

Ground-Penetrating Radar for Archaeology

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The title of this book might lead you to believe it is a how-to guide for designing ground penetrating radar (GPR) investigations at archaeological sites. Instead the reader is more widely introduced to the technology and the application of ground penetrating radar (GPR) for use in archaeological investigations. The author states that the goal of this book is “to introduce all types of archaeological researchers to the power of GPR and to inform and guide those who hope to use, or have already used, these techniques in their work (pp.2-3).” The eight chapters of this text smoothly guide the reader through the technology, processing, and interpretation of GPR data. The technical focus and emphasis on data acquisition and processing is focused more to archaeological researchers, who will either carry out their own GPR investigation or who will provide direct oversight to the acquisition of GPR data, rather than to the archaeological consumer of GPR data. The author missed the opportunity to widen the scope of his audience by excluding an emphasis on archaeological case studies and optimal field acquisition techniques.

The text begins by introducing some history of geophysical techniques and classic types of geophysical investigations. It guides the reader through the transition of these classic investigations into the field of archaeology. The author clearly informs the reader of the book’s purpose in stating that “This book is not intended to be a complete “how-to”, step-

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by-step manual (pp.7).” The reader is led through a brief introduction to the GPR method and the role it can play in archaeological investigations. A straightforward discussion of GPR theory is presented along with a succinct explanation of data acquisition. This discussion leads into a lengthy account of the behavior of radar energy in the subsurface, thus highlighting the limitations of the technique and some common sources of data misinterpretation. It is important for consumers to understand the limitations and the potential for misinterpretation of GPR data because geophysical techniques are often oversold. Archaeologists are then left with disappointing results and unmet expectations.

At this point the reader is exposed to an in-depth discussion of velocity analysis; its importance, proper field procedures to obtain it, and finally a dialogue of laboratory methods to directly measure soil properties and thus extract velocity information. Many readers will find this section to be outside of their scope of interest. But the flow rebounds as the reader is moved through the process of filtering GPR data. For those learning to understand and work with GPR data, filtering tends to be one of the most complicated elements. Yet, the book provides a concise and clear explanation of these techniques.

The author then addresses GPR data interpretation, which is the most important element of this process for the archaeological consumer of GPR results. It is necessary that the archaeologist play an active role in the interpretation of geophysical data. Before tackling the details of the interpretation, the reader is introduced to a thorough discussion of synthetic modeling. Synthetic modeling, although often incredibly helpful, is time-


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consuming, complicated, and rarely affordable within most budgets. However, once completing this instruction the reader is pleasantly met with a clear and interesting discussion of data interpretation which is illustrated with wonderful field examples.

This book is designed to inform archaeologists how to be good consumers of GPR investigative services. The reader is presented with a clear presentation of useful technical information, as well as some great examples of true case studies. However, the author goes to great lengths to discuss technical details and processes which go beyond the scope of educating a consumer. The author's presentation of the limitations of the GPR method is valuable and informative. He also included an important discussion of the benefits to analyzing data in different presentations. The referencing of this book is impressive and incredibly useful for the more interested reader. It would have been even more helpful to the reader to include references to equipment and software manufacturers. The author introduces some of the types of products available but provides no manufacturing information. Too much space was given to the explanation of soil properties and modeling, and the consumer would be left better informed with a more detailed discussion of data interpretation; the importance of anomaly discrimination, data comparisons to true excavations, and more investigation examples.

This book is a wonderful resource for archaeologists studying the GPR technique, but standard consumers of GPR results may find it too theoretical. Such a reader should accompany the reading of this book with a collection of archaeological geophysics case studies.



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