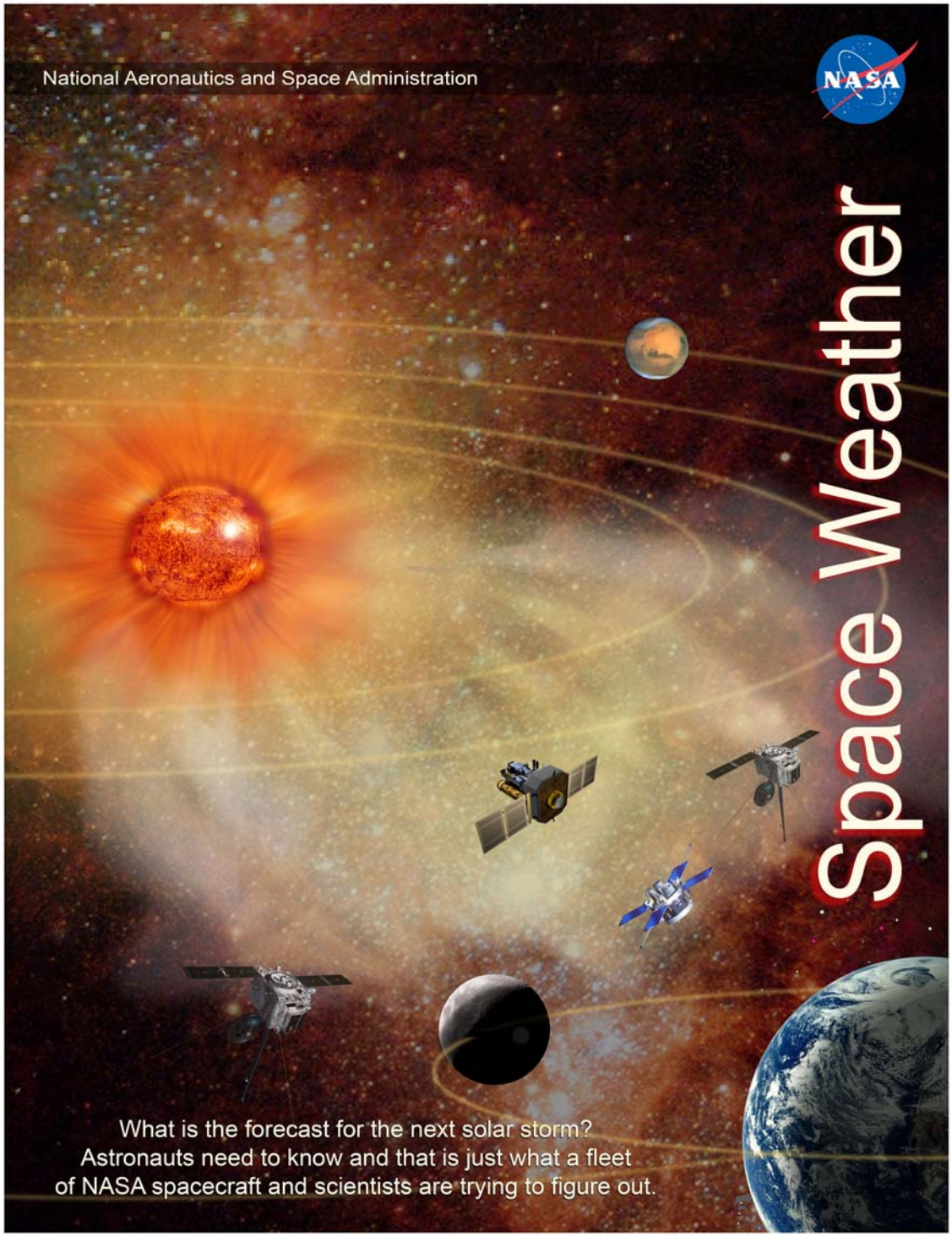
Space Weather Action Center

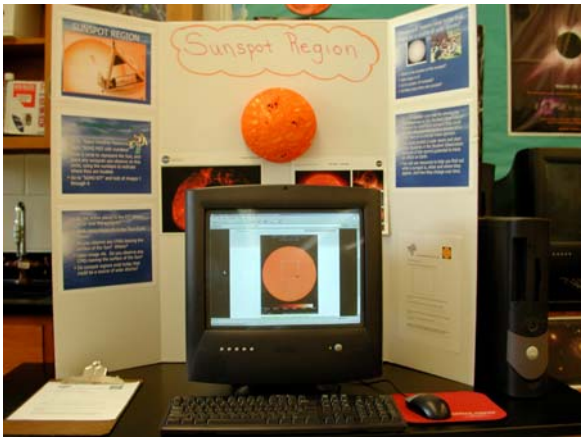
Become a Space Weather Reporter!

EDUCATOR'S SETUP GUIDE



WHAT IS A SPACE WEATHER ACTION CENTER (S.W.A.C.)?

Imagine being able to monitor the progress of an entire solar storm from the time it erupts from our sun and eventually sweeps past our small planet effecting enormous changes in our magnetic field. With the SWAC program and a few minutes each day your students will be able to do just that! By following the basic steps in this setup guide you will soon be on your way to accessing and analyzing NASA satellite and observatory data. All of this can be done from the comfort of your very own classroom-based Space Weather Action Center. Also in this guide you will find a variety of recommendations that will help you to successfully establish your SWAC while keeping potential limitations on classroom space and technological in mind.



Once you have created your SWAC your class will be ready to move into the second cross-disciplinary phase of the program: creating real SWAC news reports! We've made this phase easy by providing your students with a sample script! All they have to do is fill in the missing pieces based on the data collected in their student journals.

Now its lights, camera, action! You are finally ready to turn your script into a multimedia broadcast complete with current NASA data and dazzling graphics! If your school isn't equipped with a broadcasting studio, don't worry! We've suggested several very inexpensive methods by which you and your class can produce professional looking Space Weather Action Reports.

This program uses the 6 national Science standards and also integrates the use of reading, writing, math, and technology standards in a seam-less multi-curricular approach. Research shows that, "more teachers nationwide are using video as an instructional tool. Video assignments motivate students to go beyond what is expected of them. Plus, the cost of digital video cameras and editing software keeps dropping, while the ease of use increases." (eSchool News http://www.eschoolnews.com/)

