



The New SCEC Code Comparison Web Site

Michael Barall

USGS and Invisible Software, Inc.

SCEC 3D Rupture Dynamics Code Validation Workshop

February 12, 2007

University of Southern California

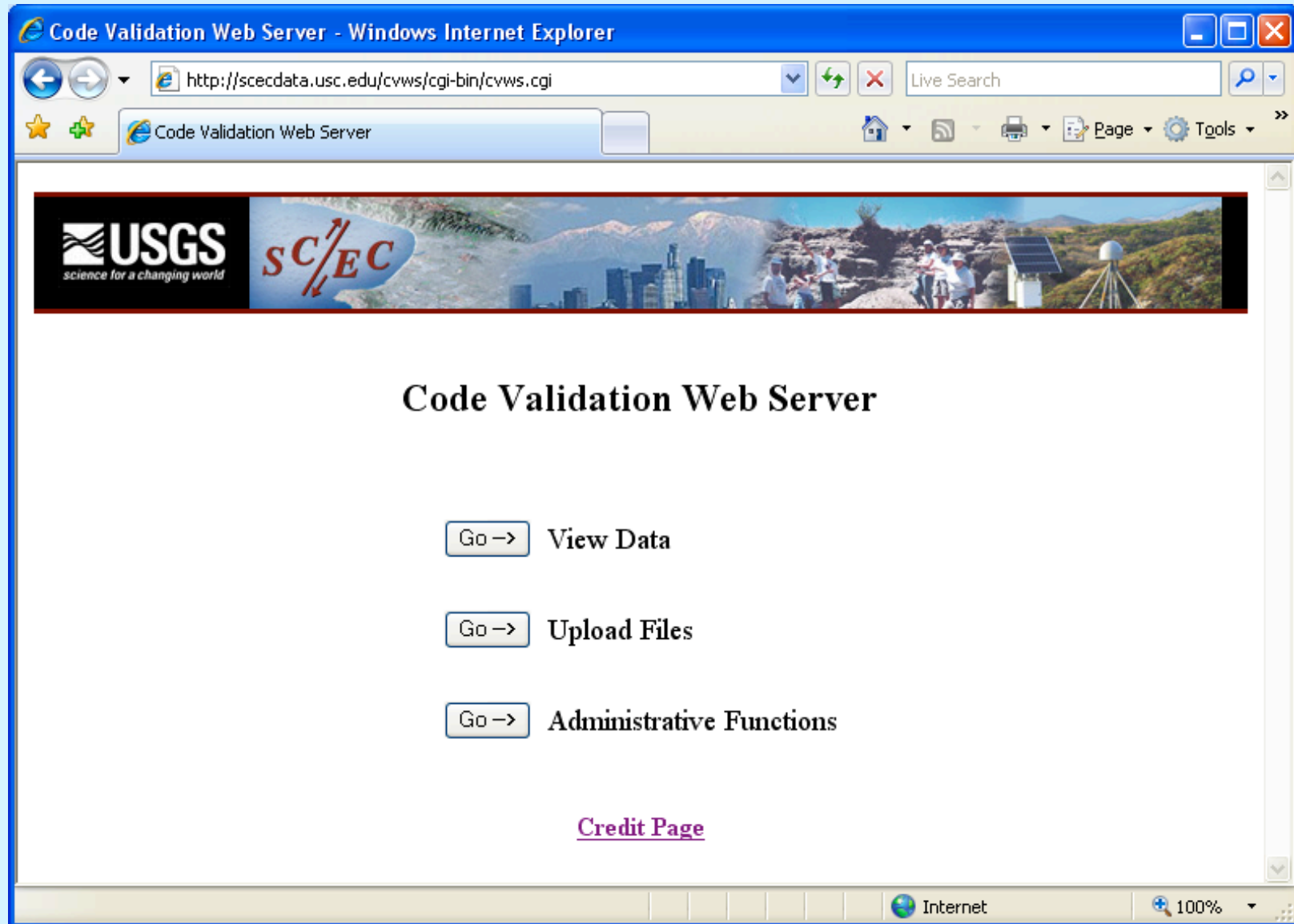
Purpose of the Web Site

- Automate the process of submitting, checking, organizing, storing, graphing, filtering, and comparing the modeling data.
- Provide a service to modelers by giving them tools to explore their own data and perform their own comparisons.

