



CoHemis... Update

Overcoming through cooperation

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University of Puerto Rico, Mayagüez Campus (UPRM)

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The CoHemis Center has new co-director: Dr. Fernando Gilbes

Dr. Jorge I. Vélez-Arocho has become Chancellor

The position of Co-Director of the CoHemis Center, occupied during the last ten years by Dr. Jorge Iván Velez-Arocho, has gone to Dr. Fernando Gilbes following the designation of Velez-Arocho as Chancellor of UPRM (see page 5). Dr. Gilbes, who has taught and organized international courses and events for CoHemis, is presently a professor at the Geology Department of UPRM. He previously worked as a researcher in the Marine Sciences Department since 1997. An expert in remote sensing applications, he has also distinguished himself as a researcher in UPRM's Center for Subsurface Sensing and Imaging Systems (CenSSIS), and in the Tropical Center for Earth and Space Studies (TCESS), among others.

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MANY NEW INITIATIVES WITH PANAMA



The Panamanian Minister of Science, Technology and Innovation, Honorable Dr. Gonzalo Córdoba, addresses the participants of the ceremony in which the collaboration agreement between UPRM and his National Secretariat of Science, Technology and Innovation was signed. He also had an outstanding participation in March's Iberoamerican Summit on Engineering Education that CoHemis co-sponsored.

Following the 2001 visit to Panama by CoHemis' co-directors, Drs. Pumarada and Velez-Arocho, several collaboration initiatives have been born. Some of these are:

- "UPR Day in Panama" (see page 8)
- The participation of CoHemis and UPRM in the launching of the International Center for Sustainable Development organized by Ciudad del Saber (see page 6).
- Membership of Panama's National Science, Technology and Innovation Secretariat in the CoHemis Consortium (see page 3).
- Participation of Panama's Minister of Science, Technology and Innovation in the Iberoamerican Summit on Engineering Education (on this page).
- Negotiations for the demonstration installation in Panama of the solar air conditioner developed by Dr. Jorge Gonzalez and patented by UPRM.

Ibero-American Engineering Summit: educating professionals for globalization

Drs. Fernando Gilbes and Luis Pumarada, co-directors of CoHemis, participated in the Iberoamerican Summit on Engineering Education held in São Jose dos Campos, Brazil on March 24-26, 2003. The impressive Universidad del Valle del Paraiba (UNIVAP) was the host for this important event, conceived as a strategic step towards the launching of a hemispherical or Iberoamerican system for the education and practice of engineering. Such a system would offer international accreditation for engineering programs, with their graduates qualified to practice their profession in every country of the region.

UPRM and the CoHemis Center were among the organizers and co-sponsors of this

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NSF Transportation Workshop

UPRM's Chemistry Department: Ph.D. program in Applied Chemistry It will start operating on August, 2003

The Chemistry Department of the University of Puerto Rico, Mayagüez Campus (UPRM) had recently approved a new doctoral program in Applied Chemistry. This program will be the first of its kind to be offered in Puerto Rico at the graduate level. It will begin in August of the current year. It will offer concentrations in Biophysical Chemistry and Chemistry of Materials. One in Environmental Chemistry should begin in the near future.

The director of the Chemistry Department, Dr. María Aponte, explained that the concentrations are structured in a way in which they cover new modules and fields of interest in Chemistry. At the same time, the program facilitates the incorporation of exciting research projects for academia and industry.

The initial core staff of the program is composed of twelve professors from the Chemistry Department. Besides expanding the study opportunities for Puerto Rican and international students in the field of Chemistry, this doctoral program will offer research services to existing industries. Its existence will be an incentive for the establishment of additional industries in Puerto Rico and the Caribbean.

The doctorate requires a minimum of 52 credits, of which 18 are in thesis, 9 in core courses, and the remaining in electives and specialization courses. For additional information, please contact the Director of the Chemistry Department, m_aponte@rumac.uprm.edu, or visit the Chemistry Department web page at: <http://www.uprm.edu/wquim/>.

UPRM installs a Protein Spectroscopic Laboratory

UPRM has recently inaugurated a Protein Spectroscopic Laboratory, the only one of its type in Puerto Rico, dedicated to protein interaction and the determination of changes in protein structure due to these interactions. Various interdisciplinary teams have been carrying out important research related to different types of cancer, diabetes and respiratory problems, among others. These projects are expected to have direct influence in the quality of life of patients, as well as in facilitating more economical treatments. One of the principal advantages of the equipment in the new lab is that the quantity of samples necessary for study is small and can be reused.

The projects conducted in the PSL include the collaboration of international scientists, among them: Dr. Nita Maihle and Dr. Jeffrey Salisbury from the Mayo Clinic in Minnesota; Dr. Elsa Cora, from the Medical Sciences Campus of the UPR; Dr. Jesús Pérez-Gil, from Universidad Complutense in Spain; Dr. Annelise Barron, from Northwestern University in Illinois; and Drs. Roberto Ríos, Gustavo López and Jorge Ríos-Steiner from UPRM. The undergraduate and graduate students who participate in research come from the following UPRM programs: Chemical Engineering, Biology, Industrial Biotechnology, Industrial Microbiology, and Chemistry. They work in multidisciplinary groups because the research carried out involves aspects from different disciplines: from isolating proteins to visualizations and highly technical computerized models.

