

# ETHIOPIA

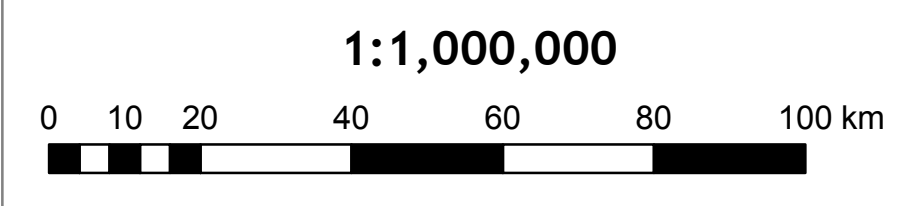
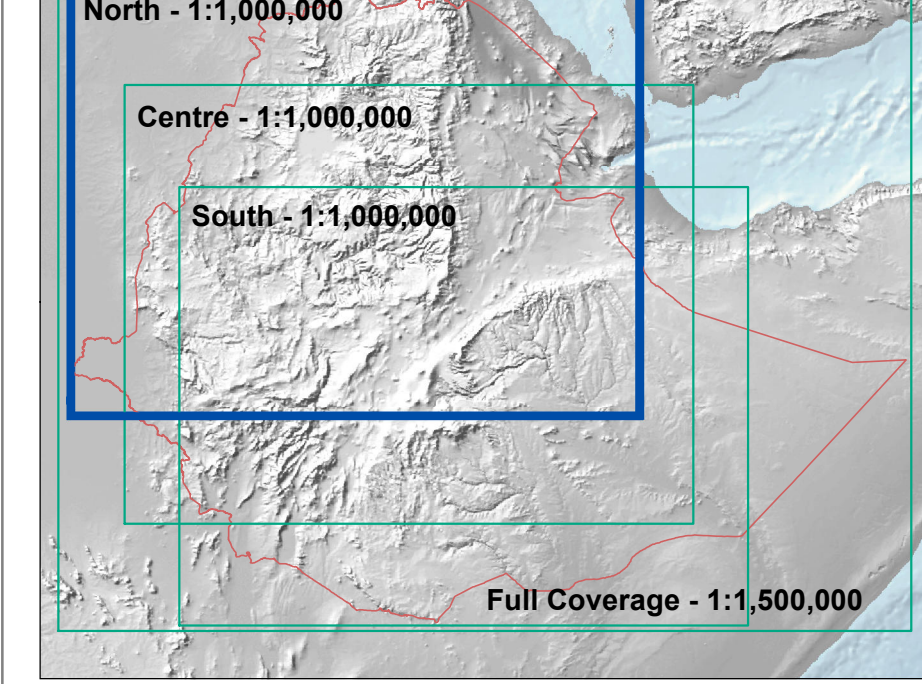
## Geographic Base Map

Tile North Overview Map Series 1:1,000,000

Map Sheet # 1 Tigray / Afar / Amhara / Benishangul

Change in Forest Cover 2000-2015

Aggregated Loss and Gain in Forest Cover based on Landsat Data as presented by Hansen et al. 2015



UTM Grid: 200 km Interval  
 Geographic Grid: 5 Degree Interval  
 Projection: Universal Transverse Mercator (UTM)  
 UTM Zone: UTM 32 (UTM 36, 38 projected)  
 Meridian of Origin: Equator  
 Horizontal Datum: WGS84  
 Vertical Datum: Mean Sea Level  
 Spheroid: WGS84



**Legend**

<b>Administration</b>	<b>Transportation</b>
National Border	Railway
State capital	Transnational road
Region capital	Primary road
Large settlement	Secondary road
Medium settlement	Tertiary road
Small settlement	Track
	Path
	Residential road
	Railway under construction
<b>Infrastructure</b>	<b>Surface Water</b>
Airport	Lake
Runway	Episodic lake
<b>Forest Cover Change</b>	Drainage
Gain	Seasonal river (cat. 4)
Loss	Perennial river (cat. 5)
	Main river (cat. 6)
	Stream (cat. 7)
	Large stream (cat. 8)
<b>Elevation</b>	<b>Topography</b>
High: 4500m	Mountain peak
Low: < 200m	

**How to read the "Change in Forest Cover 2000-2015 Map 1:1,500,000"**  
 Based on data presented by Hansen forest cover loss and gain was aggregated by a factor of 1 to enhance visibility of site specific trends (30 m source data pixels). Forest gain was defined as the inverse of loss, or the establishment of tree canopy from a non-forest state. Changes in forest cover affect the delivery of important ecosystem services, including biodiversity richness, climate regulation, carbon storage, and water supplies.

