

# Florida Agricultural and Mechanical University

College of Engineering Sciences, Technology and Agriculture  
Center for Water and Air Quality  
Tallahassee, FL 32307-4100



## The Flow

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Water and Air Quality Newsletter

Fall 2010

### Center for Water and Air Quality Advisory Council Meeting set for December 13, 2010...

The fall meeting of the Center's Advisory Council is scheduled for December 13, 2010, from 8:30 a.m. to 3:30 p.m. The meeting will be held at the FAMU Teleconference Center, corner of Osceola and Pinder Street. There are 13 members of the council representing public and private stakeholders. **Dr. Nathaniel Bailey**, Environmental Manager, Florida Department of Environmental Protection, currently serves as the Chair. We sincerely appreciate the contributions made by the immediate past chair, **Dr. Richard Lowrance**, ARS-USDA, Tifton, Georgia.



Center for Water and Air Quality Advisory Council with the Center Faculty

### Center Seminar Series...

The monthly seminar series continues to attract an audience not only from the Center and the College, but also from some of our stakeholders, including state agencies and private land owners involved in

production agriculture and forestry. During the current semester (Fall 2010), the center hosted the following seminars: **Dr. Kevin Robertson**, Tall Timber Foundation, "Understanding the Role of Fire in Southern Pine Ecosystems and Research at the Tall Timbers"; **Dr. Nathan Bailey**, Department of Environmental Protection, "Promises and Practical Limitations of Hydrologic Computer Model of the Caloosahatchee River Basin" and **Mr. John Abendroth**, Environmental Administrator, Department of Environmental Protection, "DEP's Watershed Management Program."

### Center Receives Three Capacity Grants...

The Center for Water and Air Quality recently received three grants under the Capacity Building Program, NIFA, USDA. The information on each of the grants is as follows:

1. Building Capacity of the Soil and Water Analysis Laboratory at Florida A&M University, **Sunil Pancholy and Amita Jain**, \$290,460.
2. Biological Assessment of Headwater Streams in Ravine Ecosystems of Northwest Florida, **Manuel Pescador and Andrew Rasmussen**, \$280,823.
3. Computing Solutions for Enhanced Teaching and Learning in the Biological and Agricultural Systems Engineering Mobile Classroom Environment, **Margaret Gitau and Adrienne Cooper**, \$149,965.

## Center of Excellence Memorandum of Understanding...

The Center for Water and Air Quality has been invited to be a part of the Center of Excellence for Watershed Management Program of the Environmental Protection Agency, Region 4, Atlanta. In this context, **Mr. Frank Baker**, Coordinator of the Program for Florida, recently visited FAMU and held discussions with the faculty. A meeting was held with the Florida Department of Environmental Protection and the Office of Water Policy, FDACS, to assess the research and outreach needs in watershed management in North Florida. Further discussions are underway to define the Center's role in such efforts.



Meeting with the DEP and DACS officials at FAMU

## Visit to Soil and Water Science Department, IFAS/UF...

Five faculty members from the Center visited the Soil and Water Science Department at the University of Florida. The meeting was facilitated by **Dr. Peter Nkedi-Kizza**, Professor of Soil Physics, who also serves on the Center Advisory Council. Discussions were held with the Chair, **Dr. Ramesh Reddy**, and other faculty members for possible collaboration in research and teaching in soil and water areas. **Dr. Sunil Pancholy**, Center Director, presented a seminar under the Distinguished Scholar Seminar Series on "Programs

and Opportunities at the Center for Water and Air Quality, Florida A&M University."

## Paper Presented at the Agronomy Society of America...

**Dr Amita Jain** recently presented the following paper at the American Society of Agronomy at Long Beach, California: Jain, A. and S.K. Pancholy. Effect of natural organic matter on arsenic removal from drinking water.

- Natural organic matter, a prevalent constituent of natural waters, interacts strongly with arsenic, influencing its speciation and mobility in aquatic environments. The objective of this study was to evaluate the effect of natural organic matter on arsenic removal by Fe(VI)/Al(III) salts. Six different types of NOM (Suwannee River NOM, Nordic Reservoir NOM, Suwannee River fulvic acid, Suwannee River humic acid, Pahokee Peat humic acid and Aldrich humic acid) were used in this study. Natural organic matter used in this study at concentrations  $> 2 \text{ mg C L}^{-1}$  had a significant detrimental effect on the removal of arsenic by Fe(VI)/Al(III) salts. Arsenic removal was more dependent on concentration and the composition of NOM than pH. In the presence of  $4 \text{ mg C L}^{-1}$ , a ten fold increase in the coagulant dose was required to effectively remove arsenic below the drinking water standard ( $10 \mu\text{g L}^{-1}$ ).

