

PE&RS

June 2014

Volume 80, Number 6

PHOTOGRAMMETRIC ENGINEERING & REMOTE SENSING The official journal for imaging and geospatial information science and technology



80th
1934 • 2014
asprs

COLUMNS

- Letter from the Assistant Director of Publications 480
 Grids and Datums 495
Solomon Islands
 Mapping Matters 497
 Book Review 499
Introducing Geographic Information Systems with ArcGIS: A Workbook Approach to Learning GIS, Third Edition

ANNOUNCEMENTS

- Pecora 19 & ISPRS Commission I Symposium 477
 William T. Pecora Award 478
 ASPRS News 501
 Call for Papers 518

DEPARTMENTS

- Certification 496
 New Members 500
 Region of the Month 500
 Advertiser Index 500
 Member Champions 502
 Industry News 504
 Calendar 550
 Forthcoming Articles 558
 Who's Who in ASPRS 571
 Sustaining Members 572
 Instructions for Authors 574
 Membership Application 576

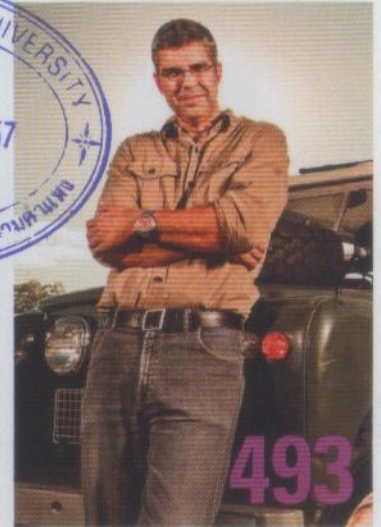
HIGHLIGHT ARTICLE

482 Computer-Aided Analysis of Multispectral Scanner Data—The Beginnings

Roger M. Hoffer

INTERVIEW

493 Chris Begley



PEER-REVIEWED ARTICLES

- 505 On-Orbit Geometric Calibration of the Panchromatic/Multispectral Camera of the ZY-1 02C Satellite based on Public Geographic Data**
Pengjie Tao, Luping Lu, Yong Zhang, Biao Xu, and Songbai Zou
 The use of public geographic data corrects the significant lens distortion and improves the accuracy of direct georeferencing up to 115 m.
- 519 Performance Evaluation of Object-based and Pixel-based Building Detection Algorithms from Very High Spatial Resolution Imagery**
Iman Khosravi, Mehdi Momeni, and Maryam Rahnemoonfar
 Comparing two pixel-based and two object-based building detection algorithms using a diverse set of very high spatial resolution imagery.
- 529 An Effective Morphological Index in Automatic Recognition of Built-up Area Suitable for High Spatial Resolution Images as ALOS and SPOT Data**
Bo Yu, Li Wang, Zheng Niu, and Muhammad Shakir
 A newly proposed method is not only effective in detecting built-up areas from images with 10 m spatial resolution, but also performs well with 93.55 percent overall accuracy utmost in our experiment.
- 537 Annual Crop Type Classification of the US Great Plains for 2000 to 2011**
Daniel M. Howard and Bruce K. Wylie
 This study is an application of classification tree modeling using remote sensing and ancillary environmental data to classify croplands of the U.S. Great Plains.
- 551 OBIA Flood Delimitation Assisted by Threshold Determination with Principal Component Analysis**
Dora Roque, Nuno Afonso, Ana M. Fonseca, and Sandra Heleno
 Automatic delimitation of flooded areas in River Tagus, Portugal by applying Object-based Image Analysis to SAR images and to a DTM.
- 559 Planar Block Adjustment and Orthorectification of ZY-3 Satellite Images**
Taoyang Wang, Guo Zhang, Deren Li, Xinming Tang, Yonghua Jiang, Hongbo Pan, and Xiaoyong Zhu
 A planar block adjustment and orthorectification of ZY-3 and evaluation of its geometric accuracy.



Fifty years ago, in 1964, for the first time ever, a multispectral scanner was flown over a non-military target. The analysis of this data and subsequent research at Purdue University to develop computer-aided analysis techniques is described in the Highlight Article this month. The cover of this

month's PE&RS shows a portion of a color photo that was obtained simultaneously with data from a newly developed 12-band multispectral scanner over a 70-mile long, one-mile wide flight line in central Indiana in 1967. This multispectral scanner data and the associated photographs were obtained from a DC-3 operated by the Institute of Science and Technology, University of Michigan (Figures 5 & 6, p. 486). Purdue University scientists and engineers classified the multispectral scanner data into spectrally distinct cover types (i.e., green vegetation, bare soil and water) using limited training data. The results indicated that such computer-aided classifications, using pattern-recognition techniques, could be achieved with reasonable accuracy. The red arrows on this cover photo indicate locations that correspond to the same location in the classified multispectral scanner data (see Figure 9 on p. 489).

APPLICATIONS PAPER