UJNR Panel on Wind and Seismic Effects

Panel Update

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4th INTERNATIONAL WORKSHOP ON COASTAL DISASTER PREVENTION

The fourth International Workshop on Coastal Disaster Prevention was held during 1 - 2 December 2007 in Yokohama, Japan and had about 310 participants. Technologies and strategies on storm surge and tsunami disaster reduction were discussed in the workshop through 22 presentations from Japan, the US, Indonesia, Thailand, Bangladesh, Sri Lanka, Korea, and New Zealand including a preliminary report on Bangladesh's damages due to Cyclone Sidr, and comprehensive reports on rehabilitation efforts after the Indian Ocean Tsunami and Hurricane Katrina and state-of-the-art technologies for disaster prevention and mitigation against tsunamis and storm surges. In the Workshop's panel discussion after the presentations and discussions, the future measures for coastal disaster mitigation were discussed particularly in the Asia-Pacific Region. The discussions in the workshop recommended:

1. There is a need to build resilient countries and communities against tsunamis and storm surges with holistic measures integrating more effectively and economically advanced technologies, not only to reduce the casualties but to maintain the people's activities and the continuity of their business activities.
2. We will need to enhance international cooperation and collaboration in developing more effective measures to reduce the future disasters.

The workshop took part in an Open Event of the first Asia-Pacific Water Summit held on 3 - 4 December 2007 in Oita, Japan, and its summary paper was distributed in the Summit (http://www.reg-clinkage.jp/apws/openevent/project/index.html).

The workshop was organized by the Port and Airport Research Institute, Coastal Development Institute of Technology, Ports and Harbors Bureau of Ministry of Land, Infrastructure, Transport and Tourism, Japan under the auspices of the Port and Harbor Bureau of the City of Yokohama, the Japanese Section of International Navigation Association Port, and the UJNR Panel on Wind and Seismic Effects.

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Photo: Technical Session in the Workshop

HEAVY-WEIGHT-FALLING EXPERIMENT FOR RC ARCH-TYPE STRUCTURE OF HIGHWAY

Rock sheds are structures to protect roads and vehicles from rock fall disasters, which has been widely used in Japan (see photo 1 below). In particular, in the Hokkaido district, serious rock fall disasters have recently occurred along highways. To develop the rational design method for rock sheds, considering the ultimate limit state approach, the Civil Engineering Research Institute for Cold Region, PWRI (located in Hokkaido) conducts research to verify the performance design methods of rock sheds.

To perform this research, it is necessary to clarify the impact behavior for small models and for constructed structures. As shown in figure 1, heavy-weight-falling impact experiments were performed for RC (reinforced concrete) arch-type structure at the highway tunnel mouth which has a finished service.

The experiments were conducted by varying conditions such as falling-height and the mass of heavy weights and the types of the cushions on the structure. Photo 2 shows the crown of the arch suffered from punching shear failure. Various data was obtained such as distribution of impact pressure on the arch (fig. 2) and the deflection and strain of the arch.

Further research is recommended, based on these data, to develop the performance verification design criteria for Rock Sheds.

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Photo 1: RC Rock Shed

Photo 2: Failure at the Crown of Arch

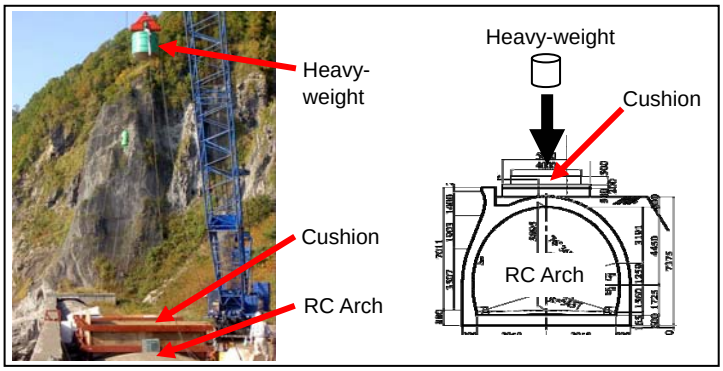

Fig.1: Heavy-weight-falling Experiment for RC Arch

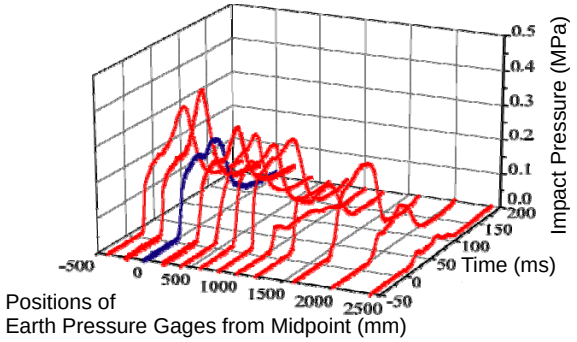

Fig.2: Example of Distribution of Impact Pressure on the Arch