

THE CURRENT

NEWS FROM WATERBORNE ENVIRONMENTAL, INC.

FALL 2006

R&D Program Expansion

Value and Dependability Testing for New Field Monitoring Equipment

With the release of new Terrestrial Field Dissipation (TFD) guidelines from USEPA there is an increased interest in extracting the maximum information value from these studies. As a continuing commitment to our clients, Waterborne is conducting several experiments as part of our research and development activities. The first experiment involves a side-by-side long-term test of various soil moisture monitoring gear and support systems. Our goal is to evaluate, test, and prove the functionality and performance of low-cost (\$100–\$400 per probe) soil moisture equipment. Our aim is to provide clients an added benefit when working

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Gerco Hoogeweg, Ph.D., Joins Waterborne

Waterborne is pleased to announce that Gerco Hoogeweg, Ph.D., has joined the company working out of Leesburg, VA. A native of The Netherlands, he has over six years of experience using environmental assessment models and over ten years of experience working with GIS in agriculture, environment, and spatial data infrastructure. Gerco has a M.S. degree in Agricultural Engineering from the Agricultural University, Wageningen, The Netherlands, and a Ph.D. from the University of Florida in Soil and Water Science with an emphasis on pesticides, modeling, and GIS. For the last 6 years, he has worked at ESRI in Redlands, California, as a Consultant/Project Manager.

While at ESRI, Gerco has worked on a number of diverse projects ranging from software/GIS system design to development of field GIS applications. Tasks also included managing the design, development and implementation of the GIS Portal Toolkit, including conducting ESRI technical training, on-site implementation, and managing the software development into a new product offering for ESRI. Gerco has provided technical and management support during emergencies, such as the Space Shuttle Columbia disaster recovery¹ in which GIS was crucial in the recovery effort, California wildfires² and the vegetation mortality crisis in California's National Forests. Gerco is a skilled educator, conducting numerous training courses at ESRI facilities around the country and abroad, and was also an adjunct faculty member at the University of Redlands where he taught a course on 'Environmental Modeling with GIS'.



During his time at the University of Florida, Gerco conducted numerous modeling studies examining the environmental fate of agro-chemicals in the environment using GIS, Monte Carlo simulations, and geo-spatial statistics. He specialized in combining his interests in pesticides, soils, and ground water with GIS and modeling, including linking GIS to models such as PRZM, CMLS and others. He created the SEAMS model (Soil Environmental and Agricultural Management System) used by county extension agents which combined features the Chemical Movement in Layered Soils (CMLS) model, ArcView GIS, a weather generation program (WGEN), and digitized soils databases.³

Gerco's background and experience in agriculture, soils and GIS, combined with his interest and enthusiasm in the crop protection area will be a valuable asset to Waterborne and the services offered to our clients. We are happy that his work with PRZM (and interest in understanding the underlying FORTRAN code) made him aware of Waterborne, and that he has joined our team! 

¹ http://magma.nationalgeographic.com/ngm/0402/resources_geo.html

² <http://geoplace.com/pressrelease/detail.asp?id=6358>

³ <http://news.ifas.ufl.edu/story.aspx?id=54>



EVENTS

Waterborne Presence Strong at the National ACS Meeting & Exposition in San Francisco, CA, September 2006

Waterborne staff will be presenting several papers and posters at the upcoming 232nd ACS National Meeting and Exposition to be held in San Francisco, CA, September 10th–14th.

The following papers will be presented by Waterborne staff at this meeting (Waterborne names are in bold):

- Development of a simulation model to evaluate, design, and implement vegetated agricultural drainage ditches as a Best Management Practice, **W. Martin Williams***, **Jennifer R. Trask**, Jeanette Wrynski, and Debra L. Denton.

- Pesticide loading analysis for the Sacramento River watershed, **S. Dasgupta**, **J.M. Cheplick**, D. Denton, J. Troyan, and **W. Martin Williams***.

