Interactive Uses of the NSDL: Atmospheric Visualization Collection

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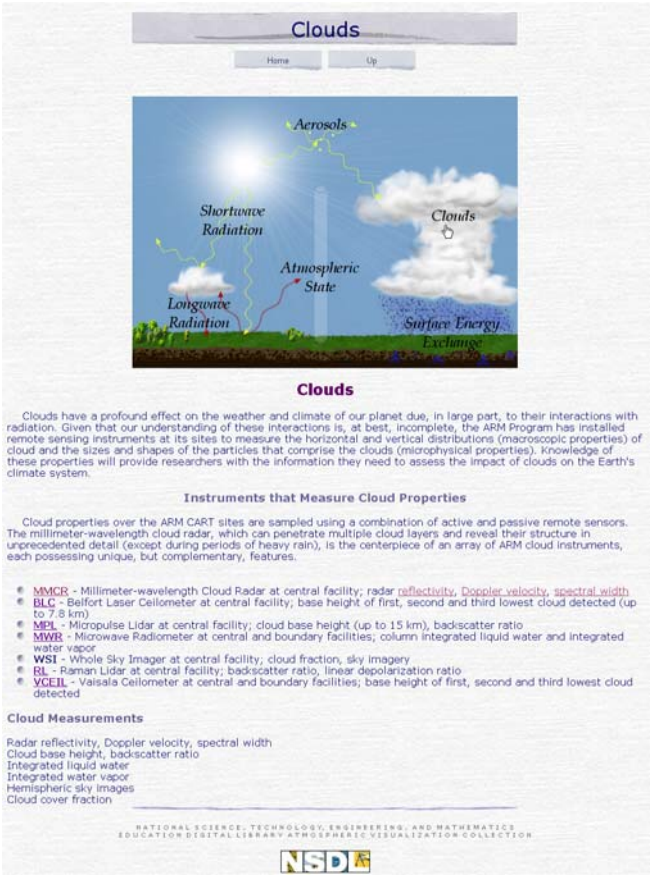
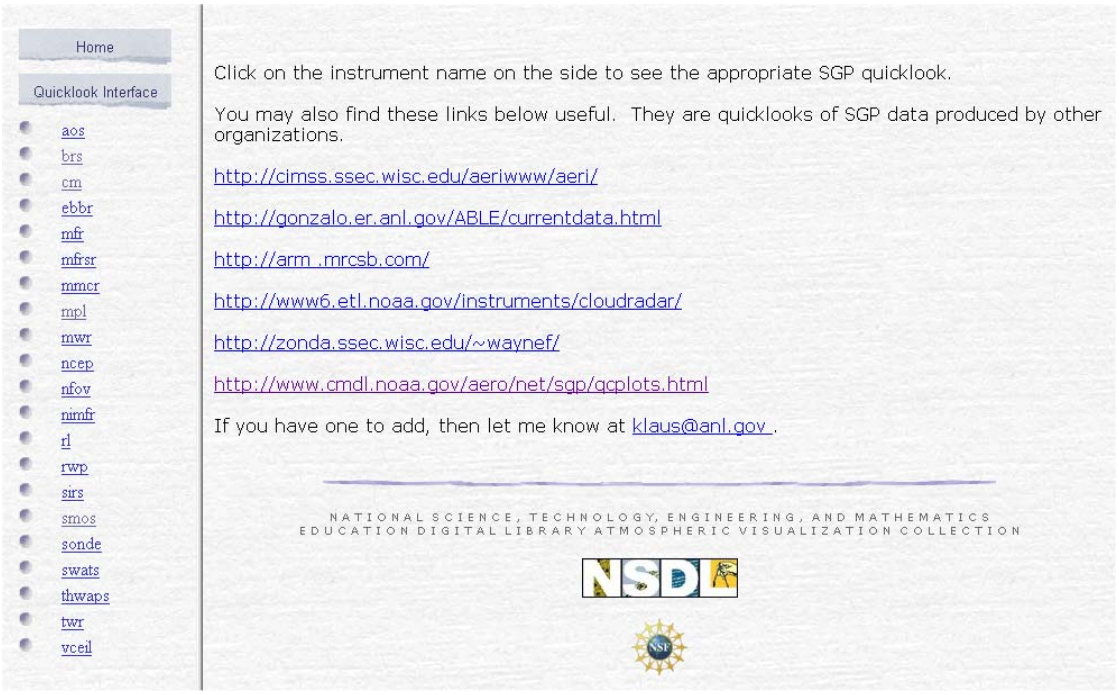
User Interfaces

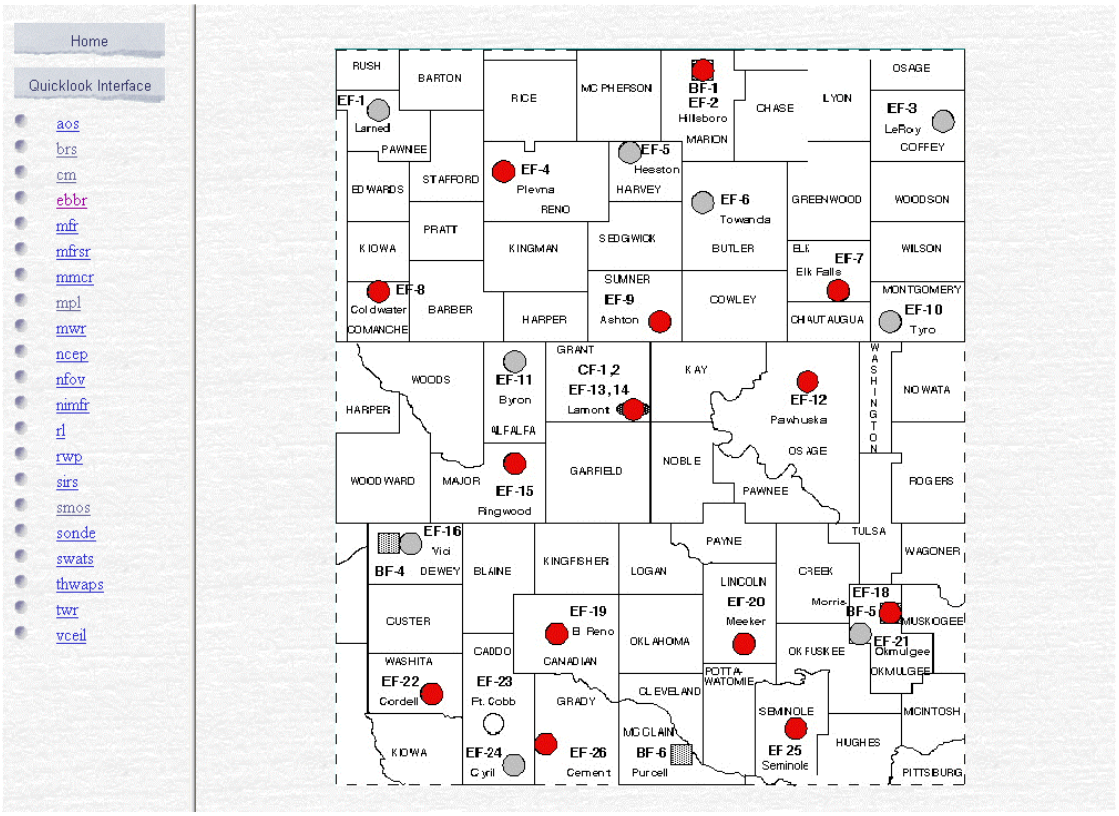
The National Science Digital Library (NSDL) has three user interfaces for accessing data images.

