

# Das neue Informationssystem Earth Data Namibia und dessen Open Source WebGIS-Komponente

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# Earth Data Namibia – Ein Remake

Das Original: 2000 - 2001

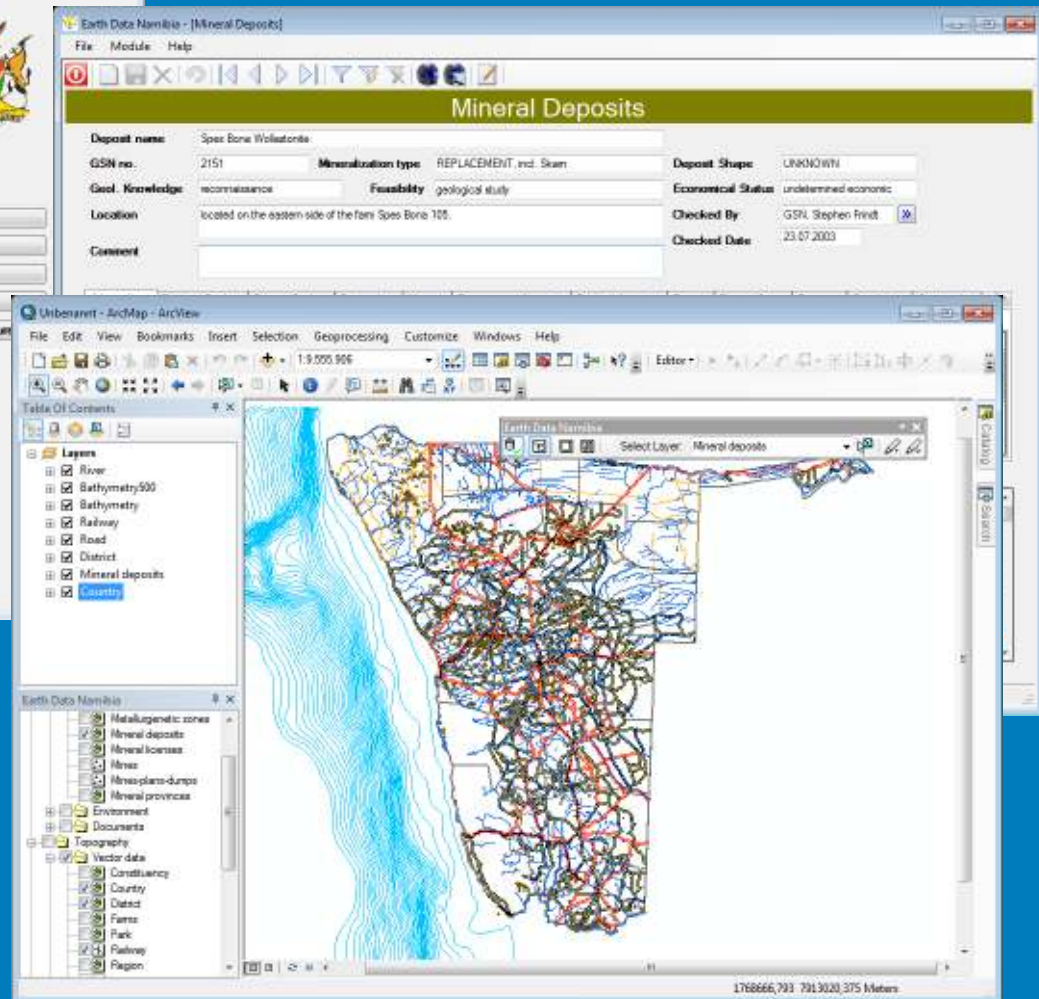
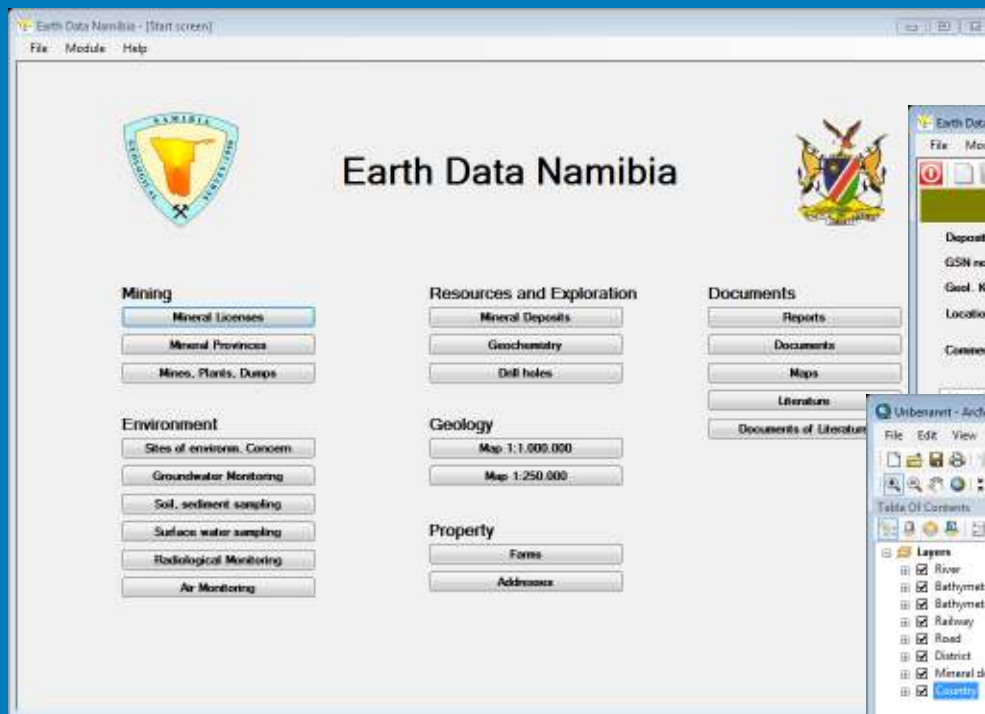
Microsoft VisualBASIC 6  
Oracle 9i  
ESRI ArcView 3.2a

