2016 4th International Workshop on Earth Observation and Remote Sensing Applications (EORSA 2016)

Guangzhou, China
4-6 July 2016
# Table of Contents

Monitoring of Snowline Altitude over the Tibetan Plateau based on MODIS Data  
**Zhiguang Tang, Jian Wang, Chaokui Li and Ji Liang** ..................................................1

Understanding the Performance of Terrestrial Discrete-Lidar for Estimating the PAI Of Forest Canopies Using Monte-Carlo Simulation Method  
**Zou Jie, Lin Weimu, Mai Chunna and Zhuang Yinguo** ..................................................5

A Voxel-Based Approach for Classifying Tree Species in a Subtropical Forest Using Small-Footprint Full-Waveform LiDAR  
**Lin Cao, Ziqian Xu, Xin Shen and Honghua Ruan** ..................................................9

Seasonal Variations of Land Surface Temperature and Its Relationship to Urban Biophysical Composition  
**Zhifeng Wu, Guanhua Guo, Xiaoqing Zhou and Yingbiao Chen** ..................................14

Enhancing the Spatial Resolution of Satellite-Derived Land Surface Temperature Using an Operational Trapezoid Interpolation Method  
**Kai Liu, Hongbo Su and Xueke Li** .................................................................19

Improvement of Mono-window Algorithm for Land Surface Temperature Retrieval Integrated with Sub-pixel Mapping for Landsat Imagery  
**Xiaoyan Dai, Zhongyang Guo and Chen Chen** ..................................................24

SAR Image Simulation for Object’s Features Analysis  
**Fan Wu, Chao Wang, Xiaoyang Wen, Hong Zhang and Bo Zhang** ................................28

Improvement of ESTARFM and Its Application to Fusion of Landsat-8 and MODIS Land Surface Temperature Images  
**Qinsheng Li, Feng Ding, Wenfeng Wu and Jieyu Chen** .................................................33

Using a Modified HUTS Algorithm to Downscale Land Surface Temperature Retrieved from Landsat-8 Imagery: A Case Study of Xiamen, China  
**Jieyu Chen, Feng Ding, Qinsheng Li, Wenfeng Wu, Pengyu Fan and Xin Zhang** ..........38

Coastline Automatic Detection Based On High-resolution SAR Image  
**Ke Cao, Jianchao Fan, Xinxin Wang, Xiang Wang, Jianhua Zhao, and Fengshou Zhang** ..................43

Remote Sensing Monitoring Research for Coal Fire in Wuda Coal Mining Using ASTER Thermal Infrared Images  
**Li Feng, Liu Xiaoyang, Liu Jun, Wang Qiuling, and Qian An** .........................................47
Winter Wheat Plant Area Monitoring Using GF-1 WFV imagery
Jiong You, Zhiyuan Pei and Fei Wang .................................................................52

A New Atmospheric Correction Method Based on ANN in Hyperspectral Remote Sensing Image
Anwei Liu, Liangyun Liu, and Xinjie Liu ..................................................................57

Landsat Time Series Clustering under Modified Dynamic Time Warping
Yao Zhao, Lei Lin, Wei Lu and Yu Meng ..................................................................62

Multiscale Multisensor Decision Level Data Fusion for Urban Mapping
Andreas Salentinig and Paolo Gamba .......................................................................67

Application of HY-2A/SCAT Sea Surface Winds in Understanding Surface Wind Structure of
Typhoons over Northwestern Pacific Ocean
Yong Zhao, Chaofang Zhao and Ruyao Sun ...............................................................72

Spatiotemporal Characteristics of Land Subsidence in Beijing from Small Baseline Subset
Interferometric Synthetic Aperture Radar and Standard Deviational Ellipse
Chaofan Zhou, Huili Gong, Beibei Chen, Lin Guo, Mingliang Gao, Wenfeng Chen, Yue Liang, Yuan Si, Jie Wang and Xiaojing Zhang ......................................................78

A Fast InSAR Processing System Based on DSP
Wang Chao, Zhengjia Zhang, Yixian Tang, Hong Zhang and Fulong Chen ................83

Dynamic Monitoring and Spatiotemporal Evolution of the Coastline in Pearl River Estuary in
Recent Fifty Years
Yingbiao Chen, Zhifeng Wu, Qinglan Qian, Zihao Zheng and Fuzhuang Han ...........87

