

# LARS Newsletter

January/February 1996

## A FULL PLATE

This issue is rapidly becoming the January/February/March issue. I tell readers that the people that I want to communicate to are the LARS Graduate Students. I want them to be aware that there are lots of events happening that will affect their futures. I also want them to be aware that there is a bright future for professionals that are trained with skills in remote sensing, geographic information systems and global positioning system technologies. Many of our faculty are involved in numerous national and international activities that impact the direction of these technologies. We will include information on these activities as they forward the information.

Here are some activities with which I become involved during the past few months. The first is the Humanitarian Landmine Clearance Committee of the National Research Council. The detection of landmines by remote sensing techniques is becoming a top priority in many countries since there are a reported more than 200 million mines set in over 50 countries. With mines being made primarily of plastic, it requires the use of a combination of a sensors. Some sensors discussed are multispectral, radar, nuclear quadrupole resonance, microwave radiometry, ultrasonics, and X-ray fluorescence.

The second activity is a 3 year appointment to the Committee on Earth Studies (CES) of the Space Applications Board of the National Research Committee. Professor Landgrebe served on the SAB for several terms. The CES reviews research thrusts of NASA as related to Earth remote sensing activities such as the Mission to Planet Earth, Earth Observing System, Earth System Science Pathfinder Program, and the U.S. Global Change Program.

Third, I have accepted an appointment on the SEDAC User Working Group of the Consortium for International Earth Science Information Network (CIESIN). SEDAC is the Socioeconomic Data and Applications Center and is one of nine Centers established for the collection, achieving and dissemination of data from NASA's Mission to Planet Earth initiative. The homepages for CIESIN and SEDAC are <http://www.ciesin.org> and <http://sedac.ciesin.org> respectively. I have been impressed by the holdings and access to data provided by SEDAC.

All of this provides a "full plate" in terms of challenges and schedules. I hope to comment on trusts of these committees and those of other faculty members in future newsletters as space permits.

--CJJ

## PROJECTS FUNDED

Jan Allebach (PI), Charles Bouman, Ed Coyle, Ed Delp, Dave Landgrebe, Tony Maciejewski, Zygmunt Pizlo and Ness Shroff, "Infrastructure for a New Curriculum in Video and Image Systems Engineering (VISE)." \$800,000 of HP equipment for a facility

that will support joint lab/classroom education for courses in the VISE area with possible 2 year renewal. Congratulations for a good team effort!

Landgrebe, D.A. "Research on Methods for Analysis of Multispectral Earth Observational Data," NASA, \$24,078. Feb, 1995-Jan, 96.

Mikhail, E.M. "Photogrammetric Invariance and Feature Exploitation," National Security Agency, \$100,000. Oct 95-Sept 96.

Gibson, H.G., D.L. Cassens and G.W. Krutz, Ag & Biol. Eng., "Short Term GIS World Wide Forest Harvest Equipment," Caterpillar Inc., \$40,140. Aug - Nov, 1995.

## **BEST PAPER AWARD**

J. A. Benediktsson ( former Kristof award winner), J. R. Sveinsson, O. K. Ersoy, P. H. Swain, "Wavelet Packet Parallel Consensual Neural Networks," ANNIE '95 (Artificial Neural Networks in Engineering '95). Jon continues to develop neural network technology for application to remote sensing data analysis.

## **PUBLICATIONS**

Y. Jung and P.H. Swain, "Bayesian Contextual Classification Based on Modified M-Estimates and Markov Random Fields", IEEE Transactions on Geoscience and Remote Sensing, Volume 34: 67-75, January, 1996.

## **PAPERS PRESENTED**

Teufert, J., Helt, T., Dobos, E., Micheli, E., Baumgardner, M.F., Johannsen, C.J. "Factors effecting regional water quality - Applications of a remote sensing and GIS enhancement of the Hungarian soils and terrain (SOTER) database," poster presented at Geological Society of America (GSA) National Convention, November 6-9, 1995, New Orleans, Louisiana. Abstract published in GSA Abstracts with Programs, Vol. 27, No. 6, October, 1995.

## **PECORA CONFERENCE**

Pecora 13 Symposium is focusing on the role of remote sensing in assessment of "Human Interaction with the Environment: Perspectives From Space." This is an internationally oriented conference with a goal to identify priorities for addressing research needs, accelerating database development, improving data archive and access, dealing with policy and implementation issues and related areas. The Symposium is scheduled for August 20-22, 1996 in Sioux Falls, SD. For further information see Conferences/Workshop Dates section and their homepage (<http://edcwww.cr.usgs.gov/pecora13.html>).

## **SPOT ASSISTS WITH BOSNIAN EFFORT**

SPOT images are being used by the Defense Mapping Agency to derive and view detailed terrain information for strategic and tactical support purposes according to a recent SPOT Press Release. During the Bosnian peace talks, SPOT imagery was merged with other data sources and viewed in PowerScene, Cambridge Research Associate's 3-D viewing software, to assist leaders in visualizing the political boundaries, land cover and infrastructure of the area. Now during the troop deployment, the images reveal buildings, roads, trail, railroads, utility infrastructures and defense emplacements, and can be combined with digital elevation models for three-dimensional perspective viewing.

## CONFERENCES/WORKSHOP DATES

(\* = New listing)

Please note that we are not repeating conferences/ workshops mentioned in previous newsletters except those of Professional Societies/organizations that appear to be of special interest to our faculty/students.

1996:

- +Mar 6-8. ISPRS Commission II Working Group II/2: New Developments in GIS, ISPRS, Milan, Italy. Contact: johnstonj@nwr.gov
- +Mar. 10-13. ERDAS 1996 Users' Group Meeting, Atlanta, Georgia. Contact: ERDAS Inc. 404-248-9000, Fax: 404-248-9400.
- \*+Mar 13-15. Introduction to MapInfo for Windows Course, The Polis Center, IUPUI, Indianapolis, IN. Contact: 317-274-8400, kmccart@indyvax.iupui.edu Fee: \$249.00
- +Mar 15-22. The Application of Remotely Sensed Data and GIS in Environmental and Natural Resources Assessment in Africa, Government of Zimbabwe, ESRI, AARSE, German Federal Ministry for Economic Cooperation & Development, ITC-the Netherlands, Harare, Zimbabwe. Contact: 263-4-731049/7/5; fax 263-4-731049
- \*+Mar 18-22. Intermediate ARC/INFO Course, The Polis Center, IUPUI, Indianapolis, IN. Contact: 317-274-8400, kmccart@indyvax.iupui.edu Fee: \$995.00
- +Mar 18-21. Tenth Annual Conference on Geographic Information Systems, Vancouver, British Columbia, Canada. GIS World, Inc. Contact: Sylvia Marshall 970-223-4848, FAX: 970-223-5700; Email: event-info@gisworld.com
- \*+Mar 25. Executive Overview of GIS (3 hour seminar), The Polis Center, IUPUI, Indianapolis, IN. Contact: 317-274-8400, kmccart@indyvax.iupui.edu Fee: \$149.
- +Mar 25-28. AM/FM International Annual conference XIX. Seattle, WA, Contact: (303) 337-0513; fax: (303) 337-1001
- +Mar 25-29. Spaceworks '96 - 8th Australian Remote Sensing Conference, Remote Sensing and Photogrammetry Association of Australia Ltd., Canberra, Australia; Contact: 61-6-257-3299; fax 61-6-257-3256; email: acts@ozemail.com.au
- +Mar. 25-29. 26th International Symposium on Remote Sensing of Environment and 18th Annual Symposium of the Canadian Remote Sensing Society, Vancouver, British Columbia. Contact: Fax: 273-9830, E-Mail: symposium@mda.ca
- +Apr 9-14. 92nd Annual Meeting. AAG, Charlotte, North Carolina. Contact: 202-234-1450
- +Apr 20-26. 1996 ASPRS/ACSM Annual Convention, Baltimore, MD. Contact: 301-493-0200, Fax: 301-469-3360.

