



Groundswell Technologies, Inc. Newsletter

Fall 2011

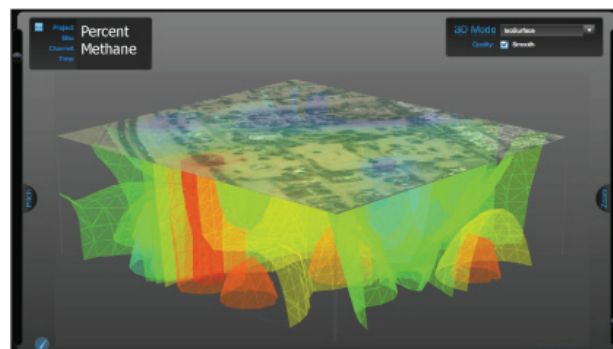
Remediation Article

GT founder, Mark Kram, is cited as the lead author of the article, "Web-Based Automated Remediation Performance Monitoring and Visualization of Contaminant Mass Flux Discharge," published in the Journal of Remediation Summer 2011 edition. This article highlights the value that GT's web-based software platform, Waiora, adds to environmental monitoring and remediation projects. Two demonstrations are noted, one with the US EPA and the other with the US DOE. In both cases Waiora's utility as an automated sensor-based project management platform for monitoring and evaluation of groundwater remediation offered reduced life-cycle costs and carbon footprints associated with project management tasks, as well as improved access to rapid visualization of site conditions and changes over time. For a more detailed summary, follow this link to the abstract: <http://onlinelibrary.wiley.com/doi/10.1002/rem.v21.3/issuetoc>



Dynamic VI Risks Demonstrated

GT is leading the way in transforming investigative approaches for vapor intrusion risk. The recent completion of an innovative six-month pilot project in the Middle East included continuous monitoring of vadose zone vapors throughout a high-risk region for highly temporal and geospatial mapping of concentration data. Continuous gas concentration monitoring reduced uncertainties that would otherwise result from insufficiently short sampling intervals, and increased consultant and client understanding of the relationship between gas concentrations and environmental conditions such as atmospheric pressure changes.



3D View of Methane Concentrations (%v/v)

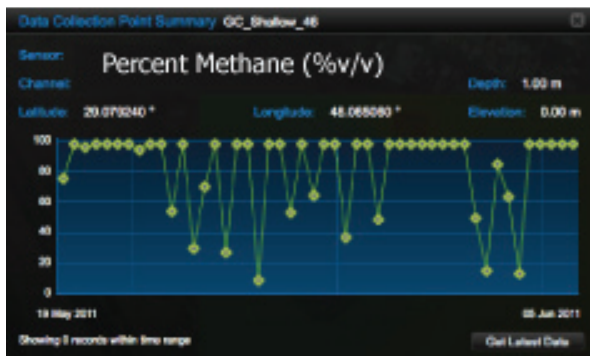
Upcoming Conferences

Come visit GT's exhibition booth or poster presentations at the following conferences:

Date	Conference
September 11-14th	WaterReuse Symposium; Phoenix, AZ
October 5-6th	GRA of California Conference; Sacramento, CA
October 17-19th	WEFTEC Conference; Los Angeles, CA
November 29th- December 1st	SERDP & ESTCP's Symposium; Washington D. C.
November 29th- December 2nd	NGWA Expo, Las Vegas, NV

Dynamic VI Risks Demonstrated Cont.

Valuable results from this project suggested a key relationship between barometric pumping and potential vapor intrusion risks. Waiora also allows users to map the spatial distribution of explosive subsurface vapors and superimpose air photos or site maps, which inform practitioners about property specific proximities to high-risk encroachment conditions (see image on previous page).

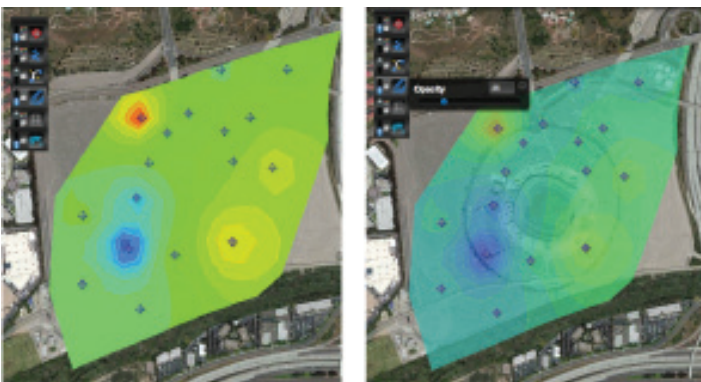


The time series figures above present dynamic conditions of percent methane and atmospheric pressure, which are not typically observed with weekly or monthly monitoring frequencies.

Waiora Feature Highlight

Contour Layer Opacity Control Tool

It's simple for the Waiora user to adjust the opacity of the contour layer in order to create customized contour maps. The user can choose between 0% to 100% contour opacity, or choose to hide the contour layer completely. The resulting contour map can be exported as an image file for decision support purposes.



Contour Maps with Different Opacity Settings

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Technology Corner

The WaveData™ Wireless System by Instrumentation Northwest, Inc.

Groundswell frequently receives inquiries about telemetry options for automating sensor networks. The options abound, ranging from RF radios and cellular systems, to satellite options. This issue we are showcasing the WaveData™ wireless system offered by Instrumentation Northwest (INW). Operating in the 900 MHz or 2.4 GHz radio frequency (RF) bands, these reasonably priced RF modems are license free, consume little power, and can communicate to distances up to 5 miles. A typical network for groundwater monitoring consists of a remote radio unit installed at each well connected via cable to INW's Aquistar Smart Sensors using industry standard digital RS485 interface and MODBUS communication protocols. The remote radios relay sensor data to a single host radio that in turn transmits to the Waiora monitoring platform via the internet. Internet connectivity is easily enabled with radio, cellular or landline modems. The radio's are compact, weatherproof, and require little to no maintenance. For additional information on the WaveData™ wireless system, visit INW's website. <http://www.inwusa.com/>

