

THE Cruncher

“A New Kind of Science”

This is a book by Stephen Wolfram, the developer of *Mathematica*.

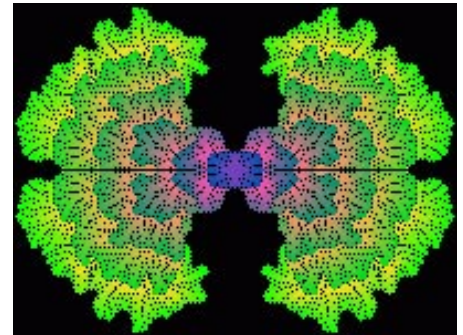
When “A New Kind of Science” was released in book form in May 2002, it immediately generated a flurry of interest in the scientific and technical community and outside. In the 18 months since, what has become known as “NKS” (after the initials of the book title) is rapidly becoming established as a major growth area.

There have been two major conferences. Courses are being taught about NKS at

major universities. Well over a hundred technical publications related to NKS have appeared, and there is now ample evidence of accelerating NKS research activity in many parts of the worldwide scientific and technical community.

One web site author said NKS “provides food for thought, to say the least, and that might well prove to have a slow snowball effect on all kinds of areas of science, research, software models, and so on, in the years to come.” ➤

You can buy the book from HRS, or you can read all 1200 pages on line, free at www.wolframscience.com/nksonline.

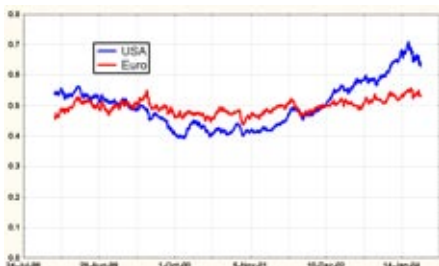


A step in the evolution of a 2D cellular automaton - from NKS

Exchange rates

When the NZ dollar rose against the US, we dropped our prices. Now the dollar is moving the other way (at least at the time of writing) our prices will increase again. The graph shows the US and the Euro exchange rates.

We thought it might help our customers to use the supplier’s Euro rate when available, but since the Euro price is usually much higher than the US price, we have decided to stay with the US price. Barring major international catastrophes, we expect the \$NZ to fall against the \$US, so if price is an issue for you, you should buy sooner rather than later.



The MathWorks

The Web site at www.mathworks.com has been completely re-vamped, to make it easier to use. Particularly note links to the sections on New Products and Next Webinars on the front page.

Links

Some internet links are too complex to show in a printed document. When we have a link like that we will put the symbol ➤ to indicate that the on-line pdf of the Cruncher, at www.hrs.co.nz/cruncher.aspx, will have a hyperlink to more information when that symbol is clicked.

Let us visit you!

Ray’s schedule becomes more hectic each month, as more people recognise the value to their organisation of having a software presentation to their staff. In April, Ray made presentations at 4 offices of HortResearch, 3 Universities, one local body and various other organisations. However, there is still some time between visits to supplier conferences and trade shows, so do give him a call if you would like to see our products in action. There is never any obligation.

We sometimes think that the main purpose of our organisation is education! Without teaching our clients about the products we sell we cannot expect them to buy.




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StatSoft has new website

We are very pleased to announce that StatSoft have remodelled their web site, removing some features that could be quite irritating and that made it difficult to read, while retaining the huge depth of information available on that site. We like the page www.statsoft.com/uniquefeatures/mip.html which gives some of the benefits of the *STATISTICA* approach to data analysis.

Downloadable resources, free to all users, are now accessible at 

Cawthron buys 5-user *STATISTICA*

After a prolonged investigation, the Cawthron Institute, a private, Nelson-based independent, not-for-profit research centre has recently purchased a 5-user concurrent license for a number of StatSoft products. John Stark, a principal scientist at Cawthron, said, "it seems to meet most needs at a more reasonable cost than some of the alternatives".

