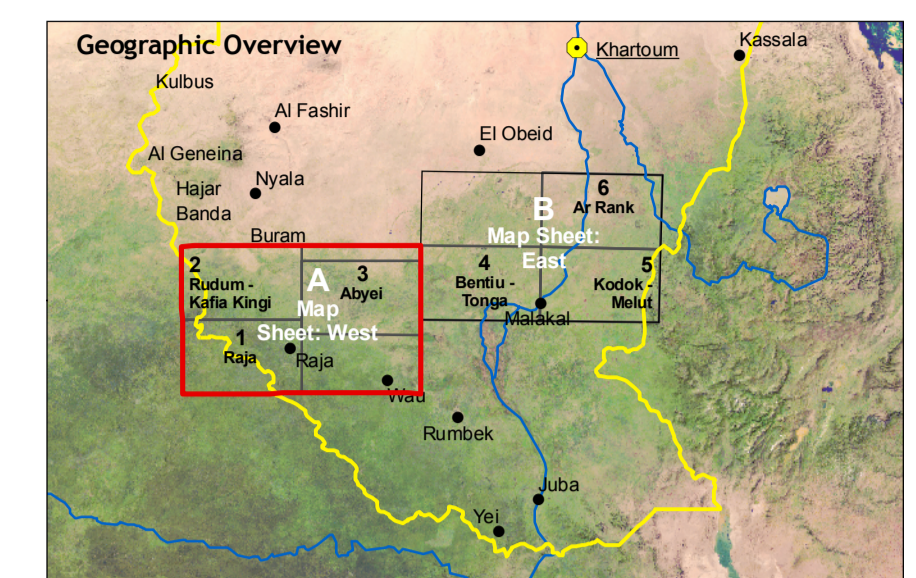


SUDAN

Topographic Overview Map North/South Border Map Series

Map Sheet: West South Darfur, Western-, Northern Bah el Ghazal West Kordofan, Warrap



1:500'000



Raster Resolution: 90 meters
 UTM Grid: 50 kilometer interval
 Geographic Grid: 1 degree interval
 Projection: Universal Transverse Mercator (UTM)
 UTM Zone: 32M (30° East longitude)
 Meridian of Origin: 27° 00' 00" East of Greenwich
 Latitude of Origin: Equator
 Horizontal Datum: WGS84
 Vertical Datum: Mean sea level
 Spheroid: WGS84

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CDE Centre for Development and Environment
 University of Bern
 Centre for Development and Environment
 CH-3012 Bern, Switzerland
 Version: Draft Release 1.1, March 2008
 Internet: www.cde.unibe.ch

- | | |
|---|---|
| <ul style="list-style-type: none"> ● State capital ● Principal town ● Secondary town ● Administrative town ● Settlement (verified) ● Settlement (not verified) ▲ Built-up area ▲ Administrative area (camp, IDP) ▲ Schools | <ul style="list-style-type: none"> — National boundary — Hill or mountain — Tribal area — Dinka / Nilotic or tribal area — Main river — Seasonal river — Occasional river — Episodic river — Dry river — Canal (wet or dry) — Pipeline — Borehole — Hand-dug well — Culvert — Reservoir — Pond / Pool — Spring — Waterhole — Wetland |
| <ul style="list-style-type: none"> — Main road (CDE) — Gravel / Dirt road (CDE) — Track (CDE) — Street (CDE) — Railway (CDE) — Main road (ES) — Gravel road (ES) — Street (ES) — Dirt road or track (ES) — Bridge — River crossing | <ul style="list-style-type: none"> — Spot height — Main contour (100 m interval) — Intermediate contour (50 m interval) — Supplementary contours (25 m interval) |
- Land cover classes**
- Sparse vegetation (single shrubs, grassland)
 - Shrubby vegetation (bushland)
 - Dense vegetation (groves, mature crops)
 - Agriculture (irrigated, rainfed)
 - Settlement area (built-up area)
 - Outcrop (basement, volcanic)
 - Wetlands (marshes, swamps)
 - Surface Water (perennial waterbodies)
- Elevation classes**
- below 400 m
 - 401 - 450 m
 - 451 - 500 m
 - 501 - 550 m
 - 551 - 600 m
 - 601 - 650 m
 - 651 - 700 m
 - 701 - 750 m
 - 751 - 800 m
 - 801 - 1,300 m
 - 1,301 - 1,800 m
 - 1,801 - 2,500 m
 - above 2,500 m

Disclaimer:
The boundaries, denominations 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 (CDE) assumes no liability for any direct, incidental, special, or consequential damages whatsoever. The publisher (CDE) is not responsible for claims by any third party.

Project information
The present map was prepared for the **North-South Border Commission**, whose work is in progress as part of the implementation of the Comprehensive Peace Agreement signed on January 9, 2005. The map sheet is part of a series of maps 1:500k, 1:250k, and 1:100k covering the sensitive border areas of the northern and southern part of Sudan. The map and the geospatial database were prepared by the Centre for Development and Environment (CDE) of the University of Bern, Switzerland.
Map authors: Hristi Christoph, Krauer, Jörg, Hergarten Christian, Gampert Ursula, Entwerfer Emanuel, Geoprocessing Unit, Centre for Development and Environment, Institute of Geography, University of Bern.

Technical data sources
Boundary sources: Most of the line and point features (mainly roads, tracks, pipelines, air strips, as well as resettled villages, water surfaces and meanders) were added, based on satellite image interpretation by CDE.
Satellite sensors used: Terra (ASTER-vir data for 2002-2006, Landsat ETM+ 7/4/2 and Landsat Natural View RGB 3/2/1) data for 2000 and Digital Globe QuickBird 2 imagery for 2002-2005.
Internet sources: Geonetwork of UNCTAD, www.geonetwork.org; UNCEP, UNLAC, UNWIS, UNHCR, WFP, OCHA, UNICEF, FAO, AICover project, Global Name and Gazetteer data, Global Wetland Data (GLWD), Google Earth Pro, NCR North-South and individual communications within the international aid community.
Map sources: Cartview Information Services (ES), Minneapolis, USA.
Other sources consulted: In particular the Topographic Map Series 1:200,000 and 1:100,000 Series.
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Data compilation
Georeferencing of spatial data was obtained through image-to-image and vector-to-image rectification. Except for the non-logging 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 the highly detailed drainage model. The DTM has a 90-meter resolution and shows contours (5m interval), streamlines (20m interval), slope, aspect, spot heights and a shaded relief. In flat areas the DTM was calculated based on spot heights and contours from map sources. Ground control points were applied by image rectification. A planimetric distortion is estimated to be below +/- 100 m. Wetlands, forest, bush and scrub cover were derived from Landsat ETM+, Terra MODIS (V2 and V1), and FAO AICover data (aggregations). Information was classified and cross-validated. In situ verification of data was not applied. Raster modeling, vector compilation, and digital cartography were done with ESRI ArcGIS 9.2 and Leticia ERDAS IMAGINE 9.1. Minor settlement, track and path features were extracted based on satellite data provided by Google Earth Pro 4.1.7.
The CDE (University of Bern) would welcome any information that could improve this map. For comments and suggestions, please contact the CDE at info@unibe.ch. Digital maps, pdf, & jpg files, and further project information are accessible on CDE's Sudan Map Download Server at <http://www.cde.unibe.ch>.

Please note that when information is used in other mapping products, the source of the map must be credited to: CDE, University of Bern, Sudan Topographic Overview Map (map) 1:500,000, Draft Release 1.0/December 2007, North-South Border Map Series, Bern, CDE, 2007.

