

Southern Sudan State Map Series

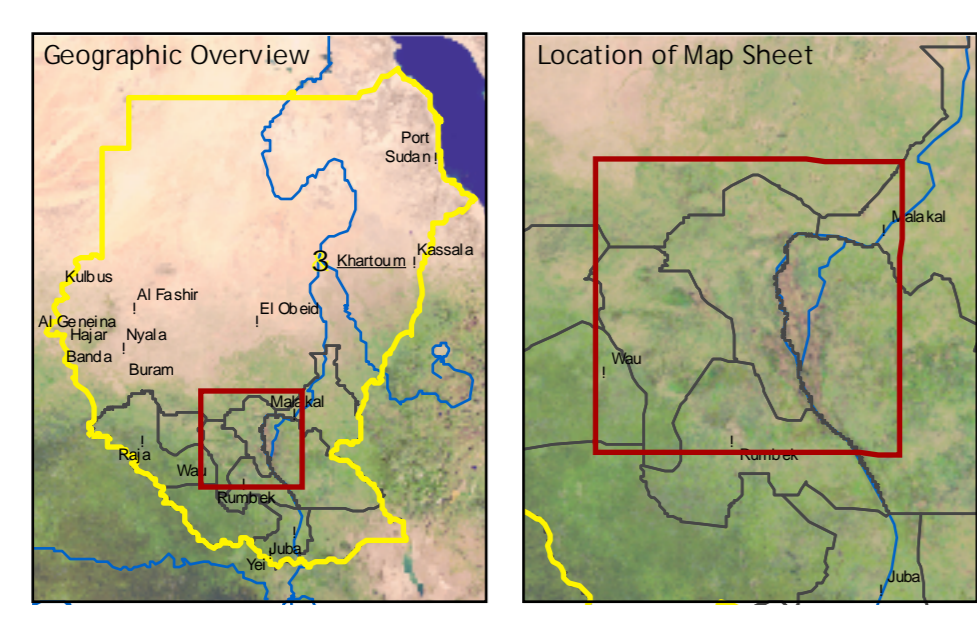
Western Upper Nile State

Sudan

1 : 500'000

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Federal Department of Foreign Affairs 3003 Bern, Switzerland



- Political boundaries**
 - State boundary (tentative)
 - National boundary
 - North-South demarcation line 1956 (tentative)
- Topography**
 - Spot height
 - Main contour (10m interval)
 - Inter-mediate contour (40m interval)
 - Supplementary contour
- Settlements**
 - State capital
 - Principal town
 - Secondary town
 - Administrative town
 - Settlement (verified)
 - Settlement (not verified)
 - Built-up area
- Geographical features**
 - Hills and mountains
- Infrastructural features**
 - Airstrip (CIE)
 - Main road (CDE)
 - Gravel road (CDE)
 - Dirt road (CDE)
 - Street (CDE)
 - Railway (CDE) (non-operational)
 - Bridge (ES)
 - Main road (ES)
 - Gravel road (ES)
 - Street (ES)
 - Dirt road and track (ES)
- Hydrological features**
 - Canal (unfinshed)
 - Pipeline
 - Main river
 - Seasonal river
 - Occasional river
 - Episodic river
 - Dry river
 - Canal
 - Lake and riverbed
- Elevation classes**
 - below 400 m
 - 401 - 450 m
 - 451 - 500 m
 - 501 - 550 m
 - 551 - 700 m
 - 701 - 900 m
 - 901 - 1300 m
 - 1301 - 1800 m
 - 1801 - 2500 m
 - above 2500 m
- Land cover classes**
 - Forest
 - Rubland
 - Sparsely vegetated
 - Arable land
 - Surface water
 - Wetlands
 - Freshwater marshes and floodplains
 - Rain brackish and saline wetland



Project information
 The present map sheet is composed of field maps (1:250,000) and is one of a series of maps of the Southern Sudan State Map Series (1:500,000). The maps and the geodatabase were prepared by the Centre for Development and Environment (CDE) of the University of Berne, Switzerland, with funding from the Swiss Federal Department of Foreign Affairs. The map is being released as a technical contribution to support the humanitarian, peace-keeping and reconstruction efforts in Southern Sudan. Boundaries, transportation, settlement locations and the North-South demarcation line of 1956 shown on this map are not authoritative and should not be considered as such. The CDE (University of Berne) would not be liable for any information that could improve this map. For comments and suggestions, please contact the CDE at info@cdet.ch.

Data sources
 Most of the line and point features were provided by Esri/Info Information Services, Minneapolis, USA (ES) based on the Russian Military Topographic Map 1:200,000 and 1:100,000 Series. Many recent objects (mainly infrastructure, such as roads, pipelines, air strips, as well as resettled villages, water surfaces and meanders) were added, based on satellite image interpretation by CDE.

Delta compilation
 Georeferencing of digital data was obtained through vector-to-image rectification. Except for the non-sloping area, NASA's SRTM data were used as a reference for topographic features and for the development of a digital terrain model (DTM). The DTM has a 90-metre resolution and shows contours, artificial built and shaded relief. In flat areas the DTM was calculated based on spot heights and contours from map sources. Ground truthing and control points were not applied. Average geometric distortion is estimated to be below +/- 150 m. Wetlands, forest, bush and shrub cover were derived from Landsat ETM+, Terra MODIS (V2) and AVHRR and FAO AICover data (agriculture). Information was classified and cross-validated. Verification on terrain was not applied. Better modelling, geodata compilation and digital cartography were done with Esri ArcGIS 9.1 and Lucra ERDAS IMAGINE 8.1.

Geographic Grid: 30 minutes interval
 Projection: Universal Transverse Mercator (UTM)
 UTM Zone: UTM 35 (47°30' reprojection)
 Meridian of Origin: 27 degrees 30 minutes (central meridian)
 Latitude of Origin: Equator
 Horizontal Datum: WGS84
 Vertical Datum: Mean sea level
 Spheroid: WGS84

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