STATION NEWS

GT EES

ENGINEERING EXPERIMENT STATION • GEORGIA TECH

VOLUME 5 NUMBER 11 DECEMBER, 1976

Atmospheric Sciences Branch Study Lasers, Air Pollutants

A new branch—Atmospheric Sciences—has been added to the Applied Sciences Laboratory under the direction of **Dr. Gordon Harrison.**

Located on the third floor and ground floor of the Baker Building, the new branch is headed by **Dr. Doug Davis** and a staff of six professionals including **Dan Philen, A.R. "Ravi" Ravishankara, Glen Smith, Al Nelson, Frank Tully** and **Paul Wine.**

Dr. Davis, Dan, Glen and Ravi joined EES from former positions with the University of Maryland where they conducted research and field tests involving airborne laser probes and tests of air pollutants effecting the earth's ozone layer.

The new branch, according to Dr. Harrison, includes two groups: (1) an inhouse research and laboratory group and (2) an outside research group. The inside group concentrates on kinetic studies while the outside group is involved with atmospheric sampling, and tests for the OH free radical using airborne laser techniques.

Current inhouse projects include kinetic studies related to environmental chemistry and studies of combustion, fire and flame using laser equipment to determine the most effective retardants. Five lasers are now in use in the Branch's research operation; an Nd Yag laser, two dye lasers, a ruby laser and glass laser. Research scientist, Dan Philen, is testing the Nd Yag laser which produces intense infra red and green. This laser operates twice as fast as other lasers on the market today.

Additional laser research conducted by members of Dr. Davis' staff includes work with a Resonance Flourescence laser which excites and effects atoms and ions. There are fewer than 10 such lasers in existence throughout the world today.

Several major proposals have recently been submitted to federal agencies by the Atmospheric Sciences Branch for sponsorship of laser and atmospheric studies. Two such projects include GAMETAG and NCAR.

GAMETAG or Global Atmospheric Measurement Experiment on Tropospheric Aerosol and Gases, is expected to begin January 1. The 2-year, $600,000 proposal to NSF will include world-wide tests comparing

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Atmospheric Sciences

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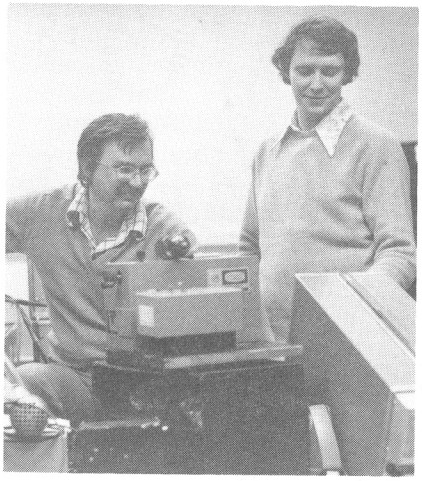
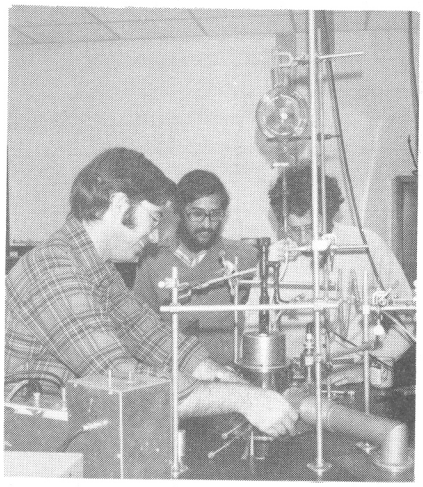
the atmospheric conditions above the United States to conditions prevalent in underdeveloped countries and remote sections of Europe.

The NCAR project, National Center for Atmospheric Research, involves the use of a specially outfitted aircraft which has been reserved for the Atmospheric Sciences Branch to use for field sampling tests of the earth's ozone layer. Dr. Davis and a research team will measure and monitor ozone, fluorocarbons and pollutants in the air.

A third project, still in the workings, involves a laser probe mounted on a balloon platform to be used to test atmospheric conditions from the west coast to the east coast.



Dan Philen (left) and Frank Tully set up the new Nd Yag laser which will be used to produce infra red and green.