Old Method – Submit Files by Email

- Lots of work for Ruth.
 - Organize all the files.
 - Create graphs, apply filters.
 - Compare and superimpose graphs.
- Modelers have no way to check for errors before submitting files.
 - Ruth has to check for errors, then notify modelers.
- The data is not available to everyone.
 - Modelers can't perform their own comparisons.

New Method – Submit Files to Web Site



The screenshot shows a Windows Internet Explorer browser window titled "Code Validation Web Server - Windows Internet Explorer". The address bar displays the URL "http://scecddata.usc.edu/cvws/cgi-bin/cvws.cgi". The browser's address bar includes navigation buttons (back, forward), a search box with "Live Search", and a toolbar with icons for home, RSS, print, page, and tools. The main content area features a banner image with the USGS logo (science for a changing world) and the SC/EC logo. Below the banner, the text "Code Validation Web Server" is centered. Three buttons are visible: "Go -> View Data", "Go -> Upload Files", and "Go -> Administrative Functions". At the bottom, there is a link for "[Credit Page](#)". The status bar at the bottom right shows "Internet" and "100%".

Code Validation Web Server - Windows Internet Explorer

http://scecddata.usc.edu/cvws/cgi-bin/cvws.cgi

Code Validation Web Server

USGS
science for a changing world

SC/EC

Code Validation Web Server

Go -> View Data

Go -> Upload Files

Go -> Administrative Functions

[Credit Page](#)

Internet 100%

New Method – Submit Files to Web Site

- Web site automates many processes.
 - Organizes all the files.
 - Creates graphs.
 - Applies digital filters.
 - Performs comparisons.
 - Superimposes graphs.
- Modelers can check for errors themselves.
 - File format is validated during upload.
 - Modelers can graph their data and check it looks right.
- Everyone has access to all the data.
 - Modelers can use the web site to view their own data, and compare their data to the data from other modelers.

Uploading Files

- Modelers upload data directly to the web site.
- Web site keeps track of which files have been uploaded.
- File format is checked automatically during upload.
- Modelers can immediately graph the data to check for errors.

Viewing Data

- All data from all modelers is visible to everyone.
- Draw graphs for:
 - Time series data.
 - Rupture time contour plots.
- Original raw data files are available.
- Low-pass digital filters can be applied to smooth time series data.