1. The Geophysical Focus Area (GFA) user interface that allows access to data images by selection of focus area and instrument.

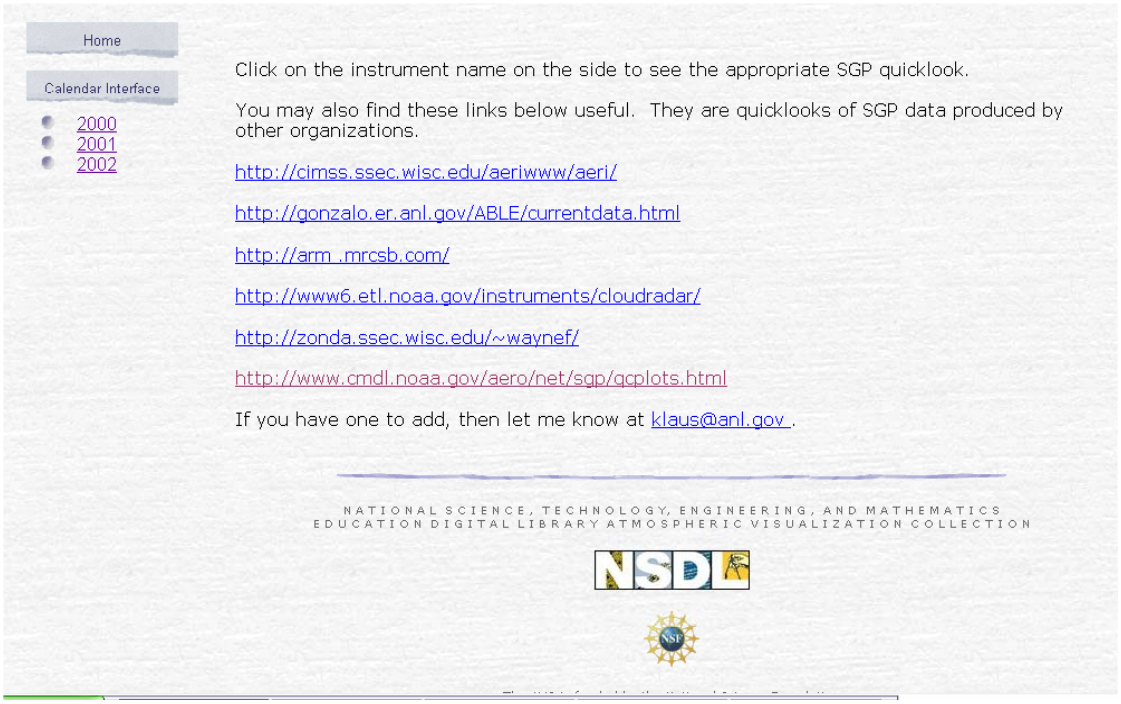


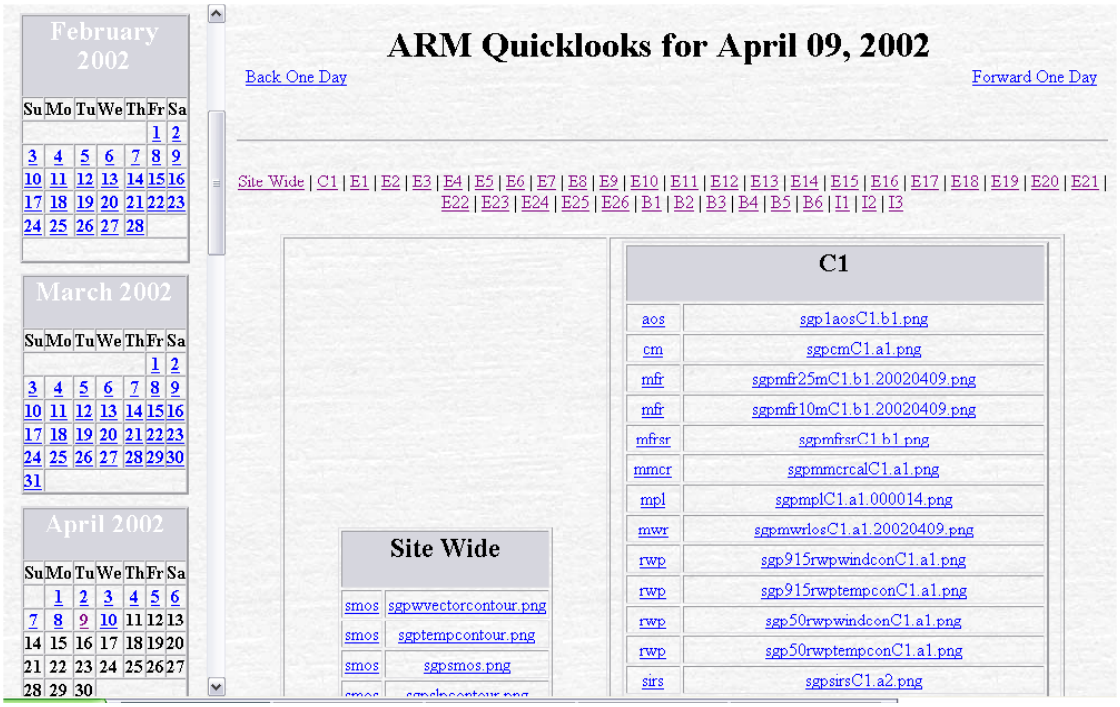
2. The original Quick Look user interface that allows data image access by instrument and geographic location.



