

**WPP-274**  
March 2007

*The 4th Conference on*

# **Image Information Mining**

27-29 November 2006  
EUSC, Torrejon Air Base  
Madrid, Spain

*Sponsored by*

**Italian Space Agency, ASI**

**French Space Agency, CNES**

**Italian National Research Council, CNR**

**German Aerospace Centre, DLR**

**European Commission - Information Society Technology, EC-IST**

**European Space Agency, ESA-ESRIN**

**Swiss Federal Institute of Technology Zurich, ETHZ**

**European Union Satellite Centre, EUSC**

*And extended to:*

**European Association of Remote Sensing Companies, EARSC**

***European Space Agency  
Agence spatiale européenne***

# CONTENTS

## International perspectives

*Chair & Logistics: L. Colaiacomo*

### ABSTRACTBOOK

IV<sup>th</sup> ESA-EUSC Conference on Image Information Mining  
*T. Lovrencic*

**Presentation**

ESA-EUSC 2006: Image Information Mining for Security and Intelligence  
*M. Datcu*

**Presentation**

Image Information Mining - ESA Perspective and European Coordination Group  
*S. D'Elia*

**Presentation**

View on the Need to Develop Standards and Certification Protocols  
*V. Ruiz*

**Presentation**

DLR Contribution in Space Technology for Security Related Issues  
*P. Reinartz*

**Presentation**

ORFEO Preparatory Programme: From PLEIADES and COSMO Images to Useful Information  
*A. Giros*

[Presentation](#)

CGINT - Centre for Geospatial Intelligence  
*D. Raducanu, F. Serban, I. Nedelcu et al.*

[Presentation](#)

[Article](#)

Probability and Information  
*J. Skilling (keynote speaker)*

[Presentation](#)

[Article](#)

Automatic Detection of Man-Made Structures in Big Size Mosaics of Spaceborne Images  
*G. Laneve & G. Santilli*

[Presentation](#)

[Article](#)

EO Data Mining and Analysis for Human Security Applications: A GMOSS and EC JRC Perspective  
*M. Pesaresi*

[Presentation](#)

## Theory

*Chair: A. Giros*

On Mining METEOSAT and ERS Multitemporal Images  
*A. Julea, N. Méger & E. Trouvé*

[Presentation](#)

[Article](#)

Towards Automation in Object-Based Classification  
*P.R. Marpu, S. Nussbaum & I. Niemeyer*

[Presentation](#)

Semantic-Geospatial Query of Remotely Sensed Image Archives  
*S. Natali & A. Baraldi*

[Presentation](#)

[Article](#)

An Object-Based Information Extraction Methodology Incorporating A-Priori Spatial Information  
*T. Blaschke, D. Tiede & S. Lang*

[Presentation](#)

[Article](#)

A Generic Approach to Image Co-Registration  
*R. Fransens, C. Strecha, G. Caenen & L. Van Gool*

[Presentation](#)

[Article](#)

Information-Theoretic Image Fusion Assessment without Reference  
*L. Alparone, B. Aiazzi, S. Baronti et al.*

[Presentation](#)

[Article](#)

Spectral Indexing for Hyperspectral Image CBIR  
*J.O. Maldonado, D. Vicente, M.A. Veganzones & M. Graña*

[Presentation](#)

[Article](#)

Self-Organising Maps for Change Detection and Monitoring of Human Activity in Satellite Imagery  
*M. Molinier, J. Laaksonen, S. Väätäinen & T. Häme*

[Presentation](#)

[Article](#)

Self-Organizing Neural Networks for Unsupervised Classification of Complex Landscapes by Polarimetric SAR Data  
*F. Del Frate, M. Del Greco, G. Schiavon et al.*

[Presentation](#)

An Information-Theoretic Feature for Multi-Temporal Analysis of SAR Images  
*L. Alparone, B. Aiazzi, S. Baronti & A. Garzelli*

[Presentation](#)

[Article](#)

Spatio-Temporal Structures Characterization Based on Multi-Information Bottleneck  
*L. Gueguen & M. Datcu*

[Presentation](#)

[Article](#)

New Spatial/Spectral Multitemporal Endmember Extraction Algorithms  
*P.J. Martínez, D. Valencia, R.M. Pérez et al.*

[Presentation](#)

[Article](#)

## **Applications**

*Chair: K. Seidel*

### **Logistics**

*L. Colaiacomo*

History Does Not Lie! - Image Information Mining (IIM) can Track and Avert Disaster  
*S. Grainger (keynote speaker)*

[Presentation](#)

[Article](#)

Automatic Heritage Observation and Retrieval under Sand by Using a Shape Detection Algorithm with Satellite Images

*D. Ganic, I. Bridgwood, M. Schultz Rasmussen et al.*

[Presentation](#)

[Article](#)

An Image Information Mining Framework for Rapid Assessment and Response in Coastal Disaster Events  
*S.S. Durbha, R.L. King, N.H. Younan et al.*

[Presentation](#)

[Article](#)

Content Extraction from SAR Images via Segmentation of Textural Features and Region Based Classification

*M. Abbate, B. Aiazzi, L. Alparone et al.*

[Presentation](#)

A New Neural Network Architecture for Automatic Urban Change Detection from Satellite Imagery  
*F. Del Frate, F. Pacifici, C. Solimini & W.J. Emery*

[Presentation](#)

From Video Segmentation to Semantic Indexing: The Prestospace Approach  
*R. Basili, M. Cammisa, L. Boch et al.*

[Presentation](#)

[Article](#)

