The Newsletter from Hoare Research Software

October 2003

THE Cruncher

Web-server products

It is becoming more common for makers of our products to produce web-server editions. Examples of programs with web-server editions are MATLAB, Mathcad, *Mathematica*, *STATISTICA* and Chemoffice.

In most cases these products allow you to produce documents that can be viewed in any browser, without a plug-in. The user can enter numbers into text fields, and choose options from lists and radio buttons. The data from this is fed back to the server, which does calculations and returns the results to the browser.

In the case of *STATISTICA*, the user can be given access to customised subset of the complete *STATISTICA* program, through menus that are very similar to the desktop version.

These programs are not a replacement for desktop versions of the corresponding software, but instead make limited functionality widely available at a low cost per user. In New Zealand, MATLAB web server is being used by NIWA, and we see ample opportunities in educational institutions for developing tools for training and testing students.

Some of the manufacturers have example applications on their web sites.

Mathcad is at **http://mas.mathsoft.com/mas/.**

MATLAB is at **www.mathworks.com/products/webserver/demos.jsp**

Mathematica is at: **http://library.wolfram.com/explorations/**

WebSTATISTICA has an interactive web site, but the passwords to use it are not published. Contact Darrel to be given the instructions.

A description of ChemOffice Webserver is at **www.cambridgesoft.com/solutions/webserver.cfm**. Contact Marc if you want to know more.

Viewlets

We are excited by the use of Viewlets as a way to show people what software can do.

A Viewlet is like a slide show, but it uses "Flash" technology to show a succession of images, and possibly sound, in your browser. You don't need a plug-in, and you can start watching before the whole file has downloaded. You can stop and start, go backwards or skip forwards.

Viewlets take some skill to make, and we are still learning, so we would much appreciate your comments on the ones we have made so far.

At the moment we are placing the links to our Viewlets, and also links to suppliers who have them, on the web page: **www.hrs.co.nz/viewlet_links.aspx**. There is a link to this page on the home page at our site.

Web conferences

If you have ever been part of a "Webex" meeting you will know how powerful a way this is to demonstrate software. The MathWorks webinars use this technology.

There are other similar ways to hold demonstrations on your computer, and we are investigating some of them. We should eventually be able to have you link over the web to one of our computers, where we talk to you, you talk to us, we show you the software and you can write notes to us.

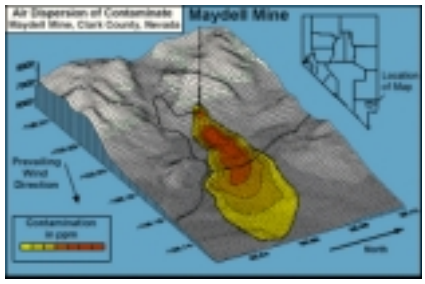
One problem for some users is that their IT systems do not allow users to load the drivers that are needed to make the demonstrations possible. We are asking as many people as possible to tell us what works for them, so if you have success or failure stories do tell Ray – **ray@hrs.co.nz**.

Also contact him if you are keen to try this out as a way to see a particular piece of software.

Surfer

HRS is pleased to be able to supply and support Surfer, a great program for anyone who needs to produce detailed contour plots from masses of data. It is billed by the makers as "A Powerful Contouring, Gridding, and Surface Mapping Package for Scientists and Engineers".

Go to **www.hrs.co.nz/surfer** for a brief look at the product, a list of the features of version 8, and instruction on how to apply the update to Surfer 8 that was released in May 2003. Call Darrel for more information.



Inside ...

Data Mining Solution Packages and Training

StatSoft Pacific, based in Melbourne, provides Training in Data Mining, covering the entire data mining process from understanding the business problem through to implementing solutions.

StatSoft also provides customised Data Mining Solution Packages to match the specific needs of organisations. These are specially designed to provide templates and knowledge for typical data mining projects in specific domains, providing a "push" in the right direction for organisations just getting started in data mining.

These Solution Packages include a combination of:

- On-site training and consulting
- Initial model development
- Specific *STATISTICA* Data Miner project templates.

There are also a number of competitively priced, currently available Solution Packages in many business areas.

Contact Darrel in the first instance, and he will help you to gain access to this StatSoft Pacific resource.

Update for STATISTICA

Any owner of *STATISTICA* version 6 can keep themselves current with free downloadable updates. The latest one (July 21 2003) provides a number of enhancements, including a significant extension to the syntax of spreadsheet formulas and case selection conditions. These now support text strings, including a comprehensive library of text functions for transformation, concatenation, extraction, etc.

A new "welcome" dialogue (displayed upon program start-up) contains the most commonly used options.

There are too many other changes to list here, but they are mostly in the area of graphing, table presentation and data handling. Ask Darrel for details, or just install it from **www.statsoft.com/download.html#updates**

StatSoft Electronic textbook

This is an online statistical reference book. Although the contents reflect the contents of StatSoft's product range, this does not lessen the generality of the content, nor the applicability of the ideas. We have had customers for many years who have been using this as their main statistical reference text, even though they don't own StatSoft products.

