



Raster Resolution: 90 meters  
UTM Grid: 25 kilometer interval  
Geographic Grid: 30 minutes interval  
Projection: Universal Transverse Mercator (UTM)  
UTM Zone: UTM 35  
Merkator of Origin: 27 degrees 00 minutes E of Greenwich  
Latitude of Origin: Equator  
Horizontal Datum: WGS84  
Vertical Datum: Mean sea level  
Spheroid: WGS84

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- Settlements**
  - State capital
  - Principal town
  - Secondary town
  - Administrative town
  - Settlement (verified)
  - Settlement (not verified)
  - Built-up area
  - Vulnerable area (scale 1:500)
  - School
- Political boundaries (not authoritative)**
  - National boundary
  - State boundary (tentative)
- Geographic features**
  - Hills and mountains
  - Dunes
- Tribal area**
  - Dinka / Nominic or tribal area
- Hydrological features**
  - Main river
  - Seasonal river
  - Episodic river
  - Episodic river
  - Dry river
  - Canal
  - Canal (unflooded)
  - Pipeline
  - Borehole
  - Innaction / hand drilled
  - Cubert
  - Pond / pool
  - Reservoir
  - Spring
  - Waterhole
  - Well
  - Wetland
- Infrastructural features**
  - Airfield
  - 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)
  - Stably vegetated (scrubland)
  - Dense vegetation (groves, mature crops)
  - Agriculture (irrigated, rainfed)
  - Settlement area (built-up area)
  - Outcrop / no vegetation cover (bedrock, volcanic)
  - Wetlands (marshes, swamps)
  - Surface water / wet season (perennial waterbodies)

**Disclaimer**  
The boundaries (north/south, state and international), denominations, and any other information shown on this map do not imply any judgment about the legal status of any territory, or constitute any 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 project database covers the entire area of the State of Southern Sudan. The map series consists of five completely revised, updated and enhanced map sheets. The data base and geospatial models were developed and prepared by the CDE.  
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**Data sources**  
Most of the line and point features were added based on satellite image interpretation. Satellite sensors used: Terra/ASTER/AVHRR data for 2002-2006, Landsat ETM+/TM+/422, Earthstar multispectral data of 2000, and Digital Globe QuickBird 2 imagery (2003-2005). Internet sources: Geonetwork of SIM (Sudan Interagency Mapping) www.unisudan.org, UNODK, UNICEF, UNHCR, UNHLS, UNHLS, WFP Global Name and Gazetteer Database.  
Map sources: Eastview Information Services (ES), Minneapolis, www.cartographic.com (mainly Russian Military Topographic Maps, 1:200k and 1:100k).

**Data compilation**  
Georeferencing of spatial data was obtained through image-to-image and vector-to-image rectification. Except for the non-slipping area, 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 30-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 ± 0.50 m. Wetlands, forest, bush/scrub and agricultural areas were derived from Landsat ETM+/TM+, Terra MODIS (VCF, EVI), and FAO Africover data (agri-cultures). The land cover model was cross-validated. In the rectification of data was not applied. Raster modelling, geospatial compilation, and digital cartography were done with ESRI ArcGIS 9.2 and LEICA ENVI 4.0. Minor settlements, tracks and road 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 NASA's space shuttle (SRTM mission 2000) were the main sources for map updates, and terrain and drainage modelling. Geographic information technology GIS, GPS, and Earth Observation was used to create a seamless and detailed geospatial database of Southern Sudan. Image courtesy of SPOT Image S.A., France (SPOT-5 over Juba in 2003) and NASA HQ Washington, DC, USA (SRTM flight in 2000).

