

# CASE STUDY

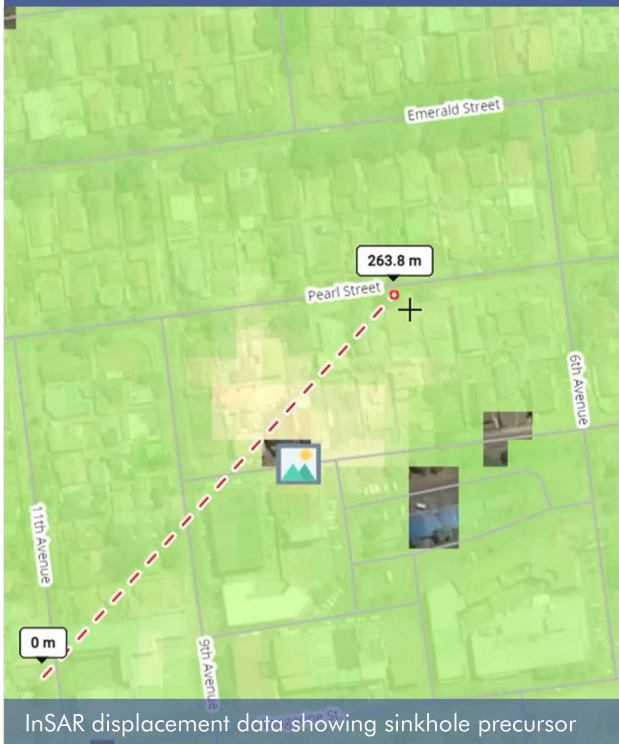


# GEOFEM

## Gauteng, South Africa



The densely populated Gauteng province includes the cities of Johannesburg and Pretoria but 25% of it sits on dolomite rock making it highly susceptible to sinkholes. While sinkholes tend to occur with little or no warning, precursors such as ground settlement that may be imperceptible to the naked eye can often provide an early warning.



### THE CHALLENGE

- Local changes in ground or building movement can provide early warning of sinkholes but surveying regularly the 5,000km<sup>2</sup> of dolomite in Gauteng would be too expensive and impractical.

### THE SOLUTION

- Regular measurement of ground and building displacement by InSAR analysis of satellite images.
- In a pilot study including known historical sinkhole events in Gauteng, precursors to sinkhole development were identified.

### THE BENEFITS

- A proven, cost-effective method to provide an early warning of more sinkhole events.
- Proactive maintenance reduces the danger, cost and disruption of sinkhole events.



## Satellite analysis with engineering insight