The Electronic textbook is continually revised to keep up with new methods in *STATISTICA* so if you have an off-line copy we suggest you update it.

www.statsoft.com/textbook/stathome.html

Palisade DecisionTools Suite Industrial

Palisade DecisionTools Suite Industrial edition adds RISKOptimizer and @RISKAccelerator to the existing Suite components of @RISK, PrecisionTree, TopRank, BestFit, and RISKview.

RISKOptimizer allows you to find the best value of parameters in your problem, even while you are performing a Monte-Carlo simulation.

@RISKAccelerator allows you to use multiple processors simultaneously to speed up problem solving.

Each product in the DecisionTools Suite can provide answers to a particular aspect of a decision problem. However, for the most comprehensive analyses, use them together to provide a more accurate and detailed analysis than you could with any single DecisionTool.

Contact Darrel for more information.

Updates to The Survey System version 8.1

A free download is available from **www.surveysystem.com/download.htm**, to provide a few minor improvements introduced in September 2003.

Remark/SurveyPro working together

We talked about this last newsletter, but since then we have had a number of consulting and support situations that show even more aspects of the benefits of using these two programs together. Both support the "Survey Tag Language" format.

This means you can design a form in SurveyPro, save it as a survey tag language "st3" file, and open that file in Remark Office OMR.

Read the data into Remark with a scanner, and then save the Remark data into the same ST3 file. No fiddly export/import process is needed.

The data can then be analysed by SurveyPro, or combined in SurveyPro with additional data of the same kind obtained on a web form by NetCollect. You can even do a keyed import, to bring in demographic data from a different database.

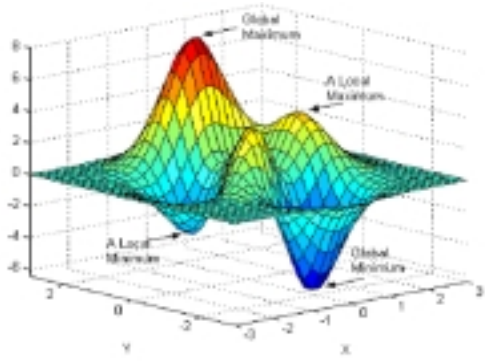
Contact Darrel for details.

Optimisation tools

This picture shows why you need powerful optimisation software to find the true maximum or minimum value in some systems. Your data might have many peaks and troughs, and your software needs to find the biggest, no matter where you tell it to start looking.

LINGO 8 (and also the LINDO API) has a new Global solver and Multistart feature. Rather than stopping after the first local optimum is found, the Global solver will search until the global optimum is confirmed.

Global solver converts the original non-convex, nonlinear problem into several convex, linear subproblems. Then, it uses the branch-and-bound technique to exhaustively search over these subproblems for the global solution. Contact Darrel for details on LINGO and related products.



MATLAB in Finance seminar

Brian Kiernan from The Mathworks visited recently and ran two seminars on MATLAB in Finance. We were very pleased by the numbers that attended, in both Wellington and Auckland.

It was really helpful to hear an expert who was familiar both with the terminolgy and methods of financial calculations and the power of MATLAB. Some of the audience was from a non-financial background but there were enough general ideas to keep everone interested.

One of the demonstrations Brian performed was of building an Excel add-in. The MATLAB file was created, and compiled as an Excel add-in as we watched. Those who missed this demonstration, or those

who saw it and want to go over the detail, can see a "viewlet" that shows all the details, from the link at **www.mathworks.com/products/industry/finance/demos.shtml#**

At the same location there is a viewlet that shows the enormous speed improvement gained by writing external code used by a spreadsheet in MATLAB instead of VBA.

Development of an energy trading application

At the Auckland MATLAB in Finance seminar, Paul Casey of the Auckland company Theta Systems Ltd was a guest speaker.

He described the work he had done using MATLAB and Java to make an application used by energy traders.

This application provides traders with access to huge amounts of information and allows them to present it in graphical or tabular form, to help them with real-time decision making.

The photo shows Paul describing one of several extremely detailed graphical data presentation screens.

Paul is available to do consulting work if you have business applications that could take advantage of the development speed and advanced graphics implicit in the MATLAB approach to programming.

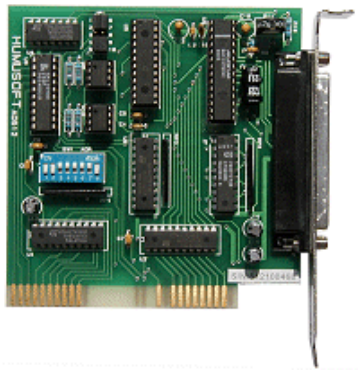
Hardware

We are now selling several low-cost data acquisition boards for PCI and ISA buses, made by a Czech company called Humusoft. The basic boards contain eight 12-bit analog input channels with sample & hold circuits. They have software programmable input ranges, 2 or 4 12-bit analog output channels, eight digital inputs and eight digital outputs.

