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## SPOTLIGHT 6.

# Future Opportunities in Scientific Ocean Drilling: Climate and Ocean Change

Scientific ocean drilling through the current phase of the International Ocean Discovery Program has provided invaluable geographic and temporal data that address critical climate and ocean issues, yet significant gaps remain for future drilling to target. For example, by using the program's highly successful regional and transect drilling strategies, there is the potential to transform our understanding of the El Niño-Southern Oscillation and the monsoonal systems in North America and Africa. Accessing seafloor in the northern high latitudes would provide a critical complement to ongoing regional drilling in the Southern Ocean, where seven expeditions will be conducted between 2017 and 2021 around the Antarctic continent. Understanding tropical climate systems and their effects on the global Earth system also requires future scientific ocean drilling. Synthesis of regional drilling results, combined with recovery of sediments from key time periods, particularly the pre-Pliocene, will vastly improve our understanding of all aspects of climate dynamics under the  $p\text{CO}_2$  levels predicted for Earth's climate in the near-term. Linking marine paleoclimate records with terrestrial counterparts at all spatial and temporal scales will enhance understanding of the entire Earth system and its response to change.

– Debbie Thomas

Sedimentologists Anna Halberstadt (University of Massachusetts Amherst, USA) and Claus-Dieter Hillenbrand (British Antarctic Survey, UK) look at a freshly split core aboard *JOIDES Resolution* during IODP Expedition 379, Amundsen Sea. Photo credit: Tim Fulton, IODP JRSO

