

Station News

Georgia Tech Engineering Experiment Station

VOLUME 12 NUMBER 2

SEPTEMBER 1981

Solar Water Distillation Project Aids Haitians

Do you envy your co-workers who nab assignments to exotic places overseas? Would you jump at the chance for an eight-month stay in the colorful Caribbean country of Haiti? Creole cuisine, exciting voodoo rites, dancing the limbo, balmy sea breezes — right? Well, not exactly — when it's a working trip for Georgia Tech.

Frank Malvar, a research engineer II with the International Programs Division of the Technology Applications Lab (TAL), returned in July from eight months in Haiti. He directed a project involving the design, adaptation, construction, operation and evaluation of different types of solar stills to convert salt water to potable water.

TAL undertook the work in cooperation with Haiti's Centre National de Technologie (CNT). The money came from the Agency for International Development through an appropriate

technology project administered by Denver Research Institute. Georgia Tech subcontracted to conduct the on-site work in solar water distillation.

In addition to evaluating the performance of the still designs, Malvar had to determine how well they were accepted in the rural areas and ascertain the ability of rural people to operate and maintain them. If final results prove its feasibility, CNT plans to disseminate this technology throughout the country.

After initial testing of small prototypes at CNT's headquarters in St. Marc, Malvar assisted in building and testing a five-square-meter single-slope prototype at a fishing village 15 miles away. Concentrated brine produced by the solar water stills was dumped in two small salt evaporation ponds. Salt is used in Haiti for preserving fish.

Malvar spent the last three months

of his stay in a remote fishing village reached by a difficult six-hour Jeep ride from Port-au-Prince, the capital. This seaside "resort" of 189 people and 42 huts met the project criteria of location in an isolated, sunny, arid area with no fresh water.

To obtain water for drinking and household use, the women had to dig several wells eight feet deep in the sand, from which they extracted very brackish water. They had to partially redig the wells every day because they caved in overnight. When the wells ran dry, they had to walk six to eight hours to the nearest water source and carry back five-gallon cans of water on their heads. Alternatively, the men could take a six-hour boat trip to bring back water, in which case a day of fishing was lost.

Malvar lived in a one-room wattle-and-daub hut like those of the villagers. His diet consisted mainly of rice and beans because they were safer to eat than the local delicacies. Communication with the villagers was facilitated by the local teacher, with whom Malvar spoke French. Extreme malnutrition and diseases related to poor sanitation were rampant among the villagers.

Here Malvar supervised construction of a 35-square-meter system designed to produce one liter of fresh water daily for each person in the village. Because of the midday heat, which often reached 110°F with no cloud cover, Malvar's daily work schedule was 5-11 a.m. and 3-7 p.m.

The community eagerly accepted the system, and everybody pitched in to help build it. While Malvar was



Frank Malvar of TAL works on construction of 35-square-meter solar water still at Tit Anse, Haiti. The huts in the background are typical village housing.

(Continued on page 2)

EES Operations Stable In 1981 Fiscal Year

At the end of FY 1981, EES had 1,041 employees, including 528 full-time professionals, 221 support staff, and 192 students. The remaining 100 people are professional and clerical part-timers, including academic shared personnel. The Station gained in professional and support staff members last year, but the number of students employed dropped by one third.

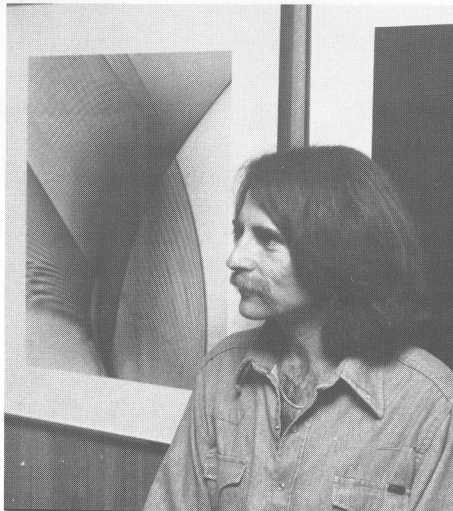
EES started FY 1982 housed in nearly 373,000 square feet of space, approximately 143,000 square feet (38%) of which is leased off campus. Leased space consists principally of the Cobb County Research Facility at Lockheed, but also includes eight field offices throughout Georgia and a small rental warehouse. During FY 1981, EES relinquished nearly 22,000 square feet of leased space in the C&S Tower and the Atlantic Steel Building and gained about 20,000 gross square feet of campus space in O'Keefe.

