



Image Analysis and Data Fusion Special Session

IGARSS 2014, Quebec, Canada, July 14, 2014

TC Chair: Gabriele Moser, University of Genoa, Italy

TC Co-Chair: Devis Tuia, EPFL, Switzerland





IGARSS Invited Session on Data Fusion

P. Ghamisi, J. A. Benediktsson, S. Phinn	Fusion of hyperspectral and lidar data in classification of urban areas
C. Paris, L. Bruzzone	A sensor-driven domain adaptation method for the classification of remote sensing images
N. Longbotham, F. Pacifici, C. Padwick	Measuring the accuracy of very-high spatial resolution large-area classification mosaics using model portability
J. Stefanski, T. Kuemmerle, O. Chaskovskyy, B. Waske	Monitoring farmland abandonment and recultivation in western Ukraine
W.-Y. Jang, J. Park, Z. Fuchs, F. Parada, P. Hanna, J. Derov, M. Noyola	Multispectral target recognition using adaptive radar and infrared data integration
G. Vivone, L. Alparone, J. Chanussot, M. Dalla Mura, A. Garzelli, G. Licciardi, R. Restaino, L. Wald	Critical comparison of pansharpening algorithms
A. Garzelli	Efficient MMSE pansharpening based on non-local optimization
A. Salentinig, P. Gamba	Fusing SAR urban extent extraction at multiple spatial resolutions
H. Randrianarivo, B. Le Saux, M. Ferecatu	Multimodal classification with deformable part-based models for urban cartography
I. Hedhli, G. Moser, J. Zerubia, S. B. Serpico	Fusion of multitemporal and multiresolution remote sensing data and application to natural disasters





GRS Magazine Special Issue “Data Fusion in Remote Sensing”

Topics

Multisensor, multiresolution,
multitemporal, multiangle fusion

Missing data reconstruction

Data assimilation

Data fusion applications

Two step submission

Call for white papers (4 pp., double column), among which Guest Editors will select contributions to be invited as full papers

Full paper submission (peer review)

Guest Editors

Gabriele Moser, Devis Tuia

Schedule

Oct 1, 2014	White paper submission deadline
Oct 15, 2014	Invitation notification
Dec 15, 2014	Full paper submission deadline
Feb 15, 2015	Review notification
Apr 1, 2015	Revised manuscript due
Apr 30, 2015	Final acceptance notification
May 15, 2015	Final manuscript due (strict)
Sep 15, 2015	Publication date





Image Analysis and Data Fusion Technical Committee Meeting

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Outline

2014 IEEE GRSS Data Fusion Contest

- Data, goals, and organization

- Schedule

- Winners and awards

Standardized Data Website Initiative

GRS Magazine Special Issue on “Data Fusion in Remote Sensing”

Open Discussion





2014 IEEE GRSS Data Fusion Contest

Multiresolution Fusion of Thermal Infrared Hyperspectral and VIS Data

Data released to the GRSS community

Thermal hyperspectral data: 84 TIR channels, 1-m spatial resolution

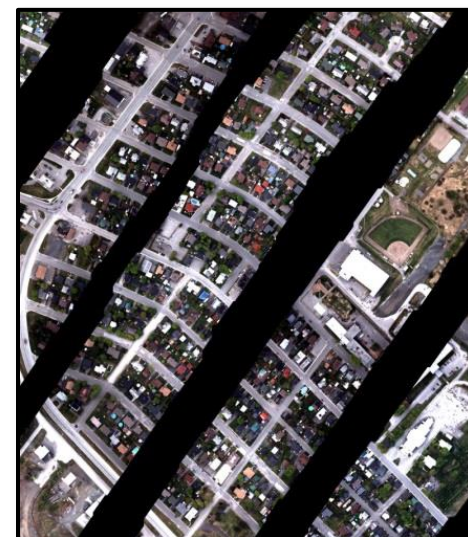
A new data type, which was never before used in previous Contests.

Color RGB data, 20-cm spatial resolution

Low-density urban area in [Quebec](#) (Thetford Mines)

Data contributed by [Telops Inc. \(Quebec\)](#), together with additional ground measurements

The 2014 Contest has been organized with [Dr. Michal Shimoni](#) (Royal Military Academy, Belgium).





2014 Data Fusion Contest: Competitions

Classification Contest

- Classification maps at the finer of the two input spatial resolutions (20 cm)
- Multiresolution and multisensor problem
- Predefined thematic classes and training samples
- Ranking wrt undisclosed test map
- Test map: released shortly after IGARSS.

