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Optimal Scale Selection for DEM Based Slope Segmentation in the Loess Plateau

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ABSTRACT
Optimal scale selection is the key step of the slope segmentation. Taking three geomorphological units in different parts of the loess as test areas and 5 m-resolution DEMs as original test date, this paper employed the changed ROC-LV (Lucian, 2010) in judging the optimal scales in the slope segmentation process. The experiment results showed that this method is effective in determining the optimal scale in the slope segmentation. The results also showed that the slope segmentation of the different geomorphological units require different optimal scales because the landform complexity is varied. The three test areas require the same scale which could distinguish the small gully because all the test areas have many gullies of the same size, however, when come to distinguish the basins, since the complexity of the three areas is different, the test areas require different scales.

KEYWORDS
Optimal Scale; Multiresolution; Slope Segmentation; Loess Plateau

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