

1998 SCEC Progress Report: **SCEC Strong-Motion Database *SMDB* and Empirical Green's Functions Library *EGFL***

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The UCSB Strong Motion Data Base (SMDB) continues to see significant use through its Web site, <http://smdb.crustal.ucsb.edu/> (Figure 1). Since 1997, 3.64 Gigabytes of strong motion data has been downloaded through the Web site. In addition, over 5400 strong motion files have been downloaded from USGS and CSMIP FTP sites via hypertext links in SMDB. More than 75% of this usage has occurred in the last year. During 1998, daily usage averaged 181 Web pages accessed, 7.6 Megabytes of strong motion data downloaded from SMDB, and 12 strong motion files downloaded from USGS and CSMIP FTP sites. Figure 2 summarizes the Web site usage over the last two years.

The Web site is used by seismologists inside and outside of SCEC, and by earthquake engineers as implied by the fact that 89% of accesses to SMDB are made from computers using some variation of the Windows operating system.

Improvements to SMDB in the last year include:

- * The number of traces in the database has increased by over 50% to 5,655. The database is now nearly complete for California earthquakes and includes both corrected and uncorrected acceleration data. In addition, some important North American earthquakes from outside California have been added to the database.
- * A Java-based program has been added to the Web site. The Java applet is viewed directly from the user's browser window. This applet allows the user to select stations and/or earthquakes visually from a map, and to download data from the selections. The user may 'zoom in' on the map to better select the stations or earthquakes that are of interest. This program is useful when a user knows the particular area that he or she is interested in, but is not familiar with the stations or earthquakes that may be located in that particular area.
- * The basic search page of the Web site has been improved. It now includes the ability to search by the closest distance to the fault, the agency station number, and geographic region.
- * The pages showing data summaries by earthquake have also been improved. The pages are now organized by region and allow the user to order earthquake names alphabetically, by date, or by magnitude. In addition, earthquake parameters, such as strike, dip, rake, and magnitude, have been updated.

* The pages showing data summaries by station have been improved to include the geographic region of each station. In addition, many station parameters, such as agency station number, location, address, housing structure, and station owner have been updated.

* The custom search page has been improved. The layout and appearance of the custom search page have been altered so that it is easier for the user to identify the parameters in the database that may be of interest to the user.

* A new access method has been added that allows the user to directly input a SQL (Structured Query Language) command. This access method should rarely be necessary, but allows the user full flexibility in querying the database.

* Two important new database fields have been added to the database. These fields are the instrument trigger times and the closest distance to the fault. Values for these parameters have been added where reasonable numbers were available. This includes 13% of the traces for the trigger time and 71% of traces for the closest distance to the fault.

* Hypertext links have been added to the Web site for stations where additional information about the stations is available from external Web sites. These stations include TERRAScope stations and stations being studied under the ROSRINE project.

* Five new Web pages have been added. These Web pages include an explanation about how to use the site, information about data formats, information about how to determine whether a recording can be considered free-field, a page listing recent changes to the Web site, and an external links page.

* Both software and hardware have been updated. The database is now run by the Oracle8 Server Enterprise Edition, and the Web services are provided by Oracle Web Server 3.0. A Sun ULTRA10 computer with a 300 MHz CPU, 640 MB of RAM, and 17 GB of disk space has been purchased and is now being used for SMDB. These improvements have reduced the database query times by a factor of three.

We presented the results at the March 16-18, 1998 annual meeting of the Seismological Society of America (Boulder, CO):

Lindley, G., Tumarkin, A. and R. Archuleta, 1998, New Developments in the UCSB Strong Motion Database: *Seismological Research Letters*, **69**, No. 2, p. 171.

We are continuing our efforts to advertise SMDB to engineering community. We shall present SMDB at the EERI Annual Meeting in San Diego (February 5-7, 1999). An abstract for the Special Theme Session "Strong Motion Networks and Data Dissemination" was accepted for presentation during the 12th World Conference on Earthquake Engineering in New Zealand in January 2000.



The Strong Motion DataBase



The Strong Motion DataBase is a relational database providing information about and access to strong ground motion recordings. A project of the [Southern California Earthquake Center](#), the database contains information primarily from California, but includes events from throughout North America.

[How to Use this Web Site](#)

Information and data from **125** earthquakes, **688** stations and **5,655** accelerogram traces are available.

[Recent Changes/Additions](#)

The Strong Motion DataBase is a product of the [Institute for Crustal Studies](#) at the [University of California, Santa Barbara](#).

