G302 - Overview of Main Grapher Functions

The following is a summary of menu commands and functions available in grapher. The software creates graphs from raw data and also includes drawing tools and image import capabilities to provide very high quality graphic products.

I.   File Menu
      A.   This function allows creation of new grapher files, saving, and opening from a memory device
      B.   The primary file types
            1.   *.dat file - an x,y ascii text file, comma delimited, that grapher can use to create graphs. Example format

                  X, Y
                  23, 56.4
                  34, 37.2
                  12, 74.5

            2.   *.xls excel workbook / worksheet files - grapher will automatically be able to read x,y data from an Excel workbook or worksheet file
            3.   *.grf - a grapher project file that will save all of the graphics settings, and graph elements; NOTE: the original data is stored in the original *.dat or *.xls file, not in the *.grf file
            4.   *.gpj - a grapher project file that saves all of the graphics entities, PLUS all of the original data as well.
      C.   Import - allows grapher to import a wide variety of vector files (e.g. ArcView shape files, and export files), as well as raster images (*.tif, *.jpeg, etc.)
      D.   Export - exports graphs as images for use in other sofware (*.jpg, *.tif, etc.)
      E.   Page Setup - sets up the printable page, margins, size, preferences
      F.   Preferences - allows user to set the software environment (colors, menus, icons) and default parameters (text properties, line properties, symbol properties)

II.   Edit Menu - provides utilities for editing objects and graphics elements in project window
      A.   copy - copies a selected object to the clipboard
      B.   paste - pastes a slected object to the window, or to another program (e.g. powerpoint)
      C.   undo - undoes the last edit or change made to the graph (fixes mistakes)
      D.   select all - selects all of the graphics entities in the image
      E.   block select - allows user to draw a box around specific graphics entities and to select them for copying, editing, etc.
      F.   deselect - deselects or unhighlights selected objects
      G.   reshape - allows user to reshape or modify selected drawing objects (e.g. lines, polygons, circles)
      H.   object manager - provides a customized catalog of all drawing and graphics entities present on the drawing window, allows user to control, change, or selectively modify objects by using the manager.
            1.   Axes
                a.   format options for axes - tic mark spacing, tic label formats, label fonts, line width, axis limits, axis origin points, axis titles
                b.   axis types
                    (1)   linear
                    (2)   log (base 10)
                    (3)   probability

III.   View Command Bar
    A.   View allows user to change the view perspective of the map that is on the work screen
        1.   Zoom in/Zoom out
            a.   allows user to get closeup or further away from map view
            b.   Zoom allows the user to refine text and drawing attributes of the map at a close-in scale
        2.   Actual Size
            a.   will show the working map to scale on the screen as it will appear on paper
            b.   The ruler bars on the screen show the dimensions of the map in inches
        3.   Fit to Page
            a.   compresses the map view so that the entire map is visible on the work screen
        4.   Redraw: freshens up the map after edits have been made

IV.   Draw Command Bar
    A.   Allows user to draw figures or place text, titles, labels on the map
        1.   Draw Command
            a.   User can use to draw lines, rectangles, boxes, circles, ellipses on the map
            b.   Edit Linestyle: allows user to to edit the appearance and line weight of drawn items
        2.   Text Command
            a.   Allows user to place text, labels and titles on the map
                (1)   Select text command
                (2)   Move mouse cursor to the position of where the text will be placed, click mouse
                (3)   Text Display box appears
                    (a)   can set font size, color, style, alignment
                    (b)   type text in the text work box
                    (c)   Hit Ok and text will be located at cursor position above

IV.   Arrange Command Bar
    A.   Move Forward - moves selected drawing objects as layers, forward to the front of the drawing
    B.   Move Backward - moves selected drawing objects as layers, backward on the drawing window
    C.   combine - combines selected drawing objects into non-editable, amalgamated entities or images
    D.   Rotate Objects - Allows selected text and other attributes to be rotated to varying orientations
    E.   Alignment - Allows text and other attributes to be aligned to the left, right or center of the selected cursor position

V.   Graph Command Bar

    A.   Graph Types Available from Grapher: Bar Chart - horizontal; Bar Chart - vertical; Box-Whisker; Bubble; Function; Histogram, X-Y Scatter (line); Pie Chart; Polar; Rose Diagram; Scatter; Rose Diagram; Ternary
        1.   Function Graph - allows user to write equations and view corresponding plots
        2.   Ternary Diagram - three end-member graph based on percentage occurrence
        3.   Rose Diagram - a circular histogram used for directional (azimuthal) data
        4.   3-D Graphs - 3 dimensional graphs (block charts)
        5.   Box-Whisker Plot - shows data range, percentiles, and median for data
    B.   Graph Wizard - provides format wizards to turn data into graphical output.
    C.   New Graph - creates a new graph from raw data files

D.   Add to Graph - adds legend, axes, and other objects to existing graph

E.   Digitize - tool allows user to digitize x-y coordinates from a scanned graph, or image. Data is saved to a text data file.

VI.   Data Command Bars and Windows (active upon opening a data file: *.xls or *.dat)

        A.   File (open, save, save as, import) - opens and saves data files

                1.   Page Setup - sets up formatting of data table for printing

                2.   Print - prints data table

        B.   Edit

                1.   copy - copies cells

                2.   paste - pastes values from clip board

                3.   insert - inserts new rows, columns, or cells into spread sheet

                4.   delete - delets rows, columns, or cells from spreadsheet

        C.   Format

                1.   Column properties - formats cells, decimals, number formats

                2.   column width - sets column width for spreadsheets

                3.   row height - sets row height for spreadsheets

        D.   Data

                1.   Sort - sorts data in ascending or descending sequence

                2.   Transform - transforms data by using a standard function

                3.   Statistics - performs statistical analysis of selected data

VII.   Graph Fits - regression analysis is used to fit lines to data distributions

        A.   Regression / function fit types

                1.   linear fits - fits straight line equation to data

                2.   log - fits log function to data

                3.   exponential - fits exponential function to data

                4.   power - fits power function to data

                5.   polynomial - fits polynomial function to data

        B.   Regression Statistics

                1.   coefficient of determination - measure of goodness of fit of regression function to datas

                        a.   as coefficient approaches 1 = perfect fit

VIII.   Help - help contents provides detailed information on use of grapher functions