

AN EVALUATION OF THE SYNTHETIC EMITTER ARRAY METHOD IN GPR PROSPECTING

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The detection and characterization of buried structures with GPR can be improved by using multi-offset (MO) methods in which the distance between the emitting and the receiving antennae varies. These methods can increase the resolution and continuity of the main events, making it possible a more complete and precise interpretation of them. Between the MO methods, the common midpoint method is the most commonly used in GPR. Other MO methods, such as the Synthetic Emitter Array (SEA) method are rarely investigated or applied. In this method the objective is to increase the directivity of the transmitted field, then increasing the amplitude on the target of interest and reducing the influence of the surroundings. The field impinging onto the target is synthesized from the superimposition of a number of individual records, which are obtained with a single source that is longitudinally displaced for each receiver position. The SEA method has proved to be efficient in characterizing different kinds of 2D archaeological and engineering structures, with a noticeable potential for similar kinds of ambient applications. In this work we show some results of the SEA method and compare it with the CMP method. We analyze the signal to noise ratio for a variety of targets, such as localized objects, extensive reflectors, and different combinations of them.