

THE MIOCENE CLIMATE TRANSITION IN THE SE PACIFIC: IS THE NAVIDAD FORMATION OF CHILE A GOOD REGISTER?

Co-Principal Investigators: Kathryn M. Gregory-Wodzicki, Stephen Pekar

Affiliation: Lamont-Doherty Earth Observatory of Columbia University, Palisades, NY 10964-8000

E-mail: gregory@ldeo.columbia.edu, pekar@ldeo.columbia.edu

ABSTRACT

The Navidad Formation from central Chile is potentially an excellent register of both marine and terrestrial climate variability during the Miocene. The few existing studies of the Navidad Fm. document the presence of angiosperm leaves, which provide quantitative estimates of precipitation and air temperature using foliar morphology, and planktonic foraminifers and bivalve shells, which provide quantitative estimates of water temperature using $\delta^{18}\text{O}$ and Mg/Ca ratios. However, we do not know if the fossiliferous horizons are abundant enough to warrant a large-scale study. In this pilot project, we propose a systematic sampling to collect the following information: planktonic foraminiferal and bivalve occurrence, stable isotope and Mg/Ca ratios, and Sr-isotope age estimates (for developing an age model); and leaf occurrence, approximate species diversity, and floristics. This information can be used to demonstrate the potential of the Navidad Fm. in a future submission to NSF.