

# **ISPRS Hannover Workshop 2013**

**ISPRS Archives Volume XL-1/W1, 2013**

**Hannover, Germany  
21 – 24 May 2013**

**Editors:**

**C. Heipke  
K. Jacobsen**

**F. Rottensteiner  
U. Sorgel**

**ISBN: 978-1-62993-514-0**

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2013) by the International Society for  
Photogrammetry and Remote Sensing (ISPRS)  
All rights reserved.

Printed by Curran Associates, Inc. (2014)

For permission requests, please contact the International Society for  
Photogrammetry and Remote Sensing (ISPRS)  
at the address below.

International Society for Photogrammetry and Remote Sensing (ISPRS)  
Attn: Chen Jun  
National Geomatics Centre of China  
28 Lianhuachixi Road Haidian  
Beijing 100830 China

Phone: 86 10 63 88 1102

Fax: 86 10 68 42 4101

chenjun@nsdi.gov.cn

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2634  
Email: curran@proceedings.com  
Web: www.proceedings.com

INTEGRATION OF LIDAR DATA INTO A MUNICIPAL GIS TO STUDY  
SOLAR RADIATION

P. Africani, G. Bitelli, A. Lambertini, A. Minghetti, and E. Paselli

Page(s) 1-6

EVALUATION OF PERSISTENT SCATTERER PATTERNS AT BUILDING  
FACADES BY SIMULATION TECHNIQUES

S. Auer, S. Gernhardt, and K. Eder

Page(s) 7-12

LINE-BASED REGISTRATION OF DSM AND HYPERSPECTRAL IMAGES

J. Avbelj, D. Iwaszczuk, R. Müller, P. Reinartz, and U. Stilla

Page(s) 13-18

REGISTRATION OF OPTICAL DATA WITH HIGH-RESOLUTION SAR  
DATA: A NEW IMAGE REGISTRATION SOLUTION

T. Bahr and X. Jin

Page(s) 19-21

PRECISE 2-D AND 3-D GROUND TARGET LOCALIZATION WITH  
TERRASAR-X

U. Balss, C. Gisinger, X. Y. Cong, M. Eineder, and R. Brcic

Page(s) 23-28

USING MORPHOLOGICAL DIFFERENTIAL ATTRIBUTE PROFILES FOR  
CHANGE CATEGORIZATION IN HIGH RESOLUTION SAR IMAGES

M. Boldt, K. Schulz, A. Thiele, and S. Hinz

Page(s) 29-34

RIGOROUS GEOREFERENCING OF ALSAT-2A PANCHROMATIC AND  
MULTISPECTRAL IMAGERY

I. Boukerch, M. Hadeid, R. Mahmoudi, B. Takarli, and K. Hasni

Page(s) 35-39

DSMS GENERATION FROM COSMO-SKYMED, RADARSAT-2 AND  
TERRASAR-X IMAGERY ON BEAUPORT (CANADA) TEST SITE:  
EVALUATION AND COMPARISON OF DIFFERENT  
RADARGRAMMETRIC APPROACHES

P. Capaldo, M. Crespi, F. Fratarcangeli, A. Nascetti, F. Pieralice, M. Porfiri, and  
T. Toutin

Page(s) 41-46

ANALYSIS OF X-BAND VERY HIGH RESOLUTION PERSISTENT  
SCATTERER INTERFEROMETRY DATA OVER URBAN AREAS

M. Crosetto, O. Monserrat, M. Cuevas-González, N. Devanthéry, and B. Crippa  
Page(s) 47-51

ROAD REGION DETECTION IN URBAN AREAS COMBINING HIGH-  
RESOLUTION RGB IMAGE AND LASER SCANNING DATA IN A  
CLASSIFICATION FRAMEWORK

A. P. Dal Poz and T. S. G. Mendes  
Page(s) 53-56

EVALUATION OF ZY-3 FOR DSM AND ORTHO IMAGE GENERATION

P. d'Angelo  
Page(s) 57-61

OBJECT-BASED ANALYSIS OF AERIAL PHOTOGRAMMETRIC POINT  
CLOUD AND SPECTRAL DATA FOR LAND COVER MAPPING

M. Debella-Gilo, K. Bjørkelo, J. Breidenbach, and J. Rahlf  
Page(s) 63-67

THE GEOSPECTRAL CAMERA: A COMPACT AND GEOMETRICALLY  
PRECISE HYPERSPECTRAL AND HIGH SPATIAL RESOLUTION  
IMAGER

B. Delauré, B. Michiels, J. Biesemans, S. Livens, and T. Van Achteren  
Page(s) 69-74

COMPLEMENTARITY OF SAR POLARIMETRY AND TOMOGRAPHY  
FOR BUILDING DETECTION AND CHARACTERIZATION

O. D'Hondt, S. Guillaso, and O. Hellwich  
Page(s) 75-80

DELINEATION OF BUILDING FOOTPRINTS FROM HIGH RESOLUTION  
SATELLITE STEREO IMAGERY USING IMAGE MATCHING AND A GIS  
DATABASE

