

# **VIBRATIONS AND FREE OSCILLATIONS IN SALT CAVERNS**

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## **ABSTRACT**

The fluids (brine, oil or gas) stored in a cavern, as well as the cavern itself, behave elastically. This signifies that salt caverns are the sites of natural vibrations whose periods are long enough (several seconds to several minutes) to be easily observed as soon as the cavern are opened to the atmosphere or are closed but contain a small amount of gas. These vibrations can be recorded at a very low cost and provide useful information on cavern compressibility ; in some cases, they allow us to determine the cavern volume and the brine/stored products ratio or to detect gas pockets trapped in the caverns.

Examples of recorded vibrations of different caverns will be presented and discussed.

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