



2014-2015 IAHR Newsletter



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Introduction

This year, the International Association for Hydro-Environmental Engineering and Research (IAHR) Student Chapter at the University of Central Florida (UCF) is going strong. IAHR hosted a variety of workshops, guest lecturers, and field trips. In addition, IAHR members participated in a conference at the University of Delaware, where their research received strong praise. Congratulations to Davina Passeri for getting her Ph.D. and graduating this Spring! Davina is an Engineer IV with Cherokee Nation Technology Solutions, contracted to the U.S. Geological Survey St. Petersburg Coastal and Marine Science Center (SPCMSC). The SPCMSC is responsible for conducting a wide range of ecosystem, watershed, geologic, and geophysical investigations of the continental margins and adjacent coastal regions including the Atlantic Ocean, Gulf of Mexico, Caribbean Sea, and Great Lakes. Davina is currently involved in the Hurricane Sandy Wetland Physical Change Assessment, in which she is developing and applying numerical and statistical models to analyze wetland changes driven by detailed ocean and estuarine processes.

IAHR Elections

Officer elections for the 2015-2016 academic year were held in late March 2015. Congratulations to the following elected members:

President – Yin Tang

Vice President – Paige Hovenga

Secretary – Han Xiao

Treasurer – Milad Hooshyar

Public Relations Officer – Daljit Sandhu

Real Time Kinematic (RTK) Workshop

The IAHR student chapter at UCF presented another RTK surveying workshop to provide the members with one of the most useful tools for their future research and career. This workshop was



Figure 1 - Members surveying and collecting elevation data at UCF's Memory Mall.

taught by Dr. Stephen Medeiros, P.E. (Research Assistant Professor, Department of Civil, Environmental and Construction Engineering, UCF) in theory and hands on sections.

The theory section was held at UCF's Coastal Hydroscience Analysis, Modeling and Predictive Simulations (CHAMPS) Lab where the members were informed about the equipment and its data collection methods. The hands-on portion of the workshop was done at UCF's Memory Mall. Members collected elevation data, which they later transferred and processed using ArcGIS.

At the end of the workshop, members ate lunch together to celebrate their new academic skill. This workshop will be available next year for new IAHR members if requested!

ArcGIS/Python Workshop

In October 2014, Matt Bilskie and Stephanie Garvis held the first ArcGIS/Python workshop for IAHR members. Matt and Stephanie taught the essential concepts of ArcGIS such as the difference between the raster and shapefile format, and creating maps and databases. Additional features such as how to define coordinate systems, importing and exporting data, and how to edit maps were demonstrated during the workshop.

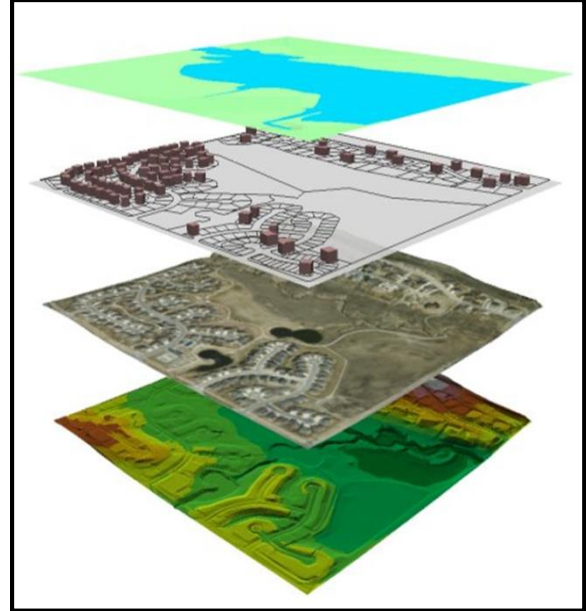


Figure 2 - Multiple layers within ArcGIS.

Since Python is associated with ArcGIS, the basics of programming in Python were presented in the workshop. Basic aspects covered in the workshop include defining different types of variables, such as integers or floats. Examples of different control structures such as if statements and loops were demonstrated. Lastly, members were taught how to use Python within ArcGIS to perform certain functions, such as converting LIDAR data into raster data.

These two computer skills are very important for both biologists and engineers, and this workshop will make the students who attended more marketable when applying for jobs in the future. Depending on the student demand, this workshop could be held again next year.

MATLAB Workshop

Milad Hooshyar conducted a MATLAB workshop for IAHR members to learn and understand the basics of MATLAB. Members were exposed to the many potential uses of

**INTERNATIONAL ASSOCIATION
FOR HYDRO-ENVIRONMENTAL
ENGINEERING AND RESEARCH**

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**FRIDAY,
NOVEMBER 7, 2014**

**BASICS OF
MATLAB**

**AT 3:00 – 5:00 PM
IN ENG II, RM 304**

PRESENTED BY:
MILAD
HOOSHYAR

WHAT'S
MATLAB?

READING AND
WRITING DATA

MATRIX
FUNCTIONS

LOOPS

IF STATEMENTS

2-D PLOTTING

CREATING
FUNCTIONS




Figure 3 - Flyer for the MATLAB workshop.

