

# KISTERS Australia News

April 2010

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## From The GM's Desk

*By Bill Steen, General Manager, Kisters Pty Ltd*

As you will see from the newsletter the year has definitely started with a bang! This has included several new installations, the winning of several tenders including a groundwater and water quality tender, WDTF development, a lot of customisation / consulting work, the testing of the new SQL Server version of Hydstra plus numerous other activities.

With the increase in activities and with many TimeStudio users migrating to WISKI we have seconded a new staff member from our Head Office. Uwe Hass and his family will be joining us shortly. Uwe has been instrumental in working with the migration of TimeStudio clients to WISKI and will project manage several TimeStudio / WISKI

projects here in Australasia.

Kisters has recently undertaken several training courses including basic and advanced Hydstra training. More courses will be advertised shortly so if you have missed out don't worry as future courses will be available. We are upgrading the air conditioning in the training room to make it more comfortable for the trainees.

The user group meetings are slowly creeping up on us and this year the Australian meeting will be held in Perth in conjunction with the AHA conference. Registrations for the AHA conference are now being accepted; please use this link to attend <http://www.aha.net.au/events/aha-2010-conference/registration/>

## 2010 User Groups

*By Peter Heweston*

The International WISKI User Conference 2010 will be held at the Swedish Meteorological and Hydrological Institute, SMHI Headquarter Norrköping, Sweden on 8th and 9th June 2010. For more information and registration see [http://www.kistersnews.com/english/html/IWUC\\_index.html](http://www.kistersnews.com/english/html/IWUC_index.html).

In the US we propose a one day Hydstra-only meeting in Ventura, California on Sep 13. The main Kisters User Group meeting will be held later that week in Orlando Florida on Sep 16 and 17. For more information and registration see [http://www.kistersnews.com/english/html/NA\\_Event\\_s\\_index.html](http://www.kistersnews.com/english/html/NA_Event_s_index.html).

The Australian Kisters User Group meeting will be held in Perth on 19 October 2010 at the Burswood Casino, the day before the start of the three day AHA conference at the same location. Please fill in a Kisters application form, which you can download from:

<http://hydstra.kisters.com.au/Registration%20Form%20Australia%202010.pdf>.

For AHA conference registration see <http://www.aha.net.au/events/aha-2010-conference/registration/>.

Why not put in a budget proposal to do the grand tour and attend all four?

# Hydstra Installations

## North East Water

In January Damian Skinner and Peter Heweston installed Hydstra at North East Water, based in Wodonga Victoria. We managed to pick some of the hottest days on record, with the temperature approaching 44 one day, but fortunately the air conditioning was fine everywhere.

North East Water provides water and sewerage services to 38 towns, villages and cities in North East Victoria, serving an estimated population of 100,000 people in an area of approximately 20,000 square kilometres. The main thrust of the Hydstra installation was the processing of water quality data into Hydstra so it could be passed on to the BOM using HYBOMEXP.

Thanks to all the staff at North East Water for making our stay in Wodonga an enjoyable one.

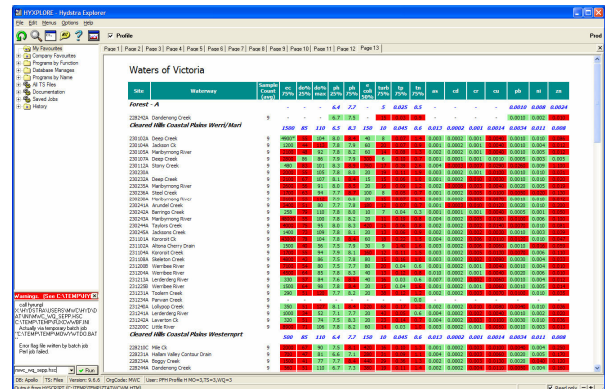


*Damian Skinner at Hume Dam*

## Melbourne Water

In February Peter Heweston installed Hydstra/WQ at Melbourne Water, and assisted in importing legacy data from spreadsheets.

