QuickTrace 1.2.0

Manual

R. Petschick, April 20, 2000

What is QuickTrace?

QuickTrace is a tool used for determining and digitizing original data from cartesian, ternary or polar plots. To capture the presentations either a digitizing tablet, or a bitmap graphic, e.g. from scanned plots, is required. If possible, use a big monitor in high resolution (17 inch or more). The output of the computed single data is made by an ASCII file or graphically as vector-based PICT file.

The Author   Dr. Rainer Petschick
Geologisch-Paläontologisches Institut
Johann Wolfgang Goethe-Universität Frankfurt am Main
Senckenberganlage 32-34
60054 Frankfurt am Main
Tel. 069-798 22694
Fax. 069-798 22958
e-mail: Petschick@em.uni-frankfurt.de

QuickTrace can be downloaded at the following internet address:

http://servermac.geologie.uni-frankfurt.de/Rainer.html

Alternative URL: **http://www.geol.uni-erlangen.de/html/software/soft.html**

If you have any problems using QuickTrace, or if you have ideas how to improve the software, please mail to: **Petschick@em.uni-frankfurt.de**

Attention Windows-users! QuickTrace is available for Macintosh only! The author knows only one alternative Windows 3.1/95/98/NT software, **Tracer** of Marcus Karolewski (e-mail: akarol@ntu.edu.sg). URL: **http://www.geocities.com:80/CapeCanaveral/Lab/7039/** or **http://www.geocities.com:80/CapeCanaveral/Lab/7039/data.htm**.

Alternatives for the Macintosh are **dataThief** (URL: **http://www.nikhefk.nikhef.nl/~keeshu/dataThief.sit.hqx**) or the commercial software **FlexiTrace** of TreeStar (URL:**http://www.treestar.com/products.html**, price 125 $, Demo:**ftp://ftp.treestar.com/pub/treestar/flexitrace-Demo.sit.hqx**)**.

System requirements

A Macintosh with MacOS 7.5 or higher, at least 8 MB RAM, better 16 MB RAM, and, if possible, a colour monitor with 17 - 21 inch, is required. QuickTrace needs 2.3 MB RAM in minimum. It should be set higher, if scanned graphics in high resolution are used.

All Mac OS-systems older than 8.0 require the extension 'Appearance Extension' as well as the console 'Appearance CDEV', which is available for downloading (name: 'Appearance Lib').

Both 68K or PowerPC Macs are supported by different versions of QuickTrace.

The software was developed in the Visual Interactive Programming BASIC-environment of Mainstay. The code was converted to ANSI-C and compiled by CodeWarrior.

Installation

MacDiff is available both as a set of files, containing both program versions (68K and PowerPC), the English and German manuals, as well as a set of scanned graphic examples.

- "**QuickTrace PPC / 68K**" – current releases of QuickTrace.