More advanced boards have encoder inputs with differential line receivers and digital input signal filters, and high speed counters/timers.

All boards are designed for standard data acquisition and control applications and optimized for use with the Real Time Toolbox and Real-Time Windows Target for MATLAB. Drivers for Windows, Real-Time Toolbox, Real-Time Windows target and xPC Target are available.

We hesitated to carry hardware at first, but we have sold many boards to Universities and none have needed servicing.



Mathcad SR1

This update corrects several issues in numeric and symbolic calculation that were reported by users or identified in internal testing since the release of Mathcad 11, and includes all changes from the earlier Mathcad 11 Cumulative Update. This update also adds new features such as redefinition warnings, and the ability to copy and paste locked areas.

It is a 4MB file that can be downloaded from http://www.mathcad.com/download/download.asp

The Mathcad Add-In for AutoCAD 2000

Mathcad Add-In for AutoCAD 2000 lets you integrate Mathcad calculations into your AutoCAD projects for analysis and documentation. This new version provides more flexibility in inputs and outputs and easy placeholder removal, and supports Windows XP, and AutoCAD 2000, 2000i, and 2002 full versions, not LT. Note: The Add-In works specifically with AutoCAD, not with other Autodesk products.

Updated Mathcad Add-In for Excel

The Mathcad Add-In for Microsoft Excel lets you add Mathcad calculations and plots to your Excel worksheets with full access to worksheet data. The add-in features a 3D plot wizard, easy mapping between Excel ranges and Mathcad variables, automatic recalculation, and online help. This updated version contains both bug fixes and minor improvements including support for Office XP Use this add-in to enhance your Excel worksheets with Mathcad.

The Extended Real Time Toolbox

This Humusoft product brings the power of MATLAB and Simulink to the real world. It allows you to access external analog and digital signals, with almost no hardware knowledge. You can experiment with signal processing, control system design and similar tasks directly from the Simulink environment using powerful block library without the need to use any additional tools. Discuss details with Marc.

Seminars and training

Seminars

This set of 90-minute seminars will include three that have been the most popular seminars in the prevous series we have run recently. They will be held in Wellington, Palmerston North, Hamilton and Auckland on 19, 20, 24 and 25 November, respectively.

The topics of all three seminars are particularly relevant to engineers and scientists.

Make sure you tell your colleagues about this opportunity, particularly if they are in Hamilton or Palmerston North, where we only hold seminars infrequently.

If we can announce the seminars in your organisation's newsletter, please let us know.

Titles of the seminars are:

- Turning data into information
- Using spreadsheet add-ins for quantitative decision-making
- Mathematical documents that make sense

To enrol, and to see details, please go to **www.hrs.co.nz/seminars**

STATISTICA Training

The next public *STATISTICA* training is scheduled for Wednesday 26 November in Auckland.

By attending this course you will be rapidly introduced to the best ways to use *STATISTICA* for data graphing and analysis.

Email Darrel now to reserve your place. See **www.hrs.co.nz/training.**

Quantitative Risk Analysis Training

A public training course on this topic is being held on 20-21 November. You can see details and enrol at **www.hrs.co.nz/training.**

The course will be similar to previous ones in the series and will give participants a good appreciation of how to use @RISK or similar Monte Carlo simulation tools for making business decisions.

New staff member

We are very pleased to be able to introduce Darrel Amarasekera, a physics graduate who has taken on the task of product manager of applications including *STATISTICA*, the Palisade products, Forecast Pro and the Survey products.

In the short time he has been with us Darrel has made great progress with his product knowledge, as well as ensuring our systems work well to benefit both HRS and our customers. Email: **darrel@hrs.co.nz.**

MATLAB Training

We have scheduled an "Introduction to MATLAB" course on 27-28 November. See **www.hrs.co/training** for details. Time is running out for this course, so reserve you place now.

STATISTICA in Academia

We are touring NZ to present *STATISTICA* to researchers and teachers in academic institutions. We have prepared a one-hour show that will highlight the following *STATISTICA* features as well as any others our sponsor asks us to cover:

- The easily-learned spreadsheet-like interface
- A new flexible academic pricing structure which makes *STATISTICA* very affordable
- The wide range of tools within one consistent interface - from simple statistics and graphics to advanced analysis and Data Mining

We are currently identifying sponsors at academic institutions across New Zealand. (A sponsor just has to help us set a date, time and place and let people know we are coming – we do the rest.) If we have not contacted you yet, and you would like to be a sponsor, please contact Darrel by emailing **darrel@hrs.co.nz** or calling 0800 477 776.

Christmas-New Year hours

We will be closing for the year at mid-day on Christmas Eve, 24 December. We will reopen with a skeleton staff on 5 January.

Those of you working through the break and needing to contact us should preferably send email to ray@hrs.co.nz or to support@hrs.co.nz. Phone messages will be checked daily.

Contacting us ...

We are based in Hamilton, but supply, support and demonstrate our products throughout New Zealand.

Product information: www.hrs.co.nz

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David	*support@hrs.co.nz*	*Support*
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