- \*+Apr 14-19. 8th Brazilian Symposium of Remote Sensing, SELPER and INPE, Salvador, Bahia, Brazil. Contact: 55-123-25-6067/68; fax 55-123-25-6460/22-9325; sbsr@ltd.impe.br.
- \*+Apr 15-19. SPOT Int'l Conference, SPOT, Paris, France. Contact: 33-1-44-88-25-25; fax 33-1-40-26-04-44.
- +Apr 28-May 1. 1996 Mid-America GIS Symposium, Kansas City, Missouri. Contact: Tim Hensley, 913-764-8484, E-mail: tim@tyrell.net
- +May 20-24. Sixteenth Annual ESRI User Conference, Palm Springs, CA. Contact: 909-793-2853 ext. 2006, FAX: 909-793-5953; Email: ucregis@esri.com
- +May 21-23. Second International Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences, Fort Collins, Colorado. Contact: H. Todd Mowrer, 970-498-1100, Fax: 970-498-1010.
- +May 27-31. IGARSS'96, Lincoln, NE. Contact: 713-291-9222, FAX: 713-291-9224; Email: stein@harc.edu
- +June 10-14. GIS/LIS '96 Central Europe, Budapest, Hungary. Contact: North American Secretariat, 36 1 202 3128, Fax: 36 1 155 4171
- +Jun 23-26. 3rd International Conference on Precision Agriculture, Bloomington Minneapolis, MN. Contact: Gene Anderson 612-625-7084 or 800-367-5363, FAX: 612-625-2207; Email: eanderson@mes.umn.edu
- +Jun 24-27. 2nd International Airborne Remote Sensing Conference and Exhibition, ERIM, San Francisco, California. Contact: 313-994-1200 x3234; fax 313-994-5123
- \*+Jun 24-28. GPS/GIS '96, Geo-Research, Billings, Montana. Contact: 301-320-0911; fax 301-320-0922.
- +Jul 9-19. ISPRS: Spatial Information from Images. ISPRS, Vienna, Austria. Contact: Karl Kraus 43 1 58801; fax 43 1 505 6268; email: isprs96@email.tuwien.ac.at
- +Jul 27-Aug 1. URISA '96, Urban and Regional Information Systems Association, Salt Lake City, Utah. Contact: 202-289-1685
- +Jul 30-Aug 1. Information Agriculture Conference, Krannert Center for the Performing Arts, University of Illinois, Urbana, IL. Contacts: Registration-Mary Hughes (913-776-0273); Program/Exhibits---Harold Reetz, (217-762-2074)/e-mail--- hreetz@uiuc.edu
- +Aug 12-16. Seventh International Symposium on Spatial Data Handling, Delft, The Netherlands. Contact: SDH'96, M.J. Kraak, 31 15 782 584, Fax: 31 15 782 584, E-mail: sdh96@Geo.tudelft.nl
- \*+Aug 19-22. Human Interactions with the Environment: Perspectives From Space, PECORA Thirteen, Sponsored by USGS, NASA, NOAA, EPA and CIESIN, Sioux Falls, SD., Contact: 605-594-6040, Fax: 605-594-6083, Email: pecora13@edcserver1.cr.usgs.gov
- \*+Sep 9-11. Spatial Technologies, Geographic Information, and the City, (A Research Conference), Baltimore, MD. UCGIA. Contact: Dr. Helen Couclelis, (805) 893 2196, Fax:(805) 893 8617, email: cook@geog.ucsb.edu
- \*+Nov 4-7. Eco-Inforna '96-Global Networks for Environmental Information, ERIM, Eco-Inforna Foundation, Epcot Science & Technology, USDA, NASA, US EPA, US Army COE, Lake Buena Vista, Florida. US Contact: 313-994-1200 ext. 3234. Europe contact: 49-921-552-245/155; fax 49-921-546-26.
- +Nov 16-22. GIS/LIS '96 Annual Conference and Exposition. AAG, ACSM, AM/FM International, ASPRS, URISA, Denver, Colorado. Contact: GIS/LIS '96 301-493-0200; fax 301-493-8245

1997:

- +Mar 21-27. AM/FM International Annual Conference, AM/FM International, San Antonio, Texas. Contact: Paula Delie 303-337-0513
- +Apr 4-6. ASPRS/ACSM Annual Convention. ASPRS, ACSM, Seattle, Washington. Contact: 301-493-0200

\*+Jul 7-10. IGARSS '97. Cannes, France. Contact: 703-917-8655; fax 703-917-8656;  
[khazenie@chrpisis.gsfc.nasa.gov](mailto:khazenie@chrpisis.gsfc.nasa.gov)

--Chris J. Johannsen, Director  
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# LARS Newsletter

March 1996

## FACULTY PROMOTIONS

Congratulations to LARS faculty who were approved for promotions at the March Purdue Board of Trustees meeting:

- Bernard Engel (Agricultural & Biological Engineering) to full professor
- Darrell Schulze (Agronomy) to full professor
- Peter Doerschuk (Electrical & Computer Engineering) to associate professor

## AHN GRANTED PRF FELLOWSHIP

Congratulations go to Prof. Marion Baumgardner (Agronomy) and PhD graduate student Changwoo Ahn who has received a PRF Fellowship for 1995-96 and a year extension through September 1997. Ahn's research is focused on hyperspectral remote sensing data analysis for characterizing land surface conditions.

## CORRECTION:

In the December LARS Newsletter we had given credit to Todd Helt for presenting a paper at the GSA Convention:and I learned that John Teufert, an Earth & Atmospheric Sciences graduate student presented the paper. Here is the paper presented by John Teufert:

Teufert, J., Helt, T., Dobos, E., Micheli, E., Baumgardner, M.F., Johannsen, C.J. "Factors effecting regional water quality - Applications of a remote sensing and GIS enhancement of the Hungarian soils and terrain (SOTER) database," poster presented at Geological Society of America (GSA) National Convention, November 6-9, 1995, New Orleans, Louisiana. Abstract published in GSA Abstracts with Programs, Vol. 27, No. 6, October, 1995.

Todd gave a presentation at NASA's SISIC Conference during that same time and this is the paper that he presented:

Helt, T., Dobos, E., Micheli, E., Baumgardner, M.F., Johannsen, C.J. "Integrated datasets and technologies for global change research database development," presented at NASA Science and Information Systems Interoperability Conference, November 6-9, 1995, College Park, Maryland.

## LARS Visitors:

- Jan. 9, David Cressman, Ecologistics, Waterloo Canada
- Jan. 12, Jeffrey H. Drake, Geography Department, University of Wyoming
- Jan. 16, Joe Knight, NRES Student, Purdue University
- Jan. 23, Jane Frankenberger, ABE, Purdue

- Jan. 26, Ron Hochstetler, Conrad Aviation, Kensington MD and Larry Hollst, Conrad Aviation, Centerville OH
- Jan. 29, Katie Williams, Student, Fowler IN
- Feb 16, Lisa Kurtzhals, FNR Student, Purdue Univ
- Feb. 16, Andrea Easter-Pilcher & Marty Spetich, FNR, Purdue Univ
- Feb. 19, Dr. Erika Micheli, Godollo Agricultural University, Hungary
- Feb. 22, Wayne Bugg, Monanto, Noblesville IN
- Feb. 22, Skif Peterson, Private Consulting, West Lafayette IN
- Feb. 23, Tiffany Strait, Horticulture student, Purdue Univ
- Feb. 23, Robert Bastain, MS student, Purdue Univ.
- Feb. 29, Victor Haertal, Director, Center for Remote Sensing and Meteorology (CEPSRM) Brazil
- Mar. 1, Tom Bechman, Indiana Prairie Farmer, Indianapolis IN
- Mar. 14, Emmett Barker and Darrin Drollinger, Ag Electronics Assoc. Chicago IL

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Please note that we are not repeating conferences/ workshops mentioned in previous newsletters except those of Professional Societies/organizations that appear to be of special interest to our faculty/students.