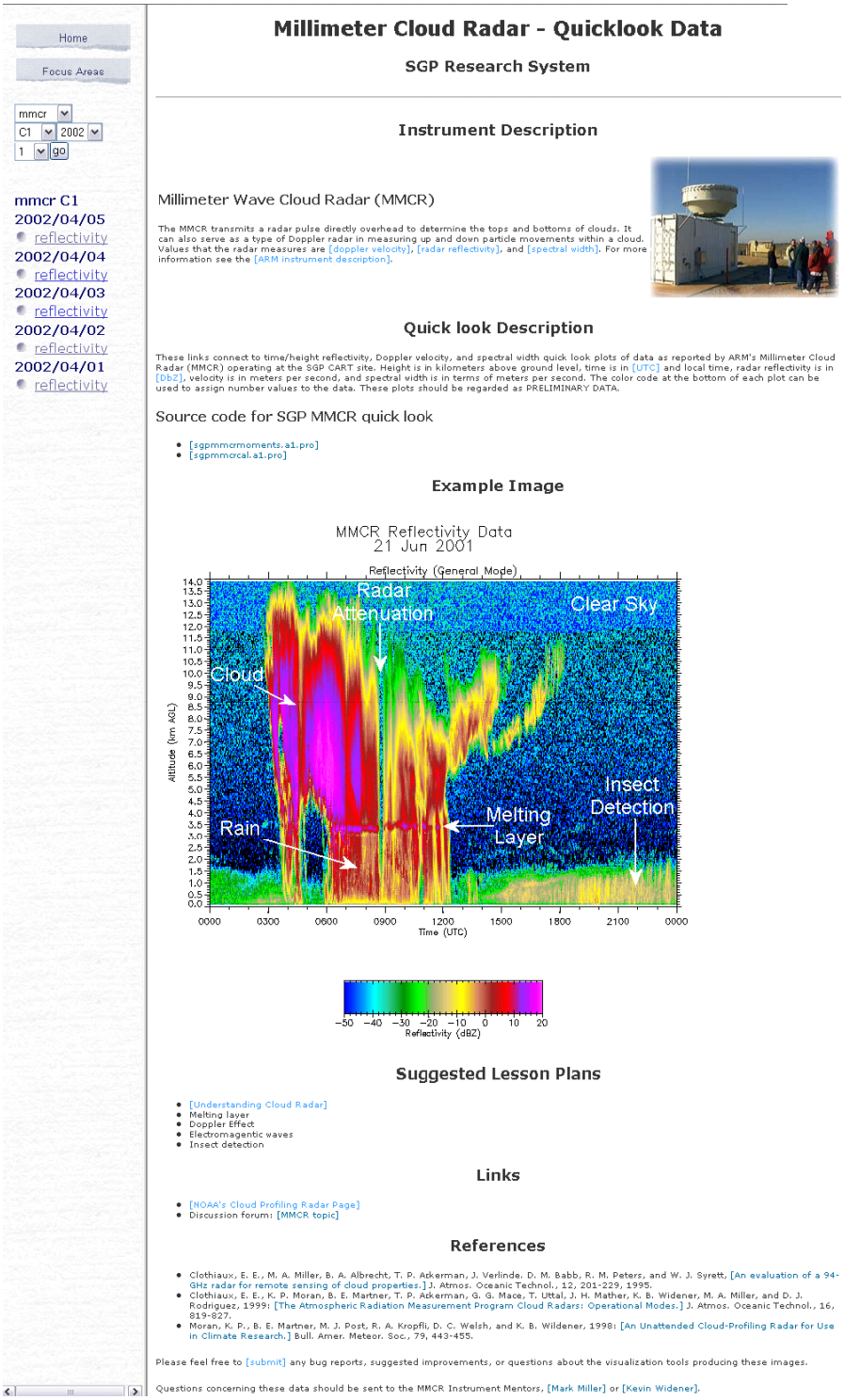


3. The Calendar user interface that allows data image access by selection of date and instrument name.



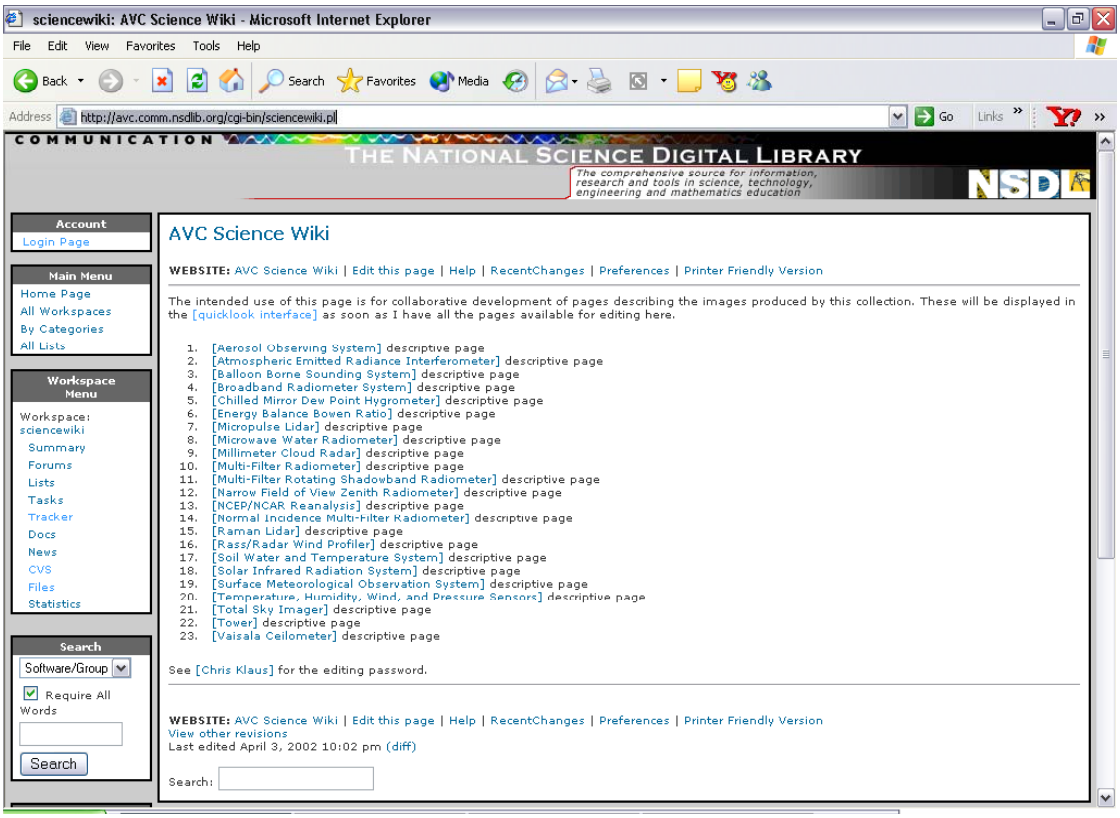


Each of these interfaces takes the user to pages describing data images include links to forums, lesson plans, reference material, and visualization tools. For an example see the descriptive figures above of Millimeter Cloud Radar Quick Looks.

