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Paper**



**Assessment of InSAR Seasonal Movements at
Bayou Choctaw SPR Site**

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Abstract

Ground deformation is important to monitor for the ongoing safety and stability of underground caverns. Implementing InSAR technology to monitor site-wide surface deformation at the Strategic Petroleum Reserve has revealed seasonal ground movements at Bayou Choctaw in Louisiana. The cyclic, seasonal pattern shows soil shrinkage during the spring and summer months and soil expansion during the fall and winter months. Prior to this report, no in-depth investigation was conducted to explain this seasonal phenomenon. However, the ground movement is believed to be near-surface and not geological due to the relatively insignificant movement between years. To better understand seasonality movements, soil properties, land cover, and climatic conditions are assessed to relate near-surface water and soil interactions. The soil, land, and climatic properties all contribute to seasonal ground movement, and vegetation cover and the soil's water capacity contribute to the spatial variability of InSAR seasonal measurements at Bayou Choctaw.

Key words: Subsidence, InSAR, Seasonality, Strategic Petroleum Reserve