

Results of Trenching Activity Along the Guinyangan Fault of the Philippine Fault Zone, Southern Luzon, Philippines

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Mapping and research of active faults in the Philippine archipelago have recently dealt with various evidence to determine recurrence interval of major earthquake zones in the country. Semi-detailed to detailed field mapping, aerial photograph interpretations, regional crustal deformation analysis, identification of uplifted marine terraces, identification and dating of fluvial terraces and trenching activities are usually undertaken to be able to establish a recurrence interval of major earthquake generators in the archipelago. Much of these activities had been focused in Metro Manila and southern Luzon area aside from the initial efforts in northern Mindanao, Mindoro island, Ilocos and Leyte.

In this study, the result of the mapping and trenching activities done in southern Luzon along the Philippine Fault Zone (PFZ) is hereby presented. The PFZ is a 1200km long active fault transecting the Philippine archipelago. Most of the major quakes in Philippines had been generated along this structure. And with the recent seismic activities taking place along the PFZ particularly in the central portion, attention had been concentrated along the Guinyangan Fault recently. The most recent major quake along this fault had been the 1973 Ragay Gulf earthquake while a moderate quake occurred south of this structure.

Mapping had been undertaken in Gumaca, Quezon down to San Francisco area west of the Bondoc peninsula to identify in details the trace of the fault. Two field surveys were undertaken wherein the rupture of the 1973 Ragay Gulf earthquake was delineated and a new set of fault traces was identified in the southwestern portion of Bondoc Peninsula. During these surveys, a trench was also excavated across the 1973 surface rupture which yielded at least two, possibly three, events including the 1973 event. About 20 organic samples were obtained from key horizons exposed in the trench.

The results of this work have been incorporated in the revised map of active faults in the Philippines. C14 dating of the above-mentioned samples is expected to help establish the recurrence interval and slip rates along this segment of the PFZ. Such information would be very important for the disaster mitigation efforts of the country considering that an activity along the Guinyangan Fault in the near future would surely affect numerous cities in southern Luzon.