PaleoTax/Map

Programme Release 2.2.2 (1 May 2022)

Content

1 Introduction

PaleoTax/Map is rather a simple map programme than a GIS, since data recording and manipulation is quite rudimentary. The programme is a tool for the Hdb2Win database system and helps to visualise distribution data provided by the database applications (such as PaleoTax, PalCol or Oliva). The programme is based on CPMap 1.x, the historic precursor running under the operating system MS/DOS. The Windows version is a little bit more rapid and more flexible, and offers a wider range of data. Scanned bitmaps (this would be in most cases topographic or geologic maps, or aerial photographs) can be integrated and put as a background (transparent or not). Data can be manually recorded, saved as text files and recalled. Once recorded data can be modified using the programme.

There exist two versions: the built-in (a reduced version) which runs within Hdb2Win and the stand-alone version. The stand-alone version of PaleoTax/Map has no database interface. The built-in function is presently used by the PaleoTax taxonomic database and the Oliva extant sample database. The built-in is part of Hdb2Win from version 2.2 on. Both versions will be installed together with Hdb2Win. Even if you want to use PaleoTax/Map only within the database, you need to install the full version. This text is a very brief introduction to the programme; just start it to find out more about its abilities.

2 Differences to former versions

Version 2.1 differs by the following points from version 2.0,

- Topographical data can be displayed in both modes: with the Greenwich Meridian or Australia in the centre of the map. This new function required the change of the data format of the topographic data. So you cannot use the topographic data of version 2.0 with version 2.1.
- The layer order can be modified by the user.
- Editing of manually recorded data became easier.

Version 2.2 differs by the following points from version 2.1,

- There are more paper formats available and the maximum size of the form was increased.
- There are some more hotkeys: programme termination with ALT-X, reset with Ctrl-R, global view with Ctrl-W.
- The programme can process script files.

Version 2.2.1 differs by the following points from version 2.2,

- Files can be also exported as JPG.

Version 2.2.2 differs by the following points from version 2.2.1,

- Scripts extended by one command.
- Loaded data can be unload without a reset.
- The font size was increased in some forms.
- PaleoTax/Map runs in this version also in the Spanish language.

3 Installation

PaleoTax/Map will be installed together with Hdb2Win (when this option was selected). PaleoTax/Map is released as freeware. You may use the software without paying any fee. The use is on your own risk; the author will not be responsible for the loss of data, damage of your hardware etc. This is except for the full (= detailed) vector data set which demands the payment of a registration fee since these data are provided by a partner company. Of course you may use the programme without the full vector set. The full vector set is provided on request that costs about 20 USD.

On screens with a comparably high resolution, the programme may finish with error 3. This is because the operating system "pretends" a small screen. You may fix this with a right-click on the programme; selecting Properties > Compatibility > Change high DPI settings. Mark the box labelled "Disable Display Scaling on High DPI Settings". This should also fix the problem that the map area is much smaller than the screen and left a white right and bottom margin.

4 Function

4.1 Data types

PaleoTax/Map displays the following basic data types

- Lines
- Points with or without label
- Text labels
- Polygons (areas which are filled with a specified colour)
- Bitmaps

Vector data provided with PaleoTax/Map are only lines and points, no polygons (except for topographic data which are quadratic areas). The data provided with PaleoTax/Map cover a wide range of data types, such as various geographic and urban data. They are subdivided in continent data, geology, ocean features, political

borders, railroads, rivers, roads, towns, map data and user data. Each group has various data types. Each data type has a current number. The numbers 151 to 180, and 235 to 512 are free and can be used to create own data types. The numbers 151 to 154 are already designated "user types" which are used by the system for points, lines, polygons and text labels created by the user during run time. You should not delete this items or change its type.

All data types are described in the configuration file (PTXMAP.MPT). When it gets lost, no data can be displayed since the system takes all information from this file. You would have to reinstall this file from the CD/DVD or the Internet version. Since changes of colour, line thickness etc. are stored in this file, regular backups of the file PTXMAP.MPT are highly recommended.

Each line in the file PTXMAP.MPT corresponds to one data type:

```
46;1Kontinent;Ice/land line#Eis/Land-Linie;Line;1;8E9469;0;5000;
0;Arial;5;0;Wingdings;12;0;AA0000;50;0;5000;0;
```

The information on the data type are separated by semicolons. See the below table for explanation.

