Researcher Inspired by Ancient & Current Systems

It all started in Greece for Anastasios Chassiakos, California State University, Long Beach researcher and METRANS Executive Committee member. He visualizes a straight line from the ancient Greek and Roman societies to today’s infrastructure systems — and not simply because he grew up in Greece. His career focus on civil infrastructure such as bridges and buildings grew from his fascination with complex systems. He appreciates the legacy left by the past to today’s social and technological systems.

Today, Chassiakos, who also serves as the CSULB College of Engineering Executive Director for Assessment, finds useful connections by reading ancient writing in the original Greek. “It gives me a perspective on the transformation of language and culture that you can get only if you read it in the original,” he explained. He is especially intrigued by ancient technologies. As an example, he cited the Antikythera mechanism, an ancient device discovered in a shipwreck in 1901 and only recently understood as a complex astrological computer. Its precise gears and turntables have revolutionized modern understanding of ancient Greek science.

In the Classroom. Chassiakos enjoys sharing both historic insights and modern-day engineering. “I primarily teach undergraduates, because I want to be sure they get all the fundamentals,” he said. “One cannot be a good engineer without having a very good foundation.”

Chassiakos received his graduate degrees from USC. His own classroom teaching success was recently recognized when he received the Distinguished Faculty Teaching Award from CSULB where he has taught since 1988. He is now a “triple crown winner,” having been previously awarded the 1994 Outstanding Professor Award and the 2003 Distinguished Faculty Research & Scholarly Performance Award.

Researching Transportation Systems.
Chassiakos has developed a number of transportation models. “With the ports here, the largest container complexes in the nation,” he explained, “we are...”

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METRANS OUTREACH
Visiting Scholars Share Transportation Insights

Has China’s recent industrialization created a mirror image of goods movement problems faced by Southern California? How has the rapid development of EU countries affected the people who live in its ancient cities? Are those challenges similar to those faced by comparable but younger U.S. cities?

At USC this year, comparative transportation economics researchers are studying such issues. The School of Policy, Planning, and Development is hosting two visiting researchers from opposite sides of the globe: Miquel-Àngel Garcia- López, from Universitat Autònoma de Barcelona in Spain and David (Dawei) Huang from Shenzhen Polytechnic in China. They are finding that metropolitan transportation is different in Southern California, but they also find common issues to share with their new colleagues.

“I came to USC because some of the most relevant researchers in this subject are in this university”

Miquel-Àngel Garcia- López

Urban Economics in Barcelona vs. Los Angeles. Garcia-López specializes in Urban Spatial Structure, the spatial organization of employment and population inside a metropolitan area. “I came to USC because some of the most relevant researchers in this subject are in this university,” he explained. Sent by his government for four months, he was recently given additional support for an entire year of research.

“I’ve been working with Prof. Christian Redfearn on the comparison of Barcelona and Los Angeles population spatial structure,” he said, “studying how similar and/or different they are, how they are evolving.” The two coastal cities have some common features. “There are some features that are very different, for example land use and infrastructure policies, and they might explain differences in their population location patterns,” he speculated.

He is particularly interested in learning research methodologies. “Some of the methods that I’m using in my research were developed here, so being here allows me to discuss them with their creators and find solutions for applying them in the European context. In fact, in Europe we are just a few researchers using what we call ‘American methodology.’ Here, living in an urban reality like Los Angeles and visiting others,

In addition to exploring America and its cities, García-López says meeting people has been the best part of his visit. “I’m having a really great time,” he concluded.

Goods Movement in China and the U.S. David (Dawei) Huang has a wide-ranging history in logistics research, from development of a logistics park to a port management simulation.

He has been studying distribution and freight forwarding industries in the Los Angeles area, visiting a number of companies. “In China, available land is very limited in the city, so how should they decide on a location, out of the town — that is best for the people living in the city?” he asked.

Huang has experienced first-hand the dilemmas of port cities, having lived in several — the newly built Shenzhen in the south, bustling but ancient Shanghai, Tianjin near Beijing, and Yantai in prosperous Shandong Province. He competed with other Chinese scholars to win government funding for his current visit.

