

Untested carbonate buildups in the Bermejo field, Ecuador:  
A potential new play type in the western Oriente Basin

Gwang Hoon Lee<sup>1)\*</sup> · John P. Castagna<sup>2)</sup>

We identified a previously unknown carbonate buildup in the Cretaceous M1 limestone in the Bermejo field, northwestern Oriente Basin of Ecuador. Thinner carbonate buildup-like features are also seen in the deeper A limestone, which has produced small volumes of oil in the northern Bermejo field. The carbonate buildups can represent a significant new play type in the western Oriente Basin where limestones have been known as a source rock. The M1 carbonate buildup, imaged as a lens-like event in 3-D seismic data, forms a circular feature in the isopach, amplitude, and dip maps. It is characterized by generally high but variable seismic amplitude, and its thicknesses (20 m - > 40 m) exhibit a complicated pattern, suggesting weathering and/or localized carbonate growth. The dark and rough top surface and irregular edges of the M1 carbonate buildup in the dip map probably suggest fracture-cavity-karst type reservoirs. The Late Cretaceous convergence along the western Oriente Basin may have further fractured the carbonates in the area. Assuming a porosity of 10%, the M1 carbonate buildup can contain more than  $40 \times 10^6$  bbl of liquid, which is significant in the Bermejo field where production has been marginal.

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1) Dept. of Environmental Exploration Engineering, Pukyong National University, Busan 608-737, Korea (gwanglee@pknu.ac.kr)

2) Dept. of Geosciences, University of Houston, Houston, Texas 77204, U.S.A (jpcastagna@uh.edu)