

## Special Feature

Ones to Watch for 2016:  
Engineering **USA**

# CivilGEO, Inc

CivilGEO develops advanced engineering and environmental modelling software for civil engineers worldwide. We spoke to Chris Maeder, Engineering Director at CivilGEO, to find out more about the company itself and to hear his thoughts on the current state of the engineering industry.

CivilGEO, Inc. was started in 2010 to provide a set of advanced hydraulic modeling tools for civil engineers who place a premium on high performance water modelling software.

At CivilGEO, one of our guiding principles is to build a tool that will be indispensable to the civil engineering community. We regularly consult with practicing engineers to design and implement industry-specific and highly functional software. We strive to help engineers work as efficiently as possible and produce the most accurate results. On-going conversations with professional engineers that depend on our software is key to our success.

Effective water resource management and planning is a cornerstone of our economy and modern culture. GeoHECRAS, CivilGEO's principal software program, eliminates the frustration civil engineers often experience integrating external data sets and files with comprehensive water modelling software. The advanced capabilities of our software combined with uncompromised technical support consistently sets CivilGEO apart from the competition.

GeoHECRAS is an AutoCAD, Bentley MicroStation and ESRI ArcGIS compatible interactive 2D/3D graphical user interface data wrapper to U.S. Army Corps of Engineer's HEC-RAS software. GeoHECRAS greatly speeds up HEC-RAS model creation and produces modelling scenarios that are more accurate and ultimately more useful to engineers.

The GeoHECRAS software rapidly constructs HEC-RAS models as it pulls data from a variety of sources. The software computes water surface profiles for steady and unsteady flow conditions, analyzes and designs bridge and culvert roadway crossings, generates floodplain and flood hazard maps, performs river and stream restorations and realignments, computes flood inundation maps for possible dam and levee failures, and much more.

GeoHECRAS is platform-independent and has the capability to integrate multiple data sets into the modelling process. Our software is directly tied into the cloud computing data centres of NASA, USGS, EPA, FEMA and others to draw from their vast storehouses of mapping information. For example, GeoHECRAS can instantly retrieve high-resolution digital elevation terrain data for anywhere in the world for use in a HEC-RAS flood study. Similarly, watershed drainage areas are nearly instantly delineated using a cloud computing server cluster, which use a parallelised algorithm to allow larger and more complex problems to be handled. All of this performance allows the engineer to see things in real-time, making him much more productive and providing the engineer the option to try different solution scenarios more quickly.

Virtual reality technology is poised for growth in the coming years. At CivilGEO we have combined virtual reality technology with HEC-RAS to give the engineer the ability to perform flood modelling, design bridge replacements, analyze dam failures, and create stream realignments within a virtual reality 3D visualisation framework. As multiple data sets are pulled into the model, the engineer can easily switch from 2D to 3D viewing perspectives to examine the data. GeoHECRAS allows the user to interact with the HEC-RAS model, visualise the terrain, cross sections, roadway crossings, levees and other structures, all in a high-resolution 3D virtual reality.

Another aspect that sets CivilGEO apart from other engineering software companies is the quality of our technical support, which has been described by some as "fanatical." From the first contact, our account managers and

technical support engineers strive to build and maintain a relationship with each customer. We try to understand the needs and objectives of our clients and the kinds of engineering projects that make up their business. This information allows us to better serve our customers.

We take our technical support very seriously at CivilGEO. In a certain sense, we become an extension of our client's engineering department, providing the expertise and knowledge to get their engineering projects completed in a timely fashion. We can help the client figure out what is wrong with their engineering project, assist them in moving the analysis along, and then hand the project back to the client to finish.

CivilGEO understands that our customers do not have the time to wait for a response to a question. Our support engineers strive to be as efficient as possible, and in most cases the issue is resolved on the first call. Details related to each case are entered into our customer support database. This customer profile gives our firm specific information about the customer's business and gives us the background necessary to help with future support calls.

Our company seriously considers and welcomes client feedback regarding our products. In some instances, a client's request for additional capabilities within the software has been implemented within 24 hours by our software development team, truly an example of "software on demand." As a company, we are responsive to our clients' needs and very proactive in our approach to software design and implementation.

Future trends point to greater automation of the engineering process. Consistent with this trend are expectations that software handle complex scenarios and produce solutions faster. CivilGEO is leading that trend by incorporating cloud computing within the software. Software must be adaptable and responsive to constant flux within the engineering industry. CivilGEO is constantly monitoring the state of the industry and further developing software that integrates the most advanced technology as it reflects current needs in the field of civil engineering. This proven philosophy will chart CivilGEO's course well into the future.



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