The papers included in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. The papers published in these proceedings reflect the work and thoughts of the authors and are published herein as submitted. The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from this book:

ISSN 0277-786X
ISBN 9780819469120

Published by
SPIE
P.O. Box 10, Bellingham, Washington 98227-0010 USA
Telephone +1 360 676 3290 (Pacific Time) · Fax +1 360 647 1445
SPIE.org

Copyright © 2007, Society of Photo-Optical Instrumentation Engineers

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by SPIE subject to payment of copying fees. The Transactional Reporting Service base fee for this volume is $18.00 per article (or portion thereof), which should be paid directly to the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923. Payment may also be made electronically through CCC Online at copyright.com. Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher. The CCC fee code is 0277-786X/07/$18.00.

Printed in the United States of America.

Publication of record for individual papers is online in the SPIE Digital Library.

SPIEDigitalLibrary.org

---

Paper Numbering: Proceedings of SPIE follow an e-First publication model, with papers published first online and then in print and on CD-ROM. Papers are published as they are submitted and meet publication criteria. A unique, consistent, permanent citation identifier (CID) number is assigned to each article at the time of the first publication. Utilization of CIDs allows articles to be fully citable as soon they are published online, and connects the same identifier to all online, print, and electronic versions of the publication. SPIE uses a six-digit CID article numbering system in which:
- The first four digits correspond to the SPIE volume number.
- The last two digits indicate publication order within the volume using a Base 36 numbering system employing both numerals and letters. These two-number sets start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B … 0Z, followed by 10-1Z, 20-2Z, etc.

The CID number appears on each page of the manuscript. The complete citation is used on the first page, and an abbreviated version on subsequent pages. Numbers in the index correspond to the last two digits of the six-digit CID number.
Contents

Part One

xvii Conference Committees
xxi Introduction

SESSION 1 REMOTE SENSING DATA ACQUISITION AND PROCESSING

6752 02 Removing shadows from Google Earth satellite images [6752-01]
J. Guo, State Key Lab. of Remote Sensing Science (China), Institute of Remote Sensing Applications (China), and Beijing Normal Univ. (China); P. Gong, State Key Lab. of Remote Sensing Science (China), Institute of Remote Sensing Applications (China), Beijing Normal Univ. (China), and Univ. of California, Berkeley (USA); L. Liang, State Key Lab. of Remote Sensing Science (China), Institute of Remote Sensing Applications (China), and Beijing Normal Univ. (China)

6752 03 The architecture of data collection planning system for environment observing satellite network [6752-02]
X. Xu, R. He, Nanjing Univ. (China); W. Li, National Univ. of Defense Technology (China)

6752 04 Spectral features recognition based on data mining algorithms [6752-03]
P. Du, China Univ. of Mining and Technology (China) and Univ. of Nottingham (United Kingdom); H. Su, Nanjing Normal Univ. (China); W. Zhang, China Univ. of Mining and Technology (China)

6752 05 High resolution satellite imagery segmentation based on features adaptively combining texture and spectral distributions [6752-04]
S. G. Wang, A. P. Wang, Wuhan Univ. (China); L. Ni, Aeromatex, Inc. (China); Y. Wang, Wuhan Univ. (China)

6752 06 LIDAR data filtering and classification with TIN and assistant plane [6752-05]
Q. Zeng, Shanghai Univ. (China); J. Mao, Shanghai Univ. (China) and Jiangxi Normal Univ. (China); X. Li, X. Liu, Shanghai Univ. (China)

6752 07 Radiometric terrain correction of SPOT5 image [6752-06]
X. Feng, Ningbo Univ. (China) and Zhejiang Univ. (China); F. Zhang, K. Wang, Zhejiang Univ. (China)

6752 08 Geometric correction and pan-sharpening data fusion of QuickBird ortho ready standard imagery [6752-07]
B. Shi, N. Chen, Shanghai Normal Univ. (China); C. Liu, Tongji Univ. (China)

6752 09 An EMD-IHS model for high resolution image fusion [6752-08]
J. Wang, C. Xu, China Univ. of Mining and Technology (China); J. Zhang, Z. Liu, Institute of Photogrammetry and Remote Sensing (China)
<table>
<thead>
<tr>
<th>Paper Number</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>6752-0A</td>
<td>Segmentation of tree crown model with complex structure from airborne LIDAR data</td>
<td>F. Tang, X. Zhang, J. Liu, Wuhan Univ. (China)</td>
</tr>
<tr>
<td>6752-0B</td>
<td>Accuracy analysis and error correction of MODIS surface reflectance products</td>
<td>X. Liu, Shanghai Univ. (China) and Yangtze Univ. (China); X. Li, J. Mao, Q. Zeng, Shanghai Univ. (China); Q. Chen, Shanghai Univ. of Engineering Science (China); C. Guan, Shanghai Univ. (China)</td>
</tr>
<tr>
<td>6752-0C</td>
<td>Study on characteristics of multi-angle polarized reflection of peat</td>
<td>Y. Han, N. Zhao, Y. Zhao, Northeast Normal Univ. (China)</td>
</tr>
<tr>
<td>6752-0D</td>
<td>Wavelet-based feature extraction and similarity measure in hyperspectral remote sensing</td>
<td>W. Zhang, P. Du, China Univ. of Mining and Technology (China)</td>
</tr>
<tr>
<td>6752-0E</td>
<td>Remote sensing image segmentation based on self-organizing map at multiple-scale</td>
<td>Z. Zhou, S. Wei, X. Zhang, X. Zhao, Beijing Univ. of Civil Engineering and Architecture (China)</td>
</tr>
<tr>
<td>6752-0F</td>
<td>Orthorectification model research of Beijing-1 small satellite image</td>
<td>J. Gong, Wuhan Univ. (China) and State Key Lab. of Resources and Environment Information Systems (China); X. Yang, C. Zhou, D. Zhang, State Key Lab. of Resources and Environment Information Systems (China)</td>
</tr>
<tr>
<td>6752-0G</td>
<td>Computation and validation on atmospheric transmittance model of remote sensing</td>
<td>N. Hu, Beijing Normal Univ. (China); S. Tang, National Meteorological Satellite Ctr. (China)</td>
</tr>
<tr>
<td>6752-0H</td>
<td>Identification and extraction of the faults based on object driven in image understanding</td>
<td>K. Xu, Beijing Normal Univ. (China); C. Kong, China Univ. of Geosciences (China); D. Xie, Z. Xiao, Beijing Normal Univ. (China)</td>
</tr>
<tr>
<td>6752-0I</td>
<td>A new approach for segmentation of forest images based on the color and texture</td>
<td>Q. Sheng, J. Zhang, H. Xiao, Wuhan Univ. (China); L. Xu, Southwest Agricultural Univ. (China)</td>
</tr>
<tr>
<td>6752-0J</td>
<td>Hyperspectral expert classifier based on data fusion technique</td>
<td>L. Mei, China Univ. of Geosciences (China); B. A. F. Bassam, Al Mustansiya Univ. (Iraq); F. Liu, Y. Guo, G. Wu, X. Wu, China Univ. of Geosciences (China)</td>
</tr>
<tr>
<td>6752-0K</td>
<td>Separating manual operation from remote sensing image processing procedure for high performance parallel computing</td>
<td>W. Xuan, Peking Univ. (China); Z. Lin, Chinese Academy of Surveying and Mapping (China); X. Chen, Peking Univ. (China); G. Zhao, Wuhan Univ. (China)</td>
</tr>
<tr>
<td>6752-0L</td>
<td>Visualizing the uncertainty of geo-information from Landsat ETM+ imagery by fuzzy reasoning</td>
<td>P. Wang, F. Huang, Northeast Normal Univ. (China); X. Liu, China Univ. of Geosciences (China)</td>
</tr>
</tbody>
</table>
Edge-preserve image smoothing algorithm based on convexity model and its application in the airport extraction [6752-21]
K. Sun, D. Li, Y. Chen, H. Sui, Wuhan Univ. (China)

