PROJECT TITLE: Regional Sub-surface correlation of an Upper Ordovician (453 mya) mixed siliciclastic – carbonate succession

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Project Description

Understanding the dynamics of formation and filling of intracratonic basins has lagged behind that of many other depositional settings, and yet it is of paramount importance for evaluating the development of important resources such as hydrocarbons, phosphates, and salts. Currently the majority of subsurface correlations are based on major facies changes (lithostratigraphy). The persistence of carbon isotope excursions, which have been identified widely (Bergstrom, 2010) including in the Eastern Ohio subsurface (Young et al., 2016) and the Lexington Platform in Kentucky (Coates, et al., 2010; S. Young et al., 2005) will enable correlation across major facies changes. Utilizing carbon isotope analysis, gamma-ray well logs, and traditionally logged cores a high-resolution chronostratigraphic framework of the transitional and distal Lexington Ramp will be developed. A series of 15 cores will be measured at the Ohio Geological Survey during the summer of 2017 and two will be identified for carbon isotope analysis. Undergraduate students will assist with physical description of cores and carbon isotope sampling. Literature relevant to this project will be reviewed weekly to gain a broader understanding of techniques and geologic context. Multiple overnight trips will be made to Columbus, Ohio to visit the Ohio Geological Survey during the course of the summer.