1996:

- \*+Apr 1-3. GIS in Action '96. ASPRS Columbia River Region and URISA Oregon Chapter, Portland, OR. Contact: Fax: 503-797-1909; drc@metro.or.gov
- +Apr 9-14. 92nd Annual Meeting. AAG, Charlotte, North Carolina. Contact: 202-234-1450
- +Apr 14-19. 8th Brazilian Symposium of Remote Sensing, SELPER and INPE, Salvador, Bahia, Brazil. Contact: 55-123-25-6067/68; fax 55-123-25-6460/22-9325; sbsr@ltid.impe.br.
- +Apr 15-19. SPOT Int'l Conference, SPOT, Paris, France. Contact: 33-1-44-88-25-25; fax 33-1-40-26-04-44.
- \*+Apr 19-21. 1st International Conference on GIS in Urban, Environmental & Regional Planning, National Technical University of Athens, Samos, Greece. Contact: 30-1-772-1601; timos@theseas.ntua.gr
- \*+Apr 19-21. The Thompson Symposium. The Photogrammetric Society, University of York, England. Contact: Roger Kirby, 031-650-2518, Fax: 031-650-2524
- \*+Apr 20-24. GIS Frontiers in Business and Science. Masaryk University and Forest Bank GIS, Czech Republic. Contact: 42-5-42128317, Fax: 42-5-42128300; brnogis@dior.ics.muni.cz; <http://www.porthos.geogr.muni.cz>
- +Apr 20-26. 1996 ASPRS/ACSM Annual Convention, Baltimore, MD. Contact: 301-493-0200, Fax: 301-469-3360.
- \*+Apr 30-May 3. 9th Conference of the Quebec Assoc. of Remote Sensing: Remote Sensing in Geomatics, Quebec, Canada. Contact: 418-656-5491, 418-656-3607; Email: crg@crg.ulaval.ca
- \*+May 1-2. 1996 Pennsylvania GIS Conference, Penn State, Harrisburg, PA. Contact: 717-948-6505, Fax: 717-948-6276.
- +May 20-24. Sixteenth Annual ESRI User Conference, Palm Springs, CA. Contact: 909-793-2853 ext. 2006, FAX: 909-793-5953; Email: ucregis@esri.com
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+May 27-31. IGARSS'96, Lincoln, NE. Contact: 713-291-9222, FAX: 713-291-9224; Email: stein@harc.edu

\*+May 28-30. 5th Annual Natural Resources GIS/GPS Training, Conference and Exhibition. US Forest Service, CA Dept. of Conservation, Columbia College, Condor Earth Tech, Columbia, CA. Contact: 209-532-0361

\*+June 3. 1996 GPS Conference. Center for GPS Research, Dunwoody Institute, Minneapolis, MN. Contact: David Zenk, 612-374-5800, Fax: 612-374-4128; zenkx002@maroon.tc.umn.edu

+June 10-14. GIS/LIS '96 Central Europe, Budapest, Hungary. Contact: North American Secretariat, 36 1 202 3128, Fax: 36 1 155 4171

+Jun 23-26. 3rd International Conference on Precision Agriculture, Bloomington Minneapolis, MN. Contact: Gene Anderson 612-625-7084 or 800-367-5363, FAX: 612-625-2207; Email: eanderson@mes.umn.edu

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\*+Sept 22-26. 32nd Annual Conference & Symposium: "GIS and Water Resources", Amer. Water Resources Assoc., Fort Lauderdale, FL. Contact: 703-904-1228.

\*+Oct 2-4. Trimble '96 Surveying \* Mapping Users Conference & Exposition, San Jose Conv. Ctr. Contact: 408-481-8465. Fax: 408-481-8488.

+Nov 4-7. Eco-Inforna '96-Global Networks for Environmental Information, ERIM, Eco-Inforna Foundation, Epcot Science & Technology, USDA, NASA, US EPA, US Army COE, Lake Buena Vista, Florida. US Contact: 313-994-1200 ext. 3234. Europe contact: 49-921-552-245/155; fax 49-921-546-26.

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--Chris J. Johannsen, Director  
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# LARS Newsletter

April/May 1996

## 1996 KRISTOF AWARD WINNER

Todd Helt, M.S. degree candidate in Agronomy was presented the 1996 [Stevan J. Kristof Outstanding Graduate Student Award](#). Todd is an Indiana native from Marion with an undergraduate degree from the West Point Military Academy in Geography. Dr. Marion Baumgardner who nominated Todd says, "Not only does Todd have an excellent scholastic record at Purdue, he has distinguished himself in the integration of international service for Purdue University in Hungary and Ukraine and for the development of collaborative research with Hungarian soil scientists." Todd plans to complete his Master's thesis by August and is busy with interviewing prospective employers. After some employment experience he plans to pursue a Ph.D. Congratulations, Todd!

## PECORA CONFERENCE

Some excellent posters advertising the Thirteenth Pecora Symposium on August 20-22, 1996 have been distributed on many bulletin boards on campus (if you want a personal copy, please send us a note). The Pecora Conference is one of the "must" Conferences for people with Remote Sensing interests. It will be held at Sioux Falls, South Dakota. The principal objectives of the Pecora 13 Symposium are:

1. To better identify information requirements, and determine current information deficiencies, for addressing issues related to human interaction with the environment;
2. To report progress in mapping, monitoring and characterizing the biosphere and the extent and nature of human activity via remote sensing technology;
3. To define opportunities for enhancing progress in using remote sensing to enhance the quality of human life and for protecting the global environment.

For more details, see the Pecora Homepage at <http://edcwww.cr.usgs.gov/pecora13.html#papers>.

## PRESENTATIONS AT ASPRS/ACSM MEETINGS

- Helt, Todd F., Endre Dobos, Erika Micheli, Marion F. Baumgardner, and Chris J. Johannsen. Integration of Satellite Remote Sensing, Digital Terrain Data and Soils Information for Quantitative Soil and Terrain Database Development.
- Findorff, Dennis D., Boudewijn H.W. van Gelder, and Steven D. Johnson. Pre-Analysis and Design of GPS Networks Using Reliability Theory.
- Johannsen, Chris J., LARS, Purdue University, Allan Falconer, Utah State University, Wm Wigton, Agricultural Assessments International, Information Requirements for Agriculture: The Next Decade.

- Baumgardner, Marion F. and Chris J. Johannsen, Changing Emphasis in Study Topics for Overseas Students. (We also noted contributions from these past LARSians, Roger Hoffer, Donna Scholz, Tim Warner.)

## RESEARCH FUNDED

- Baumgardner, M.F., C.J. Johannsen and L.L. Biehl. "Toward Soil Spatial Information Systems for Global Modeling And Ecosystem Management," NASA. January 1, 1996 to December 31, 1996. \$139,829. Total 3 year grant :\$416,045.
- Mikhail, E.M. "Photogrammetric Adjustment Research", Battelle Columbus Laboratories, Febr 1996 - Jan 1997, \$41,738.
- Bouman, C.A. and J.P. Allebach. "High Resolution Image Rendering," Hewlett Packard. May, 1995 to May, 1996. \$85,500.
- Lee, J.G., S.B. Lovejoy and B.A. Engel. "A spatial Decision Support System for Water Quality Management," USDA. Sept, 1995 - Aug, 1997, \$400,000.

## INTERNATIONAL TRAVEL GRANTS

Congratulations to the following faculty who received PRF International Travel Grants:

- J.P. Allebach, E&CE, "IEEE/1st & 9th Image and Multi-dimensional Signal Processing Workshop," Belize City, Belize.
- C.A. Bouman, E&CE, "Image and Multidimensional Signal Processing Workshop," Belize City, Belize.
- B. Dahl, L.A., "Exploring Patterns of Rural Development," Goddollo, Hungary.
- B.A. Engel, A&BE, "HydroGIS '96," Vienna, Austria.
- R.H. Grant, AGRY, "14th International Congress of Biometeorology, Ljubiajana, Slovenia.

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+Jul 27-Aug 1. URISA '96, Urban and Regional Information Systems Association, Salt Lake City, Utah. Contact: 202-289-1685

+Jul 30-Aug 1. Information Agriculture Conference, Krannert Center for the Performing Arts, University of Illinois, Urbana, IL. Contacts: Registration-Mary Hughes (913-776-0273); Program/Exhibits---Harold Reetz, (217-762-2074)/e-mail--- hreetz@uiuc.edu

\*+Aug 4-9. Remote Sensing, Optical Science, Engineering, and Instrumentation International Symposium, SPIE Annual Meeting, Denver, Colorado, Contact: 360-676-3290, Fax: 360-647-1445, Email: colo96@spie.org

+Aug 19-22. Human Interactions with the Environment: Perspectives From Space, PECORA Thirteen, Sponsored by USGS, NASA, NOAA, EPA and CIESIN, Sioux Falls, SD., Contact: 605-594-6040, Fax: 605-594-6083, Email: pecora13@edcserver1.cr.usgs.gov

\*+Oct 2-4. Trimble '96 Surveying \* Mapping Users Conference & Exposition, San Jose Conv. Ctr. Contact: 408-481-8465. Fax: 408-481-8488.