Remotely sensed imagery intelligent interpretation based on image segmentation and support vector machines [6752-22]
D. Mo, H. Lin, J. Li, H. Sun, Central South Univ. of Forestry and Technology (China); T. Liu, Central South Univ. of Forestry and Technology (China) and Central South Academy of Forest Inventory and Planning State Forestry Administration (China); Y. Xiong, Beijing Normal Univ. (China)

Fusion of multisensor images based on the curvelet transform [6752-23]
M. Xiao, Z. He, Y. Jia, Wuhan Univ. (China)

Remote sensing image fusion based on fuzzy theory in pixel level and assessing the quality of resulting images [6752-24]
Z. Xiao, Nanjing Univ. (China); H. Jang, Nanjing Univ. (China) and Zhejiang Forestry Univ. (China); H. Zhou, Nanjing Univ. (China); S. Yu, Zhejiang Forestry Univ. (China)

Phase unwrapping methods of corner reflector DInSAR monitoring slow ground deformation [6752-25]
W. Fu, Nanjing Univ. (China); X. Guo, China Aero Geophysical Survey & Remote Sensing Ctr. for Land and Resources (China); Q. Tian, Nanjing Univ. (China)

Study on data mining technology in hyperspectral remote sensing [6752-26]
H. Su, Y. Sheng, Y. Wen, H. Tao, Nanjing Normal Univ. (China)

Image fusion based on improved HIS and curvelet transform integrated method [6752-27]
S. Cheng, Y. Yang, Y. Li, Hohai Univ. (China)

Cloud model based fuzzy C-means clustering and its application [6752-28]
K. Qin, M. Xu, Wuhan Univ. (China); D. Li, China Institute of Electronic System Engineering (China)

An effective method to detect straight lines from high spatial resolution remotely sensed imagery and its applications for runway extraction [6752-29]
M. Wang, X. Zhang, Nanjing Normal Univ. (China)

A novel AMSS-MEDIAN fusion filter for SAR imagery noise reduction [6752-30]
C. Xu, J. Gao, J. Wang, J. Sun, China Univ. of Mining and Technology (China)

Applying texture marker-controlled watershed transform to the segmentation of IKONOS image [6752-31]
P. Xiao, X. Feng, S. Zhao, Nanjing Univ. (China); S. Xie, Nanjing Urban Planning Bureau (China); P. Wang, R. Badawi, Nanjing Univ. (China)

A fast preprocessing algorithm for massive MODIS 1B data [6752-32]
Y. Shu, Y. Liu, Z. Duan, Y. Zhang, Z. Chen, Nanjing Univ. (China)

The key techniques on establishing image database [6752-33]
C. Qian, J. Wang, Y. Rui, Nanjing Univ. (China)
Evaluation of the surface reflectance retrieval on the satellite data [6752-34]
C. Xu, X. Feng, P. Xiao, P. Wang, Nanjing Univ. (China)

Automatic estimation of LIDAR points data spatial resolution distribution [6752-35]
H. Li, D. Li, X. Huang, Wuhan Univ. (China)

Application of SUSAN to reduce the speckle noise of remote sensing image [6752-36]
X. Zang, Y. Chen, China Univ. of Mining and Technology (China); S. Wang, China Univ. of Geosciences (China)

3D geo-positioning based on bias-compensated rational function model for QuickBird imagery [6752-37]
G. Qiao, W. Wang, J. Zhang, Tongji Univ. (China)

Model simulation for sensitivity of hyperspectral indices to LAI, leaf chlorophyll, and internal structure parameter [6752-38]
J. Yuan, Hebei Normal Univ. (China) and Institute of Remote Sensing Applications (China); Z. Niu, Institute of Remote Sensing Applications (China); W. Fu, Nanjing Univ. (China)

Kernel based simplification of canopy reflectance model using partial least square regression [6752-39]
Y. Yu, X. Mu, Q. Liu, Z. Liu, State Key Lab. of Remote Sensing Science (China), Beijing Normal Univ. (China), and Institute of Remote Sensing Applications (China); Y. Wang, Beijing Normal Univ. (China); G. Yan, State Key Lab. of Remote Sensing Science (China), Beijing Normal Univ. (China), and Institute of Remote Sensing Applications (China)

Forward image mapping using image inpainting [6752-40]
C. Shen, A. Fang, F. Li, East China Normal Univ. (China); Y. Peng, East China Normal Univ. (China) and UMPA, École Normale Supérieure de Lyon (France)

