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Massey University
Te Kunenga ki Pūrehuroa

NATURAL SOUNDS

A thesis presented in partial fulfillment

of the requirements for the Degree

of Master of Philosophy

at

Massey University

Wellington, New Zealand

by

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2004

ABSTRACT

Natural sounds, as one of the most important resources of nature, have attracted attention from many researchers. Although, psychological approaches, acoustical approaches and psychoacoustical approaches have been employed on the research of natural sounds, not many analytical investigations have been conducted on specific natural sounds except for the biological natural sounds.

The aim of this study is to present the properties and reveal the generation mechanisms of the selected natural sounds.

This thesis concentrated on studying the characteristics of various specific natural sounds by acoustical approach. Field recording has been mainly adopted for the collection of sound samples. For the selected samples, computational analyses were conducted to investigate the attributes of the sounds. Sound signatures including waveform, frequency spectrum and sonogram were displayed to visualize the analyzed signals. The generation mechanisms were reviewed and discussed to reveal the variables that contribute to the sound characteristics.

Sound samples including cavity wind sound, aeolian sound, wind sound through vegetation, thunder clap, thunder rumble, thunder crack, plunging breaker sound, spilling breaker sound, rock wave sound, boiling mud pot sound, geyser eruption sound, fumaroles eruption sound and different bubble sounds were selected and analyzed to reveal their properties.

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ACKNOWLEDGEMENTS

I would like to show my deepest appreciation for the great support from my family. I am especially grateful to my supervisor, Dr. Philip Dickinson, who has been extremely kind and patient in giving me his guidance to enable the completion of this thesis. I would also like to thank Mr. Stuart Joseph McLaren, my friend Mr. Leo Hao at the Victoria University of Wellington, and all the lecturers who had taught me during my master course of study at Massey University. Finally I would like to thank Mr. Mario Dometakis, the managing director of Ultracopy Co. LTD., and also my landlord, for his generous help in the printing and binding of this thesis.