

# RSSG Newsletter

Remote Sensing Specialty Group  
Association of American Geographers

December 1991

## From the Chair

I am really pleased with the amount of planned participation in the San Diego AAG by members of the Remote Sensing Specialty Group. A special thanks to Doug Stow (San Diego State University) for serving as RSSG Program Chair. Plan now to attend this important meeting. We need a strong presence by remote sensing geographers at the national meeting.

The medals have been cast for the RSSG Outstanding Contributions in Remote Sensing Award, and the Nominating Committee, chaired by Kamlesh Lulla (NASA), has been working diligently reviewing nominee qualifications. We will make the first presentation of the award at the San Diego AAG meetings.

Ted Alsop (Utah State University) has also worked aggressively with his committee to reinstitute the RSSG student awards competition. We look forward to seeing some student papers at the national meeting.

A special thanks to Jim Merchant (University of Nebraska-Lincoln) for editing the RSSG Newsletter. Jim's commitment to the continued success of the RSSG is very much appreciated.

It is an exciting time to be involved in remote sensing research. Geographical remote sensing is playing a crucial role in many of the global change monitoring programs. The Spaceship Earth series recently broadcast on the Public Broadcasting System (PBS), is just one example of greater public awareness of geographers'

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## RSSG PROGRAM FOR SAN DIEGO TAKES SHAPE

The 1992 AAG Annual Meeting will be held in San Diego, CA April 18-22, 1992. Doug Stow (San Diego State University), RSSG Program Chair, reports that a large number of RSSG-sponsored sessions and two workshops have been scheduled. Paper sessions include:

Interfacing GIS and Remote Sensing for Rural Land Use Analysis

Integration of GIS and Remote Sensing

Spatial/Biophysical Analyses in Alpine Environments

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## An Eye in the Sky

Reprinted with permission from the Natural Hazards Observer, November 1991.

. . . RSSG Program (Continued from page 1)

Climatological Influences on  
Ecosystems

Geographical Applications of  
NOAA/AVHRR Imagery

Biophysical Remote Sensing I

Biophysical Remote Sensing II

Remote Sensing and Landscape  
Ecology

Urban and Agricultural  
Applications

Remote Sensing Methods

Two workshops will be held on  
Saturday, April 18 from 12:00 noon  
- 7:00 pm.

Analysis of AVHRR Data for  
Regional and Global  
Environmental Monitoring -  
organized by James Merchant  
(University of Nebraska-Lincoln)

Introduction to Digital Image  
Processing - organized by Tina  
Cary (EOSAT)

Additional details on workshops  
are provided below.

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RSSG TO SPONSOR DIGITAL IMAGE PROCESSING  
AND AVHRR WORKSHOPS IN SAN DIEGO

Analysis of AVHRR Data for  
Regional and Global Environmental  
Monitoring

The Advanced Very High Resolution Radiometer (AVHRR), a sensor carried on the National Oceanic and Atmospheric Administration's (NOAA) polar-orbiting meteorological satellites, provides daily, moderate-resolution (1 km) coverage of the earth. This workshop, organized by James Merchant (University of Nebraska-Lincoln), will cover the fundamentals of acquiring, processing and using AVHRR data. Emphasis will be placed upon applications involving land and water observations. Hands-on experience in analyzing AVHRR data using ERDAS image analysis software will be provided. Participants will receive a compendium of notes and reprints, and sample digital AVHRR data. Persons taking the workshop should have a working knowledge of remote sensing and multispectral image analysis.

The AVHRR course will be offered on the campus of San Diego State University concurrently with the Digital Image Processing workshop. Course instructors will include Thomas R. Loveland (USGS/EROS Data Center), Kevin P. Gallo (NOAA/National Climatic Data

Center), Jesslyn Brown (University of Nebraska-Lincoln), and Andrew Baffes (ERDAS).

Digital Processing of Remotely  
Sensed Data

For the eighth year in a row, the Remote Sensing Specialty Group will sponsor an introductory workshop on Digital Processing of Remotely Sensed Data. The workshop, organized by Tina Cary (EOSAT), will be held on Saturday, April 18, 1992 from 12:00 noon-7:00 pm. on the campus of San Diego State University.

The Digital Processing workshop will provide a hands-on introduction to digital satellite image processing. Lectures will introduce the steps of data analysis from image enhancement through classification and evaluation, and will alternate with computer sessions where participants conduct analysis to create a land cover classification. The software package to be used was developed particularly for educators, and runs on IBM-compatible computers (PC/XT/AT) equipped with VGA display adapter, color monitor and math co-processor. Participants are expected to be familiar with the electromagnetic spectrum, and matter-energy interactions.



