

June 18, 1996

# PECORA 13 SYMPOSIUM

## Final Agenda (6/18/96)

### Monday, August 19, 1996

7:00 - 9:00 pm Reception and registration (*to be arranged by Ron Beck*)

### Tuesday, August 20, 1996

7:30 a.m. - 5:00 pm Registration

8:30 - 8:40 am Introductory remarks - Ronald E. Beck, USGS/EROS Data Center, Sioux Falls, SD; Chair, Pecora 13 Symposium

8:40 - 8:45 am Welcome to Sioux Falls and to the Pecora 13 Symposium - Donald T. Lauer, Chief, USGS/EROS Data Center, Sioux Falls, SD and local dignitary (*to be arranged by Ron Beck*)

8:45 - 9:35 am **Keynote Address**  
B. L. Turner II, Director  
George Perkins Marsh Institute,  
Clark University, Worcester, MA  
*Frontiers of Exploration: Remote Sensing and Social Science Research*

9:35 - 9:45 am Discussion

9:45 - 10:00 am **Break**

### PLENARY SESSION 1

Chair: Jack Estes, University of California - Santa Barbara, Santa Barbara, CA

10:00 - 10:30 am Richard A. Houghton, The Woods Hole Research Center, Woods Hole, MA  
*Data Requirements for Estimating Emissions of Carbon from Terrestrial Ecosystems*

- 10:30 - 11:00 am Sandra Brown, U.S. Environmental Protection Agency, Corvallis, OR and University of Illinois, Urbana-Champaign, IL  
*Human Effects on Tropical Forests: What Must Be Remotely-Sensed*
- 11:00 - 11:30 am Susan L. Cutter, University of South Carolina, Columbia, SC  
*Emergency Response and Hazards Mitigation: Data Needs and Research Opportunities*
- 11:30 - 12:00 pm Norman J. Rosenberg, Battelle Pacific Northwest Laboratories, Washington, D.C.  
*Sensitivity of Agriculture and Water Resources in North America to Interannual Climatic Variability: Where and What To Be Looking For*
- 12:00 - 1:30 pm **Luncheon**  
Panel discussion featuring speakers from morning sessions and audience interaction
- Moderator: Jack Estes, University of California-Santa Barbara, Santa Barbara, CA

### CONCURRENT SESSIONS

1:30 - 3:00 pm

#### Session A-1. Using AVHRR Data for Land Characterization

Chair: Thomas R. Loveland, USGS/EROS Data Center, Sioux Falls, SD

Thomas R. Loveland, D. Ohlen., J. Brown, B. Reed and Z. Zhu, EROS Data Center, Sioux Falls, SD, and J. Merchant and L. Yang, University of Nebraska-Lincoln, Lincoln, NE  
*Western Hemisphere Land Cover: Progress Toward A Global Land Cover Characteristics Data Base*

*TBA* (Tom Loveland is working to fill this cancellation)

Louis T. Steyaert, USGS/Goddard Space Flight Center, Greenbelt, MD and Thomas R. Loveland, USGS/EROS Data Center, Sioux Falls, SD  
*Applications of the USGS 1-km AVHRR Land Cover Characteristics Data Base in Land Process Research*

### **Session A-2. Remote Sensing Applications in Forest Assessment**

Chair: Stephen J. Walsh, University of North Carolina, Chapel Hill, NC

Roberto Bonifaz-Alfonzo, Universidad Nacional Autonoma de Mexico, Ciudad Universitaria, Mexico

*The NALC - Mexico Pilot Project*

Kass Green, Pacific Meridian Resources, Emeryville, CA and Brian Cosentino, Washington Department of Fish and Wildlife, Olympia, WA

*Using Satellite Imagery to Detect and Monitor Forest Change*

William M. Baugh, Lee F. Klinger and Alex B. Guenther, National Center for Atmospheric Research, Boulder, CO

*Identification of Oak Trees with Landsat TM and Spot Data for Biogenic Isoprene Emission Modeling in Tennessee, USA*