The development of this lab has been possible thanks to the sponsorship of Glaxo- SmithKline Company, Puerto Rico's Industrial Development Company, the National Institute of Health (NIH), and the University of Puerto Rico.

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THE CoHEMIS CONSORTIUM CONTINUES TO GROW: FIVE NEW MEMBERS FROM LATIN AMERICA

INSTITUTIONS FROM ARGENTINA, PANAMA, MEXICO, DOMINICAN REPUBLIC AND COLOMBIA

During the past year, three universities and two national organizations of science and technology joined the CoHemis Consortium, raising its membership to 39 institutions.

The Mayagüez Campus of the University of Puerto Rico (UPRM) and the National Secretariat of Science, Technology and Innovation of Panama (SENACYT) signed through the CoHemis Center an agreement of collaboration named "Panama-Puerto Rico: Initiative for the Joint Development of Science, Technology and Innovation." One week prior, an agreement was established with Mexico's Panamerican University of on September 16, 2002. Moreover, on October 28th of the same year the Ministry of State and of Higher Education, Science and Technology (SEESCYT) of the Dominican Republic accepted adding to their recent agreement with the University of Puerto Rico their membership in the CoHemis Consortium. Concurrently and similarly, by means of a letter with the intention of modifying a recent bilateral agreement, the Industrial University of Santander, located in Bucaramanga, Colombia joined the consortium. Finally, the National University of Technology of Argentina also joined the network by means of a bilateral agreement to its effect with UPRM.

SENACYT

The agreement between SENACYT and



The Academic Director of the Engineering School of Mexico's Universidad Panamericana, Eng. Antonio Castro-D'Franchis, took advantage of his visit to UPRM to see several satellite image reception antennas that are installed on the roof of the UPRM Research and Development Center. On his right are Dr. Luis Pumarada, CoHemis Director, and Dr. Antoni Skrzypinski, from UP, who is at present a visiting professor at UPRM's Mechanical Engineering Department.

UPRM was signed on September 20, 2002 in Panama City by the executive director of the first, the Honorable Minister of Science, Technology and Innovation of Panama, Dr. Gonzalo Córdoba, UPRM's Chancellor, Dr. Jorge I. Vélez-Arocho, and the CoHemis Center Direc-

tor, Dr. Luis Pumarada-O'Neill. Through this agreement, both institutions are committed to the identification and development of joint projects of research and innovation, such as the enhancement and updating of human resources in areas such as mathematics, engineering, biotechnology and remote sensing, among others.

This collaboration will foster meetings and exchanges of scientists and researchers, including graduate students, with the purpose of promoting technical assistance and consulting, not only between the two above institutions, but also between other institutions of the CoHemis Consortium and Panamanian institutions served by SENACYT. It will also encourage the offering of short graduate courses, seminars and conferences on University of Puerto Rico campuses and in Panamanian institutions.

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New Consortium members...

UPRM will facilitate that its professors utilize their sabbatical leaves for research in activities developed jointly. SENACYT will promote that Panamanian professionals, scientists and researchers participate in research projects conducted by UPRM and other members of the Consortium. The Scientific Research Leadership and the Technical Cooperation of Special Programs Leadership share the link of the CoHemis Consortium in SENACYT.

SENACYT is a decentralized organization assigned to the Presidency of the Republic of Panama. It is charged with the regulation and development of science, technology and innovation activities of that country. Its activities are outlined in the 1997 law from which the "Guidelines for Science, Technology and Innovation" are derived. It executes key actions to strengthen, support, induce and promote science, technology and innovation development to the private sector in its reconversion and modernization process, to the government in its automation and technification process, to the academic-research sector in its access to infrastructure that allows the integration of critical masses of researchers and regional technologists, and to the general public's universal access to knowledge through publishing of scientific research achievements and technological development. SENACYT seeks to establish itself as the focal and institutional nucleus of science, technology and innovation development, as an integral part of the national politics of development, strengthening the cultural identity and promoting the dissemination of knowledge to Panama's entire society.

SENACYT and CoHemis/UPRM are collaborating on various initiatives, among these a collaboration between professors of mathematics at the college level, the Panamanian laboratory of high technology INDICASAT, and the Ibero-American Summit on Engineering Education.

Universidad Panamericana

The agreement between UPRM and Mexico's Panamerican University was formalized with the visit of the Academic Director of its Engineering College, Eng. Antonio Castro-D'Franchis, to Mayagüez. The document was signed by Panamerican University's Chancellor, Atty. Sergio

Raimond Kedilhac-Navarro, UPRM's Chancellor, the director of the CoHemis Center, and Eng. Castro, who will serve as his institution's Consortium link. According to UPRM's Chancellor, Dr. Jorge Vélez-Arocho, "this agreement reinforces the collaborative relationship that UPRM has had with Mexico for years through the University of Guadalajara and the UNAM."

