

# Planning of Groundwater Anomalies Associated with the Earthquake and Case study in Taiwan

Lai, Wen-Chi

Disaster Prevention Research Center, National Cheng Kung University, Taiwan

Chang, Kuo-Chyang

Water Resources Agency, Taiwan

The main purpose of this five-years project is to study the earthquake-induced changes of the level, temperature, and chemical components of ground water. Through monitoring the physical and chemical characteristics of ground water, we hope can find some anomalies in ground water level, ground water temperature, and chemical components that can help identify the precursor of hazardous earthquakes in the near future.

In the first year, a monitoring system including the sensors of ground water level meter, ground water thermometer, Radon detector, atmosphere pressure meter, and GPS, has been set up at Shin-Pu primary school in Shin-Pu, Shinchu. In the system, data are measured every ten minutes, and they are automatically recorded. The recorded data will transfer to the information center at National Cheng Kung University through telephone every 12 hours.

To identify the anomalies of ground water that properly can indicate the precursor of hazardous earthquakes, the original recorded data need to be calibrated. The soft wares that developed by Geological Survey of Japan for calibrating the effects of earth tide and atmosphere pressure were used to analyze the recorded data. Besides, previous data that covered the Choushuichi alluvial fan and the Chiayi-Tainan area, and related to the Chi-Chi earthquake were also analyzed by the soft wares. The preliminary result shows that the groundwater level changes at most places after the Chi-Chi earthquake. It indicated the coseismic and postseismic changed of hydraulic parameters of aquifer occurred.

In order to build up 16 ground water monitoring systems in five years, three sites need to be selected for next year's project. According to the regional geological and hydrological environments, three potential sites (Kuken, Biho, and Naba) have been chosen in this project.