civil remarks

Environmental - Geotechnical - Project Management - Structural - Transportation - Water Resources

Fall 1999

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING
UNIVERSITY OF MARYLAND, COLLEGE PARK

Inside

The **Technology Transfer Center (T^2)** and the **Center for Advanced Transportation Technology (CATT)** are now located at the following address:
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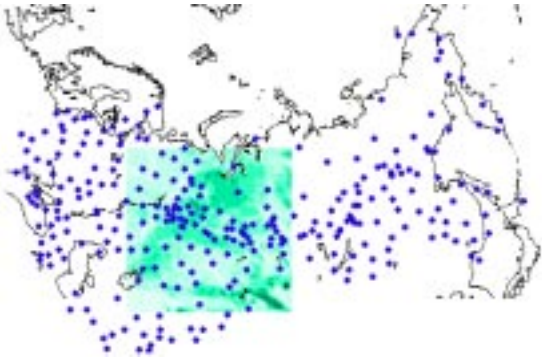
Brubaker Studies Siberian River with Satellite and Surface Data

Dr. Kaye Brubaker was awarded a NASA-ASEE 1999 Summer Faculty Fellowship for research in hydrologic remote sensing. Dr. Brubaker worked with Dr. Michael Jasinski and his research team in the Earth Sciences Directorate of NASA's Goddard Space Flight Center in Greenbelt, MD. Together they are developing mathematical and computational tools that merge satellite data with sparse surface measurements to improve simulation and forecasting of flow in the Ob River of Russian Siberia. The world's sixth longest river, and 13th largest river in terms of discharge, the Ob rises in the Altai Mountains of central Asia and flows north through Siberian taiga and tundra to the Kara Sea.

The NASA group is compiling a large, multi-source data set, with the ultimate goal of modeling the contribution of Ob basin snowmelt to freshwater discharge into the Arctic Sea. Dr. Brubaker's contribution will include theory and methods to merge the coarse-scale, broad-coverage satellite snow data with spatially-sparse fine-scale surface snow measurements and other meteorological data into statistically optimal maps of snow depth at the scale required by the hydrologic model. Her work this summer consisted largely of organizing and exploring the various types of data in a GIS framework (see figure); a second summer will be devoted to synthesizing the results and incorporating them into a physically-based watershed simulation model.

NASA and ASEE support the Summer Faculty Fellowship Program to further the professional knowledge of engineering and science faculty, to stimulate an exchange of ideas between faculty and NASA scientists, to enrich the research and teaching of the participants' institutions, and to contribute to NASA's research objectives. Brubaker and Jasinski expect that their project will grow into a long-term research collaboration.



Satellite-derived estimates of snow depth for the Ob River basin and surroundings (green-blue -- darker for more snow) and former Soviet Union snow observation locations (stars) shown in a polar azimuthal projection. ArcView map by K.L. Brubaker; SSMI satellite scene courtesy Dr. Al Chang, NASA GSFC; Snow course locations courtesy National Snow & Ice Data Center.

Project Development

at the Center for Technology and Systems Management

The Center for Technology and Systems Management (CTSM) was established in 1996 in a strategic alliance with the U.S. Navy, U.S. Coast Guard, and Department of Civil Engineering. The goal is to advance the state of the art of utilizing various technologies in engineering systems to make them efficient, safe, and beneficial to mankind and the environment throughout their lives. Professor Bilal M. Ayyub is the director of the center. Three other staff members work at or are affiliated with the center, Mr. Zbigniew Karaszewski, Dr. Joy Sircar, Dr. Ibrahim Assakkaf, and Ms. Clara Popescu. About 10 graduate students assist and work on various research projects.

The goal is to . . . make [engineering systems] efficient, safe, and beneficial to mankind and the environment throughout their lives.

The technologies of interest include systems engineering, information technology, risk, safety and decision, and censors and control. The center has dealt with systems that included maritime, infrastructure, facilities, and equipment.

Ongoing projects include the assessment of the construction feasibility of the mobile offshore base for the Office of Naval Research, web-based reliability assessment of civil works systems for the U. S. Army Corps of Engineers, and risk analysis of marine systems that include engine rooms of ships, ship structures, and personal flotation devices for the U. S. Navy and U. S. Coast Guard. Other projects include reliability of piles, reliability-based design of piles, and safety assessment of dams. An example project is described herein.

