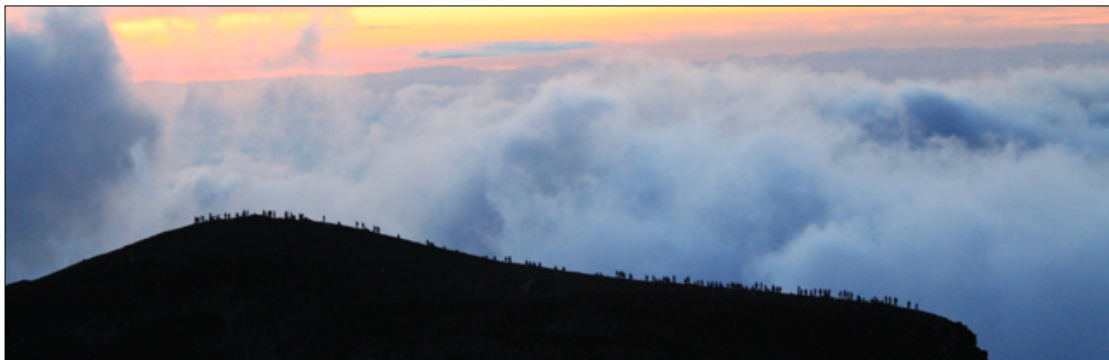


I completed a short-term postdoctoral fellowship at the Department of Earth and Environmental Sciences, Nagoya University, from August-December 2014, working under the supervision of Prof. Simon Wallis. The focus of my research was the Sanbagawa metamorphic belt of south-west Japan. This is an 800-km long belt that stretches from Kyushu island in the west, to near Tokyo in the east. The belt formed during the late Cretaceous (c. 90 Ma) in a subduction zone setting analogous to the one currently offshore Japan today. By studying the rocks exposed in the Sanbagawa belt it is possible to learn about processes occurring in subduction zones.

My research involved applying thermobarometric analysis to a suite of samples from the region. Thermobarometric analysis is a technique that uses the composition of minerals in a rock sample to calculate the pressure-temperature (P - T) history that it has experienced. Through calculating the P - T history, it is possible to learn about the thermal structure of subduction zones, and also understand how metamorphic rocks are formed and subsequently returned to the surface. I applied the latest technique in the field of thermobarometry, known as pseudosection modeling, to provide the most advanced insight.

The trip began with a field trip to the island of Shikoku, where I was able to collect some samples. Thereafter, I conducted all of my research at Nagoya University. The work was primarily computer based to calculate the pseudosections, but I also used the petrographic microscope to document the rock fabrics, and an electron microprobe to measure the mineral compositions. Previous studies of the belt described many different kinds of metamorphic rocks and P - T histories, suggestive of along-strike variation in formation of the belt. However, the results of my work revealed that compositional effects can account for the lithological variation, and that P - T conditions were in fact uniform along strike. These results mean that a 'ridge approach' model, which ascribes formation of the metamorphic belt to the subduction of a spreading ridge, can now be applied to the whole belt.

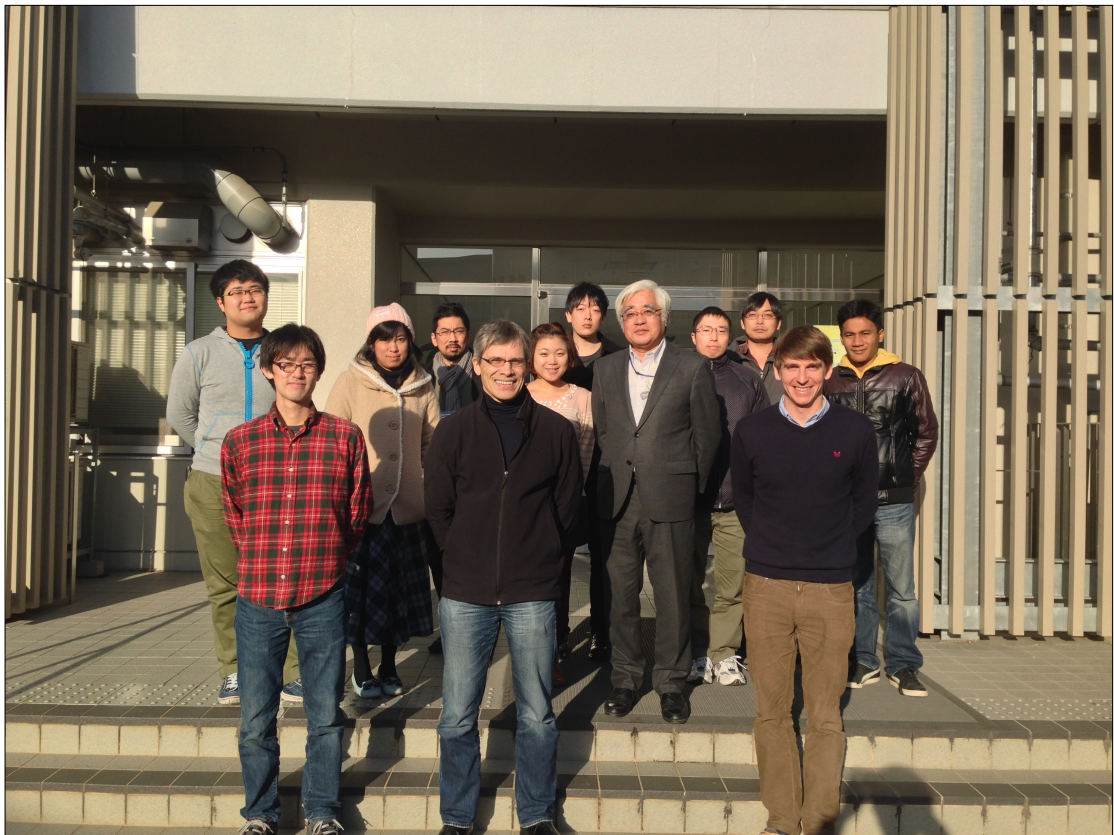
The fellowship was a great success, and I can thoroughly recommend Nagoya University as a place to conduct research, not least because two researchers from the university received a Nobel prize during my stay! Nagoya is also well located to explore the rest of Japan, which I was able to do on my weekends thanks to the excellent bullet train system. The only thing that could have improved my stay would have been better language ability, as operating Japanese machinery proved challenging. However, the research group were extremely gracious hosts, such that any problems were quickly resolved.



Sunrise over Mt Fuji



Owen Weller sitting on some greenschist from the Sanbagawa belt, Nagoya campus



Owen Weller (right), Simon Wallis (central) and other members of the Nagoya petrology group