Glen Smith (left) Ravi (center) and Paul Wine (right) check the laser equipment in the third floor lab.

EES Tuition Reimbursement Program

More than one year has passed since the Tuition Reimbursement Program was developed and initiated by the Professional Staff Development Committee. The following is a recap of the number of professional staff members who have taken advantage of this opportunity for self-development and the amount of tuition reimbursed to them:

Quarter	Number of Professionals Participating	Amount Reimbursed
Fall - 1975	27	$2,148.00
Winter - 1975	34	$2,915.00
Spring - 1976	33	$2,712.50
Summer - 1976	22	$1,422.50
Total	116	$9,198.00

For the four quarters, the average attended per quarter was *29*. The average tuition reimbursement per attended was *$79.29*. The average total tuition reimbursement per quarter amounted to *$2,299.50*.

The Tuition Reimbursement Plan offers to reimburse costs of up to six hours per quarter for any course for which prior approval has been granted to any permanent, full-time professional staff member. Reimbursement will be made when the staff member completes the course with a grade of C or better. Guidelines, procedures, and application forms may be obtained from Laboratory Directors as well as the Reports and Procedures Office. All professional staff members interested in obtaining tuition reimbursement for the Winter Quarter are encouraged to submit applications to **Dr. R.C. Johnson,** Associate Director of EES, as soon as possible.

During the Fall Quarter, 42 EES professional staff members submitted tuition reimbursement applications to the Professional Staff Development Committee. Of the 41 staff members whose applications were approved, 37 are attending Georgia Tech, one is attending Southern Tech and three are enrolled at Georgia State.

All Georgia Tech research professionals are encouraged to take advantage of this excellent opportunity for self-development.

Tech Display At Georgia On Parade

EES and Georgia Tech participated in the "Georgia On Parade" show that officially opened the gigantic new Georgia World Congress Center from December 1 to 5.

Georgia Tech had a large exhibit booth space that featured a variety of activities. The themes of the display were; Serving Georgia — the Nation — and the developing world through technology. Solar Energy Research, Education and Training were also featured.

PTAL and EDL provided a series of colored photo prints that developed the central themes. A related audio slide show, prepared by **Ron Pearl** of PTAL, gave a brief description of projects. Also tied in with the graphics and printed material in the Georgia Tech exhibit was an interesting microprocessor and plasma display unit that answered questions about research activities. It allowed the visitors to interact with the unit by touching a spot on the screen and getting selective responses. This equipment was prepared and programmed by **Tom Hodges** of AEL and **Archie Corriher.**

Jim Donovan and the Information Office did overall coordination and set-up of the exhibit.

An Equal Education and Employment Opportunity Institution

STATION NEWS

Vol. 5 No. 11 Dec, 1976

Published monthly for employees of the Engineering Experiment Station, Georgia Institute of Technology, Atlanta, Georgia 30332.

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AE Laboratory

Dr. Jim Echard has been employed as a Senior Research Engineer in the Radar Technology Division. Jim was previously employed by General Electric in Pennsylvania. He received his Ph.D. degree from the Polytechnic Institute of Brooklyn in 1971.

Harry Andrews began work on December 1 as a Research Engineer in the Countermeasures Division. Harry has been a GRA with this Division since September, 1975.

The Countermeasures Division, which was located in the basement of the Electronics Building, has moved to the first floor of the Baker Building. The Division's main office is in Room 107. All telephone numbers remain the same.

Fred Cain, Chuck Ryan, Barry Cown, Jim Fuller, Johnson Wang and **Bill Cooke,** of the Electromagnetic Effectiveness Division, were in Washington, D.C. November 16-18, to attend the Ship Image kick-off program. This is an 18-month program concerned with electromagnetic design for new ships.

Jim Toler attended the EMC Adcom in Boulder, Colorado on November 16. While in Boulder he attended the Tri-Services Measurement Techniques Instrumentation workshop on November 17 and 18.

Dick Hodges was invited to make a presentation at a Tri-Service monopulse ECM conference at Wright-Patterson AFB, Ohio, on December 1.