- "**Test Cartesian PICT**", "**Test Ternary PICT**", and "**Test Polar PICT**"- examples of scanned graphics in PICT format.
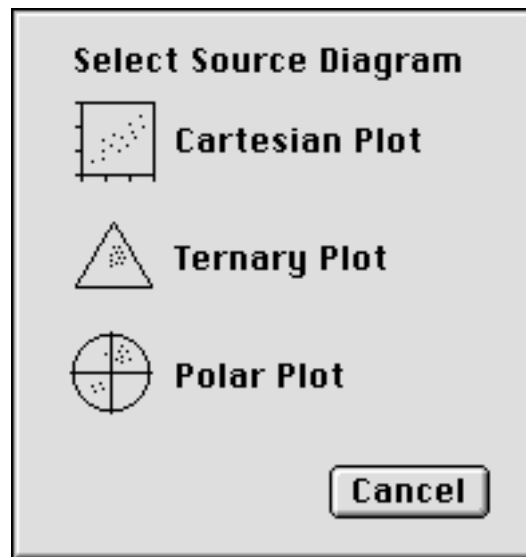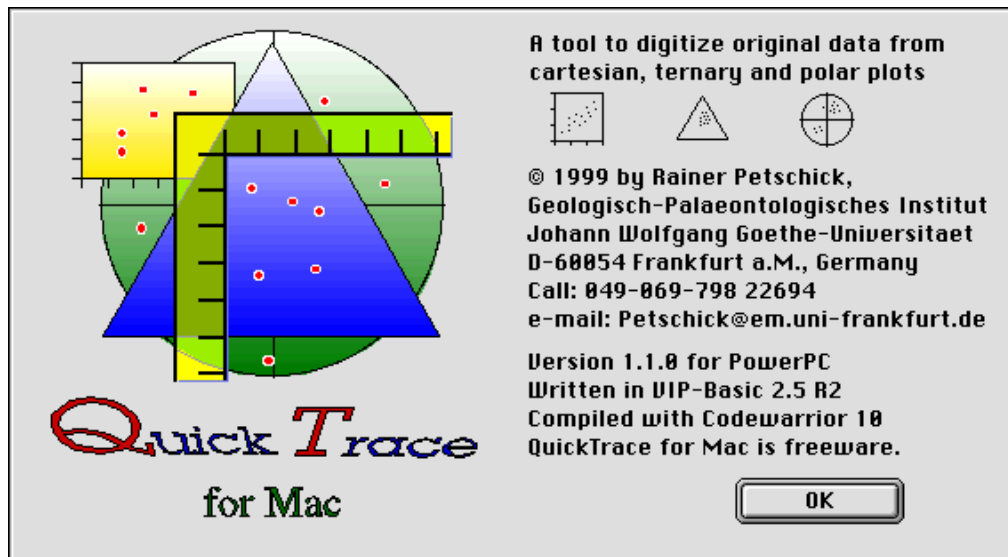
- "**QuickTrace Release Notes 4.x**" -latest informations about the current version (simple text document).

- "**QuickTrace Manual E**" - English version of this manual - i.e. this document.
    "**QuickTrace Manual D**" - the German version of this manual.

Short instructions

After starting QuickTrace and after a view to the QuickTrace logo a dialog appears querying the type of the source diagram to digitize (**Select Source Diagram**), cartesian, ternary, or polar source plot. According to the type of the graphics, one of the three possible dialogue windows appears, controlling the main settings.

Dialogue window of cartesian plots: see page 4

Dialogue window of ternary plots: see page 5

Dialogue window of polar (stereographic) plots: see page 6

Dialogue window of cartesian plots

label of y axis

scanned presentation (PICT graphic)

calibration mode

QuickTrace: Cartesian Plot Settings

Y Label

highest value in y axis

Top Y:

6

scaling in decimal logarithm

☐ Log Scale

Mode:

Y Increments: 6 ▼

lowest value in y axis

Bottom Y:

0

label of x axis

X Label

highest value in x axis

Left X:

2

☐ Log Scale

Right X:

8

lowest value in x axis

X Increments: 6 ▼

number of increments

loading, removal, pasting, fitting a PICT graphic

[Load PICT Graph...] [Remove] [Paste] ☑ Fit to window

File: Test Plot

☑ Play Sound on Click

☐ Delete Duplicates

☑ Show Grid ☑ at Tracing

☑ Ascending Sort (to X)

☑ Accept Outside Points

☐ Create Line Graph

☐ Ask for z values

Decimal Point: 0.01 ▼

Point Type: ● ▼ ☐ invisible at Tracing

Lowest Unit: x=0.01 y=0

[Cancel] [Start Trace...]

Decimal Point: 0.01 ▼ ← number of decimal points

Point Type: ● ▼ ☐ invisible at Tracing ← point marker type, visible during digitizing

Lowest Unit: x=0.01 y=0 ← view of the minimum resolution (depends from screen size)

[Cancel] [Start Trace...]

