2016 5th International Conference on Agro-Geoinformatics (Agro-Geoinformatics 2016)

Tianjin, China
18-20 July 2016

IEEE Catalog Number: CFP1648T-POD
ISBN: 978-1-5090-2351-6

Copyright © 2016 by the Institute of Electrical and Electronics Engineers, Inc
All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

******This publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number: CFP1648T-POD
ISBN (Print-On-Demand): 978-1-5090-2351-6
ISBN (Online): 978-1-5090-2350-9

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

Table of Contents

Computer Vision Techniques for Automatic Determination of Yield Effective Bad Condition Storage Effects on Various Agricultural Seed Types.....1
Sercan Aygün and Ece Olcay Güneş

Design of an Embedded System for Automatically Determination of the Varieties of Wheat Seeds Grown in Turkey Based on Image Analysis.....7
Sercan Aygün, Bilgi Görkem Yazgaç, Mürvet Kırcı and Ece Olcay Güneş

COMPARISON OF CLASSIFICATION ACCURACY OF CO-LOCATED HYPERSPECTRAL AND MULTISPECTRAL IMAGES FOR AGRICULTURAL PURPOSES.....13
Selin Bostan, Mehmet Akif Ortak, Caglayan Tuna, Alper Akoguz, Elif Sertel and Burak Berk Ustundag

A Scientific Workflow Approach for Hydrologic Analysis from Digital Elevation Model.....17
Xiaoqian Bu and Peng Yue

PHYTOTOXICITY OF GRAPHENE AND GRAPHENE OXIDE IN TOMATOES AND BEANS.....22
Yuksel Cakir and Ozgen Umit Colak Cakir

Research of time series air quality data based on exploratory data analysis and visualization.....27
Yu Changhui

Land Use Classification in Construction Areas Based on Volunteered Geographic Information.....32
Chenru Chen, Zhenbo Du, Dehai Zhu, Chao Zhang and Jianyu Yang

POTENTIAL OF RADARSAT-2 DATA ON IDENTIFYING SUGARCANE LODGING CAUSED BY TYPHOON.....36
Jinsong Chen, Hongzhong Li and Yu Han

Significant decreasing trends of soil moisture in eastern China during 1979-2010.....42
Xiuzhi Chen, Yongxian Su, Jishan Liao and Jiali Shang

Floating Car Data Processing Model Based on Hadoop-GIS Tools.....46
Zhu Deng and Yuqi Bai

Data acquisition from greenhouses by using autonomous mobile robot.....50
Halil Durmus, Ece Olcay Gunes and Murvet Kirci

Efficiency Potential Provided by Increasing the Integration Level in Agricultural Information Systems and the Relevant Roadmap in TURKEY.....55
İsmail Hakan Erden and İbrahim Aykut Kaya

The Relationship Between Cigarette Sales and the Economy Indexes in Guizhou Province.....61
Hong Fan, Siyu Zhao and Huan Li

Operation and Management of Drinking Water Supply Project in Rural Regions of Loess Plateau.....66
Ling Fu and Han-Hai Liu

The design and realization of REST Services for construction landuse supervision data management.....70
Bingbo Gao, Yuchun Pan, Xiaolan Li, Yunbing Gao, Bingqian Shan, Xinyao Hao and Yanbing Zhou

Research on layout optimization of Industrial land based on space safety diagnosis: Case study of Beichen district, Tianjin.....76
Xu Gao, Qiu Huang, Lei Zhang, Jiang Bian, Lijun Wang and Xiaoqin Chen

Area Description Method of Land Use Features Based on Sets Algebra.....82
Yunbing Gao, Yipeng Zhang, Bingbo Gao, Chunjiang Zhao, Qiuying Tong, Rumin Wang, Yanbing Zhou and Yuchun Pan

Spatial distribution and variation analysis of Lyme disease in the Northeastern United States.....88
Liying Guo, Ziheng Sun, Liping Di and Li Lin

Estimating Leaf Area Index of Winter Oilseed Rape Using High Spatial Resolution Satellite Data.....92
Jiahui Han, Xiaodong Song, Chuanwen Wei, Yaoliang Chen, Weiwei Liu, Peilin Song, Dongdong Zhang, Zhen Zhou, Bing Han and Jingfeng Huang

An Interpolation Method for Soil Moisture Considering the Spatio-temporal Characteristic.....97
Xia Hao, Chengming Zhang, Chao Zhang, Fan Yu and Wenwen Gong

