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## Recent Work

### Title

Sensitivity of Pressure Measurements for Detecting Leakage of Carbon Dioxide From Geological Storage Sites

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## **Sensitivity of Pressure Measurements for Detecting Leakage of Carbon Dioxide From Geological Storage Sites**

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A common method used to detect leakage from a natural gas storage reservoir includes measuring fluid pressures and watching for pressure increases in the formation above the reservoir. Here we investigate the sensitivity of these pressure measurements for detecting leakage from underground geological formations used for CO<sub>2</sub> storage. Calculations are made regarding the rate and extent of pressure buildup associated with different rates of leakage. The number of observation wells needed to detect specified leakage rates are estimated for a range of hydrogeological parameters. In addition, the magnitude of pressure buildup caused by leakage is compared to common forms of “noise” in the pressure data, namely, pressure fluctuations associated with earth tides, barometric pressure variations, precipitation, and instrument resolution and drift. Based on a comparison between the magnitude of the pressure response and the “noise” in the pressure signal, an assessment of the utility of pressure measurements for monitoring leakage from geological storage projects is provided.