

Report on trip to fifteenth AOGS meeting in Honolulu, Hawaii

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I attended the fifteenth AOGS meeting from June 3 to 8, 2018, at the Hawaii convention center (HCC) in Honolulu, Oahu (Fig. 1). I am grateful to the Seismological Society of Japan for supporting my trip to the AOGS meeting; this trip could not have been possible without their support.

I gave an oral presentation on the morning of the second day of the meeting (6/4) at the session SE10, chaired by Dr. Maxim Ballmer from ETH Zurich and Dr. Kenji Kawai from the University of Tokyo. The focus of this session was on the structure and evolution of the deep Earth from a multidisciplinary perspective, with contributions from high-pressure mineralogists, geodynamicists, geochemists, and seismologists. My talk (Fig. 2) was about the 3-D seismic structure of the Earth's mantle transition zone, in which my co-workers (Kenji Kawai and Robert J. Geller at the University of Tokyo) and I showed how 3-D waveform inversion and the dense seismic ray path coverage provided by the USArray can be used to obtain a detailed image of the transition zone beneath Central America and the Gulf of Mexico, improving our constraints on the interaction of the Cocos and Farallon slabs with the 660 km discontinuity.

I was lucky that many people were interested in the structure of the transition zone, and there were several other talks in different sessions showing interesting and innovative complementary approaches to constrain the structure of deep slabs. For instance, Dr. Weiwei Chen (Nanyang Technological University) modelled differential travel-times between subevents from the 2013 M_w 8.3 Sea of Okhotsk event to constrain locally the slab thickness and velocity perturbation. The use of slightly separated subevents within the slab allowed them to isolate the local effect of the slab on the seismic records, allowing high-resolution constraints on the structure of the slab.

On 6/5, I attended the session SE02 on seismic modeling and imaging. I was interested in the talk of Prof. Hung (National Taiwan University), who used OBS data from the NoMelt experiment in Central Pacific to perform seismic imaging of the Lithosphere and Asthenosphere using differential travel-times between pairs of OBS stations. The talks of Dr. Chen on the previous day and the talk of Prof. Hung motivated me to try using differential waveform information between pairs of earthquakes to obtain the local high-resolution seismic structure in the transition zone using waveform inversion and clustered deep events.

On the afternoon of 6/6, Dr. Ballmer and Dr. Bin Chen (SOEST) made us visit SOEST at Hawaii University and the high-pressure mineral physics lab of Prof. Manghnani (SOEST). It was impressive to see in the same lab state-of-the-art high-pressure apparatus, such as laser-heated diamond anvil cell, and historical hydrostatic high-pressure apparatus still in use. I came back to Japan with positive impressions from this meeting and new ideas. I wish I can go again next year!



Fig. 1. Registration booth at the HCC.

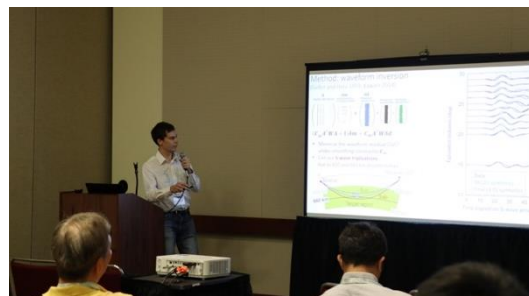


Fig. 2. My talk on 6/4 at session SE10