The following posters will be presented by Waterborne staff members (Waterborne names are in bold):


- Fate and transport modeling of the potential influence of rice agriculture potential on aquaculture, **Amy M. Ritter**, **W. Martin Williams**, and Chris R. Leake.

Three-part poster:

- National pyrethroid aquatic exposure analysis (1): Relative erosion potential

summarized by watershed, **J. Mark Cheplick***, Patrick L. Havens, Paul Hendley, Scott H. Jackson, and George J. Sabbagh.

- National pyrethroid aquatic exposure analysis (2): Regional sensitivity to drift and erosion entry, **Amy M. Ritter***, Paul Hendley, Michael G. Dobbs, and George J. Sabbagh.

- National pyrethroid aquatic exposure analysis (3): Combining potential vulnerability from spray drift, erosion and pyrethroid use, **Chris Holmes***, Patrick L. Havens, Paul Hendley, Scott Jackson, and George J. Sabbagh. 

* Presenter

Upcoming Posters and Presentations

- Risk assessment: Challenges and solutions for probabilistic approaches, BCPC International Conference & Exhibition, Crop Science & Technology: Global Aspects of Crop Production, Crop Protection and Food Supply, October 23-24, 2006, Scottish Exhibition & Conference Centre, Glasgow, Scotland, UK, (Paul Hamey, Kim Travis, **Chris Holmes***, and **W. Martin Williams***).

Recent Technical Presentations

- Automated Irrigation Control Using Feed-Back Moisture Sensors in a Gravity-Independent Crop Production System, **Jessica J. Prenger***, American Society of Agricultural and Biological Engineering International Meeting, Portland, OR, July 2006.

- Using spatial approaches to examine natural variation in the agricultural landscape for aquatic exposure assessment, Behaviour of Pesticides in Air, Soil and Water; **Chris Holmes***, Akademie Fresenius, Frankfurt-Mörfelden, Germany, June 2006.

- Using spatial technologies to generate probabilistic inputs for pesticide aquatic exposure modeling, **Chris Holmes***, SETAC Europe 16th Annual Meeting, The Hague, The Netherlands, May 2006


Recent Technical Posters

- Application of PCPF-RIVWQ simulation for the pesticide concentration in the river: a case study for the model scenario of the Ministry of Environment, Hirozumi Watanabe*, Taku Tanaka, Vu Hung Son, and **Amy M. Ritter**, 11th IUPAC International Congress of Pesticide Chemistry, Kobe, Japan, August 6–11, 2006.

Conferences Attended

- 16th Annual SETAC Europe, Controversies and Solutions in Environmental Sciences, The Hague, The Netherlands, May 7–11, 2006, **Chris Holmes** attended this event. This year's theme was chosen in an attempt to bridge the gaps between laboratory and field, as well as science and policy.

- 8th Fresenius AGRO Conference on the Behaviour of Pesticides in Air, Soil and Water, Frankfurt/Mörfelden, Germany, June 21–22, 2006. **Chris Holmes** attended this event organized by SGS Institut Fresenius and Akademie Fresenius and was aimed towards environmental fate, ecotoxicology, registration, and regulatory specialists.

- ASABE Annual International Meeting, Portland, OR, July 9–12. **Jessie J. Prenger** attended this meeting showcasing members and non-members in the international community of agriculture and biological engineers and related fields and areas such as soil and water. 

* Presenter

STAFF NEWS

New Employees—Administrative Group, Leesburg, VA

Deb Johnson joined Waterborne in July 2006 as a manager. Prior to joining Waterborne, Deb worked for the Dulles Area Association of Realtors as a bookkeeper. She joins us with over five years of book keeping experience. In addition, Deb is a group exercise instructor and personal trainer at Fitness First in Leesburg, VA.

Debbie Pierce joined Waterborne in May 2006 as a human resources manager. She holds a B.S. in business management from Virginia Polytechnic Institute and State University. Prior to joining Waterborne, she was one of several human resources staff members working for a 600-person company called Auto-metric that was later purchased by Boeing. Debbie brings over 15 years of human resources experience to Waterborne.