We also developed some nice reporting tools that may well be of more general use, and we are currently thinking about how to generalise them and make them part of Hydstra/WQ. One report shows compliance with State Environment Protection Policy (SEPP) guidelines for various water quality parameters in a simple colour-coded report. See <http://www.epa.vic.gov.au/water/epa/wov.asp> for more information on SEPP.



*Example SEPP Report*

## Gladstone Area Water Board

In March Peter Heweston installed Hydstra at the Gladstone Area Water Board. Once again the intention of the installation was to facilitate the transfer of data to BOM. Thanks to all the GAWB staff who worked hard to assist.

It seemed for a few nervous days that Tropical Cyclone Ului might be heading straight for Gladstone, but at the last minute it veered further north, passing over the coast near Proserpine and causing considerable damage.



*Flying into Gladstone*

## Kisters Modelling

Kisters offers three different modelling products, each of which has its appropriate areas of use.

- MODSYN is the Hydstra Synchronous Modelling language that uses vector operators to work on columns of time series data. At present it runs only in Hydstra, though via Perl interfaces it can link to other systems and text files.
- Kisters Model Builder is TimeStudio node and link modelling rebadged. It connects to Hydstra and Wiski, as well as running stand alone from text files.

- Kisters Statistical Modelling uses statistical methods including adaptive logic networks, neuro-fuzzy networks, fuzzy logic, multivariate linear regression etc to relate parameters with a minimum of intervention.

In some circumstances it may be useful to combine products, for example Statistical Modelling for rainfall/runoff prediction followed by MODSYN or Kisters Modelling for routing the flow.

## HYBOMEXP and WDTF

Kisters Pty Ltd are currently working on a version of HYBOMEXP that will support Water Data Transfer Format (WDTF) exports, and it will be released to all Hydstra users by June 30 this year. The project is funded by the NSW Office of Water using BOM funds from the Modernisation and Extension of Hydrologic Monitoring Systems Program.

The WDTF version of HYBOMEXP will only be available for Hydstra V10, and it will export TS, WQ and GW data from Hydstra in the appropriate WDTF formats. Existing V9 users can continue to use their current HYBOMEXP version until they upgrade to V10. However it is worth noting that the V9 HYBOMEXP doesn't really do WQ and GW

correctly, in that all we can export are time-series based on the WW and GW datasources.

The new version of HYBOMEXP will support FTP to multiple destinations, so users should be able to send data to the BOM and also collaborating partners. We will also distribute an import program for WDTF data.

As part of the project we are also developing an Excel spreadsheet and supporting tools that can be used to export WDTF data to BOM from Excel, provided the data can be loaded or pasted into Excel in the correct format. This system is intended to be made available by the BOM to small non-Hydstra users as a free standalone product.

## Hydstra and SQL Databases

Kisters Pty Ltd are working on the release of support in Hydstra for tables in SQL Server, Oracle and PostgreSQL. The first official release will be for Microsoft SQL Server in Hydstra V10.2, with PostgreSQL and Oracle following later in the year if and when demand is confirmed.

There will be a significant charge for upgrading to the SQL Server version of Hydstra, please contact us for pricing information. Also please contact us if you have views on whether you would prefer to see PostgreSQL or Oracle support released next.

You will need to have the appropriate database software already installed on a server of appropriate size with enough licences to support your user community. It is worth noting that PostgreSQL is open source, and hence free, while SQL Server and Oracle can get quite expensive.

If you are considering investigating the SQL Server

version of Hydstra, our strong recommendation is that you first upgrade to Hydstra V10 over Foxpro, then install a test server running the SQL Server version, and only go live with SQL Server when you have satisfied yourself that it all works. Don't confound the V10 upgrade with the SQL Server upgrade, do them in order.

There will be hardly any look and feel differences under SQL Server, and all existing tools will continue to work, including HYMANAGE, HYDBUTIL, etc. There are simple HYDBUTIL tools to migrate tables between Foxpro and SQL Server and back again.

Time series data will continue to be stored in Hydstra time-series files, and not inside the database. However we do have plans for a 'product' database table that could be loaded with fixed time-step computed daily data, where the storage requirements are not so high.

