DatumMate

Datum Transformation Software for Surveyors, Civil Engineers & Town Planners

technocad
Civil Engineering Software

Description

DatumMate provides an intuitive graphical approach to Datum transformations for South Africa. On the 1st January 1999, the South African co-ordinate system changed from being based on the modified Clarke 1880 ellipsoid to being based on the WGS84 ellipsoid. This means that all co-ordinate points in South Africa now have new values. DatumMate enables you to quickly and accurately convert existing AutoCAD drawings from the old Cape Datum to the new Hartebeesthoek94 Datum and vice-versa. Supports UTM and Lat/Long as well.

Background

Prior to 1st January 1999, the co-ordinate reference system for South Africa was the Cape Datum. This datum was based on the Clarke 1880 ellipsoid and had it's origin point at Buffelsfontein near Port Elizabeth. The Cape datum was based on the work of Sir Thomas Maclear and Sir David Gill between 1833 and 1907. The initial network was extended to cover the whole of South Africa, and now comprises approximately 29000 trigonometrical beacons and approximately 20000 town survey marks.

With the advent of modern positioning techniques such as the Global Positioning System (GPS), the flaws and distortions in the national control survey network have become apparent. In addition, most national geodetic networks do not have the centre of their reference ellipsoids co-incident with the centre of the Earth, thus making them useful only to their area of application. The upgrading, recomputation and repositioning of the South African co-ordinate system have been driven by advancement of modern positioning technologies.

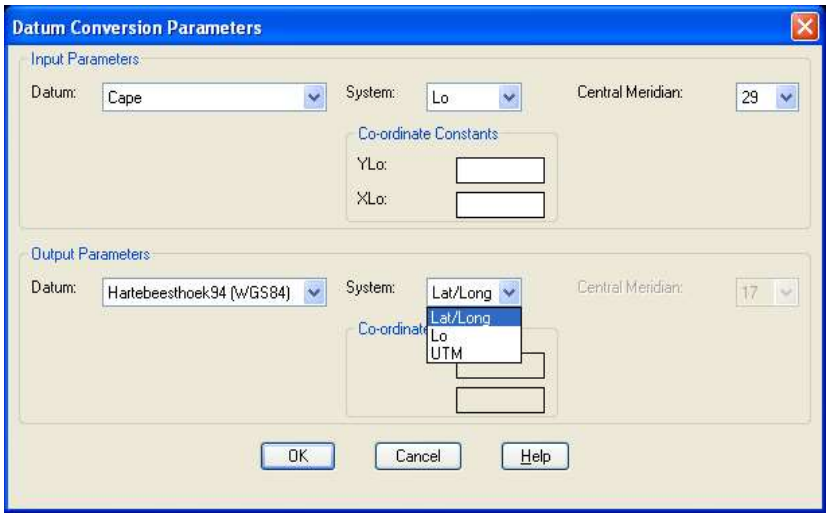
As from 1st January 1999, the South African co-ordinate system is based on the World Geodetic System 1984 ellipsoid (commonly known as WGS84), with the ITRF91 (epoch 1994.0) co-ordinates of the Hartebeesthoek Radio Astronomy Telescope used as the origin of the system. The new system is called the Hartebeesthoek94 Datum.

At the moment heights still remain referenced to the mean sea level, as determined in Cape Town and verified with tide gauges at Port Elizabeth, East London and Durban.

Work Smarter

Unlike some datum transformation software, DatumMate does not require any DXF files to operate; it works directly with your AutoCAD drawing, running inside AutoCAD. The result is much faster datum transformations without the hassle of exporting and importing DXF files. As DatumMate is working directly with your drawing database, transformation speeds are very high.

DatumMate even remembers features about your transformation and logs this data into the AutoCAD database, so that it remains with the drawing - no more not knowing if your drawing has already been transformed to the new South African Hartebeesthoek94 Datum!



Accuracy

DatumMate is very accurate in it's transformation because it uses the 29000 trigonometrical beacons and the 20000 town survey marks when transforming data points. By working with 1 kilometre grid squares accuracy is ensured even across boundaries.

Product Features

DatumMate enables you to import survey data from an ASCII data file and plot it directly in your drawing. The import of survey data handles the normal Cartesian survey system and the South African Lo survey system as well as Lat/Long in decimal degrees.

You have the ability to have your survey points plotted with a description and also the ability to apply a filter to your data to selectively plot data points. Once you have imported your data, you can prepare your data for possible processing with our digital terrain modelling software; a routine for automatically connecting 'like' data points for breaklines is even included!

