Seismology:
Resources for Teachers

THE SEISMOLOGICAL SOCIETY
OF AMERICA
201 Plaza Professional Building
El Cerrito, CA  94530-4003
(510) 525-5474, FAX:  (510) 525-7204
http://www.seismosoc.org/
info@seismosoc.org

(The Seismological Society of America publishes two research journals - The Bulletin of the Seismological Society of America and Seismological Research Letters, both issued bi-monthly. The Society also sponsors a national meeting in the spring of each year and a meeting of the society's Eastern Section in the fall.)

The following list of reference materials was prepared to provide teachers (primarily grades K-12) with resource information which will be of use in teaching topics related to seismology. The resources are separated into seven categories: reference information (primarily books, scientific papers and pamphlets), maps, videotapes, slide sets, computer hardware/software, seismographs, and databases. Suggestions for "first-time-users" of seismology materials and some information on how to obtain copies of the resources listed here are given at the end of this brochure. Inclusion of materials in this brochure does not constitute an endorsement by the SSA. (Internet:  http://www.eas.purdue.edu/k-12/seismology_resources.html)

Reference List


**Maps**

- a. This Dynamic Planet, Simkin et al., 1994; 1:30,000,000 scale ($7 + $5 Shipping)
- c. World Seismicity Map, 1:30,000,000 scale ($3.10)
- d. San Francisco Bay Area Earthquakes (1972-1989), 24" x 30" poster of epicenters on Landsat image ($4)
- e. Earthquakes of the Conterminous U.S., OFR92-327 ($12); f. Earthquakes in California and Nevada, OFR94-647 ($12); g. Seismicity of Hawaii, OFR88-285 ($12); h. Earthquakes in Utah, OFR91-128 ($12); i. World Seismicity NEIC Poster ($12); j. Seismicity of Alaska, OFR89-98 ($12); k. Southern California Earthquakes, OFR92-533 ($12); l. Circum-Pacific Seismic Potential, OFR89-85 ($12); m. Earthquakes in Washington and Oregon, OFR94-226A ($12)

**Slides**

- Geologic Hazards Slide Sets, Slide sets on earthquakes and other geologic hazards, Natl. Geophys. Data Center, 325 Broadway, E/GC1, Dept. 930, Boulder, CO 80303-3328, (303) 477-6277, (Slide sets on earthquake damage, earthquake effects of various historic events, etc., $30 each set, Geologic Hazards Photos, including earthquakes, on CD-Rom, $71).
- EERI Slide Sets, More than 40 slide sets covering such topics as specific earthquakes and their impacts, earthquake resistant design, seismicity, unreinforced masonry buildings, loss reduction measures, mitigation of earthquake hazards, and others. Videotapes. Publications catalog available. Earthquake Engineering Research Institute, 499 14th St., Suite 320, Oakland, CA 94612-1902, (510) 451-0905, (510) 451-5411 (FAX).

**Videotapes**

Planet Earth Series: *The Living Machine* (1986, 60 min) - Plate tectonics, volcanoes, earthquakes.

Making of a Continent Series:
- Land of the Sleeping Mountains *(1983, 58 min)* - Volcanic areas of the western US.
- The Price of Gold *(1983, 56 min)* - Plate tectonics, volcanoes and earthquakes along the west coast of the US.
- Collision Courses *(1986, 60 min)* - Continental collisions, plate tectonics.
- The Great River *(1986, 55 min)* - Includes discussion of New Madrid Seismic Zone and plate tectonics.

NOVA Series (videotapes available, 800-255-9424, $19.95):
- Killer Quake *(1994, 55 min)* - 1994 Northridge and earthquake hazard in southern California.


Discovery Channel, Assignment Discovery Series: (Videotaping rights for one year for use in the classroom)
- Living With Violent Earth: On Giant Continents We Drift *(25 min)* - Plate tectonics, earthquakes and volcanoes.
- Living with Violent Earth: We Live on Somewhat Shaky Ground *(25 min)* - Earthquakes, seismic waves, earthquake prediction.

Discovery Channel - Spirit of Survival Series:
- Alaska Earthquake! *(1990, 28 min)* - 1964 Great Alaska earthquake
- Cities in Peril *(1990, 52 min)* - Mexico City earthquake, 1985, 1933 Long Beach earthquake

ABC World of Discovery Series Earthquakes: *The Terrifying Truth* *(1994, 55 min)* - CA and Japan, hazards and damage.


