

CGER'S SUPERCOMPUTER MONOGRAPH REPORT Vol.1

TURBULENCE STRUCTURE AND CO₂ TRANSFER AT THE AIR-SEA INTERFACE AND TURBULENT DIFFUSION IN THERMALLY-STRATIFIED FLOWS

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NIES : National Institute for Environmental Studies

CGER : Center for Environmental Research

EIC : Environmental Information Center

FOREWORD

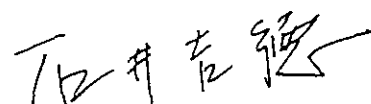
The Center for Global Environmental Research (CGER), an organ of the National Institute for Environmental Studies of the Environment Agency of Japan, was established in October 1990 to contribute broadly to the scientific understanding of global change and the elucidation of and solutions for our pressing environmental problems. CGER conducts environmental research from interdisciplinary, multi-agency and international perspectives, provides research support facilities such as databases and a supercomputer, and offers its own data from long-term monitoring of the global environment.

In March 1992, CGER installed a supercomputer system (NEC SX-3, model 14) to facilitate research on global change. The system is open to environmental researchers worldwide. Proposed research programs are evaluated by the Supercomputer Steering Committee which consists of leading scientists in climate modeling, atmospheric chemistry, oceanic circulation and computer science. After project approval, authorization for system usage is provided.

The CGER supercomputer monograph report Vol.1 is a report of frequent user of CGER's supercomputer. The report summarizes research on two turbulence structure and diffusion topics: turbulence structure and the gas transfer mechanism across the air-sea (air-water) interface, and mechanisms of the heat and momentum transfer in thermally stratified flows. The results obtained from these two studies are described in two chapters.

We hope this report provides you with useful information on the global environmental research being conducted on our supercomputer. Please do not hesitate to comment freely, directly to the Research Integration Section of CGER, so that subsequent reports both truly reflect and effectively foster cooperation throughout the community of scientists using this supercomputer.

February 1996



Yoshinori Ishii

Executive Director

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