The agreed purposes of maintaining a continuous exchange of information regarding projects and relevant results and of identifying areas related with science and technology in which the faculty and the facilities of both institutions compliment each other. Likewise, the agreement is expected to facilitate the development of joint programs for the enhancement of human resources for teaching and research and to promote exchanges of professors and students from both universities, besides facilitating cultural exchanges. It also encourages cooperation between both institutions with the purpose of improving engineering education and promoting research and development in fields of common interest.

Through the above CoHemis agreements, professors and students from UPRM, as well as those from the other Consortium members, now have several additional solid institutions with which to interact in research and education. At the same time, the researchers of these institutions and countries have at their disposition 34 institutions committed to hemispherical collaboration and facilitation that they can collaborate with.

Dr. Antoni Skrzypinski, a UP professor, is currently engaged as a visiting professor at UPRM. On the other hand, Dr. Jorge González, the director of UPRM's Department of Mechanical Engineering, has visited UP to settle various initiatives of collaboration.

SEESCyT

The Dominican Republic's law creating the Office of the Secretary of State and Higher Education, Science and Technology and the National Counsel for Higher Education, Science and Technology was pro-

claimed on August 13, 2001. Until then, the National Planning Office had worked as the Dominicans' national organization of science and technology.

The Ministry of State and Higher Education, Science and Technology (SEESCyT) is the tool of the executive branch in the sector of higher education, science and technology. It is in charge of promoting, regulating, advising and administrating the National Higher Education, Science and Technology System and to oversee the enforcement of applicable laws and national policy.

SEESCyT seeks, among other things: to improve, disseminate and transfer the Dominican scientific and technological production to a national and worldwide scale; to contribute to the development and improvement of education at all levels, in particular through the enhancement of the teaching personnel and socio-educational research; to provide incentives for and promoting scientific research, such as experimentation, innovation and the invention of technologies associated to abilities and talents which are inherent to the development of science and to their application in areas of industrial production and services; and to encourage exchanges and the establishment of communication and cooperation mechanisms between industry and the institutions of higher education, science and technology.

Due to the close ties and short distance between the islands of the Dominican Republic and Puerto Rico, the hundreds of Dominican professionals who are UPRM alumni, and the facilitation that will be provided by SEESCyT and CoHemis, growing levels of collaboration between UPRM and the Dominican scientific community are expected.

Universidad Industrial de Santander

The Universidad Industrial de Santander (UIS) is the state university of the Department of Santander in eastern Colombia. Its vision is to guide the formation of man through the generation and dissemination of knowledge in its diverse branches. It has five colleges: Mechanical Engineering, Chemical Engineering, Science, Health and Humanities. It is in these fields of knowledge that the UIS makes headway in educational activities, research and teaching. The institution has various nuclei and research centers, and collaborates with the excellent R&D

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New Consortium members...

center operated by Ecopetrol, Colombia's national oil company, in Bucaramanga. A significant number of its best graduates enroll for graduate study at UPRM, primarily in its Mathematics Department.

One of UIS' professors, Jorge Villamizar Morales, an alumnus of UPRM's Mathematics M.S. Program, visited Puerto Rico together with Dr. Libardo Moran, Dean of Science, early in 2002 to arrange a bilateral agreement between both institutions. As suggested by CoHemis' codirectors, the UIS would join the Consortium by means of a letter of intent that would be an addendum to the already existing agreement. Months later Dr. Arturo Portnoy, from the Mathematics Department of UPRM, travelled to Bucaramanga with CoHemis' support. There he negotiated that the students from UIS in the Master in Applied Mathematics program could participate in internships within Colombian industry and in the research center of Ecopetrol. This program requires such an internship, which, due to United States visa issues, was difficult for international students to carry out either in Puerto Rico or in the United States.

Universidad Tecnológica Nacional

The Universidad Tecnológica Nacional (UTN) is the only one within the Argentinean public higher education system that specializes in technological fields, focusing in engineering careers. Due to this fact, and having 30 regional campuses encompassing all of the country's regions, the institution serves 70,000 students, more than half of the engineering students of the entire country. Its thirteen engineering careers include, besides the classic fields such as Civil and Mechanical, from Aeronautical to Fishery and Textile Engineering. Its graduate offer includes a Doctorate in Engineering, with concentrations in Chemistry, Materials, Electronics, Systems, Acoustics, Civil and Structures, and 12 masters degrees. The UTN has been developing an effective distance learning program and multipoint videoconferencing which it uses both for the benefit of its regional campuses and for individuals. The UTN has free tuition at the undergraduate level. Its research activities center on multidisciplinary groups, mainly focused on robotics, CAD/CAM, food technology, energy, anti-seismic structures, and communications.