+Nov 4-7. Eco-Informa '96-Global Networks for Environmental Information, ERIM, Eco-Informa Foundation, Epcot Science & Technology, USDA, NASA, US EPA, US Army COE, Lake Buena Vista, Florida. US Contact: 313-994-1200 ext. 3234. Europe contact: 49-921-552-245/155; fax 49-921-546-26.

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\*+Nov 19-22. Rs, GIS & GPS in China. Chinese Academy of Sciences, Beijing, China. Contact: Mr. Mi Zhaohui, 8610-5051582, Fax: 8610-5051582

1997:

\*+Jan 26-30. Space Technology & Applications International Forum (STAIF-97). NASA et.al, Albuquerque, NM. Contact: Prof Mohamed S. El-Genk, Uni of New Mexico, (505) 277-5442, Fax: 277-2814, Email: mgenk@unm.edu

+Mar 21-27. AM/FM International Annual Conference, AM/FM International, San Antonio, Texas. Contact: Paula Delie 303-337-0513

+Apr 4-6. ASPRS/ACSM Annual Convention. ASPRS, ACSM, Seattle, Washington. Contact: 301-493-0200

+Jul 7-10. IGARSS '97. Cannes, France. Contact: 703-917-8655; fax 703-917-8656; [khazenie@chrpisis.gsfc.nasa.gov](mailto:khazenie@chrpisis.gsfc.nasa.gov)

--Chris J. Johannsen, Director  
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# LARS Newsletter

June 1996

## HARBOR LIGHTS

Professor Jon Harbor, Earth and Atmospheric Sciences, traveled with two graduate students, Luke Copland and Marie Minner, to the Arolla Glacier in Switzerland to study ice dynamics. The most exciting results came from a video camera lowered into bore holes in the glacier where a "complex world of ice layers and channels" and trapped air bubbles was explored. World researchers are eager to view this video and additional results from Harbor's return visit to the glacier later this year. Highlights of the work will be shown on CNN's Science and Technology program in July. His internet address is: harbor@geo.purdue.edu

## TRACEY HENDERSON (M.S. 1990) REPORTING FROM MOZAMBIQUE

In the field and loving it, by December Tracey will complete her assignment of over two years "getting down and dirty" in Mozambique. She's gone from remote sensing at Purdue, up to chilly Fargo for a PhD, to the wilds of Washington as an ASA Congressional Science Fellow and now to the tamer grain fields of Mozambique. She has been testing varieties of sorghum and studying grain storage and botanical insecticides and feels she has "concrete proof that the program is making a difference" as assessments were made between farmers receiving technical assistance versus the non-assisted farmers. She still has a close tie with Purdue's Agronomy Department through sorghum varieties provided by Prof. Gebisa Ejeta.

## IGARSS PRESENTATIONS

The attendance at the 1996 IEEE Geoscience and Remote Sensing Society (IGARSS) Conference held in Lincoln, Nebraska, USA was about 800. Future IGARSS Conferences will be in Singapore (97), Seattle (98), Hamburg, Germany (99) and Hawaii (00). Dave Landgrebe chaired sessions on Landcover: Innovative Classification Methods (I & II) and Methods of Data Analysis.

Papers presented by Purdue related people were:

- C.E. Brodley, M.A. Friedl & A.H. Strahler, "New Approaches to Classification in Remote Sensing Using Hybrid Decision Trees to Map Land Cover."
- C.E. Brodley & M.A. Friedl, "Improving Automated Land Cover Mapping by Identifying and Eliminating Mislabeled Observations from Training Data."
- Saldju Tadjudin and David A. Landgrebe, "A Decision Tree Classifier Design For High-Dimensional Data With Limited Training Samples."
- Pifuei Hsieh and David A. Landgrebe, "Automated Training Sample Labeling Using Laboratory Spectra".

- J.A. Benediktsson, Kolbeinn Arnason, Arni Hjartarson, and David Landgrebe, "Classification And Feature Extraction Based On Enhanced Statistics".
- J.A. Benediktsson, J.R. Sveinsson and P.H. Swain, "Hybrid Consensus Theoretic Mapping."

## **BHARGAVA HONORED**

Congratulations to Prof. Bharat Bhargava (Computer Sciences) who has achieved the honor of Fellow of the Institute of Electronics and Telecommunication Engineers. He has also received this year's Outstanding Instructor Award from Purdue's Association of Computing Machinery.

## **CEE's HIGH TECH ONE-ROOM SCHOOL OF THE 90s**

Purdue's Continuing Engineering Education (CEE) program, directed since 1985 by Philip Swain, professor of electrical and computer engineering and former LARS program leader, covers a lot of miles. Each semester over 1200 students (nearly half pursuing graduate degrees) go to school at 86 off-campus "classroom" worksites by television or videotape. This "distance learning" provides such industries as Whirlpool, Delco Electronics, General Motors, or Allison Engine with better-equipped engineers who can "tune in" to current technology. GM has taken CEE's program into the international arena at one of their divisions in Luxembourg. CEE addresses the engineer's desire and need for lifelong learning.

## **DAACs: THE GREAT DATA SOURCE**

I serve on the User Working Group of the Socioeconomic Data and Applications Center and I thought that students and faculty should know more about these valuable data resources. We will devote the remainder of this newsletter to information and how to reach these data resources. --CJJ

There are currently nine Distributed Active Archive Centers (DAACs) responsible for data archival, product development, distribution and user support. The DAACs are distinguished from one another by data subject area. Linked by the V0 IMS, DAACs will appear to users as a single system. Users can search for and order data from any or all of them, and can contact the User Services staff at any DAAC to obtain assistance in using the IMS or to find out more about a particular data product.

## **Version 0 Information Management System (V0 IMS)**

The V0 IMS provides a consistent view of data sets held at EOSDIS data centers, allowing users, without specific prior knowledge of the data, to search science data holdings, retrieve high level descriptions of data sets and detailed descriptions of the data inventory, view browse images, and place orders for data. The system is accessible over the Internet, using a World Wide Web.

If users have a general World Wide Web connection they can access the EOSDIS V0 IMS Home document using the following Uniform Resource URL: <http://eos.nasa.gov/v0ims>.

### **Alaska SAR Facility (ASF) DAAC**

The ASF DAAC, is located in the Geophysical Institute at the University of Alaska Fairbanks and is supported by NASA to acquire, process, archive and distribute Synthetic Aperture Radar (SAR) data from polar orbiting satellites to advance polar research and earth science.

Internet: [uso@eosims.asf.alaska.edu](mailto:uso@eosims.asf.alaska.edu)

URL: <http://www.asf.alaska.edu>

### **EROS Data Center (EDC) DAAC**

The EDC DAAC is used by Earth and global change scientists to study, characterize, and monitor biologic, hydrologic, limnologic, ecologic, and other conditions and processes existing and operating at or near the land surface. Included are studies of conditions and processes affecting land-atmosphere and land-ocean interactions and studies that attempt to model the role and influence of these processes and interactions in the history and evolution of the total Earth system.

Internet: [edc@eos.nasa.gov](mailto:edc@eos.nasa.gov)

URL: <http://edcwww.cr.usgs.gov/landdaac/landdaac.html>

### **Goddard Space Flight Center (GSFC) DAAC**

The GSFC DAAC supports data in upper atmosphere, global biosphere and atmospheric dynamics disciplines.

Internet: [daacuso@daac.gsfc.nasa.gov](mailto:daacuso@daac.gsfc.nasa.gov)

URL: <http://daac.gsfc.nasa.gov>

### **Jet Propulsion Laboratory (JPL) Physical Oceanography PO.DAAC**

The mission of the Jet Propulsion Laboratory Physical Oceanography Distribution Active Archive Center (JPL PO.DAAC) is to archive and distribute data relevant to the physical state of the oceans. The goals of JPL PO.DAAC are to serve the needs of the oceanographic and geophysical sciences research communities and to provide data in support of interdisciplinary research.

Internet: [jpl@eos.nasa.gov](mailto:jpl@eos.nasa.gov)

URL: <http://podaac-www.jpl.nasa.gov>

### **Langley Research Center (LaRC) DAAC**

The LaRC DAAC is responsible for archiving and distributing data related to radiation budget, clouds, aerosols, and tropospheric chemistry.