# Hydstra Product News

## Hydstra Version 10 Status

The current release of Hydstra is version 10.01.00. We had a slip-up with 10.00.00, and it has been canned. If you have a 10.00 installation please upgrade it to 10.01 soon, as 10.00 is unpatchable. V10.01.00 is available from the Kisters FTP site - contact Debbie Cockburn for details on how to access it.

We are looking to make more routine the provision of Hydstra patches on the Kisters FTP site. The patches will be saved with a name of the form *hydstra.10.01.02.20091207.zip*, which encodes the version, release, patch and date. We plan to develop an automated patch installer later next

year, in the mean time the patching will need to be a manual process - we recommend using Beyond Compare to simplify the process. Don't forget to back up your system and throw everybody off before applying patches.

The upgrade to version 10 may require some care for larger users, particularly those with lots of custom scripts. Read the V10 Help file from the release CD for more information.

Please notify us when you go live with V10, as it is important that we keep accurate records of which version everyone is running.

## HYDBSQL Tips and Techniques

HYDBSQL is a V10 HYSRIPT job for making SQL calls over Hydstra tables in Foxpro. We have added more examples to the HYDBSQL documentation in V10.2 to show many more advanced queries which work right now over Foxpro, including JOIN, UNION, GROUP BY, ORDER BY, SELECT, WHERE and HAVING clauses. The following examples will give you some idea of what can be done with the Foxpro ADO driver:

```
select top 10 station,stname
from site
order by station
(If you want the top n records you must
order by something)

select top 10 percent station,stname
from site
order by station
(you can retrieve the top n percent also)

select distinct stn, count(stn) from
gaugings
group by stn
order by stn
(Show how many gaugings have been taken
at each site)

select distinct stn, max(meas_date) from
gaugings
group by stn
order by stn
(Show the date of the latest gauging at
each site)

select distinct stn,
count(stn),max(meas_date) as meas_date
from gaugings
group by stn
order by stn
having meas_date>{01/01/2000}
(Show all the sites that have gaugings
after 01/01/2000, plus the count of how
many gaugings were taken at that site)

select distinct stn, count(stn) as count
,max(meas_date) as meas_date from
gaugings
```

```
group by stn
order by stn
having meas_date>{01/01/2000} and
count>100
(Show sites that have latest gauging
later than 01/01/2000 and have at least
100 gaugings)

select stn,meas_date,m_gh,flow
from gaugings
where flow=(
select max(flow)
from gaugings
group by stn)
group by stn
(Get date, flow and height of the highest
gauging for each site. Note use of nested
select statements and grouping)

select station, refstn, reftab from
rateper
where (
varfrom = 100
and varto = 140
and sdate=(
select max(sdate) from rateper
group by station,varfrom,varto
)
)
order by station, varfrom, varto
group by station, varfrom, varto
(get current applicable rating table
number)
```



```
select distinct w.variable,v.name,
count(w.variable) as count
from wrehouse as w,wqvar as v
where w.variable=v.variable
group by w.variable
order by w.variable
(Count records in WREHOUSE by variable)
```

```
select distinct w.variable,v.name,
count(w.variable) as count
from wrehouse as w,wqvar as v
where w.variable=v.variable
group by w.variable
order by w.variable
having count>1000
(find all water quality variables that
have at least 1000 results and list the
variable name as well)
```

## New DLL for Hydstra

We've developed a new DLL called HYDLLP.DLL and provided an accompanying Perl wrapper HYDDLPL.PM. The new DLL is a true DLL which is linked in at run time, with parameters passed using memory managed by the client.

The advantages of HYDLLP are numerous:

- The DLL does not need to be registered as a COM server, which has become an increasingly tedious chore in Vista and Windows 7
- Its is very much faster - as much as 10x in some circumstances
- It doesn't leak memory like HYDLL does when called millions of times

The disadvantage is that the call sequences for non-Perl programmers are quite different.

