



Book Review

Predicting Outdoor Sound, Keith Attenborough, Kai Ming Li, Kirill Horoshenkov. Taylor & Francis, UK (2006). xiii + 441pp., price £75, ISBN: 9780419235101

In the preface to “Predicting Outdoor Sound,” the authors say they regard their book as complementary to the book, “Computational Acoustics,” by Erik M. Salomons. Further, they say that workers in outdoor sound would be wise to own both books. With these statements in mind, it seems prudent to briefly compare the two books. Put simply, “Computational Acoustics” is mainly about using full-wave, numerical models to predict long-range sound propagation in a realistic atmosphere over irregular, but otherwise simple, terrain. In contrast, “Predicting Outdoor Sound” is mainly about how to predict sound propagation in a homogeneous atmosphere over surfaces that range from simple flat impedance planes to very complex structures such as realistic barriers and buildings. There are other important differences as well. While “Computational Acoustics” is largely theoretical, “Predicting Outdoor Sound” has a wealth of experimental measurements and empirical prediction schemes. Specifically, Chapters 1–6 contain in-depth discussions of propagation in a homogeneous atmosphere over a flat, finite impedance surface. A multitude of ground impedance measurements and models are discussed in these chapters. Chapter 7 discusses the effect of source motion. Chapter 8 considers sound propagation over a flat surface with a horizontally varying impedance. Chapters 9 and 10 discuss, respectively, the performance of outdoor noise barriers and the effects of vegetation, trees and turbulence. Chapter 11 considers approximate analytic models for sound propagation that include the effects of a finite impedance surface, refraction, and turbulence. In Chapter 12, a number of currently popular, semi-empirical noise prediction schemes are discussed. Chapter 13, the final chapter, discusses sound and noise in an urban environment, with consideration of such issues as street canyons and building facades. Although the book probably would not serve well as a stand-alone text, the authors have nevertheless succeeded admirably in fulfilling their purpose: “...to provide a comprehensive reference about aspects of outdoor sound and its prediction that should be useful to practitioners, and yet is respectable from the academic point of view.” As a complete and authoritative source of information on the effects of surfaces of all kinds (ground impedance, barriers, buildings, etc.) on sound propagation, “Predicting Outdoor Sound” is unique and indispensable.

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