Geophysical Research Abstracts
Vol. 17, EGU2015-12790, 2015
EGU General Assembly 2015

Assessment of Zambales Ophiolite formation as a viable site for CO_2 storage

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Studies involving carbon dioxide (CO_2) storage in geologic formations has been increasing over the years. Even though the developed countries are the ones pioneering the large scale storage studies, third world country such as the Philippines, which is one of the most vulnerable to the effects of elevated CO_2 levels in the atmosphere, should also intensify CO_2 storage research. In this study the potential of utilizing Ophiolite formations in Zambales province, Philippines, in CO_2 storage was evaluated. The kinetics of the carbonation reaction was studied using batch reactor, at various temperature and pressure. The concentration of metals involved in the carbonation reaction was monitored by inductively-coupled plasma mass spectrometry (ICP-MS). Flow-through column reactors were used to simulate and study the gas storage in rock columns, hence leading the evaluation of rock mechanical properties. Moreover, thermo-gravimetric analysis (TGA) was used to characterize carbonated and non-carbonated rock samples, thereby resulting to the experimental determination of the amount of CO_2 sequestered.