



AWSFL008-DS3

**NSF Award Abstract**  
**- #0241444**

**Collaborative Research: Modeling of  
Earthquake-Related Pore Pressure Changes and  
Fluid Flow in Subduction Zones: Implications for  
Planning of Drilling and  
Long-Term Observatories**

**NSF Org** OCE

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OCE DIVISION OF OCEAN  
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GEO DIRECTORATE FOR  
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**NSF Program** 5720 OCEAN DRILLING

## PROGRAM

**Field Application** 0204000 Oceanography  
**Program Reference Code** 0000,OTHR,

### **Abstract**

This project will study the hydrodynamic response of subduction zones to seismic events by using an analytical model of coseismic pore pressure generation and a numerical model of fluid flow following an earthquake. The results will help make better use of pore pressures as strain indicators. As observatories that monitor pore pressure are established in subduction zones, it will be necessary to understand how pressure changes will vary with deformation style and magnitude, how flow systems will respond to seismic events, and how thermal or geochemical anomalies may be generated by coseismic deformation. The results will also help determine what drilling and monitoring strategies will yield the greatest information concerning deformation and fluid flow in subduction complexes.

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