Monitoring CO_2 Injection at Weyburn Reservoir Using 3-D/3-C Seismic Datasets

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Abstract

In order to monitor and verify the distribution of CO2 during its geologic storage and enhanced oil recovery in Weyburn oil field in Saskatchewan, Canada, we applied the time-lapse AVO (amplitude variation with offset) method to time-lapse 3-D/3-C seismic datasets. Standard AVO attributes, such as intercept, gradient, S-wave reflectivity, together with additional empirical attributes are compared using three vintages of the data from 1999 to 2002. The results indicate that pressure-saturation effects related to the presence of CO2 can be identified between horizontal injection wells.