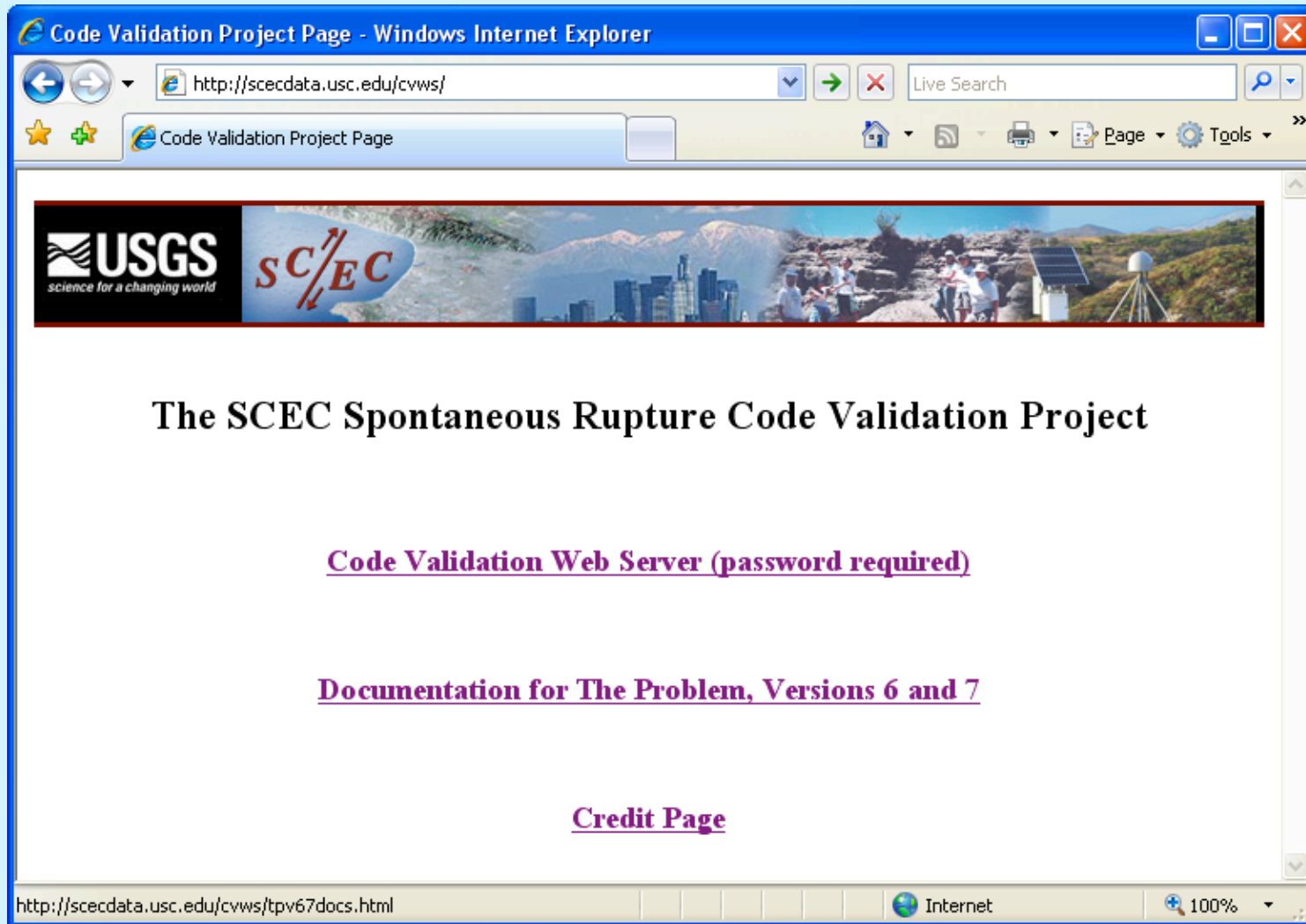
Comparing Data

- Web site automates common data comparisons.
- Supported comparisons:
 - Compare time series data from multiple users.
 - Compare rupture contour plots from multiple users.
 - Compare time series data from different stations (for a single user).
 - Compare two different data fields in a time series, at a single station (“X-Y plots”).
- Graphs can be superimposed for easy comparison.
- Digital filters can be used during comparison.

Administrative Functions

- Web site maintains user accounts.
- A problem is added by uploading a text file that describes the problem.
 - Problem definition file lists expected time series, contour plots, and data fields.

Project Page



An area for storing documents and information.

How Did We Do?

- Time series data:
 - Everyone was able to upload their own time series files.
 - Only problem was that some users had to print the time value in double precision, to make the web site recognize their time steps were uniform.
- Contour plot data:
 - Users were not able to upload their own contour plots.
 - Web server requires contour plots in a vector format, which users were not able to produce by themselves.
 - Instead, users created files with node locations and rupture times, and emailed them to Michael.
 - Michael wrote a program to convert user files to vector format.

How Did We Do?

- Graphing and comparison:
 - All graphing and comparison functions worked as intended.
 - Digital filtering algorithm had to be changed.
- Data and tool availability:
 - Web site makes all modeling data available to everyone.
 - Modelers have used the tools on the web site to explore their own data, and to compare their data to the data submitted by other modelers.