### **Session A-3. Land Degradation and Conservation**

Chair: Marion F. Baumgardner, Purdue University, West Lafayette, IN

Bernard Lacaze, CNRS/Centre d'Ecologia Fonctionnelle et Evolutive, Montpellier, France  
*The DeMon Project: An Integrated Approach to Monitor Vegetation Abundance and Degradation Processes in the Mediterranean Basin*

Kevin P. Price and Edward A. Martinko, University of Kansas, Lawrence, KS and Donald C. Rundquist, University of Nebraska-Lincoln, Lincoln, NE  
*Relationships Between Multitemporal Spectroradiometer Measurements and Biophysical Characteristics of a Prairie Under Different Land Management Practices*

C. Ahn, M.F. Baumgardner and L.L. Biehl, Purdue University, West Lafayette, IN  
*Performance of Simulated TM, AVIRIS, and Adjusted AVIRIS Data for Classifying Crop Residue*

### **Session A-4. The African Environment**

Chair: Ashbindu Singh, United Nations Environment Programme, New York, NY

William J. Gribb, University of Wyoming, Laramie, WY  
*The Use of AVHRR and GIS Techniques for Identifying Agroecology Potential In Zimbabwe*

✓ Gray Tappan and Eric Wood, EROS Data Center, Sioux Falls, SD  
*Long-Term Monitoring of Changes in Senegal's Natural Resources*

✓ John Lewis, Eric C. Wood and Gray Tappan, Hughes STX Corporation, EROS Data Center, Sioux Falls, SD  
*The Development of a Spatial Markov Chain Land Use Change Model for Southern Senegal*

### **Session A-5. Image Analysis Methods I**

Chair: Bruce K. Quirk, USGS/EROS Data Center, Sioux Falls, SD

Gary M. Pereira, Lockheed Martin Corporation, Fort Washington, PA  
*Structural Edge Density Land Use Classification in Thematic Mapper Images*

Matthew R. Bobo, University of Wisconsin-Madison, Madison, WI  
*Incorporation of Ancillary Data into Multispectral Image Classifications using a Modified Bayesian Decision Rule*

✓ J. E. Vogelmann, P.M. Seevers and M. Oimoen, Hughes STX Corporation, EROS Data Center, Sioux Falls, SD  
*Effects of Selected Variables for Discriminating Land Cover: Multiseasonal Data, Different Clustering Algorithms, and Varying Numbers of Clusters*

### **Session A-6. Urban Land Use Mapping**

Chair: Leonard Gaydos, USGS/Ames Research Center, Moffett Field, CA

Marvin E. Bauer, Carol A. Sersland and Steven J. Steinberg, University of Minnesota, St. Paul, MN  
*Land Cover Classification of the Twin Cities Metropolitan Area with Landsat TM Data*

Clyde H. Spencer, City of Scottsdale, Scottsdale, AZ and Douglas A. Howard, Arizona State University, Tempe, AZ  
*Integration of Remote Sensing and GIS for Urban Storm Water Management*

Keith C. Clarke and Stacy Hoppen, Hunter College/CUNY, New York, NY  
*Cellular Automaton Modeling for Predicting Human Induced Land Transformations*

3:00 - 3:30 pm      **Break**

3:30 - 5:00 pm **CONCURRENT SESSIONS****Session B-1. Landsat-7**

Chair: Michael Mignono, National Oceanic and Atmospheric Administration, Washington, D.C.

A. Obenschain and D. Williams, K. Dolan and J. Andary, NASA/Goddard Space Flight Center, Greenbelt, MD

*Landsat 7: Today and Tomorrow*

Darrel L. Williams, James R. Irons and Stephen G. Ungar, NASA/Goddard Space Flight Center, Greenbelt, MD

*Landsat 7 Follow-on Mission Concepts and the New Millennium Program Earth Observer 1 Mission*

Samuel N. Goward, Ralph Dubayah and Jonathan Haskett, University of Maryland, College Park, MD

