

ESF ENGINEER

VOLUME 2/Winter 2001



A Newsletter for Alumni and Friends of the Faculty of Environmental Resources and Forest Engineering at SUNY-ESF

Chairman's Column



James M. Hassett

Welcome to the second edition of ESF Engineer. We have much to share with you. As most of you already know, ESF has a new president. Dr. Cornelius B. Murphy, Jr. began his duties

May 15. The entire college community is happy with our choice.

I was elected by my faculty colleagues to serve on the presidential search committee, but I first met "Neil" while I was completing my graduate studies at Syracuse University. I was invited to interview with the research division of O'Brien and Gere Engineers, where Neil was manager. He eventually became O'Brien and Gere's CEO, while I decided to stay in the education field. Of course, the fact that I was not offered a job may have had something to do with my decision.

As one of his first duties, Neil traveled to Washington, D.C., last May to join us at the ESF reception during the annual meeting of the American Society

for Photogrammetry and Remote Sensing. The reception was hosted by the ERFEG Advisory Council and attracted about 35 alumni and current students. Please see the related article for some photos from the event.

The Advisory Council remains as active as ever and is planning the next event in our Partners for Progress program. Again, see the related article by John Thonet for more information.

Our undergraduate program was reviewed this fall. Our accreditation will be renewed, and the review team, which included professors from Lehigh, Virginia Tech and North Carolina State, left with very positive views of the program. We did an extensive self-study prior to the visit, and that study included results from our alumni survey. Please see the article by Professors Daley and Kroll for a summary of what you are doing in your careers.

I asked John View, the college's financial aid director, to do a little research and provide a summary of the average indebtedness of our forest engineering graduates. Some of the older alumni, in particular, might not realize that while an ESF

education is still a bargain, costs have increased and many of our students leave college with a substantial debt. John's article illustrates our need for more funds for scholarships.

I'm also sharing with you an example of the type of letter I truly like to receive. Thanks to Paul Szemkow for his efforts in assisting the local mapping community.

Finally, we received many responses to our first issue. Maybe in the next issue I can include a column of alumni news. Thanks to all who wrote or e-mailed — it's always good to hear from you. Keep the news coming.

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Alumni Survey

As part of our continuous assessment process, the Faculty of Environmental Resources and Forest Engineering administers an alumni survey every six years. The survey results are used to evaluate program objectives as part of the ongoing ABET accreditation process. The most recent survey was performed in the fall of 1999. Approximately 25 percent of the 849 surveys were returned.

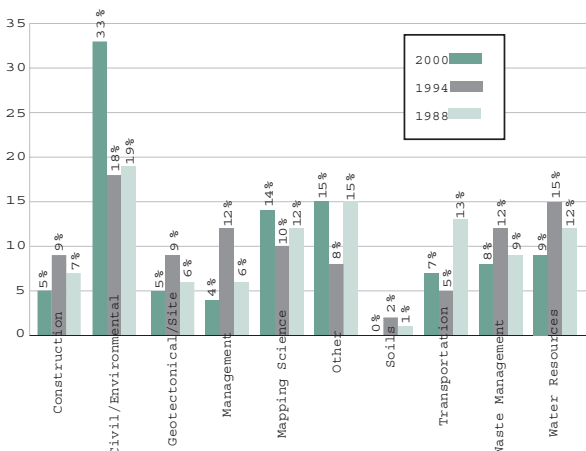
Trends in employment concentration are presented below. These figures indicate our program continues to produce graduates who are capable of entering a number of engineering disciplines. Our strengths in the mapping sciences, water resources and environmental resource engineering continue to be areas of strong employment for graduates. Survey results also indicate:

- Nearly 75 percent of 1980s graduates have professional engineering licenses, while 85 percent of 1990s graduates have either professional or interim engineering status.
- 24 percent of respondents characterize their area of concentration as civil engineering (including civil works, transportation and geotechnical).
- 32 percent are engaged in environmental resources engineering (hydrology, waste management, environmental management, water treatment and supply, wastewater treatment and environmental engineering).
- 16 percent of respondents are engaged in mapping sciences, including the fields of surveying, mapping, GIS, photogrammetry, remote sensing and information systems management.
- Approximately 41 percent of respondents have earned an advanced degree (for example, M.S. or Ph.D.).
- Alumni are involved with a number of professional organizations, the most common being: American Society of Civil Engineers (26 percent), Water Environment Federation (9 percent), American Water Works Association (7 percent), National Society of Professional Engineers (5 percent), American Society for Photogrammetry and Remote Sensing (4 percent), American Society of Agricultural Engineers (3 percent), and American Geophysical Union (2 percent).
- 6 percent of the respondents felt that internships or cooperative programs were important to graduates' success.