☑ Play Sound on Click ← • enables/disables mouse click sound

☐ Delete Duplicates ← • removal of identical values

☑ Show Grid ☑ at Tracing ← • draw grid, also during digitalizing

☑ Ascending Sort (to X) ← • x/y pairs will be sorted in ascending order of x values

☑ Accept Outside Points ← • enables/disables tracing outside the plot frame

☐ Create Line Graph ← • join all points to a line graph polygon

☐ Ask for z values ← • input of a z component after tracing each point

Remarks: Exponential values must be use in the following syntax:

1.234E+12   4.321E-9

Dialogue window of ternary plots

scanned presentation (PICT graphic)

label and maximum value
of the C component

QuickTrace: Ternary Plot Settings

C: 100   C Label

B min:
0

A min:
0

minimum
vaues of the
A, B, C
componants

label and
maximimum
value of
the A
component

A: A Label   100

C min:
0

B: 100   B Label

label and
maximum
value of
the B
component

loading,
removal,
pasting,
fitting
a PICT
graphic

Load PICT Graph... Remove Paste   ☐ Fit to Window
File: Test Ternary PICT

☑ Play Sound on Click
☐ Delete Duplicates
☑ Show Grid ☑ at Tracing
☑ Ascending Sort (to A)

Decimal Point: 0.01 ▼
Point Type: • ▼ ☐ invisible at Tracing
Lowest Unit for Z: about 0.08

Cancel   Start Trace...

Decimal Point: 0.01 ▼ ← number of decimal points
Point Type: • ▼ ☐ invisible at Tracing ← point marker type, visible during digitizing
Lowest Unit for Z: about 0.08 ← view of the minimum resolution in C (depends from screen size)

Cancel   Start Trace...

☑ Play Sound on Click ← • enables/disables mouse click sound
☐ Delete Duplicates ← • removal of identical values
☑ Show Grid ☑ at Tracing ← • draw grid, also during digitalizing
☑ Ascending Sort (to A) ← • triple values will be sorted in ascending order of A

Dialogue window of polar (stereographic) plots

scanned presentation (PICT graphic)

first angle at 12 o'clock
(only between > -90 and < 90°)

QuickTrace: Polar Plot Settings

projection:

equal area → ● Schmidt' projection

equal angle → ○ Wulff' projection

linear → ○ Simple projection

degree/gon → ● 360°   ○ 400 gon
scale

[Load PICT Graph...] [Remove] [Paste] ☑ Fit to Window

File: Test Polar PICT

loading,
removal,
pasting,
fitting
a PICT
graphic

☑ Play Sound on Click

☐ Delete Duplicates

☑ Show Grid ☑ at Tracing

☑ Ascending Sort (to Azimuth)

☐ Counterclock direction

Decimal Point: [0.01 ▼]

Point Type: [• ▼] ☐ invisible at Tracing

Lowest Unit: 0.27°

[Cancel] [Start Trace...]

Decimal Point: [0.01 ▼] ← number of decimal points

Point Type: [• ▼] ☐ invisible at Tracing ← point marker type, visible during digitizing

Lowest Unit: 0.27° ← view of the minimum resolution (depends from screen size)

[Cancel] [Start Trace...]

☑ Play Sound on Click ← • enables/disables mouse click sound

☐ Delete Duplicates ← • removal of identical values

☑ Show Grid ☑ at Tracing ← • draw grid, also during digitalizing

☑ Ascending Sort (to Azimuth) ← • triple values will be sorted in ascending order of Azimuth