NEW CHANCELLOR AT UPRM

Dr. Jorge Ivan Velez-Arocho, former CoHemis Co-director

Dr. Jorge Iván Vélez-Arocho, who for the last ten years co-directed the CoHemis Center, was named Chancellor of UPRM last July by the Board of Trustees of the University of Puerto Rico. The entire staff of the CoHemis Center congratulates him for a very well deserved designation and wishes him a fruitful time in office.

Vélez-Arocho has been a Professor in the College of Business Administration for the past 30 years. Besides co-directing CoHemis, Dr. Vélez has fulfilled different administrative duties, among them, Dean of Business Administration, Director of the Graduate School, and Coordinator for the Center of International Perspectives. He has also been outstanding in programs that integrate business perspectives with the teaching of engineering and applied sciences.

His priorities include a master plan of facilities for the Mayagüez campus; gathering collaboration efforts from government, businesses and alumni; and to promote international and cultural awareness. He is committed to the development of new paradigms, among them, the substitution of the traditional curriculum by a multidisciplinary and interdisciplinary one. "This curriculum would require that students find various sources of information, such as global markets, international standards, customs and cultures of the countries within the context of their professional and academic roles," said the educator. As Chancellor of UPRM, Vélez-Arocho will not only focus on the liberal or professional education that is taught in its colleges of Engineering, Business Administration, Arts and Sciences, and Agricultural Science, but also in course development, conferences, workshops, and seminars, plus other social and cultural activities directed towards the creation of a different lifestyle for the university community.

Another fundamental priority is the development of new graduate programs, among them, Doctorates in Chemistry, Electrical Engineering and Industrial Biotechnology, besides an increased emphasis on research and publishing in professional journals. He views UPRM as a key institution for the economic development of Puerto Rico, the only one with academic programs on the main topics which are crucial for an economy with a strong technological component.

Panama creates International Sustainable Development Center

CoHemis and UPRM collaborate with the City of Knowledge in its creation

In September 17-19, 2003, representatives from UPRM and CoHemis will join a team of scientists, industrial executives, government officials, and representatives from non-governmental organizations in a meeting and workshop in Panama to initiate the process of establishing an International Center for Sustainable Development (ICSD) based on an integrated, systemic approach under the principles of ecosystems science.

The proposal takes advantage of the multi-institutional framework of Panama's City of Knowledge and the "living laboratory" that is the more than 500,000 managed and protected hectares of the Panama Canal Watershed. Located in the City of Knowledge, the Center will serve as an organizational structure designed to foster worldwide cooperation among international teams of scientists and educators. It will also provide the environment to establish a world-class model of ecosystem management for active teaching and research, able to bring together the natural and social sciences in the studying of the worldwide problems and dynamics of sustainable development. This mission requires the ICSD to be knowledge-based; trans-disciplinary and inter-institutional in character; global in perspective and regional in scale; aimed at careful problem identification and solving and at designing better institutions and policies; and able to provide continuous feedback and adaptation.

The ICSD proposal is on its second phase. The first, already accomplished, was dedicated to the formation of a Consortium for Sustainable Development with the partners identified and committed to the initiative.

UPRM, through the CoHemis Center, is an important partner in this group. Other CoHemis Consortium institutions, such as Georgia Tech, are considering joining the effort, which is backed by the network's two Panamanian institutions, SENACYT and Universidad Tecnológica de Panamá. The second phase is dedicated to the organization of the Interdisciplinary Project Formative Team of scientists, industry, government and NGOs from the Americas to review the proposal and design and develop the initiative. This is the group that will be meeting next September in Panama.

The proposal to create the ICSD, presented by the Panamanian government with the support of the United Nations Development Program, was endorsed by the World Summit on Sustainable Development held in Johannesburg in August 2002.

The United Nations' Millennium Development Objectives, to be complied by the year 2015, and the Sustainable Development Strategy proposed for Latin America and the Caribbean, will profit significantly from the operation of the International Center for Sustainable Development in Panama. This Center will provide another way in which UPRM can contribute to the well being of humanity through resources such as its satellite imagery, school of agriculture, environmental engineering and sciences, water resources institute, and others.

UPRM officials visit universities in Chile, Perú

Two UPRM professors visited seven universities and two organizations in two countries in March 2002. Dr. Luis Antonio Estevez, Director Graduate Studies, and Dr. Jorge Gonzalez, Mechanical Engineering Department Director, undertook a trip to several universities in Peru and Chile. The trip had two main purposes, promoting the 9th Latin American Congress on Heat and Mass Transfer (LATCyM2002) and recruiting graduate students for UPRM programs, particularly in engineering.

The five-day trip included visits in Lima, Peru to Universidad Nacional de Ingeniería, the Universidad Nacional Mayor de San Marcos, CONCYTEC, the national organization for science and technology, and Peru's professional engineers association. In Trujillo, Peru they went to Universidad Nacional de Trujillo (UNT). In Chile they visited the University of Santiago, the University of Valparaiso. and the Technical University Federico Santa Maria.

