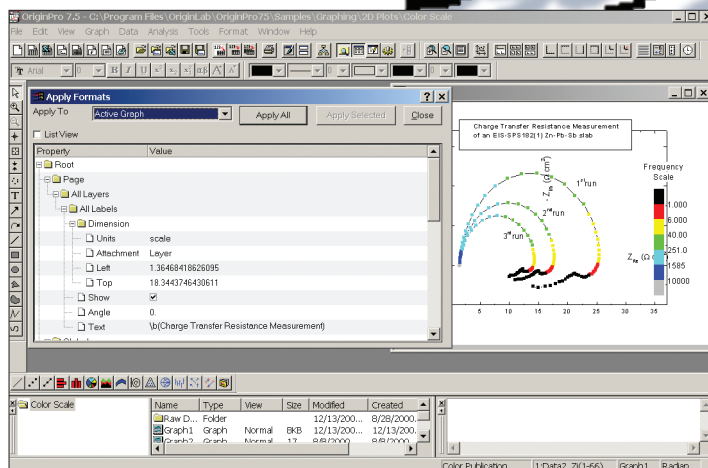# Don't Just Plot, Customize Visuals and Analyze Data

Not just a presentation and visualization tool, Origin 7.5 expands data plotting to include analysis and other mathematical and programming options.

When you copy formatting from one graph to another, Origin 7.5 lets you pick and choose precisely which formatting elements you want copied.

Barry Simon

As many technical professionals will attest, producing publication–quality plots and, more generally, visually analyzing data, are important parts of the job. And when *DE* first published a roundup of graphing software several years ago, there were a dozen products to choose from. But since the orphaning of Axum in November 2003, there are only two major players left in the world of creating scientific graphs, plots, and charts.

Only Sigma Plot from SPSS (last upgraded in April 2002) and OriginLab's Origin remain as serious candidates. We decided to look at Origin 7.5, released in late November, for this review.

ORIGIN OVERVIEW

The update comes in standard ($699) and professional ($999) versions, which differ in that the professional version includes a peak–fitting module and a variety of development tools. More on those later.

Origin's core attribute is its plotting ability: It offers much more than the stan-

dard line, pie, and bar capabilities found in business graphing packages. Among the more esoteric plot types available in Origin are waterfalls and Smith plots, and a variety of statistical charts (including Histogram and QC), contour, and 3D graphs are also available.

Plots created in Origin can be customized in many useful ways, including titles with sub- and superscript, data points whose size displays one aspect of the data, and more than 100 built-in symbols.

But Origin—which requires 130MB disk space, 64MB RAM, and Windows 98 or higher—is much more than a data presentation and visualization tool. It also analyzes data using basic statistics, regression and convolution, and oodles of built-in and user–defined curve fits.

The software also includes its own programming language based on C (with many C++ features), and OriginPro has extra development tools, which allows corporate developers to customize the product for other users.
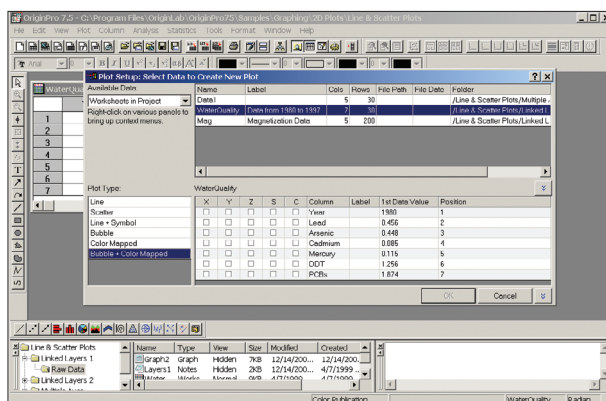
GRAPHING MADE EASY

Origin's most recent versions have been notable because they're easy to use. One of

my favorite interface features is the style toolbar, one of the cleverest controls I've seen in a graphing product, and it has been enhanced in this new version. For example, select any object in a plot and you can get a drop–down list of color changes to pick from. For simple changes, this lets you quickly customize without the need to poke through several dialog boxes.

New features of 7.5 include the ability to copy and paste formatting and to save them as themes; collections of allowed symbols and colors; and default settings for axes and other graph objects. If you have two graph windows open in Origin, you can right–click on one and pick "copy format" to paste the formatting into another graph (by clicking and choosing "paste format"). Using the shift key while clicking on "paste" gets you a dialog box from which you can choose formatting and even modify some of it on the fly. And because a pasted format can be overridden, you don't risk a change you don't ultimately want.

Previous versions allowed you to save formatting as a template to use with new graphs, but the new one also lets you save styles—collections of formatting that

Origin 7.5's Plot Setup dialog lets you easily pick data from multiple worksheets for plotting.

can be used on an existing graph. So if your paper is rejected by a journal be-cause of tick marks on a graph pointing the wrong way, you need only apply a new theme that takes into account all the formatting requirements of the journal.

A new Plot Setup Dialog provides enormous flexibility in choosing data and data ranges for a plot. Instead of being limited to selecting data in a single worksheet, you can pick from a well-arranged dialog box that lets you choose data from multiple datasheets and mod-ify data ranges.

Origin also has a multilevel Undo fea-ture, but you can't easily track those changes. For this reason, it would benefit from the kind of drop-down Undo list you can find in Microsoft Word.

OTHER NEW TOOLS

It's now also possible to access data saved in MatLab by importing named variables from Matlab worksheets into Origin matrices. If MatLab is on your machine, you can use it from Origin to manipulate data prior to import.

Origin 7.5 can be used as an automa-tion server, meaning you can call its pro-gramming guts from another program using an appropriate macro language. For example, you can use VBA within Excel to send Excel data to Origin for analysis and plotting with it all displayed in Excel. It will, however, require con-siderable programming.

Finally, users—especially new users—will appreciate the help system anima-tions developed in Flash to illustrate the basic steps needed for both general and sophisticated operations. Seeing the ac-tual pulldowns and dialogs is a boon to learning. I wish there were more.

ORIGINPRO AFFORDS DEVELOPMENT

The Pro Version primarily provides ex-tra tools for development purposes. Code developed in Pro 7.5 will run in the stan-dard version. And ActiveX controls can now be placed in dialogs built with dia-log builder, opening up the possible use of a wide variety of third-party controls.

OriginPro 7.5 also includes an improved peak-fitting module, which is a dialog that allows you to take data with multiple peaks—that can't usually be fitted with a single curve—and analyze the statistical data of the individual peaks. My only wish would be to allow subtraction of a background other than the single flat baseline that the current module allows.

BOTTOM LINE

As befits a .5 upgrade, there aren't as many new features in Origin 7.5 as a full-version upgrade, but what's there is substantial enough to impress even a jaded software reviewer. Serious users will want the up-grade. Anyone in the market for a scientific graphing and analysis package should un-derstand that this upgrade has cemented Origin's position as the leader in both graphing software power and ease of use.

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