

## Summary of Research Activities at the Earthquake Research Institute

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Research Theme: Tsunami simulation for potential earthquake along Manila Trench

Host Researcher: Kenji Satake

Period of Stay: 2016/5/16 - 2016/8/11

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The main purpose of my research visit to ERI was to learn the fundamentals of tsunami simulation. With several subduction zones surrounding the Philippine archipelago, it is imperative to understand the hazards brought about by these active seismotectonic features. Our recent efforts to understand relative tectonic activity of offshore faults include systematic mapping and radiometric dating of emergent (i.e., possibly coseismically uplifted) coral terraces. Through the integration of field-based data, tsunami models for prehistoric and future earthquake events may be refined to simulate more realistic scenarios.

Available geomorphological and geophysical data were combined to generate initial tsunami inundation models for a potential tsunamigenic earthquake along the Manila Trench. We used available geomorphic data such as emergent coral terraces to infer slip along an offshore reverse fault across the Manila Trench forearc region. Fault rupture, coseismic deformation, and tsunami heights were then modeled using the latest version of JAGURS (ver. 2016.01.29), a numerical code that computes tsunami propagation and inundation. Our initial tsunami models were presented at the 13<sup>th</sup> Annual Meeting of the Asia Oceania Geosciences Society (AOGS) in Beijing, China last August 2016.

My learning experience at ERI was truly valuable and worthwhile. I had fruitful discussions with Professor Kenji Satake and his students. We became acquainted with each other's research activities and discussed ideas for future collaborative work in the Philippines. I was also given the opportunity to participate in and learn from weekly laboratory seminars, conferences (e.g., JpGU, AOGS), and field activities (e.g., Kagoshima, Okinawa, and Kumamoto Prefectures) with fellow researchers. I am grateful to the faculty, staff, and students of ERI not only for the learning opportunities but also for their kind assistance during my stay.

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