Many seniors from Trujillo choose to pursue graduate studies in UPRM, mostly in Mechanical Engineering. As a rule, they have been excellent students and researchers.

UNT Chancellor Huber Rodriguez-Nomura declared the two UPRM Professors to be distinguished guests because of their contribution to the development of science and culture in Latin-America. Rodriguez Nomura declared that the visit of the UPRM professors would propitiate the beginning of a higher stage of cooperation between both universities, which have as a common factor contributing to the socio-economic development of their respective nations.

LATIN AMERICAN STUDENTS IN UPRM:

CoHemis...update includes in each issue an interview with one of the hundreds of Latin American science and engineering graduate students in UPRM.

JAIME YECKLE, Peruvian: M.S. and Ph.D. in Computer Software Engineering

Jaime Yeckle, Peruvian graduate student at UPRM, belongs to the doctoral program in Computing and Information Sciences and Engineering, an interdisciplinary effort of the Mathematics and the Electrical and Computer Engineering Departments. His thesis advisor is Dr. Wilson Rivera, professor of the second department. His doctoral research will be conducted in the field of distributed systems, a branch of Computer Engineering.

Jaime finished in 1995 his BS degree in Electronic Engineering in Universidad Antenor Orenge of Trujillo, Peru. Four years later he was working as head of the computer science and quality management area for the Spanish company ABENGOA-PERU in his country. The representative of that company in Puerto Rico (a Peruvian lady) met him in a visit she made to Peru, and told him about the graduate programs of UPRM, where she had studied. Recognizing the opportunity as very valuable, Jaime applied for admission to UPRM in 1999, and in the following year he entered the Master of Science program in Computer Engineering, where he decided to specialize in Software Engineering. His thesis was about the design of a graphical tool for a computer language based on events and distributed rules. When he was about to finish his Master's degree, he applied and was admitted to the just created interdisciplinary doctoral program to which he belongs at present.

Jaime has been married for 5 years now to Gina Salazar. They have two daughters: Amy (Peruvian), who is 4 years old, and Astrid (Puerto Rican), 9 months old. During his master's studies,



Jaime was in charge of the ISO 9002 Certification of the company he was working for in Peru.

Yeckle received a teaching assistantship in exchange for serving as instructor in the electronics' laboratories. At this moment, he enjoys a research assistantship. Both grants pay tuition and have allowed him to sustain his family. He obtained the present, more convenient assistantship through research projects carried on by his advisor.

All places and universities have characteristics that please some people more than others. Jaime is attracted to UPRM, aside from the quality of education, because of its facilities and infrastructure, classrooms with audio-

visual equipment, and the green tropical lushness of its surroundings. The young man, who dominates the Bulgarian language in addition to English and Spanish, also enjoys UPRM's international diversity in faculty and students, and the opportunity that this presents for learning about the world. He also appreciates the warmth and friendliness that Puerto Ricans have towards visitors and foreign residents. As negative points, he mentions the scarcity of parking space and the inexistence of health care plan coverage for the families of international students.

A U.P.R. Day in Panama

September 19th, 2002 was “UPR Day in Panama”. This activity, which actually began the day before and extended an additional day, was organized by the CoHemis Center and the Universidad Tecnológica de Panama (UTP), with help from Puerto Rico’s Commercial Office in Panama and Panama’s Secretariat for Science, Technology and Innovation (SENACyT). Its primary objective was presenting the main graduate programs of UPRM, plus two programs of the University of Puerto Rico, Rio Piedras Campus (UPR-RP) which are also of interest to Panamanian faculty and students. Other objectives included the advancement of UPRM initiatives in the fields of Civil Engineering, Mechanical Engineering and Biotechnology, the signing of a bilateral agreement within the CoHemis Consortium framework with SENACyT, and the identification of possible teaching and research collaborations of mutual interest.

Prof. Gregorio Urriola, director of the UTP’s Office of Exterior Relations and its official contact for the CoHemis Consortium, invited persons from the different units of his university and from the other Panamanian institutions with science and technology programs. The presentations took place in the morning and were repeated in the late afternoon to accommodate all interested students and faculty. A meeting with UTP chancellor, Eng. Héctor Montemayor, the signing ceremony of the SENACyT agreement, and a visit to the City of Knowledge and the nearby Miraflores locks of the inter-oceanic canal were inserted on that same day.

The directors of the majority of the UPRM graduate programs related with science and technology travelled to Panama. They interviewed dozens of potential students, mostly faculty and senior students, and identified potential collaborations mainly in Civil and Mechanical Engineering, Information Systems, Biology, Agricultural Sciences, Mathematics and Biotechnology. Various educational and research projects of mutual benefit were confirmed, and the research consulting that can be established with Panamanian institutions was discussed. The contacts between UPR and Panamanian entities, with the support from the Puerto Rican Commercial Office

in Panama, will facilitate further collaborations between the two countries’ respective industrial, financial, tourist and commercial communities. In fact, a project of a commercial demonstration of a solar air



Drs. Jorge I. Velez-Arocho, UPRM Chancellor, and Cecilia Guerra, Scientific Director of SENACyT, during the signing of the agreement by which the second joins the CoHemis Consortium.

conditioning element system, developed and patented at UPRM, and a consulting contract for a Puerto Rican edaphologist are being concerted.

