Geologic field trip to Central Mountain Range in Taiwan

ICHINOHE, Ryo [1,*], MAESAKI, Kaede [1], TAKAZAWA, Eiichi [1,] and RAU, Ruey-Juin [2]

[1] Department of Geology, Faculty of Science, Niigata University, Niigata 950-2181, Japan
2 Department of Earth Sciences, National Cheng Kung University, Tainan, 70101, Taiwan
*s12e503j@mail.cc.niigata-u.ac.jp

We participated in the geologic field trip in Taiwan organized by Department of Earth Sciences, College of Sciences, National Cheng Kung University from 4th to 9th September 2014. This geologic field trip was aimed to observe low grade metamorphic rocks in the Central Mountain Range of Taiwan and structures related to fault movement and earthquake associated with them. We first visited a small hill near Puli city in the Central Taiwan. From this point the overview of Puli basin was clearly achieved. We discussed there how this basin was formed. Some researcher has proposed it formed as pull-apart basin associated with fault movement. Then, we went up to the Central Mountains where we observed a series of metamorphic rocks such as marble, green schist, mica schist, phyllite, slate and metasandstone. We also observed deformation styles of metamorphic rocks and quartz vein system. They originally formed as continental and ocean substances deposited on the Chinese passive margin. The orogenic wedge of Taiwan was collided with the Luzon volcanic arc in the late Miocene. We discussed the diastrophism during collision and how Central mountain ridge was built up associated with a series of metamorphic rocks. Then, we moved to the Lusan hot spring. We observed the source of hot spring in the upper stream of the Tarowan river. There is a set of faults along and across the river. Using the structure of quartz veins we estimated the deformation during fault movement. Final place visited in this trip was the Chelungpu Fault Preservation Park where we observed the trench wall cut across the fault. The Chelungpu Fault caused the 921 earthquake on 21 September 1999. We learned significances of fault activity and earthquake in Taiwan.

These experiences made our understanding of metamorphism, deformation and mountain building process more deeply. As a result we recognized the geologic differences between the collision zone of Taiwan and the subduction zone of Japan, the shape of the mountain range and the metamorphic degree of the rocks. In our poster, we summarize our geologic field trip in Taiwan and show the field occurrences of metamorphic rocks and some characteristic structures.