**What’s the problem with geophysics?**

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Several questions and uncertainties hinder widespread applications of geophysical methods for environmental and groundwater investigations. This contribution identifies three main impediments to the application of geophysics for environmental and groundwater investigations and presents some strategies for mitigation. We wonder if geophysics is being used to its fullest capability and suggest that geophysical surveys should be completed or included before any subsurface investigation to understand earth processes, monitor these processes, and to characterize systems and structures. In academia, innovation and development continues at a great pace; but has the practice and application of geophysics kept up? Is geophysics avoided by scientists and/or project managers who had bad experiences with geophysics in the past? Do potential end users not understand geophysical terminology and what geophysics can and cannot accomplish? These are important questions to which many have posed answers and suggested remedies within the many sectors where geophysics resides. For instance, in the professional society realm there continue to be many efforts to foster collaboration, technology transfer, and research to operations.

Here we suggest that the impediments to advancing geophysical applications in groundwater and environmental applications may result from failures that fall under three broad headings: “Bad Choices”, including failures of method selection or survey design; “Unrealistic Expectations”, comprising communication breakdown or overselling; and “Lost in Translation”, due to failures in the transfer of geophysical results to end users. Each of these three categories includes instances where geophysics “didn’t work” and resulting negative press or communication of anecdotal information hampered further progress. With the goal of improving both the science and practice, we propose strategies and discuss existing tools for prevention or mitigation of Bad Choices, Unrealistic Expectations, and Lost in Translation problems in the future.

With this presentation we attempt to address the questions posed above with a focus on why geophysics isn’t more widely applied and accepted. We provide and review some tools and perspectives to overcome existing hurdles, properly promote the appropriate geophysical application, and provide some resources including free software and web content via EPA’s new environmental geophysics web site ([www.epa.gov/environmental-geophysics](http://www.epa.gov/environmental-geophysics)) to help overcome barriers to apply geophysics, select methods appropriate for site and project goals, increase the understanding of the science, and increase effective geophysical applications.