



AWSFL008-DS3

NSF Award Abstract
- #0208240

**Collaborative Research: H2O in the Mantle
Wedge**

NSF Org EAR

Latest Amendment Date June 27, 2002

Award Number 0208240

Award Instrument Standard Grant

Program Manager Robin Reichlin
EAR DIVISION OF EARTH
SCIENCES
GEO DIRECTORATE FOR
GEOSCIENCES

Start Date August 1, 2002

Expires July 31, 2005 (Estimated)

Expected Total Amount \$45052 (Estimated)

Investigator Simon M. Peacock
Peacock@asu.edu (Principal
Investigator current)

Sponsor Arizona State University
Box 3503
Tempe, AZ 85287 480/965-9011

NSF Program 1574 GEOPHYSICS

Field Application 0000099 Other Applications NEC

Program Reference Code 0000,1031,OTHR,

Abstract

EAR-0208240 Peacock

Large amounts of water are carried into the upper mantle by subduction. It is generally assumed that water is released in near continuous fashion to depths of at least 150-200 km. However, it is unknown how water is transported from the slab to the volcanic front. Water in the mantle wedge strongly influences rheological and seismological properties and has a major impact on subduction zone thermal structure. The investigators propose to study the influence of water on mantle wedge dynamics in a collaborative and multi-disciplinary project. Recent rheological work has made it possible, for the first time, to quantify the influence of water on creep properties of olivine. The investigators will systematically study the rheological influence of water, with particular interest in how the observationally inferred water distribution influences the balance of subduction forces and the generation of the cornerflow. The models provide predictions on subduction zone temperature and composition that allow for critical tests using observational and experimental constraints from seismology and mineral physics.

You may also retrieve a [text version](#) of this abstract.

Please report errors in award information by writing to:
award-abstracts-info@nsf.gov.

Please use the browser back button to return to the previous screen.