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Middle Miocene environmental and climatic evolution at the Wilkes Land margin, East Antarctica

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Integrated Ocean Drilling Program (IODP) Expedition 318 successfully drilled a Middle Miocene ($\sim$ 17 – 12.5 Ma) record from the Wilkes Land Margin at Site U1356A (63°18.6138'S, 135°59.9376'E), located at the transition between the continental rise and the abyssal plain at 4003 mbsl.

We present a multiproxy palynological (dinoflagellate cyst, pollen and spores), sedimentological and organic geochemical (TEX86, MBT/CBT) study, which unravels the environmental and climate variability across the Miocene Climatic Optimum (MCO, $\sim$17-15 Ma) and the Mid Miocene Climate Transition (MMCT).

Several independent lines of evidence suggest a relatively warm climate during the MCO. Dinocyst and pollen assemblage diversity at the MCO is unprecedented for a Neogene Antarctic record and indicates a temperate, sea ice-free marine environment, with woody sub-antarctic vegetation with elements of forest/shrub tundra and peat lands along the coast. These results are further confirmed by relatively warm TEX86-derived Sea Surface Temperatures and mild MBT-derived continental temperatures, and by the absence of glacially derived deposits and very few ice-rafted clasts. A generally colder but highly dynamic environment is suggested for the interval 15-12.5 Ma.