

List of Researchers on Team: Andrew Aramians, Bandar Abu Ghaith, Gage Barclay

Name of Flare**: Gage

Flare Date: 2013-05-17

Flare Peak Time (in UTC): 8:59

Flare Start Time (in UTC): 8:40 (visual estimate)

Flare End Time (in UTC): 10:45 (visual estimate, close to baseline levels)

Flare Peak Irradiance (in W/m^2): 3.2×10^{-5}

Flare Class: M3

Flare Total Energy (in ergs): 2.1534×10^{29}

Collected with Old Data or New: Old

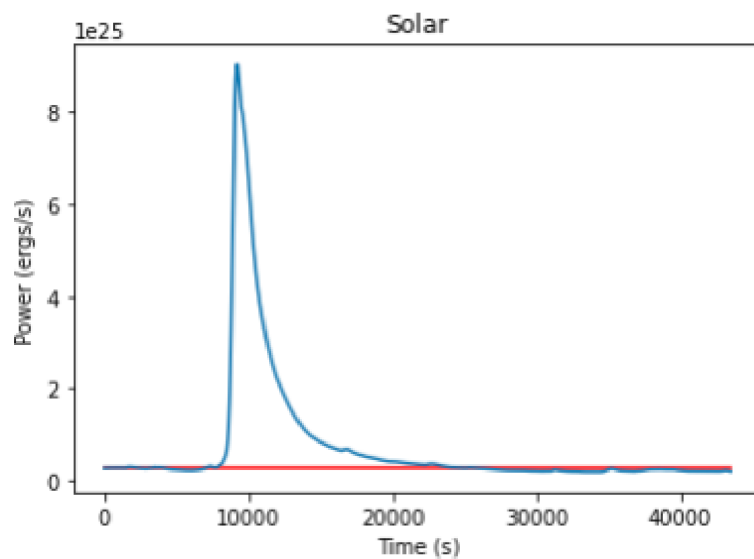
Flare Analysis

Description of the flare

This flare occurred roughly 1 year before the solar maximum of 2014. It was preceded by a small flare, and contained two small flares in the tail.

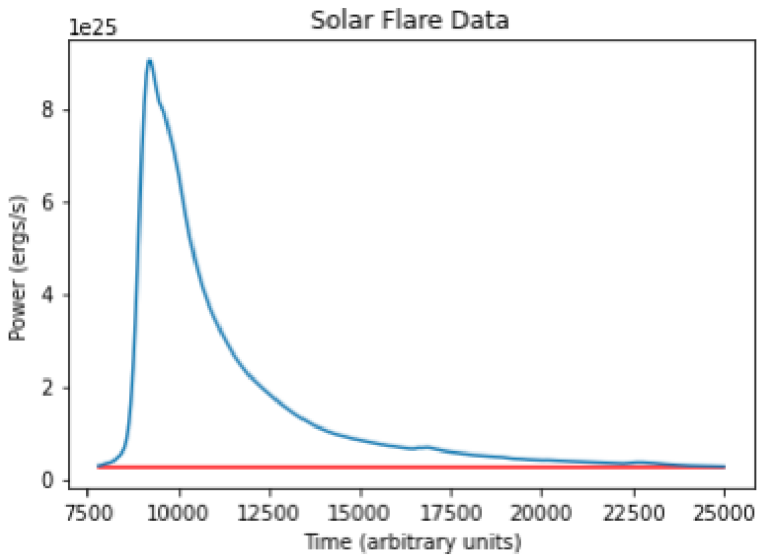
Background correction

For the background correction, the method of taking local minimums and averaging them across a certain time frame was used. The group avoided pre-flare data that contained flares or discontinuities, and visually chose a suitable stretch of data. This average background energy was then integrated across the span of our flare, and deducted from the total energy.



Finding start and end times

The group took the average baseline energy from the background correction and found the intercepts of it with the flare. From this we got two index values for the data (start and end) that we used for the integration. To approximately correlate the index values with time, we took the total amount of index values (726), divided our intercept index points (130 and 418) by the total for a ratio, and then multiplied the ratio by the timespan of all the data we used to figure out how much time passed to get to each particular intercept. I am not 100% sure how much time's worth of data we used (The group believes it was 4 hours), so I manually drew the baseline over data from Space Weather Data Portal to see when the intercepts occurred (for the estimated start and end time).



Discussion of total energy of the flare

Total energy calculated: 2.1534×10^{29} ,

Flare Peak Irradiance (in W/m^2): 3.2×10^{-5}

In terms of peak irradiance, this flare is very, very average when compared to the class data.

Compared to other flares with a similar peak irradiance, however, this flare is above average in total energy released.