

Suggestions for further study

As massive as this project may already seem, there is so much more that can be done with it! Here are some suggestions for extending the project:

1) Relate to auroras and correlate data collected to auroral index

Ideally, students could find data online regarding which days auroras were present. Then, they could see if the days of maximum aurora (by searching for lowest latitude at which auroras were seen, finding the maximum A index, etc.) matched the data they had. Did auroras follow a few days after a lot of solar activity? Did the auroras match up with changes in the magnetometer? Geomagnetic index? Does the Kp number correlate to the number of sunspots?

Here are some websites that may help:

- a. <http://www.sel.noaa.gov/pmap/>
This website visually displays today's auroral activity at northern latitudes extrapolated from NOAA POES.
- b. http://www.sec.noaa.gov/ftpdir/lists/geomag/7day_AK.txt
This site lists the A index and 3-hourly K indices for the previous 7 days.
- c. http://www.exploratorium.edu/learning_studio/auroras/
The Exploratorium Museum offers an online exhibit about auroras. Explanations, lesson plans, a "self-guided tour," and links are included.

2) Look at aurora, solar flux, or sunspot predictions; collect data and compare actual measurements to predicted values

Students could find predictions of the solar flux, number of sunspots, and auroral activities. They could collect data and determine the accuracy of the predictions by comparing the real values to the predicted ones.

Here are some websites that may help:

- a. <http://www.sec.noaa.gov/ftpdir/weekly/27DO.txt>
Predicts the planetary A index, largest Kp, and 10-cm solar flux for the upcoming month.
- b. <http://www.pfrr.alaska.edu/~pfrr/AURORA/INDEX.HTM>
The University of Alaska Fairbank's Geophysical Institute posts auroral forecasts.

3) Make a flip book from the sun spot data cards to see the progression of sunspots

The students will sketch the appearance of the sun as projected by the sunspotter. Since the students will have daily measurements of the locations of sunspots, a flip book can be made. Students can see the sunspots move across the face of the sun, change size, and appear or disappear in a fun and hands-on way.

Data cards for use with the sunspotter are an ideal size for making a flip book and don't require students to redraw anything.

4) Use a UV card to measure the UV light arriving from the sun and look at effects of sunscreen, etc.

A UV card, shown in the picture below, shows a relative measurement of the amount of UV radiation reaching the card. Students can explore factors affecting the amount of UV reaching the card (clouds, rain, glass, sunscreen, etc.). The card has a jacket to cover it. Sunscreen can be smeared on the plastic cover and the effects of sunscreen can be explored. In addition, the card can indicate when to reapply sunscreen.



For information about the UV card, including how to order one, see the following website: <http://www.maui.net/~southsky/uvcard2.html>

5) Watch the IMAX film “Solar Max” and answer questions

IMAX produced a film entitled “Solar Max.” Students could view this film as an introduction and answer questions related to it.

The film can be purchased through the following website:
<http://shop.store.yahoo.com/msichicago/imsolmaxvid.html>

6) Choose from SRT activities listed on the Haystack website

The MIT Haystack website suggests projects for use with the SRT. Teacher-produced lesson plans are also available.

For more information, see the Haystack website:

- a. <http://web.haystack.mit.edu>
Haystack's homepage.
- b. <http://web.haystack.mit.edu/SRT/index.html>
Haystack's area for the SRT.
- c. <http://web.haystack.mit.edu/RET/radio/default.html>
Haystack's area for pre-college resources.
- d. <http://web.haystack.mit.edu/SRT/srtprojects.html>
Haystack's area for SRT projects.

If you have suggestions or more ideas, we would love to hear about them and possibly include them in new versions of the project. Please drop us a line and tell us what you think!