Future surveys will ask alumni to forecast needs in their career specialties for entry-level engineers and for long-term success; this will aid the faculty in strategic planning. The current survey is a good retrospective picture of how successful our graduates are, and how consistent that success is with our program objectives.

by Douglas J. Daley, Assistant Professor and Charles N. Kroll, Assistant Professor

Area of Concentration Since Graduation
Comparison of 1988, 1994 and 2000 Alumni Survey



ERFEG Involved in Multi-Campus Course

Image of Plattsburgh, the eastern Adirondacks and Lake Champlain collected July 21, 1999. Landsat 7 ETM+ image.

A new graduate course on digital image acquisition and analysis in remote sensing applications developed over the last two years was offered for the first time last spring.

The course is a joint effort between SUNY-ESF's Dr. Michael Duggin (ERFEG), Dr. William Philpot of Cornell University, and Dr. John Schott of the Center for Imaging Science at the Rochester Institute of Technology. This unique course uses smart classrooms for lectures, discussions and class demonstrations on the three campuses simultaneously. Each professor is responsible for about one-third of the course material.

This collaboration increases the breadth and depth of the class material, improving the course and making more efficient use of professors' time. About 20 graduate students participate in the class, rather than six — which is an average enrollment for such a course offered on any one campus. Laboratories accompany the lectures.

Duggin, Philpot and Schott agree that course development work was formidable, and nonstandard software and facilities at the three institutions presented initial challenges. As a result, communication among the professors has been essential for course quality and student feedback has been positive.

The three institutions now use "ENVI: the Environment for the Visualization of Images" image-processing software developed by Research Systems, Inc. of Boulder, Colo.

In his material, Duggin uses high-resolution projection equipment and a special-purpose computer for "real-time" demonstrations of complex image-processing concepts.

Next spring the trio plans to distribute course materials to students on CDs so that each student has in advance image data, Power Point presentations, text and notes. This will make home study easier and cut down on note-taking to allow students to concentrate more fully on the complicated material.

Early conversations are in progress now with Monash University in Australia, with a view to expanding the network for such courses to include overseas centers.

With a view to future developments, Duggin re-worked his existing remote sensing courses offered at the undergraduate level to take advantage of smart classroom facilities.

At ESF, Chen Shan, a teaching assistant and doctoral candidate in image processing and remote sensing, and Ross Jacobs of Instructional Development Evaluation and Services (IDEaS) helped Duggin prepare for the course.

by Michael J. Duggin, Professor

Partners for Progress

The ERFEG Advisory Council's Partners for Progress program is up and running. The program aims to engage industrial partners and ERFEG faculty, staff and students in mutually beneficial activities.

A new event is being planned for April 20, 2001, in conjunction with the ESF Undergraduate and Graduate Student Research Symposium. The symposium showcases the research work of ESF students through poster presentations.

Partners for Progress, and ERFEG community members will meet for a morning discussion of engineering education, outcomes assessment, and the desired attributes of a graduating engineer. Through this session, we hope to create a lively exchange between those who educate our ERFEG students and those who hire them.

After lunch, Partners for Progress will participate in the Undergraduate and Graduate Student Research Symposium. If the experience of past years holds true, the ERFEG will have a large number of student representatives making poster presentations. The format of the symposium makes possible lots of interaction with students.

A reception and dinner for late afternoon and early evening will cap the day's activities. We envision a relaxed atmosphere with opportunities to mingle with fellow attendees, faculty members and students.

You will receive more information on this engaging new program as we finalize the details.

by John Thonet '72, Chair, ERFEG Advisory Council

On Retirement



by *Richard J. McClimans, P.E.*
Senior Research Associate Emeritus

Retirement, I have learned, has many possible definitions — two of them follow. Consider retirement as your elective years, because you've already completed the required years (Betsy Elkins, Moon Library). Retirement is akin to permanent sabbatical with unlimited time to do the things you've put off for too many years, but there's still not enough time to do half of them. Now for the scoop.

