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CS-171 - Homework 3
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1) Patterns and colors are essential to maps. Compare a search for Harvard University on two interactive maps (e.g., Google Maps, Bing Maps, Yahoo! Maps, Apple Maps, map.harvard.edu). Answer the following questions, making references to concepts explained in Ware such as pattern recognition and properties of color. Please include screenshots of the examples you are comparing.

a. Which map promotes an easier visual search for buildings?
b. Which map more effectively visualizes routes from a random point A to point B?
c. Which map is an overall better visualization, and why?

Considering that I exclusively use my phone for navigation, I chose to compare Apple Maps to Google. Though I have been satisfied in general with Apple's performance thus far, attempting to search for buildings revealed major discrepancies between the two. Finding Harvard buildings on Apple was nearly impossible. The primary reason was contrast or lack thereof. Where Google had used pseudo 3D shadowing to emphasize the outlines of buildings in gray scale, Apple's buildings were shown as gray on a pale brown background. Considering it is easier for us to perceive contrast on the luminance channel it is not surprising that Apple's choice to use chroma makes it difficult to find edges. Additionally Google's buildings were labeled for the most part, whereas Apple only labeled Harvard Yard and the Widener Library. Because of this it would be nearly impossible to determine routes between buildings. Google's white paths with black outlines lead users eyes quickly between buildings and would allow a user to quickly plan a route. Because of the aforementioned reasons, Google's visualization was far easier to interpret and therefore more successful at helping users complete the required tasks.

2.1 Find a rainbow color map visualization on the web. Please include a screenshot and link of the visualization.

a. Briefly summarize its intended objective and audience. Does it fail to successfully convey information? If so, why? Is there a good reason for this specific visualization to use a rainbow color scheme?
b. Propose an alternative color scheme to replace the rainbow color map.

http://serc.carleton.edu/eslabs/corals/4b.html

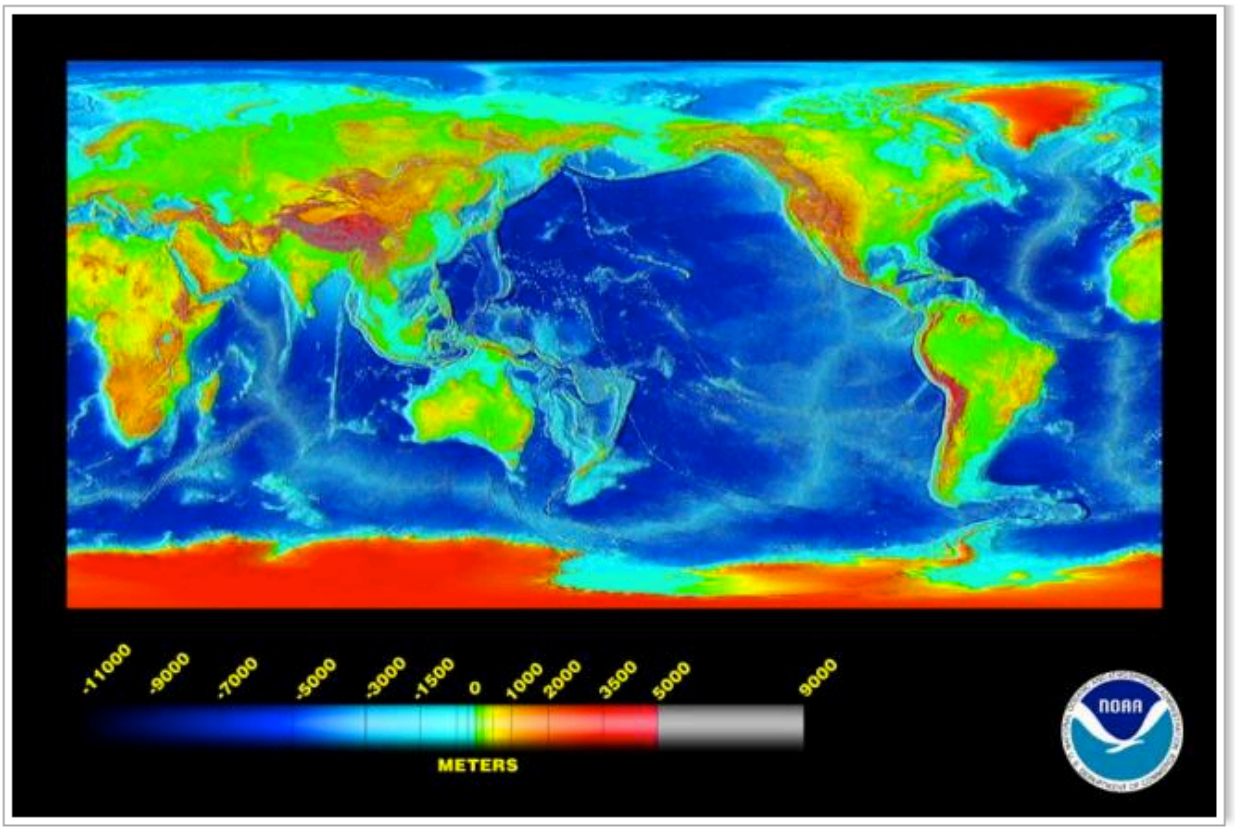

Image courtesy of NOAA. Click image for larger view.

This map is intended for scientists looking to determine depth of the ocean floor and elevations on the surface. It is successful at conveying the information at a high level, however it is very difficult to perceive accurate results. Since we are less sensitive to changes in blue values, it is difficult to tell the difference between -1500 and -3000 meters and even more difficult to find an extremely deep area. Most challenging is that this chart is not perceptually ordered. I can understand why they have colored the map as it is with oceans being blue, flat lands green and mountains red. However, it is difficult to see variations in the red or green so we loose detail in those areas. Though it would be less pretty, and we would loose some detail, I would propose using approximately 8 discrete values of blue for oceans and 8 discrete values of green for height, with each color only varying in luminance values.