Spectral characteristics of karst vegetation in Southwest China

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Southwest China harbors one of the world's largest distributions of karst (about 500,000 Km^2), and during the past few decades, rock desertification there has been expanding at an overwhelming rate. Rock desertification is a special kind of land degradation in carbonate terrains, and results in rock deserts. However, scientific research of Southwest China is relatively delayed as is its economy compared with other parts of the nation.

Vegetation in this karst region has unique adaptation for shortage of soil moisture, rocky standing place and exceeding calcium, and as rock desertification processes, vegetation types deteriorate accordingly from dense forests to woodlands, bushes or even non-vegetation. Vegetation features thus reflect well geological characteristics of karst or non-karst areas, and stations of rock-desertification or non-degradation. In this paper, we use remote sensing techniques to analyze differential spectral variations between karst and non-karst forests, as an indicator of karst areas prior to rock desertification, or of optimal places which have recovered from rock-desertification. In addition, different vegetation types in karst and non-karst areas have distinct spectral responses, and we employ this difference to identify rock-deserted areas from non-degraded areas.