Improving fundamental factors among correlation matching algorithms in underwater TANS [6752-41]
Y. Lin, L. Yan, Peking Univ. (China); Q. Tong, Peking Univ. (China) and Institute of Remote Sensing Applications (China)

A twin central line projection model for asynchronous sampling line scanner satellite imagery [6752-42]
J. Gong, Wuhan Univ. (China); X. Hu, Wuhan Univ. (China) and Hainan Bureau of Surveying and Mapping (China); F. Geng, Hainan Univ. (China)

Modeling spatial-temporal change of Poyang Lake using multi-temporal Landsat imagery [6752-43]
F. Hui, Nanjing Univ. (China); B. Xu, Institute of Remote Sensing Applications (China) and Univ. of Utah (USA); H. Huang, Institute of Remote Sensing Applications (China); P. Gong, Institute of Remote Sensing Applications (China) and Univ. of California, Berkeley (USA)

Hyperspectral models of coastal water depth extraction [6752-44]
J. Wang, Q. Tian, W. Fu, X. Wang, X. Du, Nanjing Univ. (China)
Study on the extraction of urban roads from high-resolution remotely sensed imagery based on the knowledge of road features [6752-45]
K. Guan, Q. Tian, Z. Li, Nanjing Univ. (China)

Hydrophytes extraction in Taihu Lake, China: an approach of integrating decision tree with water depth based on Landsat TM and SPOT [6752-46]
S. Zhang, R. Ma, Nanjing Institute of Geography and Limnology (China); S. Zhao, C. Wang, W. Tang, Nanjing Univ. (China)

Remote sensing parameter model of suspended sediment and its application in the Yangtze River estuary [6752-47]
Y. Wang, China Meteorological Administration (China) and Institute of Atmospheric Physics (China); F. Yan, Nanjing Univ. (China); P. Zhang, W. Dong, China Meteorological Administration (China); Y. Zhang, Nanjing Normal Univ. (China)

Study on extracting reflectance just beneath water surface from remote sensing reflectance [6752-48]
T. Liu, A. Dong, W. Xu, D. Li, Donghua Univ. (China)

Lake areas monitoring based on unmixing mixed pixels united with double-edge extraction [6752-49]
Z. Hu, J. Bi, C. Ji, D. Zhong, T. Chi, Institute of Remote Sensing Applications (China); S. Liu, Beijing Normal Univ. (China)

Mapping coral reef benthic cover with fused IKONOS imagery [6752-50]
Y. Wang, Y. Chen, J. Li, Beijing Normal Univ. (China)

A self-adaptive algorithm for traffic sign detection in motion image based on color and shape features [6752-51]
K. Zhang, Y. Sheng, Z. Gong, C. Ye, Y. Li, C. Liang, Nanjing Normal Univ. (China)

Method of individual tree crown detection [6752-52]
Y. Xiong, J. Wu, East China Normal Univ. (China)

A new approach for estimating the vegetation fraction in mountainous area [6752-53]
Y. Yang, Q. Tian, Nanjing Univ. (China); L. Xu, State Oceanic Administration (China)

Simplified bio-optical modeling of concentrations of total suspended matter in a turbid inland water condition [6752-54]
J. P. Xu, Northeast Institute of Geography and Agricultural Ecology (China) and Graduate School of Chinese Academy of Sciences (China); B. Zhang, K. S. Song, Z. M. Wang, D. W. Liu, Northeast Institute of Geography and Agricultural Ecology (China); X. F. Li, H. T. Duan, Northeast Institute of Geography and Agricultural Ecology (China) and Graduate School of Chinese Academy of Sciences (China)

Mapping grass communities based on multi-temporal Landsat TM imagery and environmental variables [6752-55]
Y. Zeng, Wuhan Univ. (China) and Information Ctr. of Beijing Municipal Bureau of State Land and Resources (China); Y. Liu, Y. Liu, Wuhan Univ. (China) and State Key Lab. of Information Engineering in Surveying, Mapping and Remote Sensing (China); J. de Leeuw, International Institute for Geo-Information Science and Earth Observation (Netherlands)
Modeling the spectral absorption by CDOM in Meiliang Bay, Taihu Lake [6752-56]
Q. Fu, Institute of Remote Sensing Applications (China) and Graduate Univ. of Chinese Academy of Sciences (China); S. Wang, Y. Zhou, F. Yan, Institute of Remote Sensing Applications (China); J. Wang, Nanjing Univ. (China)

Determination of chlorophyll-a concentration using inverse continuum removal analysis of fluorescence peak in Lake Chagan, China [6752-57]
H. Duan, Nanjing Institute of Geography and Limnology (China) and Northeast Institute of Geography and Agricultural Ecology (China); R. Ma, Nanjing Institute of Geography and Limnology (China); B. Zhang, Northeast Institute of Geography and Agricultural Ecology (China); K. Song, Z. Wang, Nanjing Institute of Geography and Limnology (China)

Cluster analysis approach for DEM change detection based on aerial images [6752-58]
M. Wang, T. Feng, J. Pan, Wuhan Univ. (China)

Retrieval of LAI by assimilating remotely sensed data into a simple crop growth model [6752-59]
X. Yang, X. Mu, D. Wang, Beijing Normal Univ. (China); Z. Li, Beijing Normal Univ. (China) and Institute of Geographic Sciences and Natural Resources Research (China); W. Zhang, G. Yan, Beijing Normal Univ. (China)

Automatic 3D power line reconstruction of multi-angular imaging power line inspection system [6752-60]
W. Zhang, G. Yan, N. Wang, Q. Li, W. Zhao, Beijing Normal Univ. (China), State Key Lab. of Remote Sensing Science (China), and Beijing Key Lab. for Remote Sensing of Environment and Digital Cities (China)

Digital mountains: toward development and environment protection in mountain regions [6752-61]
X. Jiang, Key Lab. of Mountain Hazards and Surface Process (China) and Institute of Mountain Hazards and Environment (China)

Information extraction of suspended sediment’s relative density and distribution change in Lake Chaohu based on Landsat TM/ETM+ data [6752-62]
X. Wang, C. Mei, W. Li, Anhui Normal Univ. (China) and Work Station of Anhui Province for Remote Sensing Archaeology (China); X. Zhang, Univ. of Memphis (USA)