AIRSAT Project: A Demonstration of the Use of Remote Sensing Data for Environmental Modelling  
*P. Symeonidis, A. Kokonozi, K. Kourtidis & E. Kosmidis*

[Presentation](#)

[Article](#)

Implementation of New SAR Change Detection Methods: Superresolution SAR Change Detector  
*J. Sanz-Marcos, R. Romero, D. Carrasco et al.*

[Presentation](#)

[Article](#)

Comparison Study Between eCognition and ERDAS Imagine for the Classification of High and Moderate Resolution Satellite Imagery

*T. Ohlhof*

[Presentation](#)

Towards a Geographic Scene Understanding Capability Service Based on Semantic Web Technologies and OpenGIS Standards

*J. Bustos*

[Presentation](#)

Combining Linguistic and Visual Properties for Unsupervised Web Mining

*R. Basili, M.V. Marabollo & D. Saracino*

[Presentation](#)

[Article](#)

KEO: A Component Based Programming Environment for Earth Observation Image Archives  
*A. Colapicchioni*

[Presentation](#)

## Security

*Chair: S. D'Elia*

Remote Sensing - New Tools for Security  
*H. Stone (keynote speaker)*

[Summary](#)

[Article](#)

A Spatial Search Engine Supporting Security Applications  
*R. Göbel, L. Colaiacomo & A. de la Cruz*

[Presentation](#)

[Article](#)

SAR Superresolution Change Detection for Security Applications  
*R. Romero, J. Sanz-Marcos, D. Carrasco et al.*

[Presentation](#)

[Article](#)

Information Mining From Text and Images to Develop Databases for Security Applications: A GIS Case Study of the Sabotages to the Iraqi Pipeline Network and Oil and Gas Installations  
*A. de la Cruz, M. Mielewczyk, D. Cerra & G. Joyanes*

[Presentation](#)

[Article](#)

Automated Feature Extraction from Airborne SAR Data for Security  
*G. Willhauck, A. Kühnen, W. Krebs & M. Krischke*

[Presentation](#)

Wide Area Monitoring for Nuclear Safeguards Applications  
*I. Niemeyer & S. Nussbaum*

[Presentation](#)

Earth Observation Images Information Mining for Flooding and Security Related Applications  
*D. Faur, I. Gavat & M. Datcu*

[Presentation](#)

[Article](#)

STREAM: (Geographic) Information System Support for Mine and Humanitarian Action  
*F. Cremer, S. Grainger, O. Puigbo et al.*

**In abstractbook**

Automatic Generation of Change Information for Multitemporal, Multispectral Imagery  
*M.J. Canty & A.A. Nielsen*

[Presentation](#)

[Article](#)

Target Recognition and Identification Using ENVI  
*C.S. Darnel*

[Presentation](#)

Contributions of DLR to GMES - The German Remote Sensing Data Center  
*G. Schreier*

[Presentation](#)

## Panels

*Chair: J.L. Valero*

### Logistics

*L. Colaiacomo*

KIM - Knowledge Information Mining  
*A. Colapicchioni*

[Panel](#)

Understanding High Resolution Radar Images: Visual vs. Signal Interpretation  
*M. Datcu*

**Panel**

Scale of Objects in Images Panel Discussion on Possible Usages  
*A. Giros & M. Datcu*

**Panel**

Geo-Information Text  
*L. Colaiacomo, V. Marcelli & P. Mendoza de la Guia*

**Panel**

Automatic Spectral Rule-Based Preliminary Mapping of Calibrated Landsat TM and ETM+ Images  
*A. Baraldi & V. Puzzolo*

**Panel**

Automatic, Thematic Change Detection  
*P. Blonda & C. Tarantino*

**Panel**

## Posters

*Chair: D. Foley*

Data Transformation for Primitive Feature Extraction in Image Information Mining: A Comparative Study  
*V.P. Shah, N.H. Younan, S.S. Durbha & R.L. King*

**Poster**

**Article**

Bayesian Texture Based Analysis of HR SLC SAR Images  
*M. Soccorsi & M. Datcu*

**Poster**

**Article**

Bayesian Enhancement of a SVM Based Image Search Engine  
*M. Costache & M. Datcu*

**Article**

Information Extraction for Satellite-Based Disaster Monitoring: Current Issues and Expected Progress  
*G. Schwarz, M. Soccorsi, H. Chaabouni & M. Datcu*

**Article**

Covariance Based Analysis of Relevant Scatterers in High Resolution SAR Images  
*H. Chaabouni-Chouayakh & M. Datcu*

[Article](#)

Hierarchical Concept For Reasoning On Segmentations Of Satellite Image Time Series: First Results  
*C. Le Men & M. Datcu*

[In Abstractbook](#)

Is it Possible to Automatically Produce a CORINE Land Cover Map from a Single Spot Image?  
*M. Liénou, H. Maitre & M. Datcu*

[Poster](#)

[Article](#)

Concepts Elaboration and System Architectures for Mining Very Large Image Archives  
*I.M. Gómez Muñoz & M. Datcu*

[Poster](#)

[Article](#)

Use of Knowledge Driven Information Mining for Earth Observation Images Assessment to Support Sustainable Humanitarian Crisis Management  
*D. Faur, I. Gavat & M. Datcu*

[Poster](#)

[Article](#)

Visual Exploration for Nowcasting of Precipitating Convective Clouds in Time Series of Remote Sensing Data  
*U.D. Turdukulov & M.-J. Kraak*

[Poster](#)

Flexible Access to ESA Earth Observation Data Using Jpeg200 and DRM  
*H. Carvalho, C. Serrão, A. Serra & M. Dias*

[Poster](#)

[Article](#)

## List of Participants