Linda Scott joined Waterborne in May 2006 as an administrative assistant. She holds a B.A. in english & communications from George Mason University and an M.T.A. from



Deb Johnson



Debbie Pierce



Linda Scott

George Washington University. Prior to joining Waterborne, she worked for The Ritz-Carlton in Tysons Corner, VA, as a meeting & special events coordinator. Linda brings to Waterborne several years of administrative and communications experience.

Personal

Chris Harbourt, Manager, Engineering-Illinois office, and his wife, Susan, welcomed their first child into the world, a baby boy named James Augustus Harbourt, on April 29th, 2006.

Jessica J. Prenger, Staff Agricultural Engineer-Illinois office, married Kaustubh Bhalerao on July 1st, 2006.

Promotions

Barbara Thacker was promoted to Assistant Financial Manager in May 2006. Barb joined the Leesburg, VA, office of Waterborne in 2005 and brought with her over 20 years of administrative support experience. ☺☺

Waterborne Staff in a South African Agricultural Exchange Program

Luke Zwilling, now a University of Illinois senior in Agricultural and Biological Engineering, has spent the past six weeks in South Africa learning about African agriculture and precision farming research. The program is designed to give select students a great experience working with leading researchers at the University of Natal, Durban, South Africa. Luke has been with the Waterborne Illinois office for two years in our intern program. The photo on the right shows that he's not only learning about African agriculture, but he's experiencing the wildlife first hand. ☺☺



Photograph by Luke Zwilling

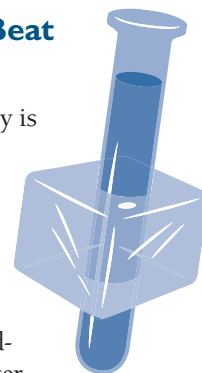
with Waterborne, helping improve study success by testing new equipment and proving quality operation, in field conditions, before new sensors would ever be deployed in the field.

In our soil moisture tests we are directly evaluating soil moisture probes from DeltaT Devices Ltd. (SM200), Campbell Scientific Inc. (CS616), Decagon Devices (EC-5), Irrrometer Co. (Watermark), Environmental Sensors Inc. (Grow-Point), and Soil Moisture Inc. (Tensiometers). We selected these manufacturers based on cost and quality across agricultural applications. These companies produce sensors employing variations on Frequency Domain Reflectometry (FDR), impedance/dielectric constant, and granular matrix resistance. We are not opposed to using other sensors and have experience deploying a host of other systems, but the gains in accuracy versus the cost make it difficult to strike a balance with measurement value on the types of GLP studies currently conducted.

Our main experiment goal is to verify and gain new experience with the survivability and reliability of the measurements and the data acquisition/transmission system. We are comparing measurements on a typical silty clay loam to compliment the high sand content soil tests performed by the various sensor manufacturers. Comparison and calibration measurements will include 2-bar tensiometer clusters, gravimetric measurements from soil cores, destructive analysis of the soil directly in contact with the probes, and Neutron Probe measurements. The result of this test will include an increased confidence in the field reliability of these sensors, sensor precision potential across a range of field conditions, and an assessment of each sensors calibration ease when field calibrated soil moisture measurements are desired. The information and knowledge from this experiment will be available when planning 2007 studies as part of the continued commitment to value that Waterborne offers. ”

Solar Fridges Beat the Heat

While the country is experiencing a heat wave this summer, Waterborne doesn't have to worry about samples taken by autosamplers degrading due to heat. Waterborne designed instrumentation for areas of the country known for their hot climate. The instruments use a standard 12 or 24 bottle discrete autosampler combined with the ability to keep the collected samples cool using an engineered system of low-power refrigeration and solar power. The added cost of the equipment is trivial compared to the labor savings and sample quality assurance benefits. For more information, please contact Les Carver in the field studies group. ”



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