Memorandum of Agreement for the California Integrated Seismic Network

1.1 Goals of the CISN

The California Integrated Seismic Network (CISN) is a collaborative program among the California Department of Conservation, California Geological Survey (CGS), the U.C. Berkeley Seismological Laboratory (BSL), the Caltech Seismological Laboratory (Caltech), and the Menlo Park and Pasadena Offices of the United States Geological Survey (USGS), (hereafter the CISN core institutions) to develop and operate a statewide seismic monitoring and reporting system. The Governor's Office of Emergency Services (OES), as the primary Emergency Management organization in California and user of emergency management information in providing for public needs in mitigation and emergency response, serves as a partner with the network operators in the CISN. OES and the 5 core members constitute the 6 founding members of CISN.

CISN institutions will build upon their existing facilities to cooperatively improve seismic instrumentation, its spatial distribution throughout the state, its effectiveness in meeting public needs, the software for processing, archiving and distributing seismic data and information, and training for users. The CISN will represent California as a designated region of the Advanced National Seismic System (ANSS). The institutions will cooperate in raising funds to achieve modernization of the instrumentation and reliable operations. The extent to which the CISN can achieve these goals will be dependent on adequate funding.

This agreement is based on the value the organizations place on their own institutions receiving appropriate credit, and their understanding that the long-term health of an organization depends on the recognition of its value to the community and state. Releases by CISN will identify the contributing institutions and incorporate a logo to be developed which will clearly identify the member institutions.

1.2 CISN Products and Distribution

The products of CISN will include:

1. Reliable monitoring and continuous reporting of all significant earthquake activity in California. Earthquake source parameters will be issued within minutes of the occurrence of an earthquake. These will be distributed electronically, including Web sites, e-mail and robust pathways for emergency responders. The earthquake information will be corrected as needed in post processing and maintained as a permanent archive. As technology improves, rapid notification may advance to rapid alerts that precede the arrival of strong shaking at distant sites.
2. Maps depicting the distribution of shaking intensity of ground shaking (e.g., ShakeMap) to guide emergency response operations and damage assessment immediately following a significant earthquake in California. The maps will be based on shaking parameters from stations in the combined seismographic networks and also be distributed electronically within minutes of the occurrence of the earthquake.
3. Distribution and archiving of strong motion records of engineering interest. Reports of strong ground motion records (e.g., Quick Reports) will be produced rapidly for significant earthquakes to facilitate engineering use of the data. These reports may also include data from structures, response spectra, and other relevant information. Super datasets of strong motion records from all the institutions will be produced for online, public access.

4. Distribution and archiving of seismological data for all recorded earthquakes. Ground motion records from all CISN networks, including strong motion stations will be analyzed and archived to facilitate seismological use of the data. A common earthquake catalog will be produced for online, public access.
5. Outreach and technology transfer for education, mitigation and emergency response. Training in the uses of seismological information for disaster reduction will be provided to emergency responders, contingency planners, public information media representatives and others. CISN will also provide a unified, simple means of access to all the data in all CISN-sponsored databases.

1.3 CISN Structure

The CISN will be comprised of three management centers to represent the respective needs of northern California, southern California, and the engineering community. The responsibilities of these centers will include installation and operation of seismic instrumentation, data acquisition and processing facilities, archival data centers, and outreach and educational facilities. UC Berkeley and the USGS in Menlo Park will cooperatively operate a management center for seismological information in northern California. These institutions will have primary responsibility for products 1, 4 and 5 above in southern California. A management center for statewide earthquake data of engineering interest will be operated by CGS with the USGS. They will have responsibility for product 3 above. All three management centers will provide product 5, outreach and technology transfer, with emphasis on meeting the needs of their respective constituents (northern California, southern California and the engineering community). OES will participate as a primary user of CISN product 2 and as a representative and facilitator of emergency management user communities for product 5.

Data from all institutions will be transmitted to and archived in all the data centers as appropriate to the goals of that data center. All institutions will contribute data to create product 2, real-time ground-shaking maps. Real-time and archived data will be distributed through a single, virtual system that provides seamless access to all California earthquake data to both the seismological and the earthquake engineering communities.

