

Research Activities: Jer-Ming Chiu (1984-present)

Professor Chiu's research interests are focused on the analysis of high-resolution seismic array/network data to explore the internal structure of the Earth and their seismotectonic implications in local and regional scales. He has initialized a seismic instrumentation program at CERI to develop and build high-dynamic range, telemetered, portable seismic arrays including the 40-station PANDA array and the 30-station PANDA II array. Since 1984, he has engaged seismic array experiments using the PANDA and PANDA II arrays in various regions around the world including the central Arkansas (1984-1986), Argentina (1986-1989), the New Madrid region of central US (1989-1992), Hawaii island (1993), North Island of New Zealand (1993-1995), and central eastern and southern Taiwan (1995-1997). Recently, Professor Chiu has focused on

- seismological and earthquake hazard study using historical and local to regional earthquake data in the Korean Peninsula
- high-resolution images of 3-D structure in Taiwan region and their tectonic evolution
- seismic wave propagation within subduction zones and 3-D geometry and internal structure of subduction zones
- deformation and tectonic evolution of converging continental and oceanic plates
- images of anomalous areas associated with geothermal and volcanic activities
- images of active faults and their tectonic implications as well as blind faults beneath sedimentary basins
- an efficient and reliable single earthquake location technique using 3-D V_p and V_s structural information of a region derived from a 3-D tomographic inversion or any other techniques
- exploring crust and upper mantle structure beneath seismic stations from short-period and broadband receiver function analysis using nearby intermediate to deep depth earthquakes and teleseismic events
- exploring high-resolution 3-D V_p and V_s structure of a sedimentary basin using converted waves from the bottom the sediments and results from seismic reflection/refraction lines
- travel time analysis of small aperture seismic arrays to explore apparent azimuth and apparent velocity of incoming seismic waves and application to path and upper mantle structure from P_n and S_n waves