



Comparison of rock and mineral magnetism: A case study of basaltic rock in Penghu islands, Taiwan

Chun-Hao Lo (1), Chorng-Shern Horng (2), and Yen-Hua Chen (1)

(1) Department of Earth Sciences, National Cheng Kung University, Tainan, Taiwan (ji351212@gmail.com), (2) Institute of Earth Sciences, Academia Sinica, Taipei, Taiwan

Rock magnetic properties such as stability of remanent magnetization, magnetic coercivity, and magnetic susceptibility are controlled by the properties of magnetic minerals, for example: chemical composition, grain size, magnetic mineral phase, and magnetic structure, etc. Therefore, understanding mineral magnetism is crucially important to interpret rock magnetic properties. Basaltic rocks have been generally regarded as reliable recorders to record past geomagnetic natures and behaviors because most of magnetic minerals are believed to carry stable thermal remanent magnetization during the process of basaltic magma cooling. Despite of this recognition, we can still observe that some of basaltic rocks do not display good recorder for the paleomagnetism. Here we study rock magnetic properties of two types of basaltic rocks collected from the Penghu islands in Taiwan, which show that alkali basalt compared with tholeiitic basalt has relatively high magnetic susceptibility but rather unstable remanent magnetization. In order to understand the reasons that cause the macroscale difference in rock magnetic properties, we further investigate mineral magnetism, including magnetic mineral identification, chemical composition, and magnetic domain structure, on these two types of rocks.