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Machine learning and geomorphometrical objects for convex and concave geomorphological features detection

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The delineation of geomorphometrical objects that can be translated to geomorphological features is one of the most practical aspects of geomorphometry. The concave (closed depressions) or convex features (mounds) are often important to be delineated from multiple points of view: theoretical approaches, planning for practical purposes, or various other aspects. In this work, I have approached sinkholes and burial mounds as representative cases of concave and convex features represented on high-resolution DEMs. Based on manual delineations, several algorithms of object-based delineation were tested for accuracy. The interest was in delineating as much as accurate possible the targeted features. Further, the segments were fed to a multilayer perceptron for the classification of the delineated segments. The results show promising accuracy in regard to both types of features.