Current number	Example from above	Explanation
1	`46`	Current Number
2	`1Kontinent`	Data class (urban data, continent data etc)
3	`Ice/land line#Eis/Land-Linie`	Name of the type in English and German
4	`Line`	Data type (line, point, polygon or label)
5	`1`	Show, 1 for yes, 0 for no
6	`8E9469`	Object colour (coded as BBGGRR)
7	`0`	Attribute (line type, text attribute)
8	`5000`	Show from scale (1:x)
9	`0`	Show to scale (1:x)
10	`Arial`	Text font if label or symbol with label
11	`5`	Standard size (line thickness, font size)
12	`0`	Symbol number if a symbol
13	`Wingdings`	Symbol font of symbol
14	`12`	Symbol size in points if symbol
15	`0`	Symbol style if symbol
16	`AA0000`	Symbol colour if symbol (coded as BBGGRR)
17	`50`	Real size of the object in meters
18	`0`	Show label if any (1= yes, 0=no)
19	`5000`	Show label from scale (1:x) if any
20	`0`	Show label to scale (1:x) if any

If you need to add a new data type, edit the file with a simple editor (as NOTEPAD.EXE), copy one line and change only the first number (assign a new, yet unused number) and the name. Start PaleoTax/Map again and adapt the new data type to your needs (Edit / Map data). This files is kept in c:\Users\<username>\

AppData\Roaming\Hdb2Win\ (Windows from version 7 on) or C:\Documents and settings\<username>\ AppData\ Hdb2Win\ (Windows XP). In newer versions of the operation system, this directory is hidden and the user has no access to the files. Start Hdb2Win and go to Application Library > Options > Tools > User application directory. Click on 'Files' to see the content of the directory and select the file you want to modify.

4.2 Layer concept

PaleoTax/Map displays various layers. A layer more close to the top cover a layer closer to the bottom. From bottom to top there are the following layers:

- background colour (when topographic data are displayed, sea level colour),
- topographic data (quadratic polygons),
- bitmaps (generally background maps), when overlapping: first loaded means first displayed,
- user's vector data - polygons,
- vector data - lines,
- vector data - points and labels,
- user's vector data - points, lines and labels,
- grid and grid labels,
- legends.

Vector data (except for polygons) do not cover the underlying layer completely. For bitmaps a transparent colour can be defined (usually white), which allows to display the bitmap transparent. The layer order is not fixed and layers can be excluded. See options below for details.

4.3 Projection

PaleoTax/Map only provides a simple cylinder projection which means that the map is most correct close to the equator, and most incorrect at the poles, when the whole world is considered. In the small scale incorrectness of projection can be neglected. Maximum display frame is therefore between 80° north and south.

5 The Screen

5.1 The Symbol Bar

Plus - Enlarges the region in the centre and reduces the size of the area by a value which can be set in the options. You are getting closer to the area of your interest.
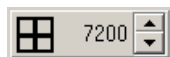
Minus - Reduces the details and enlarges the area by a value which can be set in the options. You are getting farther away from the area of your interest.
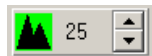
World - Displays the whole world.

Magnifying glass - Reduces or increases the number of visible objects.

Frame - Reduces or increases the number of grid lines.

Hill - Switches the topographic data on or off. Increase or reduce the quality of data. Low quality leads to a coarse raster, but rapid display; high quality gives finer raster, but takes more time and needs much more main memory (a value above 75 demands at least 512 MB of free main memory). See also Options / Display / Maximum cell number.

Pin - Click to record data. When clicking into the map, a windows will open to allow data type setting. Click again on the pin to close a line or vector, or to finish data recording. Manually recorded data are not saved automatically; you have to save them by File/Write/ Vectors. The property function is presently only rudimentary; only fill colour and line colour are recorded.

⊕ Cross - Click to edit manually recorded or imported (*.PTM) data. To move the points, click and hold mouse button down, and release it at the new position. Do not forget to save modified data.

5.2 The Menu

5.2.1 File

Open / PaleoTax/Map, NIMA - Open files created by PaleoTax/Map (*.PTM) or NIMA data (*.TXT). NIMA data cannot be opened as they are downloaded from the NIMA page; they must be converted in text files with a CRLF (#13#10) line end. Just open the text file with the notepad and save it as a different file. Take care: NIMA data are not free of errors. At the present time these errors are ignored and reported when warning errors are enabled (see Options / System).

Open / Background Map - Background maps are bitmap files. The formats BMP and JPG are supported, but it is highly recommend to use BMP since this format is much faster processed by Windows. Before using this function you have to register the map (see Edit / Register Bitmap).

Write / WMF - saves the current map as a WMF file.

Write / BMP - saves the current map as a BMP file (screen size).

Write / JPG - saves the current map as a JPG file (screen size).

Write / Vectors - only if PTM files were loaded or data manually recorded, this option is available. The output format is ASCII. Select which data (either modified data or manually recorded, or all) should be saved and enter a file name.

Reset - Resets the map. Manually loaded or recorded data are discarded without reminding you.

Script - Starts a script file (see below for commands).

Unload (^U) - Unloads PTM or TXT data.

Exit - Terminates the programme.

5.2.2 Edit

Refresh - Refreshes the display.

Set Map Frame - Let you manually select the current frame of the map.