[Data Format Information](#)

[Other Useful Web Sites](#)

Easy access:

- * [Get data by earthquake](#)
- * [Get data by station](#)
- * [Basic search page](#)

Advanced access:

- * [Java map](#)
- * [Custom search page](#)
- * [SQL search page](#)

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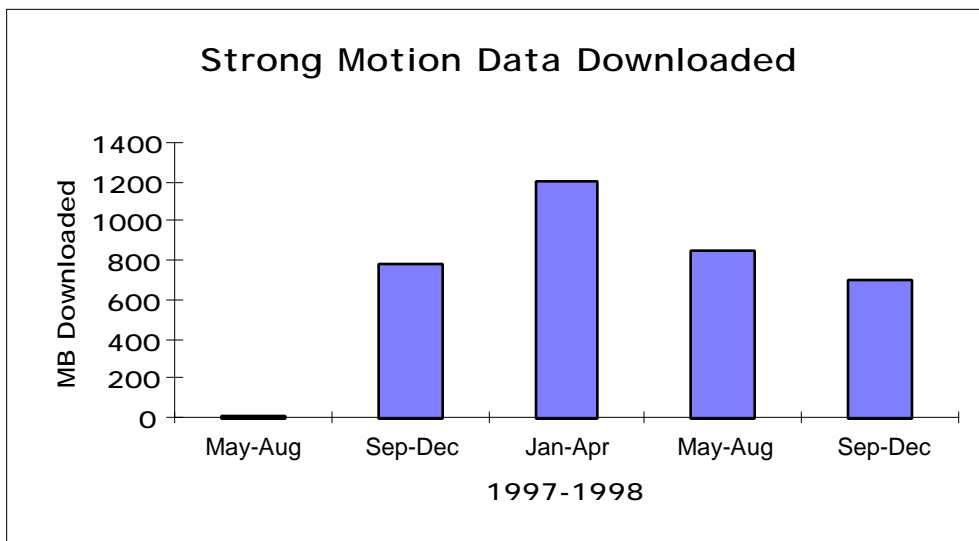
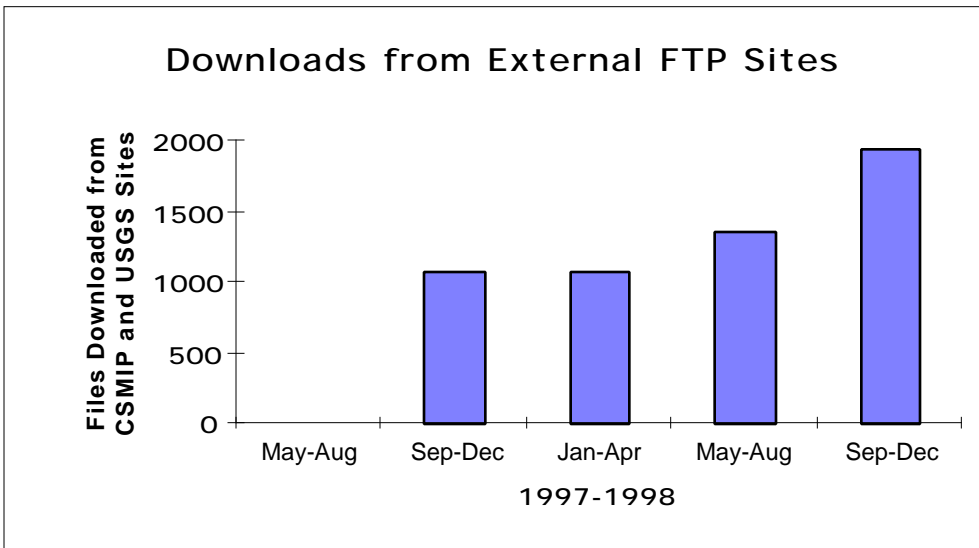
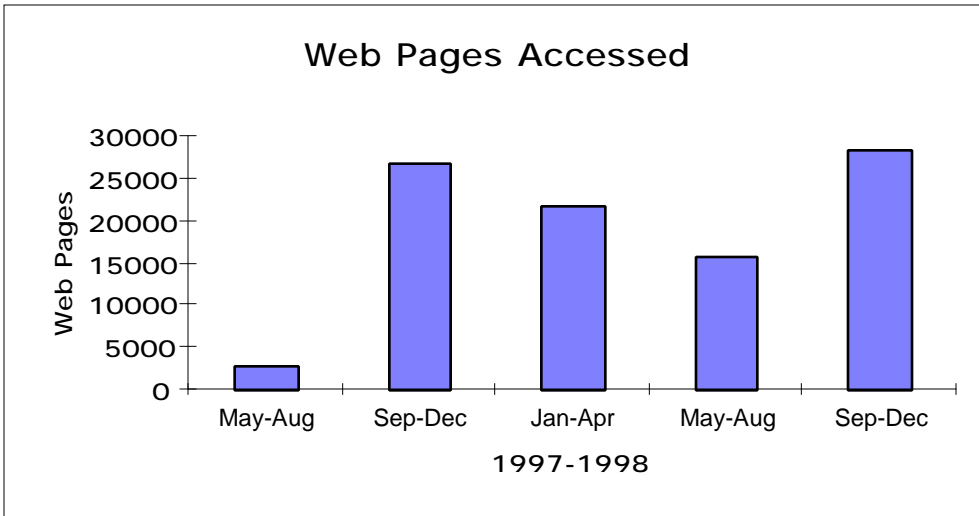


Figure 2. SMDB Web site usage in four month intervals.