Internet: [userserv@eosdis.larc.nasa.gov](mailto:userserv@eosdis.larc.nasa.gov)

URL: <http://eosdis.larc.nasa.gov>

### **Marshall Space Flight Center (MSFC) DAAC**

The George C. Marshall Space Flight Center (MSFC) Distributed Active Archive Center (DAAC) serves as the Earth Observing System (EOS) Data and Information System (EOSDIS) center of expertise for data describing the global hydrologic cycle.

Internet: [msfcuser@microwave.msfc.nasa.gov](mailto:msfcuser@microwave.msfc.nasa.gov)

URL: <http://wwwdaac.msfc.nasa.gov/>

### **National Snow and Ice Data Center (NSIDC) DAAC**

The NSIDC DAAC provides data and information on snow and ice processes, especially interactions among snow, ice, atmosphere and ocean, in support of research in global change detection and model validation, and provides general data and information services to the cryospheric and polar processes research community.

Internet: [nsidc@kryos.colorado.edu](mailto:nsidc@kryos.colorado.edu)

URL: <http://www-nsidc.colorado.edu/NASA/GUIDE/>

### **Oak Ridge National Laboratory (ORNL) DAAC**

The ORNL DAAC specializes in the earth's biogeochemical dynamics and supports ground-based research projects.

Internet: [ornl@eos.nasa.gov](mailto:ornl@eos.nasa.gov)

URL: <http://www-eosdis.ornl.gov/>

### **Socioeconomic Data and Applications Center (SEDAC)**

The Socioeconomic Data and Applications Center is co-located and operated by CIESIN. While the eight other data centers are responsible for archiving natural science data, SEDAC's focus is on human interactions in global environmental change, and providing products and services for decision making which combine Earth science and socioeconomic data.

Internet: [ciesin.info@ciesin.org](mailto:ciesin.info@ciesin.org)

URL: <http://www.ciesin.org>

### **CONFERENCES/WORKSHOP DATES**

(\* = New listing)

Please note that we are not repeating conferences/ workshops mentioned in previous newsletters except those of Professional Societies/organizations that appear to be of special interest to our faculty/students.

1996:

+Jul 9-19. ISPRS: Spatial Information from Images. ISPRS, Vienna, Austria. Contact: Karl Kraus 43 1 58801; fax 43 1 505 6268; email: [isprs96@email.tuwien.ac.at](mailto:isprs96@email.tuwien.ac.at)

+Jul 27-Aug 1. URISA '96, Urban and Regional Information Systems Association, Salt Lake City, Utah. Contact: 202-289-1685

+Jul 30-Aug 1. Information Agriculture Conference, Krannert Center for the Performing Arts, University of Illinois, Urbana, IL. Contacts: Registration-Mary Hughes (913-776-0273); Program/Exhibits---Harold Reetz, (217-762-2074)/e-mail--- hreetz@uiuc.edu

\*+Aug 4-9. Remote Sensing, Optical Science, Engineering, and Instrumentation International Symposium, SPIE Annual Meeting, Denver, Colorado, Contact: 360-676-3290, Fax: 360-647-1445, Email: colo96@spie.org

+Aug 19-22. Human Interactions with the Environment: Perspectives From Space, PECORA Thirteen, Sponsored by USGS, NASA, NOAA, EPA and CIESIN, Sioux Falls, SD., Contact: 605-594-6040, Fax: 605-594-6083, Email: pecora13@edcserver1.cr.usgs.gov

+Oct 2-4. Trimble '96 Surveying - Mapping Users Conference & Exposition, San Jose Conv. Ctr. Contact: 408-481-8465. Fax: 408-481-8488.

+Nov 4-7. Eco-Informa '96-Global Networks for Environmental Information, ERIM, Eco-Informa Foundation, Epcot Science & Technology, USDA, NASA, US EPA, US Army COE, Lake Buena Vista, Florida. US Contact: 313-994-1200 ext. 3234. Europe contact: 49-921-552-245/155; fax 49-921-546-26.

+Nov 16-22. GIS/LIS '96 Annual Conference and Exposition. AAG, ACSM, AM/FM International, ASPRS, URISA, Denver, Colorado. Contact: GIS/LIS '96 301-493-0200; fax 301-493-8245

\*+Nov 19-22. Rs, GIS & GPS in China. Chinese Academy of Sciences, Beijing, China. Contact: Mr. Mi Zhaohui, 8610-5051582, Fax: 8610-5051582.

1997:

\*+Jan 26-30. Space Technology & Applications International Forum (STAIF-97). NASA et.al, Albuquerque, NM. Contact: Prof Mohamed S. El-Genk, Uni of New Mexico, (505) 277-5442, Fax: 277-2814, Email: mgenk@unm.edu

+Mar 21-27. AM/FM International Annual Conference, AM/FM International, San Antonio, Texas. Contact: Paula Delie 303-337-0513

+Apr 4-6. ASPRS/ACSM Annual Convention. ASPRS, ACSM, Seattle, Washington. Contact: 301-493-0200

+Jul 7-10. IGARSS '97. Cannes, France. Contact: 703-917-8655; fax 703-917-8656; [khazenie@chrpisis.gsfc.nasa.gov](mailto:khazenie@chrpisis.gsfc.nasa.gov)

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# LARS Newsletter

July/August 1996

## **PURDUE CLASSES STARTED AUGUST 19**

The summer seems short enough but when classes start near the middle of August, you wonder what happened to it. One faculty member was reported to have said on August 18, "My Kingdom for another week!" As you may have heard Purdue had another increase in enrollment which puts us comfortably(?) over 35,000 students. Many of the increases are at the Freshman level but we are seeing an increase in the students relating to remote sensing, GIS and GPS. Job opportunities are a big factor. Since we have been monitoring the available positions, we are seeing about one new position announcement every day! That's a healthy sign. The salaries are variable but seem to be moving upward. We now have more than 50 graduate students involved in the LARS program coming from over 10 different departments in the University. More on the specific students in our next issue. --CJJ

## **JOHANNSEN ON SABBATICAL**

On October 1, Chris J. Johannsen, LARS Director will begin a 6 month sabbatical leave with Space Imaging Corp., Thornton, Colorado. As a visiting research scientist, he will work with preliminary remotely sensed data for evaluating agricultural and natural resources applications. Space Imaging is planning to launch their first satellite in 1997 with 1 meter panchromatic and 4 meter digital (5 channels) data.

## **INFORMATION AG CONFERENCE**

The Second Information Agriculture Conference is over but not for those who attended. Its impact will continue. The conference, held at the Krannert Center for the Performing Arts, University of Illinois provided information for some 800 plus attendees. Speakers told participants about the latest innovations in site-specific agriculture. It was great to see that about 250 farmers attended the event. An interesting sign of the times is that farmers were passing out business cards containing the usual information but many had fax, email and homepages listed!

After the opening general session, various breakout sessions began, including Precision A to Z, concurrent sessions featuring topics regarding nearly every phase of the farming operation and communicating via the Internet and more. There were also vendor sessions running concurrently. An evening panel of farmers and dealers produced a Jam Session for attendees to relate how they use precision agriculture and the World Wide Web to get and share site-specific information and ideas. To further illustrate how the World Wide Web helps the farmer, the CyberFarm (<http://w3.ag.uiuc.edu/INFOAG/cyberfarm/>) and CyberFarm Diner exhibits allowed participants to learn more about use of the Internet. The CyberFarm Diner provided an opportunity for participants to get hands-on experience accessing their favorite web sites.

Remote sensing was a popular topic. Many farmers are becoming familiar with "yield images" of their fields and are anxious to see if remotely sensed images could provide them information during the growing season when they can do something to increase yields. Chris Johannsen provided a presentation on "An overview of Remote Sensing Applications". The following Purdue Faculty gave presentations: Mark Morgan, Daniel Ess, Dave Downey, Charles Roth, and Jess Lowenberg-DeBoer. Conference proceedings are available from the Potash & Phosphate Institute @\$20.00 plus shipping (\$3.00 for U.S. shipping and \$4.50 for other countries). Send your order to the Potash & Phosphate Institute, (73074.3713@compuserve.com).

## **PECORA CONFERENCE EMPHASIZES NON-ENGINEERING THEME**

The theme of the Pecora Conference held at the Sioux Falls, SD was on " The Role of Remote Sensing in Assessment of Human Interaction with the Environment: Perspectives From Space". Over 300 people from government, academic, business and private organizations participated in the three day event. Three Purdue papers were presented including:

- C. Ahn, M.F. Baumgardner and L.L. Biehl. Performance of Simulated TM, AVIRIS, and Adjusted AVIRIS Data.
- Larry Biehl and David Landgrebe. MultiSpec - A Tool for Multispectral-Hyperspectral Image Data.
- Chris J. Johannsen. Precision Farming - A New Application for Remote Sensing.