Remote sensing of locust and grasshopper plague in China: A review.....103
Ke He and Jingfeng Huang

What is statistical relationship between climatic factors changes and rice production at agro-subzone and nationwide levels during the period 1961-2040 based on remote sensing and GIS? 109
Yingbin He, Zhenya Zhou, Mingjie Gao, Yang Liu, Weimin Cai, Jingzhu Chen and Lei Zhang

The Research of Metadata about Changjiang River Field Scientific Observation Data.....115
Chengfang Hu

Evaluation of CropSyst model embedded in BioMa platform in simulating the yield of winter wheat in North China.....120
Qing Huang, Wenbin Wu, Zhongxin Chen and Hang Liu

A change detection approach of high-resolution imagery combined the pre-classification with the post-classification comparison.....125
Ying Jiang, Xiongfei Wen, Daxiang Xiang, Debao Tan, Youchuan Wan, Zhe Li and Sui Zhang

Research on Increasing Production Benefit of Economic Crops under irrigation.....131
Jin Jianhua and Wang Yangren

The timing variations and spatial pattern of winter wheat in China.....136
Zhuang Jiayu, Li Zhemin, Li Yanni and Yong Xi

Forecasting vegetation index based on vegetation-meteorological factor interactions with artificial neural network.....140
Lingjun Kang, Liping Di, Meixia Deng, Eugene Yu and Yang Xu

Study of the vegetation index-meteorological factor correlation adjusted by accumulated growing degree days.....146
Lingjun Kang, Liping Di, Eugene Yu, Li Lin, Ranjay Shrestha, Md. Shahinoor Rahman and Yang Xu

Remote Estimation of Carotenoid/Chlorophyll Ratio in Vertical Layers Using Canopy Multi-angle Spectral Data.....152
Weiping Kong, Wenjiang Huang and Xianfeng Zhou

NEURAL NETWORK WITH WAVELET PREPROCESSING FOR WHEAT GROWTH STAGE ESTIMATION.....157
Ajla Kulaglic and Berk Ustundag

Regional Applications of Crop Phenology Proportion Index on Fractional Crop Area Estimation Using MODIS Data.....162
Le Li, Yaozhong Pan, Jinshui Zhang, Xiufang Zhu and Fangting Li

Classification of Irrigated and Non-Irrigated Cropland Using Object-based Image Analysis: A Case Study in South-Central Nebraska.....167
Ruopu Li, Mahesh Pun and Denis Mutiibwa

The simulation study of agricultural non-point source pollution of nitrogen and phosphorus based LUCC in GuangFu River Basin.....171
Shuang Li and Yuanyuan Sun

The soil heavy metal content mapping method research based on Sandwich Model.....176
Xiaolan Li, Bingbo Gao, Yuchun Pan, Yunbing Gao and Xiaoming Xie

Cloud Computing driven Efficient mapping on Soil Moisture under Sensor Web environment.....182
Zhou Lianjie, Chen Nengcheng and Chen Zeqiang

Rapeseed 3D Reconstruction and Morphological Parameter Measurement Based on Laser Point Cloud.....187
Chengda Lin, Ruifang Zhai, Yidan Yao and Kun Chen

A Review of Remote Sensing in Flood Assessment.....193
Li Lin, Liping Di, Eugene Genong Yu, Lingjun Kang, Ranjay Shrestha, Md. Shahinoor Rahman, Junmei Tang, Meixia Deng, Ziheng Sun, Chen Zhang and Lei Hu

Discrimination of waterlogging impact on winter wheat using high spatial resolution satellite data.....197
Weiwei Liu, Lijie Zhang, Chanwen Wei, Xiuzhen Wang, Jiahui Han, Zhou Zhen, Dongdong Zhang, Yaoliang Chen, Bing Han, Jingfeng Huang and Xiaodong Song

An analysis of land cover change in Northern Virginia in the first decade of 21st century.....202
Ziao Liu, Ziheng Sun and Liping Di

Short-term Water Level Prediction using Different Artificial Intelligent Models.....207
Lizhen Lu, Shuyu Zhang, Jianjun Yu and Hongjie Zhou

Study and Realization on regional construction land consolidated supervision based on geographical information spatial-temporal analysis and knowledge rule base.....213
Changlin Luo, Qiuying Tong and Zonghua Li

