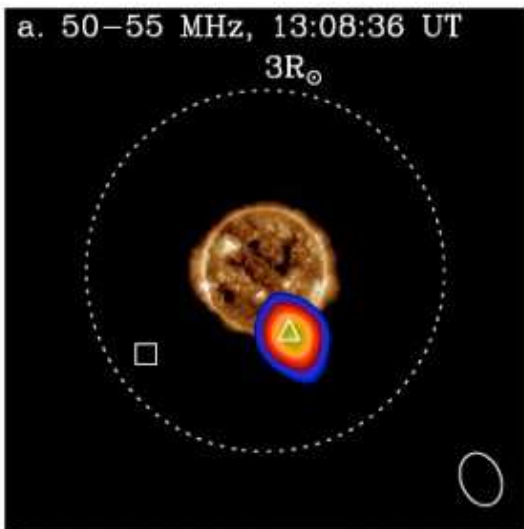
Coronal Mass Ejections

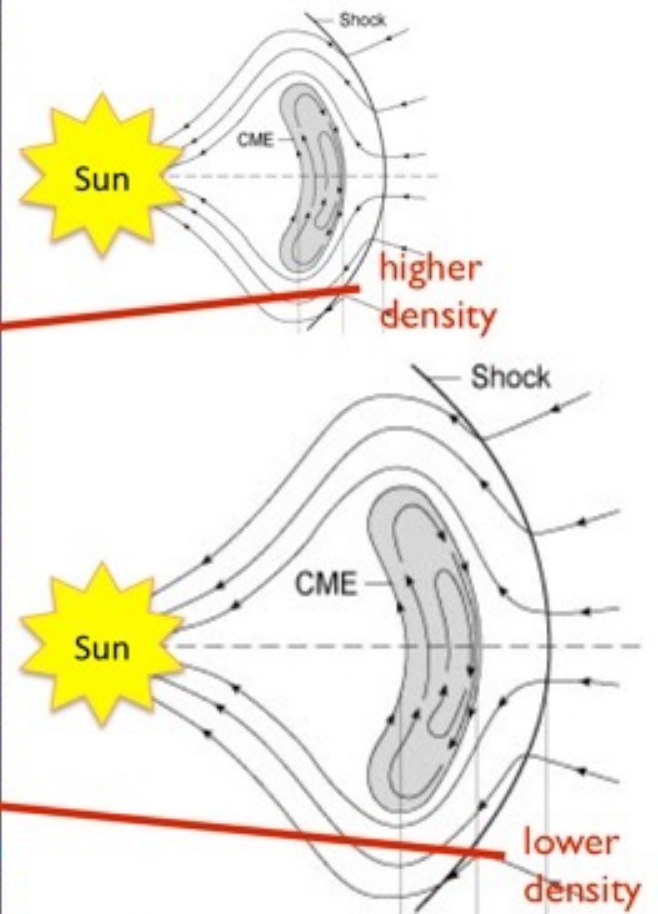
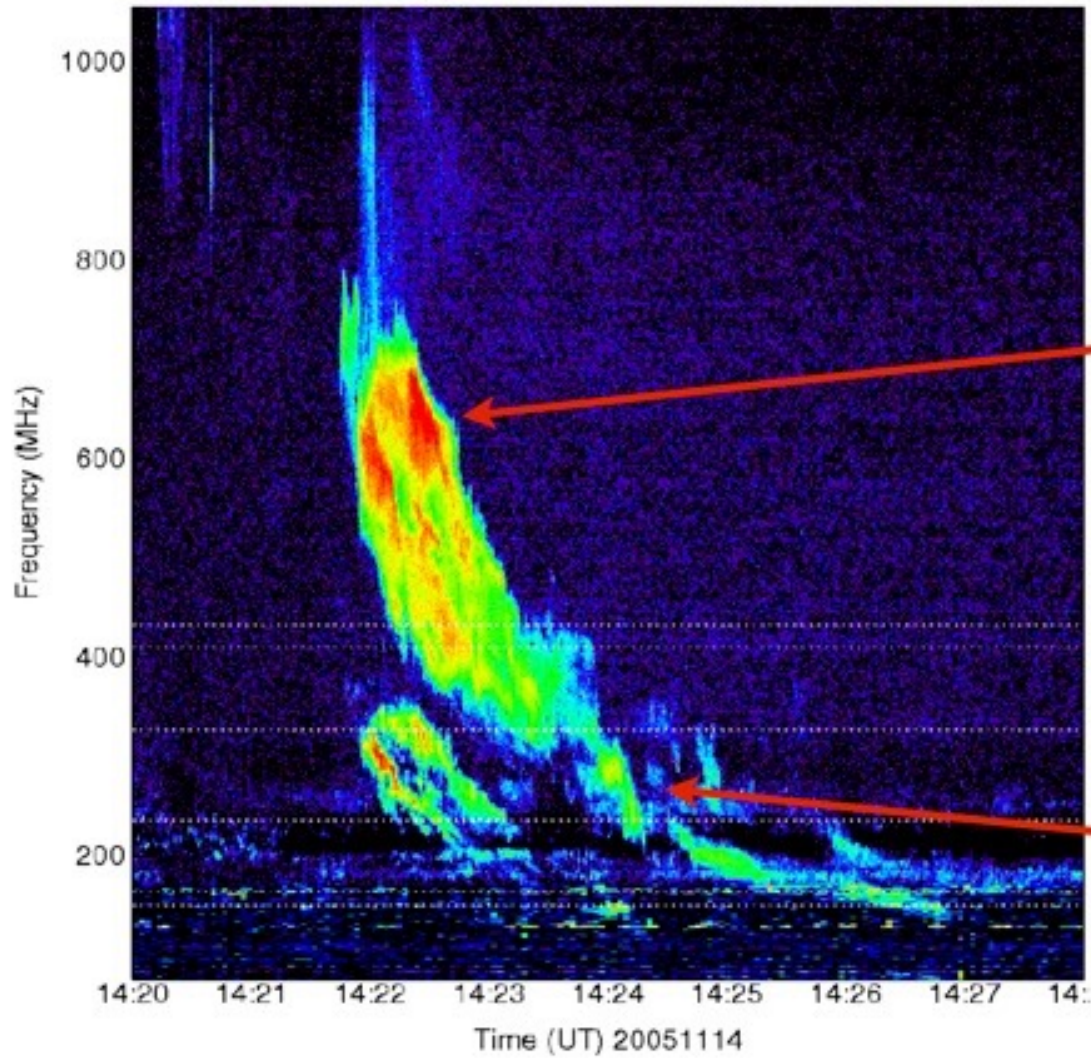


