**Climate and the Cryosphere Workshop (EarthLabs)**

**Introduction**

*This Introduction and the associated resources (Workshop Outline and Notes; PowerPoint Slides; Workshop Time Schedule) will help you in a general way to prepare for and lead a workshop that introduces the Climate and the Cryosphere EarthLabs module. It does not replace the need for detailed planning and preparation on the part of workshop leaders, and it cannot anticipate the conditions of your specific situation or location. You can modify and personalize the presentation as you see fit, in response to time constraints, the physical location of the workshop, the needs or prior experiences of your participants, etc.*

*The workshop as organized here assumes a site with internet access, the A/V equipment necessary to project your computer screen onto a classroom screen and to play videos with sound, and enough additional tables so that participants can engage in the hands-on labs at tables other than where their computers and notebooks are situated.*

*It is suggested that 2 or 3 people lead the workshop. This allows each person to develop expertise with a portion of the module, gives participants a change of voice and style over the course of the day, and allows for supporting individual participants and addressing logistical needs without interrupting the flow of the workshop.*

*The workshop plan allocates almost 7 hours of time for actual engagement with the module. Two 15 minute breaks and a 45 minute lunch period bring the total workshop time to approximately 8 hours. If you want to revise the schedule or the amount of time for any section, you can use the spreadsheet Workshop Time Schedule to help plan that. Also, if you plan to have participants complete an evaluation of the workshop, you’ll need to shorten the amount of time allocated for some elements or possibly extend the length of the workshop.*

**Pre-Workshop Preparations**

• Partner with an institution that can provide the space and equipment identified above. (Your school? A local university or community college?) If you don’t have access to a room with a built-in A/V system, you can substitute by borrowing a portable projector and screen, and speakers with adequate amplification.

• Be thoroughly familiar with the *Climate and the Cryosphere* EarthLabs module (both Student and Teacher Web sites), including hands-on labs and science concepts, and be sure you have taught the entire module to high school students *at* *least twice* before deciding to lead a workshop that shares it with others. Review the additional resources included on the Teacher web site and read through two additional EarthLabs modules to strengthen your understanding of the science: the information in *Climate Series Intro* and *Earth System Science* will significantly strengthen your grasp of concepts that are key to understanding climate.

• Review the suggested workshop goals as they appear in the introductory PowerPoint slides. If you plan to change any goals you will most likely need to make other changes to the resources and plans included here.

• The document Cryosphere\_Workshop\_Time\_Schedule.xlsx provides a list of time estimates for each section of the workshop. If you wish to make changes to the workshop, this sheet can help you modify the workshop plan.

• Be comfortably familiar with the computer technology that is used in the module. They are listed, by Lab and Section, on the *Lab Overviews* page of the Educator web site

• Download the EarthLabs App <https://itunes.apple.com/us/app/terc-earthlabs/id929008909?mt=8> to run many of the Flash-based videos and interactives on an iPad.

• Have a good match between the available space and the space requirements of the workshop (number of workshop attendees; tables for hands-on investigations; etc.)

• Create a flyer to advertise the workshop well in advance of the date.

• Have a Web site or e-mail list where interested teachers can sign up to attend the workshop.

• Be familiar with workshop leadership Best Practices (seebelow). They were developed by teachers who have taught EarthLabs modules in the past.

• Prior to the workshop, maintain communication with applicants to hold their interest, remind them of the date that the workshop is happening, provide them with any updates, and inform them of what they need to bring with them, etc. Recommend that everyone bring a laptop computer and headphones to the workshop.

• Prior to the workshop, send participants a list of any applications they will need to participate in the workshop and have them download those applications to their laptops prior to coming to the workshop.

• Make sure the online Sea Ice Index Animation Tool is available and working. <<http://nsidc.org/data/seaice_index/archives/image_select.html>>

• If you expect that people might travel a long distance to attend, provide information about overnight accommodations.

• Ask participants about food allergies, and let them know if they need to bring lunch and snacks or if the workshop will provide those.

• Gather all materials necessary for hands-on labs and demonstrations. (Recommend one set of **materials** for each group of 4 workshop participants.)

• Be familiar with the set-up in the workshop space (location of electrical outlets, projector, screen, etc.)

**Workshop Best Practices**

*This list was assembled by teachers who have experience in leading EarthLabs module workshops.*

• Create a realistic plan that fits into the allotted time and make it work.

• Be well prepared to present. Know what you want to say and do, and how much time it will take.

• Know that the equipment you will use for labs works well. Practice using it.

• Be well-coordinated as a team:

 \* Know who has the lead, who is supporting participants, who is keeping time, etc.

 \* One person at a time has the lead, is presenting (no back-and-forth comments)

• Inform participants of the workshop goals; what we will and will not try to accomplish.

• Provide participants with an overview of the day’s schedule.

• Provide an overview of the content: main content areas, key ideas.

• Facilitate the establishment of small groups for support. (“Buddy system”, etc.)

• Know what time it is and stay on schedule.

• Be mindful of your pace; don’t speak so rapidly that participants can’t follow.

• Make it clear that you have experience implementing the module (“When we did this in class…”)

• Build in times for small group and large group discussions.

• Provide support for large group discussions.

• Stay in touch with the participants. Check in with them frequently. Encourage questions.

 Ask for their reactions, level of understanding, and comments.