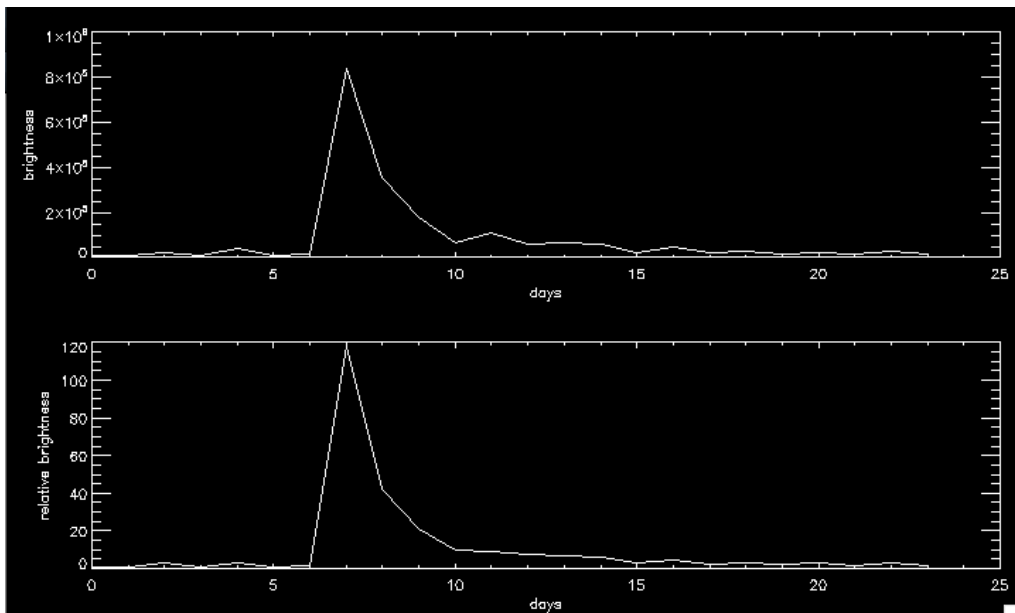


REU: Week One

David Stauffer

June 6, 2013

Attended introductory meetings and learned how to use the computer system. 5 IDL tutorial sessions and two lectures: Sun as a Star and Sun's Interior and Dynamo. As part IDL tutorial, downloaded images of sun during solar flare and compared brightness of flare to quiet sun value:



The top plot shows the brightness of a section fo the sun containing the flare, clearly peaking when the flare goes off. The bottom graph shows the relative brightness of this flare as compared to the quiet sun brightness value.

The main project this week was writing code to track a large coronal hole across the surface of the sun. Images from the Solar Dynamics Observatory

orbiting earth and the STEREO (A and B) satellites orbiting around the sun. Most of the actual code was pre-existing so we wrote a program that called subprograms to download satellite data from online databases. The program then called another subprogram that projected the images into flat maps and combined the flat images into one picture of the whole sun. The overlaps in the images are not processed very well because the sun appears brighter in places (near the limbs). Then, we animated these full sun images into a video showing the progress of a large coronal hole moving across the sun from May 8-24, 2013. Here are three of the frames from this movie:

