



Geology of Southern Leyte: Contribution to the Understanding of the Evolution of Central Philippines

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ABSTRACT

Geologic mapping was carried out in Southern Leyte which led to the recognition of a complete ophiolite sequence, the Malitbog Ophiolite Complex. A Late Cretaceous conglomerate unit containing clasts of basalt, gabbro and chert caps the ophiolite sequence. This suggests that the ophiolite was emplaced, exposed and eroded by Late Cretaceous. Pre-Late Oligocene to Quaternary sedimentary sequences also cap the ophiolite complex in some localities. The sedimentary deposits were formed in fluvial to shallow marine environments. The characterization of the lithologic units in Southern Leyte as presented here offer clues on the processes in the evolution of Southern Leyte and the environments where the different rock units formed. This, in return, helps in deciphering the geologic history of Central Philippines.

Keywords: ophiolite, crust-mantle sequence, geologic evolution, Central Philippines

INTRODUCTION

Geological mapping was conducted in Southern Leyte in April 2003 encompassing the areas of Liloan-Libagon, Sogod-Malitbog-Maasin along the western side of the Sogod Bay and in Panaon Island, (Figure 1). Previous studies done on the area include reconnaissance mapping for palinspastic reconstruction and tectonic interpretation (e.g. Florendo, 1987), geological survey with accompanying sediment and soil geochemical survey for metallic deposit exploration (e.g. Korean International Cooperation Agency [KOICA], 1993; Japan International Cooperation Agency Metal Mining Agency of Japan [JICA-MMAJ], 1990) and engineering geological investigation and geohazard assessment of some portions of Southern Leyte.

This study is part of the investigation into the crust – mantle sequences (ophiolites) which comprise some islands in Central Philippines. These oceanic crust – mantle sequences were part of land-bounded oceanic basins that existed a long time ago. Determining whether these different ophiolites were derived from the same marginal basin or from several oceanic basins is something that is being looked into as this is critical in deciphering the tectonic setting of an area (e.g. Gawlick *et al.*, 2008; Queaño *et al.*, 2008; Escuder-Virueze *et al.*, 2009). In order to do this, the scarcity of comprehensive geological data on the ophiolite complexes found in Leyte needs to be addressed. It is for this reason that geochemical investigation and field geological mapping were carried out in Leyte island to determine the characteristics and features of the ophiolite complexes in the island.