



# ASABE 2010

## Annual International Meeting

Pittsburgh, Pennsylvania  
June 20<sup>th</sup> - 23<sup>rd</sup>

### CONTINUING PROFESSIONAL DEVELOPMENT

#### CPD #1

**Evaluation of Sampling Strategies for Water Quality Monitoring in Watersheds and Research Projects**

**Saturday, June 19**

**8:00AM-5:00PM**

**Location:** Convention Center, Room 306

**Instructor(s):** Francois Birgand, North Carolina State Univ, Raleigh, NC

**Level of Difficulty:** Entry Level

**Target Audience:** People from division of Water Quality Agency, students, scientists

**Learning Objectives:** Raise awareness of the magnitude of errors induced by infrequent sampling of fluxes and water quality indicators.

**Audience Benefit:** Improve the ways agencies and research projects are designed for water quality monitoring.

**COST: \$120.00** (minimum 15) Includes box lunch

#### CPD #2

**Multispectral and Hyperspectral Imaging**

**Sunday, June 20 8:00AM-5:00PM**

**Location:** Convention Center, Room 306

**Instructor(s):** Kurt Lawrence, Bosoon Park, and Seung Chul Yoon, USDA-ARS, Athens, GA

**Level of Difficulty:** Entry Level, Intermediate

**Target Audience:** Engineers, researchers, and graduate student interested in exploring and using multispectral and hyperspectral imaging in applied research.

**Learning Objectives:** The course will be divided into two parts. The morning session will cover the basics of multispectral and hyperspectral imaging including hypercubes, data visualization, multispectral systems, hyperspectral systems, and lighting. The afternoon session will cover advanced topics of hyperspectral data exploration. There will be a hands-on demonstration of hyperspectral data analysis from a pushbroom hyperspectral imaging system (bring your own laptop). Analysis will include data collection, calibration, smoothing, filtering, feature extraction, classification, and modeling. Finally, an example using an online hyperspectral imaging system in a food processing plant will be demonstrated.

**Audience Benefit:** Many multispectral and most hyperspectral imaging systems are still sold "as is". That is, the hardware of the system is assembled and packaged with some form of data acquisition software, but that is typically it. This course is intended to introduce multi- and hyperspectral imaging to the audience and help them understand the basics of system setup, calibration, lighting, data exploration and applications.

**COST: \$129.00** (minimum 15) Box lunch is included with this workshop.

### CPD #3

#### Open Source 101

**Sunday, June 20 9:00AM-12:00PM**

**Location:** Convention Center, Room 307

**Instructor(s):** Fedro Zazueta, University of Florida; Jiannong Xin, University of Florida; Dennis Watson, Southern Illinois University

**Level of Difficulty:** Entry Level

**Target Audience:** Managers interested in using Open Source and developers interested in creating Open Source software.

**Learning Objectives:** Understand what Open Source software is, when to use it and how to get started.

**COST: \$116.00** (minimum 20)

### CPD #4

#### Anaerobic Digestion Technologies

**Sunday, June 20 12:00PM-3:00PM**

**Location:** Convention Center, Room 310

**Instructor(s):** Ruihong Zhang, University of California; Conly Hansen, Utah State University

**Level of Difficulty:** Entry Level

**Target Audience:** Engineers, researchers and other interested in waste to energy conversion

**Learning Objectives:** Participants will learn methods on how to determine the biodegradability and biogas production potential of various biomass feedstock, different pretreatment technologies for enhancing biogas production potential of feedstock, design and operational guidelines for anaerobic digesters, selected anaerobic digester designs, and equipment used for anaerobic digesters and biogas cleaning technologies.

**Audience Benefit:** Audience will gain basic and practical knowledge about feedstock testing and pretreatment, anaerobic digestion design and operation, and biogas processing for energy production.