#### AWARDS AND HONORS

Tina Cary (EOSAT) has been promoted from the position of Public Affairs Manager to Director of Applications and Training at EOSAT. The EOSAT Applications staff serves as a technical resource to support the company's worldwide marketing efforts.

M. Duane Nellis (Kansas State University) has been selected to serve on the editorial board of The Professional Geographer.

Paul J. Curran (University of Wales, Swansea) was awarded the degree of D.Sc. by Bristol University for his work in environmental remote sensing. This is the first higher doctorate to be awarded in the field.

Daniel G. Brown, Ph.D. candidate in Geography at the University of North Carolina at Chapel Hill, has been awarded a NASA Graduate Student Fellowship in Global Change Research. The \$22,000 award will support his dissertation research on "Topoclimatic Factors and Recent Disturbances Affecting the Patterns of Vegetation at Alpine Treeline." Dan's doctoral research is being supervised by Dr. Stephen J. Walsh.

Gary J. Cwick (Southeast Missouri State University) was the recipient of a NASA Faculty Fellowship Award and spent 10 weeks during summer 1990 working at the Stennis Space Center, Mississippi. He conducted research using TIMS and CAMS data in an effort to locate near-surface gravel deposits on U.S. Forest Service land in southern Mississippi.

#### NELLIS ELECTED VICE-PRESIDENT OF THE NCGE

M. Duane Nellis, Chair of the Remote Sensing Specialty Group and Professor and Head of Geography at Kansas State University, was recently elected Vice-President for Research and External Relations by the National Council for Geographic Education. Nellis will serve as Vice-President for 1992 and 1993, then become President of the National Council for Geographic Education in 1994. The NCGE includes over 3800 members, including representatives from over 400 Universities. The NCGE Remote Sensing Committee, which Nellis has chaired, has played an important role in enhancing the use of remote sensing in geographic education.



#### POSTDOCTORAL FELLOWSHIPS IN GLOBAL CHANGE

The U.S. Department of Energy has established the Global Change Distinguished Postdoctoral Fellowships to support research on projects related to the U.S. Global Change Research Program. Applicants must have received a doctoral degree within three years of the desired starting date. Research can be conducted at a large number of federal and university laboratories. Completed applications are due by February 15, 1992.

For additional details contact:

Global Change Postdoctoral  
Fellowship Program  
Science/Engineering Education  
Division  
Oak Ridge Associated Universities  
P.O. Box 117  
Oak Ridge, TN 37831-0117  
(615) 576-4805

New Products and Publications

EROS DATA CENTER ISSUES  
U.S. AVHRR COMPANION DISC

The U.S. Geological Survey's EROS Data Center has announced the availability of a new CD-ROM "companion" disc to accompany its previously-issued 5-CD AVHRR Bi-weekly Composites set for the conterminous U.S. The new companion disc contains a large number of GIS data layers including:

- USGS Hydrologic Units
- USGS State/County boundaries with attribute codes
- NGDC 30 arc-second DEM data
- USDA/SCS Land Resources Areas
- EPA Ecoregions
- NOAA Climatic Regions
- AVHRR Biweekly composited NDVI data for July 5-18, 1991

The data are provided in both raster and DLG-3 (optional) vector formats. The CD-ROM, like others in the series, is available for \$32.00.

For details on the companion disc and other AVHRR CD-ROM data for the U.S. contact:

Customer Services  
EROS Data Center  
Sioux Falls, SD 57198  
(605) 594-6151

USE YOUR NEWSLETTER

The RSSG Newsletter is your vehicle for communicating with colleagues interested in remote sensing. You are invited to send news regarding publications, awards, honors, new programs, commercial ventures, student activities, jobs and other announcements to:

James W. Merchant  
Conservation & Survey Division  
University of Nebraska-Lincoln  
113 Nebraska Hall  
Lincoln, NE 68588-0517  
Telephone: (402) 472-7531  
FAX: (402) 472-2410

EDUCATOR'S GUIDE FOR INTERPRETING  
APT WEATHER SATELLITE IMAGES

This volume, intended for teachers of grades 7-12, illustrates how to interpret NOAA images to extract information on weather, the oceans and land use. Fundamental concepts of remote sensing are covered. Guidance is also provided on how to integrate APT images into existing math and science curricula. More than 60 satellite images and 25 illustrations in the guide can also be purchased on floppy disk.

The publisher, Tri-Space, Inc., also sells direct readout systems for receiving and displaying weather satellite images, and other educational products and publications.