*Terrestrial Vegetation Seasonality in the Landsat-7 Long-Term Acquisition Plan*

**Session B-2. Human Conflict - Impacts and Resolution**

Chair: Kevin Dalsted, South Dakota State University, Brookings, SD

✓ T.W. Crawford, Jr., K.J. Dalsted, R.W. Lietzow, F.C. Westin, and J.P. Verdin, Hughes STX Corporation and U.S. Geological Survey, Sioux Falls, SD

*Effects of War and Peace on Cropland Use in Mozambique*

D. Brian Gordon, Direct Information Access Corporation, Montclair, VA

*The Moderating Effects of Higher Resolution Civil Satellite Imaging on International Relations*

Ray A. Williamson, George Washington University, Washington, D.C.

*Earth Science Research and the Challenges of Environmental Security*

**Session B-3. Remote Sensing of the Atmosphere**

Chair:

Chip Trepte, Science Applications International Corporation, Hampton, VA, M.P. McCormick and K. Severance, NASA Langley Research Center, Hampton, VA

*An Overview of LITE*

S.L. Jain and B. Arya, and S. Sharma, National Physical Laboratory, New Delhi, India  
*Monitoring of Ethylene Over Delhi Using CO<sub>2</sub> DIAL*

Fred M. Vukovich, Science Applications International Corporation, Raleigh, NC and David  
 Toll NASA/Goddard Space Flight Center, Greenbelt, MD  
*The Surface Heat and Ground Cover Relationships Useful for Climate Models*

#### **Session B-4. Multisensor Integration and Synergism**

✓ Chair: Limin Yang, University of Nebraska-Lincoln, Lincoln, NE and EROS Data Center,  
 Sioux Falls, SD

Alan J. Stern, Science Systems and Applications, Inc., Lanham, MD, Paul Doraiswamy  
 USDA/RSML, Beltsville, MD, and Paul W. Cook USDA/NASS, Fairfax, VA  
*Categorization of Spring Wheat in an AVHRR Image by Signature Extension of a TM  
 Categorized Image*

Franz Mora and James W. Merchant, University of Nebraska-Lincoln, Lincoln, NE  
*Calibration of an AVHRR Seasonal Land Cover Classification with Landsat TM Data*

Nathan P. Jennings, University of Wisconsin, Madison, WI  
*An Investigation of Data Integration and Texture Analysis Using ERS and Landsat TM  
 Data for Land Cover Assessment*

#### **Session B-5. Coping with Risks and Hazards**

Chair: Donald Garafalo, U.S. Environmental Protection Agency, Washington, D.C.

Byron Wood, Louisa Beck, Sheri Dister, Brad Lobitz, Johnson Controls World Services,  
 Inc., NASA/Ames Research Center, Moffett Field, CA  
*Remote Sensing of Emerging and Re-Emerging Infectious Disease*

Tsutomu Yamanokuchi, Asako Inanaga, Sotaro Tanaka, and Makoto Ono, Remote Sensing  
 Technology Center of Japan, Tokyo, Japan  
*Examination of JERS-1/SAR Interferograms Concerning the Great Hanshin  
 Earthquake*

William G. Kepner, U.S. Environmental Protection Agency, Las Vegas, NV and Kurt H.  
 Ritters, Tennessee Valley Authority, Norris, TN  
*A Landscape Approach For Assessing Ecological Risk in a Southwestern Watershed -  
 San Pedro River Case Study*

**Session B-6. Remote Sensing of Urban Land Use**

Chair:

Yeqiao Wang, The University of Illinois at Chicago, Chicago, IL  
*Urban-Suburban Land Cover Characterization and Change Detection Modeling*

Charles C. Watson, Jr., Watson Technical Consulting, Rincon, GA  
*Using GIS and Historical Satellite Imagery to Analyze Urban Ecosystems and Policy*

Virginia Brown, Rowan College, Glassboro, NJ, John Hasse, Rutgers University, New Brunswick, NJ and Andrei Mudrievsky, Rowan College, Glassboro, NJ  
*Mapping Attitudes Toward Suburban Sprawl Over Prime Farmland*