While at USC, Huang is most interested in understanding the origin of goods movement research projects by professors in America. “Where does the research project come from — the professors themselves or the government,” he asked. “And what are the professors focusing on?”

Huang enjoys discussing logistics with professors and working practitioners. For example, during a recent METRANS seminar for transportation planners, he had that opportunity. “I made several friends who work for Caltrans,” he noted, “and I have communicated a lot with them.”

One topic is finding a way to bring U.S.-China trade flows back to the high levels of recent years.

Learning About America. Huang’s plans for his seven-month stay include meeting many Americans and seeing famous universities. He recently visited the campuses of Stanford University and the University of California, Berkeley. On his next trip, he hopes to be able to drive, since he has spent a lot of time studying for a California driver’s license.

Like Garcia-López, Huang said the best part of his visit here is the opportunity to have dialogue with faculty. When he returns to China in the fall, he hopes to have many new friends and research partners.
METRANS OUTREACH

Najmedin Meshkati Heads to Capitol to Advise Secretary of State

Instead of teaching his usual fall classes at USC this year, Najmedin (Naj) Meshkati will be settling into a new office in the U.S. State Department as a Jefferson Science Fellow. Meshkati is an expert in human-factors safety issues ranging from transportation to nuclear power. His new responsibilities will include making recommendations to Secretary of State Hillary Clinton as a member of the Office of Science and Technology. He will be assigned to the U.S. Agency for International Development.

Rigorous Selection. Having survived a highly selective process, Meshkati was thrilled with the news. “I got a personal phone call from Dr. Nina Fedoroff, Science and Technology Advisor to the Secretary of State,” he said. “I was 1 of 19 finalists. The interviews were quite intense. Dr. Fedoroff asked how I could integrate issues related to science and technology into foreign policy. How would I deal with policymakers and scientists?”

While Meshkati has a very impressive engineering background, it was his interdisciplinary experience that intrigued the State Department. “I studied for my B.S. in Engineering in Iran,” he explained, “and simultaneously attended Political Science and Economics classes in the evening.” He simultaneously received a B.S. in both majors, but from different universities. “In my research, I maintained that interdisciplinary focus. This field of human systems integration is multidisciplinary by its nature.” Both his Masters in Engineering Management and his Ph.D. in Industrial and Systems Engineering were earned at USC.

One of the attractions of the Washington appointment for Meshkati is to work with the new Administration. “It is an honor to work with the Obama Administration,” he said, “but even more so because it is based on merit, my expertise, and a rigorous selection process.”

Credit Due to Others. “I am really standing on the shoulders of my good colleagues and students at USC,” the researcher noted. He feels he has been especially fortunate to have developed close relationships with inspirational colleagues. Meshkati cited particularly Dr. Howard Laitin. “He was the professor who instilled in our minds systems thinking and looking at the big picture.”

Meshkati partially credits his transportation expertise to two METRANS research grants which enabled him to gain insights into surface transportation safety. The first is “Investigating the Role of Driver Decision Styles in Highway-Rail Crossing Accidents” with Mansour Rahimi (USC) and Jalal Torabzadeh (CSULB). His later METRANS-funded research, “Study of the Role of Driver Decision Styles in Highway-Rail Crossing Accidents,” again with Rahimi, led to extensive public testimony regarding the adequacy of safety accommodations.

METRANS OUTREACH

METRANS Advisory Board Tracks Progress at Annual Meeting

The METRANS Advisory Board held its annual meeting in April at CSULB to review METRANS’ progress in achieving its goals. The Board is composed of public agency and industry leaders and provides overall guidance, support, and advice. An updated list of Advisory Board Members is found on the METRANS website, www.metrans.org.

According to METRANS Deputy Director, Marianne Venieris, “There was, as always, a lot of valuable and impressive information to share with our Advisory Board.” The meeting included a presentation by USC’s Maged Dessouky of preliminary research findings on his METRANS research project that compares the efficiency of Caltrans’ CNG and Diesel sweepers; a review of METRANS’ 10th Anniversary celebration events; and remarks by F. King Alexander, President of CSULB, who confirmed CSULB’s commitment to METRANS.

