

# JOURNAL OF THE EARTH SIMULATOR

MARCH 2008

VOLUME 9



**THE EARTH SIMULATOR CENTER**  
JAPAN AGENCY FOR MARINE-EARTH SCIENCE AND TECHNOLOGY



**Research Articles**

- NIES/FRCGC Global Atmospheric Tracer Transport Model:  
 Description, Validation, and Surface Sources and Sinks Inversion.....3**  
 Shamil Maksyutov, Prabir K. Patra, Ryo Onishi, Tazu Saeki,  
 and Takakiyo Nakazawa
- Internal and External Flow of Rocket Nozzle .....19**  
 Taro Shimizu, Masatoshi Kodera, and Nobuyuki Tsuboi
- Development of an Atmospheric General Circulation Model  
 for Integrated Earth System Modeling on the Earth Simulator .....27**  
 Shingo Watanabe, Hiroaki Miura, Miho Sekiguchi, Tatsuya Nagashima,  
 Kengo Sudo, Seita Emori, and Michio Kawamiya
- Global Warming Simulation using the High-Resolution Climate Model  
 A Summary of the K-1 Project .....37**  
 Akimasa Sumi
- Vectorization of Polygon Rendering for Off-line Visualization of a Large Scale  
 Structural Analysis with ADVENTURE System on the Earth Simulator .....51**  
 Hiroshi Kawai, Masao Ogino, Ryuji Shioya, and Shinobu Yoshimura