An Efficient Polygon Marine Data Update Approach Based on Features Matching.....218
Qingxiang Meng and Jing Chen

Outliers detection of cultivated land quality grade results based on spatial autocorrelation.....223
Yan Mingyang, Tong Qiuying and Wang Rumin

Comparison of Selected Noise Reduction Techniques for MODIS Daily NDVI: An Empirical Analysis on Corn and Soybean.....228
Md. Shahinoor Rahman, Liping Di, Ranjay Shrestha, Eugene Yu, Li Lin, Lingjun Kang and Meixia Deng

Plant Classification using Convolutional Neural Networks.....233
Salar Razavi and Hulya Yalcin

The Potential of Sentinel-1A Interferometric SAR Data in Monitoring of Surface Subsidence caused by Overdrafting Groundwater in Agricultural Areas.....238
Selver Senturk, Ziyadin Cakir and Berk Ustundag

Study on Yield Estimation of Spring Wheat basing on Hyperspectral data under Different Meteorological Condition in Semi-Arid Rain Fed Region.....242
Sha Sha, Xiao Ping Wang, Qiao Zhen Li and Wei Dong Li

Regression based Corn Yield Assessment using MODIS Based Daily NDVI in Iowa State.....248
Ranjay Shrestha, Liping Di, Genong Yu, Lingjun Kang, Li Lin, Md. Shahinoor Rahman, Meixia Deng and Zhengwei Yang

Hybrid Satellite Agriculture Drought Indices - A multi criteria approach to improve crop insurance.....253
Shweta Sinha and Nitin K Tripathi

Potential of Boosted Regression Trees for early-season prediction of winter wheat yield in Henan prefectures using SPOT-VGT/PROBA NDVI time series.....258
Michiel Stas, Beier Zhang, Stien Heremans, Qinghan Dong and Jos Van Orshoven

Monitoring of Nitrogen cycling and balance in maize monoculture agro-ecosystem in northeast China black soil.....263
Jingwen Sun, Yugang Ji and Wei Zhou

Eichhornia Crassipes Productivity and Harvesting Using Satellite Remote Sensing.....268
Ling Sun and Zesheng Zhu

Satellite Remote Sensing Experiment That Evaluates Rotational Effect of Rice in Bean-Rice Rotation.....272
Ling Sun and Zesheng Zhu

Analysis of Influencing Factors on Grain Crop Yield in Qiqihar City, Heilongjiang Province.....276
Xiwen Sun, An Zhang and Qingwen Qi

Embedding Pub/Sub mechanism into OGC web services to augment agricultural crop monitoring.....281
Ziheng Sun, Liping Di, Hui Fang, Chen Zhang, Eugene Yu, Li Lin, Xicheng Tan and Peng Yue

Combining OGC WCS with SOAP to faciliate the retrieval of remote sensing imagery about agricultural fields.....285
Ziheng Sun, Liping Di, Chen Zhang, Li Lin, Hui Fang, Xicheng Tan and Peng Yue

An Interoperable wireless sensor network platform for spatio-temporal soil moisture and soil temperature estimation.....289
Saurabh Suradhaniwar, Suryakant Sawant, Mrunalini Badnakhe, Surya Durbha and Adinarayana Jagarlapudi

Grid scale research on Chaohu Basin's farmland fragmentation based on entire-array-polygon indicator method.....295
Xiaoli Tai, Wu Xiao and Jianfei Xu

A Comparative Analysis to the Array Database Technology and Its Use in Flexible VCI Derivation.....301
Zhenyu Tan and Peng Yue

A Novel Fuzzy Cardinal Direction Model with Topological Reference.....307
Xuehua Tang and Yang Yu

Study on the Lambertian property of cropland in thermal infrared region through field experiments.....312
Lili Tu, Zhihao Qin, Wenjuan Li, Jun Geng and Lechan Yang

Comparison of spatial sampling schemes for crop sown acreage estimation in large-scale inventories.....317
Di Wang, Zhongxin Chen, Qingbo Zhou and Jia Liu

An overview of spatial sampling procedures for crop area estimation.....323
Di Wang, Qingbo Zhou, Zhongxin Chen and Zhaoxia Dong

Study on non-destructive estimation of nitrogen concentration of water hyacinth by hyperspectral data.....329
Jingjing Wang, Ling Sun and Huazhou Liu