PHYSICAL REQUIREMENTS

Computer/Internet Station Requirements

Four (4) Internet capable desktop or laptop computers: These computers will be used to access online components of the Space Weather Action Center. Each computer station will be used to present one of the four online components needed to track solar storms. However, if computer availability is limited, one computer with internet access can be used to switch between all four data access points.

Each station will be named after one of the four components in the Tracking a Solar Storm website found at http://son.nasa.gov/tass/index.htm and are fully explained in the SWAC content guide.

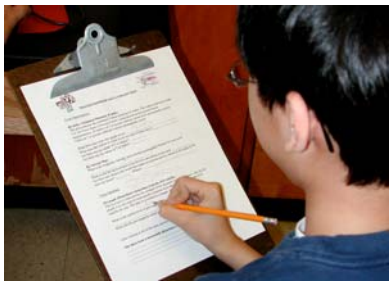
Station Names:

- Sunspot Region
- Storm Signals
- Magnetosphere
- Aurora

Two/Three (2-3) tables: It is recommended that the tables are large enough to allow the setup of one or two computers per tabletop and also allow some student space for papers and writing. If table top space is limited, clipboards would provide a stable writing surface as they write in their composition book journals. You can download templates of the student journals from the content guide. They can be glued into the journal as standard data collecting questions that students can review as necessary whenever they are recording space weather activity.

Four (4) cardboard science boards: These science boards will be used to create SWAC backdrops that will be placed behind each computer monitor at each of the four stations. (See sample images)

Four (4) composition books or clipboards: A clipboard, pencil, and a copy of the corresponding "data collection" sheet should accompany each station. Journaling is based on a 7 day – weekly cycle. Each student will use their composition book journals at their computer station to document the space weather data. Daily journaling is recommended if the curriculum time allows. Students should be journaling a minimum of 2 to 3 times a week. Students will need to review the space weather data from previous days to stay current if journaling is not done on a daily basis.