filebasierte Ablage der GIS-Daten  
(Shapefiles, Raster)



# Earth Data Namibia – Ein Remake

Die Neuentwicklung: 2010 - 2011



Microsoft VisualBASIC.NET 2010  
Microsoft SQL Server 2008  
ESRI ArcView 10

Ablage der GIS-Daten in ArcSDE 10  
(SqlGeometry für Vektordaten)





# Webportal des Geological Survey of Namibia

**GEOLOGICAL SURVEY OF NAMIBIA**  
Earth Sciences for Namibia's Sustainable Development

Home Energy Administration and Finance Diamond Affairs Mines Geological Survey of Namibia

**WELCOME**

Housed at the [Ministry of Mines & Energy Building](#) in the capital, Windhoek, together with the sister Directorates of Mining, Energy, Diamond Affairs and Administration & Finance, the Geological Survey of Namibia plays an important role in the development of Namibia's mineral and geological resources and in fostering sustainable development with due regard to the environment.

The organisation comprises six divisions:

- [Regional Geoscience](#)
- [Geophysics](#)
- [Economic Geology](#)
- [Geochemistry and Laboratory](#)
- [Engineering and Environment](#)
- [Geological and Exploration information](#)

**MISSION STATEMENT**

Enhance knowledge and awareness of Namibia's geological resources through scientific investigation as well as application and dissemination of quality research data. Facilitating the search for and the assessment of mineral resources, geological engineering and land use planning through sustainable development with due regard to the environment.

**OBJECTIVES**

The Geological Survey of Namibia, as custodian of Namibia's rich endowment of geological resources, facilitates the responsible development and sustainable utilisation of these resources for the benefit of all Namibians.

- Provide geoscientific information through research to promote sustainable development and investment in Namibia.
- Guide land-use decisions to ensure the availability and sustainability of resources for the current and future welfare of our society
- Stimulate investment in Namibia's Mining Sector in order to contribute to the development of Namibia's economy

Ministry of Mines and Energy Building

<http://www.gsn.gov.na/>

Umfassende Informationen über den Geological Survey of Namibia und seine Mission

## Neue Anforderungen

- Datentransparenz (z.B. Rohstoffvorkommen)
- Information potentieller Investoren
- Information der interessierten Öffentlichkeit

→ Erweiterung der Webseite um eine WebGIS-Komponente und eine Recherche in freigegebenen Daten des Informationssystems Earth Data Namibia



# Vorgänger und Vorbilder



<http://www.kosovo-mining.org/>



<http://www.ghana-mining.org/>

Verwendung von kommerziellen und Open Source Komponenten  
Entwicklung eigener Java-Bibliotheken (xafis)  
Microsoft Windows Server als Betriebssystem