Evaluation on Efficiency of Smart Land Use Based on Rational Urbanization: Case Study of Tianjin, China.....334
Lijun Wang, Lei Zhang, Xiaoqin Chen, Xu Gao and Qiu Huang

An Evaluation of Two Active Canopy Sensor Systems for Non-destructive Estimation of Spring Maize Biomass.....340
Xinbing Wang, Yuxin Miao, Yanjie Guan, Tingting Xia, Junjun Lu and David Mulla

Research on A Kind of Remote Sensing Registration Algorithm Based on Improved SIFT.....346
Yuanyuan Wang, Chenming Zhang and Xiaoxia Yang

Agricultural Information Retrieval in Geographically Distributed Networks.....350
Chen Wei, Li Zhemin, Zhang Chao, Wang Dongjie and Wu Chen

Study of Soil Moisture Remote Sensing Retrieval System Based on Interactive Data Language.....354
Jing Wu, Chunbin Li, Zhengdong Shen, Chunxiao Liu and Ruie Lian

Study on the retrieval of soil moisture by active and passive microwave remote sensing.....359
Qian Wu, Chengming Zhang, Fan Yu, Chao Zhang and Wenwen Gong

Multi-source heterogeneous Hakka culture heritage data management based on MongoDB.....363
Qunyong Wu and Ying Jiang

Multi-site Hakka tangible cultural heritage data collaborative service system.....369
Qunyong Wu, Jianqiang Li and Mei Sun

A Workflow Approach for mosaicking UAV images.....374
Zhaoyan Wu, Peng Yue, Mingda Zhang and Zhenyu Tan

Evaluating Precipitation Probability of Different Types Cloud based on FY-2 Remote Sensing Images and TRMM Data.....378
Daxiang Xiang, Xiongfei Wen, Qiao Wang, Shaohong Shen and Zhe Li

Research on the Application of PPGIS in Agricultural Environmental Change Monitoring.....383
Jian Xiang and Zongyi He

A soil moisture prediction algorithm base on IPSO-IBP.....389
Yang Xiaoxia, Zhang Chengming, Wang Yuanyuan and Zhang Chao

An inter-agency collaborative computing framework for fast flood mapping using distributed remote sensing data.....395
Jibo Xie, Wenyang Yu and Guoqing Li

Mapping rice planting area from Landsat 8 imagery using one-class support vector machine.....400
Xinjie Xu and Tao Cheng

Management and spatial evolution of rural land circulation: Taking Zhengjia Town as an example.....405
Chunlu Xue, Lin Guo, Hualang Hua and Zhiyuan Pei

Discovery and Prediction of the Unused Land for Construction Based on Random Forest.....411
Xiaofang Xun, Lingfei Mo and Yan Yu

Delineation of Parcels in Agricultural Lands in Remote Sensing.....416
Hulya Yalcin

Study on the method and model of rice quality monitoring based on hyperspectral data.....420
Shibo Yan, Jia Liu, Limin Wang, Xiuzhen Wang and Jingfeng Huang

Analysis for the spatial and temporal patterns of plasticulture in Shandong province, China with remotely sensed data.....424
Dedi Yang, Sirui Sun, Jin Chen and Xinbo Liu

A new method of building extraction from high resolution remote sensing Images based on NSCT and PCNN.....428
Jian Yang, Qingyan Meng, Qingqing Huang and Zhenhui Sun

Distributed reflectance model mining of leaf nitrogen content for hyperspectral data by using gene expression programming.....433
Lechan Yang, Zhihao Qin, Wenjuan Li, Song Deng and Lili Tu

Segmentation of crop organs through region growing in 3D space.....439
Lin Yang, Pujuan Shi, Ruifang Zhai and Pengfei Wu

Research on crop dynamic irrigation lower limit under limited water supply Ⅰ-Method.....445
Wang Yangren, Jin Jianhua and Liu Qunchang

Research of tomato economical irrigation schedule with drip irrigation under mulch in greenhouse.....449
Wang Yangren, Wang Shaosheng, Zheng Zhiwei and Zhao Baoyong

Detection of Sunn Pests Using Sound Signal Processing Methods.....454
Bilgi Görkem Yazgaç, Mürvet Kırcı and Müjgan Kıvan

The Results of the Reference Crop Transpiration by Evaporation Shanxi Xiao He Region.....460
Lantao Ye, Yangren Wang and Shuhong Sun

