

## ANNUAL PROGRESS REPORT

Operation of the Northern California Earthquake Data Center

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### INVESTIGATIONS UNDERTAKEN

The Northern California Earthquake Data Center, a joint project of the Berkeley Seismological Laboratory (BSL) and the U.S. Geological Survey at Menlo Park, serves as an online archive for various types of digital data relating to earthquakes in central and northern California. The NCEDC is located at the Berkeley Seismological Laboratory, and has been accessible to users via the Internet since mid-1992.

The primary goal of the NCEDC is to provide a stable and permanent archival and distribution center of digital geophysical data for networks in northern and central California. These data include seismic waveforms, electromagnetic data, GPS data, strain, creep, and earthquake parameters. The principal networks contributing seismic data to the data center are the Berkeley Digital Seismic Network (BDSN) operated by the Seismological Laboratory, the Northern California Seismic Network (NCSN) operated by the USGS, and the Bay Area Regional Deformation (BARD) GPS network. The collection of NCSN digital waveforms dates from 1984 to the present, the BDSN digital waveforms date from 1987 to the present, and the BARD GPS data date from 1993 to the present. The BDSN includes stations that form the specialized Northern Hayward Fault Network (NHFN) and the MiniPBO (MPBO) borehole seismic and strain stations in the SF Bay Region.

By its nature, data archiving is an ongoing activity. In 2003-2004, the NCEDC continued to expand its data holdings and enhance access to the data. Projects and activities of particular note include:

- Population of the hardware information and SEED instrument responses for all NCSN operated stations into the NCEDC database.
- Conversion of all NCSN waveforms from 1984 through 2003 from CUSP format to standard MiniSEED format using standard SEED channel names.
- Association of NCSN event waveforms with the NCSN eventids in the NCEDC database to support data retrieval by eventid.
- Enhanced *BREQ-FAST* and *NetDC* data retrieval interfaces to provide access to NCSN waveform data in SEED format.

- Continued development of **IRIS FISSURES DHI** services as a data distribution method for data from the NCEDC.
- Continued development of *STP* at the NCEDC.
- Development of XML tools for import/export and maintenance of hardware tracking data in the NCEDC database.
- Archiving data from 15 shared SCSN (network CI) stations in southern California in support of the statewide earthquake system developed for the California Integrated Seismic Network (CISN), which represents one of the ANSS monitoring regions.
- Began archiving process for SAFOD Pilot Hole data.
- Began archiving process for LBL Gyesers waveform data.
- Purchase of new hardware to support data migration and expansion of the NCEDC.

These activities and projects are described in detail below.