ABSTRACT
Estuaries are highly dynamic environments, shifting between terrestrial and aquatic habitats in response to climatic and seasonal variations. The importance of frequent monitoring, identification, and mapping of surface reflectors is a key element in estuarine science. Therefore, the present study is focused on spatial and temporal mapping of Old Woman Creek (OWC) estuary, which is the smallest among the National Estuarine Research Reserve (NERR) system, using satellite imagery. In this study, Landsat-5 TM reflectance data from summer 2005 was used to identify the spatial and temporal distribution patterns of dominant land covers at OWC based on end-member selection and principal component analysis (PCA). The reconstituted end-member data are generated using the normalized difference vegetation index (NDVI), normalized difference water index (NDWI), and normalized difference ground index (NDGI). We evaluated the prominent surface cover types of the area.

END-MEMBER SELECTION BY SCATTERGRAPHS

By scatter plots

The observed dominant surface reflectors at Old Woman Creek estuary in summer 2005

SPATIAL AND TEMPORAL VARIABILITY

PRACTICAL COMPONENT ANALYSIS (PCA)

Factor loadings

Factor loadings

% variance

Factor loadings

% variance

Evaluate principal components by spectrophotometric spectra

Reflected water

End-member

NDVI

Normalized Difference Vegetation Index

Normalized Difference Water Index

Normalized Difference Ground Index

Evaluate end-members by spectrophotometric spectra

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