

VEGETATION INDEX COMPOSITING AND ANALYSIS IN SPATIAL AND TEMPORAL DIMENSIONS

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ABSTRACT

Standard methods for vegetation index compositing in NOAA- AVHRR and MODIS use maximum value compositing (MVC) that consider local pixel values in time series NDVI. The NDVI composites obtained from MVC analysis are typically resampled to create standard products at lower resolution. Methods in current use are limited to two-dimensional spatial analysis.

New map algebra functions for three-dimensional focal and zonal processing are utilized to extend NDVI compositing from two to three dimensions. The first two dimensions are image planimetric position of the earth's surface and the third dimension is time. The three-dimensional spatial- temporal map algebra functions are used to create custom NDVI composites. The three dimensional map algebra functions allow the use of window based focal functions, and extract information on spatial and temporal variability. The created time series NDVI composites from spatio-temporal map algebra functions are compared to NDVI composites created utilizing current standard approaches.

Keywords: spatial- temporal map algebra, maximum value compositing, vegetation index compositing