Final Program

EUSAR 2010

8th European Conference on Synthetic Aperture Radar

June 7 - 10, 2010 · Aachen, Germany

Organized by

ITG / VDE

EADS astrium · Fraunhofer FHR · DLR · EADS Defence & Security

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EUSAR 2010

8th European Conference on Synthetic Aperture Radar

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EUSAR is jointly organised by:

ITG (VDE)	Information Technology Society of VDE
DLR	German Aerospace Center
Fraunhofer FHR	Fraunhofer Institute for High Frequency Physics and Radar Techniques
EADS	European Aeronautic Defence and Space Company
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Message from the Conference Chairman

I am pleased to welcome you to the 8th EUSAR conference in the wonderful city of Aachen!

Over the years the European Conference on Synthetic Aperture Radar has evolved to become surely the most important international conference dedicated to SAR techniques, technology and applications. It has accompanied the worldwide evolution of high resolution imaging radar, both airborne and spaceborne, and has helped to establish an international community of SAR engineers and scientists. The great success of previous EUSAR conferences (since 1996), together with the overwhelming international response to EUSAR 2010, confirms this.

As in previous years, EUSAR provides an excellent forum for exchanging information and discussion on a wide variety of SAR topics, representing the latest SAR developments and future trends. EUSAR 2010 will be an unique conference for all colleagues involved in the field of synthetic aperture radar.

Over the years, dramatic improvements have been made in the field of radar technology and applications. SAR has become an individual discipline within the field of radar, finding many applications in civilian areas. Spacebased SAR has turned into an outstanding and important tool for earth observation and reconnaissance.

Currently we are now in a very dynamic and challenging time for SAR development with the approaching launch of TANDEM-X and a number of established spaceborne systems like RADARSAT-2, COSMO Skymed, TECSAR, ALOS/PALSAR, TerraSAR-X, SAR-Lupe, and several others. Today's SAR systems are an indispensable data source for high resolution 2D and 3D mapping, environmental and disaster monitoring as well as security related applications. Information extraction has achieved a mature and operational level in a number of different fields, making the contributions of SAR systems to present and future programmes like GMES and GEOSS very essential.

With more than 360 SAR experts, representing about 33 countries from all over the world, coming together at such a conference, we can once again expect to achieve excellent results.

In order to provide an outstanding technical level for the presentations at the conference, we have invited more than 80 distinguished experts in the SAR field to participate in the

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Conference Topics

(A) SAR/ISAR Systems and Sensors
A1 Airborne SAR-Systems and Missions
A2 Space-borne SAR Systems and Missions (TerraSAR-X, RADARSAT 2, COSMO-SkyMed, TANDEM-X, TecSAR)
A3 Inverse SAR (ISAR)
A4 SAR System Simulation and Modelling
A5 Advanced SAR Modes (ScanSAR,TOPS,Spotlight,Squint,Bistatic)
A6 Very Low Frequency SAR Systems
A7 Ultra Wide Bandwidth and High Resolution SAR

(B) SAR/ISAR Technology
B1 SAR Antennas, T/R Modules, and Phased Arrays, Digital Beam Forming
B2 SAR Technology (Waveform Generators, High Speed AD-Converters, ...)
B3 SAR Calibration and Verification (Radiometric, Polarimetric and Interferometric)
B4 Terrestrial SAR Tools, Artificial Targets and Transponders

(C) SAR/ISAR Signal Processing
C1 SAR Image Generation, Motion Compensation and Geocoding
C2 Signal Processing for Advanced SAR Modes (Spotlight, Squint, Bistatic, Sliding)
C3 ISAR Signal Processing
C4 Along and Across-Track Interferometry
C5 Multiple Pass, Differential Interferometry and SAR Tomography
C6 Polarimetry and Polarimetric Interferometry
C7 SAR/MTI, STAP, Change Detection
C8 On-Board / Real-Time SAR Processing