EES expenditures were \$37 million in FY 1981, a 14% increase over the previous year. Sponsored personal services accounted for \$14.4 million of the total. Only 11% of the Station's \$37 million revenue was provided by the State allocation, with the balance coming from sponsored grants and contracts and internally generated revenue.

Haiti, Continued

there, they kept the still in good operating condition.

The problems seem almost insurmountable in a country like Haiti, which is the poorest in the Western Hemisphere and on the U.N. list of the "poorest of the poor" in the world. Perhaps the impact of simple solar distillation technology seems negligible in the aggregate. But Malvar saw the impact of the solar still on one small village. It freed the women for household duties and child care, and it improved hygienic conditions. It also freed the boats for concentrated use in fishing, the only source of much-needed income.



John Owen, EMSL, with one of his lasergrams.

Owen Shows Lasergrams

John Owen, a research scientist II with EMSL's Solar Energy Division, recently held a private viewing of his photographic artwork, including a series of innovative "lasergrams."

Owen developed the lasergram technique and has filed a trademark application for the name. When creating a picture, he first builds a tiny three-dimensional glass model. Sometimes he uses plastic, mirrors or other refractive or reflective material to create different effects.

After viewing on a screen the image made by passing a laser beam through the construction, he exposes 11x14 sheet film to the image and prints the negative in an oversize enlarger which he built. He enhances the finished lasergram by airbrushing subtle colors selectively over parts of the picture.

Owen also is a portrait and landscape photographer. His work has been exhibited at DeKalb Community College and Georgia Tech. Collectors include Southern Bell, Coca-Cola and several Atlanta legal firms.

Credit Union Notice

State Employees Credit Union members should note that, effective September 1, 1981, they are allowed only three free savings account withdrawals per quarter. Excess withdrawals will cost \$2.00 each and will be automatically charged to the member's account.

Contract Breaks Tech Record

STL Receives \$8.2

The Systems and Techniques Lab (STL) recently received the largest initial research contract ever awarded to Georgia Tech. The contract is for \$8.2 million, and is with the 3246 Test Wing at Eglin Air Force Base, Florida. Some \$950,000 for the program is being supplied via other contractual routes, so that total funding for the program will be \$9.15 million.

The goal of the three-year project is to develop several integrated special-purpose radars. Work on the program actually was started about a year ago under advance funding.

Clearly, programs of this magnitude do not just descend from the blue; the initial pre-preposal effort began more than two years ago. STL has been working in this

Presentations, A

ELECTRONICS & COMPUTER SYSTEMS LAB

Cliff Burdette was on the faculty of the American Association of Physicists in Medicine (AAPM) Summer School held at Dartmouth College in Hanover, New Hampshire, August 3-7. He lectured on electromagnetic and acoustic properties of tissue. Burdette also attended the International Microwave Symposium and Workshop in Los Angeles June 18-20, participating as a panel member in Automatic RF Techniques Group workshop discussions.

Joseph Seals presented a paper entitled "Comparison of the Dielectric Properties of *In-Vivo* Rat Brain, Muscle and Tumor Tissues" at the 16th Annual International Microwave Power Symposium held June 9-12 in Toronto, Canada.

At the U.S. Air Force Radio Frequency Radiation Effects Program Review held in San Antonio June 21-24, Ron Seaman and Jim Toler presented a paper entitled "Investigation of Radio Frequency Radiation Effects on Excitable Tissues."

ECONOMIC DEVELOPMENT LAB

EDL Associate Director Hardy Taylor chaired a "Technical Assistance" panel discussion during the Trade Adjustment Assistance Center Directors' Conference held August 11-14 in Washington, D.C.

ENERGY & MATERIALS SCIENCES LAB

The Energy Committee of the Georgia legislature toured the energy facilities of EMSL on August 1, including the ACTF

Million Award

general area since 1967, and over the past few years, the laboratory has developed several other complete radar systems. The new project is a direct follow-on to another project, currently nearing completion, which involved developing two complete radar systems and portions of a third, for a budget now more than \$8 million.

The new radar, which will utilize a large dedicated computer for control and data acquisition, ultimately will be incorporated into the test range at Eglin Air Force Base. Work on the program will be accomplished largely at the EES Cobb County facility, but an extensive effort at Eglin will be required to incorporate it into the range.

