

# **Dynamic Response of Pile Foundations--**

## ***EXPERIMENT, ANALYSIS AND OBSERVATION***

Proceedings of a session of the  
Geotechnical Engineering Division of the  
American Society of Civil Engineers  
in conjunction with the ASCE Convention  
in Atlantic City, New Jersey

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**Edited by Toyoaki Nogami**

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## ABSTRACT

In recent years, a considerable amount of attention has been paid to the dynamic response behavior of pile foundations. However, mainly because of difficulties in conducting tests and/or measuring the response behavior under dynamic environments, very little information is available on observed dynamic response behavior of pile foundations. This makes it very difficult to conduct researches based on the real world. This book contains studies concerned with observation of the real world dynamic response behavior of pile foundations. Papers address experimental methods, observation in model tests and in real earthquake events, and comparison of theoretical results with observed real-world behavior.

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## PREFACE

Civil engineering structures are often exposed to dynamic loading. They are typically machine-induced loading, seismic loading, ocean wave loading, moving traffic loading and pile driving impact. The response behavior of pile foundations to those dynamic loads are extremely complex. In recent years, a considerable amount of attention has been paid to the dynamic response behavior of deep foundations. However, mainly because of difficulties in conducting tests and/or measuring the response behavior under dynamic environments, very little information is available on observed dynamic response behavior of pile foundations. This makes it extremely difficult to develop the theories according to real behavior and verify them. The objective of the symposium was to publish those studies directly or indirectly concerned with observation of the real-world dynamic response behavior of pile foundations and to stimulate further studies of this kind. The symposium was held at the ASCE Spring Convention and Exposition in Atlantic City on April 27, 1987. The symposium was sponsored by the Deep Foundations and Soil Dynamics Committees of the Geotechnical Engineering Division of ASCE.

It is the current practice of the Geotechnical Engineering Division that each paper published in a special publication be reviewed for its content and quality. These special publications are intended to reinforce the programs presented at convention sessions or specialty conferences and to contain papers that are timely or controversial to some extent. Ordinarily the reviews are carried out within a three-month period. The standards of review are essentially those for the ASCE Journal of Geotechnical Engineering, but the exigencies of timeliness and the need to have the publication available at the convention preclude more than one cycle of editing and revision. Therefore, it should be recognized that there are some differences in purpose between contributions to the special publications and those in the Journal. Reviews of papers published in this volume were conducted in coordination with the Division Committee on Publications. The following members reviewed these papers:

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Thanks are extended to the authors of the papers, for theirs is the biggest and most important job in this symposium. The editor would also like to express his gratitude to the many reviewers. Finally, thanks are due to Shiela Menaker who arranged for the assembly and printing of these proceedings.

Toyoaki Nogami  
Editor

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\*Manuscript not available at time of printing.