Storm Geomatics has teamed up with another midlands company, Barwell Ltd, to develop a new software suite for processing river channel surveys. GeoRiver is the result of four year’s effort. GW’s Richard Groom decided to find out more by talking to Storm’s MD Mike Hopkins.

Geomatics World: Storm Geomatics specialises in river channel surveys. What prompted you to develop GeoRiver?

Mike Hopkins: Having spent the last twenty years surveying river channels I have always looked to improve productivity. River surveying is interesting because rivers change along their course and challenge the surveyor, but there are also a lot of repetitive tasks. Amongst modern survey systems that produce point clouds and animations, it is still the old fashioned cross-section that is the mainstay of river modelling. If you are surveying a lot of river that means you will be producing a lot of cross-sections. You need to have a good field/office routine to handle all the data.

Although efficient and robust data collection in the field is an essential part of the good surveyor’s goal – to provide deliverables to the highest standards – data processing is more and more important as customers demand different types of deliverables in formats most people haven’t even heard of. You can have the best kit in the world, but it isn’t going to generate income if you can’t handle the data efficiently and provide the timely, polished product which unlocks the project door. Unfortunately, there isn’t a piece of software on the market for every job you will ever do, that quickly processes your survey and delivers it exactly as your client wants it.

So, with Storm Geomatics only in its second year, we decided to get control of the way we process and present surveys by developing a river data processing engine that can keep up with the hydraulic modelling industry. Four years later we have arrived at Storm GeoRiver version 1.0, and all those that use it seem to be breathing a sigh of relief, knowing that from now on they have a fast, reliable and complete method for handling their raw survey data.

GW: How does GeoRiver bridge the gap between surveyor and modeller?

MH: There aren’t many surveyors who do hydraulic modelling, or indeed hydraulic modellers who do surveying. However, it is always useful as a surveyor to know what your data is being used for and from this, you start to supply more relevant information in a more seamless format. From spending time with hydraulic modellers and attending modelling courses, I began to realise that although modellers seem to use every morsel of the data we provide, they tend to spend a lot of time getting the data into their various river modelling systems. In between the surveyor and modeller is a data input clerk who prepares information so the model is ready for running. Storm GeoRiver provides fast/automatic routines so that more of the survey data supplied finds its way directly into the right place within the river modelling software and reduces the data input phase enormously.

We have done this by looking at the variables across the three main river modelling formats and identifying common ones, which are then consistently output in whichever format is required. Some of the new data going across still needs to be manually input, but time savings are made through the simplicity of GeoRiver’s user interface over less friendly packages. This is the really exciting end of the software, as we are breaking new ground with every new function.

GW: What are the features of GeoRiver that make it innovative?

MH: One of the bigger innovations is the ability to import and export data from HecRas, Mike11, ISIS and EACSD 3.2. This has already proven invaluable in cases where data from archive models of differing formats have been pulled together quickly and easily to form a single model or when converting data from one model format to another.

A great innovation will be the fact that it is cloud licensed and you can buy the full and current working version for as little as £100 for 30 days and be up and running within half an hour. The idea behind the cloud licence solves a lot of issues such as the expensive initial outlay, which some can’t justify if river surveys are a small part of the company’s business. The cloud licence also allows the software to be installed on any PC free of charge, making it available on any workstation by simply logging on. The software can also be used offline by a “one-click” option – useful if you want to put it on a laptop and download and edit data when on site.
There are many subtle innovations which go a long way in terms of productivity, such as auto photo naming, quick text placing, fast Mannings coefficient input, auto section naming, variable drawing scale output with fully working descender cranking, to name a few. It is the small innovations in the workflow processes that contribute to the main time savings.

Having launched this platform it will be our users who will steer innovation as we add their requests to our wish list and pick them off as and when our software committee see fit and have the funds to do so!

**GW: What have you done to test the new software?**

**MH:** Having thousands of river cross sections in our office in lots of different formats, we have used archive data from differing projects and run it through GeoRiver to produce the end results. We have then used the original survey results produced from other software and routines as a benchmark and compared the results. Along the way, we found some spectacular flaws with the software, especially during the MIKE11 development which works with the zero chainage at the upstream end of the reach! But with methodical testing procedures in a controlled environment, we have been able to sign off all the technical issues and we now have a very stable platform.

We have tested the software in a less controlled environment by handing it to our surveyors to process archive data. This has perhaps been the most rigorous test as they saw it as a challenge to “break” the software and find faults, often using less conventional techniques to arrive at the finished product. By using surveyors who process this kind of data every day we found they provided us with requests that were really easy to implement and made huge time savings in their working day. We feel that we now have a solution from both a technical and user interface aspect that has resulted in an accurate and trouble-free processing solution.

**GW: You have been using GeoRiver for your survey contracts. How has it affected your productivity?**

**MH:** It was surprising how quickly our surveyors were able to make the change to GeoRiver. Obviously, those involved in the testing phases are quite familiar with the GeoRiver environment, but even surveyors who have used it from a cold start have picked it up very quickly. Much of this is due to automated processes, leaving the operator with little to do! On the whole, I would estimate that we can now process river channel surveys 20% faster than we were able to previously and our surveyors say that they would never go back to the way they used to do it.

**GW: Have your clients noticed the difference?**

**MH:** We certainly haven’t had any complaints since we started using GeoRiver to produce our client’s deliverables. I suppose that with survey deliverables of this nature it is quite a precise thing; it’s either right or it’s wrong! As a survey company, you only tend to hear from your client after delivery if there is a problem. With GeoRiver our deliverables are bound to be more error-free as a lot of the processes are automated, this produces more continuity and integrity throughout the project and these feelings will no doubt pass onto our clients as they use our data – which is exactly how we want them to feel about it. Our clients will start benefiting from us using GeoRiver when they need to manipulate and enhance data themselves. They will be able to pick up our GeoRiver model and quickly add in structures and Mannings coefficients themselves, saving time for the data input clerk.

We launched in March this year and have already cracked the EACSD v3.2 format which was released in May. Next on the list will be another HecRas data format which is similar to EACSD v3.2 and will allow the user to sketch upper and lower chords for structures. This is where a lot of the hydraulic engineers will benefit from GeoRiver as it will save them hours of data input. Already, our clients are seeing that working with a dedicated company using dedicated software is making a difference in the quality and integrity of their data. They can also see that there is a lot more to come, which for the movers of the industry is probably the most important of all.

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https://www.geomatics-world.co.uk/content/article/the-birth-of-georiver-interview-with-mike-hopkins