GEOTRANS Coordinate File Format

Introduction for GoldData 6.3 users

The format of the GoldData test files is modeled after that of the file processing mode of GEOTRANS. If GEOTRANS has the functionality required to process a GoldData file, then the file adheres to GEOTRANS formatting. If GEOTRANS does not (but may in the future); then the GoldData file imitates the GEOTRANS format.

General Introduction

A GEOTRANS coordinate file consists of multiple sections. Each section consists of a file header that specifies the coordinate system type and datum of the input coordinates, along with any required parameter values, followed by a sequence of input coordinate lines, with one set of coordinate values per line, with the individual coordinate values separated by commas, each followed by at least one space.

Coordinate File Header

The header of a GEOTRANS coordinate file consists of two or more header lines, each containing a keyword or phrase which identifies the purpose of the line, followed by a colon ':', followed by a value. The list of supported keywords and phrases can be found in the GEOTRANS online help, under "File Processing".

The coordinate system type for the input coordinates in the file is specified using either of the keywords COORDINATES or PROJECTION. The datum for the input coordinates in the file is specified using the keyword DATUM. Additional header lines are used to specify any additional required parameter values. The order of the header lines is arbitrary, but parameters are interpreted with respect to the most recent previously specified coordinate system type. If the same parameter keyword or phrase appears more than once, the new value replaces the earlier specified value. The header is terminated by a line containing the phrase 'END OF HEADER'.

If any required characteristic or parameter value is not specified in the input coordinate file header, a default value is assigned. The default coordinate system type is Geodetic, and the default datum is WGE (WGS 84). For each coordinate system type, the default parameter values used are the same as the default values that are displayed in the parameter fields in the GEOTRANS main window when that coordinate system type is first selected.

Additional "headers" can be included within the body of a GEOTRANS coordinate file to change the coordinate system, datum, and/or parameter values. The start of each additional header is indicated by a line containing the keyword "HEADER". This is followed by a sequence of header lines terminated by a line containing the phrase 'END OF HEADER'.

Coordinate File Body

Following the header, the body of a GEOTRANS coordinate file consists of one or more coordinate lines, with each line containing a single set of coordinate values. A coordinate line consists of individual coordinate values separated by commas, each followed by at least one space. Additional spaces may be used for readability, such as to align columns of coordinate

values. Input coordinates can take on several different forms, depending on the nature of the coordinate system or map projection being used, including:

- Geodetic Coordinates: Latitude, Longitude, and optionally Height, in any of the format variations supported by the GEOTRANS GUI

- Geocentric and Local Cartesian Coordinates: X, Y, and Z, in meters

- Map projection coordinates: Easting and Northing, in meters

- British National Grid, GEOREF, GARS, MGRS, and USNG Coordinate Strings: alphanumeric strings that conform to the syntax of each of these systems

- UTM Coordinates: Zone (1 to 60), Hemisphere ('N' or 'S'), Easting, and Northing, in meters

- UPS Coordinates: Hemisphere ('N' or 'S'), X, and Y, in meters

Comments and Blank Lines

Comments can be included in a GEOTRANS coordinate file. Comments have no reliable internal structure; they are solely intended to convey additional information to human readers.

A comment line is indicated by a '#' as the first character. Comment lines that appear in a header are not echoed to the output file; as they are assumed to contain information that depends on the input coordinate reference system defined by that header. Comment lines that appear in the coordinate file body are echoed to the output file.

Trailing comments can be included in both the header and the body, with the exception of the COORDINATES line. A trailing comment is indicated by a '#' character within the line; all text on the line following the '#' character is considered to be a comment. Trailing comments are not echoed to the output file.

Blank lines can also be included in either the header or the body. Blank lines in the body are echoed to the output file, but blank lines in the header are not.

Examples

Note: The coordinates in the following examples represent the border of Mauritius, a small country to the east of Madagascar.

