Name _____ 47 Points

8. Karst Landforms

Learning Outcomes

By the end of this assignment you should be able to:

- Identify different types karst landforms and features in photos and on topographic maps.
- Compare and contrast karst landscapes in different regions and identify possible causes for similarities and differences.

Landform identification

Identify the karst landform(s) in each photo and justify your decision using specific landscape characteristics. 1 point each. [33]

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33. _____

Karst Landforms on Topographic Maps: Puerto Rico and Kentucky

19. Draw a topographic profile from A to B on the attached map of Bayaney, Puerto Rico. Set up your profile with a 16.7X vertical exaggeration. The map has a scale of 1:20,000, which we can rewrite as 12 in = 20,000 ft or 1 in = 1,666.67 ft. There is graph paper on page 4. [4.5]

20. What is the local relief of the cliff at the end of this blind valley? [0.5]

21. Examine the topographic maps of Bayaney, PR and Polkville, KY (in the classroom), both of which show karst landscapes.

    a. Identify *at least three* ways in which the landscape/landforms on the Bayaney quadrangle are similar to the landscape/landforms on the Polkville quadrangle. [3]

b. Identify *at least three* ways in which the landscape/landforms on the Bayaney quadrangle are different from the landscape/landforms on the Polkville quadrangle. [3]

22. Geologic units are labeled and outlined in purple on the attached topographic map of Bayaney, PR. The Lares Limestone, the unit we are interested in, forms a nearly continuous outcrop across northern Puerto Rico and reaches a maximum thickness of 310 m on the Bayaney quad. It consists of hardened, fossiliferous, fine- to medium-grained calcarenite (limestone composed of detrital sand-sized carbonate grains) and in most places is very pure $CaCO_3$ ($CaCO_3$ ranges from 85-99%).

    Geologic units are not labeled on the Polkville, KY quad. Except for along the larger rivers and a few other small regions, the entire quadrangle consists of St. Louis Limestone. The St. Louis Limestone consists of cherty mostly fine-grained to lithographic limestone. Lithographic limestone is limestone that is hard, fine-grained, homogeneous and sufficiently pure and defect free to be used for lithography, an art technique that etches images on a blank, flat piece of limestone. Locally, in the upper part, the St. Louis Limestone has 3-4-foot-thick beds of coarse- to very-coarse crystalline detrital limestone.

    Keeping in mind the nature of the limestone in these two areas, as well as the other factors discussed in class that affect the development of karst landforms and landscapes, speculate on the reasons for the similarities and the differences you identified in question 21. [3]