Assessment of surface urban heat island effects and associated surface biophysical indicators using MODIS imagery [6752-63]
Y. Zeng, Central South Univ. (China) and Liaoning Technical Univ. (China); H. Li, B. Xue, H. Zhang, Central South Univ. (China)

Application of MODIS data to assess the urban heat island in Shanghai City, China [6752-64]
F. Yan, Nanjing Univ. (China); Z. Qin, Nanjing Univ. (China) and Chinese Academy of Agricultural Sciences (China); Y. Wang, China Meteorological Administration (China)

Canopy BRF simulation of forest with different crown shape and height in larger scale based on radiosity method [6752-65]
J. Song, Y. Qu, J. Wang, H. Wan, X. Liu, Beijing Normal Univ. (China)
A wavelet based algorithm for DTM extraction from airborne laser scanning data [6752-66]
L. Xu, State Oceanic Administration (China); Y. Yang, Q. Tian, Nanjing Univ. (China)

Estimation and seasonal monitoring of urban vegetation abundance based on remote sensing [6752-67]
J. Zhou, Y. H. Chen, J. Li, Beijing Normal Univ. (China); Q. H. Weng, Beijing Normal Univ. (China) and Indiana State Univ. (USA); Y. Tang, Beijing Normal Univ. (China)

Remotely sensed monitoring of urban heat island in Chongqing [6752-68]
Y. Tian, Southwest Univ. (China) and Chongqing Institute of Meteorological Science (China); Y. Gao, Chongqing Institute of Meteorological Science (China); J. Yi, Southwest Univ. (China); L. Zhu, Chongqing Technology and Business Univ. (China)

Quantitative evaluation of desertification extent based on geographic unit by remote sensing image [6752-69]
Z. Wang, D. Wang, Ludong Univ. (China); C. Zhang, Beijing Normal Univ. (China); A. Zhang, Ludong Univ. (China)

The spatial relation of soil erosion and soil types in Jinan based on RS and GIS [6752-70]
G. Wu, H. Si, B. Zhong, Q. Wu, B. Wei, C. Song, Nanjing Univ. (China)

Cenozoic geomorphological and paleo-environmental evolution survey using multi-source data conformity [6752-71]
Y. Zhu, China Univ. of Geosciences (China); Z. Sun, Jilin Normal Univ. (China); C. Li, Q. Yu, China Geological Survey Bureau (China); K. Zhang, X. Kou, China Univ. of Geosciences (China); W. Wang, Regional Geological Survey Institute of Hubei Province (China)

Fusion of Radarsat SAR and ETM+ imagery for identification of fresh water wetland [6752-72]
R. Ruan, Hohai Univ. (China); X. Feng, Nanjing Univ. (China); Y. She, Hohai Univ. (China)

Hyperspectral indices for leaf and pixel chlorophyll estimation in open-canopy tree [6752-73]
J. Zhao, Xinjiang Institute of Ecology and Geography (China) and Graduate School of the CAS (China); X. Chen, Xinjiang Institute of Ecology and Geography (China); G. Japper, H. Chang, Z. Ma, Xinjiang Institute of Ecology and Geography (China) and Graduate School of the CAS (China); Y. Duan, Graduate School of the CAS (China)

An approach for desertification monitoring in Hulun Buir grassland of Inner Mongolia, China [6752-74]
Y. Zhu, Nanjing Univ. (China); Z. Qin, Nanjing Univ. (China) and Institute of Agro-Resources and Regional Planning (China); B. Xu, M. Gao, Institute of Agro-Resources and Regional Planning (China); H. Pei, Nanjing Univ. (China)

Estimating hydrocarbon content using hyperspectral remote sensing at Qaidam Basin, China [6752-75]
P. Hu, Q. Tian, Z. Guan, Nanjing Univ. (China); B. Yan, China Aero Geophysical Survey and Remote Sensing Ctr. for Land and Resources (China)
Part Two

6752 25 Remote sensing monitoring of grass growing in grassland ecosystems of China [6752-76]
L. Lu, Nanjing Univ. (China); Z. Qin, Nanjing Univ. (China) and Institute of Agro-Resources and Regional Planning (China); B. Xu, W. Tao, Institute of Agro-Resources and Regional Planning (China); L. Jiang, Nanjing Univ. (China)

6752 26 Using hyperspectral data to detect the responses of masson pine’s needle spectral reflectance to acid stress [6752-77]
X. Song, H. Jiang, Nanjing Univ. (China); S. Yu, G. Zhou, Zhejiang Forestry Univ. (China)

6752 27 Satellite-measured characteristics and changes of urban heat island of Nanjing City Zone, China [6752-78]
R. Wang, Y. Xu, Nanjing Univ. (China)

6752 28 Quantitative study on spatio-temporal change of urban landscape pattern based on RS/GIS: a case of Xi’an metropolitan area in China [6752-79]
M. Chen, Y. Zong, Q. Ma, J. Li, Nanjing Univ. (China)

6752 29 Mapping drought status of winter wheat from MODIS data in North China Plain [6752-80]
L. Gao, Nanjing Univ. (China); Z. Qin, Nanjing Univ. (China) and Institute of Agro-Resources and Regional Planning (China); B. Xu, Institute of Agro-Resources and Regional Planning (China); L. Lu, H. Pei, Nanjing Univ. (China)

6752 2A Comparison of urban heat island retrieval method from Landsat TM thermal data [6752-81]
X. Zhang, Zhejiang Univ. (China) and Nanjing Univ. (China); K. Wang, Zhejiang Univ. (China); Y. Song, Nanjing Univ. (China) and Land Surveying and Mapping Institute of Shandong Province (China)

6752 2B Integration of remote sensing technique and hydrologic model for monitoring tidal flat dynamics of Juiduansha in Shanghai [6752-82]
Z. Zheng, East China Normal Univ. (China); Y. Zhou, East China Normal Univ. (China) and Jilin Univ. (China); X. Jiang, East China Normal Univ. (China)