Microsoft SQL Server  
ESRI ArcSDE  
ESRI ArcIMS  
UMN MapServer  
Apache Tomcat  
CMS Magnolia  
Java



# Eine Frage des Preises

## Kommerzielle Softwarelösungen

- haben ihren Preis

## Open Source Lösungen

- sind vergleichsweise preiswert und
- sind professionellen Entwicklungen oft gleichwertig
- unterliegen freien Softwarelizenzen

## Open Source Lizenzen

- Free Software Foundation
- General Public Licence (GPL)
- Lesser General Public Licence (LGPL)
- Copyleft-Prinzip

Weitere Informationen: <http://www.gnu.org/licenses/license-list.html>





# Bereitzustellende Geometriedaten

## Vektordaten

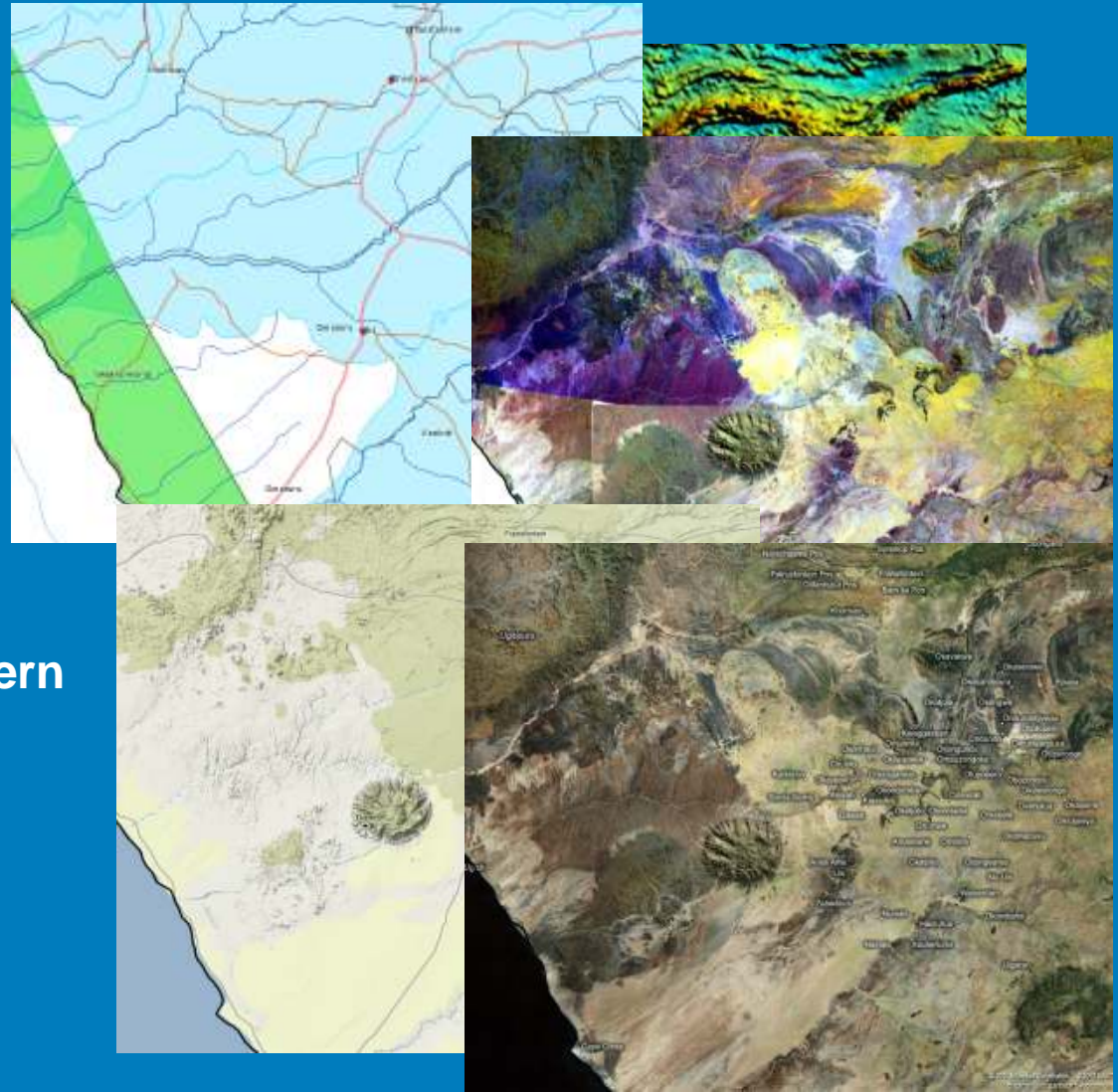
- Topographie
- Thematische Ebenen
- usw.

