

**P3.31 VIRTUAL INSTITUTE FOR SATELLITE INTEGRATION TRAINING  
BRINGING TRAINING TO THE FORECASTERS  
USING VISITVIEW**

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## 1. INTRODUCTION

The results of the first 2 1/2 years of teletraining by IST PDS and VISIT programs are:

- **298 sessions conducted**
- **More than 1500 offices trained**
- **Over 5500 certificates issued**
- **Over 1400 evaluations received**

This article describes the rapid rise in the use of teletraining by the National Weather Service (NWS) training program. The teletraining activity is conducted by the Integrated Sensor Training (IST) program professional development series (PDS) (Lamos 1998) and the Virtual Institute for Satellite Integration Training (VISIT). VISIT is comprised of staff from the Cooperative Institute for Meteorological Satellite Studies (CIMSS), the Cooperative Institute for Research in the Atmosphere (CIRA), and NWS training centers.

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The VISIT and the Integrated Sensor Training programs bring together diverse training activities that have traditionally focused on individual sensors such as radar, satellite, and other observing systems. Information on the VISIT program can be accessed at [www.cira.colostate.edu/ramm/visit/visithome.asp](http://www.cira.colostate.edu/ramm/visit/visithome.asp).

To support the rapidly changing training needs of the operational forecaster, the IST PDS program is developing a set of instructional components that utilize various tools. Training sessions and modules are developed using both Web-based and teletraining approaches.

An interactive training tool called VISITview (Whittaker 1999) was developed by the VISIT program. The VISIT program is supported by the NWS and the National Environmental Satellite, Data, and Information Service (NESDIS). VISITview is a platform-independent distance learning and collaboration software program that allows multiple users to view and manipulate the same series of pages containing images, animations, graphics and text.

Based on the extensive feedback received from the various NWS offices, the strength of the

VISITview teletraining instructional approach is the ability to bring the instructor directly into the office and put them in touch with the students. The direct interaction between instructor and students establishes an active link with the students that is difficult to achieve other than with face-to-face instruction. The benefits of this direct interaction are well worth the effort involved with the teletraining approach.

- Change enhancement or colorization of images
- Add/remove overlays
- Chat window
- Quiz questions with feedback
- View status of all session participants
- Recorded audio/video for future playback

## 2. VISITVIEW – A FLEXIBLE TELETRAINING TOOL

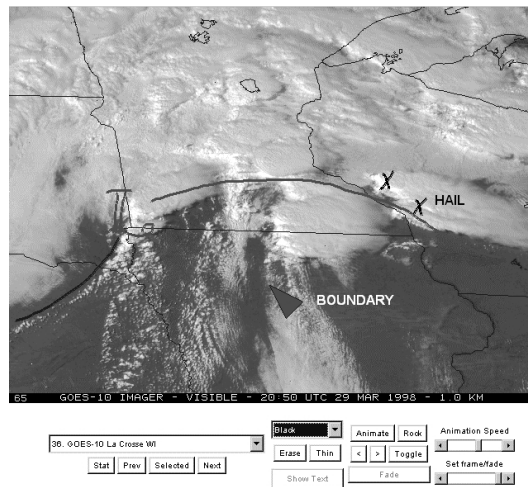
The VISITview teletraining software ([www.ssec.wisc.edu/visitview/](http://www.ssec.wisc.edu/visitview/)) is designed to provide instructors and students with a set of easy to use tools for creating, conducting and taking teletraining sessions. VISITview is Web-based, and can be used in two modes: with the data files located remotely on a central server or with these files residing on a local disk drive. In the latter case (where the files are available locally), only the VISITview commands are sent over the Web.

