

Isoplot/Ex 3.00 Beta includes many new features, as well as improved compatibility with the most-recent versions of *Excel* for both Windows and Macintosh. This version has been in use by only a handful of test-users for only a few months, and so may yet be somewhat "buggy" (hence the *Beta* designation). To obtain *Isoplot/Ex 3 Beta*, e-mail a request to kludwig@bgc.org.

Note for users of Macintosh *Excel-X*

Though a fair amount of effort has been made to accommodate the *Excel-X* user-interface, *Excel-X* is at present a relatively poor platform for running *Isoplot* (or any other *Excel* add-in). Drawbacks are

- 1) A significant loss of speed (5×-25× compared to Mac *Excel 98* or 2001), so that dialog boxes are slow to appear, and calculations such as Monte Carlo simulations become very time-consuming; and
- 2) Some installations of *Excel X* will not display *Isoplot's* toolbar-buttons correctly (Microsoft's *Office v. X 10.1.2 Update* may solve the problem). Thus Macintosh OS-X users may prefer to run either *Excel 98* or *Excel 2001* in OS-X's "Classic" mode.

New Features in *Isoplot 3.00*

- Implementation of the Cambridge-Compston Gaussian unmixing algorithm to quantitatively deconvolute data sets consisting of mixtures of different Gaussian distributions.
- A Bayesian + Monte Carlo procedure for increasing the precision and accuracy of dates on a stratigraphically-controlled sequence of beds (and perhaps for resolving core-overgrowth age differences on a suite of ion microprobe spot-analyses).
- Implementation of the *TuffZirc* algorithm for extracting (relatively) reliable ages and uncertainties from suites of single-zircon analyses with variable Pb-loss and inheritance
- A rigorous procedure for integrating Ar-Ar step-heating data with isochron data, yielding a single, statistically and isotopically justifiable age and age-error.
- Age-distribution plots for Monte Carlo solutions of U-Pb concordia-intercepts (user option, attached to the data sheet).
- Age ticks for U-Pb concordia curves as short lines normal to the curve, with collinear labels (user option).
- Specific Monte Carlo solution for Ar-Ar isochron ages (not just regression parameters).
- Monte Carlo solution for all Yorkfit regression-parameter errors (user option).
- Automatic construction (and placement next to the input data) of a small linearized probability plot of the weighted residuals of a regression or weighted average when *Include Wtd Resids Column* is checked.
- "Smart" expansion of data ranges (to largest contiguous region of numeric cells) from a single cell.

- "Smart" recognition of column headers, even if many rows above the selected data.
- Mac-Windows customized dialog-boxes for improved clarity.
- Improved Excel-X (Max OS-X) compatibility.
- More-flexible copying of plots/charts to data worksheets and non-Excel programs.
- More than two dozen new toolbar buttons, for one-click invocation of all important Isoplot functions.
- Changes in Ar-Ar isochron algorithm: Instead of transforming Inverse isochron ratios, errors, and error correlations to their Normal isochron equivalents, fits the Inverse isochron directly, except for the *X*-intercept solution, which is obtained by first swapping *x* and *y* and using the swapped and using the swapped *y*-intercept and resulting symmetrical errors.
- Increase in number of error ellipses that can be plotted from about 125 to about 30,000
- Bug fixes for the "Constants" dialog box (previous versions did not reliably remember user-changes).
- User-specified probability-of-fit level at which the errors of weighted regressions are expanded by $t \times \sqrt{MSWD}$ (previously fixed at 0.15).
- Addition of "Help" buttons for selected dialog boxes, providing additional information about the relevant algorithm or results.
- Monte Carlo results for U-Pb Concordia intercepts changed to show the *average* of the trial intercept-ages as the result, instead of the mode (the least-squares solution).
- Support for multiple data-additions to Probability Distribution plots, with or without histograms. Each additional data-set will have its own color coding, and the plot will be rescaled as appropriate.
- Worksheet access to all of Isoplot's defined decay constants via a **Lambda(Nuclide)** worksheet function (e.g. "=Lambda(87)" returns 1.42E-11).