

平成 29 年度（後期）海外渡航旅費助成金成果報告書

名古屋大学環境学研究科 博士課程 2 年

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I attended the AGU Fall meeting, held in New Orleans during December 11-15, 2017. New Orleans is a culturally and historically-rich city full of delicious food and beautiful music. The New Orleans Ernest N. Morial Convention Center located along the mighty Mississippi River, where the AGU Fall meeting 2017 is held, provides a great environment for scientific talk.

I had an oral presentation with a title of “Intraplate faulting, stress accumulation, and shear localization of a crust-upper mantle system with nonlinear viscoelastic rheologies” in the session of “Localized Deformation of Lithospheric Materials: From Grains to Tectonic Plates”. I had a precious experience there, since this was my first time to give an oral presentation in an international conference. My presentation was about an earthquake cycle model for the evolution of intraplate strike slip fault focusing on how experimental rheological laws control the localized deformation in the length scales of several kilometers and time scales of several millions of years. I got two questions after my presentation, one was about the model setting, and another was about the stage of the intraplate strike slip fault evolution. After the talk, I receive some advice to improve my model. In the session which I presented, most of the presentations were about the results of laboratory rock experiments. These presentations make me realize the gap of time scales and space scales between laboratory experiments and the processes occurring in the Earth. I also realize that further improvement of my model is necessary to take the advantage of latest rheological studies since only one of the plastic deformation mechanism has been considered in my model and there are a lot more deformation mechanisms potentially being investigated with a numerical model.

During the meeting, I attend as many presentations as possible in the sessions of rock and mineral physics, Tectonophysics and Geodesy. In oral sections, there were many great talks that caught my attention. Among these talks, a modeling study by a student of Stanford University was very impressive. The topic was on the steady state of fully developed strike slip fault, which is very similar to mine in the aspect of the deformation of the lower crust. After the presentation, I discussed with her for a couple of hours about the earthquake cycle modeling. Since my model is about the evolution of an intraplate strike slip fault, in this meeting, I tried to find some topic which is related to my study, and there was one study simulating the strike slip fault evolution in

horizontal 2D space, which shows how fault ends grow and separate into different branches. This study inspire me the way to create a new 3D earthquake cycle model for intraplate strike slip fault with fault ends included. In the poster sessions, I had a great time discussing with researchers from different country, such as USA, Turkey and China. I found many different approaches to understand the physics of the earthquake cycle and ideas of their studies are definitely helpful to my future studies.

Overall, it was a great experience for me to attend the AGU Fall Meeting. I had an opportunity to present my study, sharing my ideas and discuss with researchers all over the world. Finally, I express my gratitude to the support of the Seismological Society of Japan.