



**PRINCETON UNIVERSITY  
DEPARTMENT OF GEOSCIENCES  
SENIOR THESIS (Class of '15)**

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**Eric D. Bolton**

“Parameterizing the KoK Effect: How Light Inhibition of Respiration Affects Ecosystem Carbon Budget Predictions”  
*D. Medvigy / M. Bender*

**Leticia M. Bombieri**

“The Importance of Volcanic Rocks and Thin Sediments on Thermal Gradient”  
*T. Onstott / F. Meggers*

**Joan L. Cannon**

“Studying Past Atmospheric CO<sub>2</sub> Concentrations Using Mass Spectrometer Analysis of Foraminifera-Bound Organic Matter”  
*D. Sigman / M. Bender*

**Tiffany W. Cheung**

“A Mechanistic Study of CO<sub>2</sub> Fixation In Marine Diatoms: The Effects of Diel Cycling, Temperature & Light Intensity On *Thalassiosira weissflogii*”  
*F. Morel / D. Sigman*

**Preston C. Kemeny**

“Seasonality in the Antarctic Ocean: Late Summer Nitrate Isotope Measurements from the Pacific Sector and A Seasonal Model of the Upper Water Column”  
*D. Sigman / J. Sarmiento*

**Trevor D. Klee**

“Calculating Mass Balance Per Degree for the Aleutian Crust Using a Novel Method”  
*B. Schoene / J. Higgins*

**Sean P. McIntee**

“The Concentration and Isotopic Composition of Nitrate In the Water Column Along a Cross-Basin Transect of the North Atlantic Ocean”  
*D. Sigman / B. Ward*

**Yuem Park**

“Constraining Deformation in the Skymo Lake Area of the North Cascades, WA: Implications for the Rapid Exhumation of Arc Middle Crust Along Strike-Slip Fault Systems”  
*B. Schoene / A. Maloof*

*Seniors from other departments working in geosciences*

**Martin Wolf (CBE)**

“No Nitrification, No NO<sub>3</sub>? The Importance of Nitrification in The Epipelagic North Atlantic”  
*B. Ward / J. Benziger*

**Natalie Saenz (CHM)**

“Stable isotope analysis of sunflower leaf respiration: the metabolic origin of the Kok Effect”  
*M. Bender*