Most NWS offices have reliable bandwidth connections but they usually are congested moving large data files. The high volume of data restricts the amount of information that can be transmitted in real-time to support live teletraining sessions. To avoid this limitation, the files used for the sessions are put into a compressed file and distributed via FTP to the training sites. These files can be large (over 60 MB for some sessions). Once at the training site, the compressed file is expanded into a local disk drive. Then, the session can be previewed at the convenience of the office staff to ensure that the session runs properly. The students can view the session at any time after the live interactive session to review the materials or for local training. There is a student guide available on the Web for each session (see [www.cira.colostate.edu/ramm/visit/newrso.html](http://www.cira.colostate.edu/ramm/visit/newrso.html)).

Because of the potential for network fluctuations or losing connectivity, the training sessions include batch files that make it easy to switch to a backup server machine (typically, one at CIRA and one at CIMSS are used).

The VISITview teletraining program (see example of display in Figure 1) provides the following functions:

- A complete set of animation controls
- Multiple panel displays with animation
- Drawing tool with various color choices
- Erase previous drawing
- Add text



**Figure 1** - VISITview panel from GOES Rapid Scan Operations training session showing instructor's annotations on a 640x480 pixel image with the control menu at the bottom.

While developing a fully functional teletraining program, the following criteria were employed:

- Platform independence - Java run time environment (JRE) selected to support this
- Minimal user interface knobs and widgets provide a clean and easy to use environment
- For audio, reliance on conference calls via conventional phones
- A display size (800x600 and larger) that supports computer projectors found in most forecast offices

An interactive Lesson Builder was developed to assist instructors in organizing materials for teletraining lessons. Each page of a lesson consists of one or more frames. Usually, multiple frames are employed to show animations, portals, or overlays. The Lesson Builder gives instructors a tool to create a lesson and then automatically creates the zip archive file that may be distributed.

A key aspect of VISITview teletraining sessions is that they can be run locally or remotely. The datasets are preloaded to students' workstations in advance of the session. Preloading the files avoids the delays caused by limited bandwidth when loading over the Web. The sessions can be controlled either locally or remotely, so they are suitable for both distance- and on-site-learning applications. The VISITview tool provides instructors with a complete set of drawing and animation tools including image combination, enhancements, fading, and multiple panel displays. Several of the VISITview functions were developed to emulate some key AWIPS functions.

As the VISITview program evolves, additional techniques for distance learning are included. For example, one VISITview "session" was created and is available on-line at CIRA (<http://visit.cira.colostate.edu/vview/vmeast.html>) that uses the RAMSDIS on-line database of real-time data. This approach encourages experimentation with distance collaboration, facilitates discussions of real-time weather events, and supports coordination among various offices. Also, the incorporation of a recorded speech option allows the lessons to be "played back" in virtual real time right along with the voice and annotations of the instructor.

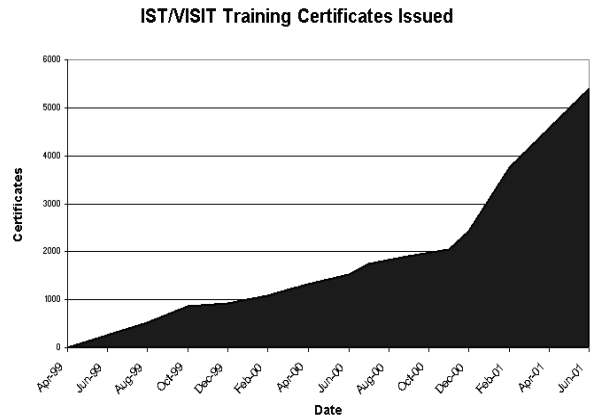
Ten to twenty teletraining sessions are given per month. These sessions cover a wide range of topics such as: Using GOES Rapid Scan Operations in AWIPS, Detecting Boundaries with AWIPS, QuickSCAT Winds, Using AWIPS to Evaluate Model Initializations, GOES Sounder Data and Products, GOES High-Density Winds, Mesoscale Analysis of Convective Weather Using GOES RSO Imagery, and Forecasting Mesoscale Convective Systems. The procedures for signing up and taking a teletraining lesson are listed on the VISIT Web site. More information on all the teletraining sessions (Motta et al 2000) is also available at the VISIT Web site ([www.cira.colostate/ramm/visit/visithome.asp](http://www.cira.colostate/ramm/visit/visithome.asp)).

