Instructions
Version 6.3
February, 2011

How to unZIP this

Select Actions > Extract. Choose a suitable directory (or root directory) in the "Extract to" field. Check the box "Use folder names". Extract. Directory "GoldData_v6.3" and various subdirectories will be created.

How to Open the .CSV Files

The extension ".csv" stands for "comma separated values". The test data is stored in files with this extension in the lowest directories of GoldData_v6.3. These files are formatted to open in GeoTrans, in Excel and in any text editor or word processor.

- Text editors. The .csv files are ASCII files without the tab character and should open immediately in Notepad (Windows), Wordpad (Windows), and Microsoft Word. The data is neatly arranged in columns aligned by the decimal point. This is the simplest and most direct way to view the file contents.

- Excel. To open a .csv file in Microsoft Excel, perform the familiar sequence: File > Open > (browse to file name). Since CSV is an extension and format known to Excel, the shorter way is to point and double-click on the filename. (This depends on some commonplace system settings). In Excel, highlight the numerical data and perform: Format > Cells > Number > (decimal places = 6) > OK. Adjust column widths to suit.

- GeoTrans. To open a .csv file in GeoTrans, perform File > Open > (Files of type = All files) > (browse to filename). It should not be necessary to make any change to the file before using GeoTrans to convert the file to another coordinate system. The file header provides the information required by GeoTrans to read and process the file.

Themes

With Release 6, there are three themes: (i) map projections, (ii) global 3D coordinate systems, and (iii) local 3-parameter datum transformations. Each theme is a first-level subdirectory and within it, the tests are designed appropriately. See the index file provided for each theme.

References

GeoTrans is the reference for the map projection tests, and the local three parameter datum transformation tests. It is not the only software for whose validation these tests are intended, but it is the reference. The meaning of the various parameters found in the headers, like "Latitude Origin" and "Scale Factor" is that specified by GeoTrans.

For the global 3D coordinate systems theme, GeoTrans is likewise a reference for the geodetic coordinate system and the rectangular coordinate system ("Geocentric" in MSP GEOTRANS 3.0).

For the two other coordinate systems in this theme, the definitions are found elsewhere as follows: Spherical coordinates are defined by The Spatial Reference Model (ISO/IEC 18026) in "Table 5.10 -- Spherical CS" and by many texts in science and engineering. Ellipsoidal coordinates are defined by Heiskanen & Mortiz, Physical Geodesy, Freeman & Co, 1967, Section 1-19, with choice of "beta" (reduced *latitude*) over "theta" (reduced *co-latitude*).

How to run and compare results

Within any lowest subdirectory like /map_proj/WGS84, any two CSV files represent the same points on the Earth (or specified ellipsoid), given in two different coordinate systems. The coordinate system of each is specified in the header.

To test your software against a pair of CSV files, direct it to read the numbers from one file, and provide it the equivalent of the header information from both files. Compare results with the numbers from the other file.

Lat_Lon.csv is the same information as Lon_Lat.csv and, except for the headers, is the same in each of the map_proj subdirectories.

What to do when your software fails a test

Developers interested in meeting the standard set by GeoTrans may benefit from these comments:

- GeoTrans may also have failed the test. If your software fails, or partially fails, and GeoTrans also fails in the same way, there is no criticism that your software is below the standard set by GeoTrans.

- Download the latest version of GeoTrans from the NGA web-site at http://earth-info.nga.mil/GandG/, and make comparison runs with GeoTrans.

- Read the release notes. Some mention is made of tests that were outside the version of GeoTrans available at time of release. A thorough report on GeoTrans performance is outside the scope of these instructions.

Why the data is "Gold"

The Gold Data provided herein is intended to lead, not follow, current practices, and to keep up with developments outside of NGA. It is based on the accepted definitions by academia and industry of the coordinate systems considered.

List of Files

A list of all the files is given in suggested logical order, with help files highlighted in red and ***. (Produced by the DOS command "Dir */S/B/A-D" and sorted manually with Notepad.)

