

## **Ground-penetrating radar investigations at a Maya ruin site: Belize, Central America**

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### **ABSTRACT**

During the summer of 2002 seismic and ground-penetrating radar (GPR) surveys were conducted at a Maya ruin site in northwestern Belize, Central America. The 2002 field season was initiated with the purpose of non-invasively exploring the Ma'ax Na site and assisting archaeologists in focusing excavation activities. This paper describes the GPR surveys carried out over several caves and over one of the plazas at Ma'ax Na. The GPR lines were acquired using Sensors & Software Inc.'s Noggin® system with 250 MHz antennas. Most areas had loose soils and forest debris overlying rubble or competent carbonates. Preliminary analysis of the reflection data gives velocities from 0.072 m/ns (for a depth of 1 m) to 0.106 m/ns (for a depth of 0.7 m).

The data were processed using filtering, deconvolution, velocity analysis, and migration algorithms. Refinement of the processing flow is ongoing. Using the velocity values determined during acquisition, we estimate that the maximum reflection depth is between 1 and 3 metres. A good comparison between two reversed lines indicates that the method provides repeatable results. The cave project provided reasonable imaging of these cavities and indicated the applicability of the method in a carbonate environment. The plaza project results showed reasonable quality records with good signal penetration. Some anomalous buried features were identified.