Director Genevieve Giuliano detailed upcoming plans for transportation training, new research projects, faculty and student awards, and outreach and communications efforts, including the upcoming 3rd National Urban Freight Conference in October.

Board member Mark Pisano, former Executive Director of Southern California Association of Governments and now a Senior Scholar at USC noted, “I was on the original Board when METRANS was set up. In the course of 10 years, they have developed a national identity as one of the top transportation groups in the country. Our review by the federal agencies could not have been better. METRANS has exceeded our expectations.”

Richard Powers, Executive Director of the Gateway Cities Council of Governments, and a newer Board member, remarked that “METRANS provides an excellent integration of academic and technical analysis with the work of transportation planners and transportation systems operators throughout our region.”
Ideas of the Year Award. Tristan Hatch got more than a semester abroad when she enrolled at the National University of Ireland (NUI). In May, she was named one of six student winners of the “Ideas of the Year Award” by Ireland’s Chartered Institute of Logistics and Transport. Her entry was “Design of a Handheld Bus Tracking Device Using Smartcard Technology.” Prof. James Moore II, chair of the Epstein Department of Industrial and Systems Engineering, commented, “The world really is flat. USC attracts the best students the world has to offer, and their USC experience equips students like Tristan to achieve anywhere in the world.” Hatch will return to USC in the fall as a junior.

Tristan Hatch, USC Engineering student, receives award from Irish Senator Rónán Mullen

Dissertation Award. Pavan Murali, a USC doctoral candidate, was recently awarded a Haynes Foundation Doctoral Dissertation Fellowship to complete his dissertation on train routing and scheduling. Said Murali. “The problem we are trying to address is of a crucial nature.” He will develop rail strategies that should allow more imported goods to be carried by trains, rather than trucks from the port areas in Southern Los Angeles County. After completing his Ph.D., he hopes to become a professor and continue research in transportation and logistics.

Travel Award. Sylvia He, doctoral candidate at USC, was awarded an Eisenhower Fellowship to attend the January 2010 Transportation Research Board (TRB) annual meeting in Washington, D.C. She was previously a summer fellow at the TRB.

Global Logistics Specialist Awards. Two students of the Global Logistics Specialist program at CSULB, Angelo Lopez and Patricia Uzes, were awarded Port of Long Beach Scholarships in May. Their colleague, Egle Viliute, was awarded the Mary Bleming Memorial Scholarship, named for the founder of the International Business Association of Southern California.

METRANS EDUCATION

Transportation Students Win Prestigious Awards

METRANS EDUCATION

Transportation Professors Recognized

Giuliano. METRANS Director Genevieve Giuliano was recently named The Margaret and John Ferraro Chair in Effective Local Government in the School of Policy, Planning and Development, received the USC 2008-09 Zumberge Fund Interdisciplinary Award for his cross-disciplinary work on immigrant integration.

Egolfopoulos. Fokion Egolfopoulos of USC’s Viterbi School of Engineering has become editor-in-chief of Combustion and Flame, the preeminent journal on research in combustion phenomena.

Englert. Burkhard Englert, professor of Computer Engineering and Computer Science in CSULB’s College of Engineering, received the university’s Distinguished Faculty Teaching Award for 2009.

Ioannou. The Best Practice Award was recently bestowed on Petros Ioannou, USC Professor of Electrical Engineering, from the IEEE Intelligent Transportation System Society, in honor of his pioneering research on automotive cruise control.

Koenig. Sven Koenig, USC Professor of Computer Science, received the Mellon Award for Excellence in Mentoring, in honor of his coaching many undergraduate computer programming teams.

Moore. James Moore II was named a fellow of the Institute of Industrial Engineers and also elected to a two-year term on the IIE Board of Trustees as Senior Vice President for Continuing Education. He is Professor and Chair of USC’s Epstein Department of Industrial and Systems Engineering.

Myers. Dowell Myers, Professor in USC’s School of Policy, Planning and Development, received the USC 2008-09 Zumberge Fund Interdisciplinary Award for his cross-disciplinary work on immigrant integration.

