PDA Summary Report

Jer-Ming Chiu
Center for Earthquake Research and Information
The University of Memphis
jerchiu@memphis.edu

Period: 1/1/2004-6/30/2004
Places Visited: Institute of Earth Sciences, Academia Sinica, Nankang, Taipei
Korean Institute of Geoscience and Mineral Resources, Daejeon, Korea

During my Professional Development Assignment, I visited the Institute of Earth Sciences, Academia Sinica, Taiwan most of the time and had a short visit of the Korean Institute of Geoscience and Mineral Resources, Daejeon, Korea. It was an excellent experience that I was able to focus on completing a few papers, preparing a few proposals, and discuss future research possibilities with many colleagues at IES and many other universities in Taiwan. Freed from meetings and phone calls, I was able to focus on research works related to (1) the NSF-KOSEF project to compile and analyze Korean historical earthquake catalog, one paper related to seismic hazard in the Korean Peninsula has been published Feb. 2004 at BSSA, (2) the 3-D Vp and Vs models for the sedimentary basin and upper crust and earthquake relocation in the NMSZ of the central USA, one paper has been published at Seismological Research Letter and a few others are in preparation, (3) the 3-D Vp and Vs models, earthquake relocations, and regional tectonic interpretations in the Taiwan region, five papers are in their final preparation to be submitted for publication, and (4) the development of a simple algorithms for a reliable local and regional earthquake locations, using data from the central USA and Taiwan regions for test, two papers are in review for publication, (5) the planning of a potential seismic array experiment in the southern Korean Peninsula. Listed below in separate categories are my activities and accomplishments during my PDA.

Proposals Submitted:
1. High-resolution imaging of active faults and 3-D simulation of basin response from local earthquake sources along various segments of the NMSZ, submitted April, 2004 to USGS, 01/01/2005-12/31/2006, $111,952.
2. Seismotectonic evolution along a young and active collision plate boundary in Taiwan region inferred from high-resolution 3-D Vp and Vs models and relocated seismicity. Submitted June 2004 to NSF, 01/01/2005-12/31/2007, $242,895

Papers published:
1. Estimation of regional seismic hazard in the Korean Peninsula using historical


**Paper accepted:**


**Papers in review:**


**Meetings and Seminars**

1. presented two papers in a special “Professor C.C. Big Memorial Conference” at the “Worldwide Chinese Conference on Geological Sciences” and “Annual Geophysical Joint Meeting held mid May 2004 in Lungtung.

2. presented one talk at the “IES-Caltech” workshop, April 2004, about “3-D tomographic structures in the Taiwan region and their tectonic implications”.

3. presented a seminar entitled “Earth and Environmental Sciences”, May 7, 2004, at the Department of Environmental Engineering, National Chung-Hsin University, Taichung, Taiwan.

4. presented a seminar entitled “Reliable local and regional earthquake locations”, May 12, 2004, at the Institute of Seismology, National Chung-Cheng University, Chiayi, Taiwan.

5. presented a seminar entitled “A new local algorithm for single-event location using 3-D Vp and Vs models – test examples in the central USA and Taiwan regions”, June 22, 2004 at the Korean Institute of Geoscience and Mineral Resources, Daejeon, Korea