To change over to the new DLL in Perl programs is a simple change of the Perl object name in a couple of places. Use GNUMREGREP to locate the

scripts that use HydDll then simply edit the following lines to add 'p' to the library name and the New() method.

```
use HydDllp;
...
$dll = HydDllp->New();
```

All Hydstra programs delivered in 10.2 will use HYDDLPL.PM as a matter of course.

Users calling the DLL from Excel or other languages will need to make rather more changes, and we provide a sample Excel spreadsheet to show how it is done.

HYDLLP.DLL and HYDDLPL.PM will be available in v10.02. The old HYDLL will be supported for the indefinite future, so you don't need to do anything if you don't want to.

## The Mythical Man Month

By Peter Heweston

I have recently been re-reading that classic text *The Mythical Man Month*, by Frederick P Brooks. Brooks worked on IBM's mainframe operating system OS/360 back in the 60's, and he developed some valuable ideas about managing large software projects which he crystallised into his book, first published in 1975 and recently updated. Although some of the technical issues he encountered are well and truly ancient history (like operating with very limited memory, or only having restricted access to the computer), his project

management ideas remain valid to this day. A few of his ideas still resonate with me:

*Adding manpower to a late project makes it later*  
*More software projects have gone awry for lack of calendar time than for all other causes combined.*

*A software task should be scheduled as 1/3 planning, 1/6 coding, 1/4 component test and early system test, and 1/4 system test, all components*

Anyone interested in software project management will enjoy reading this classic.

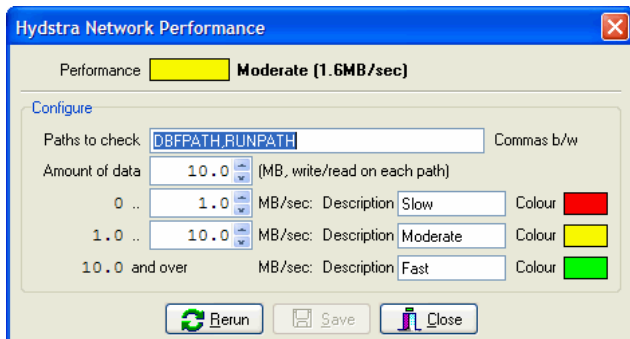
## Hydstra Training Off a USB Key

We have developed a technique for running Hydstra off a USB stick for training courses. The technique significantly reduces the time required to set up a training room full of PCs, and has the added bonus that users can take home the sticks afterwards if you're not too stingy to begrudge the \$13 a head.

Hydstra runs reasonably well off a memory key provided that the key is a fast one. Memory keys are not all created equal, and we see a factor of 8 or 10 between the best and the worst.

The best way to find out whether a specific memory key is suitable is to load a Hydstra system onto it and run the speed test from HYPLORE. In

V9 you get to it through Help/About/Network Performance, and in V10 it is under Options/Test Network Performance. You really need to see about 1.6MB/sec to have a suitable training experience.



We find the ones sold at the Australia Post stores

are quite good, and the 4GB sticks are a mere \$12.99.

The process is documented in detail in the V10.2 Help file.

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### Portable Apps Suite

If you find yourself moving from computer to computer and unable to install your favourite apps on the current PC you may like to explore PortableApps.com, a web site dedicated to providing a very useful suite of tools that will run off a USB drive or memory stick. You can use a

Firefox browser, play music, edit documents with Open Office, use Notepad++, and much more. If you have the latest version of Beyond Compare you can install that to the same USB drive, and have a very powerful and portable toolkit at your disposal wherever you go.

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### Building Automatic Groups

If you use the GROUPS system extensively you will quickly find that manually maintaining large numbers of groups is error prone and laborious. If at all possible we recommend that you try to set up most of your groups so that they are built automatically using site list expressions in GRPVALS.

In order to do this effectively you may need to break out some of the spare fields in SITE in order to populate them with additional local business information required to build the groups.