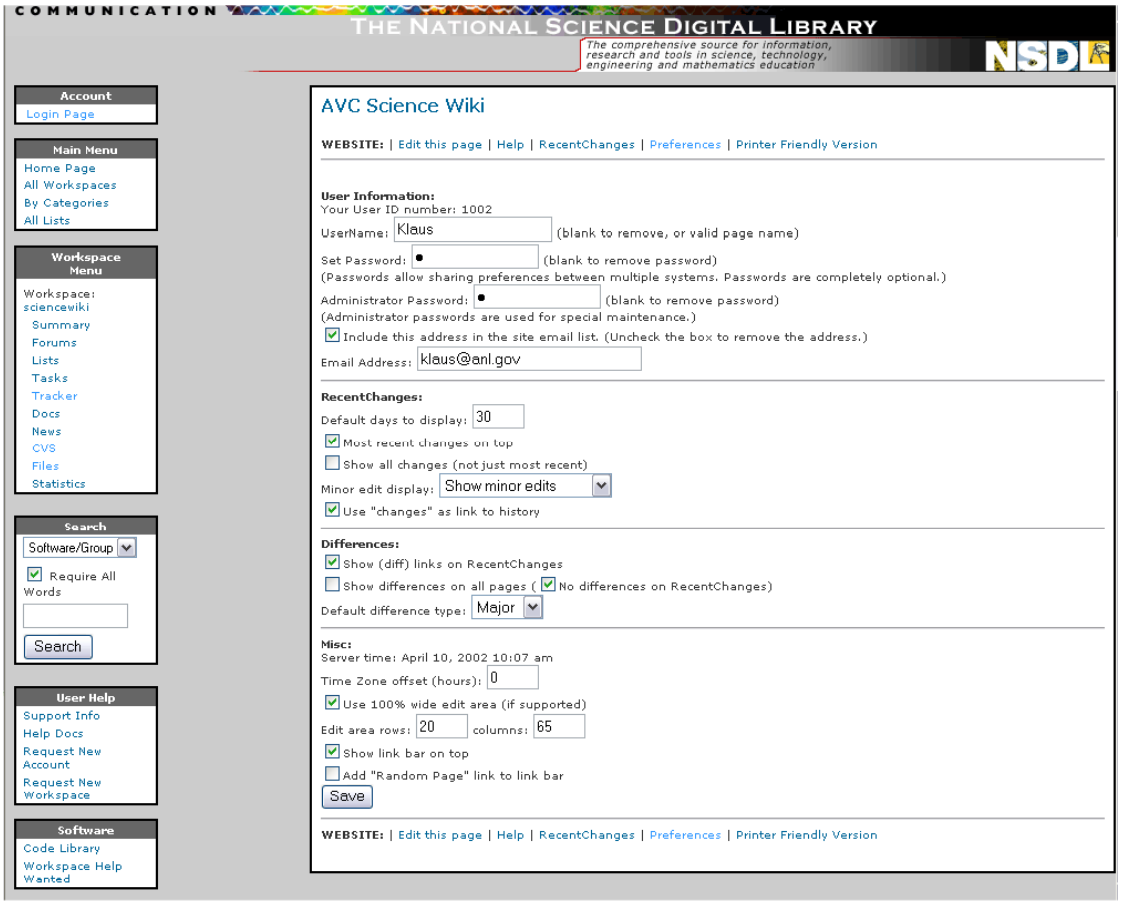


Getting Started with the Quick Look Description Wiki

One of the exciting tools offered by the NSDL Communication Portal is a Wiki server, which can be used for collaborative development of web pages. In this case we're using this capability to allow Atmospheric Radiation Measurement (ARM) Scientist to interactively modify Quick Look description pages.