(D) SAR/ISAR Data Evaluation and Handling
D1 Post-Processing Techniques
D2 SAR Surveillance Urban Areas
D3 Image Filtering, Correction and Enhancement
D4 Feature Extraction and Analysis, Image Classification
D5 Data Mining and Value-Adding
D6 Data Compression
D7 Archiving, Data Formats and Distribution
D8 Data Fusion
D9 Product Validation

(E) Innovative SAR Concepts and Applications
E1 Next Generation SAR Systems, Innovative SAR Concepts
E2 Bi- and Multistatic SAR Systems, Passive SAR Systems
E3 Multimode and Reconfigurable SAR Systems
E4 Multi-Satellite and Small Satellite SAR Systems
E5 Three Dimensional SAR Techniques
E6 MIMO-SAR

(F) Other SAR Related Subjects

Session 8.3: Urban remote sensing I (invited)

Room: Berlin 3

Chairs: Fabio Dell'Acqua (University of Pavia, Italy), Uwe Stilla (Technische Universitaet Muenchen (TUM), Germany)

8:30 A Concept for the Reconstruction of Urban Surface Models from Airborne Multi-Aspect InSAR Data
Michael Schmitt (Technische Universitaet Muenchen (TUM), Germany); Uwe Stilla (Technische Universitaet Muenchen (TUM), Germany)

8:50 Potential of very high resolution SAR interferometry for urban building analysis
Andreas R. Brenner (Fraunhofer FHR, Germany); Ludwig Roessing (Fraunhofer FHR, Germany); Patrick Berens (Fraunhofer FHR, Germany)

9:10 An application of the deterministic feature extraction approach to COSMO-SKyMed data
Raffaella Guida (University of Surrey, United Kingdom); Antonio Iodice (Università degli Studi di Napoli Federico II, Italy); Daniele Riccio (Università degli Studi di Napoli Federico II, Italy)

9:30 Introducing Partial Polarimetric Layers into a Curvelet-*based Change Detection*
Andreas Schmitt (German Aerospace Center, Germany); Birgit Wessel (German Aerospace Center (DLR), Germany)

9:50 A Processing Chain for Simple 3D Reconstruction of Buildings in Urban Scenes From High Resolution Optical and SAR Images.
Helene Sportouche (Institut Télécom; Télécom ParisTech; CNRS LTCI, France); Florence Tupin (Télécom Paris, France)

10:10 - 10:40 Coffee Break

Session 8.4: Advanced modes and novel techniques

Room: Bruessel

Chairs: Keith Morrison (University of Cranfield, United Kingdom), Alberto Moreira (DLR Oberpfaffenhofen, Germany)

8:30 Ultra-Wide Swath SAR Imaging With Continuous PRF Variation
Nicolas Gebert (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany)

8:50 Adaptive Multicarrier OFDM SAR Signal Processing
Dmitriy Garmatyuk (Miami University, USA); Matthew Brenneman (Miami University, USA)

9:10 A Concept for a High Performance Reflector-Based X-Band SAR
Marwan Younis (German Aerospace Center (DLR), Germany); Anton Patyuchenko (German Aerospace Center (DLR), Germany); Sigurd Huber (DLR, Germany); Gerhard Krieger (DLR, Germany); Alberto Moreira (DLR Oberpfaffenhofen, Germany)

9:30 A Spaceborne Ka-Band SAR Interferometer Concept based on Scan-on-Receive Techniques
Michael Ludwig (ESA/ESTEC, The Netherlands); Salvatore D' Addio (European Space Agency, The Netherlands); Kilian Engel (Esa, The Netherlands); Miguel Aguirre (European Space Agency (ESTEC), The Netherlands); Elena Saenz (European Space Agency (ESA-ESTEC), The Netherlands); Jean-Christophe Angevain (ESA, The Netherlands)

9:50 Specificities of Near-nadir Ka-band Interferometric SAR Imagery
Roger Fjørtoft (CNES, France); Alain Mallet (CNES, France); Jean-Marc Gaudin (CNES, France); Nadine Pourthie (CNES, France); Christine Lion (CNES, France); Fifamè Nadège Koudogbo (Altamira-Information, Spain); Javier Duro (Altamira-Information, Spain); Patrick Ordoqui (Altamira-Information, Spain); Alain Arnaud (Altamira-Information, Spain); Christian Ruiz (CapGemini, France)