Read the Help file topic *Hiding and Exposing Database Fields* for information on how to use the

spare fields in SITE and other tables. Then read up on *HYSTNS*, and particularly the CATEGORY keyword (in V10) as well as the Perl extensions HYSCANDB and HYFILTDB. Read up on *HYDBUTIL SITELISTGRPS*, which you need to run automatically every night to rebuild the groups. Read up on *Running applications from outside the Hydstra Menus* for information on how to run a Hydstra job standalone, for example from the Windows Scheduler, or if you are running SVRRUN, simply use it to update your groups nightly.

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### File Permissions Under Vista and Windows 7

Hydstra V10 runs under Vista and Windows 7 with no problems. However you do need to be aware of some behaviours of the file permission system under those operating systems. For example you create c:\temp as your temp directory. You might think that having created the directory you would have full permissions on it, but no, your

permissions are still somewhat limited. You need to right click on the directory and explicitly give yourself full permissions before you can create and then delete a file.

File permissions are one of the most common reasons for Hydstra problems on a new PC.

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### Windows 7 Font Problems

As explained at [http://www.rlvision.com/misc/windows\\_7\\_font\\_bug.asp](http://www.rlvision.com/misc/windows_7_font_bug.asp), Windows 7 has a bug where MS Sans Serif,

MS Serif and Courier fonts (which are bitmapped) do not change size when you change the "big fonts / small fonts" setting.

This means that on a significant fraction of installations (ie, anyone who has changed that setting from the one chosen automatically at OS installation time), software that uses those fonts will not display properly.

Hydstra makes extensive use of those fonts, and anyone who has a high-def laptop screen then switches to a large monitor, will in all likelihood

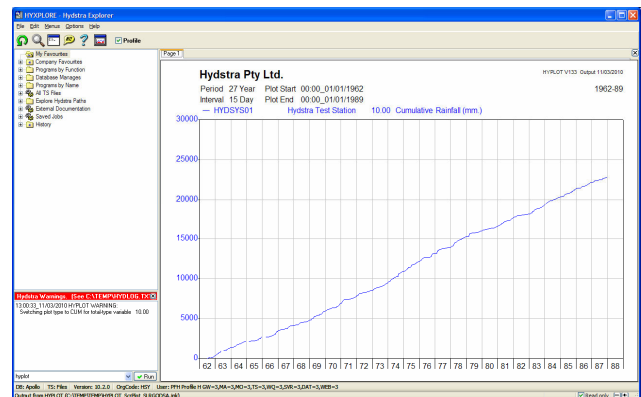
experience the problem.

One solution involving registry changes is outlined in the above URL, or you can wait for Microsoft to provide a fix, or you can stop using MS Sans Serif, and starting using Tahoma instead. Copy HYPRMNT.INI from MISCSPATH to INIPATH and edit it there, replacing *Microsoft Sans Serif* with *Tahoma*.

### Hydstra Warnings Can Slow Down Jobs

Hydstra programs can sometimes produce warning messages, which are displayed in a warning box in HYXPLORE below the menus on the left hand side.

You should know that it is quite slow to produce a warning message, and if you have a process that produces thousands of them the performance of the program may be very severely impacted. Please attend to warning messages and fix the problem.



### HYFILER CALIBRATE

HYFILER has been enhanced with a CALIBRATE command that takes a series of comma delimited text files containing calibration data and applies the calibrations to time series files. It will only calibrate on exact block boundaries, but you can change

values, times and quality codes. It is intended to be built into automated data processing tools rather than be used manually, since the Workbench does the same thing in a manual way. HYFILER CALIBRATE has been patched back to V9.6.

### VARTO of Zero in Parameter Screens

A little known feature of most parameter screen programs (little known because we forgot to document it years ago) is that if you specify a Varto of zero it means use the same variable as Varfrom. You can use this on HYDAY, HYPLOT, and most parameter screens that have Varfrom and Varto.

We plan to make 0 the default in the next release - though you can always change the default for any PSC program by saving a job named Default into Company Favourites with the screen set up exactly how you want it.