Parker. Alice Parker received the 2009 American Society of Engineering Education Sharon Keillor Award for Women in Engineering Education. Parker is a professor in USC’s Ming Hsieh Department of Electrical Engineering.

Richardson. Harry Richardson, James Irvine Chair in Urban and Regional Planning in USC’s School of Policy, Planning, and Development, was elected a 2009 Fellow of the Western Regional Science Association. It is an international multidisciplinary group of researchers dedicated to the scientific analysis of regions.

Sioutas. Constantinos Sioutas, professor of Civil and Environmental Engineering in the USC Viterbi School of Engineering, was recently awarded $1.12 million from the Environmental Protection Agency to help understand the health effects of air pollution, examining coarse particle pollution in the Los Angeles Basin.

Von Winterfeldt. Detlof von Winterfeldt, co-founder and director USC’s National Center for Risk and Economic Analysis of Terrorism Events (CREATE), has taken a leave to become director at the International Institute for Applied Systems Analysis in Austria.

Yeh. Henry Yeh, professor of Electrical Engineering in the CSULB College of Engineering, received the university’s Distinguished Faculty Teaching Award for 2009.
Transportation planners across the country are increasingly confronted by the impacts of freight moving through both rural and urban areas. Trains and railcars, containerized goods, and hazardous materials all travel on systems often developed and maintained by public transportation officials. Where the route to consumer from manufacturer was once a few miles, it now stretches halfway around the world—and is full of obstacles.

**Goods Movement.** Unfortunately, transportation planners are seldom formally trained to deal with the impacts of international trade on our transportation systems, including roads, highways, and rail networks. Freight is rarely included in planning and engineering curricula at the college level, but the need is there. “As communities and elected officials become more sophisticated about goods movement, there is more need for planning agencies to become sophisticated too,” said Tom O’Brien, METRANS Director of CSULB Programs.

Thus was born “Goods Movement and the Supply Chain 2009: Implications for Caltrans and the Public Sector,” a METRANS-sponsored intensive seminar designed specifically to help transportation planners learn to apply lessons in goods movement finance and planning directly to their jobs. The three-day seminar was held mid-April in Long Beach.

Most participants work for Caltrans, while others came from metropolitan planning organizations (MPOs) that are often working with the state in identifying and implementing freight-related projects. “The role of the MPO is becoming institutionalized in the U.S. including for freight projects. Increasingly, MPOs must be part of the approval process,” he explained.

Michelle Smith, Goods Movement Transportation Planning Manager for METRO (Los Angeles County Metropolitan Transportation Authority), represents such an entity. “Initially I thought the class would just serve as a refresher course on goods movement, but I found it to be much more insightful because of various perspectives on the implication of goods movement (on the public sector) that were presented,” she explained. “I found the background information on the freight industry and unions, etc., particularly interesting because it helped explain why the current system is fragmented and why there’s still resistance to institutional changes.”

In addition to university professors, instructors for the three-day seminar included experts from various government transportation agencies and from the private sector goods movement industry.

**Real Life Projects.** Said O’Brien, “We gave participants real problems for class exercises. Their groups came up with solutions, and then later they found out what became of the ‘real project.’ We gave them plenty of time to think about how to use this information on the job.”

The problem exercises dealt with bridges, a near-capacity rail corridor, an Air Force base about to be turned into a mega-foreign Trade Zone, and other similar issues. For each problem, the small groups were asked to identify the following:

- Potential planning and land use issues tied to the development of the project
- Safety and security issues
- Key stakeholders and the role that they will be expected to play
- A particular role for Caltrans
- Data and information needs and possible sources

**Important Lessons.** Goods movement lessons came from both lectures and field trips. Day One covered “The Geography of Goods Movement.” After a morning in the classroom, the group headed to Colton Crossing 50 miles away, where the BNSF and UP railroads cross at grade. Since these two railroads carry a large part of Asian freight destined to the inland U.S., the intersection is a major bottleneck and a source of safety concerns. Seeing the actual tracks and the nearby surroundings gave the planners a vivid understanding of the local issues.

Day Two covered freight policy and financing of transportation infrastructure—an increasingly complex topic—as well as data sources.