The UPR Day in Panama contributed to the UPR Presidency’s goal of encouraging the internationalization of the institution, and with the priority which both, UPR and the Puerto Rican government, place on improving relations with that republic. This activity resulted from a series of visits to Panama carried out, organized or promoted by CoHemis in behalf of UPRM researchers and administrators. The above were corresponded by visits to Puerto Rico by officials from the City of Knowledge and SENACyT. During these visits, the excellent potential of collaboration that exists between Panamanian and Puerto Rican entities was proven due to their complementary elements and the strong cultural and historical ties between both nations, facilitated by the international network of the CoHemis Center.

The participants from Mayagüez were: UPRM Chancellor, Dr. Jorge Ivan Velez-Arocho; Dr. Jaime Seguel, Computing and Information Sciences in Engineering Doctoral Program Director; Dr. Nestor Rodríguez, Department of Electrical and

Computer Engineering, with various masters and applied research centers in computing, images, remote perception and telecommunications; Prof. Ismael Pagan-Trinidad and Dr. Ricardo Lopez, Director and Associate Director respectively of the Department of Civil Engineering, with various masters and doctorates in Environmental and Structural Engineering; Dr. Pedro Vazquez, Mathematics Department Director, with several masters programs; Dr. Maria Aponte, Chemistry Department Director, with a doctorate in Applied Chemistry; Dr. Jorge Gonzalez, Mechanical Engineering Director, with a masters program and projects of commercial development; Dr. Rosa Buxeda, Industrial Biotechnology Program Coordinator, with undergraduate and graduate components; Dr. Lorenzo Saliceti, from the Chemical Engineering Department, with Masters and Ph.D. degrees; Dr. Edna

Negrón, Science and Food Technology Masters’ Program Coordinator; Dr. Fernando Bird, Director of the Research and Development Center and a biology researcher in the field of Applied Remote Sensing; Dr. John Fernandez, Dean of the College of Agriculture Sciences, with its several Masters’ Programs; and Dr. Luis Pumarada, CoHemis Center Director and event co-organizer. The participants from Rio Piedras were: Dr. Elvira Cuevas (head researcher of the Venezuelan Institute of Scientific Research on leave), Biology Department, with its Doctorate in Tropical Ecology; and Dr. Abimael Rodriguez, Chemistry Department, who has a specialization in Natural Products.

Among other results, there are the following: Doctors Saliceti and Buxeda defined the details of a future bilateral agreement between UPRM and San Martin University, a Colombian institution with a Biotechnology program in Panama’s City of Knowledge, to facilitate collaborations between their respective programs in industrial biotechnology. UPRM’s Chemistry Department accepted helping UTP in the development of a possible future program in that field, which is not presently offered in Panama. Dr. Gonzalez was able to contact potential commercial as-

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NEW CoHEMIS CO-DIRECTOR...

Gilbes obtained a Ph.D. in Oceanography from the University of South Florida in 1996, after having obtained a B.S. in Biology and a Master of Science in Marine Sciences from UPRM. He received a grant from 1989-1994 from NASA's Research Program for Graduate Students. Throughout his career, Dr. Gilbes has worked with global climate change and the geological and oceanographic applications of remote sensing. He participated in NASA's research program on Global Change during 1995-96. Among the courses Dr. Gilbes has taught are: Geological Applications of Remote Sensing, Images of the Earth, Bio-optical Oceanography, and Remote Sensing.

Gilbes offered a short course on Applications of Remote Sensing to Coastal Planning in July of 1997 at the Agustín Codazzi Geography Institute in Bogota as a joint activity through CoHemis. In the field of Bio-optics, Gilbes has participated in projects and dictated short courses at two additional member institutions of the CoHemis Consortium: the INIDEP fishery research institute (Argentina) and the University of the Republic (Uruguay).

In Puerto Rico, he organized for CoHemis in 1996 a short course on the SPRING Geographic Information Sys-

tem for government employees and educators of the Caribbean, sponsored by the Inter-American Institute for Global Climate Change (IAI), NSF, and Brazil's space agency, INPE, the creator of SPRING. As a sequel, a conference-workshop was conducted in 1997 on the effects of global climate change in the



Caribbean, which culminated in the publication of a book of which Gilbes and Vélez were co-editors.