I joined the college faculty in 1977 as a senior research associate after several years of professional practice with the USDA Soil Conservation Service (now NRCS) and the Adirondack Park Agency. That work focused on engineering hydrology and hydraulics, soil erosion and sediment control, watershed management, municipal and agricultural waste management, and land use planning, design and evaluation.

My involvement in three areas of teaching — including engineering hydrology and flow controls, engineering planning and design, and solid waste management — were a natural outgrowth of my prior experience. I enjoyed working with students more than they may have imagined, and have always been pleased to hear from them. Some have become work associates and/or close friends, which is very gratifying.

My work with graduate students in the fields of solid and agricultural waste management was enlightening. Over the years, we discovered many new and useful ideas that led to development of innovative technologies in waste management, primarily related to composting, utilization of ash materials derived from municipal solid waste, and treating municipal sludge and slurried animal waste. In these regards, I was lucky to know Dr. Roy Hartenstein, ESF professor emeritus, who advised developing commercial applications of earthworm biotechnology. Two of my most recent grad students, Feng-Ming Chang and Aaron Richardson, performed in tag-team fashion some of the most revealing confirmations of Hartenstein's profundities. They showed that we could apply municipal waste activated sludge to vermi-activated, vegetated bio-filters on a long-term basis and produce extremely clean filtrate and vermi-compost that could satisfy US EPA requirements (40 CFR Part 503) for "further reduction of pathogens" and, consequently, the safe use of such materials for beneficial uses at very low cost.

Dr. Hartenstein's advice still seems sound as I and my last graduate student, Brian Jerose, go about implementing an agricultural waste

management demonstration project at Fessenden Farms, located in King Ferry, N.Y. The farm hosts over 1,000 intensively managed dairy animals and produces about 18,000 gallons of slurry at 10 percent solids. The project employs the On-Farm Fertilization Recovery System OFFRS™, which treats the slurry in a four-step process and minimizes the need to spread waste on farmland. Environmental benefits include protection of air and water resources. Farm benefits include fewer weather-related problems and lower operating cost.

OFFRS™ builds on a patent issued to me in 1999 known as Residual Biotech Soil. RBS™ is produced by mixing select combinations of municipal waste ash and compost materials. RBS™ is a preferred soil medium for use in treating contaminated waters due to favorable macro and micro porosity, which are typically around 20 and 40 percent, respectively, even when compacted. Moreover, filtrates from application of such water to vermi-activated, vegetated bio-filters employing RBS™ are remarkably clean.

There are many potential opportunities for application of the OFFRS™ technology to improve local air quality and reduce nonpoint pollution to streams from New York to Florida. Some of my time is devoted to expanding this work into the private sector. Work is also under way in developing a related technology for treating municipal sewage sludge. ERFEG students working with Professor Doug Daley are involved in extensions of such agricultural and municipal opportunities — further innovations are anticipated.

Retirement from SUNY-ESF has enabled blocking out and actually taking two or three days at a time for enjoying canoeing, hiking, hunting, fishing, board sailing and skiing. Combining these initiatives with a number of activities I've been nurturing since retiring keep me fairly active and limber. For example, following the recent completion of a half-mile long water-ski lake near Rochester, N.Y., I'm getting even more exercise doing field work in southwestern New York related to the planning and design for large, mountain-top reservoirs that will be used for making snow. And just to be sure I don't slow down, I've begun working on a floodplain mapping project along the Saranac River west of Plattsburgh, N.Y. This project builds on floodplain delineation work I did with the NRCS in the late '60s and more recently with graduate student Tom Steiner (FEG '95).

Richard McClimans is currently living north of Forestport, N.Y. He may be reached at rjmclim@juno.com. He retired in December 1999.

Letters I Like to Get



Paul Szemkow

You may not know that our unit maintains a Global Positioning System base station as a service to mappers and surveyors in Central New York. The base station receives signals from the GPS satellites, and a surveyor can compare the signals received at their field site to the signals received at the base station for the same time interval, thus producing a more accurate map or survey than otherwise possible.

Anyway, I received the following letter last spring and I wanted to share it with you. Paul Szemkow has been responsible for maintaining the base station and it is nice to see his efforts are appreciated.

Thanks, Paul!

Dear Dr. Hassett:

This is to express my appreciation to the College of Environmental Science and Forestry for making GPS community base station data available to a broad user community. In the case of New York State Electric & Gas, the central location of your base station makes the data useful for differentially correcting GPS's mapping features for much of our service territory. You are providing a valuable service to the whole GPS surveying community with your base station.