On Day Three, the attendees focused on finding answers. At the giant Maersk Terminal at the Port of Los Angeles, they were introduced to supply chain security with examples from the waterfront. They concluded with the real-life goods movement exercises noted above.

Reflecting on the experience, METRO Goods Movement Planner Smith remarked, “I would definitely recommend the class because it provides a good overview of the supply chain and the environmental, economic and health impacts associated with goods movements in just 2-3 days. Also, I consider the field trips and links to goods movement data sources added bonuses.”

**Participants tackle real-world problems in “Goods Movement and the Supply Chain 2009.”**
Researcher Inspired by Ancient & Current Systems, cont.

(Continued from page 1)

a good position to work on problems related to goods transportation in and out of the ports.”

Port terminals have proved fertile ground for engineering modeling. Chassiakos and USC’s Petros Ioannou developed a complex simulation model of marine terminal operations. The project was funded by METRANS. Chassiakos terms it a “microscopic simulation tool, that is, it is modeling each individual component in the terminal separately…the trucks, the container, the crane to unload the container, etc. This makes it very detailed and extremely useful. If you want to introduce new terminal technology, you see how it will affect operations. Or if you introduce a new policy, you see its effects,” he explained. “The basic use is for terminal operators who want to run several ‘what-if’ scenarios,” he continued. “For example, if a mega-ship has a 14-hour delay, how will that affect operations?”

Chassiakos expects the software to be ready by Fall 2009. “It will be useful for the marine terminal operators and for us, as researchers.” The model will be demonstrated in September at the 12th Symposium on Control in Transportation Systems and at the 3rd METRANS National Urban Freight Conference in October.

Working with METRANS. As a member of the METRANS Executive Committee, Chassiakos has promoted its research. He developed an audio-visual summary of all METRANS projects, which was unveiled at the Tenth Anniversary Dinner, and also designed posters about METRANS research.

Being on the METRANS Executive Committee has enriched his professional life, Chassiakos said. “I see all the METRANS activities you cannot always see as a researcher. We are involved in conferences and preparing materials for renewal of the grant. It gives me a different perspective, responsibility for the institution.” It also extends the Greek legacy of improved social and technical systems far beyond their ancient origins.

METRANS OUTREACH

METRANS Co-Sponsors Research Conferences

METRANS is co-sponsoring two fall conferences featuring transportation issues.

Control in Transportation Systems ’09. On September 2-4, the 12th International Federation of Automatic Controls (IFAC) Symposium on Control in Transportation Systems will take place in Redondo Beach, California. Spearheaded by METRANS Executive Committee member and METRANS researcher Petros Ioannou, the event will feature 120 papers by researchers from all over the world.

“Our speakers include Genevieve Giuliano, METRANS Director,” said Ioannou, “and Fei-Yue Wang, formerly the president of IEEE’s Intelligent Transportation Society.”

For more information, see http://ee.usc.edu/CTS09/.

TRB Conference on Women’s Issues. The campus of University of California, Irvine will be the site of the 4th International Conference on Women’s Issues in Transportation, sponsored by the Transportation Research Board. METRANS is a co-sponsor. It is scheduled for Oct. 27-30, 2009.

METRANS Director Genevieve Giuliano and METRANS researcher Lisa Schweitzer of USC will make the keynote presentation. Their presentation will address a “conundrum,” said Schweitzer. “Women carry a disproportionate share of the family workload. The transportation literature shows women are responsible for transporting children too. Thus they do a lot of ‘trip chaining.’” She said the focus of their talk will be about transit systems that address both efficiency and fairness, given the unique trade-offs of time and money that women must make.

Other conference topics include safety, demographics, and planning. For more information and to register, see http://tinyurl.com/mz7fcc.

METRANS RESEARCH

“Ten Thousand Eyes” Research to Increase Security Via Cell Phones

A newly funded METRANS research project, “Ten Thousand Eyes on California’s Streets, Roads, and Infrastructures,” will take advantage of ubiquitous cell phones by turning them into a widespread safety monitoring system. Cell phone and smartphone owners would load the special software, called “vcaps,” on their phones, then capture images of emergencies and send them to authorities for response.