An astronomical image showing a central star with a white ring around it. Two bright blue jets of gas or dust extend outwards from the star, one towards the upper left and one towards the lower right. The background is a dark blue field filled with numerous small white stars. The image has a slightly grainy texture.

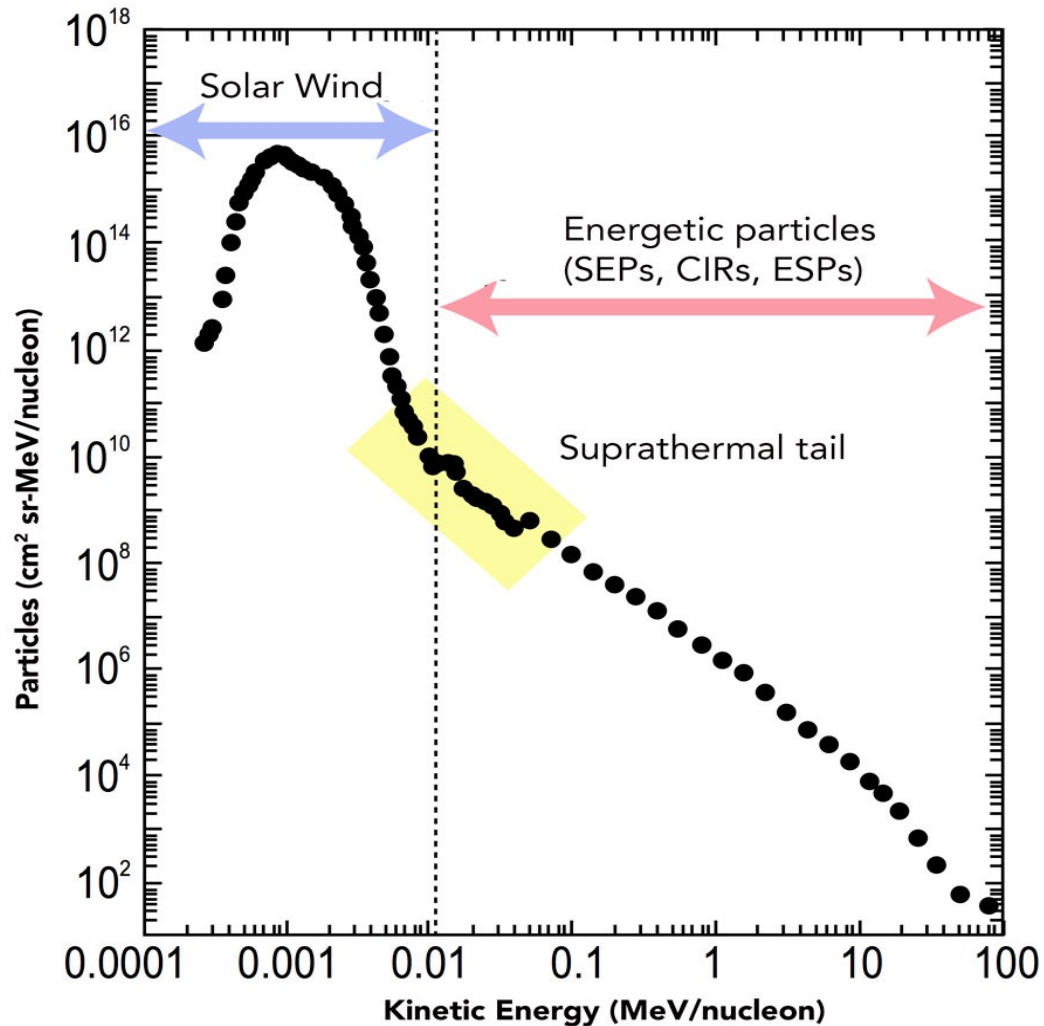
C3 1998/05/01 01:44

Burst 1

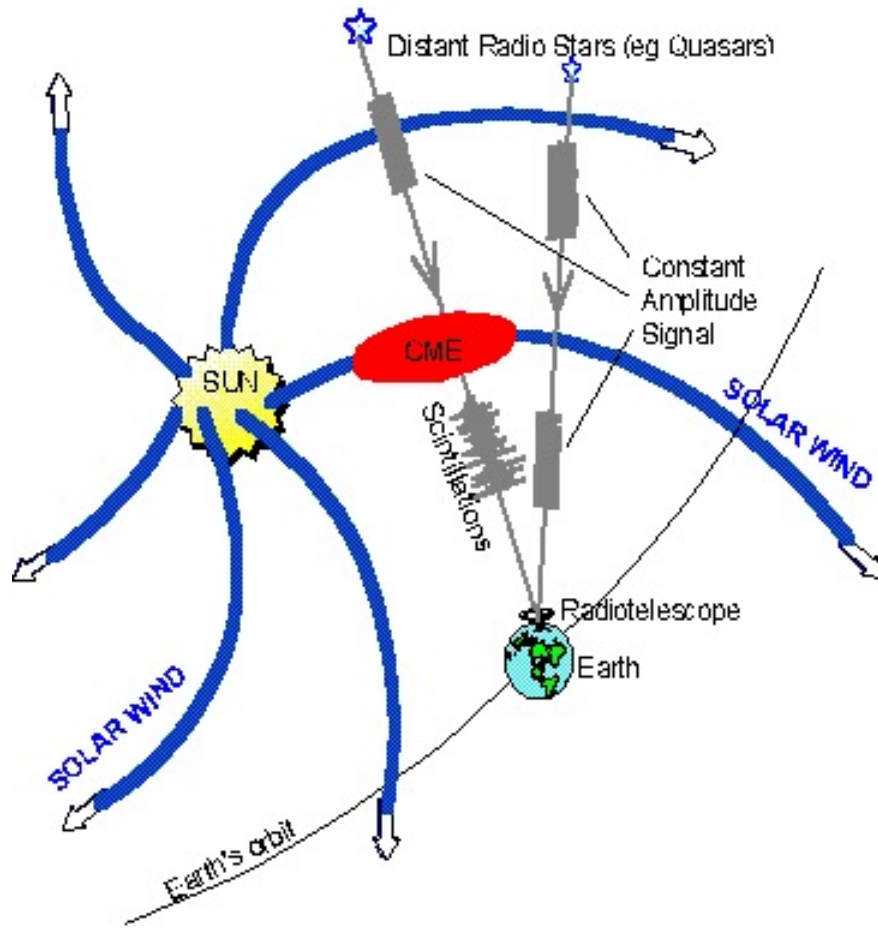


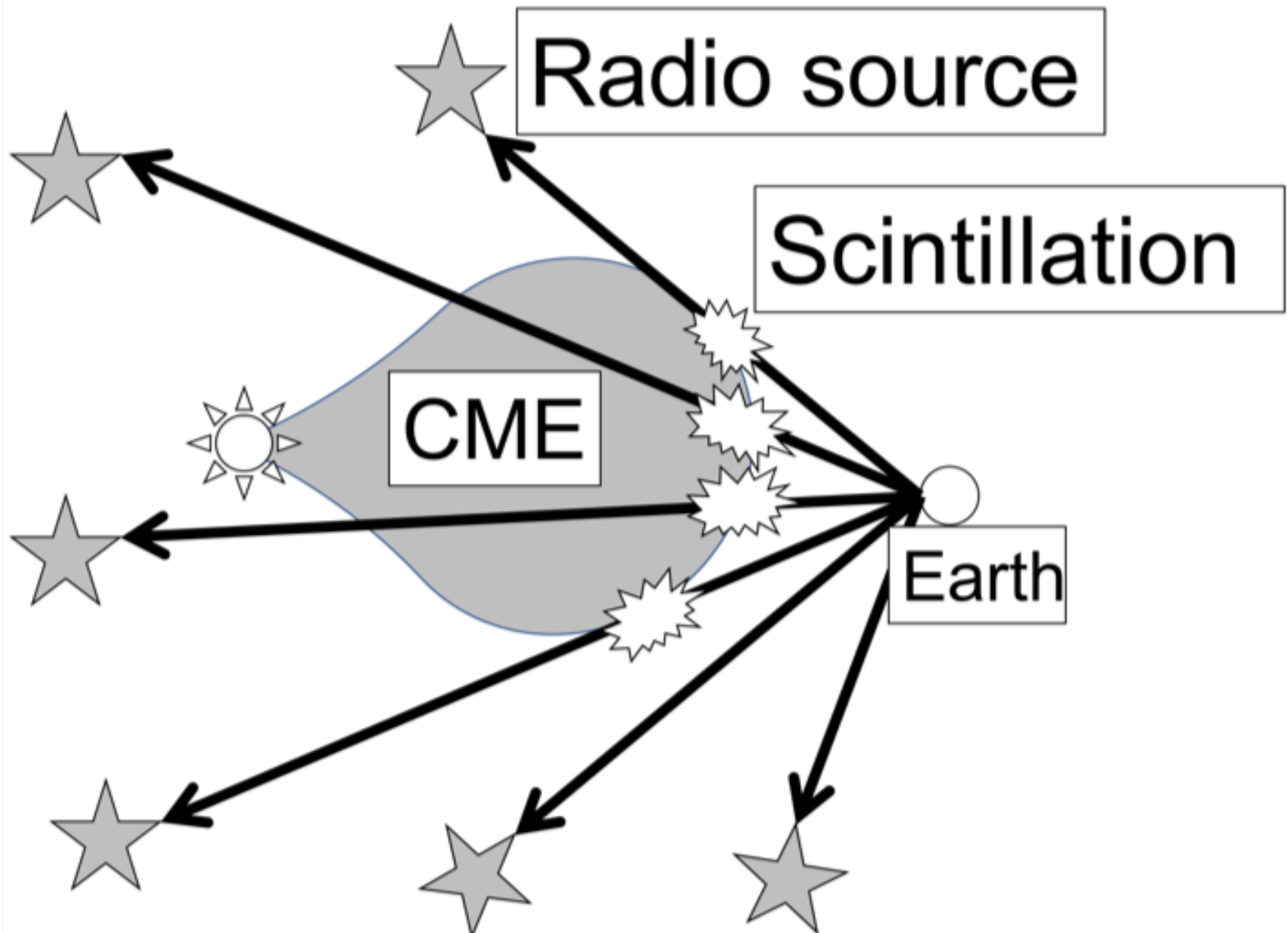


Particle Acceleration

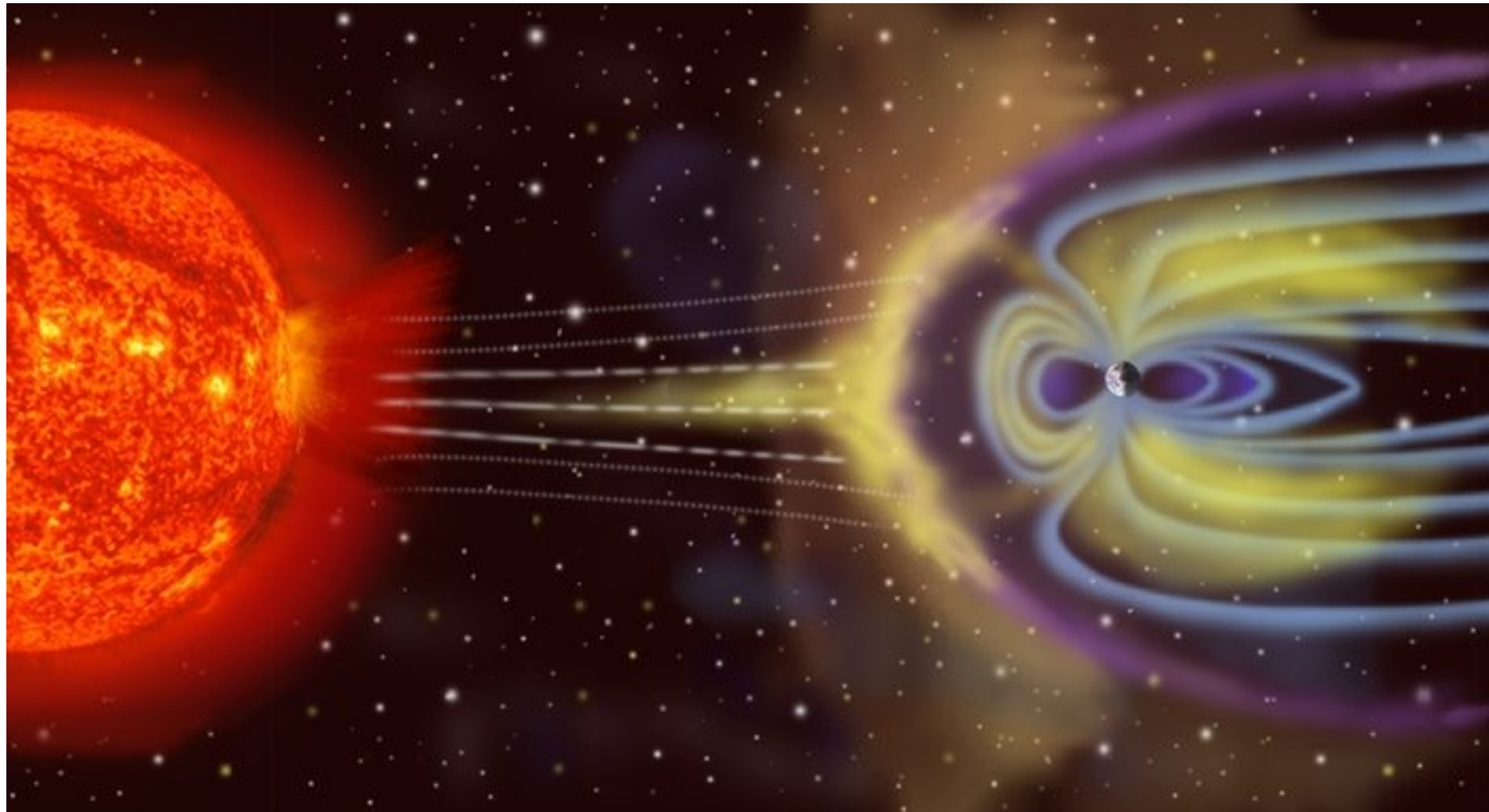


Interplanetary Scintillation





Space Weather



Summary

- SKA (both LOW and MID) will address a range of solar radiophysics
- Physics of magnetic reconnection and flares
- Lead to better predictions of space weather affecting the Earth