The Cawthron Institute joins NIWA and several regional and city councils in recognising the value of *STATISTICA* in analysing environmental data.

SigmaPlot, SYSTAT and Tablecurve

These products have now been sold by SPSS, and are owned by Systat Software Inc (SSI), headquartered in the USA. The parent company of SSI is Cranes Software International, a publicly held Indian company, with a paid-up capital of about \$US2M. We understand from media reports that Cranes intend to develop these products up to the standards expected of modern software, after being allowed to languish by previous owners.

HRS is able to continue to support our customers for these products, providing new sales, upgrades and support.

StatXact and LogXact

StatXact provides exact solutions for important nonparametric statistical problems involving binary, categorical and continuous data. Because the procedures are exact, they remain valid even for small, sparse and unbalanced data sets. The program can be supplied for stand-alone

use, or as a set of SAS PROCs.

LogXact gets exact statistics for Logistic Regression.

For more information visit www.cytel.com or contact [Darrel](#).

STATISTICA Data Miner review

Dr Robert Nisbet of Fair Isaac Corporation, has written an article entitled "How to choose a data mining suite". After reviewing 5 leading data miner packages he concludes "*STATISTICA Data Miner is the clear winner*" and "*...is a tool in a class by itself*". It also states that "*no data mining suite available today provides more tools for performing data mining projects*" and the author proclaims *STATISTICA* Data Miner as his "*personal favorite*" among the tools he evaluated.

See the full review from a link on the StatSoft web site at www.statsoft.com, or if viewing a pdf use this link to the DM Review site. 

Special prices!

ChemOffice deal expires 31 July!

The academic annual site license allows the use of ChemDraw or ChemOffice by an entire school. We set up a University-specific link with its own logo where, for one year, students and teachers can go and download the software for personal or classroom use. Control of the installation is by the use of a university email address, so administration is non-existent!

Although the license type is an on-going product, the price has been heavily discounted and will increase after 31 July. See details of the offer at www.hrs.co.nz/chemoffice-deal.aspx. Or contact [Marc](#).

Discounts on *STATISTICA*

We offer 10-20% discounts to purchasers of *STATISTICA* who are crossgrading from competing statistics programs. We also offer discounts to not-for-profit customers, such as various levels of government. Contact [Darrel](#) to find out what we can offer you.

Stock clearance special

@RISK upgrade – single user commercial 4.0 to 4.5 – Pro \$400 + gst or Standard \$350 + gst.

While stocks last!

Intel Visual Fortran Pro offer till June 30

The Intel Visual Fortran Compiler for Windows brings Compaq Visual Fortran language features together with Intel compiler code-generation and optimization technologies. The professional edition also contains the IMSL libraries, a set of fast optimised Fortran algorithms from Visual Numerics.

A special offer that saves new users 20% expires on June 30th 2004. Even bigger savings are available on upgrades from Compaq or Intel Visual Fortran.

See details of the offer at www.hrs.co.nz/ivfpro-deal.aspx. Or contact [Marc](#).

Web based surveys

We presently have three products that can help you to prepare web based surveys, all with their particular areas of strength.

Survey Pro is great if you want to make a mixture of Web-based and paper surveys, and combine the results.

The Survey System is particularly good if you want to do complex stub and banner analysis of the answers, and want to use computer aided telephone interviewing as well.

For powerful, simple, solely web based surveys, then you can't go past SurveySolutions. You make your forms in a wordprocessor, and the results are stored in Microsoft Access files.

Talk to [Darrel](#) about your needs, and we will help you find the best product for you.

Free tool to make TeX equations

Design Science TeXaide™ is a special version of their Equation Editor that generates TeX and LaTeX using MathType's translator technology. Equation Editor can be used with any application that supports OLE or can paste a graphic from the clipboard,

TeXaide generates TeX/LaTeX on the Windows clipboard, where it can be pasted into any TeX/LaTeX system. Now you can generate TeX/LaTeX equations using Equation Editor's easy-to-use interface! Insert hundreds of characters and symbols without having to look them up! Contact [Marc](#).