The new CoHemis Center's Co-Director is presently participating in the following research projects: Remote Sensing of the Western Caribbean Sea, sponsored by NASA and TCESS; Detection of Underlying Objects using

Hyperspectral Remote Sensing, a project of NSF and CenSSIS; Development and Validation of Bio-optical Algorithms in Coastal Waters, sponsored by NASA; Monitoring Parameters of Water Quality in Mayagüez Bay, sponsored by the U.S. Environmental Protection Agency through UPRM's Puerto Rico Water Resources and Environmental Research Institute; and Analysis of Inherent and Apparent Optical Properties in Caribbean Waters, that started in 2001. Gilbes is a member of the American Union of Geophysics and the Latin American Society of Specialists in Remote Sensing.

Dr. Gilbes was selected for the position by the Director of the Center, Dr. Luis F. Pumarada, and Dr. Jorge Iván Velez-Arocho in his transition from Co-Director of CoHemis to Chancellor of the Mayagüez Campus. The addition of this enterprising young man and distinguished researcher, with projects and a history of collaboration on research and education which reaches from the United States to Argentina, will provide a new thrust to the Center and its hemispheric network of institutions, which share the motto "overcoming through cooperation.."

DR. GILBES PRESENTS IMPORTANT COURSE IN URUGUAY

Dr. Fernando Gilbes, co-director of the CoHemis Center and a professor in the Geology Department at UPRM, together with Dr. Yasmin Detrés, from UPRM's Marine Sciences Department, conducted in Uruguay the PEDECIBA-OEA regional course "Bio-Optical Oceanography and Satellite Remote Sensing". Over 30 specialists and graduate students from Argentina, Brazil and Uruguay participated. The course took place in Montevideo, December 3-6, 2002, coordinated by Dr. Denise Vizziano, Adjunct Professor of

Oceanology from the Faculty of Sciences of the Universidad de la República, a member of the CoHemis Consortium.

The participants from Argentina and Brazil received travel grants. Bio-Optical Oceanography is a relatively new specialty at a worldwide level. For that reason, during 2002 Uruguay worked to form a team of researchers from Uruguay, Brazil, Argentina and Puerto Rico committed to work on this project. They recognized the capabilities of Brazil and Puerto Rico to contribute world class

researchers in the area of Bio-Optical Oceanography and the application of Remote Sensing to the studies of the ocean.

With this course, part of the series called "First Tri-national Initiative of the Use of Radiometric Satellite Measurements of Chlorophyll-A in the Southwestern Atlantic", the OAS project completed its first phase of training professionals and students of the region. At present, the Uruguayan researchers of the project are organizing the first oceanographic campaign.

UPRM's Solar House 7th in U.S.A.

Engineering students from UPRM and Architecture students from the UPR's Río Piedras campus attained 7th place in the inter-university "Solar Decathlon" competition held at the Washington, DC National Mall. Last September, the students took their house to the "Solar Decathlon" competition, named because the participating houses were to be evaluated in ten areas, such as refrigeration, comfort, water heating, lighting, and energy consumption.

The UPR's proposal was among 14 selected from more than 100 universities from the United States. The Puerto Rico team was awarded second place in design and comfort. The organizers recognized the additional challenges faced by the Puerto Rican team: they had to transport the house first by ship and then by truck. The participating students received collaboration and guidance from Drs. Jorge González and Fernando Plá from Mechanical Engineering, Gerson Beauchamp from Electrical Engineering, Antonio González from Civil Engineering, and Fernando Abruña from Architecture.

The 14 competing full scale solar houses included all the modern installations found in today's best housing, in addition to being self-sustainable and energy self-sufficient. They abided by the most strict construction and efficiency codes, and operated solely on solar energy. The final results of the competition placed the University of Colorado in Boulder in first place, followed by the University of Virginia second and the University of Maryland third. This interdisciplinary effort demonstrated the commitment and importance given by UPR and other universities to offering feasible alternatives to improve society's quality of life directed towards sustainable development.

CoHemis helps with climate research in the Caribbean

The first Joint Symposium on Climatic Studies was held in Mayagüez January 8-11, 2003. It was organized jointly by CoHemis, under the direction of Dr Fernando Gilbes, and the UPRM/NOAA Cooperative for Center Remote Sensing Science and Technology (CREST). This event takes place within the framework of a groundbreaking UPRM project on tropical urban microclimate.

UPRM received the visit of outstanding researchers in meteorology and atmospheric sciences from United States universities and NOAA. Diverse topics were discussed during the three-day event, among them: the increase in the intensity of ultraviolet rays and its relation with the incidence of cataracts disease among Puerto Ricans, as well as a study on the relation between the dust originated in the Sahara desert and the increase in the cases of asthma in Puerto Rico. Other conferences focused on climatic models in the Caribbean region and the effect of aerosols on climate, among others.

Among the lecturers were: Jim O'Brien, a professor of Meteorology and Oceanography from the University of Florida; Gregory J. Tripoli from the Department of Oceanic and Atmospheric Sciences of the University of Wisconsin in Madison; and Amos Winter, a climatology professor from UPRM.

Several UPRM researchers are working in a project called 'Atlas Mission', about the impact of urban expansion over San Juan's metropolitan area climate. The project is a joint effort between the National Oceanographic and Atmospheric Administration (NOAA), the National Aeronautics and Space Administration (NASA) and UPRM. It consists of the analysis of high resolution aerial images, with which the heating of this zone and its relation with high concentration of buildings will be studied.

