ISPRS Council 1996 - 2000

President Lawrence W. Fritz USA
Secretary General John C. Trinder Australia
Congress Director Klaas Jan Beek The Netherlands
Treasurer Heinz Rüther South Africa
First Vice President Shunji Murai Japan
Second Vice President Marcio Barbosa Brazil

International Archives of Photogrammetry and Remote Sensing (IAPRS)
founded by Eduard Dolezal (Austria) in 1913

Volume XXXIII, Part B2
Invited and Presented Papers of the XIXth Congress, Amsterdam, The Netherlands, 16-23 July 2000

Technical Commission II
Systems for Data Processing, Analysis and Representation

President Ian Dowman United Kingdom
Secretary Ray Harris United Kingdom

In cooperation with Working Group Chairpersons responsible for the reviewing of extended Abstracts and acceptance of contributions. Authors delivered camera ready manuscripts and selected the keywords.

Editorial team
(Commission II):

Ian Dowman United Kingdom
Lucas Janssen The Netherlands

Copyright 2000
The publisher is not responsible for any opinion or statement made in the technical papers or advertisements, nor can he be held responsible for any typing or conversion errors.

Publisher:
GITC bv
P.O. Box 112
8530 AC The Netherlands
Tel: +31 514 56 18 54
Fax: +31 514 56 38 98
E-mail: mailbox@gitc.nl
Web site: www.gitc.nl

For Sale after the Congress
Copies of individual parts and complete series may be obtained from:

Gopher Publishers
P.O.Box 70080
9704 AB Groningen
The Netherlands
Tel: +31 50 365 72 72
Fax: +31 50 365 72 73
Website: www.gopher.nl

