AWSFL008-DS3

NSF Award Abstract - #0111459

Margins: Workshop on Modeling of Subduction Zone Dynamics and Thermal Structure

NSF Org	EAR
Latest Amendment Date	July 23, 2001
Award Number	0111459
Award Instrument	Standard Grant
Program Manager	David Fountain EAR DIVISION OF EARTH SCIENCES GEO DIRECTORATE FOR GEOSCIENCES
Start Date	August 1, 2001
Expires	July 31, 2003 (Estimated)
Expected Total Amount	$20735 (Estimated)
Investigator	Peter E. van Keken keken@umich.edu (Principal Investigator current)
Sponsor	University of Michigan 3003 S State St. RM 1062 Ann Arbor, MI 481091274 734/764-1817
NSF Program	1572 TECTONICS
Field Application	0000099 Other Applications NEC
Program Reference Code	0000,OTHR,

Abstract

Theoretical modeling of subduction zone provides an essential complement to observational and experimental approaches and a fundamental tool to test conceptual models of the dynamics of convergent margins. Despite large advances in numerical techniques and increasing computational capacity, major obstacles exist in the road to full integration of accurate and consistent modeling into subduction zone research. Large uncertainties about the dynamical controls on subduction initiation and evolution remain. This is in part due to important assumptions that have to be made about the rheology and composition of the slab and mantle wedge, and the dynamics of the seismogenic zone and overriding plate. In addition, we lack a systematic investigation into the influence of various numerical techniques or rigorous solution tests. An overview of recently published results shows that large discrepancies remain in our understanding of the thermal structure of subduction zones. Major tasks for the modeling community are to benchmark and evaluate existing numerical approaches, to guide the use of increasing computer power and improving numerical techniques, and to further the integration of numerical modeling into experimental and observational studies. A focused, technical workshop held at the University of Michigan in Ann Arbor, MI addresses these issues. The workshop format is collaborative and hands-on, with an audience consisting of subduction zone modelers, experts from observational and experimental disciplines, and a number of graduate students.

To maximize discussion, the workshop is limited to 25 participants and has limited time allocated to

formal presentations. The goals of the workshop include: 1) a numerical benchmark of standard cases; 2) an overview of technical improvements and limitations; 3) a survey of the parameters that are fundamental in controlling the dynamics of the slab-wedge environment; 4) a set of base models for use in the wider community; 5) information exchange and knowledge transfer between specialties; 6) increased collaboration, including code and resource sharing.