Your base station data will be even more valuable to the GPS community as it becomes available on a Web site. Access will be much faster, easier and less prone to phone line congestion than is currently the case. Because you are so centrally located, I'm looking forward to adopting the SUNY-ESF CBS as our primary base station for differential correction of mapping feature locations.

By the way, would you please express my personal gratitude to Mr. Paul Szemkow of your staff for his service in recently making a number of archived files available to us. His efforts allowed us to improve the accuracy of several weeks worth of mapping feature locations obtained by GPS.

If I can be of service to the College of Environmental Science and Forestry in promoting your program or advising others of the value of the community service you are providing, please feel free to call on me.

Very truly yours,

Thomas D. Hranek, P.E.
Engineering Services Department
New York State Electric & Gas

This image was created by Edouard Baldus in the 1850s. I referred to it in my recent editorial column in *Inside ESF Fall 2000* comparing science and technology. The image was inadvertently left out of that issue. If you want to read the editorial visit <http://www.esf.edu/newspubs/inside.htm>



How Much Debt is Too Much Debt?

by John E. View, Director of Financial Aid

Imagine the excitement of college graduation! Your family and friends surround you with well wishes, cards and gifts. Then, six months later your first student loan payment comes due and the excitement ceases.

This past year, the average student loan debt load for a graduating senior in ERFEG was \$16,000. The loan is repaid on a monthly basis at 8.25 percent. That equates to a monthly payment of \$192.58 over the next 10 years.

Balancing one's personal financial budget with a student loan payment on an entry-level salary becomes a delicate balancing act for the new graduate. This is especially true if the new grad should decide that matrimony is in the near future and one's new spouse also has similar loan repayments.

Alumni and friends of the college can help these students by establishing and supporting endowed scholarship programs targeted specifically for ERFEG students.

It is true that we are a state school with low tuition, \$3,400 compared with more than \$20,000 at some Central New York private institutions. However, when you add in room costs at \$4,180, board at \$4,140, books at about \$750 and incidentals, the total bill to attend ESF approaches \$14,000 annually. Compared to some of our competitors, we are still an affordable choice. Yet, meeting even these modest costs has become increasingly harder for some students — including some of the best students.

More than 30 percent of our students come to ESF from families whose total income is less than \$45,000. For these students and their parents, \$14,000 is a reach.

Many of the most talented students are offered large scholarships as inducements to attend costlier schools, a practice called "tuition discounting." In contrast, ESF's available funds for recruiting students are limited. Despite the quality of our programs, continued loan indebtedness is not an incentive for prospective students when our competition offers large tuition discounts to attract quality students.

We need to be as competitive as possible if we are to succeed in bringing quality students into the ERFEG program. Your generous support in this area will be an investment in the vitality of ERFEG as well as an investment in the life of an ERFEG student. Thank you for your support.



From left to right, James M. Hassett and Dr. Mohammed Ali Souid at commencement May 2000. Dr. Souid's research was on rainfall-runoff models.

Announcements

Professional Vacancies in the Faculty of Environmental Resources and Forest Engineering

There are two professional positions available to support the mapping sciences activities at ESF. The first is an Instructional Support Specialist in the Mapping Sciences Laboratory and the second is a Research Assistant to coordinate activities of the

NASA Affiliated Research Center. For details, please refer to the official vacancy announcements posted on the following web page: www.esf.edu/resources/persaa/search/default.htm. You may also contact Paul Hopkins at 315-470-6696 or phopkins@syr.edu.



Students Celebrate at Banquet



Every spring, ERFEG undergraduates host a formal banquet to celebrate their accomplishments. The 2000 banquet was held at the Brae Loch Inn, in Jamesville, N.Y. Left photo, left to right, James Buchanan, Kelly Beach and John Wallmann. Right photo, left to right, Jeff Budzich and Kerry Van Siclen.

Advisory Council Hosts Reception



The ERFEG Advisory Council hosted a successful reception at the spring 2000 meeting of the American Society for Photogrammetry and Remote Sensing last May. ESF's new president, Dr. Cornelius B. "Neil" Murphy, Jr., joined us in Washington, D.C., for the event, which attracted about 35 alumni and current students. The reception was the first in a series of events planned by the ERFEG Advisory Council around the theme of Partners for Progress. Left photo, left to right, Jerry Kinn, Neil Murphy and Paul F. Hopkins. Right photo, left to right, Stan Hovey, Robert H. Brock, Jr. and John Thonet.