☐ Counterclock direction ← • clockwise or counterclockwise digitization
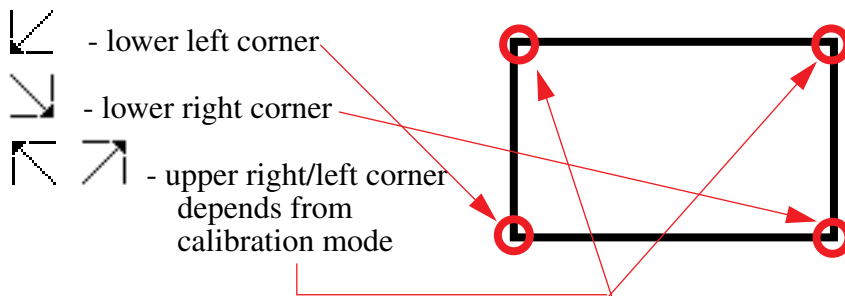
Digitizing procedure

Digitizing a presentation is either done by mouse clicks on the monitor (after reading or pasting a **PICT graphic**) or by tracing a published diagram on a digitizing table. The presentations do not need accurate right-angled alignment.
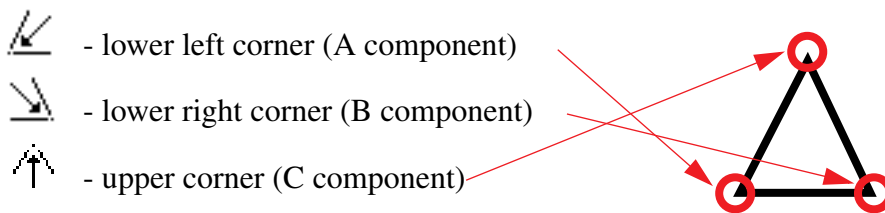
Choose all the settings you need in the dialogue windows. Care must be taken in the settings for the cartesian plot, especially in the case of the correct axis data and increments as shown by the original. Otherwise the digitized data computed incorrectly or the resulting diagram appears will be obscured.

After "**Start Trace**" most of the screen area will either appear as grey colored digitizing surface or the PICT graph will be shown as master presentation. Now, QuickTrace waits for mouseclicks at the following positions of the original diagram:
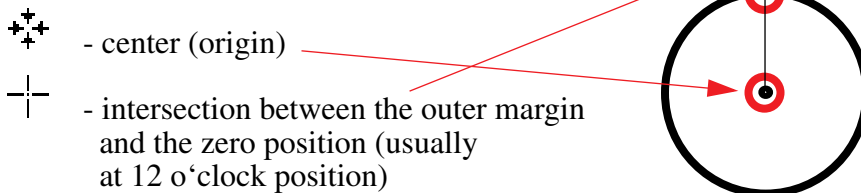
cartesian plots:

- lower left corner
- lower right corner
- upper right/left corner depends from calibration mode

ternary plots:

- lower left corner (A component)
- lower right corner (B component)
- upper corner (C component)

polar (stereographic) plots:

- center (origin)
- intersection between the outer margin and the zero position (usually at 12 o'clock position)

After entering the coordinates the outer frame of the graphic, and, if adjusted before ("˝At Tracing˝"), the increments, will be drawn.

QuickTrace issues a warning, if the PICT graph does not fit the screen area (use **fit to window**!), or if the frame coordinates exeed internal limits.

Now, QuickTrace waits for plotting points, to be entered, which can also be done by mouse clicks or by touching the digitizing pencil on the graphics table. The face of the cursor depends on the type of the presentation:

cartesian plot   ternary plot   polar plot
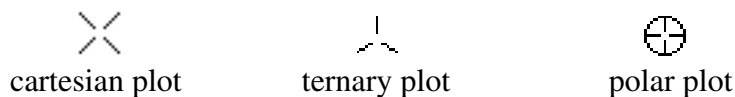
For faster interpretation QuickTrace displays the computed data near the cursor position even at simple cursor movements.

If the cursor is beeing moved outside the tracing frame, usually the measuring point will not be accepted. In the case of cartesian plots it is possible to support this feature ("**Accept Outside Points**", page 4). Cartesian plots feature some additionally settings, e.g. log scaling, registration of line graphs or the option for adding a third (z) coordinate to the each x/y pair.

Up to 3000 single values per diagram can be registrated.