DatumMate enables you to perform a single point transformation between the previous Cape Datum and the new Hartebeeshoek94 Datum (and vice-versa). In addition, you can perform the same Datum transformation on a whole drawing (no need for DXF files).

DatumMate also includes an advanced transformation calculator, whereby you can convert single point data from one survey system to another; for example, you can:

- Transform a Cape Datum, Lo system co-ordinate based on the Lo29 central meridian to the Hartebeesthoek94 Datum, giving the output in Latitude and Longitude.

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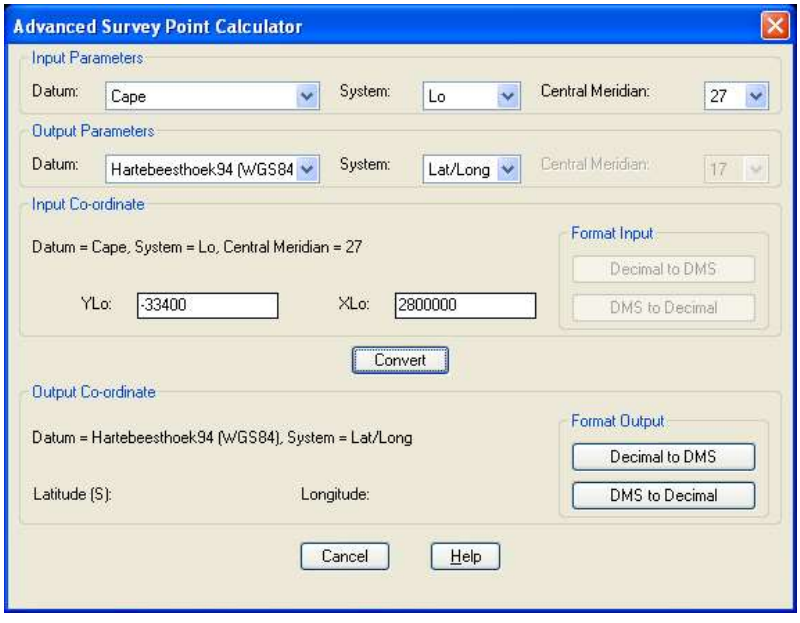
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- Transform a Cape Datum, Lo system co-ordinate based on the Lo29 central meridian to the Hartebeesthoek94 Datum, giving the output in UTM co-ordinates using the Lo27 meridian. Transform a Hartebeesthoek94 (WGS84) Datum, Lat./Long. co-ordinate to the Cape Datum, giving the output in Lo co-ordinates using the Lo19 meridian.

Once you have carried out your conversion on your drawing, you will want to draw an updated co-ordinate grid. DatumMate provides you with a facility to do just this with a grid generator that will draw a fully annotated survey grid in Lo format (or Cartesian); you even have a choice of grid style annotation!
DatumMate can carry out Datum transformations on the following AutoCAD objects:

- 3DFace
- Arc
- Circle
- Dimension
- Ellipse
- Hatch
- Images and Image clip boundaries



- Insert
- Leader
- Line
- LWPolyline (Lightweight polylines)
- Mline
- Mtext
- Point
- Polyline
- Ray
- Shape
- Solid
- Spline
- Text
- Tolerance
- Trace
- Xline

When transforming to or from Lat/Long coordinates such as for use with GPS's then the following objects are supported:

- 3DFace
- Arc
- Circle
- Line
- LWPolyline (Lightweight polylines)
- Mtext
- Point
- Polyline
- 3DPolyline
- Solid
- Text

When transforming AutoCAD hatching, the boundaries remain intact. When transforming clipped images, even the clip boundaries are transformed. DatumMate also includes drafting assistants, such as setting up your AutoCAD to correctly work in the South African Lo co-ordinate system.
DatumMate allows you to view any points' co-ordinate in both the Cartesian system and the Lo system.

On-line help

DatumMate has a full-featured Windows on-line help with indexing and search features. The on-line help contains full explanations of features together with lots of screen-shots, to help you every step of the way!

Technical Support

When a license of DatumMate is purchased, you have a full year of software maintenance and technical support for free! After one year, you can continue to receive the same benefits for a further year for a small fee.

Purchase Options

You can purchase a perpetual license with maintenance, or you can subscribe to the software. The choice is yours!

Hardware Requirements

As per Autodesk recommendation for AutoCAD.

Software Requirements

- AutoCAD Release 2027, 2026, 2025 & 2024 supported. Also Autodesk Map 2027, 2026, 2025 & 2024.
- Operating systems: Windows 10 64-bit and Windows 11 64-bit

Contact Details

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