Classroom Space Requirements

It is recommended that a secure area of a classroom or a separate room be established exclusively for the *Space Weather Action Center* program. The

purpose is to minimize the impact on the rest of the classroom space that is utilized for teaching.

One Computer Classroom: If there is only one computer available for student access, then have the students group rotate on a specified time and day-to-day basis. Keep in mind that data recordation should be done through student journals and that the needed time be allotted so they can be successful in meeting their tasks.

Technology/Computer Classroom: If student computer access is through utilizing a technology/computer classroom, then have the students sit side-by-side based on their corresponding group subject area depending upon the number of computers available.

Additional Considerations: If technology in the classroom is limited and dedicated access to a technology/computer room is via a teacher's computer, teachers can print daily data and have students develop weekly line or bar graphs in their journals.

Space Weather Reporting/Broadcasting Requirements

These additions will be necessary if your school decides to utilize video broadcasting or movie editing software.

One (1) additional Internet capable computer and desk

One (1) Webcam or camcorder

One (1) wall area for use of a 5 by 6 foot green screen

Optional Video Recording Software: Below are optional software packages that can be used to produce your SWAC news broadcasts.

SERIOUS MAGIC's Visual Communicator 2 (VC2) - for easy video creation that allows all users (even the students) to create a professional studio style video presentation. Acquiring the VC2 is a recommendation but not a requirement to creating a SWAC.

http://www.seriousmagic.com/products/vc/index.cfm
http://www.seriousmagic.com/products/vc/education/justForEducators.cfm

Movie/video presentations can also be developed by CCTV, *iMovie*, or other video camera equipment.

TEAM ASSIGNMENT

Based on a 25 student classroom, students can be assigned into one of the following 5 subject area groups:

Sunspot Region
Storm Signals
Magnetosphere
Aurora
Broadcasting

The recommended student group size is 5 or <. Each student in the group can have a specific role with a specific title. *(Example - Four students as the data miners and 1 student as the analyst)*

The data miners will collect all the information needed that will allow the analyst to create a draft space weather script. The analyst will monitor student journals in acquiring the necessary data to help summarize information. This summary then can be turned into a script that is given to the Broadcast Team which will then present it as a comprehensive space weather news report. (Refer to the sample script outline in the Educator's Guide.)

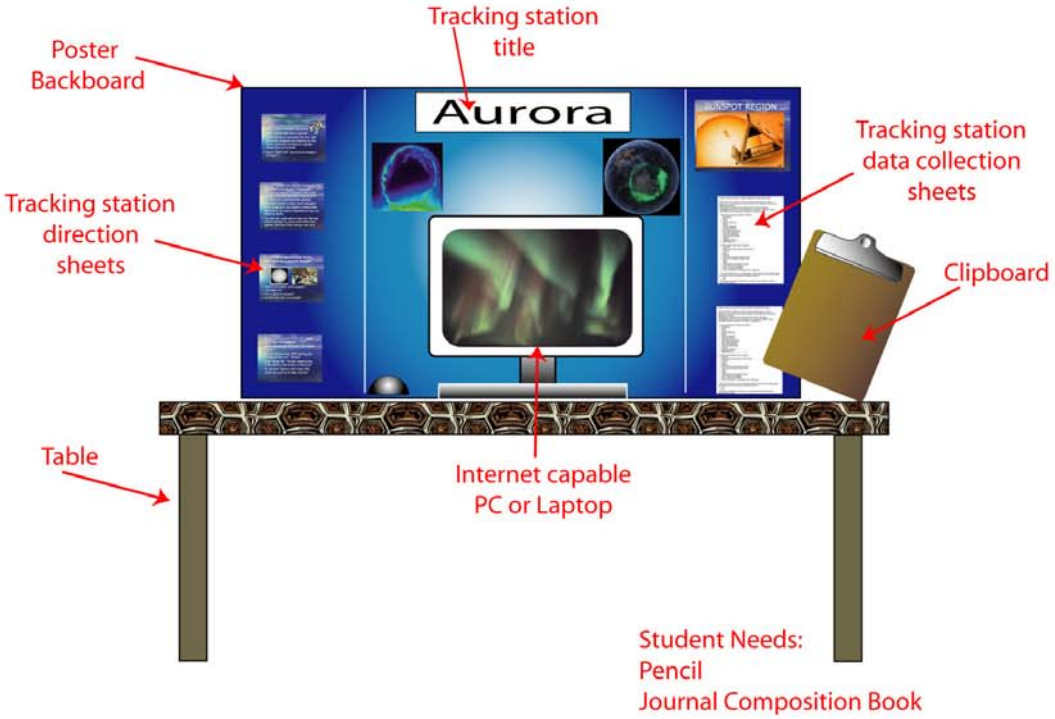
By periodically rotating the groups, all students will eventually have a chance to experience each aspect of Tracking a Solar Storm and broadcasting.

