**Unit 2.2 Carbon Isotopes**

Goal: Introduce the role of sediments and sedimentary rocks in the global carbon cycle and the use of stable carbon isotopes to reconstruct ancient sedimentary environments.

Data is provided in three parts to make some simple calculations and think about the implications of the results.

1. Following the activity, use data provided to calculate the fraction of terrestrial organic carbon (Fterr) and the fraction of marine organic carbon (Fmar) for each depth of core.
2. Plot Fterr and Fmar as a function of depth.
3. Based on these plots, complete the activity worksheet and consider how isotopes can indicate the sources of organic matter and be used as a tool to interpret paleoenvironments.

In your 5 - 10 minute group presentation, include the following elements:

* What is the main idea?
* How does this method work?
* What kind of results were obtained using this method?
* How is the data analyzed? Where should it be used? Over what timescales is it useful?
* What are its advantages and disadvantages?
* What are the limitations to this method of analysis?
* How is this relevant to the Critical Zone?