Example 1, Geodetic Coordinates

The following file contains geodetic coordinates, in decimal degrees, with ellipsoid heights.

```
COORDINATES: Geodetic
DATUM: WGE
# ELLIPSOID: WE
ELLIPSOID HEIGHT
# Latitude (deg), Longitude (deg), Ellipsoid Height (m)
END OF HEADER

# Mauritius
-20.000000, 57.542221, 0   #1
-20.000000, 57.548054, 0   #2
-20.000000, 57.569443, 0   #3
-20.000000, 57.653057, 0   #4
-20.293333, 57.781387, 0   #5
```

```
-20.528610, 57.515835, 0   #6
-20.466667, 57.295555, 0   #7
-20.000000, 57.542221, 0   #8
```

Example 2, Geodetic (Degrees, Minutes, Seconds)

The following file contains geodetic coordinates, in degrees, minutes, seconds, with ellipsoid heights.

```
COORDINATES: Geodetic
DATUM: WGE
# ELLIPSOID: WE
ELLIPSOID HEIGHT
# Latitude (dms), Longitude (dms), Ellipsoid Height (m)
END OF HEADER

# Mauritius
20 00 00.0S, 57/32/32.0E, 0   #1
20 00 00.0S, 57/32/53.0E, 0   #2
20 00 00.0S, 57/34/10.0E, 0   #3
20 00 00.0S, 57/39/11.0E, 0   #4
20 17 36.0S, 57/46/53.0E, 0   #5
20 31 43.0S, 57/30/57.0E, 0   #6
20 28 00.0S, 57/17/44.0E, 0   #7
20 00 00.0S, 57/32/32.0E, 0   #8
```

Example 3, MGRS Coordinates

The following file contains MGRS coordinate strings.

```
COORDINATES: Military Grid Reference System (MGRS)
DATUM: WGE
# ELLIPSOID: WE
# MGRS Coordinate String
END OF HEADER

# Mauritius
40KEC5672088427   #1
40KEC5733088425   #2
40KEC5956788417   #3
40KEC6831488386   #4
40KEC8158755865   #5
40KEC5377729936   #6
40KEC3082536848   #7
40KEC5672088427   #8
```

Example 4, UTM Coordinates

The following file contains UTM coordinates.

```
COORDINATES: Universal Transverse Mercator (UTM)
DATUM: WGE
# ELLIPSOID: WE
# Zone, Hemisphere, Easting (m), Northing (m)
END OF HEADER

# Mauritius
40, S, 556720, 7788427   #1
40, S, 557330, 7788425   #2
```

```
40, S, 559567, 7788417  #3
40, S, 568314, 7788386  #4
40, S, 581587, 7755865  #5
40, S, 553777, 7729936  #6
40, S, 530825, 7736848  #7
40, S, 556720, 7788427  #8
```

Example 5, Lambert Conformal Conic with 2 Standard Parallels

The following file contains LCC2 coordinates.

```
COORDINATES: Lambert Conformal Conic (2 parallel)
DATUM: WGE
# ELLIPSOID: WE
CENTRAL MERIDIAN: 57.53847 #deg
ORIGIN LATITUDE: -20.26430 #deg
STANDARD PARALLEL ONE: -20.52861 #deg
STANDARD PARALLEL TWO: -20.00000 #deg
FALSE EASTING: 0 #m
FALSE NORTHING: 0 #m
# Easting (m), Northing (m)
END OF HEADER

# Mauritius
   392,  29260  #1
  1003,  29260  #2
  3241,  29260  #3
 11991,  29256  #4
 25373,  -3232  #5
 -2361, -29261  #6
-25345, -22422  #7
   392,  29260  #8
```

Example 6, Mercator

The following file contains Mercator coordinates.

```
COORDINATES: Mercator
DATUM: WGE
# ELLIPSOID: WE
CENTRAL MERIDIAN: 57.53847 #deg
LATITUDE OF TRUE SCALE: -20.26430 #deg
SCALE FACTOR: 0.93848
FALSE EASTING: 0 #m
FALSE NORTHING: 0 #m
# Easting (m), Northing (m)
END OF HEADER

# Mauritius
   392, -2119489  #1
  1001, -2119489  #2
  3236, -2119489  #3
 11971, -2119489  #4
 25378, -2151939  #5
 -2365, -2178011  #6
-25378, -2171143  #7
   392, -2119489  #8
```