### 3. TELETRAINING SESSIONS - RESULTS

From April 1999 to July 2001, the training provided by the IST PDS and VISIT has resulted in the following:

- **298 sessions conducted**
- **More than 1500 offices trained**
- **Over 5500 certificates issued**
- **Over 1400 evaluations received**

Many offices have participated in more than one session. Most of these are NWS offices with a few other organizations (Navy, NESDIS and Canada) also participating. Beginning in late 2000, the VISIT teletraining program has seen a rapid rise in the number of sessions offered and the number of certificates issued (see Figure 2).



**Figure 2** – Cumulative number of IST/VISIT training certificates issued from April 1999 to June 2001.

Evaluations for the teletraining sessions are sent via e-mail to all offices upon completion of the session. The evaluation form consists of 9 questions requesting feedback on a scale of 1 (strongly disagree) to 5 (strongly agree) plus 6 questions requesting for additional feedback. The large number of evaluations received (over 1500) is the result of an incentive. Upon receipt of the evaluation, training certificates are sent to all students that participated in the session. The linkage of the evaluation to the certificates helps to explain the large number of evaluations received and the large number (over 5500) of certificates. The evaluations provide some useful insights into the teletraining program:

- High quality graphics are a big plus
- Interactions between instructors and students are great
- Animations are very useful
- VISITview is easy to install and use
- Make sure the training materials are at appropriate level of difficulty
- Scheduling is a challenge with 24/7 operations in several time zones but it can be done
- Using phone conference call for audio works but the audio quality and volume need to be monitored
- Overall, most agree that VISITview is an effective tool and teletraining works

Student feedback also is provided with the open-ended questions. This feedback has helped to improve the teletraining approach, the scheduling, the content and the delivery of the teletraining sessions.

Beginning in fiscal year 2001, the Warning Decision Training Branch (WDTB) converted the teletraining portion of the Distance Learning Operations Course (DLOC) to use VISITview. DLOC teletraining sessions incorporate more extensive use of prepared questions.

In the near future, the NWS training program will incorporate a Learning Management System (LMS). The LMS selected will help with the teletraining efforts by establishing set procedures for the scheduling, evaluation and certificates across all parts of the training program.

#### 4. SUMMARY

The National Weather Service training program has moved from the traditional classroom setting to an integrated distance learning approach to provide cost-effective training. Some of the training materials require an active component to allow the student to interact directly with an instructor. To meet this need, the IST PDS and VISIT programs have developed VISITview, a new teletraining tool that is flexible, platform independent, and extensible. VISITview allows for the expansion of teletraining functionality needed in today's environment of rapidly evolving technology.

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#### 5. ACKNOWLEDGEMENTS

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#### 6. REFERENCES

- Lamos, J., cited 1998: Operational Forecasters' Professional Development Series Training Program. [Available online from [http://www.comet.ucar.edu/pds/PDS\\_V3.htm](http://www.comet.ucar.edu/pds/PDS_V3.htm)]
- Motta, B., D. Bikos, B. Zajac, S. Bachmeier, T. Whittaker and A. Mostek, 2000: Integrated sensor training in the national weather service AWIPS era. Preprints, 10<sup>th</sup> *Conference on Satellite Meteorology and Oceanography*, Long Beach, CA, AMS.
- Whittaker, T. M., 1999: VISITVIEW- A Collaborative Distance Learning Tool for the Virtual Institute for Satellite Integration Training (VISIT). Preprints 15<sup>th</sup> *International Conference on Interactive Information and Processing Systems for Meteorology, Oceanography, and Hydrology*, Dallas, Texas, AMS.