5:15 - 7:30 pm **POSTER SESSION and SOCIAL (Cash bar)**

Chair: Michael E. Madigan, Hughes STX, EROS Data Center, Sioux Falls, SD

Wednesday, August 21, 1996

8:30 - 8:40 am Introductory remarks - Ronald E. Beck, USGS/EROS Data Center, Sioux Falls, SD

**PLENARY SESSION 2**

Chair: Gary E. Johnson, Consortium for International Earth Science Information Network (CIESIN), University Center, MI

8:40 - 9:20 am Thomas J. Baerwald, National Science Foundation, Washington, D.C.  
*Observational, Monitoring and Other Needs for Research on the Human Contributions and Responses to Global Change*

9:20 - 10:00 am Ghassem R. Asrar, National Aeronautics and Space Administration, Washington, D.C.  
*Mission to Planet Earth: Past Progress and Future Prospects*

10:00 - 10:20 am **Break**

- 10:20 - 11:00 am William E. Stoney, Mitretek Systems Corporation, Greenbelt, MD  
*Watching the Globe in the Year 2000 - The World Under a Microscope*
- 11:00 - 11:40 am Chris J. Johanssen, Purdue University, West Lafayette, IN  
*Precision Farming - A New Application for Remote Sensing*
- 11:40 am - 12:00 pm Discussion with audience.
- 12:00 - 1:30 pm **Lunch** - on your own
- 1:30 - 3:00 pm **CONCURRENT SESSIONS**

**Session C-1. Data Archive and Access I**

Organizer and chair: Saud A. Amer, Applied Research Corporation, EROS Data Center, Sioux Falls, SD

Alexander D. Mirzaoff, Eastman Kodak Company, Rochester, NY  
*Large Scale Distributed Archive Systems for Remote Sensing Imagery*

Timothy Gubbels and Jeff Masek, HITS, Upper Marlboro, MD  
*An Overview of ECS Collaborative Prototyping*

Siri Jodha Singh Khalsa, Applied Research Corporation, Upper Marlboro, MD  
*Search and Access of Earth Science Data in a Heterogeneous Environment: Data Systems Architecture for Interoperability*

**Session C-2. Environmental Perspectives and Famine Early Warning Systems (FEWS) I - A session honoring Donald Moore**

Organizer and Chair - John Lewis, Hughes STX Corporation, EROS Data Center, Sioux Falls, SD

C. Andrew Nadeau, FAO, Rome, Italy  
*GEWS and Early Warning Systems at FAO*

Alan Herman and Jamie Kousky, NOAA/Climate Prediction Center, Camp Springs, MD  
*African Climate Data and Graphics Available for USAID/FEWS*

Phil Arkin, NOAA/Climate Prediction Center, Camp Springs, MD  
*Rainfall Estimation from Satellites*

Compton J. Tucker and S. Los, NASA/Goddard Space Flight Center, Greenbelt, MD  
*African Famine Early Warning Using NOAA Advanced Very High Resolution Radiometer Satellite Data*

### **Session C-3. Large Area Land Characterization - New Approaches**

Chair: Louis T. Steyaert, USGS/Goddard Space Flight Center, Greenbelt, MD

Endre Dobos, Godollo University of Agricultural Science, Hungary and Todd F. Helt, Purdue University, West Lafayette, IN, Erika Csakine Micheli, Godollo University of Agricultural Science, Hungary and Marion F. Baumgardner and Chris J. Johannsen, Purdue University, West Lafayette, IN

*The Role of AVHRR and Digital Terrain Data in Assessing Global Soils Resources*

Richard C. Cicone, Jeffrey A. Olsenholler, Consortium for International Earth Science Information Network, University Center, MI and Norman Roller, Environmental Research Institute of Michigan, Ann Arbor, MI

*Development of Orthogonal Annual Biomass Indicators in Eastern Asia*

Josef M. Kellndorfer, M. Craig Dobson, Fawwaz T. Ulaby, The University of Michigan Ann Arbor, MI