10:10 - 10:40 Coffee Break

Session 9.3: Urban remote sensing II (invited)

Room: Berlin 3

Chairs: Uwe Stilla (Technische Universitaet Muenchen (TUM), Germany), Fabio Dell'Acqua (University of Pavia, Italy)

10:40 Spaceborne support to post-earthquake operations: detection of sparse man-made features in wide-scale safety inspection
Fabio Dell'Acqua (University of Pavia, Italy); Diego Aldo Polli (University of Pavia, Italy); Stefano Ferrari (University of Pavia, Italy)

11:00 Analysis of urban areas from high-resolution InSAR data and one Orthophoto using Conditional Random Fields
Jan Dirk Wegner (Leibniz University of Hannover, Germany); Ronny Haensch (Technical University of Berlin, Germany); Antje Thiele (Fraunhofer IOSB, Germany); Uwe Sörgel (Leibniz Universität Hannover, Germany)

11:20 Detection and Reconstruction of Building Footprints from Single VHR SAR Images
Adamo Ferro (University of Trento, Italy); Dominik Brunner (University of Trento, Italy); Lorenzo Bruzzone (University of Trento, Italy)

11:40 DEM extraction over urban area using circular SAR imagery
Helene Oriot (ONERA, France)

12:00 3D building reconstruction by exploiting SAR and GIS data
Antje Thiele (Fraunhofer IOSB, Germany); Stefan Hinz (Remote Sensing Technology, Technische Universitaet Muenchen, Germany); Erich Cadario (Fraunhofer FOM, Germany); Nico Adam (DLR, Germany)

12:20 - 13:45 Lunch Break

Session 9.4: Air-borne and UAV-SAR

Room: Bruessel

Chairs: Hans M Braun (INS University of Stuttgart & RST Radar Systemtechnik GmbH, Germany), Jens Klare (Fraunhofer FHR, Germany)

10:40 Ice Studies using UAVSAR L-band and Ka-band Data
Scott Hensley (Jet Propulsion Laboratory, USA); Howard Zebker (Stanford University, USA); Cathleen Jones (JPL, USA); Bruce Chapman (Jet Propulsion Laboratory, California Institute of Technology, USA); Thierry Michel (Jet Propulsion Laboratory, USA); Marc Simard (Jet Propulsion Laboratory, USA); Ronald Muellerschoen (Jet Propulsion Laboratory, USA); Gregory Sadowy (Jet Propulsion Laboratory, USA); Delwyn Moller (Remote Sensing Solutions, USA)

11:00 The SlimSAR: A Compact, Flexible, High-Performance, Polarimetric, Multi-Band SAR for Operation on a Small UAS
Evan C. Zaugg (Brigham Young University, USA); Matthew Edwards (ARTEMIS, Inc., USA); Alex Margulis (ARTEMIS, Inc., USA)

11:20 TropiSAR, a SAR data acquisition campaign in French Guiana
Pascale Dubois-Fernandez (ONERA, France); Helene Oriot (ONERA, France); Olivier Ruault Du Plessis (ONERA, France); Colette Coulombeix (ONERA, France); Hubert M.J. Cantalloube (ONERA, France); Thuy Le Toan (CESBIO, France); Sandrine Daniel (CESBIO, France); Jerome Chave (EDB, France); Lilian Blanc (CIRAD, France)

11:40 Current status of DLR's new F-SAR sensor
Andreas Reigber, Ralf Horn, Anton Nottensteiner (DLR, Germany); Pau Prats, Rolf Scheiber, Karl-Heinz Bethke, Stefan V. Baumgartner (German Aerospace Center (DLR), Germany)

12:00 SmartRadar: A Modular Radar Sensor for Air- and Spaceborne SAR/MTI Applications
Martin Kirscht, Rudolf Zahn, Kosmas Weidmann, Robert Storkenmaier (EADS Deutschland GmbH, DE, Germany)

12:20 - 13:45 Lunch Break