6752 2C Hydrophytes extraction from Landsat TM multi-spectral image in Taihu Lake, China: an approach of decision tree [6752-83]
C. Wang, S. Zhao, Nanjing Univ. (China); R. Ma, Nanjing Institute of Geography and Limnology (China); W. Tang, Nanjing Univ. (China); S. Zhang, Nanjing Institute of Geography and Limnology (China)

6752 2D Extraction of enclosure culture area from SPOT-5 image based on texture feature [6752-84]
W. Tang, S. Zhao, Nanjing Univ. (China); R. Ma, Nanjing Institute of Geography and Limnology (China); C. Wang, Nanjing Univ. (China); S. Zhang, Nanjing Institute of Geography and Limnology (China); X. Li, Nanjing Univ. (China)

6752 2E Research on mapping trophic state of water bodies based on Landsat TM images in Taihu Lake [6752-85]
D. Wang, X. Feng, Nanjing Univ. (China); R. Ma, Nanjing Institute of Geography and Limnology (China)
SESSION 3 LAND USE/LAND COVER CHANGE

6752 2F Monitoring the urban heat island and the spatial expansion: using thermal remote sensing image of ETM+ band6 [6752-86]
J. Zhang, Y. Li, South China Normal Univ. (China); Y. Wang, Guangzhou Institute of Geochemistry (China)

6752 2G Water quality assessment and change detection in urban wetland using high spatial resolution satellite imagery [6752-87]
H. Zhou, Nanjing Univ. (China); H. Jiang, Nanjing Univ. (China) and Zhejiang Forestry College (China); Z. Xiao, Nanjing Univ. (China); S. Yu, Zhejiang Forestry College (China); J. Chang, Zhejiang Univ. (China)

6752 2H Fusion of RADARSAT fine-beam SAR and QuickBird data for land-cover mapping and change detection [6752-88]
Y. Ban, H. Hu, I. Rangel, Royal Institute of Technology (Sweden)

6752 2I Extraction of events and rules of land use/cover change from the policy text [6752-89]
G. Lin, Sun Yat-Sen Univ. (China) and Fujian Normal Univ. (China); B. Xia, Sun Yat-Sen Univ. (China); W. Huang, H. Jiang, Y. Chen, Fujian Normal Univ. (China)

6752 2J Comparison of object-oriented with pixel-based classification techniques on urban classification using TM and IKONOS imagery [6752-90]
P. Wang, X. Feng, S. Zhao, P. Xiao, C. Xu, Nanjing Univ. (China)

6752 2K Neural network classification with optimization by genetic algorithms for remote sensing imagery [6752-91]
X. Tong, X. Zhang, Tongji Univ. (China)

6752 2L Identification of coastal wetland using rule inferring [6752-92]
R. Ruan, L. Xia, Z. Yan, Hohai Univ. (China)

6752 2M Tupu methods on land use change based on space-temporal-attribute in Karst [6752-93]
T. Wang, Y. An, Guizhou Normal Univ. (China); P. Zhang, IASPEC (China); R. Tang, Guizhou Normal Univ. (China)

6752 2N Multi-scale land-use image fusion based on wavelet transform [6752-94]
X. Zhang, Y. Fu, J. Zhu, W. Zhang, Sun Yat-sen Univ. (China)

6752 2O Wetland change in the rapidly urbanizing area: take Nanjing as an example [6752-95]
L. Zhou, Nanjing Institute of Geography and Limnology (China) and Graduate School of The Chinese Academy of Sciences (China); N. Jiang, Nanjing Institute of Geography and Limnology (China); M. Zhao, Nanjing Normal Univ. (China); S. Wang, X. Liu, Nanjing Institute of Geography and Limnology (China) and Graduate School of The Chinese Academy of Sciences (China)

6752 2P Pattern change and dynamic evolution of urban green space based on multi-temporal remote sensing images: a case study of Xuzhou City [6752-96]
H. Zhang, P. Du, C. Pan, Z. Yin, China Univ. of Mining and Technology (China)
Bivariate Moran spatial correlation analysis between zonal farm-land use and rural population distribution [6752-97]
S. Zhu, Z. Chen, D. Chen, Nanjing Univ. (China)

Discussion of identifying urbanized area based on the method of three-factor analysis: a case study on Chaoyang District of Beijing [6752-98]
J. Lin, F. Huang, S. Zhang, J. Chu, Peking Univ. (China)

Extraction and evaluation of urban agriculture region based on RS and GIS: a case study in Beijing [6752-99]
H. Wang, H. Liu, Key Lab. of Remote Sensing Science, Beijing Normal Univ. (China) and Institute of Remote Sensing Applications (China); J. Liu, H. Liu, Beijing Research Ctr. of Agriculture and Economics (China); W. Huang, C. Wang, Key Lab. of Remote Sensing Science, Beijing Normal Univ. (China) and Institute of Remote Sensing Applications (China)

Content-based multipurpose watermarking for remote sensing images [6752-100]
R. Zhao, Wuhan Univ. (China); G. Jiang, Information Engineering Univ. (China); S. Wang, Wuhan Univ. (China)

Analysis and preliminary design of Kunming land use and planning management information system [6752-101]
L. Li, Nanjing Univ. (China) and Kunming Land and Resources Bureau (China); Z. Chen, Nanjing Univ. (China)

Analyzing urban sprawl through rose map and thematic map based on GIS: a case in Wuhan City, China [6752-102]
K. Wang, Y. Liu, Y. Liu, Y. Nong, Wuhan Univ. (China)

How micro-circumstances influence the urban residential land value: a case study in Danyang, China [6752-103]
B. Zheng, Y. Liu, L. Huang, Wuhan Univ. (China)

Analysis of urban land use growth in Su-Xi-Chang cities in China during 1979–2001 [6752-104]
L. Wang, C. Ke, Nanjing Univ. (China)

Land-use conversion and its regulative mechanism in metropolitan area in West China [6752-105]
Z. Yang, Lanzhou Univ. (China); H. Chang, Panzhihua Univ. (China); S. Niu, G. Li, Lanzhou Univ. (China)

A land-cover classifier using tolerant rough set and multi-class SVM [6752-106]
X. Wu, F. Liu, China Univ. of Geosciences (China); B. A. F. Bassam, Mustansiriya Univ. (Iraq); Y. Guo, China Univ. of Geosciences (China)

