EERI Special Earthquake Report

EERI Establishes Reconnaissance Team Following 7.8 Offshore Quake in Japan

A major earthquake of magnitude 7.8 shook northern Japan at 10:17 p.m. local time Monday, July 12, 1993, triggering devastating fires and tsunamis. The epicenter was located about 70 km off the western shore of the island of Hokkaido. Okushiri, a small island about 50 km south of the epicenter, was devastated by the quake and the related landslides, tsunamis, and fires. EERI has mustered a reconnaissance team to join the U.S. effort. EERI's reconnaissance teams are funded by the National Science Foundation through the Learning from Earthquakes project.

Les Youd, Professor of Civil Engineering at Brigham Young University, will serve as leader of the EERI team, and will examine geotechnical engineering aspects of the earthquake. Other team members and areas of expertise include Paul Somerville, Woodward-Clyde Consultants in Pasadena, CA, seismology; Jane Preuss, Urban Regional Research in Seattle, tsunamis, land use, and response planning; and Charles Scawthorn, EQE Engineering in San Francisco, structural engineering and fire response. The EERI team will be coordinating its efforts with those of the U.S. reconnaissance team, organized and led by NIST. For more information on the U.S. team, see page 2.

The following information is from a preliminary report on the earthquake in a special edition of the INCEDE Newsletter, authored by Tsuneho Katayama, Director of INCEDE (International Center for Disaster-Mitigation Engineering) in Tokyo.

The earthquake was named the "Hokkaido-nansei-oki" (Off Southwestern Shore of Hokkaido) earthquake. The official death toll had reached 126 as of Thursday, July 15. Rescuers were continuing to search for about 100 additional missing people. Firemen were searching the waters for automobiles swept away by tsunamis.

The number of deaths has already surpassed the 104 recorded in the 1983 Nihon-kai-chubu (Central Part of Japan Sea) earthquake. Only two other earthquakes in the post-war period have been more devastating: one in 1948 in Fukuiken that killed 3,769 and one two years earlier off Shikoku which killed 1,400.

As of 11 p.m. Wednesday, the National Police Agency estimated that 284 buildings were destroyed by the main quake and 300 were burned, 200 houses were flooded, and 40 road sites were damaged. Landslides stopped traffic on various roads. Rail service came to a standstill in southern Hokkaido and northern Honshu. The Maritime Safety Agency reported Tuesday that nearly 270 vessels along the Japan Sea were sunk or swept away by tsunamis.

The earthquake occurred in a "blank spot" where even seismologists had not expected it to hit. The epicenter, 70 km off the western coast of Hokkaido, was between the epicenters of two former major earthquakes. The one to the north occurred in 1940, and the southern one was the 1983 Nihon-kai-chubu earthquake.

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NIST Coordinates Japan Quake Reconnaissance Team

On Saturday, July 17, 1993, the National Institute of Standards and Technology (NIST), under the auspices of the U.S.-Japan Natural Resources Panel on Wind and Seismic Effects (UJNR), dispatched a team of structural and fire engineers to perform a preliminary investigation of the effects of the July 12, 1993, Hokkaido-nansei-oki earthquake. The EERI reconnaissance team is considered part of this U.S. team for logistical purposes. The U.S. team will work with a Japanese team also organized under the auspices of the UJNR. For more information on the earthquake, see page 1.

Riley Chung (EERI 1986), Leader of the Earthquake Engineering Group in the Building and Fire Research Laboratory (BFRL) at NIST, organized the twelve-member reconnaissance team, which will consist of three groups. Dr. Chung will lead the structural and geotechnical group. Richard Bukowski, a fire engineer at BFRL/NIST, will lead the fire group. The tsunami group will be headed by Eddie Bernard of the National Oceanic and Atmospheric Administration. Researchers from the U.S. Geological Survey and the Forest Products Laboratory will join the EERI Learning from Earthquakes team (funded by the National Science Foundation) to make up the balance of the U.S. team. Dr. Kazuhiko Kawashima (EERI 1988), of the Public Works Research Institute in Japan, organized the itinerary for the U.S. investigators.

In addition to usual reconnaissance activities, the U.S. team will attempt to identify opportunities for in-depth study of the performance of wood-framed buildings, the causes of and response to fires, the effect of tsunamis, and the performance of lifelines and other infrastructure systems.

The U.S.-Japan Natural Resources Panel on Wind and Seismic Effects was established 25 years ago to: encourage, develop, and implement the exchange of wind and seismic technologies; develop stronger technical links between the two countries; conduct joint research and cooperative programs; and exchange guest researchers and equipment. Dr. Richard Wright, Director of BFRL at NIST, is chair of the U.S. Panel; Mr. Y. Sumiyoshi, Director-General of the Public Works Research Institute, chairs the Japan Panel.

1994 Proposed NEHRP Budget

The Federal Emergency Management Agency, as lead agency of NEHRP, is charged with preparing an annual budget to be submitted to the Office of Management and Budget (OMB). The proposed budget for fiscal year 1994, which has recently been completed and sent to OMB, emphasizes NEHRP activities in technology transfer. For more information, call FEMA's Office of Earthquakes and Natural Hazards at 202-646-3079. Limited copies of the proposed budget have been printed.

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All three earthquakes occurred on a north-south fault line where the Eurasian and North American continental plates meet. The epicentral area of the earthquake was outside the danger zones designated by the government's coordinating committee for earthquake prediction, and thus took the seismology community by surprise.

News of the Institute

Memphis State Student Chapter Activities

The Memphis State University Student Chapter of EERI is off to a flying start, with three seminars and one field trip since its establishment last December. The seminar speakers were Warner Howe (EERI 1974), Mike Durkin (EERI 1980), and Charles Bryant, speaking on Earthquake Building Standards; Casualties, Emergency Response, and Social Impact of the 1990 Philippines Earthquake; and Emergency Management and Disaster Planning. The field trip visited building and bridge sites in Shelby County that were studied by the Center for Earthquake Research at Memphis State as part of a USGS seismic vulnerability study. A second field trip is planned for August, to observe drilling in Arkansas and Missouri for a geophysics and earthquake engineering study by USGS.

There are ten student members in this active chapter. K. C. Yiak is the past-president and Narasimha Rao Patri is the new president. Faculty advisors are Shahram Pezeshk (EERI 1989) and Tzyy-Shiou Chang (EERI 1989). The EERI contact member is Warner Howe.