The dedication of the new addition to the EROS Data Center was held prior to the conference. Tours of the new facility were conducted during the conference and were a definite hit among the participants. Proceedings of the Conference are expected to be published and available after the first of the year.

## **ELLEN DEAN MAKES OKLAHOMA CITY AEROBATICS TEAM**

Bud Goodrick, former LARS professional staff member, reports that Ellen Dean (M.S., Forestry, 1983) is back in the saddle again. In 1988 she was part of the gold medal team of the International Aerobatics Championships and also claimed two individual silver medals. Eight years later and she has gone back into competition and secured a place on this year's 5-member women's team at the World Championships in Oklahoma City, beginning 18 August. She works at Champion Paper Company and is being sponsored by Aerosport at the St. Augustine airport which is providing a Extra 300 for her to fly. No report at this time as to how well she did.

## **CONFERENCES/WORKSHOP DATES**

(\* = New listing)

Please note that we are not repeating conferences/ workshops mentioned in previous newsletters except those of Professional Societies/organizations that appear to be of special interest to our faculty/students.

1996:

+Oct 2-4. Trimble '96 Surveying - Mapping Users Conference & Exposition, San Jose Conv. Ctr. Contact: 408-481-8465. Fax: 408-481-8488.

\*+Oct 7-9. Detection of Abandoned Landmines Conference: A Humanitarian Imperative Seeking a Technical Solution, Edinburgh, UK, The UK Institution of Electrical Engineers. Contact: Sheila Griffiths or <http://www.iee.org.uk/LSboard/Conf/program/mineprog.htm>

\*+Oct 27-Nov 1. Visualization, IEEE, San Francisco. Contact: 510-486-5093, Fax: 486-5548, nejohnton@lbl.gov

\*+Oct 28-29. 1996 Symposium on Volume Visualization, Livermore National Lab, San Francisco. Contact: Fax: 510-423-8704, crawfis@lbl.gov

+Nov 4-7. Eco-Infoma '96-Global Networks for Environmental Information, ERIM, Eco-Infoma Foundation, Epcot Science & Technology, USDA, NASA, US EPA, US Army COE, Lake Buena Vista, Florida. US Contact: 313-994-1200 ext. 3234. Europe contact: 49-921-552-245/155; fax 49-921-546-26.

+Nov 16-22. GIS/LIS '96 Annual Conference and Exposition. AAG, ACSM, AM/FM International, ASPRS, URISA, Denver, Colorado. Contact: GIS/LIS '96 301-493-0200; fax 301-493-8245

+Nov 19-22. Rs, GIS & GPS in China. Chinese Academy of Sciences, Beijing, China. Contact: Mr. Mi Zhaohui, 8610-5051582, Fax: 8610-5051582.

\*+Nov 20-22. First European Conference on Geostatistics for Environmental Applications, Technical Uni of Lisbon, Lisbon, Portugal. 303-425-5610, Fax: 303-425-5610.

\*+Dec 9-11. 1996 Texas GIS Forum, Austin, TX. Contact: 512-463-7314, Fax: 475-4759.

1997:

+Jan 26-30. Space Technology & Applications International Forum (STAIF-97). NASA et.al, Albuquerque, NM. Contact: Prof Mohamed S. El-Genk, Uni of New Mexico, (505) 277-5442, Fax: 277-2814, Email: mgenk@unm.edu

\*+Feb 9-14. Electronic Imaging: Science and Technology, IS&T and SPIE, San Jose, CA. Contact: 703-642-9090 Ext. 10.

\*+Mar 17-19. Fourth International Conference on Remote Sensing for Marine & Coastal Environments: Technology and Applications. ERIM, Orlando, FL. Contact: raeder@erim.org, Web: <http://www.erim.org/CONF/conf.html>

+Mar 21-27. AM/FM International Annual Conference, AM/FM International, San Antonio, Texas. Contact: Paula Delie 303-337-0513

\*+Mar 24-27. 2nd Int'l Symp - The Expansion of Remote Sensing Market, Assoc. Aeron & Astron of France, Paris, France. Contact: AAAF- Celine Douchez, 33(1) 47 23 58 11, Fax: 33 (1) 47 23 89 11

\*+Apr 1-5. Association of American Geographers Annual Mtg, AAG, Fort Worth, TX. Contact 202-234-1450, Fax: 234-2744, gaia@aag.org. Web: <http://www.aag.org>

+Apr 4-6. ASPRS/ACSM Annual Convention. ASPRS, ACSM, Seattle, Washington. Contact: 301-493-0200

\*+May 26-29. GIS AM/FM '97 and Geo-informations '97, Chinese Geographic Information Society, Taipei, Twiwan. Contact: jglay@ccms.ntu.edu.tw

+Jul 7-10. IGARSS '97. Cannes, France. Contact: 703-917-8655; fax 703-917-8656; [khazenie@chrpisis.gsfc.nasa.gov](mailto:khazenie@chrpisis.gsfc.nasa.gov)

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# LARS Newsletter

September 1996

## **JOHANNSEN ON SABBATICAL**

As you receive this Newsletter, my thoughts are thinking about the next 6 months when I am on sabbatical leave with Space Imaging Corp as a Visiting Research Scientist. I am looking forward to the "change of pace" and will send you my comments about that change in the next LARS Newsletter. My email will be monitored and forwarded to me as needed. (I decided that I need a "sabbatical" from the 40-50 messages/day that I have been receiving!)

## **TODD HELT AT EARTHSAT**

Todd Helt began an Applications Scientist, Environmental/GIS Services position on August 1 at Earth Satellite Corp, Rockville, MD. He is "working on a Landsat TM-based habitat classification for two watersheds in Northwest Colorado, and has been assisting with a TM-based landcover classification for the state of North Carolina. And trying to wrap up and package the thesis, of course! In short, I have been keeping very busy."

## **VISITING SCHOLARS**

Professor Jin-Il Kim, Department of Computer Engineering, Dong-Eui, University, Pusan, Korea and Professor Victor Haertel, Center for Remote Sensing and Meteorology, Federal University, Rio Grande do Sul, Brazil, arrived recently to spend a study period as visiting scholars at the School of Electrical & Computer Engineering. They are working in the Multispectral Image Processing Laboratory with Professor David Landgrebe serving as their host. Prof. Kim will be here for one year, and Professor Haertel for 6 months. Welcome to both Scholars!

## **THOSE LARSANS OF OLD...THEY KEEP SURFACING**

Dave Snyder, a LARS student employee and later Systems Analyst (1980-82), found us on the web and reported on his world today. He is Information Systems Manager for Electronic Data Systems (EDS), as part of their Utilities Services business unit. They provide total information solutions (systems development & support, integration, consulting, and operations) to thousands of companies around the world and have over 90,000 employees. Dave can be contacted at "DLS@atl.ema.eds.com".

Dave now lives in Atlanta, Georgia with his wife Karen and three kids (Nick, Stacey, and Shawn). They really enjoyed the Olympics in Atlanta this year (said not to believe all the negative media hype). Every year they return to central Indiana to "subject both sets of grandparents to their grandchildren". Nice to hear from you, Dave!

## **CONFERENCES/WORKSHOP DATES**

(\* = New listing)

Please note that we are not repeating conferences/ workshops mentioned in previous newsletters except those of Professional Societies/organizations that appear to be of special interest to our faculty/students.

