

Agricultural Monitoring Project

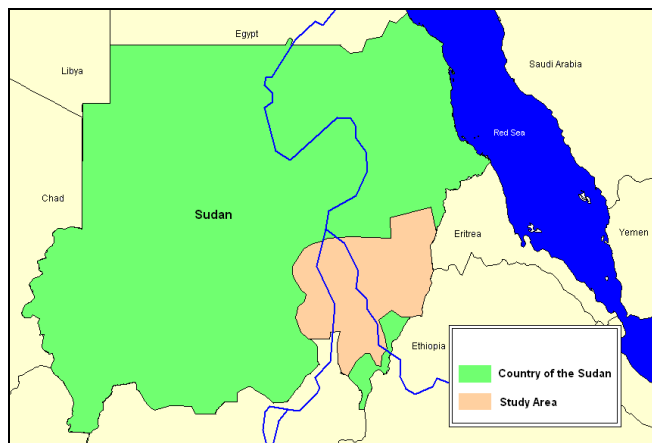


Figure1. Map showing the study area

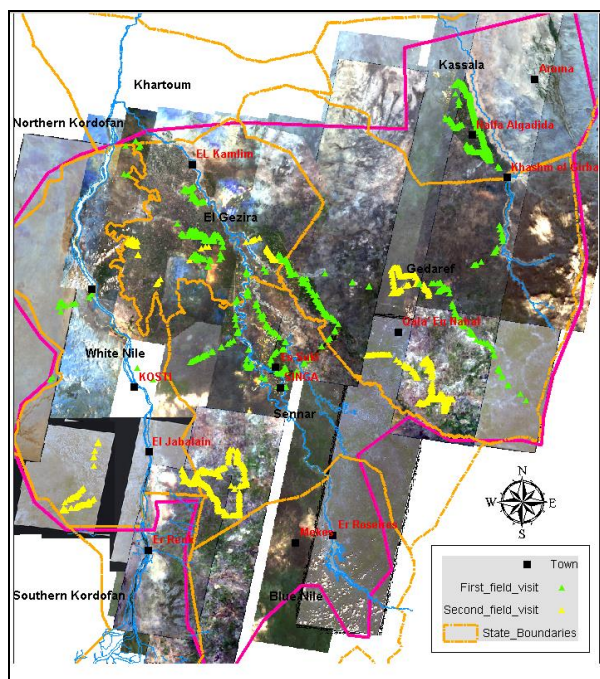


Figure2. Map showing Areas of GPS aided field-survey

Crop Type	Total Acreage (Feddan)	Total Production (Tonne)
Sorghum	7,450,017	1,980,669
Sesame	3,376,950	177,914
Millet	2,950,283	299,377
Cotton	346,305	173,197
Groundnut	402,700	330,073

Figure3. Table showing Acreage and Production of Major Crops

Business Need:

Sudan is a vast country. Agricultural practice is the base of economy and is important to feed its population. It is very important to-

- i) Estimate the different crop types grown in a particular season
- ii) Create map showing spatial distribution of the crop types at field level
- iii) Monitor the crop health during the course of their growth
- iv) Estimate the performance of each crop type
- v) Predict Production of each crop for the study area

Area Covered:

The area covered for this study was spread in different states and comprised of approximately 210,000 sq km area.

Inputs Used:

Image type	RapidEye	Landsat	Terra, MODIS
No. of Images	2 Sets	2 Sets	4 Sets
No. of Bands	5	7	3
Resolution	5 m	30m	250m

Business Solution:

RapidEye images of appropriate vintages were procured to estimate the acreage of Sorghum, Ground Nuts, Cotton, Sesame and Millet. Other minor crops and vegetables etc. were also depicted in the map based on their encounter in the study area. Areas under irrigation and rain-fed areas were treated separately due to the difference in the crop combination and also due the difference in the sowing dates in irrigated and rain-fed areas.

GPS aided field survey was carried out to collect the spectral signature and other crop related information. Hybrid classification based on spectral signature, NDVI values and Time-series were carried out to classify different crops.

Crop health monitoring was done using MODIS images. The areas showing abnormal fluctuation of NDVI were marked and studied in the field to know the less productive or disease infected fields.

The data thus generated was analyzed in GIS environment to calculate the area covered by each crop at field level for irrigated zones and at state level in the rain-fed areas

Project Shipment:

The following shipments were made-

- i) Inception Report
- ii) Interim Report
- iii) Preliminary Crop Acreage Report
- iv) Crop Performance Report
- v) Final Assignment Report showing acreage, estimated yield and predicted production for each crop
- vi) Map showing distribution of different crops
- vii) Map showing performance of major crops
- viii) GIS layer showing distribution of different crops

