Iron Sources for Marine Phytoplankton Growth

Louis Smith, Benjamin Bostick¹, Ray Sambrotto¹, Jing Sun¹, Kali McKee¹

¹ Lamont-Doherty Earth Observatory, Columbia University, Palisades NY

RESEARCH QUESTION: Could continental weather have been a major source of iron that stimulated phytoplankton carbon sequestration events during the glacial?

BACKGROUND:
• The Martin Hypothesis predicts that flux of iron carrying dust to iron deficient High-Nutrient, Low-Chlorophyll regions caused phytoplankton blooms that resulted in a 25% decrease in atmospheric CO₂ during glacial maxima.

METHODS:
• Species of diatoms were incubated on iron minerals types typical of continental weathering to test continental weathering’s suitability as an iron source.

RESULTS
• The iron minerals stimulated growth whose rate and magnitude varied within species, depending on the mineral type used, and between species.