The Office of Naval Research (ONR) has established a science and technology program to explore the concept of a prepositioned floating military base called the Mobile Offshore Base (MOB). A MOB is a large platform up to 1500m (1 mile) in length by 120m (400 feet) in width that would be moved for long-term deployments in support of national defense priorities. The platform would be unprecedented in size and operations compared to any floating structure built to date. Operational requirements for the MOB include the ability to support Air Force cargo aircraft, support container ships, provide massive storage of bulk and liquid stores, house 10,000 or more troops, and discharge various amphibious craft.

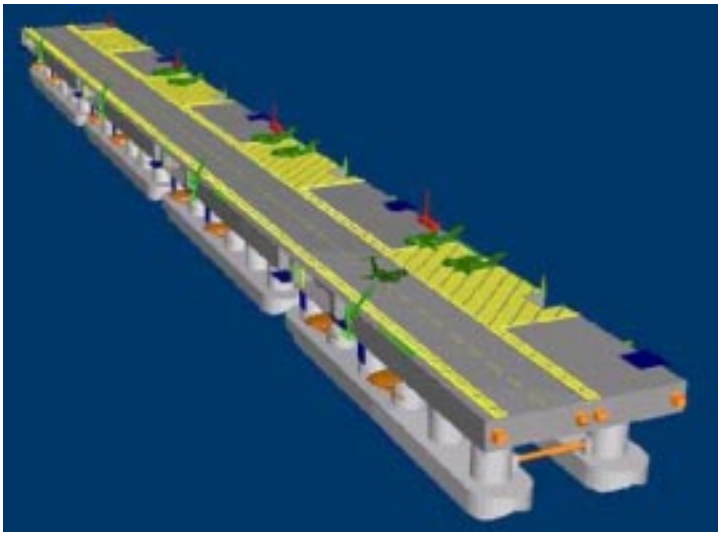
The primary objective of the ONR science and technology program is to determine technical feasibility and cost of a MOB. As part of this ONR program, the Center for Technology and Systems Management, Department of Civil Engineering at the University of Maryland College Park developed an assessment of the construction feasibility for five proposed MOB concepts.

The [Mobile Offshore Base] platform would be unprecedented in size and operations compared to any floating structure built to date.

This study consists of four phases to assess the construction feasibility of the MOB. Part I of the study provided an introduction to risk analysis and documents the methodology for risk-informed construction assessment of the MOB (Ayyub & Bender 1999). Phase II (Ayyub et al 1999) defined the resources to construct five MOB concepts, compared this to the US industrial capacity to build a MOB, and made an initial determination of feasibility. Additionally Phase II developed cost and schedule estimates

for each of the proposed concepts. Phase III performed a construction risk analysis using modeling and simulation techniques. It also performed a decision analysis to obtain optimum cost and schedule for a MOB concept. Phase IV will present the MOB constructability guidelines.

Two doctorate students are working on the MOB project with the advisement of Professor Ayyub, Mr. William Bender and Mr. Andrew Blair. Mr. Blair is a PhD candidate, and Mr. Bender was recently appointed as an assistant professor at Central Washington University.



Operational requirements for the MOB include the ability to support Air Force cargo aircraft, support container ships, provide massive storage of bulk and liquid stores, house 10,000 or more troops, and discharge various amphibious craft.

New Faculty

Mr. John Cable, Project Management Program Director

Mr. John Cable was hired in August as the Director of the Project Management Program in the Civil and Environmental Engineering Department. For the past seven years Mr. Cable was with the Logistic Management Institute where he managed consulting assignments. These assignments included analyzing facility design and construction practices, conducting benchmarking and business process reengineering studies, assessing the use of information technology in the management of design and construction, facility business and program planning assignments, and training/assisting clients in becoming certified in compliance with ISO9000 Quality Management Standards. He has lead a variety of projects for the U.S. Postal Service including analysis of the Facility Repair and Alteration Services system, analysis of the use of information technology for management of facilities, and the development of a Manpower Model for the USPS facilities and real estate organizational element. Mr. Cable acted as project leader in the completion of a staffing and training program for the Pentagon's new heating and refrigeration plant, and has performed benchmarking analysis of the facilities support services at the National Institute of Health.

Mr. Cable is a licensed architect and general contractor with over 30 years experience. Prior to joining LMI his activities included planning, desgin, and construction of buildings; building energy conservation research; and management consulting. In 1980 he was cited by *Engineering New-Record* as "one who served in the best interests of the building industry." In 1992 he was selected by *Remodeling Magazine* as one of the 50 best remodeling contractors in the United States. He has also served as an Air Force civil engineer officer.