G. R. Dini, K. Jacobsen, and C. Heipke  
Page(s) 81-85

DATA MINING FOR KNOWLEDGE DISCOVERY FROM OBJECT-BASED  
SEGMENTATION OF VHR REMOTELY SENSED IMAGERY

K. Djerriri and M. Malki

Page(s) 87-92

SUPPORTING UAVS IN LOW VISIBILITY CONDITIONS BY MULTIPLE-  
PULSE LASER SCANNING DEVICES

A. Djuricic and B. Jutzi

Page(s) 93-98

TOWARDS CHANGE DETECTION IN URBAN AREA BY SAR  
INTERFEROMETRY AND RADARGRAMMETRY

C. Dubois, A. Thiele, and S. Hinz

Page(s) 99-104

DETERMINATION OF GLACIER SURFACE AREA USING SPACEBORNE  
SAR IMAGERY

L. Fang, O. Maksymiuk, M. Schmitt, and U. Stilla

Page(s) 105-110

REFERENCE LIDAR SURFACES FOR ENHANCED AERIAL  
TRIANGULATION AND CAMERA CALIBRATION

A. S. Gneeniss, J. P. Mills, and P. E. Miller

Page(s) 111-116

USING SATELLITE IMAGES FOR WIRELESS NETWORK PLANING IN  
BAKU CITY

M. Gojamanov and J. Ismayilov

Page(s) 117-120

APPROACH FOR THE SEMI-AUTOMATIC VERIFICATION OF 3D  
BUILDING MODELS

P. Helmholtz, D. Belton, and S. Moncrieff

Page(s) 121-126

EUFODOS: European Forest Downstream Services – Improved Information on  
Forest Structure and Damage

M. Hirschmugl, H. Gallaun, R. Wack, K. Granica, and M. Schardt

Page(s) 127-131

CREATION OF 3D MODELS FROM LARGE UNSTRUCTURED IMAGE  
AND VIDEO DATASETS

J. Hollick, S. Moncrieff, D. Belton, A. J. Woods, A. Hutchison, and P. Helmholz  
Page(s) 133-137

NEW LIGHT-WEIGHT STEREOSOPIC SPECTROMETRIC AIRBORNE  
IMAGING TECHNOLOGY FOR HIGH-RESOLUTION ENVIRONMENTAL  
REMOTE SENSING – CASE STUDIES IN WATER QUALITY MAPPING

E. Honkavaara, T. Hakala, J. Kirjasniemi, A. Lindfors, J. Mäkynen,  
K. Nurminen, P. Ruokokoski, H. Saari, and L. Markelin  
Page(s) 139-144