**COST: \$94.00** (minimum 15)

### CPD #5

#### Design and Evaluation of Vegetative Filter Strips with UFSMOD-W to Control Surface Runoff Pollution of Sediment, Nutrients and Pesticides

**Sunday, June 20 12:00PM-4:00PM**

**Location:** Convention Center, Room 311

**Instructor(s):** Rafael Muñoz-Carpena, University of Florida; Dr. Garey Fox, Oklahoma State University, Dr. Oscar Perez-Ovilla, University of Florida

**Level of Difficulty:** Intermediate Level

**Target Audience:** Researchers, consultants and other engineers and technical agency personnel (NRCS, EPA, city, county and State environmental divisions) with an interest in developing objective criteria for vegetative filter strip design.

**Learning Objectives:** To design and evaluate vegetative filter strips (VFS) as a surface runoff pollution control measure in a variety of settings (agricultural, urban, forestry, transportation, etc). The workshop will include an overview of the physical and chemical basis for VFS pollutant trapping, including processes of flow modification, sediment and chemical and biological pollutant trapping (nutrients, pesticides and other emerging contaminants). UFSMOD will be presented as a design tool to optimize filter characteristics (length, vegetation, etc.), or evaluate existing filters. Hands-on design examples will be developed during the workshop for the users to explore the model capabilities. Advanced tools (global sensitivity and uncertainty analysis, flexible multispecies chemical and biological transport) will also be briefly introduced.

**Audience Benefit:** Engineering Science based objective procedures for VFS design and evaluation.

**COST: \$125.00** (minimum 15)

### CPD #6

#### Design of Biomass Harvest, Handling and Storage

**Sunday, June 20 12:00PM-4:00PM**

**Location:** Convention Center, Room 315

**Instructor(s):** John Cundiff, Virginia Tech Univ; Kevin Kenney, Idaho National Lab; Erin Wilkerson, Oak Ridge National Lab

**Level of Difficulty:** Entry Level

**Target Audience:** Engineers in industry, research and academia that are interested in learning more about biomass supply chains

**Learning Objectives:** This workshop deals with addressing the challenges of assembling a harvest, handling, and storage system capable of supplying a 24/7 industrial operation with a seasonal feedstock. . Ways of addressing critical challenges such as low bulk density, seasonality, material degradation, etc will be discussed. Of particular interest is the interrelationships between four unit operations: harvest, in-field hauling, satellite storage, and highway hauling. Biomass from agricultural sources (residues and dedicated energy crops) will be the focus of this workshop, but many principles discussed can be applied to forestry systems as well.

**Audience Benefit:** Attendees will explore some of the challenges in assembling agricultural biomass supply systems and work together to propose solutions. The insights gained in this workshop will assist engineers in industry, government, and academia in designing efficient and reliable biomass supply chains.

**COST: \$94.00** (minimum 20)

## **CPD #7**

### **Greenhouse Gas Emissions and Their Impact on Agricultural Operations**

**Sunday, June 20 12:00PM-4:00PM**

**Location:** Convention Center, Room 316

**Instructor(s):** Russell McGee, Texas A&M University; Calvin Parnell Jr., Texas A&M University

**Level of Difficulty:** Intermediate Level

**Target Audience:** Air Quality Engineering Professionals, Managers of Agricultural Operations

**Learning Objectives:** Gain knowledge of the potential impact of Greenhouse Gas Regulations on Agricultural Operations

**Audience Benefit** As the debate over global warming “heats up”, proposed legislation aims to curb the emissions of greenhouse gases. This CPD discusses the potential impact on agricultural operations such as CAFOs, processing facilities, and field operations. Impact on regulatory agencies will also be discussed.

What GHG legislation is currently proposed? What court cases are driving EPA to regulate GHG emissions? Can EPA regulate GHG emissions using Title V and PSD permitting? What is the tailoring rule? At what level will my operation be required to report and limit GHG emissions? Will restricting US GHG emissions have an impact on curbing global warming?

**COST: \$100.00** (minimum 20)

## **CPD #8**

### **Web-Soil Survey: Powerful Resource for Making Good Land-Use Decisions**

**Sunday, June 20 12:00PM-4:00PM**

**Location:** Convention Center, Room 317

**Instructor(s):** Doug Merkler, USDA NRCS; Wayne Bogovich USDA NRCS

**Level of Difficulty:** Entry level

**Target Audience:** Agricultural Engineers involved with Watershed Planning; Precision Farming; Irrigation Management; Drainage Issues; Small Dam Construction; Soil Test Pits and like issues.

