A TERRESTRIAL ANALOG OF THE ANCIENT DELTA-LAKE SYSTEM AND FLOOD DEPOSITS AT JEZERO CRATER, MARS, FROM A PLEISTOCENE PRO-GLACIAL LACUSTRINE DELTA DEPOSIT IN MICHIGAN, USA. Z. T. Eriksen[1] and M. A. Velbel[2,3], [1]Harvard University, Department of Earth and Planetary Sciences (Cambridge, MA 02138; eriksenz@g.harvard.edu), [2]Michigan State University, Department of Earth and Environmental Sciences (East Lansing, MI 48824-1115; velbel@msu.edu), [3]Smithsonian Institution, National Museum of Natural History, Division of Meteorites, Department of Mineral Sciences (Washington, DC, USA; VelbelM@si.edu).

Introduction: Sedimentary facies exposed as scarps along the eroded edge of a large fan-shaped body at the western margin of Jezero crater have recently been interpreted as deposits of a typical prograding Gilbert-type delta [1]. Individual coarsening-upward units consist of bottomset finer-grained material overlain by a ~10 m thick foreset unit cross-bedded predominantly sandstone with scattered cobbles, and capped by poorly sorted, commonly clast-supported, locally lenticular cobble conglomerate with boulders to > 1m on size [1].

Summary: Here we describe exposures in a gravel pit in Pleistocene glacial deposits in southern Michigan. Compared with the deltaic deposits of Jezero crater, the terrestrial deposit exhibits many similarities in the gravel and conglomerate facies, important differences in the sandy facies, and evidence of paleolake level rise and re-advance of the Gilbert-type delta. Lateral facies relationships at the terrestrial facies-paleoenvironmental analog but not preserved at Jezero crater demonstrate episodicity of delta progradation followed successively by abrupt lake-level rise and swift progradation of more conglomerate. Both the similarities and differences support the main interpretations of episodes delta progradation during episodes of gradual lake-level rise to depths of a few tens of meters during a longer-term trend of lake-level regression in Jezero crater, as proposed by [1].

References:

[1] Mangold N. et al. (2021) *Science, 374*, 711-717.