Data source: Hansen/UMD/Google/USGS/NASA  
 Credits: Hansen, et al., P. Potapov, A. Moore, A. Hancher, S. A. Turubanova, A. Tyukavina, D. Thau, S. V. Stepanov, S. J. Goetz, T. B. Loveland, A. Kommertje, A. Egerton, L. Collins, C. O. Justice, and A. G. Hansen, 2013. "High Resolution Global Maps of 21st Century Forest Cover Change." Science 342 (15 November): 855-8. Data available on-line from: <http://earthenginepartners.appspot.com/science-2013-global-forest>.

The map contains various geographic features classes (e.g. categories of roads, settlements, rivers) derived from a wide range of individual data sources. Open Street Map data from <http://www.openstreetmap.org> and LandSat imagery in natural colors from <http://seamless.usgs.gov>. Drainage and watershed boundaries are based on modified algorithms and SRTM data (Digital Elevation Model). Please use the scale bar for measurements on the map when needed to scales other than the original 1:1,000,000. The Thematic Overview Map Series 1:1,000,000/1,500,000 meets the needs of regional/national planning and policy advice.

**MapServer technology**  
 The MapServer Ethiopia platform built on ESRI ArcGIS Enterprise software components for Windows. From the MapServer Ethiopia GIS, WebGIS with its three sections, users directly enter ESRI portal technology with WebGIS apps developed using Web AppBuilder and ArcGIS for ArcGIS Desktop 10.5.1 and ArcGIS Pro 2.2 was deployed for public use to compare the pre-produced maps of section 1 and ArcGIS Pro 2.2 was deployed for publication of layers in the desktop mapping app of section 2.

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**National spatial information**  
 Geospatial spatial data infrastructure (SDI) plays a significant role in the development of Ethiopia's fast growing economy, but it continues just as much in sustainable use of natural resources, infrastructure planning, and efficient management of food crops. Maps are means of visual communication and foster understanding of complex problems. They are containers of data, show spatial patterns, enable geographic analysis, and convey the user's "data resolution" intuition. It is common knowledge that people rarely see 80% of what they see, 20% of what they read, and 10% of what they hear. Maps and results are understood 100% when they are read, and content with results gets 95% more total views on the internet. This makes maps an ideal means of development and communication in land governance.

**The MapServer Ethiopia project**  
 MapServer Ethiopia is a web-based open source platform for the dissemination of geospatial data maps and information about Ethiopia. The website contains three main web services that enable: (1) mapping based on pre-produced maps, (2) online mapping of selected information layers, and (3) open geospatial data download. The MapServer Ethiopia data platform and webGIS are intended to improve capacity and spatial understanding in the context of project management, natural resources governance, humanitarian aid work, and academic education.

The MapServer Ethiopia project is part of the activities of the Water and Land Resource Centre (WLRG) to improve data sharing and dissemination in support of land and water resources management. The MapServer Ethiopia is funded by the Swiss Agency for Development and Cooperation (SDC).

**The Water and Land Resources Centre**  
 The Water and Land Resource Centre (WLRG) in Addis Ababa, Ethiopia [www.wlrc.ethiopia](http://www.wlrc.ethiopia) was established by the Centre for Development and Environment, University of Bern, Switzerland [www.cde.unibe.ch](http://www.cde.unibe.ch) in 2011 as an institution associated to Addis Ababa University. Since its inception the centre systematically monitors, collects, integrates, and disseminates data and knowledge in support of sustainable management of natural resources. Today, the centre builds on long standing achievements to reduce land degradation, improve livelihoods in rural areas and serves as regional knowledge hub and cross-scale dialogue in land governance.

**Origin of map data**  
 Building of EthioGIS-3, the new (2018) release of the National Geospatial Database System for Ethiopia, the MapServer Ethiopia [www.mapserver-ethiopia.org](http://www.mapserver-ethiopia.org) site is providing a web-based gateway for open and non-proprietary geospatial information for the Federal Democratic Republic of Ethiopia. The mapping services are designed to promote development support for development actors, government authorities, NGOs, international organizations and the civil society.

MapServer Ethiopia is part of WLRG's Water and Land Resource Information System (WLRSIS) and adds a portal for environmental and socio-economic data data sharing and dissemination for registered user through [www.wlrc.ethiopia](http://www.wlrc.ethiopia). Details of WLRSIS web geospatial data functionalities, the main MapServer Ethiopia product lines are available on the official mapping services based on a wealth of free and open geospatial providers.

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**Reference**  
 Please note that you must indicate the source of geospatial data or map layers when using this information in other products. As follows: WLRG Ethiopia and CDE, University of Bern, Switzerland, MapServer Ethiopia, Thematic and Geographic Overview, Field and Base Map Series (map) 1:1,000,000/1:500,000, Release 3.0/December 2018.  
 Internet: [www.mapserver-ethiopia.org](http://www.mapserver-ethiopia.org)

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