Map Data - Lets you modify the characteristics of the data types. You may change everything except the ID number and the data type. It is not recommendable to modify the colour. Different colours allow to identify the data types (when moving the mouse over a line the data type is displayed in the bottom status line below).

Register Bitmap - Opens a dialog window. Enter first the limiting co-ordinates of the map you have scanned before and which you want to register. Enter then a clear name (sheet name, place, working area) and select the bitmap file (click on "Choose file"). Click on OK. A small text file will be created (extension BGM). Now you may load this file via File/Open. It is recommend to put only small areas into the background, in the range of a few minutes. Otherwise a corresponding file could be too large and slow down the work with PaleoTax/Map, and, moreover, the precision gets lost.

5.2.3 View

World - Shows the whole world.

Reduce - Reduce the details and enlarges the area by a value which can be set in the options. You are getting farther from the area of your interest.

Enlarge - Enlarge the region in the centre and reduce the size of the area by a value which can be set in the options. You are getting closer to the area of your interest.

Autorun - Starts a demonstration of the programme selecting accidentally areas, moving closer and closer, and returning to the whole world.

5.2.4 Options

Please be aware that some options demand a restart of PaleoTax/Map before they will become active.

5.2.4.1 Data

Data path - Select the path(s) where your data are stored. External drives are possible but may slow down the work with PaleoTax/Map.

Object file - The object file encompasses the definitions for the map data types. For different purposes different object files can be selected.

Import folder - Standard folder for files to be imported (NIMA, PTM).

Language - Language of menus and messages.

User data - Amount of data records (multiplied with 1024) which can be loaded by the user.

Palette topo data - For the topographic data various palettes are available.

Always-load file list - Select or remove files which are always loaded when PaleoTax/Map is started.

5.2.4.2 Display

Enlarge (+) by - Value (percentage) of enlargement of the map, when clicking on the '+' symbol (or pressing '+' on the keyboard).

Reduce (-) by - Value (percentage) of reduction of the map, when clicking on the '-' symbol (or pressing '-' on the keyboard).

Partition longitude / latitude - Average number of displayed grid lines.

Distance grid labels - Distance of the grid labels from the grid lines in 0.1mm.

Minimum zoom size - If the selected new frame (by click-and-draw) is smaller than the indicated value, the selection is ignored.

Snap to grid - The selection of a new frame (by click-and-draw) is always adapted to the current grid.

If aspect relation is bad - If the relation between height and width of the selected new frame does not correspond to the relation of the screen (or output format), the frame can be enlarged, reduced or kept as it is.

But only if the frame is smaller than - The latter can be restricted only to small frames (this function had an error in version 2.0 which is removed now).

Display topographic data - quality - Select whether topographic data should be displayed and select the quality. The quality defines the switch from a coarse set to a fine set. A high value switches earlier, a low switch later. A high value demands more system capacity (processor speed, main memory). A high value on a low equipped computer may destabilise the operating system and cause problems. Start with a low value and increase slowly.

Maximum cell number (topography) - This value may protect your system from memory insufficiency. When a great area is selected and a high resolution of topography has been chosen, PaleoTax/Map has to process an extremely high amount of data. This may slow down the work with the programme, or even provoke memory insufficiency which leads to system instability. For any area in any quality, PaleoTax/Map has to process a certain number of cells (which can be low as a few thousands, or high as half a million). This number can be limited: when a certain maximum cell number is reached, PaleoTax/Map stops the calculation and displays only a part of the topographic data (this would be a signal for you to reduce the quality of the topographic data). The maximum cell number (in thousands) reflects the capacity of your machine and the memory you may offer to PaleoTax/Map. The default value of 500,000 (500 K) is appropriate for a machine with at least a

2 GHz Processor and 512 MB RAM. So, if a topographic map is not completely displayed, you need to reduce the quality of data or increment the value of the maximum cell number.

Show topography raster data only down to 2' (no 30") - Set this option when the finest topographic data set (currently 30") should not be displayed (but the 2' data set). When not tagged, the finest data set will be. To tag this option, may speed up the work.

Show background maps - If tagged, background maps are displayed.

Display background bitmaps transparent - When tagged, background maps are displayed transparent e.g. the colour defined below as transparent is omitted and allows to see the elevation colour.

Adapt line thickness to real object size - Real objects (roads, rivers, railway) have a real size of various meters. The real size of objects is - even tentatively - stored in the data configuration data set ("Real size of the object in meters", which can be modified by the user). When this option is tagged, and the map zooms very close, the objects are enlarged and scaled to their previously defined size.

Scale map area (%) - Related to UHD displays is the problem that the map area does not fill the screen. Here the size of the map area can be stepwise increased.

Show vector data set 4 - The display of the finest vector data set can be suppressed, which may speed up to work, but result in a coarser map.