RICS Books
Surveyor Court
Westwood Way
Coventry CV4 8KE, UK
Fax: +44 71 334 3800
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Author(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>AN INTEGRATED SPATIAL INFORMATION FRAMEWORK FOR INFORMAL SETTLEMENT UPGRADING</td>
<td>John Abbott</td>
</tr>
<tr>
<td>17</td>
<td>COMPRESSION AND DISTRIBUTION OF SNB SOFTCOPY ORTHOPHOTOMAP DATABASE</td>
<td>Mohamed Abdelrahim</td>
</tr>
<tr>
<td>30</td>
<td>THE CCRS QUICKLOOK SWATH BROWSER</td>
<td>Michael Adair</td>
</tr>
<tr>
<td>38</td>
<td>A SCENE SIMILARITY METRIC FOR MATCHING CONFIGURATIONS OF IMAGE OBJECTS</td>
<td>Lynne Allan</td>
</tr>
<tr>
<td>46</td>
<td>&quot;DIGITAL PHOTOGRAMMETRY, DEVELOPMENTS AT ORDNANCE SURVEY&quot;</td>
<td>Alzir Felippe Antunes</td>
</tr>
<tr>
<td>52</td>
<td>THEMATIC RESOLUTION ASSESSMENT MERGING LANDSAT AND SPOT 10M</td>
<td>Caroline Baillard</td>
</tr>
<tr>
<td>56</td>
<td>A PLANE-SWEEP STRATEGY FOR THE 3D RECONSTRUCTION OF BUILDINGS FROM MULTIPLE IMAGES</td>
<td>Emmanuel Baltsavias</td>
</tr>
<tr>
<td>63</td>
<td>INTEGRATING SPATIAL INFORMATION AND IMAGE ANALYSIS - ONE PLUS ONE MAKES TEN</td>
<td>Avril Behan</td>
</tr>
<tr>
<td>75</td>
<td>ON THE MATCHING ACCURACY OF RASTERISED SCANNING LASER ALTIMETER DATA</td>
<td>Yuri B. Blokhinov</td>
</tr>
<tr>
<td>81</td>
<td>Z-SPACE - DIGITAL PHOTOGRAMMETRIC SYSTEM FOR RUSSIAN TK-350 IMAGES</td>
<td>Ken Brown</td>
</tr>
<tr>
<td>90</td>
<td>CONTINENT-WIDE HIGH ACCURACY GPS NETWORK (C-HAGNET): A BACKBONE FOR 21ST CENTURY GEOINFORMATION FOR ALL</td>
<td>Andreas Busch</td>
</tr>
<tr>
<td>97</td>
<td>MATCHING LINEAR FEATURES FROM SATELLITE IMAGES WITH SMALL-SCALE GIS DATA</td>
<td>Arvind Chaturvedi</td>
</tr>
<tr>
<td>105</td>
<td>ACCURACY ASSESSMENT OF DTM DATA: A COST EFFECTIVE APPROACH FOR A LARGE SCALE DIGITAL MAPPING PROJECT</td>
<td>Ge Chen</td>
</tr>
<tr>
<td>112</td>
<td>IMPACTS OF THE COLLOCATION WINDOW ON THE ACCURACY OF ALTIMETER/BUOY WIND SPEED COMPARISON</td>
<td>Alex L. Dam</td>
</tr>
<tr>
<td>119</td>
<td>PHOTOGRAMMETRIC SCANNING INNOVATION IN THE LH SYSTEMS DSW500</td>
<td>Paul Dare</td>
</tr>
<tr>
<td>125</td>
<td>A NEW APPROACH TO AUTOMATIC FEATURE BASED REGISTRATION OF SAR AND SPOT IMAGES</td>
<td>Arup Dasgupta</td>
</tr>
<tr>
<td>131</td>
<td>THE NATIONAL (NATURAL) RESOURCES INFORMATION SYSTEM</td>
<td>Sergio Desquil</td>
</tr>
<tr>
<td>139</td>
<td>A NEW TOOL OF DIGITAL PHOTOGRAMMETRY: THE 3D NAVIGATOR</td>
<td>Liping Di</td>
</tr>
<tr>
<td>147</td>
<td>NASA STANDARDS FOR EARTH REMOTE SENSING DATA</td>
<td>Abdelkader Djilali</td>
</tr>
<tr>
<td>156</td>
<td>INTÉGRATION TÉLÉDÉTECTION D S.I.G.: RECONSTITUTION DU MODÈLE GÉOMÉTRIQUE ET RESTITUTION INTERACTIVE DES ÉLÉMENTS PLANIMÉTRIQUES À L’AIDE D’UN S.I.G.</td>
<td>Christoph Doerstel</td>
</tr>
<tr>
<td>164</td>
<td>DIGITAL MODULAR CAMERA: SYSTEM CONCEPT AND DATA PROCESSING WORKFLOW</td>
<td>Manfred Eihlers</td>
</tr>
<tr>
<td>172</td>
<td>INTEGRATED GEOGRAPHIC INFORMATION SYSTEMS: FROM DATA INTEGRATION TO INTEGRATED ANALYSIS</td>
<td>Omar El Kharki</td>
</tr>
<tr>
<td>179</td>
<td>&quot;AUTOMATIC CARTOGRAPHY FROM AERIAL IMAGES (SITE OF SALE, MOROCCO)&quot;</td>
<td>Cameron Ellum</td>
</tr>
<tr>
<td>184</td>
<td>THE DEVELOPMENT OF A BACKPACK MOBILE MAPPING SYSTEM</td>
<td>Kian Fedae</td>
</tr>
<tr>
<td>192</td>
<td>ISO/TC 211 GEOGRAPHIC INFORMATION AND GEOMATICS - A FRAMEWORK AND REFERENCE MODEL</td>
<td></td>
</tr>
</tbody>
</table>
CONTENTS