EML News

Dr. Gerry T. Wrixon of University College, Cork, Ireland, will be at EES during the month of December serving as a consultant regarding millimeter wave mixer design. Gerry, who is director of the European Millimeter Diode Laboratory of the Department of Electrical Engineering at University College, served in the same capacity here last summer. He plans to attend the conference on Submillimeter Waves and Their Applications in San Juan, Puerto Rico, in early December, where he will report on some of the work done at EES. He will be joining EML December 13.

James Gallagher, Don Blue, and **Robert McMillan** attended the Second International Conference and Winter School on Submillimeter Waves and Their Applications in San Juan, Puerto Rico, December 6-10. This Conference is sponsored by the IEEE Society on Microwave Theory and Techniques, the Optical Society of America, the International Commission for Optics, and the U.S. Army Research Office with the cooperation of The Joint IEEE/OSA Council on Quantum Electronics. James Gallagher is general chairman for the Symposium Committee.

Jim Stratigos and **Mike Sinclair** will participate in teaching a Continuing Education Short Course "Applications of Microprocessing," along with several Electrical Engineering faculty members. The course will be presented December 13-15. Contact the Department of Continuing Education at Extension 2400 if you are interested in attending.

Welcome to **Charlotte Irvine,** clerk-typist, who joined **J.W. Dee's** laboratory.

PTAL News

Jim Knight, Mac Bowen and **Ken Purdy** participated in the "Forest Products Research Society" seminar held in Atlanta November 15-17. The seminar was attended by companies from all over the U.S. The main topic discussed was "Energy and the Wood Products Industry."

Richard Combes gave a presentation on Energy Conservation at the Maintenance Management Seminar held by Gold Kist, Inc., on November 10.

On November 18th, the Productivity Center hosted an Industry Advisory Committee Meeting to review activities recently begun under the NSF Grant "Regional Productivity Improvement Program." In attendance for the day's session were industry and trade association representatives from the poultry, textile, and apparel industries and members of the Productivity Division project staff and the School of Textile Engineering. **Jerry Birchfield,** principal investigator, led discussions of the grant objectives in the morning session. The afternoon sessions were devoted to sub-committee discussions.

S&T Lab

Bob Hayes, George Ewell, Fred Dyer and **Nick Currie** presented papers at the 1976 IEEE *AP-S* International Symposium at Amhurst, Massachusetts, on October 11-15.

Clark Butterworth, Lucien Bomar, Tom Morton, Mark Guenther and **James McKenzie** participated in airborne testing of the AN/APS-127 radar at Boca Raton, Florida, from November 8 through 19.

Bob Hayes, George Ewell, Fred Dyer and **Nick Currie** were invited to present papers on millimeter measurements to the Fourth Annual DOD Workshop at San Diego California, on November 18, and later participated in a discussion panel which developed a set of guidelines for millimeter measurements throughout the Department of Defense community.

Henry Cotten, Robert Somers, Charlie Hilbers, and **John Bordelon** visited Eglin Air Force Base to install an A-1730 Antenna System the week of November 15.

Charlie Hilbers and **George Whitley** visited FSTC at Charlottesville, Virginia and Rayleon Company in Boston for technical discussions in November.

Berry Pyron and **Neal Alexander** were in Huntsville November 1 for technical discussions with the Missile Intelligence Agency.

On November 7-8 **Berry Pyron** and **Elmer Rhodes** visited the Strategic Air Command Headquarters in Omaha, Nebraska on "Analysis of Target Tracking Radars" project.

Harold Bassett visited General Dynamics in Ft. Worth, November 10-12 for discussions on a project involving Closed Loop Flight Test Simulator.

Jack Kinney attended the national ASTM meeting in Denver from November 15-17 for Engineering Assistance ASTM Patio, Carport and Awning Standards.

Ed Reedy and **Frank Williamson** visited the Combat Surveillance Target Acquisition (CSTA) at Ft. Monmouth, N.J. for a review of a proposal on November 23.

Larry and **Judy Sikes** announce the birth of Erika Jane Sikes, born October 30.

EDL News

Industrial Extension Office Secretaries Convene in Atlanta

The Area Development Division of EDL is planning a "Procedures Workshop" for the secretaries in the area offices on the morning of December 16. It will be held in conjunction with the monthly meeting of the area office directors. Speakers at the session will be **Betty Yarborough** (Reports & Procedures), **Billy Atcheson** (Accounting & Budgets), **Barbara Allen** (Supply Services), and **Mary Edna Anders** (Basic Data). This will be the first time that most of the secretaries have been to the Atlanta office, as well as the first time they will have met one another. **Pat Tully,** EDL, is coordinating the session.