## Rasterdaten

- geophysikalische Messungen
- Satellitenbilder
- usw.

## Geobasisdaten von Fremdanbietern

- Open Street Map
- Google Maps
- Virtual Earth
- Yahoo Maps
- usw.



# Entscheidungen

Betriebssystem	openSUSE 11.4 (Linux)
Datenbank	PostgreSQL 9.0 mit PostGIS 1.5
Webserver	Apache HTTP Server 2.2
Java Servlet Container	Apache Tomcat 6.0.32
WMS-Server	Geoserver 2.1 mit diversen Plugins
JavaScript-Bibliotheken	OpenLayers 2.10 proj4js
GIS-Software	GDAL/OGR 1.8.0 Quantum GIS 1.6 AtlasStyler SLD Editor 1.6 (uDig)

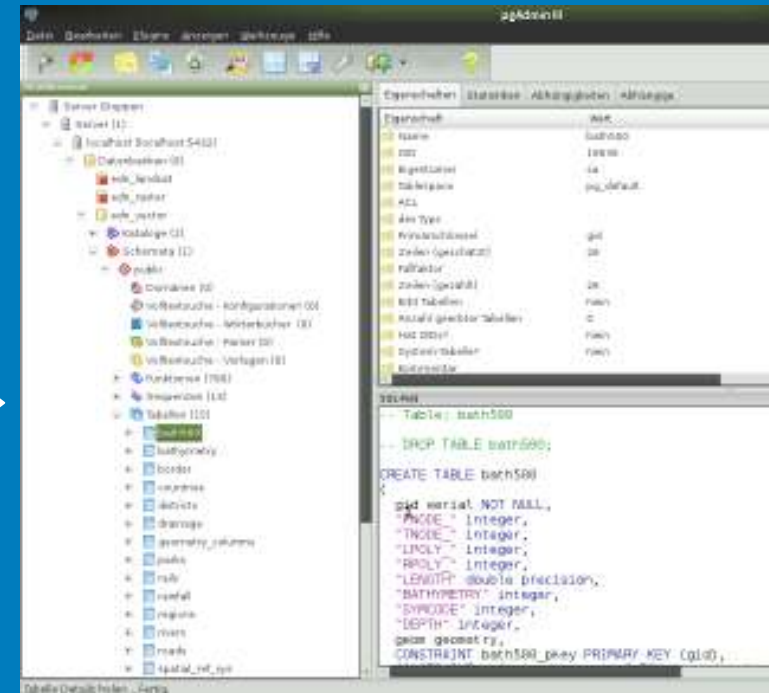
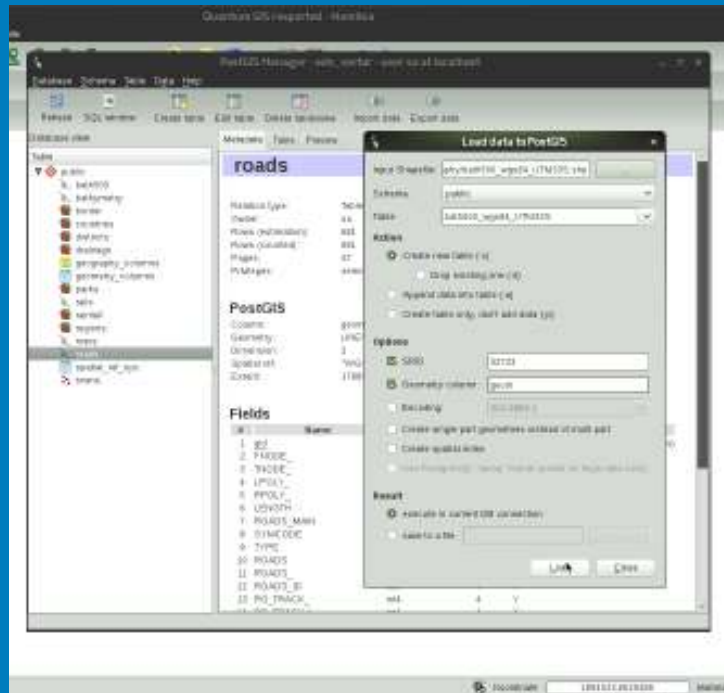




