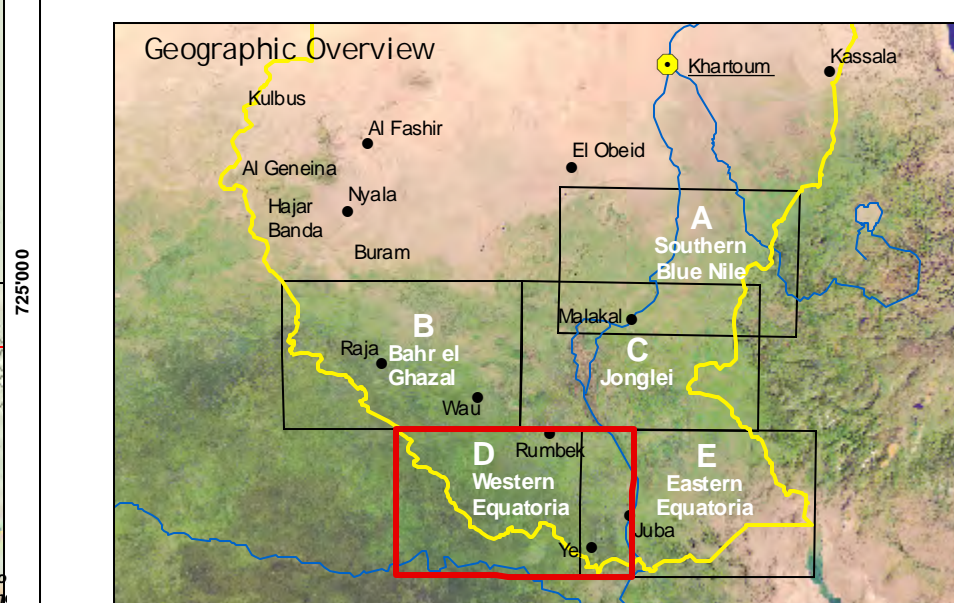


SOUTHERN SUDAN

Topographic Base Map Series

Map Sheet: D Western Equatoria



1:500'000

Raster Resolution: 90 meters
 UTM Grid: 25 Kilometre Interval
 Geographic Grid: 30 minutes Interval
 Projection: Universal Transverse Mercator (UTM)
 UTM Zone: UTM 25
 Meridian of Origin: 27 degrees 00 minutes E of Greenwich
 Latitude of Origin: Equator
 Horizontal Datum: WGS84
 Vertical Datum: Mean sea level
 Spheroid: WGS84

Copyright ©



Version: Release 2.2, October 2008
 Internet: www.cde.unibe.ch

University of Bern
 Institute for
 Environmental
 Engineering and
 Technology
 CH-3012 Bern, Switzerland

- Settlements**
 - State capital
 - Principal town
 - Secondary town
 - Administrative town
 - Settlement (verified)
 - Settlement (not verified)
 - Built-up area
 - Vulnerable area (ICM, MIP)
 - School
- Political boundaries (not authoritative)**
 - National boundary
 - State boundary (tentative)
- Geographical features**
 - Hills and mountains
 - Dunes
 - Tribal areas
 - Dinka: Nomadic or tribal area
- Hydrological features**
 - Main river
 - Seasonal river
 - Occasional river
 - Episodic river
 - Dry river
 - Canal
 - Canal (unfinished)
 - Pipeline
 - Borehole
 - Structure / hand drilled
 - Culvert
 - River crossing
 - Road / pool
 - Reservoir
 - Spring
 - Waterhole
 - Well
 - Wetland
- Infrastructure features**
 - Asphalt
 - Main road
 - Gravel road
 - Track / path (dry weather)
 - Street
 - Railway (not operational)
 - Bridge
 - River crossing
- Topography**
 - Spot height
 - Main contour (100m Interval)
 - Intermediate contour (50m Interval)
 - Supplementary contours (25m Interval)
- Elevation classes**
 - < 400 m
 - 401 - 450 m
 - 451 - 500 m
 - 501 - 550 m
 - 551 - 700 m
 - 701 - 900 m
 - 901 - 1,300 m
 - 1,301 - 1,800 m
 - 1,801 - 2,500 m
 - > 2,500 m
- Land cover classes**
 - Sparse vegetation (single shrubs, grassland)
 - Shrubby vegetation (scrubland)
 - Dense vegetation (irrigated, multiple crops)
 - Agriculture (irrigated, rainfed)
 - Settlement area (built-up areas)
 - Outcrop / no vegetation cover (barren, volcanic)
 - Wetlands (marshes, swamps)
 - Surface water / wet season (open waterbodies)