GoldData_v6.3\Instructions.doc ***
GoldData_v6.3\Release_Notes.doc ***
GoldData_v6.3\GeoTrans_File_Format_Summary.doc ***
GoldData_v6.3\map_proj\map_proj_index.xls ***
GoldData_v6.3\map_proj\Show_Lon_Lat_points.pdf ***
GoldData_v6.3\global_3D\global_3D_index.xls ***
GoldData_v6.3\NGA_3parDT\NGA_3parDT_index.xls ***
GoldData_v6.3\global_3D\SRMmax\ellipsoidal_110.csv
GoldData_v6.3\global_3D\SRMmax\geodetic_106.csv
GoldData_v6.3\global_3D\SRMmax\geodetic_Lat_first_107.csv
GoldData_v6.3\global_3D\SRMmax\rectangular_108.csv
GoldData_v6.3\global_3D\SRMmax\spherical_109.csv
GoldData_v6.3\global_3D\WGS84\ellipsoidal_105.csv
GoldData_v6.3\global_3D\WGS84\geodetic_101.csv
GoldData_v6.3\global_3D\WGS84\geodetic_Lat_first_102.csv
GoldData_v6.3\global_3D\WGS84\rectangular_103.csv
GoldData_v6.3\global_3D\WGS84\spherical_104.csv
GoldData_v6.3\map_proj\Sphere\Lat_Lon.csv
GoldData_v6.3\map_proj\Sphere\LCC_60.csv
GoldData_v6.3\map_proj\Sphere\LCC_60a.csv
GoldData_v6.3\map_proj\Sphere\LCC_61.csv
GoldData_v6.3\map_proj\Sphere\LCC_62.csv
GoldData_v6.3\map_proj\Sphere\LCC_62a.csv
GoldData_v6.3\map_proj\Sphere\LCC_63.csv
GoldData_v6.3\map_proj\Sphere\LCC_64.csv
GoldData_v6.3\map_proj\Sphere\LCC_65.csv
GoldData_v6.3\map_proj\Sphere\LCC_66.csv
GoldData_v6.3\map_proj\Sphere\LCC_67.csv
GoldData_v6.3\map_proj\Sphere\LCC_68.csv
GoldData_v6.3\map_proj\Sphere\LCC_69.csv
GoldData_v6.3\map_proj\Sphere\Lon_Lat.csv
GoldData_v6.3\map_proj\Sphere\Mercator_51.csv
GoldData_v6.3\map_proj\Sphere\Mercator_51a.csv
GoldData_v6.3\map_proj\Sphere\Mercator_52.csv
GoldData_v6.3\map_proj\Sphere\Mercator_53.csv
GoldData_v6.3\map_proj\Sphere\Mercator_54.csv
GoldData_v6.3\map_proj\Sphere\Mercator_54a.csv
GoldData_v6.3\map_proj\Sphere\Mercator_54b.csv
GoldData_v6.3\map_proj\Sphere\Ney_70.csv
GoldData_v6.3\map_proj\Sphere\Ney_71.csv
GoldData_v6.3\map_proj\Sphere\PolarStereo_55.csv
GoldData_v6.3\map_proj\Sphere\PolarStereo_55a.csv
GoldData_v6.3\map_proj\Sphere\PolarStereo_55b.csv
GoldData_v6.3\map_proj\Sphere\PolarStereo_56.csv
GoldData_v6.3\map_proj\Sphere\PolarStereo_57.csv
GoldData_v6.3\map_proj\Sphere\PolarStereo_57a.csv
GoldData_v6.3\map_proj\Sphere\PolarStereo_57b.csv
GoldData_v6.3\map_proj\Sphere\PolarStereo_58.csv
GoldData_v6.3\map_proj\Sphere\PolarStereo_58a.csv
GoldData_v6.3\map_proj\Sphere\PolarStereo_59.csv
GoldData_v6.3\map_proj\Sphere\PolarStereo_59a.csv