Remote Sensing Based Evaluation of Intensive Coastline Utilization: Tianjin Center Harbor,
China
Lijuan Yang and Hanqiu Xu ......................................................................................92

Fast Ship Detection from Optical Satellite Images Based on Ship Distribution Probability Analysis
Xiaoyang Xie, Qizhi Xu and Lei Hu ..........................................................................97

Simulation of Canopy FPAR and Its Relation with Vegetation Index: A Case Study of Evergreen
Coniferous Forests
Shouzhen Liang, Huimin Yao, Meng Wang, Xueyan Sui, Xuehui Hou and Tao Liu ....102

Investigating Spatial and Temporal Variations of Species Composition in a North American
Grassland Using Unmanned Aerial Vehicles (UAV)-Acquired Imagery
Bing Lu, Yuhong He and Hugh Liu ..........................................................................107

Water Quality Monitoring Based on Multiple Remote Sensing Imageries
Shijin Li, Haichen Zhu, Deqing Chen and Lingli Wang .................................................................112

A Sea-land Segmentation Algorithm Based on Gray Smoothness Ratio
Huihui Xiao, Qizhi Xu and Lei Hu .....................................................................................................117

Correlation Analysis between Vegetation Fraction and Vegetation Indices in Reclaimed Forest: A Case Study in Pingshuo Mining Area
Yao Zhang and Wei Zhou ..................................................................................................................122

Estimating Orthophosphate Phosphorus Concentration in Shenzhen Bay with Remote Sensing and Legacy In-Situ Measurements
Huizeng Liu, Guofeng Wu, Tiezhu Shi, Zengyun Hu and Qiming Zhou .............................................127

Design and Implementation of Geo-Spatial Image Processing System Using OGC WPS 2.0 and Web Framework on Open-Stack Cloud
Gooseon Yoon, Kwangseob Kim and Kiwon Lee ..............................................................................132

Automatic Recognition of Diseased Trees Based on the Vertical Structure of Airborne Point Clouds: A Case Study of Diseased Trees of Great Smoky Mountains
Wei Hu, Yue Wang and Qingwu Hu ................................................................................................136

Extraction of Building Information Using Geographic Object-based Image Analysis
Shudi Fan, Zhenhua Liu and Yueming Hu ............................................................................................140

A Decision Fusion Method for Land Cover Classification Using Multi-sensor Data
Abeer Mazher and Peijun Li ..............................................................................................................145

A Total Suspended Sediment Retrieval Model for Multiple Estuaries and Coasts by Landsat Imageries
Chongyang Wang, Dan Li, Danni Wan, Shuisen Chen and Wei Liu ....................................................150

A Ship Target Automatic Recognition Method for Sub-meter Remote Sensing Images
Tong Shuai, Kang Sun, Benhui Shi and Jinyong Chen .........................................................................153

Analyzing Stains on Calligraphy and Painting Using Hyperspectral Imaging
Yanping Tan and Miaole Hou .............................................................................................................157

The Extraction and Fusion of Faint Mural Based on Feature Transform of Hyperspectral Images
Pan Ning and Miaole Hou ..................................................................................................................161

Mineral Pigment Recognition Based on Spectral Feature Analysis and Quantification
Zhang Chenfeng and Hu Yungang .......................................................................................................165
Spatial and Temporal Variation Characteristics of Fractional Vegetation Cover in Qinghai Province from 2009 to 2015
Yingkun Du, Chengfeng Luo, Qin Yan and Lixia Tong ................................................................. 169

Spectral Unmixing Of Mineral Pigment Mixture by Using Derivative of Ratio Spectroscopy
Qinli Yin and Lv Shuqiang ............................................................................................................... 174

Effect characteristics of Chinese New Year fireworks/firecrackers on PM$_{2.5}$ concentration at large space and time scales
Xuechen Zhang, Huanfeng Shen and Tongwen Li ........................................................................ 179

Numerical Simulation of Diurnal Variation of Urban Land Surface Temperature Based on CLM4.5
Meiling Gao, Huanfeng Shen, Xujun Han and Weijing Chen .......................................................... 183

