JOURNAL CLUB

Parallelization of a 3-D

Magnetospheric-Ionospheric Model

by

John Styers
Geophysical Institute, UAF

ABSTRACT

It was proposed to investigate small-scale spatial and fast temporal scales with a three-dimensional, magnetosphere-ionosphere coupling code. This required computational resources far beyond what a personal computer or work station could provide. Runs had to be made on the fastest (parallel, distributed memory) machines. An attempt was made at compiler-driven, "automatic parallelization"—but ultimately the code was explicitly parallelized. A 40-fold increase in performance was seen from going to the supercomputer (over the PC), and a further 40-fold speed-up was achieved from the parallelization (with 50 processors). This will enable further study of micro-scale physics in magnetophere-ionsphere coupling.

Friday, Oct. 15, 2004
Globe Room, Elvey Bldg
3:45 pm