Application of 3D GSMP for Water Bottom Multiple Attenuation on Maximo 3D Survey, Perdido Fold Belt, Gulf of Mexico

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ABSTRACT

This paper describes the use of the 3D GSMP (General Surface Multiple Prediction) technique for the removal of water bottom multiple contamination during processing of marine seismic data in preparation for pre-stack migration. The example dataset shown is from the Maximo 3D survey, which is located in the Perdido Fold Belt in the Mexican Gulf of Mexico, in a water depth of approximately 1500 m to 3750 m. The process of 3D GSMP is becoming increasingly common in the Gulf of Mexico, especially in areas of complex water bottom where typical move-out based de-multiple methods fail to properly discriminate the water bottom multiple, and instead we need to rely on model based approaches. The GSMP method is CPU intensive but should be considered a basic prerequisite in any marine data processing project which exhibits strong water bottom multiple contamination. The method is robust, applies equally to narrow or wide azimuth data, requires minimal *a priori* information about the area, and minimal input from an interpreter. The method is especially valuable in imaging areas of complex salt where tenuous subsalt reflectivity may be completely masked by water bottom multiple energy, and also in any area where amplitude information pertaining to events contaminated by water bottom multiple is desired.