Surface Water Body Extraction Using a Progressive Enhancement Model from Remote Sensing Images
Peihua Feng, Zhenhua Liu, Liancheng Chen and Yueming Hu ......................................................... 188

Urban Expansion Modes of Major Cities in China in the Past Four Decades
Fang Liu, Zengxiang Zhang, Lifeng Shi and Xiao Wang .................................................................. 193

Monitoring the changes of Lakes in the Source Region of Three Rivers with Remote Sensing Data from 1976 to 2013
Chengfeng Luo, Minghui Hao, Yonghua Li and Lixia Tong ............................................................ 198

Time Series Remote Sensing Based Dynamic Monitoring of Land Use and Land Cover Change
Tan Yumin, Bai Bingxin and Mohammad Masum Syed ................................................................. 202

Analysis on the Temporal and Spatial Change of Land Use and Its Driving Factors of Declining Resource-based City
Guo Ping, Zhou Wei, Yuan Tao and Han Jin ..................................................................................... 207

Long-Term Monitoring of the Urban Impervious Surface Mapping Using Time Series Landsat Imagery: A 23-Year Case Study of the City of Wuhan in China
Zhenfeng Shao, Yuan Zhang and Weiqi Zhou .............................................................................. 212

Spatio-Temporal Mapping and Monitoring of Urban Heat Island Patterns over Sydney, Australia using MODIS and Landsat-8
Paras Sidiqui, Alfredo Huete and Rakhesh Devadas ..................................................................... 217

Research on Image Feature Point Extraction Methods of Low Altitude Remote Sensing
Tan Yumin, Xiong Baowu, Jia Weinan and Shen Chao ................................................................ 222
Ground Subsidence Monitoring along the Levee of Huangpu River by Multi-Platform High-Resolution SAR Images
Jicang Wu, Fengming Hu and Tianliang Yang .................................................................227

The Construction Method of Measurable Aerial Panorama Based on Panoramic Image and Multi-view Oblique Images Matching
Datian Hu, Yue Wang, Qingwu Hu and Wei Hu ..........................................................232

Geo-Data Visualization On Online and Offline Mode of Mobile Web Using html5
Hansaeom Park, Kwangseob Kim and Kiwon Lee .......................................................237

Semi-automatic Mapping of Large Shallow Landslides Using High-resolution Remote Sensing Imagery
Hui Li, Linhai Jing, Liming Wang, Zhongchang Sun and Qizhong Lin .........................241

Development of an Automated System for Building Detection from High-Resolution Satellite Images
Hiroyuki Miyazaki, Kentaro Kuwata, Wataru Ohira, Zhiling Guo, Xiaowei Shao, Yongwei Xu and Ryosuke Shibasaki ..........................................................246

A Study of Urban Heat Island Intensity Based on “Local Climate Zones”: A Case Study in Fuzhou, China
Zhongli Lin and Hanqiu Xu .........................................................................................250

A Comparison of Multiple-Point Statistics and Two-Point Statistics for Spectral-Spatial Land Cover Classification
Zhongkui Shi and Peijun Li .........................................................................................255

Monitoring of Land Surface Deformation in Beijing with Time-Series InSAR Technique Based on Multi_Band InSAR Data Using RADARSAT-2 and TERRASAR-X
Wanwan Zhang, Yinghai Ke, Huili Gong, Lin Zhu and Beibei Chen .........................260

The Spatial Correlation Analysis of GDP in Villages and Towns of Fujian Province Basing on Nighttime Light Data
Xin Zhan, Wenbin Pan, Peng Zheng and Yuanbin Cai ........................................265

A Novel Data Compression Approach for LIDAR Point Information: Lossless and Effective
Xianxiong Liu, Yue Wang, Qingwu Hu and Dengbo Yu ........................................270

An Online Land Cover Change Detection System with Web Service Composition
Huaqiao Xing, Jun Chen, Hao Wu, Jun Zhang and Boyu Liu ....................................275

Evaluate the Contribution of SAR Data in Improving the Impervious Surfaces Extraction at Varying Scales
Correlation between Land Surface Temperature Inversion (Based on Landsat-8) and PM$_{2.5}$ Concentration: Taking Guangzhou as an Example
Zihao Zheng, Yibiao Chen, Zhifeng Wu and Qinglan Qian .................................................................284