Spatial units of land use potential evaluation on regional scales [6752-107]
Z. Yang, S. Zhu, F. Li, D. Chen, Nanjing Univ. (China)
Research on the Tupu methods of land-use spatial pattern and its change: a case study in Yuanyang Hani terrace [6752-108]
W. Hu, Kunming Science and Technology Univ. (China) and Yunnan Normal Univ. (China); Y. Jiao, Yunnan Normal Univ. (China)

Agent-based modeling in land use and land cover change studies [6752-109]
G. Wu, B. Zhong, H. Si, B. Wei, Q. Wu, C. Song, Nanjing Univ. (China)

Spatial optimum collocation model of urban land and its algorithm [6752-110]
X. Kong, X. Li, Shandong Economic Univ. (China)

Research on application of intelligent computation based LUCC model in urbanization process [6752-111]
Z. Chen, Nanjing Univ. (China) and Jiangsu Province Bureau of Surveying and Mapping (China)

Classifying rural land-use using multi-feature approach for national land-use survey [6752-112]
F. Xia, Y. F. Liu, Wuhan Univ. (China)

Quantitative analysis and simulation of land use changes in the Pearl River Delta, China [6752-113]
H. Zhang, Y. Zeng, B. Zou, Central South Univ. (China); P. Xiao, Nanjing Univ. (China); D. Hu, Beijing Normal Univ. (China); J. Peng, Nanjing Agricultural Univ. (China)

Modeling urban land use changes in Lanzhou, China with GIS and DUEM [6752-114]
X. Xu, Lanzhou Univ. (China) and Nan tong Univ. (China); J. Zhang, J. Li, Lanzhou Univ. (China); J. Yu, T. Zhou, Nantong Univ. (China)

Mapping ecosystem service dynamic in Wuyuer River watershed, Northeast China from 1954 to 2000 [6752-115]
F. Huang, P. Wang, Y. Li, Northeast Normal Univ. (China)

Land appraisal based on cloud model and sales comparison approach [6752-116]
S. Hu, D. Li, Y. Liu, Wuhan Univ. (China); D. Li, Institute of Electronic System Engineering (China); H. Yu, Wuhan Univ. (China)

Effects of urbanization on spatiotemporal changes of land cover pattern: a case of Changsha, China [6752-117]
B. Zou, Y. Zeng, Central South Univ. (China) and Liaoning Technical Univ. (China); H. Zhang, K. Yang, Central South Univ. (China); M. Dong, Hunan Univ. of Arts and Science (China)

Wetland landscape pattern evolution character and its driving mechanism based on TM images of Hubei Province [6752-118]
C. Kong, China Univ. of Geosciences (China); K. Xu, Beijing Normal Univ. (China); C. Wu, H. Deng, China Univ. of Geosciences (China); Y. Zhang, Central China Normal Univ. (China)

Object-based classification for mangrove with VHR remotely sensed image [6752-119]
Z. Liu, State Key Lab. of Remote Sensing Science (China) and Beijing Normal Univ. (China); J. Li, Beijing Normal Univ. (China); B. Lim, C. Seng, S. Inbaraj, Cilix Corp. Sdn Bhd (Malaysia)
6752 3D Evolutionary support vector machine and its application in remote sensing imagery classification [6752-120]
Y. Guo, China Univ. of Geosciences (China); L. Kang, China Univ. of Geosciences (China) and Wuhan Univ. (China); F. Liu, L. Mei, China Univ. of Geosciences (China)

6752 3E Research on landscape pattern change in Niyanghe watershed based on remote sensing and GIS [6752-121]
Y. Jiang, C. Ke, Nanjing Univ. (China)

6752 3F Classification of high spatial resolution imagery using optimal Gabor-filters-based texture features [6752-122]
Y. Zhao, China Univ. of Mining and Technology (China); B. Wu, Fuzhou Univ. (China)

6752 3G Multi-scale texture analysis for urban land use/cover classification using high spatial resolution satellite data [6752-123]
Y. Zhang, L. Chen, B. Yu, Hohai Univ. (China)

6752 3H A sampling strategy for a single step land cover change classification [6752-124]
Z. Huang, X. Jia, Univ. College, UNSW, Australian Defence Force Academy (Australia); L. Ge, Univ. of New South Wales (Australia)

6752 3I Object-oriented classification of very high-resolution remote sensing imagery based on improved CSC and SVM [6752-125]
H. Li, Institute of Photogrammetry and Remote Sensing (China); H. Gu, Institute of Photogrammetry and Remote Sensing (China) and Liaoning Technical Univ. (China); Y. Han, J. Yang, Institute of Photogrammetry and Remote Sensing (China)

6752 3J Investigation of the methods of extracting information from IKONOS image in Qixia district of Nanjing land cover [6752-126]
B. Rami, X. Feng, Nanjing Univ. (China)

6752 3K An analysis of urban expansion of Wuhan City based on multi-temporal remote sensing images and GIS [6752-127]
Z. Zeng, Huazhong Univ. of Science and Technology (China); Z. Li, Huazhong Univ. of Science and Technology (China) and Wuhan Urban Planning and Land Administration Information Ctr. (China); M. Peng, Wuhan Urban Planning and Land Administration Information Ctr. (China); X. Lu, Huazhong Univ. of Science and Technology (China)

6752 3L Support vector regression with genetic algorithms for estimating impervious surface and vegetation distributions using ETM+ data [6752-128]
L. Chen, Y. Zhang, B. Chen, Hohai Univ. (China)

6752 3M Classification of Landsat 7 ETM+ imagery in western mountainous area of Zhejiang based on gray-gradient co-concurrency matrix [6752-129]
L. Feng, M. Li, Y. Liu, Nanjing Univ. (China)

6752 3N Dynamic land use monitoring in small-medium sized cities by remote sensing: a case in Jian City, Jiangxi Province [6752-130]
X. Le, Nanjing Univ. (China); Z. Fan, Mountain-River-Lake Development Office (China); Y. Zhang, Nanjing Univ. (China)
An object-based classification approach for high-spatial resolution imagery [6752-131]
X. Li, S. Zhao, Y. Rui, W. Tang, Nanjing Univ. (China)

