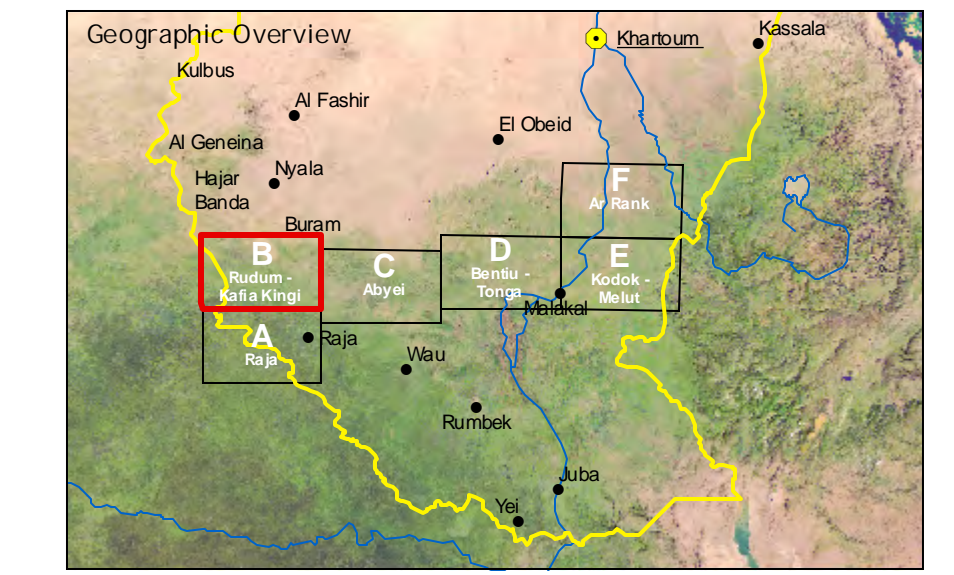


# SUDAN

Topographic Field Map  
North/South Border Map Series

Map sheet: Rudum - Kafia Kingi  
South Darfur, Western Bah el Ghazal,  
Central African Republic



1:250'000

Scale bar: 0 5 10 15 20 km  
Raster Resolution: 90 meters  
UTM Grid: 25 kilometer interval  
Projection: Universal Transverse Mercator (UTM)  
UTM Zone: UTM 35  
Meridian of Origin: 27 degrees 00 minutes E of Greenwich  
Latitude 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  
Institute of Geography  
PO Box 3000  
CH-3000 Bern, Switzerland

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Author: www.cde.unibe.ch

- Settlements**
  - State capital
  - Principal town
  - Secondary town
  - Administrative town
  - Settlement (overlaid)
  - Settlement (not overlaid)
  - Built-up area
  - Vulnerable area (UNEP, 1991)
  - School
- Political boundaries**
  - National boundary
  - Geographical features
  - Hill or mountain
  - Tribal area
  - Dinka: Nomadic or tribal area
- Hydrological features**
  - Main river
  - Seasonal river
  - Occasional river
  - Episodic river
  - Dry river
  - Canal (wet or dry)
  - Canal (unfurnished)
  - Pipeline
  - Boothole
  - Hand-ditched
  - Culvert
  - Flood / Pool
  - Reservoir
  - Spring
  - Well
  - Wetland
- Infrastructure features**
  - Main road (CDE)
  - Gravel / Dirt road (CDE)
  - Track (CDE)
  - Street (CDE)
  - Railway (CDE)
  - Non-operational
  - Main road (ES)
  - Gravel road (ES)
  - Street (ES)
  - Dirt road or track (ES)
  - Bridge
  - River crossing
- Topography**
  - Spot height
  - Main contour (100 m interval)
  - Intermediate contour (50 m interval)
  - Supplementary contour (25 m interval)
  - Elevation classes
- Land cover classes**
  - Sparse vegetation (single shrubs, grasslands)
  - Shrubby vegetation (savanna)
  - Sparse vegetation (forests, mature crops)
  - Agriculture (irrigated, rainfed)
  - Settlement area (built-up area)
  - Quaternary (basement, volcanic)
  - Wetlands (marshes, swamps)
  - Surface Water (Surface Water)
  - Generalised wetbodies

**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 by 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 1:250,000 and 1:100,000 covering the tentative border area of the northern and southern part of Sudan. The map and the geographic database were prepared by the Centre for Development and Environment (CDE) of the University of Bern, Switzerland.  
Map authors: Heidi Grottel, Klaus Jürg, Hermann Christian, Gernot Ursula, Erika von Elmendorf, Geoprocessing Unit, Centre for Development and Environment, Institute of Geography, University of Bern.

**Technical data sources**  
Image 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 sensor used: Terra ASTER vnr data for 2002-2006, Landsat ETM+ 7/4/2 and FastEye Natural View (GE 321) data for 2002 and Digital Globe QuickBird 2 imagery for 2003-2005.  
Internet sources: Geobase.org, UNICEF, www.unicef.org; UNEP, UNLAC, UNHCR, UNHCR, WFP, OLS data on DERIA server, FAO Africover project, Global Name and Gazetteer data, Global Wetland Data (GWD), Google Earth Pro, INCR North South and individual communications within the international aid community.  
Map sources: Eastview Information Services (ES), Minneapolis, USA  
[www.digitalline.com](http://www.digitalline.com) (mainly Russian Military Topographic Map, 1:200,000 and 1:100,000 Series)  
Other sources consulted: In particular the Topographic Map Series 1:250,000 published by the Sudan Survey Department 1934-1937 (partly revised 1974).

**Data compilation**  
Co-ordinating of spatial data was obtained through image-to-image and vector-to-image rectification. Except for the non-digitized area (Kafia Kingi) the Topographic Mission (DTM) data were used as the principal reference for topographic features and development of the digital terrain and the highly detailed drainage model. The DTM has a 90-meter resolution and shows contours (30m intervals), artificial built (30m intervals), slope aspects, spot heights and a shaded relief. In flat areas the DTM was calculated based on spot heights and contour from map sources. Ground control points were applied for image rectification. Average geometric distortion is estimated to be below +/- 100 m. Wetlands, rivers, built and linear cover were derived from Landsat ETM+, Terra MODIS (NDF and EVI), and FAO Africover data (agriculture). Information was classified and validated. The vector verification of data was not applied. River modeling, geodata compilation, and digital cartography were done with ESRI ArcGIS 9.2 and ArcSDE 9.2. All data were stored in a geodatabase. River 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@cde.unibe.ch](mailto:info@cde.unibe.ch). This digital map, pdf, 8 page file, 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 or cited: CDE, University of Bern, Sudan Topographic Field Map (pdf) 1:250,000, draft, Revision 1 (October 2007), North/South Border Map Series, Bern: CDE, 2007.

