

Theoretical: discuss color usage

Good example

The good visualization shows the abundance of affiliated reads related to different metabolic pathways across representative samples. The visualization uses color hue to indicate the different metabolic cycles. For this categorical data easily nameable color hues were used. The segmented color maps for each pathway scales the affiliated reads perceptually linear with good difference in luminance. Therefore the greyscale is also perceptually linear. This makes the visualization color blind safe. The categorical color hue usage is optional, because the same information is encoded in the head of the pathway column and therefore is not vital information for color blind people.

Bad example

The bad visualization shows the microbial community composition of samples. Unfortunately too many bins were used that are not ideal for color hue usage. The bins should be at most 7. In this visualization would be needed to derive the data into lesser bins or visualize the data in a different idiom instead (e.g. a heat map). The color hues are also not color blind safe. Because hues were used that did not differ that great in luminance.

Another point is that the stacked bar charts are not aligned, therefore making it difficult to compare the bars above the bottom bars. Again a better visualization idiom would have helped to visualize the data better using more than color hue as a channel.

Reference:

Dutta, Avishek, et al. "Exploration of deep terrestrial subsurface microbiome in Late Cretaceous Deccan traps and underlying Archean basement, India." *Scientific Reports* 8.1 (2018): 17459.

Visualisation of Biological Data.

Assignment 6

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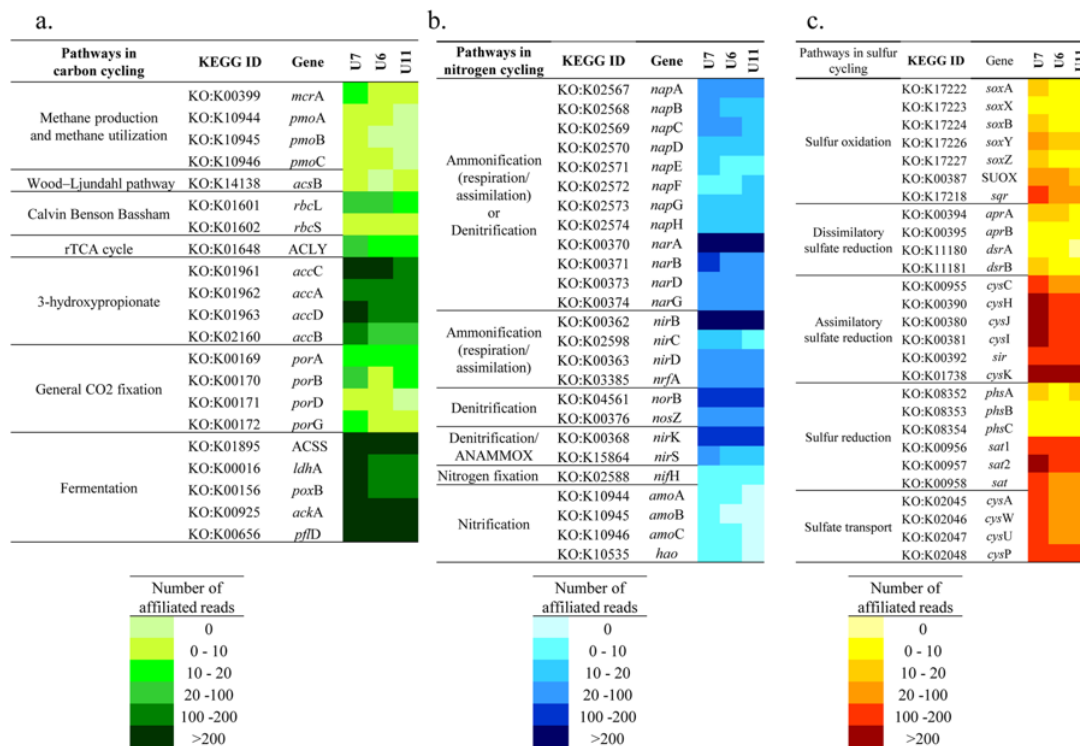


Figure 1: Abundance of affiliated reads related to different pathways of (a) carbon (b) nitrogen and (c) sulfur cycle across three different representative samples from different horizons of Deccan subsurface. The good visualization example.

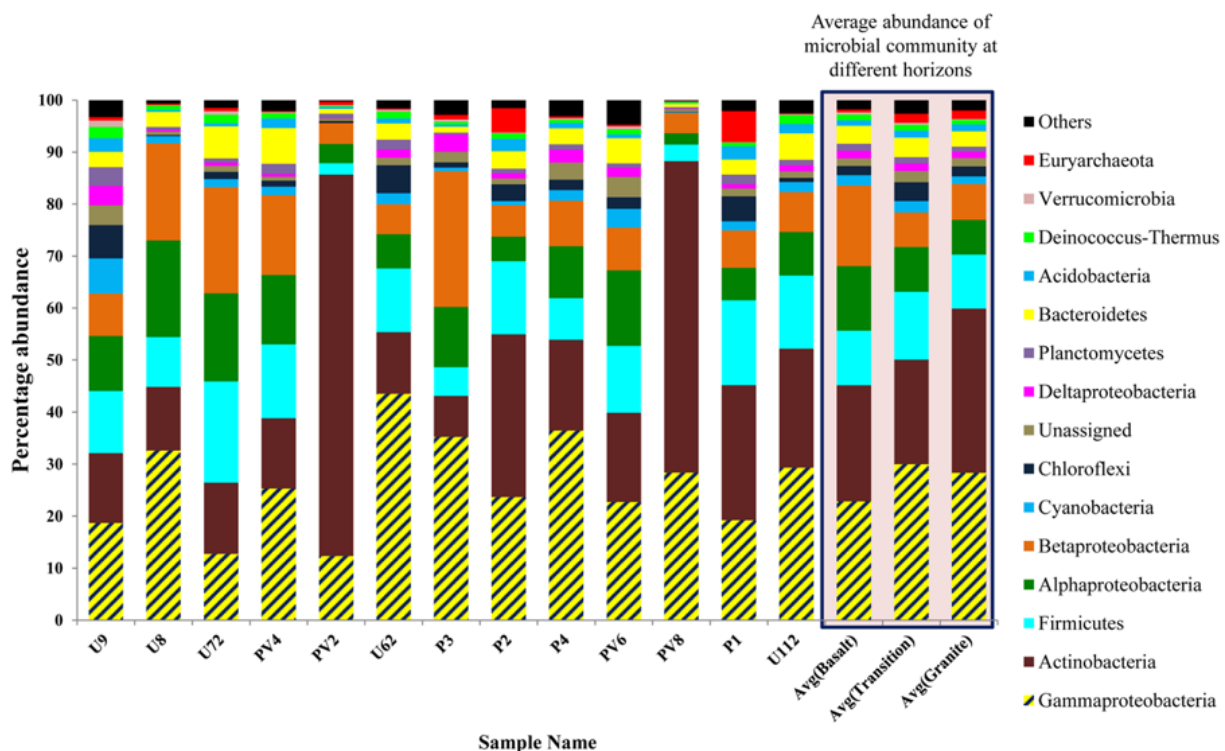


Figure 2: Microbial community composition of Deccan subsurface (at phylum/class level). Phyla/classes which have minimum 1% abundance in one of the 13 samples were selected and the remaining ones are grouped into 'Others'. The bad visualization example.