**Learning Objectives:** Students will become knowledgeable and proficient in the use of the Web Soil Survey, a free on-line application designed to provide up-to-date digitized soils information for more than 95% of the nation's land area. Any engineer or consultant working on land-use projects needs to understand soil issues when making land-use decisions. The Web Soil Survey program is designed to provide in-depth soil information, downloadable thematic maps and reports, as well as its ability to interface with other resource tools such as GIS, Soil Data Mart and Soil Data View.

**Audience Benefit:** Knowledge of soil landscapes, soil information and various soil properties and functions provide a good basis for engineers who are making land use decisions. By becoming proficient in the use of the Web Soil Survey the user increases their knowledge base by providing the most current soil data, maps and reports, with the objective of eliminating many of the risks and hazards that can plague a project.

**COST: \$30.00** (minimum 15)

Students will need to bring their laptops so they can access the site during the workshop and actually follow along with the instructor, as well as do hands on work.)

## CPD #9

### Young Professionals Continuing Professional Development Event

**Sunday, June 20 12:00PM-4:00PM**

**Location:** Convention Center, Room 318

**Instructor(s):** Dr. Sue Miller

**Level of Difficulty:** Entry Level

**Target Audience:** Entry level and experienced engineers wishing to develop their skills at working with those from cultures outside of their own.

**Learning Objectives:** To better understand the implications of working across different cultures and how engineers can manage and leverage these differences to benefit agricultural and biological systems around the world.

**Audience Benefit:** Students will learn about the cultural challenges of working in the modern business world. Through this class, they will obtain insight into methods of using these challenges to create opportunities to work more effectively in culturally diverse environments.

**COST: \$55.00** (minimum 25)

## CPD #10

### USDA/NRCS Agricultural Conservation Hydrologic Evaluation Methods

**Sunday, June 20 12:00PM-4:00PM**

**Location:** Convention Center, Room 319

**Instructor(s):** Geoffrey A Cerrelli PE, USDA NRCS; Heather Smeltz PE, USDA NRCS

**Level of Difficulty:** Entry level

**Target Audience:** Entry level or low experienced level engineers whose work involves agricultural hydrologic evaluations

**Learning Objectives:** To teach a simplistic USDA/NRCS Runoff Curve Number Hydrology method, Engineering Field Handbook Chapter 2 (EFH2)

**Audience Benefit:** Participants will be exposed to fundamental ideas of watershed deliniation, RCN and time of concentration determination, and rainfall modeling features culminating in design frequency storm runoff volume and peak discharge to be used in the sizing of agricultural conservation practices. The instructors will provide a demonstration of a recently developed grassed waterway design tool (based on allowable tractive stress) using a design discharge as determined from the EFH2 method taught here.

**COST: \$115.00** (minimum 20)

Participants must have laptop computers available for use in the class with EFH2 pre-loaded. A 3-ring binder with class room instruction materials will be provided. EFH2 can be downloaded from the following website:

[http://www.wsi.nrcs.usda.gov/products/W2Q/H&H/Tools\\_Models/efh2.html](http://www.wsi.nrcs.usda.gov/products/W2Q/H&H/Tools_Models/efh2.html)

## CPD #11

### The Path to Professional Engineering Licensure

**Monday, June 21 7:30AM-8:30AM**

**Location:** Convention Center, Room 301

**Instructor(s):** Bruce Martin, NCEES, Chris Henry, PEI

**Level of Difficulty:**

**Target Audience:** Engineers who want to become licensed Professional Engineers

Learning Objectives: How do I become a PE? What is the process, and when should I take the exams? What impact will licensure have on my career? Could I earn more if I have a license? The licensure process and model law will be changing in coming years, learn how and when these changes will occur and the impact they will have to the profession. Finally the Principles and Practice exam will be different in 2010, learn how the content of the exam has changed based on the results of the recent task analysis. This session is free. Conducted and sponsored by the Professional Engineering Institute of ASABE.

**COST: Free workshop** – registration is required.