1996:

- \*+Oct 2-4. ESRI European User Conference, ESRI, London, England. Contact: 01923-210-450; fax 01923-210-739; csmith@esriuk.com .
- +Oct 2-4. Trimble '96 Surveying - Mapping Users Conference & Exposition, San Jose Conv. Ctr. Contact: 408-481-8465. Fax: 408-481-8488.
- +Oct 7-9. Detection of Abandoned Landmines Conference: A Humanitarian Imperative Seeking a Technical Solution, Edinburgh, UK, The UK Institution of Electrical Engineers. Contact: Sheila Griffiths or <http://www.iee.org.uk/LSboard/Conf/program/mineprog.htm>
- +Oct 27-Nov 1. Visualization, IEEE, San Francisco. Contact: 510-486-5093, Fax: 486-5548, nejohnton@lbl.gov
- +Oct 28-29. 1996 Symposium on Volume Visualization, Livermore National Lab, San Francisco. Contact: Fax: 510-423-8704, crawfis@lbl.gov
- \*+Oct 28-31. Geological Society of America Annual Meeting, GSA, Denver, CO. Contact 303-447-2020, Fax: 447-0604; meetings@geosociety.org
- +Nov 4-7. Eco-Infoma '96-Global Networks for Environmental Information, ERIM, Eco-Infoma Foundation, Epcot Science & Technology, USDA, NASA, US EPA, US Army COE, Lake Buena Vista, Florida. US Contact: 313-994-1200 ext. 3234. Europe contact: 49-921-552-245/155; fax 49-921-546-26.
- \*+Nov 4-8. Second United Nations Regional Conference on space Technology for Sustainable Development in Africa, United Nations (Office for Outer Space Affairs), Government of the Republic of South Africa and the European space Agency (ESA), Pretoria, Republic of South Africa. Contact: 43-1-21345-5631; fax 43-1-21345-5830; hgeorge@unov.un or [www.un.or.at/OOSA\\_Kiosk/sched/sched.html](http://www.un.or.at/OOSA_Kiosk/sched/sched.html)
- +Nov 16-22. GIS/LIS '96 Annual Conference and Exposition. AAG, ACSM, AM/FM International, ASPRS, URISA, Denver, Colorado. Contact: GIS/LIS '96 301-493-0200; fax 301-493-8245
- \*+Nov 18. 6th Annual GIS in Illinois Conference, IL GIS Association, Dekalb, IL. Contact: 815-753-1906.
- \*+Nov 19-22. 4th Color Imaging Conference, Soc for Information Display, Scottsdale, Arizona. Contact 703-642-9090, info@imaging.org or [www.imaging.org](http://www.imaging.org)
- +Nov 19-22. RS, GIS & GPS in China. Chinese Academy of Sciences, Beijing, China. Contact: Mr. Mi Zhaohui, 8610-5051582, Fax: 8610-5051582.
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- +Dec 9-11. 1996 Texas GIS Forum, Austin, TX. Contact: 512-463-7314, Fax: 475-4759.
- \*+Dec 11-13, SoFor GIS '96, Univ. of Georgia, Athens, Georgia. Contact: fax 706-542-6645.

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- +Apr 4-6. ASPRS/ACSM Annual Convention. ASPRS, ACSM, Seattle, Washington. Contact: 301-493-0200
- \*+Apr 7-10. Geospatial Information Age--1997 ACSM/ASPRS Annual Convention and Exhibition, Resource Technology Institute Annual Conference, Auto Carto 13, Seattle, WA. 301-493-0200; lhachero@aol.com; or autoc13@u.washington.edu; <http://weber.u.washington.edu/~autoc13/>
- \*+Apr 29-1 May, ASPRS 16th Biennial Workshop on Color Photography and Videography in Resource Assessment, Weslaco, TX. Gerald Anderson, 210-969-4834, gl-anderson@tamu.edu; <http://rsru2.tamu.edu/rsru/workshop/workshop.htm>
- +May 26-29. GIS AM/FM '97 and Geo-informations '97, Chinese Geographic Information Society, Taipei, Twiwan. Contact: jglay@ccms.ntu.edu.tw
- \*+July 7-10. Third International Airborne Remote Sensing Conference and Exhibition, ERIM, Copenhagen, Denmark. Contact: 313-994-1200, ext. 3234, Fax: 994-51123. wallman@erim.org Deadline for Call for Papers: December 13, 1996.
- +Jul 7-10. IGARSS '97. Cannes, France. Contact: 703-917-8655; fax 703-917-8656; khazenie@chrpisis.gsfc.nasa.gov
- \*+July 7-11. Seventeenth Annual ESRI User Conference. San Diego, CA. Contact: [www.esri.com](http://www.esri.com); uc97@esri.com; 909-793-2853 ext. 1-1363
- \*+Sept 22-26, 46th Photogrammetric Week, Zeiss, Stuttgart, Germany. Contact: 49-711-121-3201; fax 49-711-121-3297.

--Chris J. Johannsen, Director  
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# LARS Newsletter

October/November 1996

## ENGEL APPOINTED ACTING DIRECTOR

Dr. Bernie Engel, Professor of Agricultural & Biological Engineering has been appointed Acting Director of LARS while Chris Johannsen is on sabbatical leave. Engel's research interests are Agricultural Expert Systems, Artificial Intelligence, Simulation of Agricultural Systems, Natural Resource Conservation and Management and Geographical Information Systems.

## SABBATICAL REACTIONS

Life is interesting in a new location from a personal and professional standpoint. We live in Boulder in a condo (owner is in Arizona) with an excellent view of the Rocky Mountains. I drive 25 miles to Thornton to work each day which is a lot different from 2.5 miles that I drove in West Lafayette! I am a Visiting Chief Scientist with Space Imaging Inc. (SII as they call themselves). SII will be launching a satellite in 1997 with 1 m panchromatic and 4 m digital data and has recently purchased EOSAT.

My efforts are to look for researchable topics in agriculture and natural resources - brings to mind the "like a kid in a candy store". The list of researchable topics is growing. There are currently three graduate students who are interning at SII: Judith Berglund, Geological Sciences, University of Texas at Austin; Doug Henderson, Geological Sciences, University of Texas at Austin and Brian Coffey, Forestry, Colorado State University (Major Professor: Dr. Roger Hoffer).

I admit to being concerned whether we are providing the proper preparation of our Graduate Students for positions in industry. We do a good job of preparing people to do research and work in an academic environment. Industry is different. People ask questions of me and wait until I give them an answer. At the University, I usually talk to other faculty, challenge graduate students or even a class with the question, check the library and reference notes and maybe a week later provide the answer. We tried very hard to have the "right" answer the first time. In industry, there is not time to wait on the answer. Your worth is measured as being acceptable if you are right more times than you are wrong. Industrial internships are about the only way for students to get the flavor of what is expected of them with industry. I will be more aware of this when I teach my classes in the future.

## SPACE IMAGING PURCHASES EOSAT

Space Imaging and Lockheed Martin announced on November 5 that they have reached an agreement concerning the purchase of EOSAT, a Lockheed Martin company, by Space Imaging. Under the terms of the agreement, Space Imaging will acquire all of the assets of EOSAT through a new subsidiary - Space Imaging, the Earth Observation Satellite Co. (SII/EOSAT), which will maintain the existing distribution agreements EOSAT has with its global satellite imagery suppliers. These include agreements to distribute Landsat imagery as well as exclusive agreements with the ANTRIX Corp. Ltd. of India, the

commercial marketing arm of the Indian Space Research Organization, to distribute its Indian Remote Sensing (IRS) satellite imagery - the best of which provides 5.8-meter resolution imagery today. (Resolution refers to the size of the smallest object that can be seen in an image.)

## **NEWS FROM WORSTELL AT EROS**

Bruce Worstell, MS Agronomy, has returned to the EROS Data Center (EDC) for a second student internship. He is a member of a group at EDC studying the impact of erosion and sedimentation on the global carbon balance. The overall project consists of an interdisciplinary team of scientists led by Dr. Eric Sundquist, USGS Water Resources Division. The EROS Data Center group, led by Dr. Norman Bliss, will focus on the characterization of watersheds in the Mississippi basin using soil, climate, land cover, and terrain information and link these data with previously collected sedimentation data. The goal of this research is to investigate the extent of carbon sequestration from erosion and sedimentation.

## **WORKSHOPS ATTENDED**

Marion Baumgardner attended the National Satellite Land Remote Sensing Data Archive Workshop on November 11-13 at the EROS Data Center, Sioux Falls, SD.

Larry Biehl and Chris J. Johannsen attended the Remote Sensing Science for Agriculture in the 21st Century Workshop, University of California, Davis, CA, October 23-25. Biehl chaired a Discussion Session on "Data Analysis and Priority Science Issues" and Johannsen presented a paper on "Information Requirements for Agriculture: The Next Decade". Other LARSians in attendance were Marv Bauer, (1970 to 1983) University of Minnesota, St. Paul, MN; Jon Ranson, (1980 to 1986), Goddard Space Flight Center, Greenbelt, MD; Craig Daughtry, (1976 to 1987), Agricultural Research Service, Beltsville, MD; John Grace, (Ph.D. 1992), Resource21, Gulfport, MS; Roger Hoffer (1966 to 1988), Colorado State University, Ft. Collins, CO; and Vern Vanderbilt (1969 to 1985), NASA Ames Research Center, Moffett Field, CA. The group met at a LARS Luncheon along with Jim Irons (Penn State University) who completed his Ph.D. with Dick Weismiller. John Ahlrichs, (MS, 1978) was also in attendance but could not make the luncheon.