Personnel News

Kathy Borrett has replaced **Linda Gaines** as secretary in IDD. Linda has been made coordinator of off-campus admissions for Georgia State University, where she is studying for her MBA.

Welcome to **Mercedes Saghini,** new bilingual secretary in EDL's International Programs Div. Mercedes is a native of Caracas, Venezuela.

EDL-AID Activities

EDL has added an eighth counterpart institution to Georgia Tech's worldwide Small Industry Development Network — the Development Technology Center (DTC) at the Institute of Technology Bandung in Indonesia. DTC focuses on the application of a wide range of intermediate technologies to meet the challenges of unemployment and underemployment in the nation. Priority concerns are the planning, selection, and development of appropriate technologies and the specific skills necessary for integrated development.

Science and Technology for Development is the title of EDL's new newsletter to be published three times yearly under contract with the Agency for International Development (AID). Edited by **Kay Auciello,** it is an official newsletter of AID's Office of Science and Technology (OST), providing news of activities of OST and its contractors, including Georgia Tech. Recipients are OST contractors, selected AID personnel, and AID mission directors overseas.

EML Penthouse

If you were wondering why a huge crane was lifting a metal house-like frame to the top of the Baker Building, **Jim Gallagher** of EML had all the answers.

The metal framework is part of a new propagation range that is being installed for inhouse research. The electromagnetic range will propagate signals for the study and measurement of fog and rain particles. Using meteorological gear, the Baker building rooftop structure will transmit optical through microwave signals to two range receiver sites — the Electronics Research Building and the C&S Bank Towers 17th floor. Also, a 90-foot tower is currently under construction on the vacant lot across from the State Street side of the Baker Building. This tower will be equipped with meteorological apparatus for measurements of humidity, temperature and wind velocity.

The entire project is estimated to cost from $90,000 to $100,000 and is expected to be completed and in operation by January or February 1977.

The facility will be available to all EES research groups.

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Telephone Credit Cards

The Procurement Office has announced that the 1976 Telephone Credit Cards will become invalid on January 31, 1977.

In order to avoid problems after that date please provide the Office of Supply Services with information on each individual to whom a telephone credit card should be issued for the Calendar Year 1977:

1. Name
2. Telephone extension
3. Laboratory
4. Division
5. Overhead account responsible for charges

Upon expiration, return 1976 credit cards to Supply Services.

The Director of EES extends best wishes to all the staff for a happy Christmas and a successful and prosperous 1977.

EES Offices Relocate

Several office groups have been relocated within the Baker Building. Moving from the second floor to the third floor are **Jim Donovan** and **Bette Justice** of the Publications and Information Office (room 318 and 319).

Members of **Joe Lupton's** group have moved to another section of the second floor. The changes and new room numbers are as follows: **Chet Goins** — room 243; **Joe Lupton** — room 240 and **Steve Havlicek** — room 232.

Moving into the former Information and Publications Office (room 275) will be **Jim Schuchardt** and **Lanita Solomon** of EML.

Johnson Named to Advisory Group

Dick Johnson, associate director of EES, has been named to the U.S. Army Missile Command Scientific Advisory Group for the second year. The group met December 8 and 9 in Huntsville, Alabama, to review and analyze the missile command's system and component simulation program.

Dr. Ingols Honored

Dr. Robert S. Ingols, who recently retired after 29 years with EES, was honored with the publication of his symposium paper, "The Quality of Water Discharged from a Hypolimnion and its Impact on the Downstream River."

The paper was presented by Ingols during an International Symposium on Multi Purpose Storage Pumping Schemes at Madrid, Spain. The paper was co-authored by **Dr. T.F. Craft.**

Ingols' research reported on the reactions and changes in the deep layer of lakes, such as Lake Lanier, where the cold temperatures create a stagnant layer which develops undesirable qualities — including low oxygen levels and high concentrations of iron, manganese and sulfide. His research data also included a study of the Chattahoochee River fish hatchery where thousands of fish were killed this year due to cold water discharged from the hydraulic dam.