Project 1 Book Cliffs
Exercise #3 - Determining Depositional Environments

General Instructions

Due Date:

Go to my website (http://www.utc.edu/Faculty/Ann-Holmes/

Navigate to and through my website to Project #1 and find the 3rd exercise. It is an interactive website. The black arrows to the right are links to photographs. Figure out what each photo represents, tie it to the measured section, and use your literature resources to define the facies units. Defining facies units means drawing lines at the top and bottom of a group of beds that "belong" together, beds that were deposited in the same general conditions. Label that unit with some neutral designation such as Facies A. Every time you come upon a facies that is similar, you should apply Facies A again. Later, you will determine in what environment that facies was deposited.

I expect that you will read about Facies and/or Depositional Environments in your resources. A really obvious choice will be the one edited by RG Walker and titled *Facies Models*. Also tap into Tucker, Boggs, and Raymond for information about facies. Use the sketch handout I provided during the lecture on shoreface environments. It would be wise to check out trace fossil websites again, so that you know what these look like and conditions they indicate.

You should print out a paper copy of the exercise on which to make notes, but the final product will be electronically submitted as a Canvas file, via a USB memory drive. Use your own measured section from Exercise 1 as a base. Group the Ex. 1 data on Layer One, and add new information on overlying layers. You can create several pages addressing different information if you like – it would be neater than crowding it onto one page.

Instructions:
Determine the depositional environment of each of the numbered units, 1-23.
Use the trace fossils, grain-size changes, sedimentary structures and stacking patterns to make your decisions. Abrupt shifts record sudden deepening or shallowing events; these surfaces should be noted as flooding surfaces or unconformities.

Write a general justification for each facies determination you make. For example, say why Facies B was deposited in an upper shoreface environment – what sedimentary structures, grain-size changes, fossil indicators, what is below/above it, etc.