

CGER'S SUPERCOMPUTER MONOGRAPH REPORT Vol.2

A Transient CO₂ Experiment with the MRI CGCM - Annual Mean Response -

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Center for Global Environmental Research



National Institute for Environmental Studies
Environment Agency of Japan



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NIES : National Institute for Environmental Studies

CGER : Center for Environmental Research

EIC : Environmental Information Center

Foreword

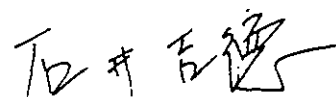
The Center for Global Environmental Research (CGER), an organ of the National Institute for Environmental Studies of the Environment Agency of Japan, was established in October 1990 to contribute broadly to the scientific understanding of global change and the elucidation of and solutions for our pressing 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. In 1993, one research proposal was designated as priority research and allocated larger shares of computer resources.

The CGER supercomputer monograph report Vol.2 is a report of priority research of CGER's supercomputer. The report covers the results of the coupled atmosphere-ocean general circulation model developed at the Meteorological Research Institute. This model is characterized by two aspects; a relatively high resolution of the oceanic components at low latitudes to simulate El Nino phenomena and an elaborate sea ice model to simulate seasonal variations of sea ice coverage and thickness. The transient response of the climate to a gradual increase in atmospheric CO₂ concentration at a compound annual rate of 1% has been studied and described.

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.

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Yoshinori Ishii

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