## **PAPERS PRESENTED**

At the American Society of Agronomy Meetings, Indianapolis (Nov 4-7, 1996):

- E. Micheli, B. Madari, M. F. Baumgardner, T. Helt "Incorporating a Global Perspective into the Agronomy Curriculum"
- I. Bayramin, B. Worstell, M.F. Baumgardner. "Integrating AVHRR Data and Digital Elevation Model for Small Scale Soil Mapping"
- E.O Velipasaoglu, I. Bayramin, M.F. Baumgardner, O.K. Ersoy. "Neural Network Approach for Small Scale Soil Mapping"
- C.W. Ahn, M.F. Baumgardner, L.L. Biehl. "Soil Mapping with the Aid of Hyperspectral Imagery, Geostatistics, and Fuzzy Clustering Analyses"
- B.B. Worstell, M.F. Baumgardner, N.B. Bliss. "Integrating Soil and DEM Data for Developing a Small-Scale Soil and Terrain (SOTER) Database"

E. Dobos, T. Helt, E. Micheli, M.F. Baumgardner, C. J. Johannsen. "A Method for Remote Sensing, Soil and Terrain Data Integration"

Baumgardner and Johannsen were also co-authors on other papers relating to Soil Science History.

Jack Estes, University of California - Santa Barbara and Gary Johnson, Consortium for International Earth Sciences Information Network (CIESIN) presented papers at a Special Symposium on Decision Support Systems for feeding 10-15 Billion People in the 21st Century.

## **AWARDS**

Professor Marion F. Baumgardner was presented the International Soil Science Award, Soil Science Society of America on November 5, 1996 for his outstanding work in research and teaching relating to remote sensing, soil information systems and development of international programs including the Godollo Agricultural/Purdue University Partnership. Congratulations Baumy on a well deserved award!

## **CONFERENCES/WORKSHOP DATES**

(\* = New listing)

Please note that we are not repeating conferences/workshops mentioned in previous newsletters except those of Professional Societies/organizations that appear to be of special interest to our faculty/students.

1996:

+Dec 2. Your Business & Satellite Imagery, Orlando, FL, SPOT Image Corp., (703) 715-3100, Fax: (303) 648-1813.

\*+Dec 2. Your Business & Satellite Imagery, San Jose, CA, SPOT Image Corp., (703) 715-3100, Fax: (303) 648-1813.

\*+Dec 3. Your Business & Satellite Imagery, San Francisco, CA, SPOT Image Corp., (703) 715-3100, Fax: (303) 648-1813.

\*+Dec 3. Your Business & Satellite Imagery, Miami, FL, SPOT Image Corp., (703) 715-3100, Fax: (303) 648-1813.

\*+Dec 4. Your Business & Satellite Imagery, Portland, OR, SPOT Image Corp., (703) 715-3100, Fax: (303) 648-1813.

+Dec 11-13, SoFor GIS '96, Univ. of Georgia, Athens, Georgia. Contact: fax 706-542-6645.

1997:

\*+Jan 14. Your Business & Satellite Imagery, St. Louis, MO, SPOT Image Corp., (703) 715-3100, Fax: (303) 648-1813.

\*+Jan 24. Your Business & Satellite Imagery, Boston, MA, SPOT Image Corp., (703) 715-3100, Fax: (303) 648-1813.

+Jan 26-30. Space Technology & Applications International Forum (STAIF-97). NASA et.al, Albuquerque, NM. Contact: Prof Mohamed S. El-Genk, Uni of New Mexico, (505) 277-5442, Fax: 277-2814, Email: mgenk@unm.edu

\*+Jan 27-31. InterCarto 3: GIS for Environmentally Sustainable Development Conference and Exhibition, Novosibirsk, Russia. 7 3832 20 57 22, Fax: 7 3832 20 56 74

\*+Jan 27. Your Business & Satellite Imagery, Minneapolis, MN, SPOT Image Corp., (703) 715-3100, Fax: (303) 648-1813

\*+Feb 3. Your Business & Satellite Imagery, Austin, TX, SPOT Image Corp., (703) 715-3100, Fax: (303) 648-1813.

\*+Feb 5. Your Business & Satellite Imagery, Phoenix, AZ, SPOT Image Corp., (703) 715-3100, Fax: (303) 648-1813.

\*+Feb 6-9 "Camera and Digital Photogrammetry Seminar, Aspen, CO, Carl Zeiss. (303) 799-6838. anke@czi.com

\*+Feb 7. Your Business & Satellite Imagery, Denver, CO, SPOT Image Corp., (703) 715-3100, Fax: (303) 648-1813.

+Feb 9-14. Electronic Imaging: Science and Technology, IS&T and SPIE, San Jose, CA. Contact: 703-642-9090 Ext. 10.

\*+Feb 17. "Integrating Spatial Information Technologies for Tomorrow, Vancouver, Canada, GIS World. (970) 223-4848, Fax: 223-5700; evebt\_ingo@gisworld.com

+Mar 17-19. Fourth International Conference on Remote Sensing for Marine & Coastal Environments: Technology and Applications. ERIM, Orlando, FL. Contact: raeder@erim.org, Web: <http://www.erim.org/CONF/conf.html>

+Mar 21-27. AM/FM International Annual Conference, AM/FM International, San Antonio, Texas. Contact: Paula Delie 303-337-0513

+Apr 1-5. Association of American Geographers Annual Mtg., AAG, Fort Worth, TX. Contact 202-234-1450, Fax: 234-2744, gaia@aag.org. Web: <http://www.aag.org>

+Apr 4-6. ASPRS/ACSM Annual Convention. ASPRS, ACSM, Seattle, Washington. Contact: 301-493-0200

+Apr 7-10. Geospatial Information Age--1997 ACSM/ASPRS Annual Convention and Exhibition, Resource Technology Institute Annual Conference, Auto Carto 13, Seattle, WA. 301-493-0200; lhachero@aol.com; or autoc13@u.washington.edu; <http://weber.u.washington.edu/~autoc13/>

+Apr 29-1 May, ASPRS 16th Biennial Workshop on Color Photography and Videography in Resource Assessment, Weslaco, TX. Gerald Anderson, 210-969-4834, gl-anderson@tamu.edu; <http://rsru2.tamu.edu/rsru/workshop/workshop.htm>

+May 26-29. GIS AM/FM '97 and Geo-informations '97, Chinese Geographic Information Society, Taipei, Taiwan. Contact: Web:<http://www.jglay@ccms.ntu.edu.tw>

\*+June 23-27. 18th ICA/ACI intn'l Cartographic Conference, Stockholm, Sweden. Fax: 46 26 65 31 60 bengtr@lmv.lm.se Web: <http://www.lm.se/icc97.html>

+July 7-10. Third International Airborne Remote Sensing Conference and Exhibition, ERIM, Copenhagen, Denmark. Contact: 313-994-1200, ext. 3234, Fax: 994-51123. wallman@erim.org. Deadline for Call for Papers: December 13, 1996.

+Jul 7-10. IGARSS '97. Cannes, France. Contact: 703-917-8655; fax 703-917-8656; khazenie@chrpisis.gsfc.nasa.gov

+July 7-11. Seventeenth Annual ESRI User Conference. San Diego, CA. Contact: [www.esri.com](http://www.esri.com); uc97@esri.com; 909-793-2853 ext. 1-1363

\*+Sep 8-10. First European Conference on Precision Agriculture, Coventry, United Kingdom. Contact: SCI Conference Department, 14/15 Belgrave Square, London SW1 8PS, United Kingdom, 144 171 235 3681, fax 144 171 235 7743, e-mail conferences@chemind.demon.co.uk, Internet <http://www.sri.bbsrc.ac.uk/>.

+Sept 22-26, 46th Photogrammetric Week, Zeiss, Stuttgart, Germany. Contact: 49-711-121-3201; fax 49-711-121-3297.

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\*Currently Visiting Chief Scientist, Space Imaging Inc., Thornton, CO