Thirty researchers from NASA, NOAA and UPRM will participate in this project, in addition to scientists from the Arecibo Radio Observatory, who will calibrate the data

EERI student chapter created in UPRM

The Board of Directors of EERI, the Earthquake Engineering Research Institute, approved the founding of a student chapter in the Civil Engineering and Surveying Department of UPRM. Dr. Luis E. Suarez, professor and researcher in the area of structures, will be the chapter's academic advisor.

EERI is a non-profit organization made up by engineers, architects and seismologists with the objective of reducing earthquake related risks and promoting scientific developments and better practices in Seismic Engineering. Founded in 1949, the institute has 20 student chapters in the United States, including the universities of California in Berkeley, Cornell, Michigan, Illinois, Texas in Austin and Georgia Tech. UPRM's is the first chapter created outside of the United States.

The members of this new chapter, created in August, 2002, are graduate students interested in Seismic Engineering. The Civil Engineering and Surveying Department of UPRM has a very active program in this field. Presently there is a total of 39 graduate students in the area of structures at the master and doctoral levels. These students come from different institutions: UPRM, the National University of Colombia in Manizales, Quindío University, Universidad del Cauca and Universidad Del Valle in Colombia; the INTEC Institute of Technology of Santo Domingo; the Universidad Nacional de Córdoba and the Universidad Nacional de Río Cuarto in Argentina; and from the Worcester Polytechnic Institute and Boston University in the United States.

obtained from satellites. Dr. Jorge Gonzalez, Director of UPRM's Mechanical Engineering Department, is one of the main researchers of the project, part of a research program that UPRM has been performing about climate changes in San Juan during the last 50 years. This is the first time that rising temperatures are being analyzed in a tropical urban area.

Iberoamerican Summit...



Building of Universidade de Valle do Paraíba, Sao Jose dos Campos' campus, where the Iberoamerican Summit was held.

Summit, a regional conference of the International Network for Engineering Education and Research (iNEER). Other principal organizers and co-hosts were: Drs. Luiz Antonio Gargione, UNIVAP; Luiz Scavarda, PUC-Rio; and Tim Anderson, University of Florida. Lueny Morell and Wayne Johnson from Hewlett Packard, and John Spencer and Jaime Puente from Microsoft Research, were co-organizers and co-sponsors.

The conference had various topics, among them: innovation in education, characteristics of an engineer trained for successful global engineering practice in the XXI Century, international university networks, national and international accreditation efforts, future strategies and activities, and financing alternatives. The urgency and need of the subject was underlined by the participation of 227 persons from 17 countries, including 10 countries from Latin America and the Caribbean. A total of 94 participants were from outside Brazil.

Dr. Pumarada offered a presentation on the creation and experiences of the CoHemis Center and its hemispherical network of institutions during the session of international university networks. He also delivered the presentation of the Chancellor and former co-director of CoHemis, Dr. Jorge Velez-Arocho, regarding innovating educational initiatives at UPRM.

Pumarada also participated with Dr. Gilbes in a workshop about financing alternatives and in a short, concurrent meeting of the CoHemis Consortium. Persons from member institutions of the Consortium that were present at the Summit attended the latter, including Dr. Gonzalo Córdoba, Minister of Science, Innovation and Technology of Panama, and university representatives from Florida, Georgia Tech, Universidad Tecnológica de Panama and PUC-Rio. They discussed ways to improve the efficiency of the CoHemis network for its members and possible joint projects that could be undertaken.

Dr. Gilbes visits INPE

Dr. Gilbes, a specialist in remote sensing applications, took advantage of his stay in Sao José, which is the headquarters of Brazilian aeronautics, to visit the National Institute of Space Research (INPE). There he presented the work on Remote Sensing done by himself and his colleagues at UPRM, talked about a possible UPRM-INPE collaboration in Bio-optical Oceanography, and was shown some of the most interesting projects of the prestigious institution. The one which he found most appealing was the preparation and programming of the second joint China-Brazil Earth Resources Satellite (CBERS) for earth observation.

UPR Day in Panama...

sociates for the commercialization of his solar air conditioner at Central and South America. Dr. Bird received an invitation from the Universidad Autonoma de Chiriqui to collaborate in a study about the roaming habits of the coyote, an exotic species for Panama, which is causing problems in the Chiriqui area. An Industrial Engineering

professor from UTP and an official from a government agency met with Dr. Edna Negrón to request technological support and training on agricultural best practices and adequate manufacturing and management systems for the food industry.

Civil Engineering began to make arrangements to initiate a long-term collabo-

ration program with the organization of two conferences, one about basin management, focused on the Canal's basin, and another about seismic activity. Prof. Pagan-Trinidad has obtained support for the first from the Engineering Research and Development Center of the US Army's Corps of Engineers.

