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A remarkable 120-m.y. record of climate and oceanography from Shatsky Rise, Northwest Pacific Ocean, Ocean Drilling Program Leg 198.

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Cores collected from a depth transect of eight sites during Ocean Drilling Program (ODP) Leg 198 to Shatsky Rise contain a remarkable sedimentary record of surface- and deep-water circulation in the tropical Pacific over the past 120 million years. In addition, basement sills recovered provide valuable constraints on the age and origin of the volcanic foundations of the rise.

The sediments recovered contain evidence of the long-term transition from greenhouse to icehouse climate state and of several abrupt climate change events. Shatsky Rise cores contain an exceptional record of an Oceanic Anoxic Event (OAE1a) in the early Aptian (120 Ma), with some of the highest organic carbon contents measured in pelagic sediments. These strata contain exceptionally preserved organic compounds including the oldest known alkenones. Organic geochemistry suggests that bacterial activity played a significant role in sequestering organic carbon. Stable isotope data from Upper Cretaceous and Paleogene sediments reveal several abrupt switches in the sources of intermediate waters bathing Shatsky Rise. Neodymium isotopes also show evidence for these changes and help to identify source regions in the North Pacific, Southern Ocean, and, possibly, Tethys.

Strong evidence exists in Shatsky cores for the mid-Maastrichtian ($\sim$69 Ma) global extinction of inoceramids, a long-ranging, widespread group of bottom-dwelling clams. Stable and neodymium isotopes combined with biotic data show changes in intermediate water sources at this time as well as significant changes in surface water oceanog-

raphy. Shatsky Rise sites contain high-quality records of the Cretaceous/Paleocene boundary event. Detailed nannofossil assemblage studies demonstrate that the survivor taxa are those that adapted to unstable environmental conditions. The Paleogene sedimentary record from Shatsky Rise is strongly cyclic with variations in the amount of dissolution. Superimposed on this record are "hyperthermal" episodes including the Paleocene-Eocene Thermal Maximum (PETM at 55.8 Ma), and events in the early late Paleocene ($\sim$58.4 Ma) and early Eocene (52.7 Ma). The PETM on Shatsky Rise contains evidence for 5^{o}C warming of tropical sea-surface temperatures, major reorganization of benthic and planktonic communities, and pronounced, short-term shoaling of the lysocline. Oxygen isotope and Mg/Ca data demonstrate warming of surface and intermediate waters (possibly combined with decreasing salinity) during the early Eocene and help constrain the timing of the acceleration of Antarctic glaciation during the middle Eocene..