## Students Present Work at the Engineering Conference in Atlanta...

On October 29, 2010 three students from the Sustainable Systems Engineering Research Lab **C'mayla Neal**, **Sydnee Hollingsworth** and **Silas Florentino**, traveled to Atlanta, GA to present posters at the Southeast Regional NOBCChe Conference. Ms. Neal, a junior in Food Science presented her research on the characterization of citrus wastes for nutraceuticals and use in biorefineries. Research on the fate and transport of nanoparticles in *Salix nigra* was presented by Ms. Hollingsworth, a junior in Biological and Agricultural Systems Engineering. Mr. Florentino,

an exchange student from Universidade Federal de Viçosa in Brazil, presented on the economics of carbon credits for a microalgae driven wastewater biorefinery. Ms. Neal was awarded second place in the student poster competition, coming in behind FAMU ESI graduate student Venice Jennings. **Dr. Adrienne Cooper**, associate faculty in the Center for Water and Air Quality is the Principal Investigator in the Sustainable Systems Engineering Research Lab.

### Soil Erosion Research in Marianna...

**Dr. Y.P.Hsieh and Djanan Nemours** have set up several hundred mesh bags on ground, under cropped and fallow conditions to study soil erosion on the Mears Farm in Marianna, FL. This study is being carried out under irrigated and non-irrigated conditions with varying slope of the land. The first crop that data was collected for was peanut, followed by a pasture crop.



Mesh –bag soil erosion study at the Mears Farm, Marianna, FL

### Gitau publishes two papers in the Soil and Water Journal ...

**Dr. Margaret Gitau**, Assistant professor in the Biological and Agricultural Systems Engineering recently had two papers published in the Journal of Soil and Water Conservation. The citations for the papers are given in the recent papers section, below. Congratulations to Margaret!

### New Employees in the Center...

Recently, two new employees joined the Center to work on the NASA-funded project. First, **Ms. Ferdouse Sultana** comes to CWAQ/CESTA with over 15 years of Geographical Information Systems (GIS) experience in Environmental and Hydrological Resource management. She's working with Dr. Katherine Milla on the NASA funded project on COAST/WAM tool to optimize the best management practices in the Suwannee River Basin. She is located in the GIS Lab, Room 103, CWAQ. When not doing GIS, she enjoys travel, music, cooking and yoga.

The second person is **Mr. John Folks**, who has joined the staff at the Center to assist with the development of the BMP COAST tool. John brings with him extensive experience working on water quality issues, and environmental restoration projects. He represented the Florida Department of Agriculture in the development of the Comprehensive Everglades Restoration Plan. He was responsible for the development and administration of the Florida Department of Agriculture's Lake Okeechobee Restoration - BMP Program. He developed and implemented the Florida Department of Agriculture's Agriculture non-point source BMP Research, development and performance verification program. Additionally, he has served on the state's Groundwater Protection Task Force and the Governor's Commission on the Future of Florida's Environment. John is located in Room 114, Perry-Paige Hall.

### Student News...

**Sharon M. Sapp and Kenneth Livingston**, graduate students, continue to work on their research on ephemeral ponds in the Apalachicola National Forest. Sharon placed 2<sup>nd</sup> in the Dean's Graduate Student Research Competition in the "oral presentation" category. Five undergraduate students (**James Richardson, David Mays, Marcos Colina, Tim Molo and Audyss Knowles**) are working on various projects in the Center.

## Recently Published Papers...

1. **M.W. Gitau**, I. Chaubey, E. Gbur, J.H. Pennington, and B. Gorham **Impacts of land-use change and best management practice implementation in a Conservation Effects Assessment Project watershed: Northwest Arkansas** *Journal of Soil and Water Conservation* 2010 65(6):353-368; doi:10.2489/jswc.65.6.353
2. Chaubey, L. Chiang, **M.W. Gitau**, and S. Mohamed **Effectiveness of best management practices in improving water quality in a pasture-dominated watershed** *Journal of Soil and Water Conservation* 2010 65(6):424-437; doi:10.2489/jswc.65.6.424.
3. **Gitau, M.W.**; Chaubey, I. **Regionalization of SWAT Model Parameters for Use in Ungauged Watersheds.** *Water* 2010, 2, 849-871.
4. Harris, S.C. and **A.K. Rasmussen.** 2010. The *Neotrichia caxima* Group (Trichoptera: Hydroptilidae) in the southeastern United States. *Zootaxa* 2608: 25-44.  
<http://www.mapress.com/zootaxa/2010/f/zt02608p044.pdf>
5. Ray, D.H., **A.K. Rasmussen**, J.G. Peters, and B.P. Stark. 2010. The larva and egg of *Alloperla prognoides* (Plecoptera: Chloroperlidae), with ecological notes and new state records from Florida, U.S.A. *Illiesia* 6: 256-266. <http://www2.pms-lj.si/illiesia/papers/Illiesia06-19.pdf>

## Center Faculty and Administration...

### Faculty

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### Affiliated Faculty (BASE Program)

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### Administration

Dr. Makola M. Abdullah, Dean and Director of Land Grant Programs  
Dr. Sunil K. Pancholy, Director of Center for Water & Air Quality

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Newsletter produced by Sharon M. Sapp, Graduate Student

