MULTITEMPORAL ANALYSIS OF AVHRR NDVI IMAGERY ON KOREAN PENINSULA USING HARMONIC COMPONENT

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KEYWORDS: mutitemporal classification, NDVI, harmonic component, seasonality

Abstract:

The seasonality of vegetation types can be represented with a harmonic model characterized by four components: mean, frequency, amplitude and phase. The parameterization provides physically interpretable values with which to characterize the seasonal development of a vegetated pixel. The mean index represents the average level of spectral intensity over the whole period that the data were compiled. The periodicity of ground cover response is described by the frequency index. The amplitude and phase indices are reference values associated with the growing season of a particular vegetation type. One reflects the range of variation in the spectral measurements and the other the time of the initiation and peak of growth. Using the estimates that are obtained through spectral analysis of a sequence of composite imagery, seasonal periodicity can be incorporated into multitemporal classification. The resulting classification based on these components reflects different sources of temporal variation. The proposed approach has been applied to the series of AVHRR NDVI images of Korean Peninsula observed from 1996 to 2000.