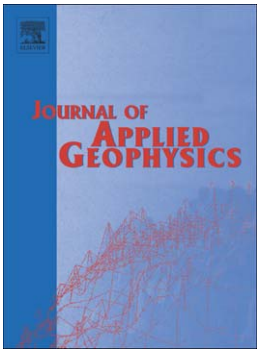

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High resolution GPR mapping of Late Bronze Age architecture at Kalavasos-*Ayios Dhimitrios,* Cyprus

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ABSTRACT

At the Late Bronze Age site of Kalavasos-*Ayios Dhimitrios* in southern Cyprus, the subterranean remains of previously unknown buildings were recently discovered and mapped with ground-penetrating radar (GPR). Though the fine-grained calcareous substrate at the site was not necessarily ideal for GPR—exhibiting a high clay fraction, significant volumetric water content, and scattering rubble—the buildings were mapped in excellent resolution with sufficient detail to indicate walls, entry-ways, and other architectural details. This was achieved with a somewhat lower frequency antenna (250 MHz center frequency) than is commonly recommended in archaeological geophysics. The 250 MHz system was employed in order to mitigate the potentially negative effects of the lossy substrate, which had proved problematic for past research using higher frequency antennas. Our work showed that excellent GPR results were possible in this substrate by simply lowering the antenna frequency, and that electromagnetic attenuation likely improved spatial resolution allowing for the detection of greater detail than might be expected. The resulting GPR findings offer a fresh perspective on this important archaeological site, while indicating that conservative antenna selection is not only sometimes warranted, but may be crucial in some archaeological GPR investigations.

Keywords: Cyprus, Late Bronze Age, Kalavasos-*Ayios Dhimitrios*, archaeology, ground-penetrating radar