Maple 9.5.

New features include:

- New integrated algorithms for optimization problems.
- New solvers for differential-algebraic equation systems for advanced modelling applications.
- Major performance improvements.
- Integrated dictionary of engineering and mathematical terms for instant access to reference information.
- User interface improvements that make complex operations intuitive and quick
- Enhancements to interactive plotting.
- New features for advanced users to streamline programming and application development.

Contact [Marc](#) to upgrade or buy.

Mathematics Olympiad

James Liley is one of the New Zealand team travelling to Athens for the [Mathematics Olympiad](#), this year. His story has been written up in the Otago Daily Times. ➤ We helped his father, Ben, provide him with a copy of *Mathematica* for Students, and Ben tells us: "**James said all the other NZ team members are Mathematica users, and most have Maple as well**". If you have a child who gets a kick out of maths, maybe some software will be a good Christmas present, that will help them find their potential.

MathType

This is a powerful interactive tool for Windows and Macintosh that lets you create mathematical notation for word processing, web pages, desktop publishing, presentations, and for TeX, LaTeX, and MathML documents. MathType is the professional version of the Equation Editor in Microsoft Office and many other products. Why set up your LaTeX the hard way?

MathType 5 for Macintosh has just been released, and is a major upgrade and their "most important release since Version 1"! Ask [Marc](#) for pricing.

Mathcad in Education

The use of Mathcad in education is increasing, now that classroom licenses have become affordable. Those who are contemplating how best to use Mathcad in this environment should visit <http://education.mathsoft.com/>, where among other things there are ideas on best practises on using Mathcad for teaching.

If you would like a seminar at your organisation, to show you just how useful Mathcad is, call or email [Marc](#).

Mapping Toolbox 2

This toolbox enables users to access geospatial data, build and manipulate map displays, and analyse geospatial data within MATLAB. With the new release, users can access a broader range of geospatial data, including standard GIS formats, georeferenced imagery, terrain data, specific data products and simple ad-hoc data files. In addition, the release includes new 2-D and 3-D map display tools with improved flexibility and ease of use.

See www.hrs.co.nz/mappingtoolbox.aspx

Genetic Algorithm and Direct Search Toolbox

This toolbox extends MATLAB by providing new methods to address additional problem types in the area of optimisation. The toolbox serves as a central access point for the tools required to use genetic and direct search algorithms. Users can learn from and build customised optimisation routines as needed.

Visit www.hrs.co.nz/geneticalgorithm.aspx

Introducing MATLAB 7 and Simulink 6: The MathWorks World Tour

The new release of MATLAB will be announced at a set of meetings around the world, starting 8 June in the US and Europe. The closest the MathWorks presenters will get to us will be in Melbourne and Adelaide on 16 and 19 July – contact [Marc](#) if you would like an invitation.

We can't tell you much about R14 at the time of writing, but Marc and Ray attended training in Boston in May, so will be well placed to answer your questions now. Come to Ray's [seminars](#) in the week of 21-25 June to see what is new!

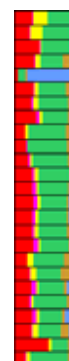
Want to know more about Mathematica?

Anyone interested in calculating with mathematics should see the wide range of uses of *Mathematica*, at <http://www.wolfram.com/products/mathematica/introduction.html>.

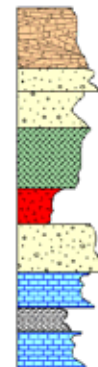
Strater – a borehole logging program

Strater, from Golden Software, imports your data from a multitude of sources and provides innumerable ways to graphically display your data. All the logs are fully customisable to suit your needs. Design and save template and scheme files to make log creation efficient and consistent. Create multi-page continuous logs, and quickly display new borehole logs. Utilise the header and footer panes to store all the information about the logs, such as well number, driller, location, method, company name, and company logo.