Mr. John Cable

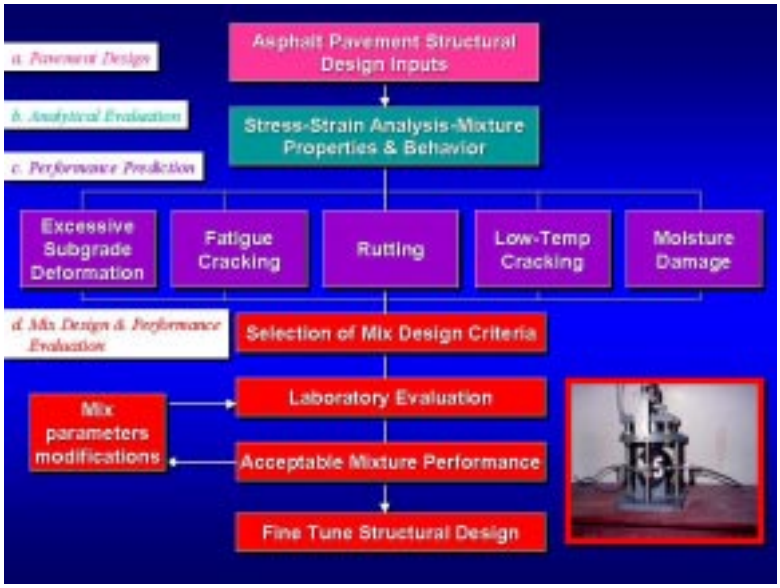
M.Arch, Urban Planning, Catholic University of America, 1970
B.Arch, Architecture, Clemson University, 1967

1992-1999, Logistics Management Institute
1983-1992, John Cable Associates, Inc., President
1975-1983, U.S. Department of Energy, Director of Building Systems Program
1972-1975, Private Architectural Practice, Project Architect
1967-1972, U.S. Air Force, Captain, Base Civil Engineering

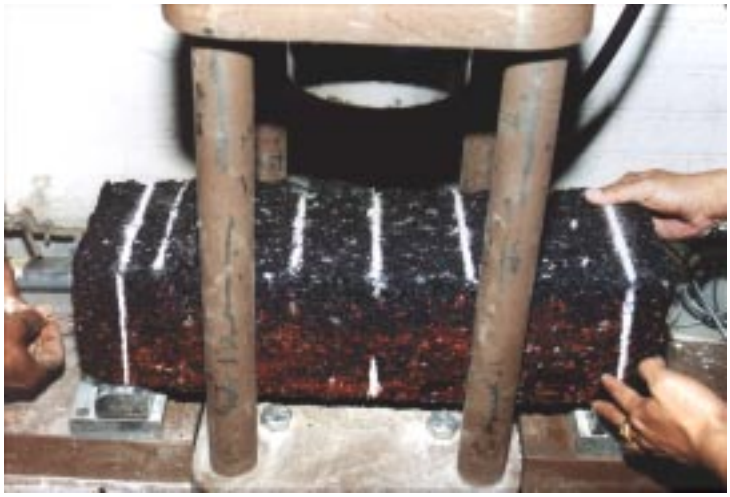
Mr. Cable received his Bachelor's Degree in Architecture from Clemson University in 1967, and his Master's Degree in Architecture from Catholic University of America in 1970.

Dr. Dimitrios Goulias, Associate Professor

Dr. Dimitrios Goulias joined the Civil and Environmental Engineering Department this Fall. He received his MSCE degree at the University of Michigan, Ann Arbor, and his Ph.D. degree at the University of Texas, at Austin. His research interests include the design, testing and behavior of advanced / modified pavement materials and composites; smart and self healing materials; development of performance specifications for pavement condition and materials; pavement condition and roughness evaluation; and use of spatial data and time series analysis for the prediction of site specific pavement related parameters. The research projects that



Performance Based Mix Design Methodology for Modified Asphalt Mixtures



Testing of Smart Material with Low Cost Sensor

Dr. Goulias carried out focused among other things on:

Asphalt Binder & Mixtures

- Design and behavior of conventional and modified asphalt mixtures using traditional and SUPERPAVE volumetric mix design;
- Development of performance based mix design methodology for asphalt modified mixtures;
- Permanent deformation, fatigue, and moisture susceptibility of asphalt mixtures;
- Aging of conventional and modified asphalt binders;
- Modeling of crack propagation and rutting in asphalt layers;

Portland Cement Concrete

- Modification of the brittle failure of concrete with rubber aggregate;
- Design, behavior and performance (freeze - thaw) of rubber concrete;
- Correlation of destructive and non destructive testing results for rubber modified concrete;

Composites

- Behavior and performance of reinforced polymer based composites;
- Non-destructive testing and performance evaluation of composites;

