

## **Program on Earthquake and Active-fault Researches (PEAR) in Taiwan**

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Taiwan is located at a junction of two active plates, i.e., the Eurasian plate and the Philippine Sea plate. The collision of the two plates has caused a number of active faults and damaged earthquakes. In 1999, a large disastrous earthquake, i.e., the  $M_s7.6$  Chi-Chi earthquake, took place at the central Taiwan. This earthquake has not only shown the power of plate tectonics, but also led to large impacts on social and economic activities in the area, because numerous cities and large towns are close to the earthquake fault. This event has stirred people in the area urgent to find a better way to mitigate seismic hazards. For this reason, a five-year national program, entitled with "Program on Earthquake and Active-fault Research (PEAR)," has been developed under the support from the National Sciences Council since November 1999. In the first stage, the program is focused on studies of the 1999 Chi-Chi earthquake and its aftershocks. In the second stage, studies of earthquake phenomena, the delineation of active faults, and the estimation of paleoseismicity in several seismic potential areas will be the main items of the program.

The objects of this program include:

1. Seismogenic-zone structures;
2. Earthquake geology
3. Seismicity and neo-tectonics
4. Crustal deformations

5. Earthquake physics (including physics, chemistry, rock mechanics, and hydrology related to earthquakes)
6. Strong-motion seismology and engineering seismology
7. Real-time seismology/Seismic early-warning system
8. Studies of earthquake precursors

This program integrated technology-related organizations that include NSC, CWB, CJS and WRA.

Numerous multi-member countries research projects, including the Plate Boundary Observatory in Taiwan (PBOT), the Taiwan Integrated Geodynamical Research (TAIGER), and the Taiwan Crustal Drilling Project (TCDP), have been developed. These projects have been formally authorized to be the formal items of bi-lateral collaborative contracts between Taiwan, Japan and USA. The TCDP has also supported by the Office of International Crustal Scientific Drilling Project (ICDP). Several workshops regarding the three projects were held in Tokyo, Taipei, and San Francisco in 2000 and 2001. We will hold APEC Symposium on Confronting Urban Earthquakes/Seismic Early Warning and two 2-day workshops, with training courses in Nov. 2002.