

A controlled monitoring study of simulated clandestine graves using 3D ground penetrating radar

Van Schoor M
Nienaber WC
Marais-Werner A

ABSTRACT:

A controlled three-dimensional ground penetrating radar monitoring study over simulated clandestine graves was conducted near Pretoria, South Africa, in which the detectability of graves as a function of post-burial interval was assessed, as this is of particular interest to local forensic investigators. It was demonstrated that the site-specific environmental parameter (a clay-rich loamy soil with poor drainage) and heavy seasonal rainfall (as confirmed by ground-penetrating-radar-derived soil moisture estimates) drastically compromised the long-term grave detectability, especially when adopting a three-dimensional depth slice analysis approach. It is also seen that the disturbed burial zone is the major contributor to the total grave anomaly rather than the buried body due to the combination of environmental parameters and the absence of buried artefacts. This paper also advocates the combined use of different data representations (two-dimensional and three-dimensional) to increase the likelihood of detecting subtle grave anomalies.