Other

- Distress surveys and pavement smoothness evaluation (calibration, and profile / roughness analysis)
- Development of performance specifications for pavement condition and materials;
- Pavement instrumentation and use of spatial data analysis for site specific predictions;
- Development of smart materials using low cost sensors;

From the research funding Dr. Goulias sponsored several of the Master's and Ph.D. students that he advised. In education he tends to couple the fundamental concepts (learned in class and demonstrated with hands-on lab experiments) with the state-of-the-art developments in the field by inviting recognized guest speakers and organizing field trips. Dr. Goulias has developed several core undergraduate and graduate courses related to civil and highway engineering materials, pavement design and performance, pavement management and rehabilitation, and quality control and specifications. Dr. Goulias is currently the co - author in a Highway and Transportation Engineering textbook prepared for Prentice Hall.

Dr. Goulias was included in the Sterling Who's Who directory and was nominated for the Electric Power Research Institute (EPRI) Innovators Award. He also served in university and professional committees of the Transportation Research Board, and the American Society for Testing and Materials.

Field Visit in Recycling Manufacturer and Composite Resin Production Plant

Department of Civil Engineering Transfers Computer Visualization Technology to the Maryland State Highway Administration

Planners, designers, hydraulic engineers, traffic engineers, highway engineers, environmental assessors, landscape architects, technicians, construction managers, stakeholders, government officials and others are all involved in the development of highways and streets. Rapid communication between these parties is crucial to a project's success, but difficult because plans and designs are constantly under development and change. The University of Maryland's Department of Civil and Environmental Engineering has successfully launched a technology transfer program that is enabling the Maryland State Highway Administration's (MDSHA) computing infrastructure to solve these communication problems.

Dr. Jayanta Sircar, Associate Director of the Center for Technology and Systems Management and faculty member in the Department of Civil and Environmental Engineering, and Cyrus McCall, until recently a graduate student and currently serving as Visualization Team Leader, CADD Support Section, MDSHA, have worked closely with the MDSHA over the last two years to define processes in creating visualization products based on Computer-Aided Design and Drafting (CADD) and Geographic Information Systems (GIS) data, as well as site photography. A wide array of visualization techniques was identified that conveys information to project participants about the conditions of the physical environment and proposed construction throughout the planning and design process. Benefits occur by making design changes sooner to avoid higher construction costs, avoiding future rebuilding, and unnecessary redesign. Work in visualization supports the larger problem of communication for planning and design. The general question is this: How can the data collected aid communication throughout an organization from concept to implementation?

New Look for CEE Main Office

New Office, New Staff Prepare for the New Year

Renovations completed over the summer give a new, professional look to the CEE Main Office. The office, located in 1173 Glenn L. Martin Hall, includes new office spaces for staff, as well as two new conference rooms, a kitchen, and a copy/supply room. A library/waiting room is expected to reach completion in the upcoming semester. Stop by and take a look! Several new staff have joined the office over the summer and have helped with preparations for the Fall. Please welcome them.

Theresa Mullen

It is with great pleasure that I introduce myself to all in the Civil & Environmental Engineering department. I am the new Administrative Assistant for the department. I have been on campus since September 27, 1986. I began my career here on campus with the Dept. of Physical Plant in the Building & General Service division as an office clerk. I then was promoted to a Special Events Coordinator with Special Services in that department, where I would meet with campus customers to set up campus events and moves. I then took a leave of absence for a little under a year and then returned to work for the university in the University Advancement group, currently named University Relations. Specifically I worked for the Annual Fund office as their Administrative Assistant (they are the telefunders that raise money for all of the schools on campus). Working in that department really helped me see, through the donations given, in what high regard this campus is held.

On a personal level, I am married to Gary and we have four wonderful children. Their names and ages are Anita – 18 years, currently enrolled in Calvert Community College; David – 15 years, he is in the 10th grade; Sammy – 10 years (almost 11), she is in the 6th grade; and Matthew – 5 years, he is in kindergarten. We live in Owings, Maryland, in Calvert County.

LaShaunda Haynes

The Department welcomes LaShaunda Haynes as an Account Clerk for Civil Engineering. She is a senior sociology major here at UMCP, and was born and raised in PG County, Maryland. LaShaunda says: "I love music and playing volleyball. I am the Minister of Music in my church, as well as a licensed minister. I am very excited about this position and hope to build a long-lasting affiliation."

Dominic Yeh

The Department also welcomes Dominic Yeh as a Scientific Word Processor. Dominic will be typing and finalizing documents for faculty and staff, as well as assisting with application software. He is available by phone at ext. 5-5193, or by e-mail at jy45@umail.umd.edu.

