

# An Atmospheric Visualization Collection for the NSDL

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Our user community has started with an outreach program to middle school and high school physical science teachers. These teachers are initiating classroom and student based atmospheric projects that will use a wide range of weather images available through this collection. These instructors are establishing connections to students, other teachers, and are preparing to expand to a national base of users. The teachers will author, contribute, and evaluate material being developed for this growing community.

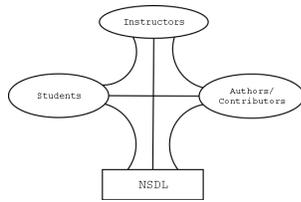


Figure 1. A General Model for Website Evaluation

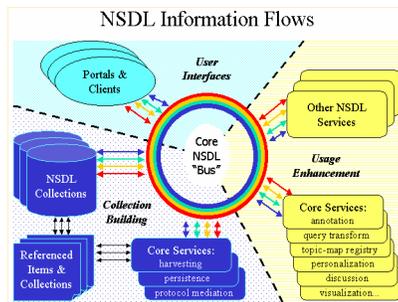


## Opportunities for Community Development

1. Teachers interact with scientists and students.
2. Teachers interact with teachers.
3. Teachers become authors and reviewers.
4. Students mentored by teachers.
5. Students develop nontraditional learning groups.
6. Students become authors and evaluators.
7. Learning communities may be unstructured, independent of age training and ability, sharing a common interest.

## Educational Outreach

1. In-service teachers
2. Undergraduate students
3. K-12 students
4. Graduate students
5. Community outreach

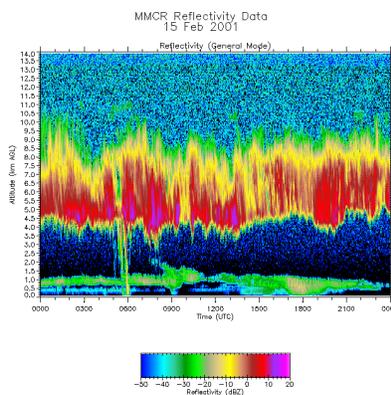


## Graduate Program for in-service teachers EIU- MSNS Program

1. Courses based on ARM weather data.
2. Web based courses using ARM data.
3. Teachers developed lesson plans.
4. Opportunities for teacher authorship with scientists.
5. Teacher assessments of weather images.
6. Projects applying data in K-12 classes.
7. Annual NSDL seminars.
8. Graduate assistantships for atmospheric studies.
9. Thesis opportunities.

## Students predict cloud formation

1. Wet and dry bulb temperatures used in lab.
2. Dew points and lapse rates defined and plotted.
3. Computer generates humid air-mass.
4. Students interactively locate cloud boundary.
5. Examine cloud properties from ARM data.
6. Calculate lifting condensation level.

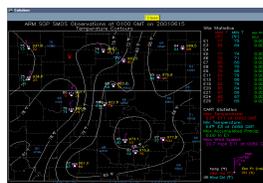


## Interactive Empirically Based Education Modules

1. Graduate students design a small scale weather grid, the "nanonet".
2. Each school collects data and contributes to the local nanonet database.
3. Students opportunities to construct and design weather instrumentation.
4. AVC coordinates collection and sharing of data for schools.
5. Students interact with scientists and utilize ARM data for classrooms.

## Development of Isoleths and Lessons

1. Barometric pressure
2. Temperature
3. Relative humidity
4. Precipitation
5. Dewpoint temperature
6. Wind chill / Heat index



## Students Interactively Construct Contour Plots

1. Near real time data of SGP site presented
2. Students interactively place contours on the map
3. Program constructs solution contour map
4. Compare student and solution maps

## Assessment of Activities

- Evaluation Rubric for development of materials pioneered by teachers
- Lesson plans evaluated by teachers prior to posting
- Web base rubrics for evaluations.
- Usage statistics for data and educational materials compiled for several years
- Evaluation in conference-workshop and classroom settings