The Estimation and Analysis of NPP from 1982 to 2014 in Yunnan Province based on Multi-source Remote Sensing Data
Xiaobin Guan, Huanfeng Shen, Wenxia Gan and Liangpei Zhang ..........................................................290

Geoscene-based Vehicle Detection from Very-high Resolution Images
Mi Shu and Shihong Du .........................................................................................................................295

Evaluation of Wildfire Occurrence along High Voltage Power Line by Remote Sensing Data: A Case Study in Xianning, Hubei, China
Zhang Xiaozhi, Li Tao, Xu Kan, Chen Zhiguo, Chen Xiaoming and Ruan Ling ....................................300

Landscape Pattern Analysis of Green Space in Central Urban Area of Zhuhai City
Sun caige, Li xiaojun, Zhong kaiwen, Liu xulong, Liu wangshuai, and Peng longjun ..............................305

Modeling on Environmental Quality Evaluation for Urban Residential Area by High Resolution Remote Sensing Classification Informatics
Meichun Yan, Hui Li, Yao Fang and Yuanchao Wang ...........................................................................309

Evaluation of CBERS-04 Data’s Application on Geological Hazard Investigation and Monitoring
Kun Shang, Fuping Gan, Dandan Wei and Zhenhua Zhang .................................................................314

Selection Strategy of Classification Methods for Hyperspectral Remote Sensing Data
Kun Shang, Chenchao Xiao, Hongyan Wei and Yisong Xie ....................................................................319

Evaluation of the Correlation between Remotely Sensing-Based and GIS-Based Anthropogenic Heat Discharge in Los Angeles County, USA
Yuanfan Zheng and Qihao Weng ..........................................................................................................324

A Simplified Training Data Collection Method for Sequential Remote Sensing Image Classification
Yikai Wu and Liew Soo Chin .................................................................................................................329

Making Series of Achievements for Building Entity Measured by Terrestrial Laser Scanning
Yuanrong He and Yuanmao Zheng ........................................................................................................333

Deep Feature Representations for High-Resolution Remote Sensing Scene Classification
Weixun Zhou, Zhenfeng Shao and Qimin Cheng ...................................................................................338
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affine-Invariant Regions and Geometric Relationship Constrained Matching For Low-Altitude Images Of Urban Area</td>
<td>Congmin Li, Zhenfeng Shao and Bo Liu</td>
<td>343</td>
</tr>
<tr>
<td>Risk Factor Identification and Spatiotemporal Diffusion Path during the Dengue Outbreak</td>
<td>Weihong Li and Yeben Chen</td>
<td>348</td>
</tr>
<tr>
<td>Estimation of Forest Aboveground Biomass Using the Integration of Spectral and Textural Features from GF-1 Satellite Image</td>
<td>Linjing Zhang, Zhenfeng Shao and Zhiguo Wang</td>
<td>353</td>
</tr>
<tr>
<td>Research on 3D Digital Watermarking for Cultural Relics</td>
<td>Lili Jiang and Miaole Hou</td>
<td>358</td>
</tr>
<tr>
<td>Cool Island Effects of Urban Green Open Spaces in the Process of Urbanization: A Multi-temporal Study of Xiamen Island</td>
<td>Xiaofeng Zhao, Jiahui Liu and Lele Liu</td>
<td>363</td>
</tr>
<tr>
<td>A Study on the Quantitative Relationship between Impervious Surface and Land Surface Temperature Based on Remote Sensing Technology</td>
<td>Fei Tang and Hanqiu Xu</td>
<td>368</td>
</tr>
<tr>
<td>Mapping Aerodynamic Roughness Length With Multi-Source Remote Sensing Data</td>
<td>Deyong Hu, Shisong Cao, Shanshan Chen and Nan Feng</td>
<td>373</td>
</tr>
<tr>
<td>Research on Processing and Analysing of Point Cloud Data of a variety of Lidar</td>
<td>Jiangfan Peng, Xingwang Shen and Ming Guo</td>
<td>377</td>
</tr>
<tr>
<td>Fine-Scale Impervious Surface Extraction by Fusing High Resolution Remote Sensing Images and Vehicle Digital Measurable Images</td>
<td>Zhenfeng Shao, Dewen Wu, Changzeng Tang and Yang Song</td>
<td>382</td>
</tr>
<tr>
<td>Landslide Susceptibility Assessment Using T-S Fuzzy Neural Network Model - A Case Study of Quanzhou District, Fujian Province</td>
<td>Yi-Min Lu, Ya-Qiong Wang and Ling Sheng</td>
<td>387</td>
</tr>
<tr>
<td>Aboveground Biomass Estimation in a Subtropical Forest Using Airborne Hyperspectral Data</td>
<td>Xin Shen, Lin Cao, Kun Liu, Guanhui She and Honghua Ruan</td>
<td>391</td>
</tr>
<tr>
<td>An Automatic Cloud Detection Algorithm for Landsat Remote Sensing Image</td>
<td>Juan Deng, Hongchen Wang and Jun Ma</td>
<td>395</td>
</tr>
<tr>
<td>Using D-InSAR and Offset Tracking Technique to Monitor Mining Subsidence</td>
<td>Depin Ou, Kun Tan and Shiyong Yan</td>
<td>400</td>
</tr>
</tbody>
</table>
Assessment of the Ecological Carrying Capacity Based On High Resolution Data: A Case Study of Yuxian, China
Kailei Xu, Kun Tan and Peijun Du ..........................................................405