Alumni News

ASCE Announces Young Civil Engineer of the Year

Antonio A. Mawry, P.E.
BS Degree, Civil Engineering, 1987

Wallace, Montgomery & Associates, a full-service consulting engineering firm, announced that Antonio A. Mawry, P.E. has been honored by the American Society of Civil Engineers (ASCE) as the Young Civil Engineer of the Year. He was recognized for "sustained and unusual engineering contributions to the advancement of his profession and service to mankind." The award was presented by the Maryland Section ASCE during the May Awards Night meeting at the Engineering Society of Baltimore.

Mr. Mawry has 12 years experience in engineering and serves as an Associate at Wallace, Montgomery & Associates (WM&A). He is the Assistant Department Head for the Highway Department and is responsible for project management, highway and traffic engineering and business development. He has led design efforts on many projects at WM&A, including the MD 347 Streetscape Reconstruction, the MD 235 Interim Project, I-70 Resurfacing, MD 177 Widening, I-270/I-70 Design Studies, the MD 212/Cherry Hill Road Intersection Project and the MD 128 Rehabilitation. Additionally, he has served as Project manager on the Sun Street Reconstruction in Baltimore City and has managed private infrastructure improvement projects in Worcester and Calvert Counties.

Prior to joining WM&A, Mr. Mawry worked on numerous highway projects in the region, ranging from the Lackawanna Valley Industrial Highway (Scranton, PA) to the Boston Street Reconstruction (Baltimore, MD).

Wallace, Montgomery & Associates is a consulting engineering firm located in Towson, Maryland, providing professional services for design and construction of bridge, highway, transit, transportation, water resources and environmental projects since 1975.

Press release provided by Wallace, Montgomery & Associates.

Alumnist Profile

P. Douglas Dollenberg
President and Chief Executive Officer
Nottingham Properties, Inc.
BS Degree, Civil Engineering, 1961

Doug Dollenberg has headed the activities of Nottingham Properties, Inc. as a real estate developer and investor in metropolitan Baltimore since becoming president in 1979. He has been the guiding force behind its successful, master-planned community, the 2,000-acre White Marsh Town Center in northeast Baltimore County, including The Avenue at White Marsh acclaimed for its "Main Street" theme appeal. Experienced in community growth and development, he has served on various public committees and task forces including the Towson Task Force, Technical Advisory Committee for Growth management, the Community Conservation Strategic Management Group and the Task Force on Economic Development. He has been an honorary Board member of the Towson Development Corporation and a director of the Baltimore County Chamber of Commerce. He recently served on Governor Glendening's Transportation Trust Fund Advisory Board, and currently is a member of the Executive Advisory Board for higher Education. He is also on the Board of Directors of the Greater Baltimore Committee and is a Trustee of the Greater Baltimore Medical Center. Mr. Dollenberg, a member of the Urban Land Institute since 1977, has served several terms on ULI's Community Development Council and is also active in the Baltimore District Council. A Registered Professional Engineer with a Masters Degree in Civil Engineering from Purdue University, Mr. Dollenberg is a frequent guest speaker at colleges and universities. He was a finalist in the 1995 Entrepreneur of the Year program, and a 1996 recipient of the Award of Hope from the American Cancer Society.

Mr. Dollenberg is a 1961 graduate of the University of Maryland where he has been honored as an Engineering Alumnus of Distinction. He has remained active in the fundraising endeavors of the School of Engineering, and is an active supporter of the Terrapin Club.

Mr. Dollenberg has overseen the master-planned White Marsh Town Center since the 1970s, including this new addition to The Avenue at White Marsh.

Doug and his wife Kathie reside in Lutherville, Maryland. Their son, Doug, Jr. is a graduate of Bucknell University and currently completing his MBA at the University of Virginia's Darden School. Their daughter, Kristin, is a graduate of James Mason University.

Article and photo provided by Nottingham Properties, Inc.

Alumni Activities

Write to Us!

We want to know what you have been doing and where life has taken you since you left UMCP. Return this form and please attach additional comments to another sheet of paper. Space permitting, we will use photos of you, your family, or your latest project. Thank you!

Send To: Gregory Baecher, Chair
Department of Civil and Environmental Engineering
Room 1173, Bldg. 088
University of Maryland
College Park, Maryland 20742

Name_____Degree_____Year_____

Street Address_____

City_____State_____Zip_____

Home Phone_____Business Phone_____

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Dr. Dimitrious Goulias
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Wallace, Montgomery, & Associates

Special thanks:

Dr. Gregory Baecher
Mr. Al Santos
The Staff of the Department of Civil and Environmental Engineering

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Civil Remarks
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Glenn L. Martin Institute of Technology

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