Shunji Murai
416 THE DEVELOPMENT OF AIRBORNE THREE LINE SCANNER WITH HIGH ACCURACY INS AND GPS FOR ANALYSING CAR VELOCITY DISTRIBUTION
José Navarro
422 THE VISUAL FACTORY SUITE: FACING EVOLVING MASS PRODUCTION IN SPATIAL DATA PROCESSING ENVIRONMENTS
Jong-Hyun Park
430 MULTISENSOR DATA FUSION USING MULTIRESOLUTION ANALYSIS (MRA)
Bernd Pollack
438 AUTOMATIC MEASUREMENT OF SEWER MAN-HOLES IN LARGE SCALE AERIAL IMAGES
Yuri Raizman
443 THREE-DIMENSIONAL DIGITAL PHOTOGRAMMETRIC UPDATE OF THE ISRAELI NATIONAL-GIS DATA BASE
Rinaudo Fulvio
449 AERIAL TRIANGULATION DATA ACQUISITION USING A LOW COST DIGITAL PHOTOGRAMMETRIC SYSTEM
Arthur Roberts
455 LOW COST INTEGRATED AIRBORNE MULTISPECTRAL REMOTE SENSING
Franz Rottensteiner
461 SEMI-AUTOMATIC BUILDING RECONSTRUCTION INTEGRATED IN STRICT BUNDLE BLOCK ADJUSTMENT
Luis A. Ruiz
469 ANALYSIS OF IMAGE SEGMENTATION OF MULTISOURCE DATA IN MOUNTAIN ENVIRONMENTS
Raad Saleh
476 THE COST AND BENEFITS OF SOFTCOPY PHOTOGRAMMETRIC PRODUCTION
Raad Saleh
482 IMAGE SCANNING RESOLUTION AND SURFACE ACCURACY; EXPERIMENTAL RESULTS
Marco Scaioni
486 CONCEPT AND TESTING OF AN AUTOMATIC SYSTEM FOR AERIAL TRIANGULATION
Zhongchao Shi
494 GIS DATABASE REVISION --THE PROBLEMS AND SOLUTIONS
Rakesh Shukla
502 GEO-REFERENCING CASI IMAGERY USING DIRECT MEASUREMENT OF POSITION AND ATTITUDE
Joao Fernando Silva
510 A STREET MAP BUILT BY A MOBILE MAPPING SYSTEM
Uwe Stilla
518 GENERATION OF 3D-CITY MODELS AND THEIR UTILISATION IN IMAGE SEQUENCES
Bernd M. Straub
525 TOWARDS THE AUTOMATIC INTERPRETATION OF IMAGES FOR GIS UPDATE
R. Suresh
533 A DISTRIBUTED CATALOG AND DATA SERVICES SYSTEM FOR REMOTE SENSING DATA
Ildiko Suveg
538 3D RECONSTRUCTION OF BUILDING MODELS
Julià Talaya
546 ROBUST GPS KINEMATIC POSITIONING FOR DIRECT GEOREFERENCING
Udo Tempelmann
552 PHOTOGRAMMETRIC SOFTWARE FOR THE LH SYSTEMS ADS40 AIRBORNE DIGITAL SENSOR
Mustafa Turker
560 CHANGE DETECTION USING THE INTEGRATION OF REMOTE SENSING AND GIS:A POLYGON BASED APPROACH
Julien Vallet
565 DEVELOPMENT OF A HELICOPTER-BASED INTEGRATED SYSTEM FOR AVALANCHE MAPPING AND HAZARD MANAGEMENT
Mark van Persie
573 USE OF REMOTE SENSING IMAGERY FOR FAST GENERATION OF MILITARY MAPS AND SIMULATOR DATABASES
Carlos Vieira
582 "THE SPECTRAL-TEMPORAL RESPONSE SURFACE AND ITS USE IN THE MULTI-SENSOR, MULTI-TEMPORAL CLASSIFICATION OF AGRICULTURAL CROPS"
Vijay Vohra
590 AUTOMATIC REGISTRATION OF IMAGES TO MAPS D THE ARCHANGEL AND ARMIES SYSTEMS

CONTENTS

Mi Wang
598 RESEARCH ON MATCH OF GPS SIGNAL AND ROAD INFORMATION FOR MOBILE NAVIGATION SYSTEM
Peter Woodsford

603 INTEGRATION OF PHOTOGRAMMETRIC AND SPATIAL INFORMATION SYSTEMS
Garry Zalmanson

610 HIERARCHICAL RECOVERY OF EXTERIOR ORIENTATION FROM PARAMETRIC AND NATURAL 3-D CURVES
Nicolae Zegheru

618 FROM ANALOG TO DIGITAL PHOTOGRAMMETRY IN ROMANIA
Guido Gomez Galloaz (only on CD)

623 PHOTOGRAMMETRIC DEVELOPMENT IN CUBA