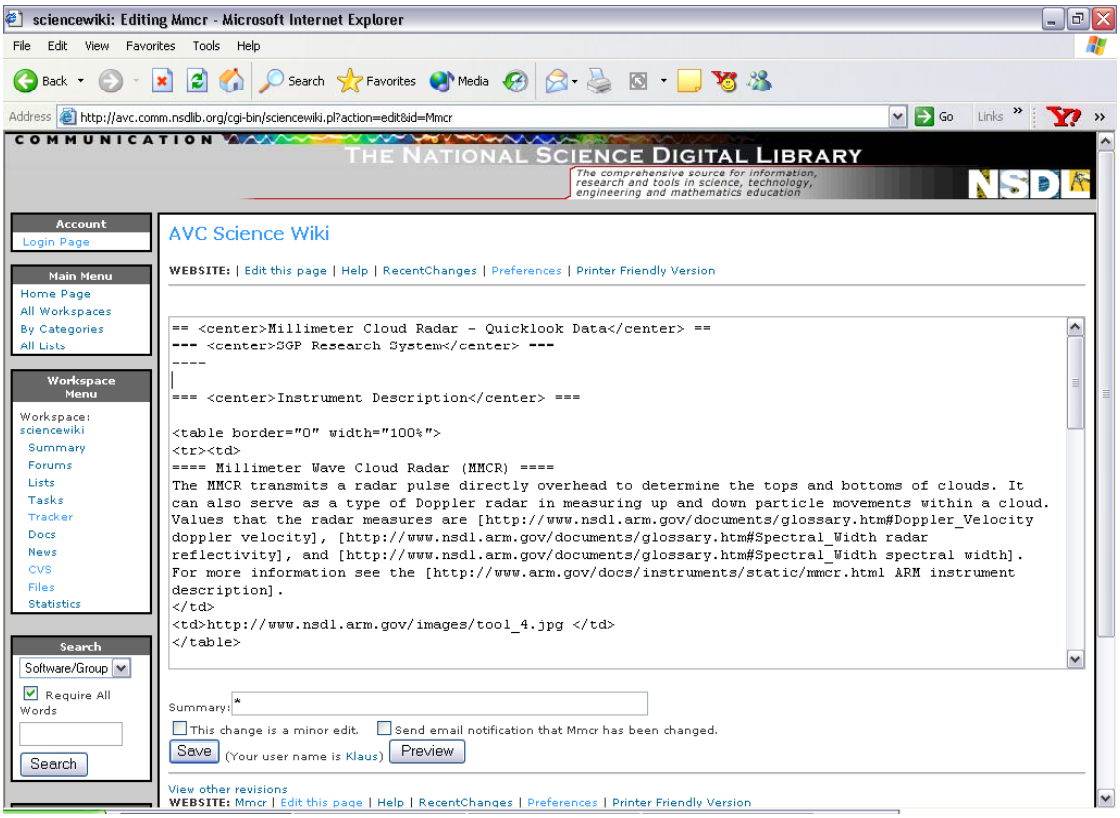


This Wiki server is located at http://avc.comm.nsdlib.org/cgi-bin/sciencewiki.pl. When you first visit this site you'll need to setup an account. To do this click on the "Preferences" option in the top or bottom menu, bringing you to the NSDL Editing Preferences page.



Select a User Name and Password of your own choice, which will keep someone from editing as you. Use the science team password as the Administrator password. Leave the site email list checked if you wish to receive emails of changes to the quick look description, otherwise uncheck that box. Click on the "Save" button and you now have an account with which to edit quick look descriptions.

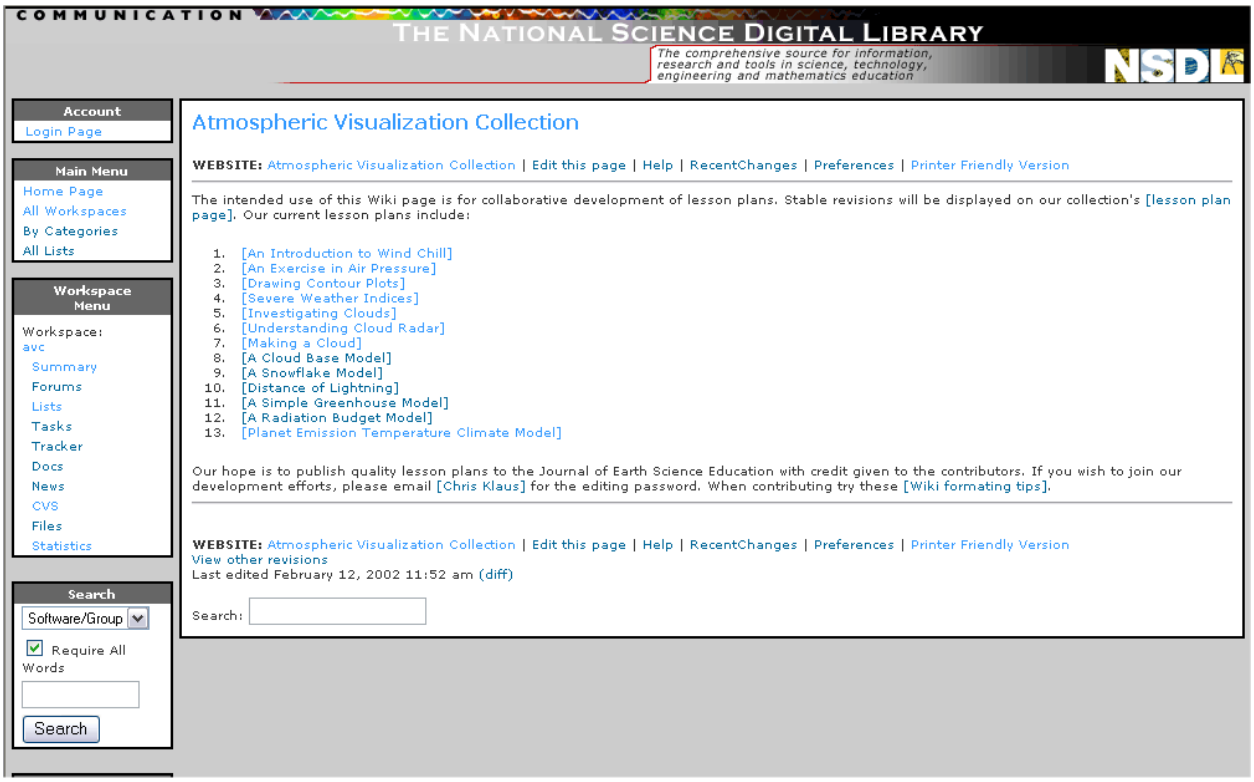
Click the AVC Science Wiki link on top to return to the list of quick look description pages. Now when you see a page you want to edit, just click on the "Edit this page" link. This will access a web form from which you can preview or save changes. For an example see the Millimeter Cloud Radar Quick Look Description Page.



