



Detecting the length of the growing season using Savannah Vegetation Phenology in Karamoja

Egeru, A., Mugisha, V. and Kuule, D. A

INTRODUCTION

Phenological characteristics of savannah vegetation such as onset and end of photosynthetic activity; have the potential to be used in evaluating effect of environmental changes on plants. This study used phenological characteristics to detect the variations in length of growing season in Karamoja.

METHODOLOGY

Moderate-resolution imaging spectroradiometer (MODIS) and normalised difference vegetation Index (NDVI) data were used to detect phenological characteristics of different savannah vegetation types (bushland, woodland, grassland, thickets and shrubs) for the 2000 - 2017 period in Karamoja region.

The phenological characteristics were used to detect the variations in length of growing season (LGS). Data was processed and analysed using the TIMESAT program and ArcGIS.

RESULTS

Results showed bushland, woodland, grasslands, thickets and shrubs respectively; as the dominant types of savannah vegetation in Karamoja region. The vegetation displayed different inter-annual and seasonal phenological characteristics at different spatial-temporal scales. Thickets and shrubs showed early onsets of greenness (OGT) revolving around the 85th day while Bushlands showed late OGT.

The duration of greenness (DOG) was shorter for grasslands but longer for woodlands. Spatial temporal variation of phenological characteristics showed shorter DOG and likely shorter LGS in Kotido, Napak and Moroto districts and the vice versa for Nakapiripirit and Abim districts respectively (figure 1).

CONCLUSIONS

The savannah vegetation in Karamoja region showed different phenological characteristics. The spatio-temporal variation in the phenological characteristics of different savannah vegetation can be used to predict the length of growing season in the area. This is important, especially to overcome challenges of climate variability during planting seasons.

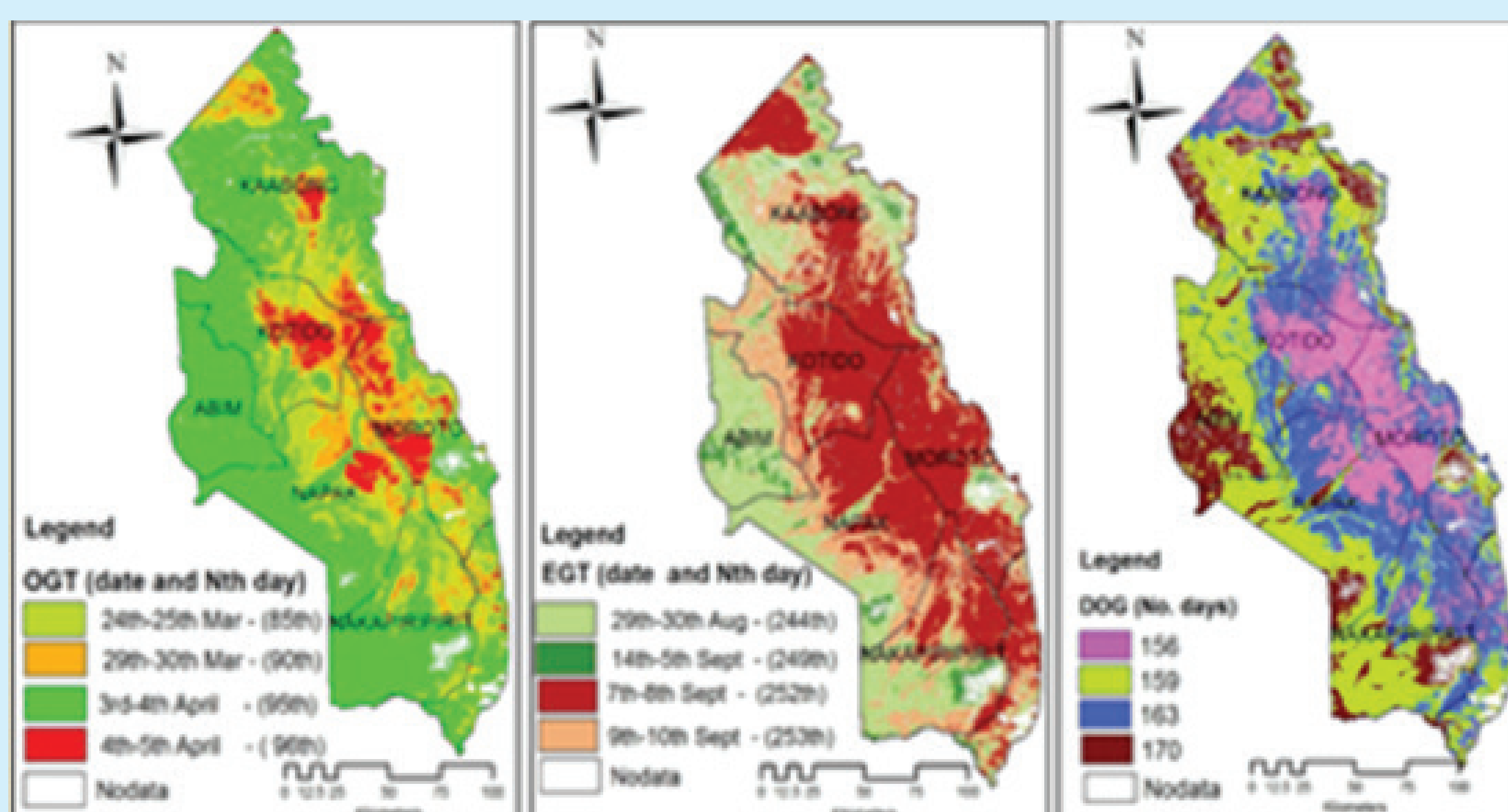


Figure 1: Spatial representation of Onset of greenness time (A), End of greenness time (B), and Duration of greenness (DOG) in Karamoja region

Reference:

Boke-olén, N., Lehsten, V., Ardö, J., Beringer, J., & Eklundh, L. (2016). Estimating and Analyzing Savannah Phenology with a Lagged Time Series Model. PLoS ONE, 4(11), 1–15