## Instruments Workshop

In early March the Australian Hydrographers Association (AHA) chaired a meeting at NSW Office of Water (NOW) to discuss instrumentation database issues. The meeting was funded under the BOM's Bureau's Modernisation and Extension Program, and brought together 31 experts from water agencies from every state and territory to discuss how they managed records relating to instrumentation, and what an ideal hydrological instrument management system might look like.

The meeting was very successful, and most attendees agreed that they had rarely been involved in such a productive and cooperative

meeting of its type before. Thanks must go to the AHA and NOW for convening and running the meeting.

Kisters Pty Ltd was a participant, and many users described their usage of the Hydstra instruments system - some loved it, some hated it, some ignored it, but all agreed that it could be enhanced and developed to improve it significantly. Funding from M&E was allocated to allow us to implement some of these enhancements for the next iteration of Version 10. We are hoping for some more to finalise the task

## 2010 AHA Conference



### *Hydrography - Reflection, Refinement, Resurgence*

The Hydrographers Association Conference is held every two years. It is a unique opportunity for hydrographers and industry suppliers to network, learn from each other and promote their products to water industry representatives from all over Australia and the Asia Pacific Region. More specifically, we encourage and anticipate participation from members, leading State and Federal water agencies, water utility providers, hydro power generators, private industry groups and individuals.

The 2010 Conference is to be held at the Burswood Complex in Perth, Western Australia from the 19th to the 22nd of October., with the Kisters day being on the 19th.

The Theme of this year's Conference is Hydrography - Reflection, Refinement, Resurgence. This theme provides the opportunity to showcase projects, exchange experiences and learn about a wide range of subjects related to Hydrography in Australia and from around the World.

As Hydrographers we collect, validate, and manage a wide range of water related parameters. This often involves verifying data in an historical context. In an environment of rapidly changing technology we must not lose sight of hydrography's evolution, so it is important to occasionally step back and reflect on the past. This event provides

the opportunity to review where hydrography has come from in order to foster continued improvement.

Refinement of the profession is currently underway. Training and accountability are being refined with the development of a new Hydrographic Qualification under the Federal Government Vocational Education Training framework and consideration of certification / accreditation for Hydrographers. On the technology front, advances include the adoption of groundbreaking Acoustic Doppler technologies for obtaining Discharge Measurements; enhanced theoretical Ratings using data from aerial surveying; IP telemetry for ready access to data; and ongoing advances in the presentation of information using sophisticated GIS tools. All vastly improving the efficiency of data collection and availability of a growing range of information products.

The need for water related data is undergoing resurgence due to various drivers including Climate Change, the Water Act 2007, Water Accounting, and increasing Environmental Compliance and Social pressures. As Hydrographers we need to face this challenge to not only ensure that the data we collect is accurate and timely, but also relevant to commonly adopted Standards and community values.



## Staff News

We are pleased to welcome Uwe Hass to the Canberra office. Uwe has been seconded from Kisters to Australia for two years to help support the Wiski migration effort, and to enhance our project management skills. Uwe has a wealth of experience in hydrology, data management and data analysis. Most recently he has been involved in support and project management for Wiski projects in Europe and North America, and his presence in Canberra will significantly strengthen our capabilities in Australia.



Uwe Hass

## Employment with Kisters

We are always looking for good people to join the Kisters Pty Ltd operation, in Canberra or Hobart. If you have demonstrated programming skills and think you would be interested in working for Kisters, please submit your resume to [peter.heweston@kisters.com.au](mailto:peter.heweston@kisters.com.au). Skills we are seeking include one or more of:

- Perl programming
- Delphi or C# programming
- GIS development
- Web development
- Project management

## Contact Information

This newsletter is published by Kisters Pty Ltd and edited by Peter Heweston.

Homepage: <http://www.kisters.com.au>

All support and accounts questions should be directed to [support@hydstra.com](mailto:support@hydstra.com).

All personal Kisters email addresses in Australia are of the form [firstname.lastname@kisters.com.au](mailto:firstname.lastname@kisters.com.au), but all general emails should be addressed to [support@hydstra.com](mailto:support@hydstra.com).

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