Preface

This book represents a culmination of over 40 years of research in ocean wave behavior and its impact on structures. The countless hours devoted to experimentation, analysis, and reflection has yielded discoveries that have been, and always will be, rewarding. I am most blessed to have experienced this in my life. With this thought in mind, I have written this manuscript.

In short, this book discusses how the offshore structure design and analysis may employ the Volterra linear model for Gaussian seas. When the sea severity increases, the Volterra quadratic model may be employed for improved design in the weakly nonlinear seas. When the sea severity further increases from weak nonlinearity and when waves become highly nonlinear, a semi-empirical method called the universal nonlinear input-output model (UNIOM) may be employed. Interestingly, the higher order Volterra models and higher order wave and force theories are similar in their forms. Ultimately, this work provides the system concept for the advanced designs and analyses of structures.

This book may be used for the senior undergraduate, master's and Ph.D. level students.

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