Disclaimer

The boundaries (north/south, state and international), dominations, and any other information shown on this map do not imply any judgement about the legal status of any territory, or constitute any official endorsement or acceptance of the boundaries on the part of any Government. The publisher, the Centre for Development and Environment (CDE), is not responsible for claims by any third party and assumes no liability for any direct, incidental, or consequential damages whatsoever.

Project information

The Southern Sudan Topographic Base Map Series (Release II) is part of a Capacity Development Programme in Geoinformation Management funded by the Swiss Agency for Development and Cooperation (SDC) to support the Government of Southern Sudan. The geospatial database covers the entire area of the States of Southern Sudan. The map series consists of the completely revised, updated and enhanced map sheets. The data base and ancillary models were developed and prepared by the CDE.

Map authors:

Christopher Hoel, Jürg Krauer, Christian Hergarten, Ursula Campelli, Silvia Müller, Simonetta Eberhard, Geodesy/Geo-Info, CDE, University of Bern.

Data sources:

Most of the line and point features were added based on satellite image interpretation. Satellite sensors used: Terra/ASTER, SPOT-5 and NOAA's space shuttle Radar Topography Mission (SRTM) data were used as the principal reference for topographic features and the development of the digital terrain and drainage model. The DTM has a 90 meter resolution and shows contours (50 m intervals), slopes, aspects, spot heights and shaded relief. In flat areas the DTM was calculated based on spot heights and contours from map sources. Ground control points were not applied. Average geometric distortion is estimated to be below 1:100 m. Wetlands, forests, built-up areas, and agricultural areas were derived from Landsat ETM+, Terra MODIS YVC, EVI, and FAD AirCover data (http://www.usgs.gov/landcover/). The land cover model was cross-validated in situ. Verification of data was not applied. Raster modelling, geodata compilation, and digital cartography were done with ESRI ArcGIS 9.2 and ArcView 3.2a. Vector settlement, trails and road path features were extracted based on high resolution imagery (only partial coverage).

Data compilation

Georeferencing of spatial data was obtained through image-to-image and vector-to-image rectification. Except for the non-sloping areas, NASA's Shuttle Radar Topography Mission (SRTM) data were used as the principal reference for topographic features and the development of the digital terrain and drainage model. The DTM has a 90 meter resolution and shows contours (50 m intervals), slopes, aspects, spot heights and shaded relief. In flat areas the DTM was calculated based on spot heights and contours from map sources. Ground control points were not applied. Average geometric distortion is estimated to be below 1:100 m. Wetlands, forests, built-up areas, and agricultural areas were derived from Landsat ETM+, Terra MODIS YVC, EVI, and FAD AirCover data (http://www.usgs.gov/landcover/). The land cover model was cross-validated in situ. Verification of data was not applied. Raster modelling, geodata compilation, and digital cartography were done with ESRI ArcGIS 9.2 and ArcView 3.2a. Vector settlement, trails and road path features were extracted based on high resolution imagery (only partial coverage).

Data Modelling

The latest earth orbiting spacecrafts such as Terra/ASTER, SPOT-5 and NOAA's space shuttle (SRTM mission 2000) were the main source for map updates, and terrain and drainage modelling. Geographic information technology GIS, GPS, and Earth Observation (EO) was used to create a geospatial and detailed geospatial database of Southern Sudan. Image courtesy of SPOT 5, France (SPOT 5 over Juba in 2003) and NASA HQ Washington, DC, USA (SRTM flight in 2000).