The System. According to researcher Martin Krieger of USC’s School of Policy, Planning and Development, “The system was originally meant to document urban life. We envision it will also be used for transportation security at places such as airports and train stations, and then it will be used by law enforcement personnel operating within standard legal protocols.”

Krieger and research partner Ramesh Govindan, who also serves as chair for the Department of Computer Science in the USC Viterbi School of Engineering, have spent two years developing the software. Said Krieger, it is a “robust and reliable and energy-efficient phone software, and (has) a useful display with secure privacy protection.” At the receiving end, security personnel using a centralized server would examine all the photos or videos sent in – potentially hundreds for a major incident – in order to respond appropriately.

Pilot Testing. Users are testing the system already. The researchers want the system simple enough for relatively unsophisticated users. Nevertheless, the resulting video data would be sophisticated and information-rich, tagged with usable information such as the time of capture, the location, etc.
METRANS EXECUTIVE COMMITTEE

Genevieve Giuliano, Director
Margaret and John Ferraro Chair in Effective Government; Senior Associate Dean, Research and Technology, School of Policy, Planning & Development, USC

Marianne Venieris, Deputy Director
Executive Director, Center for International Trade & Transportation, CSULB

Petros Ioannou, Associate Director
Professor, Electrical Engineering Systems; Director, Center for Advanced Transportation Technology, USC

Mahyar Amouzegar, Associate Dean for Research & Development, College of Engineering, CSULB

Anastasios G. Chassiakos, Professor, Department of Electrical Engineering; Executive Director of Assessment, College of Engineering, CSULB

Maged Dessouky, Professor, Daniel J. Epstein Department of Industrial & Systems Engineering, USC

Joseph Magaddino, Chair, Department of Economics, CSULB

James E. Moore II, Professor and Chair, Daniel J. Epstein Department of Industrial & Systems Engineering, USC

METRANS has funded 91 faculty at USC and CSULB. Given METRANS’ interdisciplinary theme, they are experts in engineering, business, economics, geography, information sciences, public policy, planning, public administration and health sciences.

California State University, Long Beach

Dan Barber
Chin Chang
Anastasios Chassiakos
Robert Chi
Burkhard Englert
Mohammed Forouzesh
Robert Friis
Darlin Goldstein
Lisa Grobar
Karl H. Grote
Ken James
Christine Jocoy
I-Hung Khoo
Melody Kiang
Shui Lam
Christopher Lee

University of Southern California

Bei Lu
Joseph Magaddino
Tracy Bradley Maples
Wade Martin
Kristen Monaco
Ali Nowroozi
Thomas O’Brien
Emily Parentela
Hamid Rahai
Grace Reynolds
Antonella Sciortino
Shadi Saadeh
Tariq Shehab
Seiji Steimetz
Reza Toossi
Jalal Torabzadeh
Fei Wang
Suzanne Wechsler
Henry Yeh
Hsien-Yang Yeh

METRANS FACULTY

METRANS Website

More information on transportation research, publications, education, training, and technology transfer can be found at www.METRANS.org.
Dear Reader:

This summer we have devoted much of our efforts in preparation for the 3rd National Urban Freight (NUF) Conference to be held at the new Hotel Maya in Long Beach on October 21-23. The purpose of NUF is to examine the impacts of goods movement and international trade in metropolitan areas. We are pleased to have received more than 100 proposals for presentations and papers on a host of urban freight-related issues that were submitted from throughout the U.S. and around the world. This is much more than expected given the difficult time for many of our academic colleagues and partners in the public and private sector. Clearly we are building on the success of our previous events.

NUF will also feature a special session on freight and livability; a series of comparative port panels; and a panel of industry professionals in dialogue with freight researchers. Our keynote speaker is distinguished researcher Eddy Van de Voorde, from the University of Antwerp, who will address port competition from an international perspective. We will also hear from former Port of Long Beach Commissioner Jim Hankla.

NUF promises to be a dynamic conference. We hope you will join us. For more information, please go to www.metrans.org.

Marianne Venieris
Deputy Director
METRANS Transportation Center