Paper Contest

- Competition among original open-topic manuscripts
- Ranking defined by the [Award Committee](#):

J. A. Benediktsson, Univ. Iceland

M. Chamberland, Telops, Canada

J. Q. Du, Mississippi State Univ., USA

P. Gamba, Univ. Pavia, Italy

G. Moser, Univ. Genoa, Italy

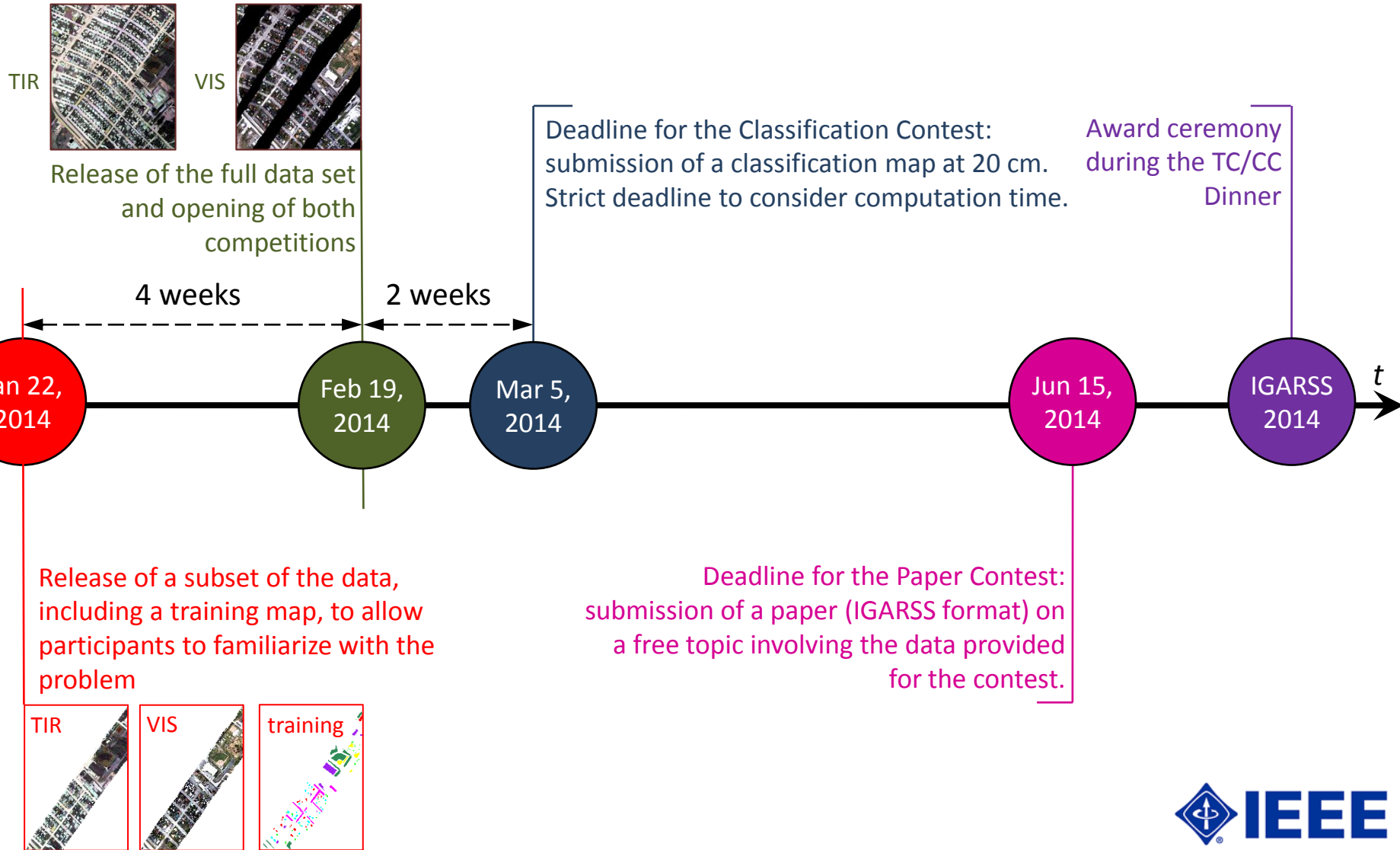
F. Pacifici, DigitalGlobe Inc., USA

M. Shimoni, RMA, Belgium

D. Tuia, EPFL, Switzerland



2014 Data Fusion Contest: Schedule



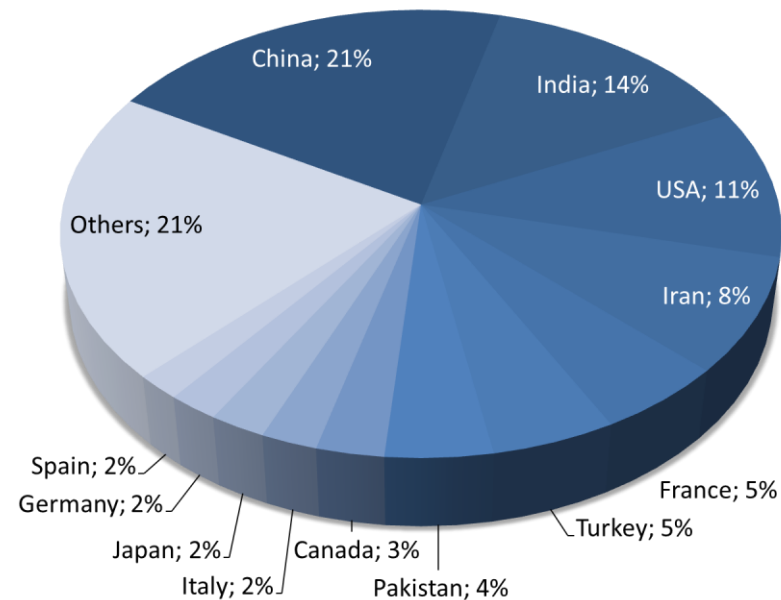


2014 Data Fusion Contest: Statistics

A few numbers

- 450+ registrations from universities, research centers, space agencies, and companies
- 50 countries including many developing countries
- 42 submissions to the Classification Contest
- 11 submissions to the Paper Contest
- 2 column papers in the IEEE GRS Magazine (March 2014 and forthcoming Sept 2014)

Promoted through mailing list, social media, GRS e-newsletter, other webportals

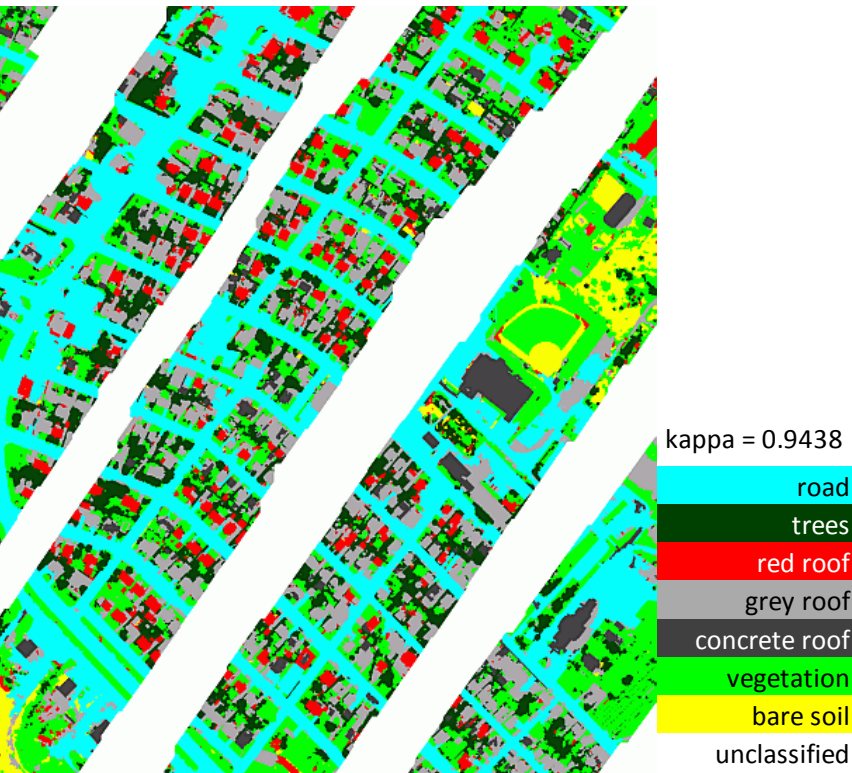




2014 Data Fusion Contest: Winners

Classification Contest

Huang Xin, Liu Hui, Zhu Tingting
Wuhan University, China



Paper Contest

Wenzhi Liao¹, Frieke Van Coillie²,
Sidharta Gautama¹, Aleksandra
Pizurica¹, and Wilfried Philips¹

¹ Ghent University-TELIN-IPI-iMinds

² FORSIT, Ghent University, Belgium

Paper title

“Fusion of thermal infrared
hyperspectral and VIS RGB data
using guided filtering and
supervised fusion graph”



2014 Data Fusion Contest: Awards

Awards and prizes

IEEE Certificate of Recognition

Nexus 7 tablet

A paper on the outcome of the Contest will be submitted to JSTARS and put under open access

► Funding provided by GRSS

Award ceremony

Technical Committee and Chapter Chairs Dinner

Wednesday July 16, 7 pm, Hilton Hotel, “Les Plaines” room, 23rd floor





Standardized Data Website

Initiative of the [Standard Algorithm Data and Evaluation \(SADE\) Working Group](#) under the auspices of the IADF TC

- Development of a web system
- Allows users to register, download data hosted on the site, upload processing results,
- The site automatically generates numerical scores
- Focused on hyperspectral data and on target detection, classification, and unmixing
- Envisioned extension to other data modalities and processing problems

An [open request for proposals](#) was published on the GRSS website, May 19, 2014, deadline 4 weeks.





Open Discussion

- The 2015 Contest
- Which format? Double track or single track? Other?
 - how to encourage people to submit to the paper contest?
- What about image size?
- More importance to computational aspects?
 - in 2014: short submission time
- How to consider degree of automation?
- Any other topic?