*A Multi-Ecoregion Classifier Based on Existing Orbital Imaging Radar*

### **Session C-4. Future of Remote Sensing from Space I**

Organizer and Chair: Thomas M. Holm, USGS/EROS Data Center, Sioux Falls, SD

Speakers TBA

### **Session C-5. Image Analysis Methods II**

Jesslyn F. Brown, Hughes STX Corporation, EROS Data Center, Sioux Falls, SD

Maria P. Canton, Julio Sanchez, William Perrizo, Ronald Vetter, Zhili Zhang, and Shariful Islam, North Dakota State University, Fargo, ND

*A C++ Graphics Programming Toolkit for Developing Remote Sensing Applications*

John Walkey, University of Wisconsin, Madison, WI

*An Interactive Approach to Change Detection Using a Graphically-Defined Transformation*

Jesslyn F. Brown, Bradley C. Reed and Laura L. Huewe, Hughes STX Corporation, EROS Data Center, Sioux Falls, SD

*An Advanced Strategy for Multi-Source Analysis and Visualization in Land Cover Characterization*

**Session C-6. Land Use Change and Human Settlement**

Chair: Kevin P. Gallo, National Oceanic and Atmospheric Administration, Asheville, NC

Gerald C. Nelson, University of Illinois, Urbana-Champaign, IL and Daniel Hellerstein, USDA/Economic Research Service, Washington, D.C.

*Deforestation in Central Mexico: Satellite Images as Data in Economic Models of Land Use*

TBA (paper was cancelled)

Stephen J. Walsh, Ronald R. Rindfuss, Barbara Entwisle, Tom P. Evans, and William F. Welsh, University of North Carolina, Chapel Hill, NC

*Population and Environmental Characteristics Associated with Village Boundaries and Landuse/Landcover Patterns in Nang Rong District, Thailand*

3:00 - 3:30 pm **Break**

3:30 - 5:00 pm **CONCURRENT SESSIONS**

**Session D-1. Data Archive and Access II**

Organizer and chair: Saud A. Amer, Applied Research Corporation, EROS Data Center, Sioux Falls, SD

✓ Jay W. Feuquay, Hughes STX Corporation, EROS Data Center, Sioux Falls, SD  
TBA

Robert H. Bourdeau, S. Kumar, S.A. Lauer, C.D. Linville, and P. Patnaik, Consortium for International Earth Science Information Network, University Center, MI  
*Hypertext Data and Information Services for Integrated Assessment Models of Global Climate Change*

Edwin Sheffner, Johnson Controls World Services, NASA/Ames Research Center, Moffett Field, CA and He Changchui, United Nations Economic and Social Commission for Asia and the Pacific, Bangkok, Thailand  
*An Earth Space Information Network for the Asia Pacific Region*

**Session D-2. Environmental Perspectives and Famine Early Warning Systems (FEWS) II - A session honoring Donald Moore**

Organizer and Chair - John Lewis, Hughes STX Corporation, EROS Data Center, Sioux Falls, SD

Kevin Dalsted and Fred Westin, South Dakota State University, Brookings, SD  
*Crop Use Intensity (CUI) Mapping in Africa Using Satellite Imagery*

J. Lewis and B. Reed, Hughes STX Corporation, EROS Data Center, Sioux Falls, SD  
*Calculation of Seasonal Indicators for Africa Using NDVI*

V. French, FEWS, Arlington, VA  
*Using Remote Sensing for Famine Early Warning*

One other paper *TBA* (see John Lewis)

**Session D-3. Assessing Vegetation Condition**

Chair: Marlen D. Eve, University of Nebraska-Lincoln, Lincoln, NE

Larry L. Tieszen, Augustana College, Sioux Falls, SD and David Schimel, National Center for Atmospheric Research, Boulder, CO  
*Great Plains Grassland Land Cover Performance: The Role of C3 and C4 Grasses and Redistributions based on GCM Simulations of 2xCO2 Climate*