MATLAB for research and engineering purposes. Members were exposed to basic features of MATLAB such as the command line, writing scripts, and performing basic matrix operations. Useful commands such as importing data, if statements, loops, and plotting data were demonstrated to members in the session. The workshop was held during the fall semester of 2014.

Dr. Peter Sucsy (SJRWMD) Seminar

In March 2015, the International Association of Hydro-Environmental Engineering and Research Seminar: “Water Quality Modeling of the St. Johns River” was presented by Dr. Peter Sucsy. Dr. Sucsy is a supervising engineer scientist and his area of expertise is hydrodynamic and water quality modeling. He has worked for the St. John’s River Water Management District for more than 15 years. He developed a three-dimensional tide model for

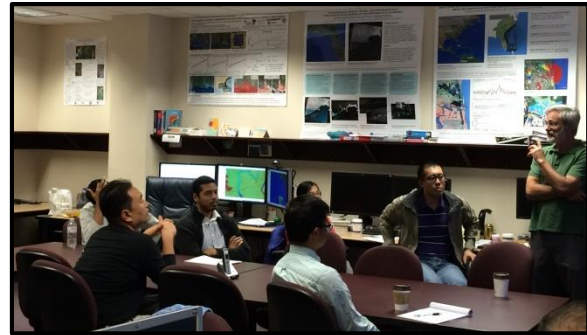


Figure 4 - IAHR members and faculty at Dr. Sucsy's lecture.

the Gulf of Maine. He also developed the hydrodynamic component of a numerical water quality model that is used to determine how the St. Johns River processes pollutants.

The Environmental Protection Agency (EPA) praised the model, saying it “is undoubtedly one of the best in the nation.” Dr. Sucsy is the lead researcher for the surface water modeling of the Lower St. Johns River and Lake George in central Florida.

Mike Salisbury (Atkins Global) Seminar

Mike Salisbury, former UCF student, from Atkins Global visited UCF during the 2015 fall semester and gave a lecture regarding successful careers in hydraulic engineering and research. Mike’s current position is a coastal engineering team leader. During his lecture, Mike gave tips on finding jobs, successful work habits, and presented various research and public projects. His research project focused on the effect of ice cover on storm surge, while his public project was using ADCIRC to analyze different storm events and flood levels for a power company building a new nuclear power plant.



Figure 5 - Flyer for Mike Salisbury's presentation.

Young Coastal Scientists and Engineers Conference

Five IAHR-UCF members attended the first annual Young Coastal Scientists and Engineers Conference (YCSEC) held at the University of Delaware during the summer of 2014.

Davina Passeri presented her research on the impacts of bathymetric, morphological and sea level changes on tidal hydrodynamics in the Grand Bay, Mississippi estuary from 1848 to 2005. Davina won the award for best oral presentation.

Other members of IAHR included Paige Hovenga, Aaron Thomas, Karim Alizad, and Milad Hooshyar. All members received strong praise and feedback for their presentations.

The mission of the YCSEC is to provide a forum for stimulating scientific discussion and encouraging feedback among young scientists and engineers in the field of physical coastal processes. Research typically focuses on coastal



Figure 6 – CHAMPS Lab students at the YCSEC Conference.

dynamic processes including sediment transport, morphodynamics, wave processes, and estuarine processes.

This conference gives an opportunity for young researchers from different institutions across different regions and countries to network, interact and collaborate.

Field Trip to Weeks Bay, Alabama

In the previous year, members and faculty of IAHR and the UCF CHAMPS Lab performed field work in Weeks Bay, AL. This year, as a continuation of the project, the same members and research faculties visited Weeks Bay to plant marsh organs in the estuaries. This is in support of an interdisciplinary research project



Figure 7 - Members conducting field work in Weeks Bay.

on the Ecological Effects of Sea Level Rise in the Northern Gulf of Mexico (EESLR-NGOM) project.

End of the Year Picnic

After the end of the 2015 spring semester, IAHR members and the UCF CHAMPS Lab visited the Wekiva Springs State Park in Apopka, FL. Members and faculties interacted with each other and prepared a BBQ lunch. Members spent the day playing volleyball, walking around the park, or simply relaxing in the nearby pool.



Figure 8 - Members preparing a BBQ at Wekiva Springs.

Future Events

Though the spring semester has come to a close, research will continue on. During the summer term, we plan to invite Dr. Peter Bacopoulos from the University of North Florida (UNF). Dr. Bacopoulos is a former CHAMPS Lab member, who currently researches numerical modeling of coastal and estuarine systems at UNF. He will be giving a lecture regarding his research titled “Numerical Modeling of Tides and Marsh Productivity for Estuaries of Northeast Florida.”

Also taking place this summer, members will visit Weeks Bay to continue monitoring the progress of the interdisciplinary project.

Thanks to all the members of IAHR-UCF for your involvement, and we look forward to seeing you in the fall! The MATLAB and ArcGIS workshops can be found on our YouTube channel. Keep up with UCF’s IAHR Chapter on various social media for upcoming events!



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