# Ablage der Geometriedaten

## Ablage der Geometriedaten in PostgreSQL-Datenbank

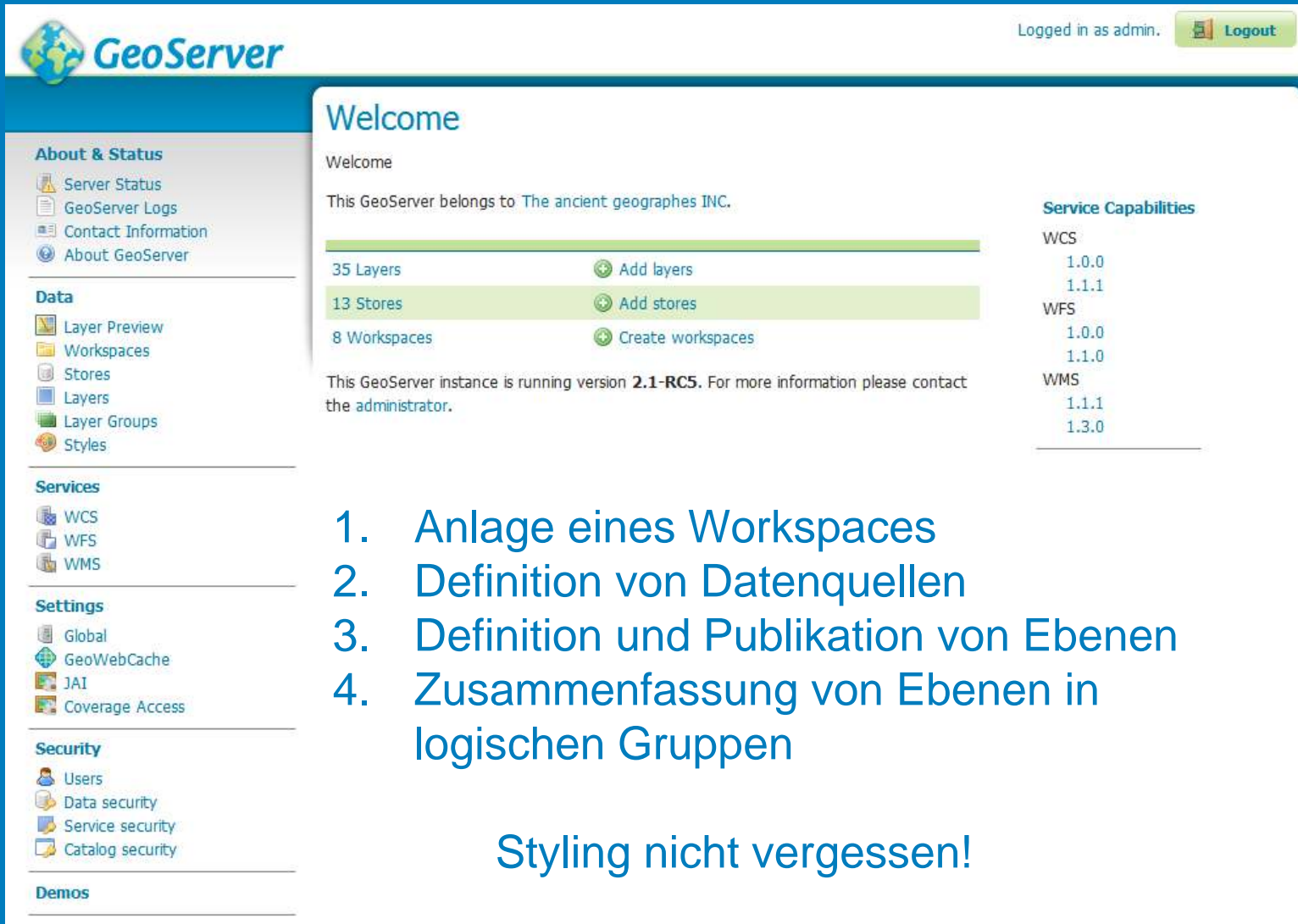
- Import der Vektordaten mit QuantumGIS-Erweiterung PostGIS Manager



- Vorbereitung der Rasterdaten mit GDAL Kommandozeilentools (Kachelbildung und Pyramidenerzeugung)
- Import der vorbereiteten Kacheln mit Kommandozeilentools der Geoserver-Erweiterung ImageMosaicJDBC (Image mosaicking/pyramidal jdbc plugin)



# Die Karten werden serviert



The screenshot shows the GeoServer web interface. At the top left is the GeoServer logo. At the top right, it says "Logged in as admin." with a "Logout" button. The main content area is titled "Welcome" and contains the following information:

Welcome

This GeoServer belongs to The ancient geographies INC.