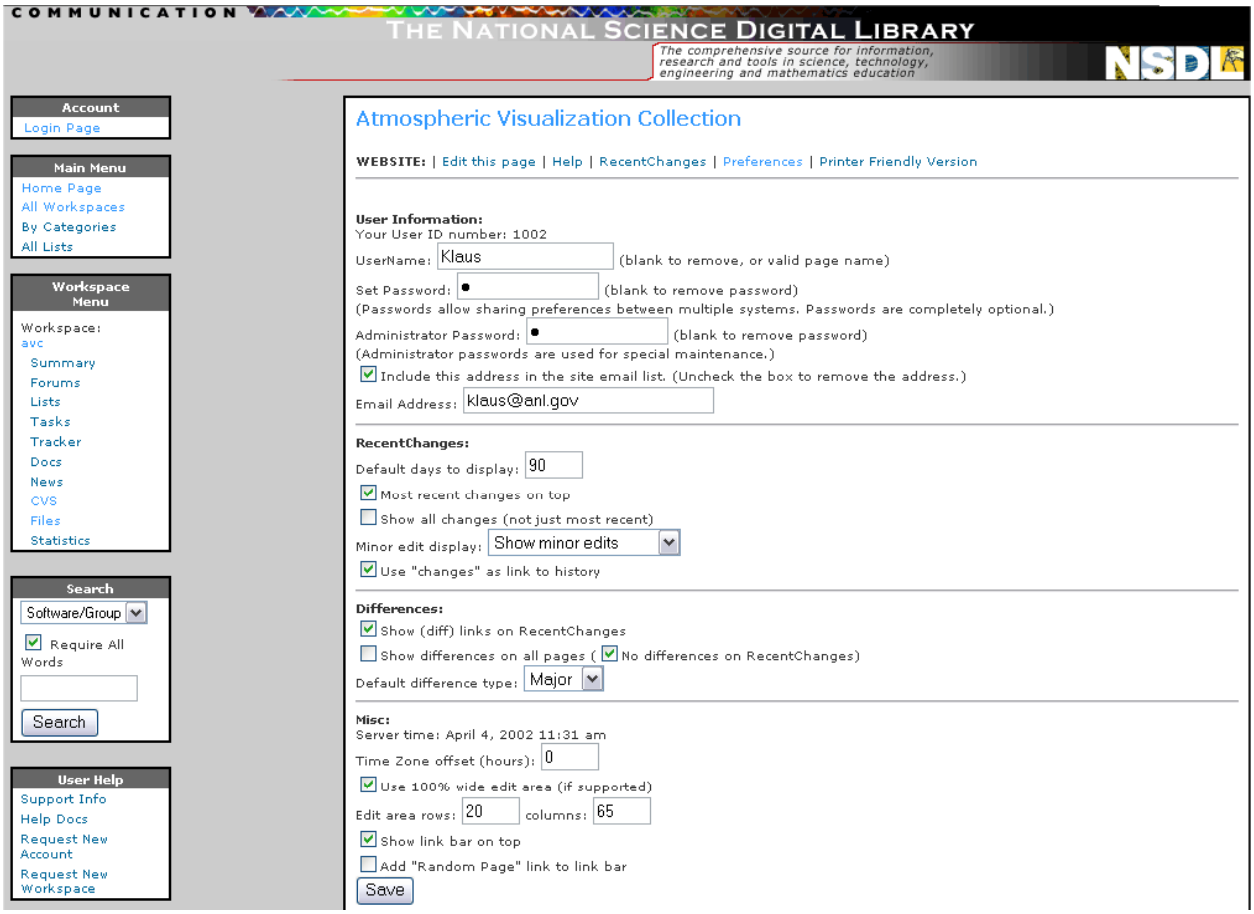
Revisions are tracked so that mistakes can be easily corrected.

Getting Started with the Lesson Plan Sandbox

One of the exciting tools offered by the NSDL Communication Portal is a Wiki server, which can be used for collaborative development of web pages. In this case we're using this capability to allow teachers interactively modify lesson plans, which we call our Lesson Plan Sandbox.