Greenwich meridian in centre - In the standard version, the Greenwich meridian is in the centre of the screen (the European view). When switched off, the Greenwich meridian will be shifted to the margin and the 180° meridian moved into the centre.

Background colour - Select the colour for the background.

Sea level colour - Select the colour for the sea level (for the topographic data).

Transparent colour - Select the colour which is considered as transparent in bitmaps (usually white).

Change layer order - Opens a windows where you may change the layer order and also remove layers. Draw first means, that this layer is perhaps covered by other layers which are drawn afterwards. If you move for instance the (8) Scale (which is now at the end of the list which means it will be drawn at last) at the top of the list, it will be drawn first and than covered by the topographic data or the seawater colour, which is perhaps not a good idea.

5.2.4.3 Export

Paper size - Allows to select the paper size for the output.

Avoid RectFill in export - If tagged, some export specifications are changed to make the import in various programmes easier.

Ask for names when recording data manually (points, vectors, polygons) - When tagged, you will be asked for names of manual recorded data points (except when beginning to capture data since the programme cannot know whether you will record points or vectors).

Adapt display to output paper format - Adapts the display to the selected output format (size of letters, thickness of lines etc.). If marked, this guarantees also that fonts are properly displayed and not compressed or enlarged in one direction.

5.2.4.4 System

Display warning errors (errors which can be ignored) - If tagged, also warning error are displayed (e.g. when imported NIMA data have errors).

Registered for - Enter your name and registration key to register your programme.

5.3 The Map Area

- Left Click - Left click has only effect when data are recorded or modified.
- Left Draw - Click and hold mouse down. Draw to open a frame. Release to fix the new frame to be displayed.
- Right Click - Opens the 'Edit / Map Data' box and displays the current data type (indicated in the fourth field of the status bar).

5.4 Keyboard functions

F2 shows the legend of distance and topographic data.

Spacebar refreshes the display.

5.5 The Status Bar

The status bar has five fields.

(1) Current (mouse cursor) position in latitude/longitude

(2) Current scale

(3) Elevation (when elevation data are available)

(4) Data type

(5) Messages or comments

6 Script files

The script files are in the ASCII format and have reduced set of commands.

```
Clean
```

Removes externally loaded data (PTM files).

```
Frame    <G,M,S,D,G,M,S,D,G,M,S,D,G,M,S,D>
```

Sets the map frame. The coordinates gives the upper, lower, left and right limit.

```
Raster   <value>
```

Sets the raster size in seconds.

```
Read     <file name>
```

Reads a PTM file.

```
Refresh
```

Draws the map.

```
Reset
```

Resets the map.

```
Write    <file name>
```

Writes a WMF, BMP or JPG file.

The function of the script files was introduced to improve communication between the database and the PaleoTax/Map programme. For instance the application *Oliva* can automatically create distribution maps for recorded species. See above a typical script file:

```
frame    32,0,0,N,22,0,0,N,117,0,0,W,109,0,0,W
clean
read     E:\NMarine\DB\plots\S62.PTM
refresh
```

```
write    E:\NMarine\DB\plots\S62.WMF
clean
read     E:\NMarine\DB\plots\S77.PTM
refresh
write    E:\NMarine\DB\plots\S77.WMF
clean
read     E:\NMarine\DB\plots\S101.PTM
```

7 Data

There are various data level of PaleoTax/Map available.

1. Standard version - The standard (= coarse) data set of vector data and the topographic data in a 1° raster are provided. Demands 3 MB free disk space.

2. Full vector set and 5' topographic data set. Demands 275 MB free disk space.

3. Full vector set and 30" topographic data set. Demands 2 GB free disk space.

The GTOPO30 data set provides for each 30" an average topographic value. These topographic data can be downloaded from the Internet. The data need adaptation to PaleoTax/Map; the programme cannot work with the DEM files. You have to download **all** files, unpack them, and copy the DEM files in a temporary folder. Copy ConvGT30.EXE provided with the full version of PaleoTax/Map in this folder and start the programme. In a first step, check the 'Convert all files' box and click on the **Start** button. In this step, data are converted in the PaleoTax/ Map 2.0 version format (this procedure may take some minutes). In the second step, click on the **V.2.0 -> V.2.1** button to get the 2.0 data converted into the 2.1 data. This is only possible if the data set is complete, since the 50*60° and 30*60° tiles of the original 33 GTOPO30 tiles are converted into 36 tiles of the same size of 30*60° (which makes it easier to display the topographic data in the Greenwich and Australian perspective). Please note, that free hard-disk space of about 7GB is needed if the finest data set should be converted.

8 Imprint

PaleoTax/Map © H. Löser 1995-2022

Updated	1 May 2022
Internet	https://www.paleotax.de
E-Mail	info@paleotax.de
Document	\T\DOK\MAP\P-MAP-222.DOC

Windows is a registered trademarks.