The digitizing procedure can be cancelled immediately by typing the ESC key or using the "**Cancel**" button (found on right handside of the lowermost screen display).

Use the "**Done**" button to exit the tracing routine. Then QuickTracewill display the data and the graph with all digitized measuring points in two separate windows:
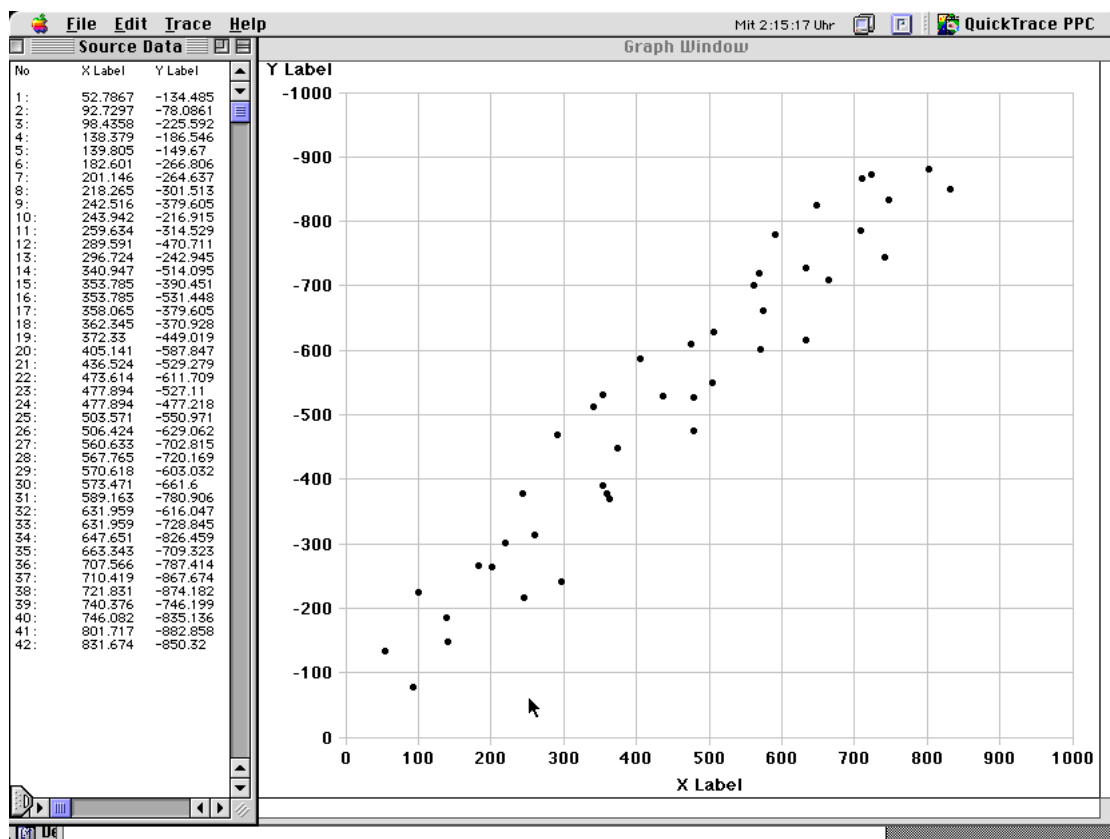
You can save the data and the graph by menu commands "**Save Data As...**" or "**Save Graph As...**") as well as printing ("**Print Data...**", "**Print Graph...**"). Because the graph will always be fitted to the current paper size, it is recommended to set the landscape format in the "**Page Setup**" dialog.

Furthermore, it is possible to transfer both data and graphs into the clipboard ("**Copy**"), depending on the type of the currently active window. Using "**Copy high Res**" a five fold scaled high resolution graph will be transfered into the clipboard.

A new digitization will be performed by the menu command "**New Project...**" or, more directly, by using one of the three submenus of the "**Trace**" menu.

Rainer Petschick