Foreword

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Based on their experience in geophysics applied to the oil and gas industry and the geotechnical field, the authors have set out to explain how conventional approaches used in deep exploration geophysics can be applied to certain geotechnical and hydrogeological surveys, and site characterizations in the framework of seismic hazard studies. After reviewing the current state of knowledge in the geotechnical field regarding borehole measurements of subsurface shear velocities, the book aims to illustrate the feasibility of carrying out vertical seismic profiles, logs and 3D seismic reflection blocks. In addition to these examples, the authors have sought to provide readers with guidelines to carry out these operations, in terms of acquisition, as well as processing and interpretation.

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A graduate of the *Institut Physique du Globe Strasbourg* and IFP School (petroleum geosciences, major in geophysics in 1978), **Jean-Luc Mari** was employed by IFP *Energies Nouvelles* in 1979 as a research engineer in the Geophysics Department, where he worked on several research projects, such as high-resolution seismic surveying, reservoir monitoring, and the development of borehole tools, in collaboration with industrial partners GdF-Suez, CGG, Total and ELF Aquitaine. In 1986, he was seconded to ELF Aquitaine where he worked on reservoir geophysics. He joined IFPEN in 1987 and was seconded to the Reservoir Department, where he studied, in particular, the benefits of using geophysical methods in horizontal wells. In 1994 he was appointed to IFP School as a professor and obtained the accreditation to supervise research in earth sciences at the *Université Pierre et Marie Curie*. Currently geophysics professor at IFP School, and an expert in geophysics for IFP *Energies Nouvelles*, Jean-Luc Mari is a member of the EAGE. He is associate editor for *Near Surface Geophysics*. In 2010, he received a Knighthood from the *Ordre des Palmes Académiques*.

After gaining experience in various roles involving physical measurements, **Christophe Vergniault** has worked as a geophysicist in the Geosciences Department at EDF's Industrial Division (EDF-DIPNN-DI-TEGG) for eight years. Trained as a geophysics ingénieur (EOST) and with a geology degree from Montpellier (master in advanced studies in structure and evolution of the lithosphere), he worked as a geophysicist in a company specializing in offshore surveying (Géodia), as a petrophysicist and wellsite geologist at Gaz De France (Exploration & Production and underground storage department), and as physical measurement analyst for inspecting EDF hydropower. The result of this accumulation of experiences is reflected in this book through his outlook on geophysical measurements applied to the geotechnical field.