The power of a good plot: Customized plots of downhole bulk geochemical data tell a new story about a 'boring' black mudstone

M Reynolds[a]

[a] *Earth and Atmospheric Sciences, University of Alberta, AB, Canada*

Large bulk geochemical datasets can be a challenge to interpret in synthesis with what is known about the stratigraphy, mineralogy, and structural characteristics of a sample set. Customized plots produced in open source software packages such as R or Python provide powerful tools for visualizing multiple datasets simultaneously. In this talk, I will present customized line plots of bulk geochemical data from a drill core intercepting Carboniferous strata in the fold-thrust belt of the Brooks Range, northwestern Alaska. Of particular interest is the Mississippian "Ikalukrok" unit of the Kuna Formation, which hosts large accumulations of zinc, lead, and silver, including one of the world's largest-producing zinc mines (Red Dog Mine). The Ikalukrok comprises variably siliceous and organic-rich mudstone and shale, lesser calcareous interbeds, and, locally, black chert and massive to nodular barite layers. The data-dense downhole plots make it possible to distinguish several subunits within the previously undifferentiated Ikalukrok and to identify a repeat in those subunits, which is interpreted to be a thrust fault. I will also speculate briefly on which of these subunits host the Red Dog ore zones.

Corresponding author: merilie@ualberta.ca