Impacts of land use/cover change on spatial variation of land surface temperature in Urumqi, China [6752-132]
H. Pei, Nanjing Univ. (China); Z. Qin, Nanjing Univ. (China) and Institute of Agro-Resources and Regional Planning (China); S. Fang, Xinjiang Univ. (China); B. Xu, Institute of Agro-Resources and Regional Planning (China); M. Gao, Institute of Agro-Resources and Regional Planning (China)

Design and realization of high quality prime farmland planning and management information system [6752-133]
M. Li, G. Liu, Y. Liu, Z. Jiang, Nanjing Univ. (China)

SESSION 4 SATELLITE POSITIONING AND NEW SURVEY TECHNOLOGIES

A data model with spatio-temporal characteristic for dynamic vehicle navigation system [6752-134]
Z. Zeng, Q. Li, B. Li, D. Xu, Wuhan Univ. (China)

The simulation and realization of Galileo E1-C IF signal [6752-135]
W. Wang, J. Guo, J. Shi, Wuhan Univ. (China)

Precise orbit determination of GPS satellite using regional tracking network [6752-136]
M. Li, Y. Lou, C. Shi, R. Zou, Wuhan Univ. (China)

Research on the selection of suitable matching area in the gravity aided navigation [6752-137]
L. Yan, H. Wu, Wuhan Univ. (China)

Acquisition and tracking schemes for GPS software receiver [6752-138]
C. Hu, X. Li, L. An, Tongji Univ. (China)

Data pretreatment in GPS baseline solution based on wavelet [6752-139]
X. Shi, C. Zhao, Nanjing Univ. of Science and Technology (China); L. Zhu, The Fifth Team of Jiangsu Coalfield Geology (China)

Discussion on integrated digital chart data model and display platform for pocket navigator system (PNS) [6752-140]
H. Sui, J. Xiao, Wuhan Univ. (China); Q. Wang, Taiyuan Land and Resources Bureau (China); Q. Li, Wuhan Univ. (China)

Modeling and query the uncertainty of network constrained moving objects based on RFID data [6752-141]
L. Han, K. Xie, X. Ma, G. Song, Peking Univ. (China)

Optimal estimation of tropospheric delay corrections to INSAR results from GPS observations based on SVM [6752-142]
X. Song, D. Li, M. Liao, L. Cheng, Wuhan Univ. (China)
Automatic registration for ASAR and TM images based on region features [6752-143]
D. Zhang, L. Yu, Z. Cai, Zhejiang Univ. (China)

Registration and mosaicking of cloud contaminated images [6752-144]
F. Li, East China Normal Univ. (China); Y. Peng, East China Normal Univ. (China) and École Normale Supérieure de Lyon (France); S. Xing, C. Shen, East China Normal Univ. (China)

Efficient IBP with super resolution for ALOS imagery [6752-145]
F. Li, D. Fraser, X. Jia, Univ. of New South Wales (Australia)

The research and the realization of remote sensing data sharing platform based on the satellite link [6752-146]
X. Zhang, M. Li, S. Hao, H. Yang. China Institute of Water Resources and Hydropower Research (China)

Positional accuracy in RPC point determination based on high-resolution imagery [6752-147]
H. Meng, Y. Liu, J. Zhang, H. Gong, Wuhan Univ. (China)

The design and implementation of grid computing platform for aerosol remote sensing (GCP-ARS) [6752-148]
J. Tang, Peking Univ. (China); A. Zhang, Beijing Univ. of Chemical Technology (China)

The study on data customization and collection planning system of remote sensing satellite for environment [6752-149]
W. Li, Y. Chen, R. He, National Univ. of Defense Technology (China)

Mutual information based registration of LIDAR and optical images [6752-150]
F. Deng, S. Li, Wuhan Univ. (China); G. Su, Academy of Optoelectronics (China)

An experimental study on the IMU/DGPS/camera system calibration [6752-151]
Q. Li, China Univ. of Mining and Technology (China) and Hebei Univ. of Engineering (China); D. Guo, China Univ. of Mining and Technology (China) and China Aero Geophysical Survey and Remote Sensing Ctr. for Land and Resources (China)

The analysis of the error sources affecting the accuracy of attitude determined by star sensor [6752-152]
J. Xie, W. Jiang, Wuhan Univ. (China)

Author Index
Conference Committees

Honorary Chairs

Shupeng Chen, Senior Academician, Institute of Geographical Science and Resources Research, Chinese Academy of Sciences (China)
Guanhua Xu, Academician, Chinese Academy of Science; Ministry of Science and Technology (China)

International Steering Committee

Michael F. Goodchild, University of California at Santa Barbara (USA)
Michael Batty, University College London (United Kingdom)
John R. Townshend, University of Maryland College Park (USA)
Arthur Cracknell, University of Dundee (United Kingdom)
Robert MacMaster, University of Minnesota (USA)
Harvey Miller, University of Utah (USA)
Kate Beard, University of Maine (USA)
Philip Howarth, University of Waterloo (Canada)
Deren Li, Wuhan University (China)
Jun Gao, Information Engineering University of the People's Liberation Army (China)
Qingxi Tong, Institute of Remote Sensing Application, Chinese Academy of Sciences (China)
Jiayao Wang, Information Engineering University of the People's Liberation Army (China)
Xiaowen Li, Beijing Normal University; Institute of Remote Sensing Application, Chinese Academy of Sciences (China)
Gar-on Yeh, University of Hong Kong (China)
Jiuyuan Liu, Institute of Geographical Science and Resources Research, Chinese Academy of Sciences (China)
Yanying Xu, State Bureau of Surveying and Mapping (China)
Jun Chen, National Center for Fundamental Geographic Information (China)
Guoqiang Zhang, National Remote Sensing Center (China)
Yimin Jia, National Remote Sensing Center (China)
Lizhong Yu, East China Normal University (China)
Peijun Shi, Beijing Normal University (China)
Ke Liao, Institute of Geographical Science and Resources Research, Chinese Academy of Sciences (China)
Jicheng Cheng, Beijing University (China)
Xingyuan Huang, Nanjing University (China)
Ershun Zhong, Institute of Geographical Science and Resources Research, Chinese Academy of Sciences (China)
Conference Chair

Jingming Chen, Academician, Royal Society of Canada (Canada) and International Institute for Earth System Science, Nanjing University (China)

