Long Island's Kettle Chains and their Correlation to Ancient Meltwater Channels

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Kettle chains, also called linear kettles and beaded kettles, have been described in numerous locations around the United States from the kettle chain lakes of Canfield, North Dakota to Long Island. Despite the prevalence of these structures, very little work has been done to explain their development. Recently released 2.0 meter Digital Elevation Models (DEMs) of the central and eastern Long Island region have allowed greater topographic resolution of Long Island's kettle chains. At this resolution previously unidentified low-relief, partially filled meltwater channels are clearly visible and indicate that kettle chains are directly linked to the glacial drainage network but may have formed under different glacial conditions.

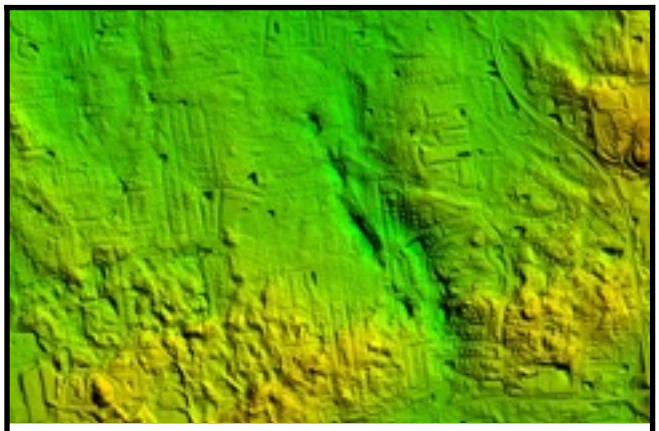

Figure 1: Kettle Chain located in Centereach, NY.

Fuller (1914) described linear kettles [kettle chains] as typically consisting of three or more elongated depressions separated by short distances and forming a line—or chain, see figure 1 (Fuller, 1914). Often individual kettles within the kettle chain are linked by small incised channels and are typically associated with ice-marginal regions. On Long Island kettle chains have been identified on the up-ice side of moraines, within outwash plains, and even cutting through moraines. Fuller (1914) suggested these structures form as a result of snow or ice deposited in the valleys and ridges of previously formed features which is then buried by outwash and subsequently melts to produce a series of linear depressions (Fuller, 1914). Although this process may explain the development of some kettle chains, especially those found within outwash plains, it does not explain the development of others similar structures on Long Island.

Acknowledgments:

Gil Hanson for all of his support throughout the years

Courtney Melrose for providing analysis of field samples.

References Cited:

Fuller, M., 1914. Geology of Long Island New York. United States Geological Survey, Professional Paper 82