Program manager is **Ernie Ruda**. **John Cribbs** is the system engineer.

wards & Honors

solar site and the biomass facility in Research Area II.

OFFICE OF THE DIRECTOR

EES Director **Donald Grace** has been asked to serve as a charter member of the Editorial Advisory Board of the *Journal of Electronic Defense*, a publication of the Association of Old Crows. Grace spent the early part of August in Limerick, Ireland, on administrative matters concerning Georgia Tech's new European Research Institute of Ireland (ERII). **Rudy Yobs** also visited ERII August 27-28.

Jim Wiltse served as a session chairman and presented a paper, coauthored by **Fred Dyer**, at the DOD Microwave Weapon and Vulnerability Symposium in Washington, D.C., July 30-31.

RADAR & INSTRUMENTATION LAB

RAIL sponsored a continuing education course on "Techniques of Radar Reflectivity Measurement" in August, with 29 persons enrolled. **Nick Currie** was the academic administrator. **Ross Gagliano** was one of the administrators of another August short course, "Modeling and Simulation of Land Combat." RAIL will sponsor a short course on "Radar Transmitters" in September.

TECHNOLOGY APPLICATIONS LAB

Frank Malvar left August 17 for South Korea, where he is spending five weeks providing technical assistance to industrial clients of the Korea Credit Guarantee Fund.



At the U.S. Ambassador's home in Manila, Philippines, Ross Hammond (left) discusses foreign aid and taxation of U.S. citizens abroad with Vice President George Bush (right) while Faye Hammond and Marsh Thompson of the American Chamber of Commerce of the Philippines look on.

Goodman and Hammond Retire

Robert M. Goodman, Jr., director of the Systems and Techniques Lab (STL), retired July 31 after 28 years at EES. He had directed STL from its inception in 1975, shepherding it from a small beginning into a large operation occupying a position of national leadership in areas of special importance to Defense Department sponsors. Earlier, he headed the Sensor Systems Division for six years. **Samuel T. Alford** is acting director during the interim.

Ross W. Hammond, director of Georgia Tech's Asia Office in Manila for the past two years, also is retiring — on September 30. He came to Tech in 1961 to establish the first field office in Rome, and later developed the area office system that has become a national and international model for industrial extension programs. In 1965, he became chief of the Industrial Development Division, subsequently renamed the Economic Development Lab. Growth of international activities under his direction led to spin-off of an Office of International Programs in 1977 with Hammond at the helm.

October Time For Health Plan Sign-Up

If you or your dependents are not already enrolled in the University System of Georgia Health Benefit Plan and you wish to become enrolled or add dependent coverage, you must do so during the month of October.

This is the *only* time during the year when employees who have been at Tech for more than 31 days may elect to join the plan. It also is the only time that they can join the health maintenance organization, HealthCare, Inc., or switch from one plan to the other. New employees have 31 days after their employment date to obtain coverage.

The October open enrollment period is for *medical* insurance only. It does not include the dental or life insurance programs.

For additional information or to enroll in the health plan, contact Staff Benefits, Georgia Tech Personnel, Knowles Building, extension 4627.

Minority Award Goes to EES

EES Director **Donald Grace** will be one of the first recipients of the Berkeley G. Burrell Awards for Minority Enterprise Development, to be given at the National Business League convention in September in Jackson, Mississippi. Grace commented: "I am pleased to accept the award, not only on behalf of Georgia Tech, but also in appreciation for the fine work for minorities performed by **Ed Bethea** of EDL's Business Development Division."

Personnel News

ELECTRONICS & COMPUTER SYSTEMS LAB

ECSL welcomed two research engineers II in July — **Scott Crowgey**, M.D., to the Biomedical Research Division and **Darrell Acree** to the Electromagnetic Compatibility Division.

ECONOMIC DEVELOPMENT LAB

Dianne Stewart was promoted to staff assistant in the Trade Adjustment Assistance Center (TAAC), and **Janice Martin** was hired as a TAAC senior secretary. **Nick Gibson** resigned in August to attend Emory Law School.

ELECTROMAGNETICS LAB

Geoff Holah is a new senior research scientist in the Physical Sciences Division, replacing **Dale Covington**, who resigned.

ENERGY & MATERIALS SCIENCES LAB

Melissa Ergle has left the Solar Energy Branch to become business manager for a photographer/artist.