The CISN institutions will continue to refine their products to be of optimum use to their constituency. CISN institutions will distribute earthquake data to the public via Web sites and email. They will also distribute data to the California Office of Emergency Services (OES) and the Federal Emergency Management Agency (FEMA) for emergency response and for use in its post-earthquake damage estimation program. Member institutions that distribute CISN information will acknowledge CISN as a source of the data and the contributions of other institutions as appropriate.

The six institutions signatory to this memorandum are the founding members of the CISN. Core members have primary responsibility for the recording and monitoring of earthquakes, and creation of CISN products. Other entities involved in seismological monitoring in California are invited to participate as members of CISN. Members will support the goals of CISN, contribute to the creation of CISN products, and agree to abide by practices and standards endorsed by the CISN Steering committee. Members will have a primary affiliation with one of the management centers.

1.4 CISN Management

The CISN will be governed by a Steering Committee. The Steering Committee will be composed of two members from each of the core institutions, and, in addition, a representative of California Governor's Office of Emergency Services, the chair of an Advisory Committee to the CISN, and the Chief Scientist for the USGS Earthquake Hazards Team. One of the USGS Menlo Park representatives will be the National Strong Motion Program Coordinator.
The CISN will create an Advisory Committee composed primarily of users of CISN data and services to provide advice to the Steering Committee and Program Management Group on directions and goals. The Steering Committee will approve the members of this Advisory Committee from nominations made by the PMG. The Advisory Committee will have at least ten members, including three representing the constituency of each management center and one representing OES, and will elect a chair from its membership. The chair of the Advisory Committee will serve a one-year term, renewable. The Advisory Committee will also elect a vice chair. The term of membership on the Advisory Committee will be three years, renewable once. At the request and with the approval of the Steering Committee, a member of the Advisory Committee may be invited to serve one or more years of a third, three-year term.

The Steering Committee will be responsible for the governance of the CISN. This will include policy decisions about the level of data exchange and about the distribution of data. The Steering Committee will develop guidelines and spending priorities to be used in joint applications for funding. The CISN Steering Committee will review the project annually to assess the project, organizational structure and the contribution of the member institutions, and to recommend adjustments where necessary. The Steering Committee will have the authority to amend this Memorandum of Agreement. The chair of the Steering Committee will rotate among the five core institutions. The term of the chair shall be one year, renewable for an additional year. There will be a vice chair who will be the chair in the following term. The chair and vice chair of the Steering Committee will never be from the same management center or same sector (e.g. academic, federal or state).

The Steering Committee will select one member to be the Regional Coordinator to ANSS and another as the alternate coordinator. The primary and alternate coordinators shall not be from the same management center or same sector. The Regional Coordinator will be responsible for the interaction of the CISN with other regions of the ANSS and to represent the interest of the CISN. The term of the Regional Coordinator and the alternate will be one year and can be renewed. The alternate representative will be an ex officio member of the ANSS Implementation Committee if permitted by the ANSS.

A CISN Program Management Group (PMG), consisting of one member of the Steering Committee from each core institution, will meet regularly to coordinate the implementation of the CISN by the member institutions. The PMG will have authority within their agency to carry out the goals of the CISN and will report to the Steering committee on the progress of the CISN. The Steering Committee will approve the formation and dissolution of standing committees to address specific CISN activities. The PMG will appoint members to standing committee activities with the approval of the Steering Committee and oversee subcommittee activities. Each core institution will provide one or two members for each of the standing committees.

CISN institutions, approved:

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Dr. John Parrish _____ **Date** 11/7/07
California State Geologist
California Geological Survey

Dr. Barbara Romanowicz _____ **Date** 01/04/08
Director, Seismological Laboratory,
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Dr. Jeroen Tromp _____ **Date** 10/29/07
Director, Seismological Laboratory,
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Mr. Henry Renteria _____ **Date** 01/25/08
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