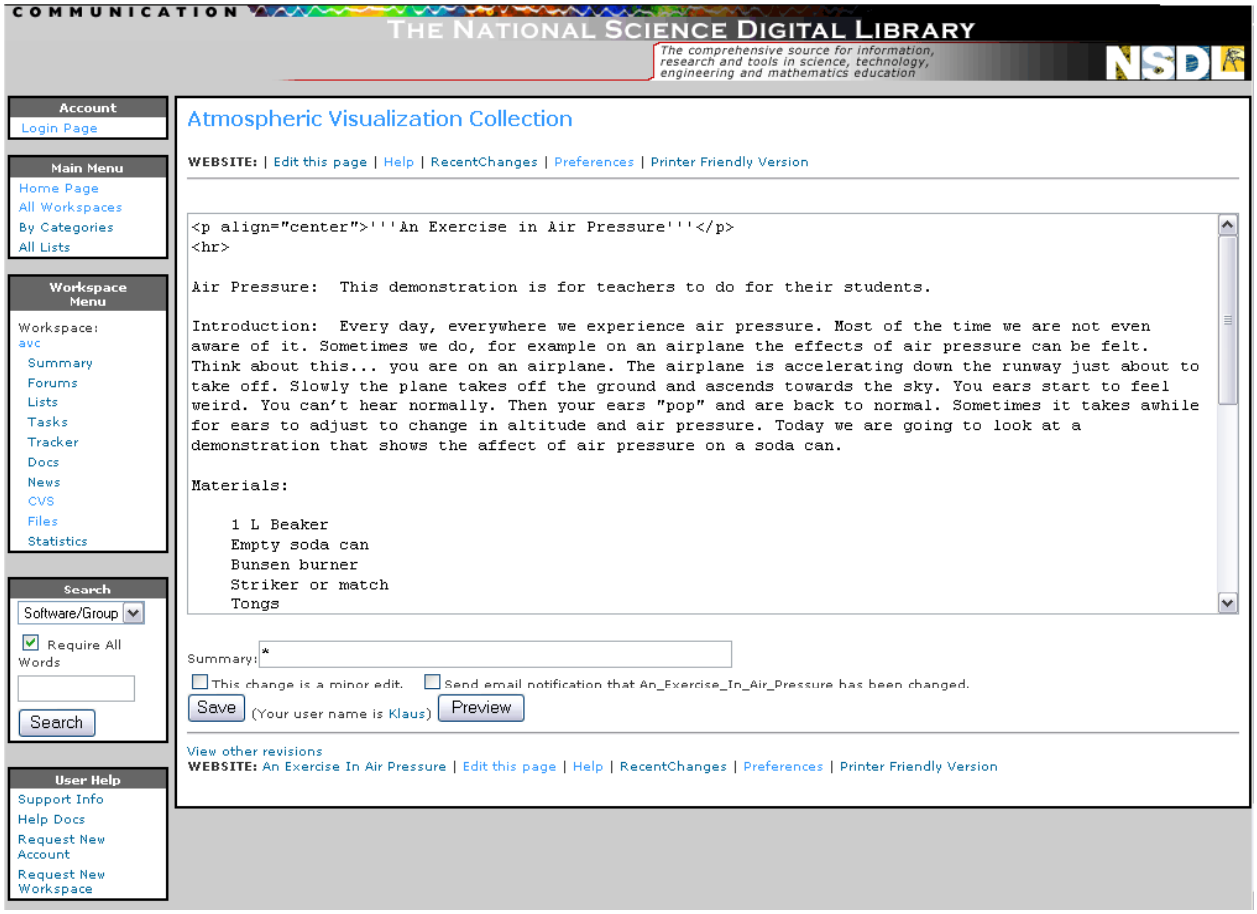


The Lesson Plan Sandbox is located at http://avc.comm.nsdlib.org/cgi-bin/wiki.pl. When you first visit this site you'll need to setup an account. To do this click on the "Preferences" option in the top or bottom menu, bringing you to the NSDL Editing Preferences page.



Select a User Name and Password of your own choice, which will keep someone from editing as you. Use "avcedit" for the Administrator password. Enter your email address if you wish to be contacted about possible publications of your contributions. Leave the site email list checked if you wish to receive emails of changes to lesson plans, otherwise uncheck that box. Click on the "Save" button and you now have an account on the Lesson Plan Sandbox.

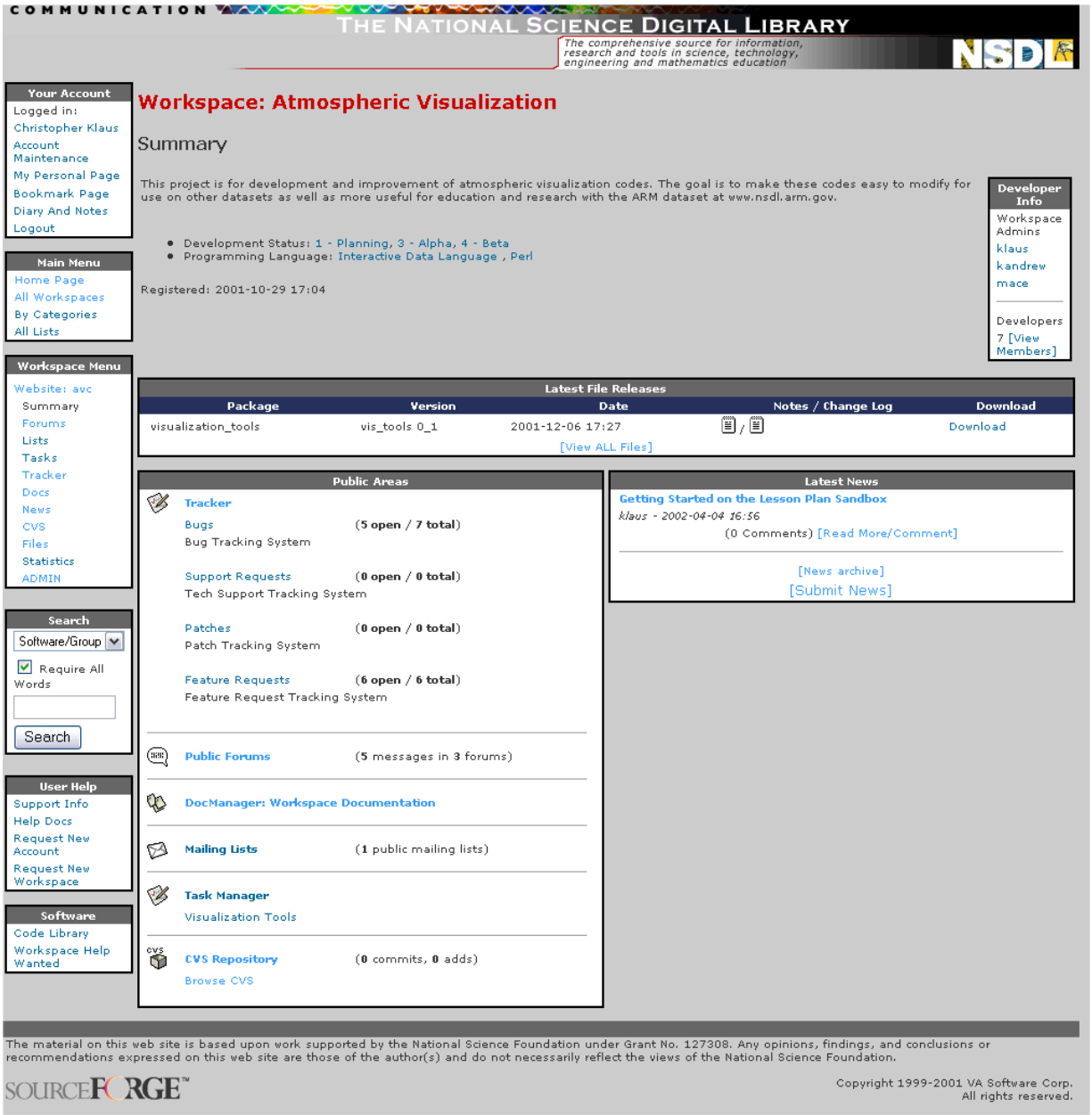
Click the Atmospheric Visualization Collection link on top to return to the list of lesson plans. Now when you see a lesson plan you want to edit, just click on the "Edit this page" link. This will access a web form from which you can preview or save changes. For an example see the Exercise in Air Pressure lesson plan.