National Geographic Explorer:
When the Earthquakes (1992, 30 min) - 1989 Loma Prieta, 1906 San Francisco Earthquakes, Parkfield experiment, earthquake building damage.
Earthquake (1995, 30 min) - 1995 Kobe, Japan earthquake.
Nature's Fury (1993, 120 min) - Includes segment from When the Earthquakes.
National Geographic: Born of Fire (1988, 55 min) - Plate tectonics, causes of earthquakes, volcanoes, Japanese earthquake preparedness drills, San Andreas fault, paleoseismology.

Weather Channel Project Weather Series: Earthquake Aftershock (1992, 22 min) - Safety and preparedness
Earthquake II: You Can Survive! (1992, 22 min) - American Red Cross (1992, 22 min) - A puppet show production emphasizing earthquake safety and minimizing earthquake risk through preparation. Teachers guide. Also available in Spanish. (Obtain from: Knox Co. Chapter, American Red Cross, 214 Buntin St., Vincennes, IN 47591, (812) 882-2204, $49.95)

The Walls Came Tumbling Down: Earthquake History of the Holy Land (1994, 55 min) - (Obtain from: Prof. Amos Nur, Dept. of Geophysics, Stanford, CA 94305, $40).

Survival (Discovery Channel, 1990, 54 min) - Damage from disasters - fires, explosions, earthquakes, 1906 San Francisco and 1985 Mexico City earthquakes.


When the Bay Area Quakes (1991, 20 min) (Univ. of CA, Ext. Media Ctr, 2000 Center St., 4th Floor, Berkeley, CA 94704) - Earthquake studies and effects in California, (510-642-0460), also, Blue Sky Assoc., $39, see information above.

When the Earthquakes (1990, 28 min) - National Geographic, 17th and M Streets, NW, Wash., DC 20036, (800) 368-2728.

Great Quakes (1999, 3 hrs) – Kobe, Northridge and other earthquakes, The Learning Channel.
Earthquake (1996, 30 min.) – Earthquake causes, prediction, engineering; Kobe earthquake; UltraScience – The Learning Channel.
Continental Drift and Plate Tectonics (1988, 20 min) – Continental drift and plate tectonic concepts, plate reconstructions, plate boundaries, animations (send a check for $15 payable to the "Regents of the University of California", requesting the 1988 Continental Drift and Plate Tectonics video by Tanya Atwater, to: Rick Johnson, Instructional Consultation, UC Santa Barbara, Santa Barbara, CA 93106).

Make Yourself a Promise - Earthquake Preparedness for Yourself and Your Community (FEMA, 27 min).
Surviving the Big One (1992, 60 min) - Earthquake preparedness program from KCET, Los Angeles, CA.

Schools & Earthquakes - Building Schools to Withstand Earthquakes (FEMA, 14 min).

Videotapes available from Center for Earthquake Studies, Southeast Missouri State University, One University Plaza, Cape Girardeau, MO 63701-4799 (send blank videotape and $2 for postage and handling)

Earthquake Risk in the Central United States, 9 min.; Earthquakes in Mexico (health care response), 24 min.; How Earthquakes Affect Buildings, 12 min.; Reducing Nonstructural Earthquake Damage (guide for schools), 14 min.; Earthquakes and Schools (building schools to resist earthquakes), 17 min.; Critical Time (school earthquake preparedness planning guidelines), 14 min.; Yogi Bear, 5 min.; Let's Be Ready: Earthquake Preparedness - produced by S.W. Bell, 22 min.

An Ounce of Prevention: Strengthening Your Wood Frame House for Earthquake Safety - prepared by the California Office of Emergency Services and available at Blockbuster Video in southern California.

Computer Hardware/Software

GeoMedia - (An Earth science educational system that uses multimedia technology to teach middle school students about the hydrologic cycle, earthquakes and maps), available from GeoMedia Educational Systems, U.S. Geological Survey, 801 National Center, Reston, VA 22092 (for Macintosh, CD ROM).
Seismographs


Earthscope Seismograph (a short period seismograph that can be connected to a windows computer; Kinematics Incorporated, http://www.kmidirect.com, $495).


Low-G Accelerometer (a low-g, up to ± 5g, accelerometer [$98], can be connected to a microcomputer using an interface box [Serial Box Interface, $104] and data logger software [$50] for various vibration, including seismological, experiments, Vernier Software, 8565 SW Beaverton-Hillsdale Hwy., Portland, OR 97225-2429, (503) 297-5317), www.vernier.com.

Public Seismic Network (information about seismographs and amateur seismology, internet/www at http://psn.quake.net/).

AS-1 and AS-2 Seismographs (The Amateur Seismologist, 2155 Verdugo Blvd., #528, Montrose, CA 91020; $450 with 24 page manual and Quake software to connect to PC, see review in *Earth* magazine, p. 66, December, 1995); www.primenet.com/~seismo.