See a full description at www.goldensoftware.com, or discuss your needs with Darrel.



Two of the many kinds of bore log you can make with Strater



Seminars

At the end of June we will be conducting seminars in Christchurch, Palmerston North, Wellington and Auckland, in that order. In each city we will spend one day, giving four separate seminars of one hour duration.

Titles of the seminars are:

- Engineering and scientific computing with MATLAB
- Documenting Design Calculations with Mathcad
- Quantitative Risk Analysis for better decision making
- Digesting data with STATISTICA

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

MATLAB training course

David Wilson recently ran a 2-day training course on MATLAB. Although it had few attendees, it was highly valued by the participants. Comments included "Exceeded my expectations. Most highly commended for all beginners." For more information on MATLAB training, including in-house and specialised courses, contact Marc.

Training Courses

The following courses are scheduled in the next few months. Get detailed information on the courses and register for them at www.hrs.co.nz/training.

- Mathcad Training
Auckland – 1 July
- STATISTICA Training
Auckland – 5 July
- Quantitative Risk Analysis
Auckland – 9 July

MISG 2005

24-28 January 2005 at Massey Albany. Industries who have mathematical problems they would like to present should contact g.c.wake@massey.ac.nz.

MATLAB seminar

On 19 April David Wilson, an associate professor in Industrial Process Control at Auckland University of Technology, conducted a 2-hour seminar on the use of MATLAB in process control.

It was well-attended, indicating how important process control strategies are in modern industries. If you would like to find out more about MATLAB in process control please contact Marc.

IPENZ conference

HRS had a trade show stand at the recent IPENZ conference in Christchurch. It was great to be part of this interesting and active meeting. The theme of the HRS stand was "Calculation Management" – the use of Mathcad to ensure that vital corporate knowledge of design methods, goals and assumptions are saved, along with the calculations themselves. Many major international engineering firms, such as Bechtel, have realised the importance of capturing this knowledge, and have standardised on Mathcad as a tool for performing this function.

We are meeting with several organisations as a result of contacts made at this meeting – if you would also like to see what we have to offer please contact Marc.

Upcoming conferences supported by HRS

- NZ Oracle User Groups [Conference](#) 25-27 May
- NZ Association of Economists [Conference](#) 30 June – 2 July
- NZ Statistics Association [Conference](#) 1 July
- NZ NonDestructive Testing Association [Conference](#) 27-29 June

Accuracy of flood modelling

The NZ Building Code gives a technique for estimating the flow rate of water in a channel draining a subdivision or other source of runoff, which is to be used where the territorial authority

"does not have **more accurate** data available from sophisticated hydrological modelling of the catchment undertaken as part of its flood management plans"

(The emphasis is this writer's.) In order to be able to test whether one model is more accurate than another, precise experimental data needs to be available, and staff at the University of Canterbury have recently

made a set of measurements on a large laboratory channel in order to support model comparisons at near full scale.

Using levels from one of the laboratory runs, the hand calculation method given in the Code turns out to predict drainage flow to within 1% (99 l/s compared to 100 l/s.) "Sophisticated" modelling of this situation by several people, using imported software packages in wide use around NZ, has been informally reported as giving widely different results, depending on their understanding of what settings and corrections to use. (Over 150 l/s was one reported result!)

The [AULOS package](#), made in NZ, and already used by some major companies and councils, gives 101.8l/s without adjustments. Further, even this small difference from the experimental result can be eliminated by a standard textbook correction. If you are interested to follow up your own checks, send email to barncon@xtra.co.nz.

It seems that to follow the Building Code you have either to do manual calculations, or to do tests that verify that your "sophisticated" model of a catchment is indeed more accurate than these.

Contacting us ...

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

Product information:
www.hrs.co.nz

Email Addresses

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