Automated landform mapping based on standardard clustering algorithms and morphometric parameters extracted from coarse digital terrain models

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The task of terrain subdivision into discrete units, by means of manual methods, is very subjective. Manual methods involve photointerpretantion, field surveys and delineation of landform elements on topographic maps at various scales. Different attempts to automatise landform mapping using morphometric parameters, often submitted to a supervised or unsupervised classifiers, were proposed in the past that show relevant differences compared with manual results.We propose a novel approach to landform classification wich empolys a scheme based on standard clustering algorithms, such as k-means, and shows superior results compared with a classic unsupervised classification of digital elevation models. We realised a script that automatises the proposed procedure. Tree test areas was chosen for wich geomorphological maps and low resolution DTM were available, to compare the automatic classification with a manual method.The test areas are located in south Italy: Trigno river catchment (south Apennines), Cecita lake basin and Castrovillari massif (Calabrian Arc).