Databases


Geophysics of North America for plotting geophysical data, including earthquake epicenters - available from National Geophysical Data Center, NOAA, Boulder, CO 80303 (IBM/PC).

EPIC retrieval software for global hypocenter data (on CD-ROM) - available from U.S. Geological Survey, NEIC, Denver Federal Center, Box 25046, MS 967, Denver CO 80225-0046 (IBM/PC).

Geologic Hazard Photos CD-ROM - Earthquake and Volcano photos from the NGDC slide archives on 2-CDs. Images are in 24-bit TIF and 8-bix PCX format; MS Windows software for PCX format provided. (Product No. 1115-A27-001; $71) National Geophysical Data Center, NOAA E/GC4 Dept. 961, 325 Broadway, Boulder, CO 80303 (303-497-6826).

QUAKELINE bibliographic database containing references to literature on earthquake engineering and natural hazards accessible through telnet, gopher and modem connections. For information on access, contact Information Service, National Center for Earthquake Engineering Research, State University of New York at Buffalo, Science and Engineering library, 304 Capen Hall, Buffalo, NY 14260-2200, (716) 645-3377, E-mail: nerca/k@ubvms.cc.buffalo.edu.

Earthquake Information Line - voice recording, updated twice daily by the National Earthquake Information Center, of current, world-wide earthquake data listing information on earthquakes of magnitude 5.5 or greater and/or earthquakes that have been felt or have caused damage, (303) 273-8516.

Internet access - Internet/www URLs for earthquake information (many additional seismology-related addresses can be accessed from these URLs):

http://www.geo.arizona.edu/saso/ (Univ. of Arizona)

http://www.geophys.washington.edu/seismosurfing.html/ (Univ. of Washington; links to many other sites)

http://www.neic.cr.usgs.gov (National Earthquake Information Center, various seismicity maps)

http://www.seismosoc.org/ (Seismological Society of America)
http://www.usgs.gov/education/ (USGS Learning Web)
http://quake.geo.berkeley.edu (Northern California Earthquake Data Center)
http://www.seismo.berkeley.edu/seismo/ (Univ. of California, Berkeley)
http://www scecc.org (Southern California Earthquake Center)
http://lasker.princeton.edu/pepp.shtml (Princeton Earth Physics Project)
http://vcourseware3.calstatela.edu/ (Cal State Los Angeles, virtual earthquake interactive earthquake location simulation)
http://www.eeri.org/ (Earthquake Engineering Research Institute)
http://www.eerc.berkeley.edu/ (Earthquake Engineering Research Center of the Univ. of California, Berkeley)
http://nceed.eg.buffalo.edu/ (National Center for Earthquake Engineering Research)
http://www.geo.asa.umich.edu/MichSeis (Univ. of Michigan Seismograph Program)
http://www.iris.edu (Incorporated Research Institutions for Seismology), Seismic Monitor, Event Search, WILBER seismogram plotting)

SUGGESTIONS

For "first-time-users" of seismological resources, the following materials are suggested to get started:

Books/Publications:  
- Bolt, B.A., *Earthquakes; Earthquakes and Geological Discovery*
- FEMA/AGU, *Seismic Sleuths*
- Gore, R., California Earthquakes, *National Geographic*, April, 1995 (article and map).
- USGS Teacher’s Packet
- Wright, R.G., *Earthquake!, Event-Based Science materials*  
- USGS, *This Dynamic Earth: The Story of Plate Tectonics*

Maps:  
- Simkin, T., and others, *This Dynamic Planet; NEIC, Earthquakes of the Conterminous U.S.*

Videotapes:  
- NOVA: *Earthquake, Killer Quake, The Day the Earth Shook; Earthquake II: You Can Survive!, Continental Drift and Plate Tectonics*  

Software:  
- SeisVolE epicenter plotting program; SEISMIC WAVES program

Internet:  


HOW TO OBTAIN MATERIALS IN THIS BROCHURE

Copies of these materials are available from a variety of sources. Books and other reference information may be obtained through bookstores or in public or university libraries. Sources of some of the materials are listed individually in the brochure. Many of the Videotapes may be purchased through videotape distributors or obtained on loan from public or educational consortium libraries. Additional copies of this brochure can be obtained from the Seismological Society of America (SSA). However, the SSA does not distribute the materials listed in this brochure. (Suggestions, comments and additions are welcome. Please send to: Prof. Lawrence W. Braile, Department of Earth and Atmospheric Sciences, Purdue University, 1397 Civil Engineering Building, West Lafayette, IN 47907-1397, (765) 494-5979, FAX: (765) 496-1210, E-mail: braile@purdue.edu. This brochure can also be found at: http://www.eas.purdue.edu/k-12/seismology_resources.html)

(9/2000)