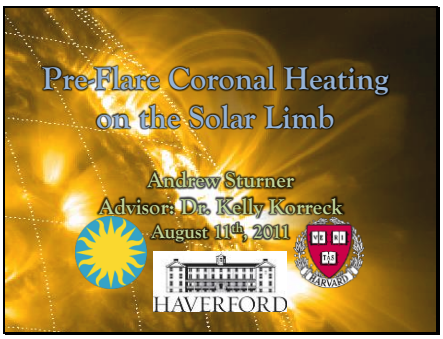
Slide 1



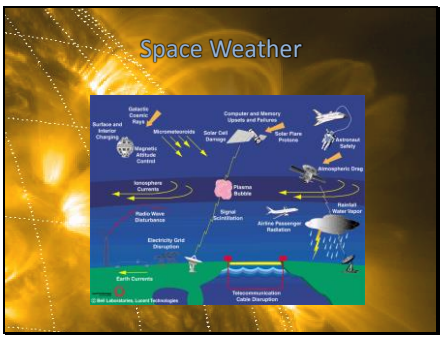
Slide 2

Space Weather

Slide 3

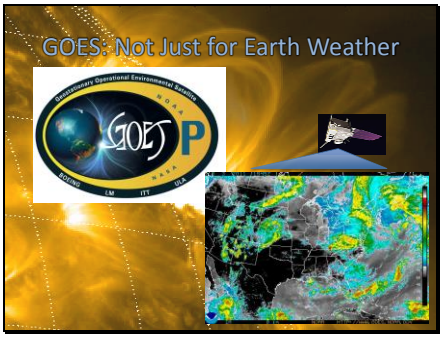
Next: Problems associated with Space Weather

Slide 4



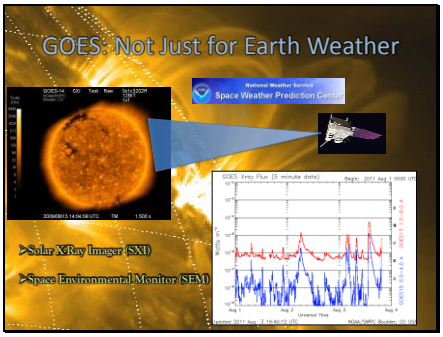
Next: We are not totally helpless- we have GOES

Slide 5



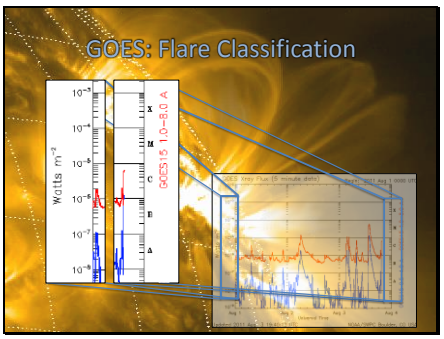
Next: Not only does GOES look at weather on Earth…

Slide 6



Next: Flare Classification

Slide 7

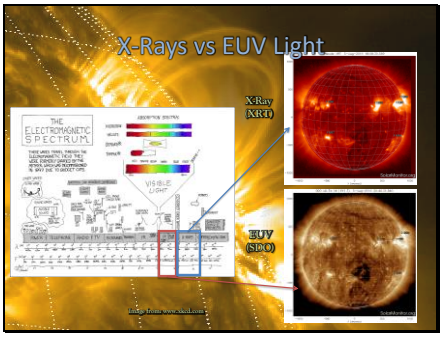


Next: GOES = operational instrument, not science, won't be around forever

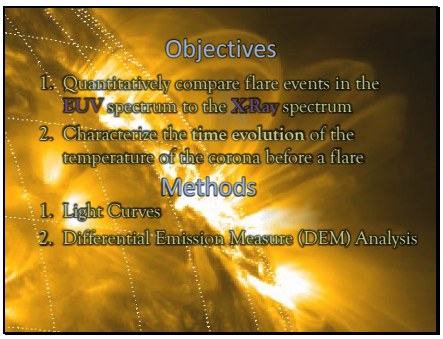
Slide 8

12 second cadence, full disk images with resolution of 0.5 arcsec
Next: However, there are some issues that we must work out if we choose to work in the EUV