Contributions and revisions are tracked so that when the lesson plan reaches a high level of quality the contributors can be emailed about publication opportunities.

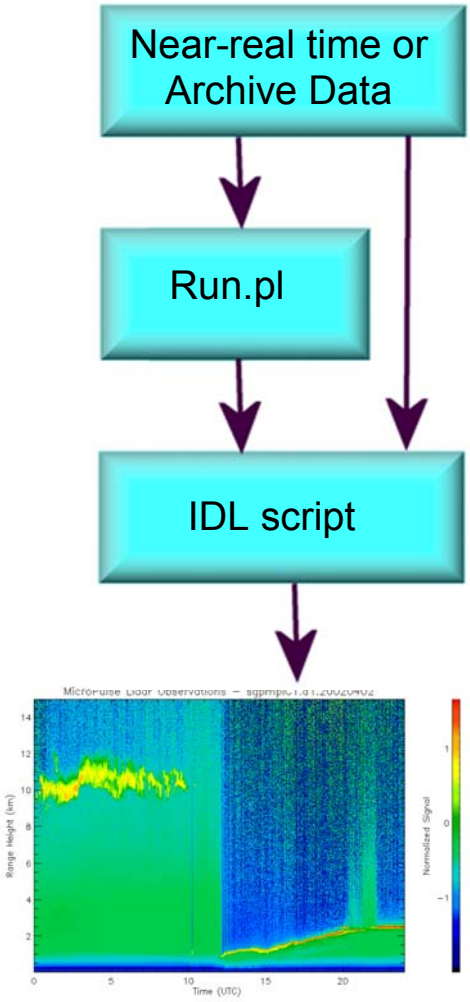
Using the AVC IDL Scripts

NSDL Communication Portal's Source Forge Environment provides public access to AVC interactive data language (IDL) visualization codes with various collaboration tools to aid development efforts. These IDL scripts that produce the SGP Quick Looks are available for download at http://avc.comm.nsdlib.org.

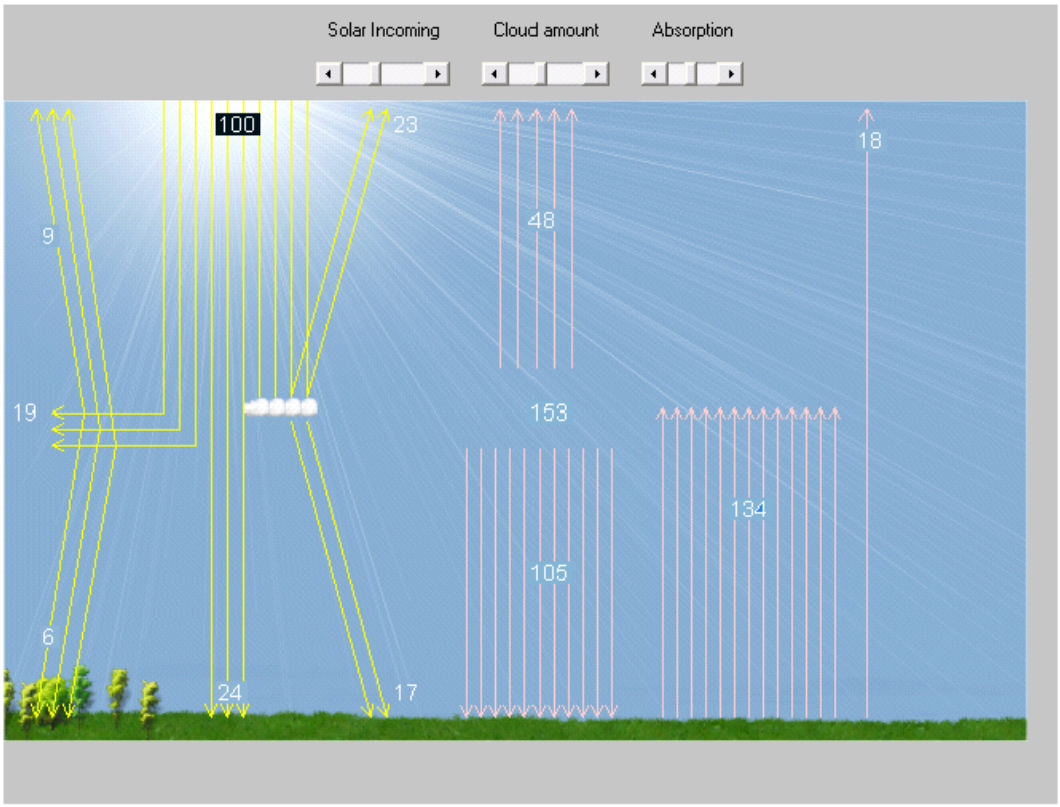


By downloading these IDL tools and data from the ARM Archive the user can produce their own data images. This process has been tested by undergraduate students at Eastern Illinois University. For researchers this provides an initial code base for viewing ARM data, which can be modified for their own specific purposes.

The AVC visualization tools are IDL scripts that can be run interactively or automated with a Perl script, Run.pl. IDL scripts exist for most of the ARM instruments. Run.pl uses NCAR's NetCDF operator, ncrcat, to merger multiple data files before passing the data to a specific IDL script, which produces the data images like the Micropulse Lidar (MPL) quick look.



Educational Workshops

AVC lesson plans are being tested in K-16 classes and national workshops. The most recent workshop, "Using Visualization Tools for Studying the Atmosphere", was held at the National Science Teacher Association.

A collection of educational java applets are available from unit conversions to basic models, such as a radiation budget model.