Mark E. Jakubauskas, University of Oklahoma, Norman, OK, Diane M. Debinski, Iowa State University, Ames, IA, Kelly Kindscher, University of Kansas, Lawrence, KS and Marco Micozzi, University of Oklahoma, Norman, OK  
*Assessing Phenological Variability in Montane Meadows from Satellite Imagery*

Robert E. Burgan and Roberta A. Hartford, U.S. Forest Service, Missoula, MT and Jeffery C. Eidenshink, USGS/EROS Data Center, Sioux Falls, SD  
*Using NDVI to Assess Departure from Average Greenness and its Relation to Fire Risk*

**Session D-4. Future of Remote Sensing from Space II**

Organizer and chair: Thomas Holm, USGS/EROS Data Center, Sioux Falls, SD

Speakers *TBA*

**Session D-5. Legal, Policy and Education Issues**

Chair: Denice M. Shaw, U.S. Environmental Protection Agency, Research Triangle Park, NC

E. Terrence Slonecker, U.S. Environmental Protection Agency, Warrenton, VA and Denice M. Shaw, U.S. Environmental Protection Agency, Research Triangle Park, NC  
*Emerging Legal Issues in Advanced Remote Sensing Technology*

Joann Irene Gabrynowicz, University of North Dakota, Grand Forks, ND  
*TBA*

Rajeev Gowda and Robin Magelky, University of Oklahoma, Norman, OK  
*Remote Sensing, Public Education and Climate Change: Challenges and Recommendations*

**Session D-6. Monitoring Urbanization and Urban Climate by Satellite**

Organizer and chair: Toby Carlson , Pennsylvania State University, University Park, PA

Dale A. Quattrochi, NASA/Global Hydrology and Climate Center, Marshall Space Flight Center, AL  
*Cities as Urban Ecosystems: A Remote Sensing Perspective*

Toby N. Carlson, Pennsylvania State University, University Park, PA and Timothy W. Owen, NOAA/National Climate Data Center, Asheville, NC  
*Monitoring Urbanization by Satellite Using Governing Surface Parameters*

Samuel N. Goward, University of Maryland, College Park, MD  
*The Contribution of Remote Sensing to Urban Heat Island Studies*

Kevin P. Gallo and Timothy W. Owen, NOAA/NESDIS, National Climate Data Center, Asheville, NC  
*Assessment of Urban Heat Islands: A Satellite Perspective*

6:00 pm Mixer (cash bar)

7:00 - 9:00 pm **Pecora Banquet and Awards Program**

Host- Dallas Peck, U.S. Geological Survey, Reston, VA  
Speaker - *TBA*

Thursday, August 22, 1996

8:30 - 8:40 am Introductory remarks

**PLENARY SESSION 3**  
Promoting Progress in Development of Information

Chair: Donald T. Lauer, Chief, USGS/EROS Data Center, Sioux Falls, SD

- 8:40 - 9:30 am      **PECORA MEMORIAL ADDRESS**  
Francis Bretherton, University of Wisconsin, Madison, WI  
*Earth System Science - Where Are We?*
- 9:30 - 10:00 am      George J. Komar, National Aeronautics and Space Administration,  
Washington, D.C., Michael Mignono, NOAA/National  
Environmental Satellite, Data and Information Service, Washington, D.C.,  
Edwin Sheffner, Johnson Controls World Services, NASA/Ames Research  
Center, Moffett Field, CA, and R.J. Thompson, USGS/EROS Data Center,  
Sioux Falls, SD  
*The Landsat Program: Toward Landsat-7 and Beyond*
- 10:00 - 10:30 am      P. Krishna Rao, NOAA/NESDIS, Camp Springs, MD
- 10:30 - 11:00 am      **CONCLUDING ADDRESS**  
Roberta Balstad Miller, Consortium for International Earth Science  
Information Network (CIESIN), University Center, MI  
*Human Interactions in the Environment: Future Directions, Future  
Needs*
- 11:00 - 11:30 am      **Panel - An Agenda for Progress**
- 11:30 am              **ADJOURN**