GoldData_v6.3\map_proj\Sphere\TransMerc_72.csv
GoldData_v6.3\map_proj\Sphere\TransMerc_72a.csv
GoldData_v6.3\map_proj\Sphere\TransMerc_73.csv
GoldData_v6.3\map_proj\Sphere\TransMerc_76a.csv
GoldData_v6.3\map_proj\Sphere\TransMerc_76b.csv
GoldData_v6.3\map_proj\Sphere\TransMerc_76c.csv
GoldData_v6.3\map_proj\Sphere\TransMerc_76d.csv
GoldData_v6.3\map_proj\Sphere\TransMerc_76e.csv
GoldData_v6.3\map_proj\Sphere\TransMerc_76f.csv
GoldData_v6.3\map_proj\Sphere\TransMerc_76g.csv
GoldData_v6.3\map_proj\SRMmax\Lat_Lon.csv
GoldData_v6.3\map_proj\SRMmax\LCC_37.csv
GoldData_v6.3\map_proj\SRMmax\LCC_37a.csv
GoldData_v6.3\map_proj\SRMmax\LCC_38.csv
GoldData_v6.3\map_proj\SRMmax\LCC_39.csv
GoldData_v6.3\map_proj\SRMmax\LCC_39a.csv
GoldData_v6.3\map_proj\SRMmax\LCC_40.csv
GoldData_v6.3\map_proj\SRMmax\LCC_41.csv
GoldData_v6.3\map_proj\SRMmax\LCC_42.csv
GoldData_v6.3\map_proj\SRMmax\LCC_43.csv
GoldData_v6.3\map_proj\SRMmax\LCC_44.csv
GoldData_v6.3\map_proj\SRMmax\LCC_45.csv
GoldData_v6.3\map_proj\SRMmax\LCC_46.csv
GoldData_v6.3\map_proj\SRMmax\Lon_Lat.csv
GoldData_v6.3\map_proj\SRMmax\Mercator_28.csv
GoldData_v6.3\map_proj\SRMmax\Mercator_28a.csv
GoldData_v6.3\map_proj\SRMmax\Mercator_29.csv
GoldData_v6.3\map_proj\SRMmax\Mercator_30.csv
GoldData_v6.3\map_proj\SRMmax\Mercator_31.csv
GoldData_v6.3\map_proj\SRMmax\Mercator_31a.csv
GoldData_v6.3\map_proj\SRMmax\Mercator_31b.csv
GoldData_v6.3\map_proj\SRMmax\Ney_47.csv
GoldData_v6.3\map_proj\SRMmax\Ney_48.csv
GoldData_v6.3\map_proj\SRMmax\PolarStereo_32.csv
GoldData_v6.3\map_proj\SRMmax\PolarStereo_32a.csv
GoldData_v6.3\map_proj\SRMmax\PolarStereo_32b.csv
GoldData_v6.3\map_proj\SRMmax\PolarStereo_33.csv
GoldData_v6.3\map_proj\SRMmax\PolarStereo_34.csv
GoldData_v6.3\map_proj\SRMmax\PolarStereo_34a.csv
GoldData_v6.3\map_proj\SRMmax\PolarStereo_34b.csv
GoldData_v6.3\map_proj\SRMmax\PolarStereo_35.csv
GoldData_v6.3\map_proj\SRMmax\PolarStereo_35a.csv
GoldData_v6.3\map_proj\SRMmax\PolarStereo_36.csv
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GoldData_v6.3\map_proj\SRMmax\TransMerc_75b.csv
GoldData_v6.3\map_proj\SRMmax\TransMerc_75c.csv
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GoldData_v6.3\map_proj\WGS84\LCC_14a.csv

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GoldData_v6.3\NGA_3parDT\Set_A\WGS84_geodetic_202_format6p1.csv
GoldData_v6.3\NGA_3parDT\Set_B\Local_geodetic_203.csv
GoldData_v6.3\NGA_3parDT\Set_B\Local_geodetic_203_format6p1.csv
GoldData_v6.3\NGA_3parDT\Set_B\WGS84_geodetic_204.csv
GoldData_v6.3\NGA_3parDT\Set_B\WGS84_geodetic_204_format6p1.csv