

Advances in Near-surface Seismology and Ground-penetrating Radar

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Technologies used in the application of near-surface seismology and ground penetrating radar (GPR) have seen significant advances over the last several years. Both methods have benefited from new processing tools, increased computer speeds, and an expanded variety of applications. Many shallow seismic projects now incorporate analysis results from different parts of the seismic wavefield, allowing greater redundancy and confidence in interpretations without increased acquisition costs. More information is being extracted from GPR data by utilizing the wide range of analysis techniques developed for seismic data in concert with new tools specific to electromagnetic wave analysis.

Advances in Near-surface Seismology and Ground-penetrating Radar (Geophysical Developments Series No. 15) is a collection of original papers by renowned and respected authors from around the world. This book, divided into four sections — "Reviews," "Methodology," "Integrative Approaches," and "Case Studies" — captures the most significant cutting-edge issues in active areas of research, unveiling truly pertinent studies that address fundamental applied problems. This collection of manuscripts grew from a core group of papers presented at a post-convention workshop, *Advances in Near-surface Seismology and Ground-penetrating Radar*, held during the 2009 SEG Annual Meeting in Houston, Texas. This is the first cooperative publication effort by the near-surface communities of SEG, AGU, and EEGS. It will appeal to a large and diverse audience that includes researchers and practitioners inside and outside the near-surface geophysics community.

Excerpt

Near-surface seismology and ground-penetrating radar (GPR) have enjoyed success and increasing popularity among a wide range of geophysicists, engineers, and hydrologists since their emergence in the latter half of the twentieth century. With the common ground shared by near-surface seismology and GPR, their significant upside potential, and rapid developments in the methods, a book bringing together the most current trends in research and applications of both is fitting and timely. Conceptually, near-surface seismology and GPR are remarkably similar, and they share a range of attributes and compatibilities that provides opportunities to integrate processing and interpretation workflows, which makes them a perfect pair to share pages in a book.

With growth in numbers and professional emphasis have come sections, focus groups, and even professional societies specifically promoting near-surface geophysics. The emergence of near-surface geophysics groups, beginning in the late 1990s and extending into the early twenty-first century, has fueled a diversity of opportunities for professional collaborations. A range of workshops and shared publications has been the fruit of collaborative efforts. The near-surface community continues to extend and

develop methods and approaches necessary to satisfy increasing demands in some of the socioeconomically pertinent disciplines such as civil and environmental engineering and hydrology. This book represents the first formal cooperative effort undertaken by the near-surface communities of the Society of Exploration Geophysicists, the American Geophysical Union, and the Environmental and Engineering Geophysical Society.

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