

## International Ocean Discovery Program



### CALL FOR APPLICATIONS

Apply to participate in  
*JOIDES Resolution Expeditions*



**Application deadline: 15 August 2016**

#### **Tasman Frontier Subduction Initiation and Paleogene Climate Expedition (371) Aug-Sep 2017**

The Tasman Frontier expedition (based on IODP Proposals 832-Full2 and 832-Add) will investigate the Eocene Tonga-Kermadec (TK) subduction initiation (SI) and evaluate whether a period of high-amplitude long-wavelength compression led to initiation of TK subduction or determine if alternative geodynamic models were involved. Core and log data from boreholes in the Norfolk Ridge, New Caledonia Trough, Lord Howe Rise and Tasman abyssal plain will provide constraints on seismic stratigraphic interpretations and the timing and length scale of deformation and uplift associated with the largest known global SI event and change in plate motion. The Paleogene and Neogene sediments will also constrain paleoceanographic changes caused by SI as well as tropical and polar climatic teleconnections and the transition from greenhouse to icehouse climate states in a region with large meridional variations in surface water properties in a strategic 'Southern Ocean Gateway' setting.

#### **Australia Cretaceous Climate and Tectonics Expedition (369) Oct-Nov 2017**

The Australia Cretaceous Climate and Tectonics Expedition (based on IODP Proposal 760-Full2) aims to understand the paleoceanography and tectonics of the Naturaliste Plateau (NP) and Mentelle Basin (MB) off SW Australia. Core and log data from a series of sites in water depths between 850 and 3900 m will investigate: (1) The rise and collapse of the Cretaceous hothouse; (2) the controls on oceanic anoxic events during major carbon cycle perturbations; (3) Cretaceous paleoceanography including deep and intermediate water circulation; (4) Cenozoic to recent paleoceanography including influence of the Tasman gateway opening and Indonesian gateway restriction; and (5) the tectonic, volcanic, and depositional history of the NP and MB prior to Gondwana breakup, as well as after separation from India and subsequently Antarctica.

#### **Ross Sea West Antarctic Ice Sheet History Expedition (374) Jan-Feb 2018**

The Ross Sea West Antarctic Ice Sheet (WAIS) History Expedition (based on IODP Proposals 751-Full2, 751-Add, & 751-Add2) will investigate the relationship between climatic/oceanic change and WAIS evolution through the Neogene and Quaternary. Numerical models indicate that this region is highly sensitive to changes in ocean heat flux and sea level, making it a key target to understand past ice sheet variability under a range of climatic forcings. The proposed drilling is designed to optimize data-model integration for improved understanding of Antarctic Ice Sheet mass balance during climates warmer than present. Core and log data from a transect of six sites from the outer continental shelf to rise in the eastern Ross Sea will be used to: (1) evaluate WAIS contribution to far-field ice volume and sea level estimates; (2) reconstruct ice proximal atmospheric and oceanic temperatures to identify periods of past polar amplification and assess forcings/feedbacks; (3) assess the role of oceanic forcing (e.g., sea level, temperature) on WAIS instability; (4) document WAIS sensitivity to Earth's orbital configuration under varying climate boundary conditions; and (5) reconstruct eastern Ross Sea bathymetry to examine relationships among seafloor geometry, ice sheet instability, and global climate.

#### **For more information about the expedition science objectives and the JOIDES RESOLUTION**

**Expedition Schedule** see <http://iodp.tamu.edu/scienceops/> - this includes links to the individual expedition web pages that provide the original IODP proposal and expedition planning information.

**WHO SHOULD APPLY:** Opportunities exist for researchers (including graduate students) in all specialties – including but not limited to sedimentologists, petrologists, structural geologists, paleontologists, biostratigraphers, paleomagnetists, petrophysicists, borehole geophysicists, microbiologists, and inorganic/organic geochemists.

**WHERE TO APPLY:** Applications for participation must be submitted to the appropriate IODP Program Member Office – see <http://iodp.tamu.edu/participants/applytosail.html>