What's in 'rgr 1.0.4' ?

1. Statistical graphics functions:

gx.hist	Plots histograms using a variety of bin width selection methods.
gx.ecdf	Plots an empirical cumulative distribution function.
cnppt	Plots a normal cumulative probability plot.
bxplot	Plots a horizontal Tukey boxplot or a box-and-whisker plot.
shape	Plots a combination of the above four plots on a single screen/page
inset	Plots a combination of a histogram and a normal cumulative probability plot, together with some summary statistics, for use as an inset on a geochemical map.
inset.exporter	A version of 'inset' for use in a production environment where the graphics file is saved as defined by the user for later map production.
bwplot	Plots vertical box-and-whisker plots for a single variable subdivided into various subsets (groups or factors).
bwplot.by.var	Uses 'bwplot' to plot different variables (elements) side-by-side
tbplot	Plots vertical Tukey boxplots for a single variable subdivided into various subsets (groups or factors).
tbplot.by.var	Uses 'tbplot' to plot different variables (elements) side-by-side.

All the above functions permit both normal arithmetic and logarithmic scaling, and user-defined axis labelling and titling. The 'bwplot' and 'tbplot' functions permit the groups (factors) to be ordered (left-to-right) and labelled as defined by the user.

3. Mapping functions:

Mapping:

edamap	Plots a map using circles that increase in diameter with magnitude of the variable (element) being plotted. The rate of increase of symbol size may be user-defined.
edamap7	Plots a map using symbols that correspond to a Tukey boxplot, i.e. lower near and far outliers, in the lower whisker, in the mid 50%, in the upper whisker, etc.
edamap8	Plots a map using symbols to indicate the magnitude of a variable (element) subdivided by the 2^{nd}, 5^{th}, 25^{th}, 50^{th}, 75^{th}, 95^{th} and 98^{th} percentiles.
caplot	Displays a concentration-area (C-A) plot to assess whether the data are spatially multifractal. The data may be optionally log-transformed, and the interpolated estimates may be accumulated in either direction.

The above functions require that the R library packages 'MASS' and 'akima' be available at run-time. All the above functions require that rectangular coordinates are available for the data points, and permit user-defined axis labelling, titling, and symbol colour and scaling.

Note: the EDA mapping functions are not provided to replace a full mapping or GIS package, but to provide a quick-look in order to appreciate the spatial distribution of the data and to support threshold (upper limit of geochemical background) selection.

4. Summary statistics functions:

gx.stats	Computes and displays summary statistics as displayed with 'inset'.
fences	Computes and displays the various estimates of background range discussed in Reimann, Filzmoser & Garrett, 2005.
fences.summary	A version of 'fences' for when it is required to estimate background ranges for various subsets (groups or factors) of a variable (element) and to save them in a user-defined file for later inspection.
framework.summary	Computes summary statistics for various data subsets (groups or factors), e.g., EcoProvinces, Great Soil Groups, Lithological units, etc., of a variable (element) and saves them in a user-defined csv file for later inspection with a spreadsheet program, e.g., Excel™.

5. QA/QC support functions:

anova1	Computes a random effects model ANOVA (Analysis of Variance) on a set of duplicate measurements to determine if the analytical, or combined sampling and analytical (within) variability is significantly smaller than the variability between the duplicates. For use where the n duplicates are stored as x1 and x2 in n rows.
anova2	Similar to 'anova1' but for use where the duplicates are stored as 1 to n values of x1 followed by 1 to n values of x2, or as alternating rows of x1 and x2 values.
thplot1	Displays a Thompson-Howarth plot for duplicate measurements to visually inspect them as a part of the QA/QC process. A target precision may be entered to aid visual data inspection. For use where the n duplicates are stored as x1 and x2 in n rows.
thplot2	Similar to 'thplot1' but for use where the duplicates are stored as 1 to n values of x1 followed by 1 to n values of x2, or as alternating rows of x1 and x2 values.

Both 'anova1' and 'anova2' provide for an optional log-transformation of the data in order to meet homogeneity of variance and normality requirements.

6. Data conditioning functions:

ltdl.fix	Replaces less-than-detection values recorded as –x with x/2. Optionally zero values and/or coded values, e.g., -9999, may be set to a NA, a code used in the S-Language to represent no information, i.e. blank.

ltdl.fix.df	Performs a 'ltdl.fix' on a dataframe, any factor variables are transferred to the new dataframe.
remove.na	Removes any NAs from a vector or matrix, reporting on the number of NA values, or NA containing matrix rows, removed and the number of remaining rows and columns for a matrix.
gx.subset	Extracts a subset of rows from a dataframe on the basis of a criterion supplied by the user, returning a new dataframe.

Dataframes are a data management feature of the S-Language, they accommodate row and column names, real numbers, factor variables and NAs.

7. Utility functions:

dftest	Determines if a specific dataframe is available (attached) or exists in the working directory. If it does, the names of the variables are displayed, and additionally if a specific legitimate variable name is entered the number of values is displayed.
display.lty	Displays the available line types and colours.
display.marks	Displays the available plotting symbols.
display.ascii.o	Displays the octal numbers corresponding to the Windows Latin 1 font, these are required when inserting symbols such as µ or ° into an axis label or title.
display.rainbow	Displays the 36 colours of the "rainbow" palette.
syms.pfunc	Displays to effect of changing the parameter 'p', which controls the rate of change of circular symbol size, in the 'edamap' function.

The boxes of Tukey boxplots and box-and-whisker plots are infilled in gray (8) from the palette displayed in 'display.lty', alternate colours may be selected from that palette. The "rainbow" palette is used for symbol colours in 'edamap7' and 'edamap8', the user may select alternate colours from this palette if required.

Changes since 'rgr 1.0.3'

'rgr 1.0.4' is a maintenance release, no new functions have been added. Minor changes have been made to functions: caplot, edamap and framework.stats. Two utility functions were removed: display.alts and display.ascii.d.

The release was required to bring the help, Rd, files into conformity with the new parsing rules for R 2.11. Some other text changes have been made to the help files for shape and fences.summary.

'rgr 1.0.4' was built with R 2.12.0

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