EMSL had a pool party/cookout at the home of Phyllis and **John Handley** on July 25. Some 36 lab members and their spouses or dates attended. Graduate Research Assistant **Ching Chuang** made a hit by making and bringing 65 egg rolls. For entertainment, **Bob Cassanova**, **Doug Neale** and **Wally Shakun** took a relaxing evening swim while **Hamp Teague** practiced his Olympic-caliber nose dive from the pool side. The Handleys and **Ginny Gross** coordinated the festive affair.

RADAR & INSTRUMENTATION LAB

Two recent retirees from Eglin Air Force Base have joined RAIL at the senior research level: **Charles Brown** has been named chief of the Radar Development Division, and **Ted Lane** is assigned to the Radar Experimental Division. **James Scheer**, former RDD chief, had asked to be allowed to devote more time to lab technical work.

Beverly Hutchinson has transferred from the Dean of Students' Office to fill the publications specialist III position vacated by **Susan Fuller**, who has joined a word processing firm as a marketing support representative.

SERVICE GROUPS

Personnel Services Department received an "Office of the Week" award



Wally Shakun, Doug and Ingrid Neale enjoy the goodies at EMSL's picnic and pool party.

from WQXI radio station. They got to eat pizza and drink beer at the Upper Crust Pizza Palace. PSD has lost **Ann Alexander**, who is moving to Michigan.

Donald Swank is a new machinist in the Mechanical Services Department.

SYSTEMS & TECHNIQUES LAB

Congratulations to "S" Program Office employees **Deborah Keais**, who gave birth to her second son, Aaron Conrad, on August 10, and **Teresa Hunton**, who was married on August 15 to Kelly Brown.

Bill Nolte, research technologist I, has transferred to the Systems Development Division from the Wood Energy Systems Branch of TAL. Also joining the budgeted staff were **Elizabeth Callahan**, mechanical technician I, and **Suzanne South**, electronics technician I, both formerly hourly as needed.

SYSTEMS ENGINEERING LAB

Welcome to **James DeBardelaben**, pilot, and **Greg Holland**, technical assistant, new employees of the Countermeasures Development Division, and to **John Jordan**, student assistant in the Electronic Support Measures Division. **Jim Marks**, research engineer I, transferred to the Concepts Analysis Division from EDL. Resigning in August were **Janet Jewell** and **David Winters**.

CORRECTION: Apologies to **Joy Allen**, senior secretary, who was incorrectly listed in the June-July *Station News* as John Allen.

TECHNOLOGY APPLICATIONS LAB

Co-op student **Douglas Davis** was married on September 12 to Theresa Schubert, a secretary in the Georgia Tech Admissions Office.

RAIL Participates In Student Exchange

For several years, the Radar and Instrumentation Lab (RAIL) has participated in an international exchange student program sponsored by the International Association for the Exchange of Students for Technical Experience (IAESTE). The American affiliate of the 48-country organization is the Association for International Practical Training, Inc. (AIPT). The United States joined IAESTE in 1950.

The student trainee must be a citizen of a North Atlantic Treaty Organization (NATO) country, must speak fluent English, have completed his academic education, and have a minimum of six months of work experience in his field. In this case, the field is engineering.

RAIL's exchange student this year was **Ralph Kruidering**, who was born in Velsen, Holland, and is 25 years old. He received a BSc degree from Delft University. Kruidering worked at RAIL during the summer months as a research engineer I.

Ralph is the third exchange student RAIL has employed since 1977 — all three having come from Holland. The first student, Ludo Jannssen, met and married a girl from Peru while at Tech and later decided to live in the United States permanently.

Station News

Vol. 12 No. 2 September 1981

Published monthly for employees of the Engineering Experiment Station, Georgia Institute of Technology, Atlanta, Georgia.

Editor	
Martha Ann Stegar	3405
Graphics	
Gerald K. Webb	3405
Associate Editors	
Dee Ramunno, OOD	3400
Anthony DeCurtis, EDL	3844
Gail Tucker, EML	3500
Gayle Hudson, ECSL	3542
Charlotte Sanders, EMSL	3460
Ginny Gross, EMSL	3589
Maggi Rampling, RAIL	424-9621
Janice Manders, SEL	3519
Cindy King, STL	424-9647
Virginia Keller, TAL	3475
Kathy Fuller, Service Groups	3445