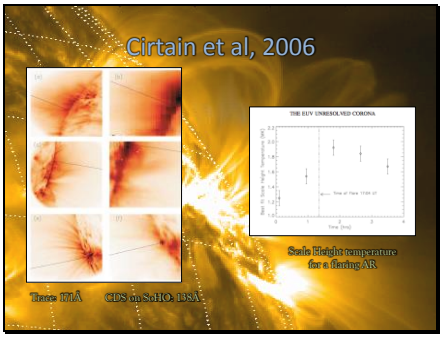
Slide 9



Slide 10

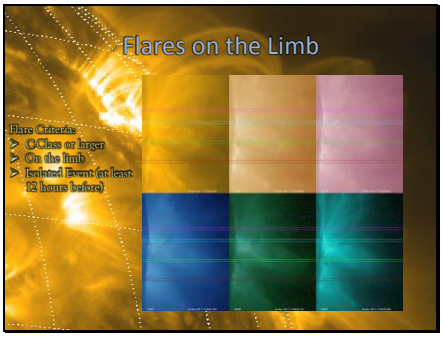


Slide 11

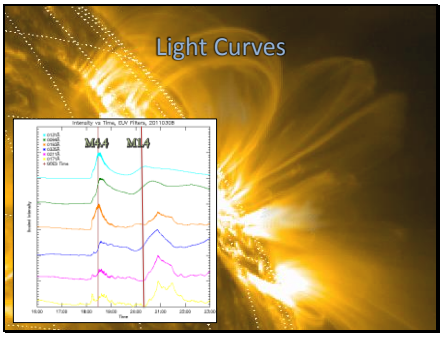


Next: We, too, can look at temperature evolution in the corona.

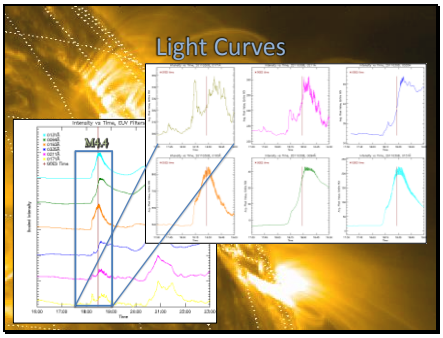
Slide 12



Slide 13

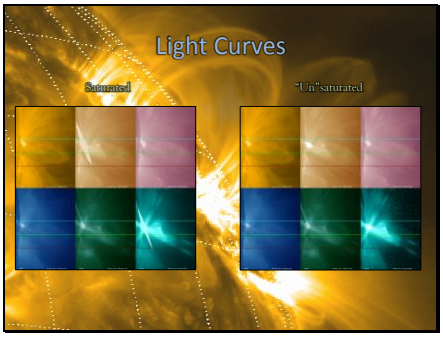


Slide 14

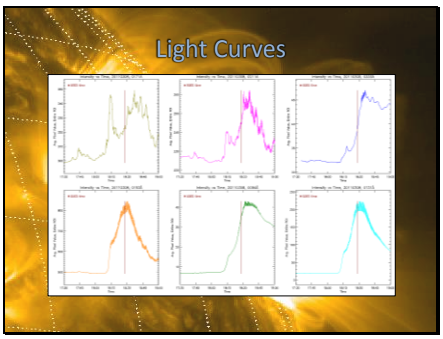


Next: Jagged edges would make statistical analysis impossible, so we need to remove the jitter. The fluctuations are due to saturated pixels.

Slide 15

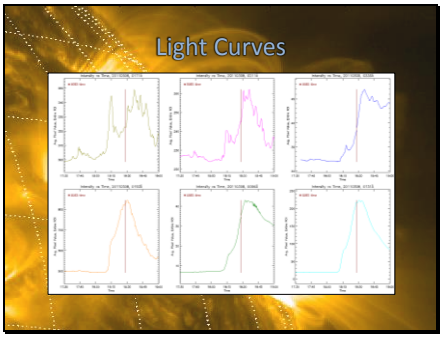


Slide 16



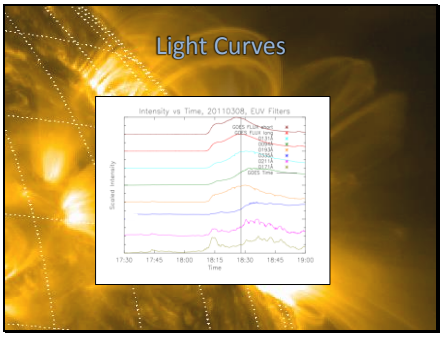
Next: And so, if we identify and remove a large percentage of the images that have many saturated pixels…

Slide 17



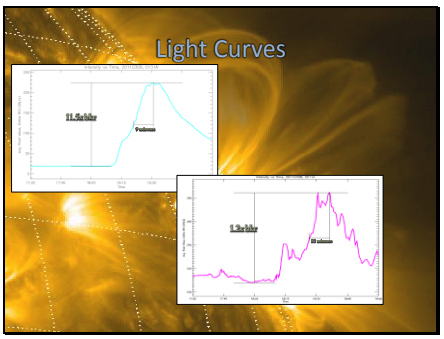
Next: We can stack these on top of each other