For details contact:

Tri-Space, Inc.  
P.O. Box 7166  
McLean, VA 22106  
(703) 442-0666

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THE EARTH FROM SPACE  
A New View of the World

The EARTH FROM SPACE is a 24" x 36" full color poster of the Earth derived from satellite imagery. The poster, printed on heavy paper and mailed rolled, is available for \$18.00 (U.S.), \$20.00 (Canada) and \$25.00 (other countries). Cost includes postage

Contact:

The GeoSphere Project  
146 Entrada Drive  
Santa Monica, CA 90402

CALMIT OFFERS WORKSHOPS

The Center for Advanced Land Management Information Technologies (CALMIT), University of Nebraska-Lincoln has announced a series of workshops to be offered during 1992. These include:

Introduction to GIS  
January 20-24, 1992  
March 9-13, 1992

Fundamentals of ARC/INFO  
January 27-31, 1992  
March 16-20, 1992

Image Processing and Digital Analysis  
March 23-27, 1992

GIS and Remote Sensing for Water Resources  
September 14-18, 1992

Advanced Techniques in GIS  
September 21-25, 1992

All workshops are taught to small classes of 6-12 students, and include extensive hands-on computer-based instruction. For additional information or registration contact:

Chris Keithley  
CALMIT  
Conservation and Survey  
Division  
University of Nebraska-  
Lincoln  
113 Nebraska Hall  
Lincoln, NE 68588-0517  
Phone: (402) 472-2565  
FAX: (402) 472-2410



EOSAT TO SPONSOR RENEWABLE  
RESOURCE MANAGEMENT SEMINAR

EOSAT, the Earth Observation Satellite Company, will sponsor a remote sensing seminar on Renewable Resource Management Applications March 30, 1992 in Denver, Colorado. The meeting will be held at the Hyatt Regency Tech Center. In addition to the seminar, various value-added vendors will be offering workshops on March 31, 1992.

For additional details, contact Max Khan or June Glover at:

EOSAT  
9430 Research Boulevard  
Building IV, Suite 400  
Austin, TX 78759  
Phone: (512) 343-4513  
FAX: (512) 345-2924

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contributions through remote sensing approaches to global environmental issues.

Lastly, it is not too late to nominate people for RSSG offices. In the next RSSG Newsletter a ballot will be included for election of a new Vice-chair, Secretary-Treasurer, and Student Director. Please send nominations by January 15, 1992.

With best wishes for an exciting 1992!

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Department of Geography  
Kansas State University  
Manhattan, KS 66506-0801  
Phone: (913) 532-6727  
FAX: (913) 532-7310

## GEOTECHNIQUES AT THE UNIVERSITY OF OKLAHOMA

Contributed by Gregory A. Plumb and T.H. Lee Williams

The University of Oklahoma has established and continues to develop an integrated program in remote sensing, geographic information systems, and cartography. Faculty and students from different fields of study interact in an unique interdisciplinary learning environment. The program is supplemental in nature, as its participants retain the identities of their home disciplines.

Involvement in geotechniques has spread throughout the OU campus. Spearheading the program is the College of Geosciences, whose academic units consist of the Department of Geography, School of Geology and Geophysics, and School of Meteorology. Particular interest in the applied realm of geotechniques extends beyond the College. Faculty and students from the following disciplines have been active participants and contributors to the program: Anthropology, Botany, Civil Engineering & Environmental Science, Computer Science, Management Information Systems, Regional and City Planning, and Zoology.

Several research and service units, affiliated in some way with either the College of Geosciences or the University, have been involved in the geotechniques program. These related programs include: Geosciences Computing Network, Oklahoma Climatological Survey, Sarkeys Energy Center, Cooperative Institute for Applied Remote Sensing (CIARS), NEXRAD

Operational Support Facility, Oklahoma Geological Survey, The Geosat Committee, Inc, Thermal Imaging Laboratory, Oklahoma Biological Survey, Weather Center, National Severe Storms Laboratory, and National Weather Service Forecast Office.