35 Layers [Add layers](#)

13 Stores [Add stores](#)

8 Workspaces [Create workspaces](#)

This GeoServer instance is running version **2.1-RC5**. For more information please contact the administrator.

**Service Capabilities**

WCS	1.0.0
	1.1.1
WFS	1.0.0
	1.1.0
WMS	1.1.1
	1.3.0

The left sidebar contains the following menu items:

- About & Status**
  - Server Status
  - GeoServer Logs
  - Contact Information
  - About GeoServer
- Data**
  - Layer Preview
  - Workspaces
  - Stores
  - Layers
  - Layer Groups
  - Styles
- Services**
  - WCS
  - WFS
  - WMS
- Settings**
  - Global
  - GeoWebCache
  - JAI
  - Coverage Access
- Security**
  - Users
  - Data security
  - Service security
  - Catalog security
- Demos**

1. Anlage eines Workspaces
2. Definition von Datenquellen
3. Definition und Publikation von Ebenen
4. Zusammenfassung von Ebenen in logischen Gruppen

Styling nicht vergessen!



# Styling

## Style Editor

Edit the current SLD style. The editor can provide syntax highlight and be brought to full screen. Click on the "validate" button to verify the style is a valid SLD document.

Name

edn\_roads

Copy from existing style

Choose One Copy ...

