

# FOREWORD

IT IS A PLEASURE to bring to you this special issue of *Photogrammetric Engineering & Remote Sensing* which is dedicated to selected papers presented at the Environmental Research Institute of Michigan's (ERIM) Eighth Thematic Conference on Geologic Remote Sensing, held in Denver, Colorado 29 April-2 May, 1991. The Thematic Conference was conceived in 1977, at the Pecora III Symposium in Sioux Falls, South Dakota, when the late Dr. Jerald J. Cook of ERIM brought to the attention of one of the editors (BH) the need for a thematic conference on remote sensing. For over an hour we discussed what such a conference might accomplish and whom it might serve. Jerry's vision was clear. The conference would be directed to the geological and geophysical exploration community in the petroleum and mining industries. It would encourage the participation of remote sensing scientists from academia, service and value added companies, and government research facilities such as JPL, Goddard Space Flight Center, and the U.S. Geological Survey. It would be a forum for leading inventors, innovators, and developers of remote sensing technology to get together with industrial practitioners to exchange data and ideas and to influence the direction of remote sensing technical development.

This vision came to fruition at Fort Worth, Texas in December of 1982 when the first Thematic Conference took place. Since then a Thematic Conference has been held every eighteen months under the direction of Dr. Robert Rogers of ERIM. As in all thriving enterprises, the conference has expanded. It now encompasses other important topics related to geoscience: engi-

neering geology, marine applications, environmental monitoring, geobotany, and other timely subjects.

In this first ERIM Thematic Conference special issue of *Photogrammetric Engineering & Remote Sensing* we wanted to bring to you a representative cross section of the varied geoscience and related subjects presented at the conference. This issue includes articles on new techniques in image processing, experiments with new sensor systems, new applications of existing systems, developments in geobotany, and environmental monitoring using video systems. This is only a small sampling of the more than 300 technical presentations from authors from 29 countries.

The editors and the authors would like to express our appreciation and gratitude to the reviewers: Mike Abrams, Ralph Baker, Dick Birnie, Jim Carr, Dave Cole, Amy Collins, Bob Crippen, Jim Ellis, Scott Hills, Peter Kowalczyk, Fred Kruse, Ron Marrs, John McKeon, Nancy Milton, Jonathan Pershouse, Gary Prost, Roger Smith, Jim Taranik, and Mike Wiley. Their timely and thoughtful comments significantly improved the articles. Finally, we want to thank Jim Case, the Editor-in-Chief of ASPRS, and his editorial staff for their assistance and patience in compiling this volume. We hope you enjoy it.

—Bob Hopkins  
Exxon Production Research Company  
Houston, Texas

—Dave Mouat  
Desert Research Institute  
Reno, Nevada



## 5TH LATIN AMERICAN REMOTE SENSING PROGRAM WORKSHOP ON APPLICATIONS OF REMOTE SENSING IN ANTHROPOLOGY & ARCHAEOLOGY

Cuzco, Peru  
28 October - 1 November 1991

The Society of Latin American Remote Sensing Specialists (SELPER) invites the international remote sensing and GIS community to the 5th Latin American Remote Sensing Symposium and the First Workshop on Applications of Remote Sensing in Anthropology and Archaeology.

This event will take place in the archaeological capital of the Americas, the beautiful city of Cuzco, Peru, which used to be the capital of the Inca Empire. A visit to the fabulous and legendary Machu Picchu site will be one of the symposium activities.

For further information about the symposium and travel/lodging arrangements, contact:

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or

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## Guest Editors

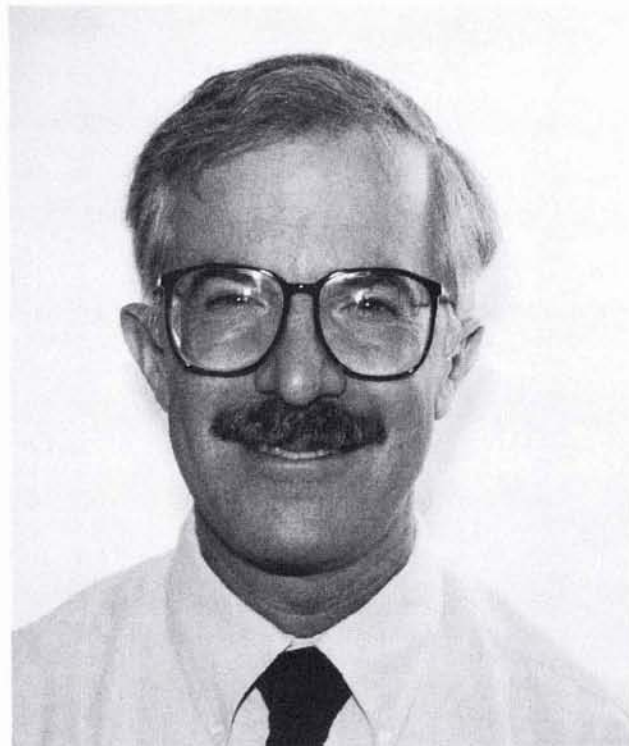


**Henry Robert Hopkins**  
Exxon Production Research Company

Henry Robert Hopkins received the B.A. (1955) and M.S. (1957) degrees in geology from the University of Virginia in Charlottesville, and a Ph.D. degree in 1960 in structural geology from Cornell University, Ithaca, New York. While an undergraduate and graduate student Bob was employed as a staff geologist for the Virginia Division of Mineral Resources (Geological Survey) mapping the geology of the Piedmont and Blue Ridge in central Virginia. He was employed by the Geologic Research Section of the Exploration Department of Humble Oil and Refining Company (now Exxon Production Research Company) in Houston in January 1962 as a research geologist. From 1977 to 1987 he served as project leader and supervisor of Remote Sensing. He is currently a Senior Research Associate. His primary research and applications activities at Exxon have centered around geologic image interpretation using photogeology, radar, seismic stratigraphy, side-scan sonar, and satellite imagery. He has carried out major exploration studies on every continent, except Antarctica, in support of Exxon affiliate activities worldwide.

He was coleader of the Coyanosa test site of the NASA/GEOSAT Joint Test Case Program from 1978 to 1983, and served as Exxon's representative to the GEOSAT Committee from 1978 to 1985. Since 1982, Bob has been a member of the Program Committee of the ERIM Thematic Conference on Remote Sensing for Exploration Geology, and he served as Local Organizing Committee chairman in 1988. From 1985 to 1988 he was a member of the Space Applications Advisory Committee for NASA's Office of Space Science and Applications, and has participated in several NASA workshops and working groups. He was also a principal investigator for the SPOT evaluation program in 1986 and 1987. In addition to ASPRS, Bob is a member of the American Association of Petroleum Geologists where he is chairman of the Remote Sensing Committee of the Energy Minerals Division.

His current research interests are in digitally merged data sets and interactive, computer-assisted geologic interpretation of remotely sensed data.



**David A. Mouat**  
Desert Research Institute

David A. Mouat received the B.A. degree in 1966 from the University of California at Berkeley, majoring in Physical Geography and Chemical Engineering. His Masters degree from Kent State University in Ohio (1968) involved an analysis of soils and glacial geomorphology relationships. In 1969 he was hired as a research associate on a NASA research project within the Range Resources Program at Oregon State University. He developed geomorphic and vegetation classification systems for use in the analysis of Apollo, Gemini, and High Altitude aircraft aerial photography as part of the "pre-ERTS" investigation. This led to the development of a dissertation involving vegetation and terrain relationships in southern Arizona. Dr. Mouat received his PhD in 1974. Dr. Mouat directed the Applied Remote Sensing Program (now the Arizona Remote Sensing Center) at the University of Arizona from 1974 to 1980. During that time he administered a NASA University Affairs Program research grant and was the Arizona representative on a NASA Remote Sensing Science Council. He also applied remote sensing technology to international development projects in arid parts of Africa and South America. In 1981, he was hired as a Research Scientist at the NASA Ames Research Center. There, he developed a geobotanical research program which emphasized the development of relationships among vegetation and lithologic variables and utilizing airborne thematic mapper imagery to discriminate the vegetation. He was a visiting scholar at Stanford University from 1984 to 1985. Since 1985, he has been involved with the University of Nevada System in various capacities. He is currently an Associate Research Professor with the Biological Sciences Center at the Desert Research Institute.

Dr. Mouat's research interests include developing spectral characterizations of environmental phenomena associated with arid ecosystems, multispectral and biogeochemical assessment of environmental toxicity and other hazards, and the use of remote sensing and geobotany in exploration.