ADDITIONAL RESOURCES

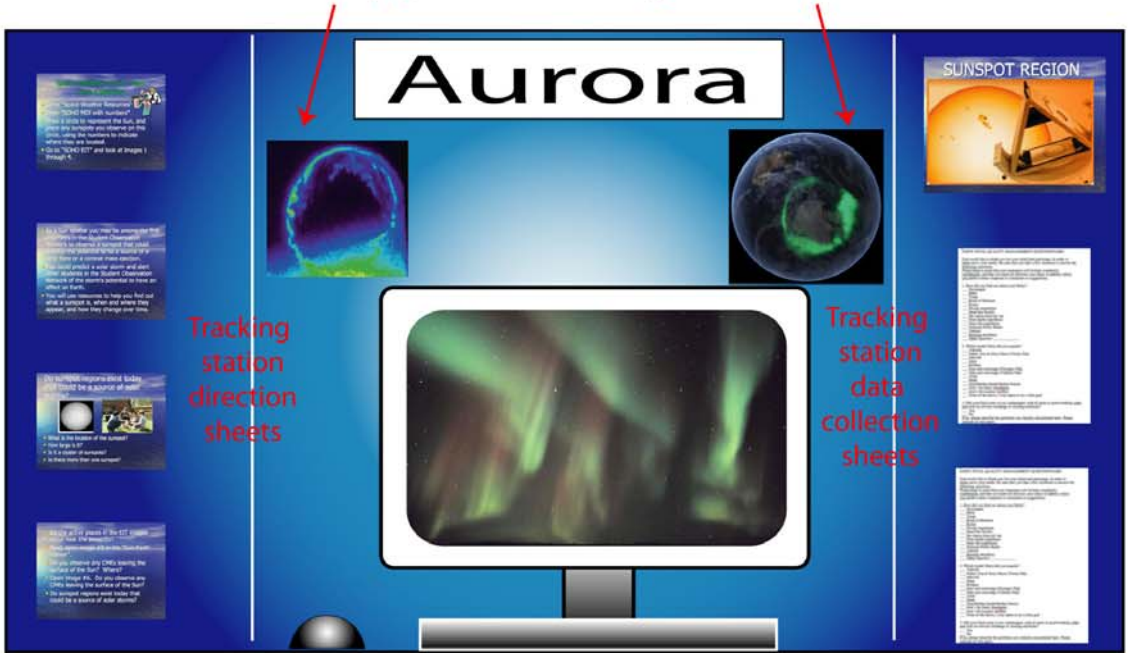
http://spaceweather3.com/
The space weather website offers daily news and information about the Sun-Earth environment.

http://science.nasa.gov/news/subscribe.asp?checked=sw
The NASA Science Mailings including Science stories and a sign up for Solar Weather Alerts

Space WeatherTracking StationDiagram



Space WeatherTracking Station Backboard Diagram

Tracking Station Title

Individualized display with artwork and images above and around monitor.