REAL AND SIMULATED WAVEFORM RECORDING LIDAR DATA IN  
BOREAL JUVENILE FOREST VEGETATION

A. Hovi and I. Korpela  
Page(s) 145-150

MODEL-TO-IMAGE REGISTRATION AND AUTOMATIC TEXTURE  
MAPPING USING A VIDEO SEQUENCE TAKEN BY A MINI UAV

D. Iwaszczuk, P. Helmholz, D. Belton, and U. Stilla  
Page(s) 151-156

CHARACTERISTICS AND ACCURACY OF LARGE AREA COVERING  
HEIGHT MODELS

K. Jacobsen  
Page(s) 157-162

THE TRANSFORMATION FROM GREEN TO CONCRETE CITIES; A  
REMOTE SENSING PERSPECTIVE

F. N. Karanja and S. Matara  
Page(s) 163-166

THE EFFECT OF DIFFERENT GNSS SOLUTIONS ON THE DIRECT  
SENSOR ORIENTATION ACCURACY

A. Kayi, H. M. Yilmaz, and A. Yilmaz  
Page(s) 167-170

BACKSCATTERING OF INDIVIDUAL LIDAR PULSES FROM FOREST

CANOPIES EXPLAINED BY PHOTOGRAMMETRICALLY DERIVED  
VEGETATION STRUCTURE

I. Korpela, A. Hovi, and L. Korhonen

Page(s) 171-176

THE FULLY AUTOMATIC OPTICAL PROCESSING SYSTEM CATENA  
AT DLR

T. Krauß, P. d'Angelo, M. Schneider, and V. Gstaiger

Page(s) 177-183

APPLICABILITY ANALYSIS OF ULTRA-LIGHT UAV FOR FLOODING  
SITE SURVEY IN SOUTH KOREA

I. Lee, J. Kang, and G. Seo

Page(s) 185-189

FILTERING AIRBORNE LIDAR DATA BY AN IMPROVED  
MORPHOLOGICAL METHOD BASED ON MULTI-GRADIENT ANALYSIS

Y. Li

Page(s) 191-194

AUTOMATIC DETECTION OF STORM DAMAGES USING HIGH-  
ALTITUDE PHOTOGRAMMETRIC IMAGING

P. Litkey, K. Nurminen, and E. Honkavaara

Page(s) 195-200

RAPID ACQUISITION OF ENVIRONMENTAL INFORMATION AFTER  
ACCIDENTS WITH HAZARDOUS CARGO THROUGH REMOTE  
SENSING BY UAV

G. A. Longhitano and J. A. Quintanilh

Page(s) 201-205

ROADS CENTRE-AXIS EXTRACTION IN AIRBORNE SAR IMAGES: AN  
APPROACH BASED ON ACTIVE CONTOUR MODEL WITH THE USE OF  
SEMI-AUTOMATIC SEEDING

R. G. Lotte, S. J. S. Sant'Anna, and C. M. Almeida

Page(s) 207-212

FROM DSM TO 3D BUILDING MODELS: A QUANTITATIVE  
EVALUATION

J. M. Macay Moreira, F. Nex, G. Agugiaro, F. Remondino, and N. J. Lim

Page(s) 213-219

DATA FUSION FOR BUILDING RECONSTRUCTION FROM MULTI-  
ASPECT INSAR DATA

O. Maksymiuk and U. Stilla

Page(s) 221-225

MULTIDIRECTIONAL BUILDING DETECTION IN AERIAL IMAGES  
WITHOUT SHAPE TEMPLATES

A. Manno-Kovacs and T. Sziranyi

Page(s) 227-232

NEAR REAL-TIME AUTOMATIC MARINE VESSEL DETECTION ON  
OPTICAL SATELLITE IMAGES

G. Mátyus

Page(s) 233-237

HOW TO PAN-SHARPEN IMAGES USING THE GRAM-SCHMIDT PAN-  
SHARPEN METHOD – A RECIPE

T. Maurer

Page(s) 239-244

OPERATIONAL SAR DATA PROCESSING IN GIS ENVIRONMENTS FOR  
RAPID DISASTER MAPPING

A. Meroni and T. Bahr

Page(s) 245-246

DATA PROCESSING CONCEPTS FOR THE INTEGRATION OF SAR INTO  
OPERATIONAL VOLCANO MONITORING SYSTEMS

F. J. Meyer, D. B. McAlpin, W. Gong, S. Arko, P. W. Webley, and J. Dehn

Page(s) 247-252

TRANSMISSION LINE THEORY BASED TWO LAYER MODEL FOR  
DETERMINING SOIL MOISTURE

P. Mishra and D. Singh

Page(s) 253-256

SYNERGETICS FRAMEWORK FOR HYPERSPECTRAL IMAGE  
CLASSIFICATION



R. Müller, D. Cerra, and P. Reinartz  
Page(s) 257-262

ESTIMATION OF BIOMASS POTENTIAL BASED ON CLASSIFICATION  
AND HEIGHT INFORMATION  
S. Müller, O. Büscher, and M. Jandewerth  
Page(s) 263-268

EXPLOITING SHADOW EVIDENCE AND ITERATIVE GRAPH-CUTS FOR  
EFFICIENT DETECTION OF BUILDINGS IN COMPLEX  
ENVIRONMENTS  
A. O. Ok, C. Senaras, and B. Yuksel  
Page(s) 269-274

OCCLUSION DETECTION BY HEIGHT GRADIENT FOR TRUE  
ORTHOPHOTO GENERATION, USING LIDAR DATA  
H. C. Oliveira and M. Galo  
Page(s) 275-280

INVESTIGATION ON CIRCULAR MAPPING BY FMCW-SAR ON SMALL  
AIRPLANES  
S. Palm, A. Maresch, and U. Stilla  
Page(s) 281-286

EVALUATION OF PLEIADES-1A TRIPLET ON TRENTO TESTFIELD  
D. Poli, F. Remondino, E. Angiuli, and G. Aguiaro  
Page(s) 287-292

RADIOMETRIC BLOCK ADJUSTMENT AND DIGITAL RADIOMETRIC  
MODEL GENERATION  
A. Pros, I. Colomina, J. A. Navarro, R. Antequera, and P. Andrial  
Page(s) 293-298