The College's Geoscience Computing Network (GCN) is a dedicated teaching and research facility with nine full-time technical support staff. GCN provides the most powerful computing and imaging systems available to basic and applied geotechniques studies. Other facilities used in geotechniques are located within the individual academic, research, and service units. Hardware and software used in the geotechniques program at OU include the following:

Mixed interconnect Vax-cluster:  
Vax 6520 with vector processor,  
Vax 11/785, MicroVaxes,  
VaxStations, VaxServer, 7 tape  
drives, 10+ GByte disk  
Alliant mini-supercomputer  
Stellar graphics supercomputer  
Microwave ethernet link to NSSL  
Vax-cluster  
T1 link to national supercomputer  
sites  
Gould IP8500 image processing  
system, 4 512 x 512  
workstations, stereo  
workstation, video camera,  
matrix camera  
Recognition Concepts RCI Trapix  
Plus image processing system,  
with Visinet high speed image  
network and 3 GByte real-  
time disk

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\* This article is part of a series on remote sensing activities in academic departments. In each issue of the RSSG Newsletter we will focus on the faculty, instructional and research activities, and facilities of one institution. Persons wishing to contribute articles are asked to contact James Merchant, University of Nebraska-Lincoln, RSSG Newsletter editor.

. . . Oklahoma (Continued from page 6)

2 Ramtek 9465 graphics workstations with matrix camera  
IBM RS/6000 workstation  
Silicon Graphics IRIS workstation  
PC-based image processing/GIS systems, networked to GCN, with wide-bed electrostatic and drum plotters  
Instructional microcomputer labs with imaging, graphics, digitizing, and plotters  
Software: LIPS, EASI-PACE, ERDAS, ARC-INFO, TECH-SYS, NCARGRAPH, IDRISI, Atlas Graphics, Atlas GIS, GRASS, EasyCad  
Cartographic Production Lab: fully equipped facility for photo-mechanical cartography (process camera, platemaker, vacuum frame, etc.).  
Inframetrics 600 Imaging Thermal Radiometer, equipped for lab and field studies

Faculty members actively involved the geotechniques program are from several disciplines. Shown below is an alphabetical list of key faculty members, their affiliations, and their general areas of interest.

Duchon, Claude E., Professor of Meteorology. Hydro-meteorology, climatology.

Legates, David R., Assistant Professor of Geography. Spatial statistics, climatology.

Plumb, Gregory A., Assistant Professor of Geography. Cartography, GIS, biogeography.

Spaeth, Hans, Professor of Geography, Aerial photo interpretation, arid land studies.

Stearns, David W., Monnett Professor of Energy Resources in School of Geology, Structural geology, rock mechanics.

Shove, Christopher, Assistant Professor of Regional and City Planning. GIS as related to planning and economic development.

Vieux, Baxter E., Assistant Professor of Civil Engineering and Environmental Science. GIS, hydrologic modelling.

Williams, T.H. Lee, Associate Dean of the College of Geosciences and Associate Professor of Geography. Digital image processing, GIS.

Yates, Harold W., Visiting Scientist and Adjunct Professor of Geosciences, Multispectral remote sensing.

Several courses are offered in the geotechniques. They include:

Aerial Photo Interpretation  
Visual Image Interpretation  
Digital Analysis  
Digital Image Processing  
Physics and Technology of Remote Sensing  
Seminar in Remote Sensing  
Radar Meteorology  
Remote Sensing of the Atmosphere  
Intro to Geographic Information Systems  
GIS in Civil Eng & Env Sci  
GIS in Urban Planning  
Cartography  
Computer Cartography  
Advanced Cartography  
Seminar in GIS/Cartography

An impressive number of diverse research projects are utilizing geotechniques at the University of Oklahoma. Most of the projects have been funded either partially or wholly by external sources. Below is a list of selected current and past projects involving the geotechniques program.

- Spatial demographics of prenatal care
- Digital stereo mapping of geologic structures
- Rain gauges and the global distribution of precipitation
- Integrating satellite imagery with seismic interpretations
- Historic geography of the U.S. collegiate fraternity system

. . . Oklahoma (Continued from page 7)

- Surface hydrology modelling using remote sensing and GIS
- Fish species distribution in south-central Oklahoma
- Environmental impact modelling of oil and gas spills
- Estimating and monitoring erosion of reservoir shorelines
- Satellite remote sensing in exploration geology
- Rule-based vegetation mapping of Big Bend National Park
- Land capability of school lands in the Oklahoma Panhandle
- Representation of hydrographic features on highway maps
- Visualization and animation of geoscience data
- Compression of digital continuous spatial data
- Land capability, land use and land management on Antigua

- Spatial analysis on the distribution of waterfalls
- Scale aggregation in space and time for hydrology models
- Thematic mapping techniques on raster printing devices
- Finite element modelling of hillslope hydrology

The program looks forward to even greater participation throughout the University community and the State of Oklahoma. If you are interested in learning more about the program, contact one of the faculty members listed above or write to:

Geotechniques Program  
Department of Geography  
Sarkeys Energy Center, Room 684  
University of Oklahoma  
Norman, OK 73019

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Conservation and Survey Division  
University of Nebraska-Lincoln  
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