Technical Committee

Bing Xu, Chair, University of Utah (USA)
Manchun Li, Chair, Nanjing University (China)

Members
Axing Zhu, University of Wisconsin, Madison (USA)
Anrong Dang, Tsinghua University (China)
Bin Li, Central Michigan University (USA)
Chenghu Zhou, Institute of Geographical Science and Resources Research, Chinese Academy of Sciences (China)
Cynthia A. Brewer, Penn State University (USA)
Fahui Wang, Northern Illinois University (USA)
Fang Qiu, University of Texas, Dallas (USA)
Guonian Lu, Nanjing Normal University (China)
Guoqing Sun, University of Maryland, College Park (USA)
Hui Lin, Chinese University of Hong Kong (China)
Huili Gong, Capital Normal University (China)
Jiaguo Qi, University of Michigan (USA)
Jiancheng Shi, University of California at Santa Barbara (USA)
Jiayi Gong, Wuhan University (China)
Jintei Wang, University of Western Ontario (Canada)
Le Wang, Texas State University (USA)
Li Li, National Center for Fundamental Geographic Information China (China)
Ling Bian, State University of New York at Buffalo (USA)
Liqiu Meng, Technical University of Munich (Germany)
Lun Wu, Beijing University (China)
Mei-Po Kuan, Ohio State University (USA)
Michael Leifner, Louisiana State University (USA)
Min Liu, East China Normal University (China)
Ming-Hsiang (Ming) Tsou, San Diego State University (USA)
Mitsuru Sato, Pasco Corporation (Japan)
Peng Gong, University of California, Berkeley (USA), Nanjing University (China), and Institute of Remote Sensing Application, Chinese Academy of Sciences (China)
Peter Shih, National Chiao-Tung University (China)
Qiming Zhou, Hong Kong Baptist University (China)
Qingwen Qi, Institute of Geographical Science and Resources Research, Chinese Academy of Sciences (China)
Robert Weibel, University of Zurich (Switzerland)
Shunlin Liang, University of Maryland, College Park (USA)  
Shuming Bao, University of Michigan (USA)  
Vicent Tao, Microsoft Corporation (USA)  
Wenzhong Shi, Hong Kong Polytechnic University (China)  
Xincai Wu, China University of Geosciences (China)  
Xinchang Zhang, Sun Yat-sen University (China)  
Xinming Tang, Chinese Academy of Surveying and Mapping (China)  
Xuezheng Feng, Nanjing University (China)  
Yao lin Liu, Wuhan University (China)  
Yifang Ban, Royal Institute of Technology (Sweden)  
Yingjie Wang, Institute of Geographical Science and Resources Research, Chinese Academy of Sciences (China)  
Yong Xue, Institute of Remote Sensing Applications, Chinese Academy of Sciences (China)  
Yongjiu Dai, Beijing Normal University (China)  
Yongwei Sheng, University of California at Los Angeles (USA)  
Yongyuan Yin, University of British Columbia (Canada)  
Zhanqing Li, University of Maryland, College Park (USA)  
Zhaoliang Li, Louis Pasture University (France)  
Zhaoliang Shi, Jiangsu Provincial Bureau of Surveying and Mapping (China)  
Zhilin Li, Hong Kong Polytechnic University (China)  

Local Organizing Committee  

Manchun Li, Chair, Nanjing University (China)  
Weimin Ju, Chair, Nanjing University (China)  

Members  
Nan Jiang, Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences (China)  
Yuexin Gong, Jiangsu Provincial Bureau of Surveying and Mapping (China)  
Guoan Tang, Nanjing Normal University (China)  
Xianrong Ding, Hohai University (China)  
Xianhua Cai, Southeast University (China)  
Xinfu Qiu, Nanjing University of Information Science and Technology (China)  
Qingjiu Tian, Nanjing University (China)  
Hong Jiang, Nanjing University (China)  
Shuhe Zhao, Nanjing University (China)  
Jiechen Wang, Nanjing University (China)  

Conference Secretariat  
Shuhe Zhao, Nanjing University (China)  
Yan Li, Nanjing University (China)  
Yingxia Pu, Nanjing University (China)
Qin Wang, Nanjing University (China)
Bo Zhao, Nanjing University (China)
Mei Zhang, Nanjing University (China)
Introduction

We are pleased to present the proceedings from the 15th International Conference on Geoinformatics in 2007 (Geoinformatics 2007).

Since its inception in 1992, the International Association of Chinese Professionals in Geographic Information Sciences (CPGIS) has sponsored a series of international conferences on geoinformatics, which encourages academic exchange and fosters friendship and collaboration among professionals and practitioners worldwide. After successful Geoinformatics meetings in 2006 (Wuhan, China), and in 2005 (Toronto, Canada), Geoinformatics 2007, held in Nanjing, China, was also highly successful. This year’s meeting was organized by the Department of Geographic Information Science and International Institute of Earth System Science at Nanjing University.

Geoinformatics 2007 was also part of the celebrations of the 50th anniversary of the cartography specialization at Nanjing University and the 15th anniversary of CPGIS. The meeting covered a wide range of topics in theories, techniques, and applications of geoinformatics, as well as new philosophical views on the future development of this discipline. Over 500 participants from more than 10 countries and regions made Geoinformatics 2007 an exciting event.

The conference theme of Geoinformatics 2007 was “Cartography, Spatial Analysis and Visualization for Harmonious Society,” which emphasizes the roles of geospatial information sciences in promoting harmony in societies through informed land use decision making, effective visualization and analysis of spatial information in various sectors of a society, and developing new tools for integrated assessments involving multiple spatial information sources for various stakeholders, etc. This year we received 805 abstracts, accepted 605 abstracts, and accepted 454 full papers for publication after a peer-review process. In total, 215 oral and 294 poster presentations were delivered at the conference. Through these presentations and various forums, the participants showcased their recent achievements and exchanged scientific ideas and technical skills in the field of geospatial information science.

On behalf of the conference technical and local organizing committees, I would like to thank all participants in the conference and contributors to these proceedings. Your support made this year’s conference a highly successful and memorable event. We sincerely hope that this momentum will continue into the future, and we will count on your continued support.

Jingming Chen