AUTOMATIC ORIENTATION OF LARGE BLOCKS OF OBLIQUE  
IMAGES  
E. Rupnik, F. Nex, and F. Remondino  
Page(s) 299-304

USING LATTICE TOPOLOGY INFORMATION TO INVESTIGATE

PERSISTENT SCATTERERS AT FACADES IN URBAN AREAS

L. Schack and U. Soergel

Page(s) 305-309

MONITORING CONCEPTS FOR COASTAL AREAS USING LIDAR DATA

A. Schmidt, F. Rottensteiner, and U. Soergel

Page(s) 311-316

LABELING OF CLUSTERS BASED ON CRITICAL ANALYSIS OF  
TEXTURE MEASURES

D. Singh and V. Vijaya Chamundeeswari

Page(s) 317-320

CLASSIFICATION OF WATER SURFACES USING AIRBORNE  
TOPOGRAPHIC LIDAR DATA

J. Smeeckaert, C. Mallet, and N. David

Page(s) 321-326

TANDEM-X MISSION: OVERVIEW, STATUS AND OUTLOOK

U. Steinbrecher, M. Zink, A. Moreira, M. Bachmann, J. Böer, D. Schulze, and  
G. Krieger

Page(s) 327-331

AUTOMATIC DETECTION AND RECOGNITION OF MAN-MADE  
OBJECTS IN HIGH RESOLUTION REMOTE SENSING IMAGES USING  
HIERARCHICAL SEMANTIC GRAPH MODEL

X. Sun, A. Thiele, S. Hinz, and K. Fu

Page(s) 333-338

DISCRETE TOPOLOGY BASED HIERARCHICAL SEGMENTATION FOR  
EFFICIENT OBJECT-BASED IMAGE ANALYSIS: APPLICATION TO  
OBJECT DETECTION IN HIGH RESOLUTION SATELLITE IMAGES

A. H. Syed, E. Saber, and D. Messinger

Page(s) 339-344

EXTRACTION OF BUILDING SHAPE FROM TANDEM-X DATA

A. Thiele, M. M. Wurth, M. Even, and S. Hinz

Page(s) 345-350

HIGH RESOLUTION TEMPORAL NORMALIZED DIFFERENCE  
VEGETATION INDICES FOR SPECIFIC CROP IDENTIFICATION

P. Upadhyay, S. K. Ghosh, and A. Kumar

Page(s) 351-355

RAPID GEOMETRIC CORRECTION OF SSC TERRASAR-X IMAGES  
WITH DIRECT GEOREFERENCING, GLOBAL DEM AND GLOBAL  
GEOID MODELS

D. I. Vassilaki, A. A. Stamos, and C. Ioannidis

Page(s) 357-362

EVALUATION OF SAR DATA AS SOURCE OF GROUND CONTROL  
INFORMATION: FIRST RESULTS

D. I. Vassilaki, C Ioannidis, and A. A. Stamos

Page(s) 363-367

GEOMETRIC CORRECTION OF AIRBORNE LINEAR ARRAY IMAGE  
BASED ON BIAS MATRIX

M. Wang, J. Hu, M. Zhou, J. M. Li, and Z. Zhang

Page(s) 369-372

AUTOMATIC FEATURE-BASED POINT CLOUD REGISTRATION FOR A  
MOVING SENSOR PLATFORM

M. Weinmann, A. Dittrich, S. Hinz, and B. Jutzi

Page(s) 373-378

BUILDING EXTRACTION USING MULTI SENSOR SYSTEMS

N. Yastikli and M. Uzar

Page(s) 379-382

PERFORMANCE EVALUATION OF THERMOGRAPHIC CAMERAS FOR  
PHOTOGRAMMETRIC MEASUREMENTS

N. Yastikli and E. Guler

Page(s) 383-387

MULTI-SOURCE HIERARCHICAL CONDITIONAL RANDOM FIELD  
MODEL FOR FEATURE FUSION OF REMOTE SENSING IMAGES AND  
LIDAR DATA

Z. Zhang, M. Y. Yang, and M. Zhou

Page(s) 389-392

ENHANCED COMPONENT DETECTION ALGORITHM OF FULL-  
WAVEFORM LIDAR DATA

M. Zhou, M. H. Liu, Z. Zhang, and J. H. Wang

Page(s) 393-397

Additional Paper

CROWDSOURCED MAPPING – LETTING AMATEURS INTO THE  
TEMPLE?

M. McCullagh and M. Jackson

Page(s) 399-432