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <slid:UserStyle xmlns="http://www.opengis.net/sld" xmlns:sld="http://www.opengis.net/sld"
3 <slid:Name>AtlasStyler v1.6-r2011103180040</slid:Name>
4 <slid:Title/>
5 <slid:FeatureTypeStyle>
6 <slid:Name>UNIQUE_VALUE_LINE</slid:Name>
7 <slid:FeatureTypeName>roads</slid:FeatureTypeName>
8 <slid:Rule>
9 <slid:Title>main_road</slid:Title>
10 <ogc:Filter>
11 <ogc:And>
12 <ogc:Not>
13 <ogc:Or>
14 <ogc:PropertyIsNull>
15 <ogc:PropertyName>TYPE</ogc:PropertyName>
16 </ogc:PropertyIsNull>
17 <ogc:PropertyIsEqualTo>
18 <ogc:PropertyName>TYPE</ogc:PropertyName>
19 <ogc:Literal></ogc:Literal>
20 </ogc:PropertyIsEqualTo>
21 </ogc:Or>
22 </ogc:Not>
23 <ogc:PropertyIsEqualTo>
24 <ogc:PropertyName>TYPE</ogc:PropertyName>
25 <ogc:Literal>main_road</ogc:Literal>
26 </ogc:PropertyIsEqualTo>
```

## Styled Layer Descriptor

OGC-Standard für Beschreibung der Darstellung von Vektordaten

The screenshot displays a GIS interface with a map of West Africa. The 'Layers' panel on the left shows a list of layers, with 'roads' selected. A 'Symbol' dialog box is open, showing the 'main\_road' layer with a solid red line and a width of 0.5. A 'Color Picker' dialog box is also open, showing the color selection process for the red line.

## AtlasStyler SLD Editor

<http://www.geopublishing.org/>

uDIG

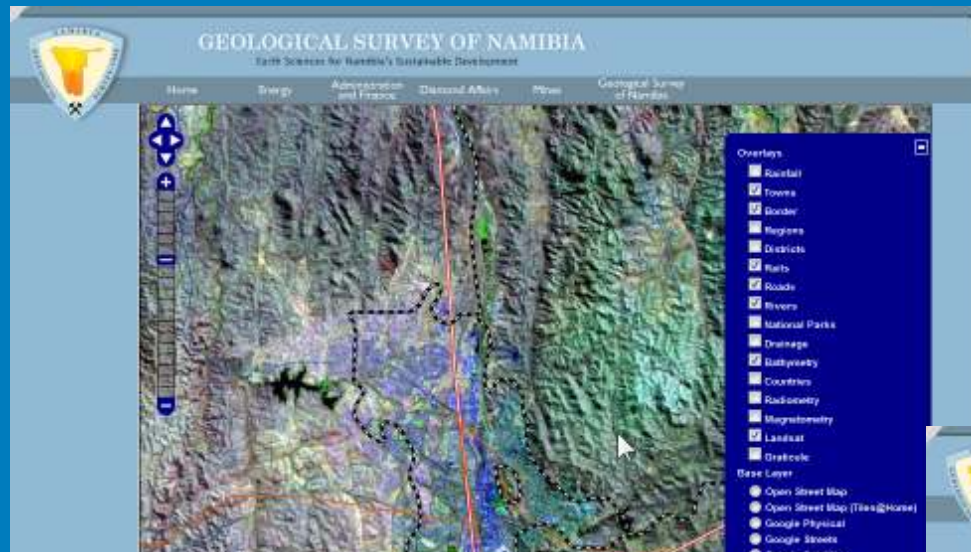
<http://udig.refractions.net/>



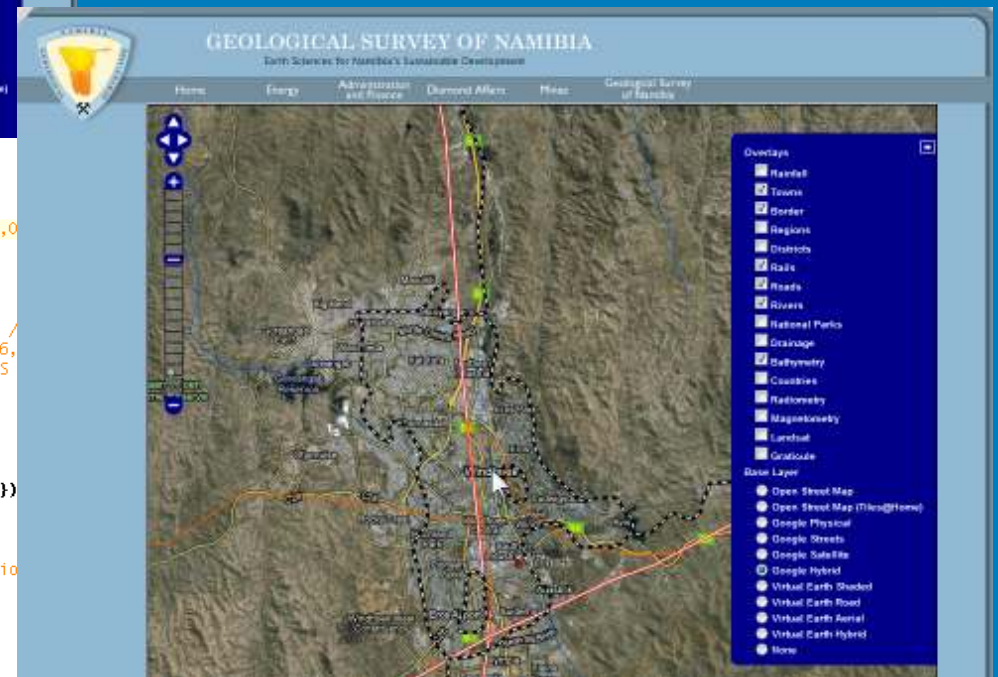


# Cliententwicklung

- HTML, CSS, JavaScript
- OpenLayers, proj4js
- Google Maps API, Virtual Earth API
- WMS-Dienst unseres Geoservers

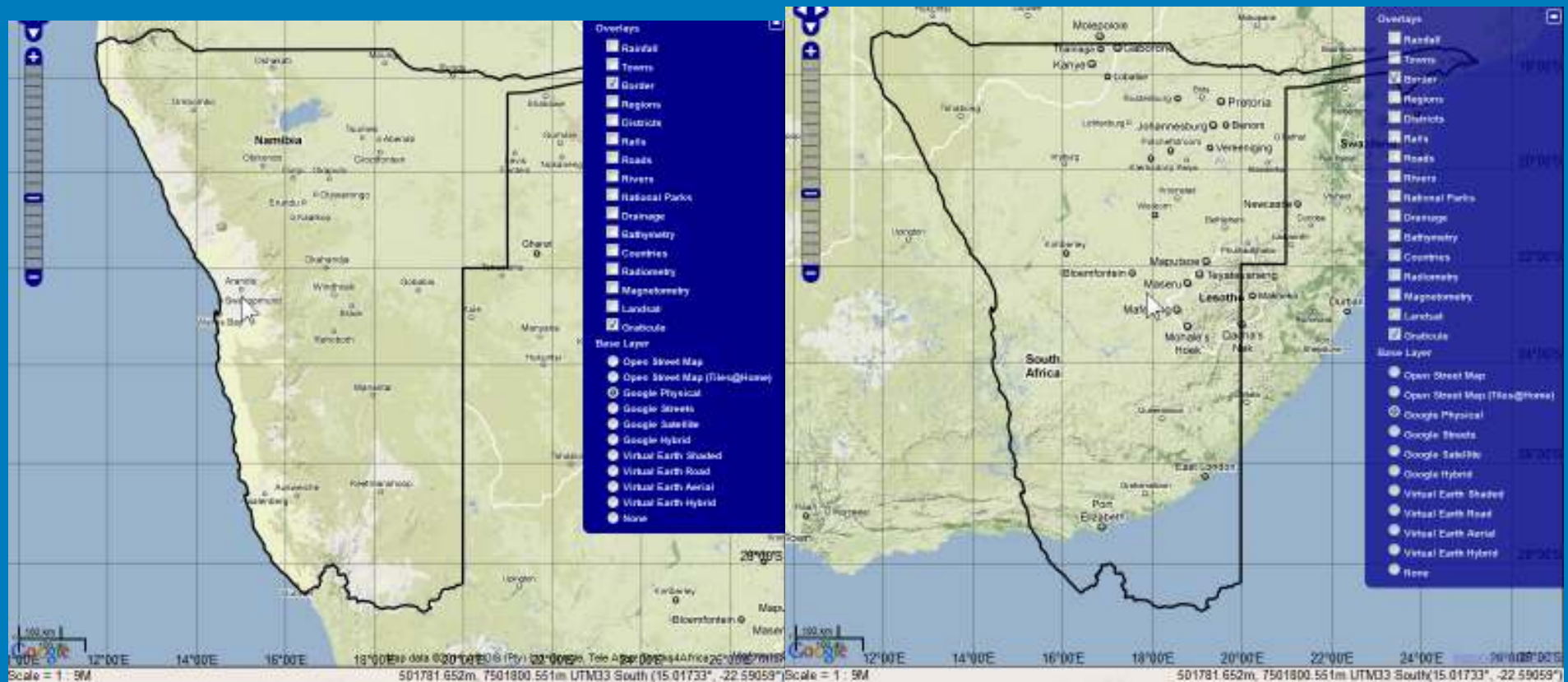