The Correlation between Land Use and Water Quality in the Typical Urbanized Region of China: A Case Study in the River Net Area of Pearl River delta
Xulong Liu, Kaiwen Zhong, Caige Sun and Xiaojun Li ........................................410

A Study on the Application of SAM Classification Algorithm in Seal of Calligraphy and Painting Based on Hyperspectral Technology
Tan Li and Miao-le Hou ..................................................................................415

Impacts of Feature Selection for Urban Impervious Surface Extraction Using Optical Image and SAR Data
Huyan Fu, Zhenfeng Shao, Conghuan Tu and Qian Zhang .................................419

Hazard Degree Assessment of Coastal Erosion at Tianlongsi Adjacent Sandy Coast
Shiyong Wen, Fengshou Zhang, Xiang Wang, Zizu Wang, Fei Li, Fei Wang, Xinxin Wang and Xuegong Xu ..............................................................424

Impervious Surface Extraction with Linear Spectral Mixture Analysis integrating Principal components analysis and Normalized Difference Building Index
Yi Zhao, Jianhui Xu and Kaiwen Zhong .............................................................428

Object Detection in VHR Optical Remote Sensing Images Via Learning Rotation-Invariant HOG Feature
Gong Cheng, Peicheng Zhou, Xiwen Yao, Chao Yao, Yanbang Zhang and Junwei Han .................433

Relationship between Temperatures from Landsat Thermal Infrared Band Retrievals and Synchronous Weather Measurements
Yongzhu Xiong and Feng Chen ........................................................................437

Remote Sensing of Glacier Distribution and Change over the Qinghai-Tibet Plateau
Linghong Ke, Xiaoli Ding, Lei Zhang, C.K. Shum, Cheinway Hwang and Yuanni Luo ..............442

Establishment of Remote Sensing Monitoring Method and Standard on Winter Planting Crops A Case Study in Leizhou Peninsula of South China
Shuisen Chen, Dan Li, Siyu Huang, Chongyang Wang and Wei Liu ..........................447

Rationality Analysis of Urban Land Urbanization in China from 1980s to 2010
Lifeng Shi, Zengxiang Zhang, Xiaoli Zhao and Fang Liu ........................................452
Analysis of Temporal and Spatial Characteristics about Surface Actual Evapotranspiration in Haihe River Basin Based on MODIS
Xinling Wu and Dan Meng .................................................................456

The Research of Multispectral Remote Sensing Image Classification Based on Unmixing for the Loess Plateau
Xiang-bing Kong, Li Li, Weiying Sun, and Guanju Wei .................................................................461

Interband Prediction Compressed Sensing Reconstruction Algorithm for Hyperspectral Image
Ying Hou and Yanning Zhang .................................................................465

Temperature Variation and Winter Planted Potato’s NDVI Change during early 2016’s Super Cold Wave in Guangdong Province, South China
Wei Liu, Siyu Huang, Dan Li, Chongyang Wang and Shuisen Chen ..............................................470