Slide 18



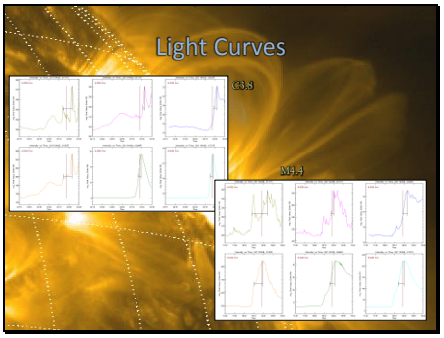
Next: we can also look at each curve individually

Slide 19



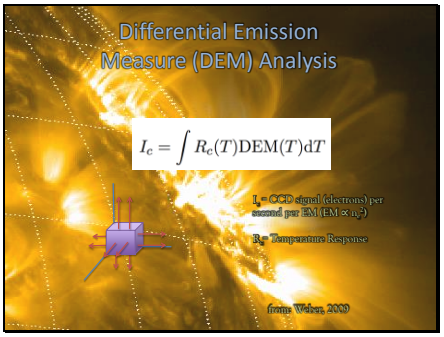
Next: and we can also compare one flare to another

Slide 20



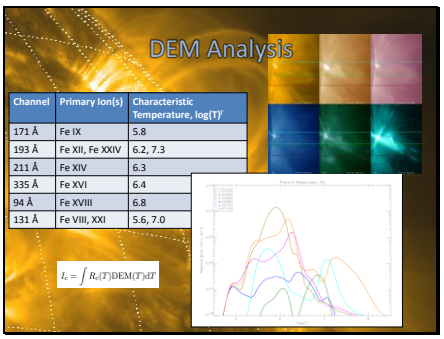
Next: (no transition!)

Slide 21



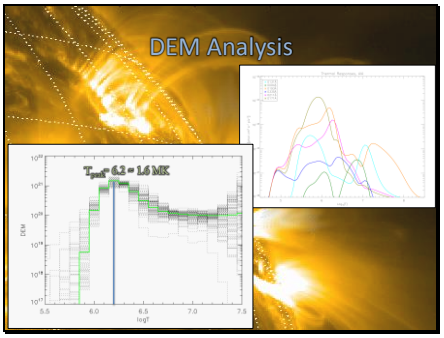
Looking to characterize the Emission Measure, which is dependent on its temperature
Next: So, we have two parts of this equation:

Slide 22



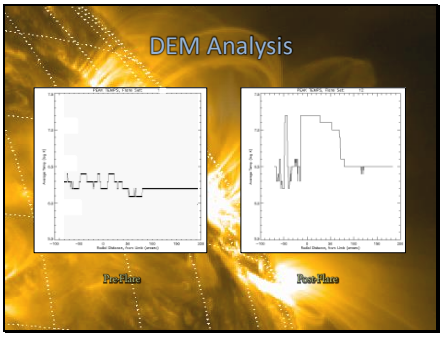
Averaging over 5 minutes of data, and over a 11-pixel wide box, at every radial distance point
Next: This is an equation with many variables and only a few unknowns.

Slide 23



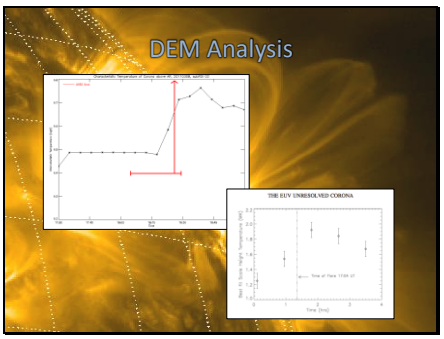
Next: We can take these peak temperatures, and plot to see how these peaks change as we move away from the limb of the sun

Slide 24



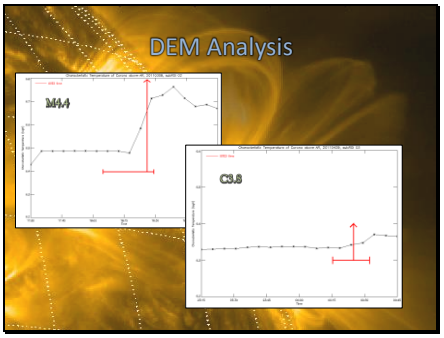
Next: These can fluctuate quite a bit, so if we average the peak temperatures over the entire image

Slide 25



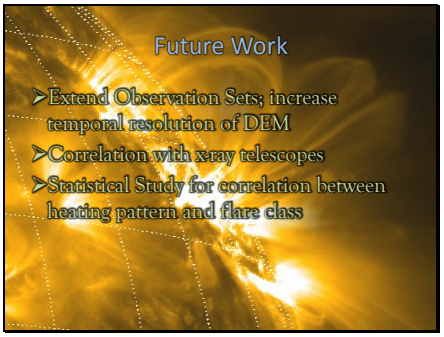
Next: So, we see a significant rise in the characteristic temperature in the corona as the flare evolves. However, we do not always see this sort of magnitude change

Slide 26



And other M-class flares had rises less dramatic, but in the middle of these two

Slide 27



Slide 28

Slide 29