Development Evaluation and Spatial-Temporal Changes of Chinese Agricultural Modernization since 2008.....464
Yan-Jun Ye, Qing-Wen Qi, Li-Li Jiang and Qi-Zhang Liang

Online Parameterization for WOFOST for United States Using Open Geospatial Standard.....468
Eugene Yu, Liping Di, Zhengwei Yang, Lingjun Kang, Ranjay Shrestha, Md Shahinoor Rahman, Li Lin and Meixia Deng

Fluctuation Characteristics of Grain Output in He'nan based on EMD model.....474
Liu Yu, Tang Xiumei and Gao Bingbo

Developing a mobile GIS-based component to collect field data.....479
Sijing Ye, Dehai Zhu, Xiaochuang Yao, Xiaodong Zhang and Lin Li

Cloud computing for environmental monitoring using multi-source Earth Observation data.....485
Wenyang Yu, Jibo Xie and Guoqing Li

A GeoPackage implementation of Common Map API on Google Maps and OpenLayers to manipulate agricultural data on mobile devices.....489
Chen Zhang, Ziheng Sun, Gil Heo, Liping Di and Li Lin

Developing a GeoPackage Mobile App to Support Field Operations in Agriculture.....493
Chen Zhang, Ziheng Sun, Gil Heo, Liping Di and Li Lin

Estimating leaf area index of sugarcane based on multi-temporal digital images.....497
Dongdong Zhang, Li Li, Xiaodong Song, Lamin R. Mansaray, Xuanke Wu, Zhen Zhou, Zhaomin Kuang, Jiahui Han, Kangyu Zhang, Weiwei Liu, Hongwei Jin, Libing Xu, Han Sun and Jingfeng Huang

Analysis of Land Damage Degree Considering Terrain Factors In Coal Mining Area with High Groundwater.....502
Jianyong Zhang and Yanling Zhao

The Spatial-Temporal Dynamic Monitor of Spring Drought Based on TVDI Model in Guanzhong Area.....507
Jingyan Zhang and Jianjun Bai

Auto-Extraction Method of Farmland Irrigation and Drainage System Based on Domestic High-Resolution Satellite Images.....513
Wen Zhang, Zhiyuan Zhang and Zhen Huang

Rice growth parameters retrieval in Central China in a complex rice cropping system using multi-temporal and quad polarization Radarsat-2 data.....519
Xiaoqian Zhang, Fei Wang, Pengbin Zhang, Hu Zhao, Jing Lou, Kejian Shen and Zhiyuan Pei

VERTICAL FEATURES OF YELLOW RUST INFESTATION ON WINTER WHEAT USING HYPERSPECTRAL IMAGING MEASUREMENTS.....525
Jinling Zhao, Zhang Dongyan, Linsheng Huang, Hao Yang, Qing Guo and Wenjing Liu

Correlation Analysis of Solar Radiation in Growth season and Grain Yield per hectare.....529
Kai Zhao, Qingwen Qi, An Zhang and Lili Jiang

The Influence of Planting Angle on Maize Based on GIS.....533
Kai Zhao, Qingwen Qi, An Zhang, Lili Jiang and Qizhang Liang

Using high spatial and temporal resolution data blended from SPOT-5 and MODIS to map biomass of summer maize.....538
Yang Zheng, Miao Zhang and Bingfang Wu

Research on the Relationship among the Growth Period Environmental Factors of Tomato under the Condition of Mulched Drip Irrigation in Greenhouse.....543
Zhiwei Zheng and Yangren Wang

Research on Tomato Water Requirement with Drip Irrigation under Plastic Mulch in Greenhouse.....548
Zhiwei Zheng, Yangren Wang, Shaosheng Wang and Baoyong Zhao

Quantitative analysis of salinized soil reflectance spectra during microbial remediation processes based on PLSR.....553
Yun Zhu, Guang-Rong Shen and Qiao-Qiao Xiang

Comparison of five drought indices for agricultural drought monitoring and impacts on winter wheat yields analysis.....559
Wen Zhuo, Jianxi Huang, Xiaodong Zhang, Hao Sun, Dehai Zhu, Wei Su, Chao Zhang and Zhe Liu

Detection of Green and Orange Color Fruits in Outdoor Conditions for Robotic Applications.....565
Bengi Öztürk, Mürvet Kırcı and Ece Olcay Güneş