```
function init() {  
    OpenLayers.ProxyHost = "/cgi-bin/proxy.cgi?url=";  
  
    //Proj4js.defs["EPSG:32733"]="+proj=utm +zone=33 +south +ellps=WGS84 +datum=WGS84 +towgs84=0,0,0,  
  
    OpenLayers.IMAGE_RELOAD_ATTEMPTS = 5;  
    OpenLayers.DOTS_PER_INCH = 25.4 / 0.28;  
  
    //var maxExtent = new OpenLayers.Bounds(-20037508.34, -20037508.34, 20037508.34, 20037508.34); //  
    var maxExtent = new OpenLayers.Bounds(1224514, -3139440, 2894307, -1862699); // (11, -29.5 - 26,  
    //var maxExtent = new OpenLayers.Bounds(61095.9, 6765503.50, 1599711.00, 8252680.50); // UTM33S  
    var restrictedExtent = maxExtent.clone();  
    var minScale = 9000000;  
  
    var format = 'image/png';  
  
    var graticule = new OpenLayers.Control.Graticule({numPoints: 2, labelled: true, visible: false});  
  
    var options = {  
        projection: new OpenLayers.Projection("EPSG:900913"), // 900913 = Spherical Mercator Projection  
        displayProjection: new OpenLayers.Projection("EPSG:4326"), //4326  
        units: "m",  
        numZoomLevels: 19,  
        minScale: minScale,  
        maxExtent: maxExtent,  
    };  
}
```





# Namibia? Das war doch bei Lesotho, oder?



Firefox: Das Land, wo es sein sollte.

Internet Explorer 9: Knapp daneben ist auch vorbei.

Firefox und IE9 verwenden unterschiedliche Methoden, um Mauskoordinaten zu bestimmen.

➔ Bei Google Maps werden die falschen Kacheln angefordert

