

Fringe 96 - Workshop Contents

Workshop Programme

- Session 1 - Geology & Hazards Applications
- Session 2 - DEM Applications
- Session 3 - Forest & Landcover Applications
- Session 4 - Processors & Products
- Session 5 - Algorithms & Techniques
- Session 6 - Validation
- Session 7 - Ice & Glaciers

Session 1 - Geology & Hazards Applications

Chairman: H. Laur

SAR INTERFEROMETRY FOR MONITORING LAND SUBSIDENCE: APPLICATION TO AREAS OF UNDERGROUND EARTH RESOURCES MAPPING (Abstract)

C. Carnec & al., *BRGM, France*

TOPOGRAPHIC SIGNATURES IN GEOLOGY (Abstract)

T.G. Farr & D.L. Evans, *JPL, California Institute of Technology, USA*

MONITORING OF SMALL MOTIONS IN MINING AREAS BY SAR INTERFEROMETRY

L. Timmen & al., *GeoForschungsZentrum, Germany*

APPLICATION OF SAR INTERFEROMETRY TO THE IMAGING AND MEASUREMENT OF NEOTECTONIC MOVEMENT APPLIED TO MINING AND OTHER SUBSIDENCE/DOWNWARP MODELLING

R. Stow, *Doncaster College, UK*

THE SHUTTLE RADAR TOPOGRAPHY MAPPER (Abstract)

T.G. Farr & M. Kobrick, *JPL, California Institute of Technology, USA*

SAR INTERFEROMETRY: POTENTIAL AND LIMITS FOR MINING SUBSIDENCE DETECTION, WITH EXAMPLES IN THE MULHOUSE AREA (EASTERN FRANCE) (Abstract)

D. Raymond & J.-P. Rudant, *U.R.A., C.N.R.S., France*

CRUSTAL DEFORMATION STUDIES USING SYNTHETIC APERTURE RADAR (SAR) INTERFEROMETRY (Abstract)

G. Peltzer & al., *JPL/Caltech, USA*

CIVINSAR™ QUAKE ASSESSMENT: AN INTEGRATION OF DIFFERENTIAL SAR INTERFEROMETRY INTO A GIS TO ASSIST IN EARTHQUAKE RISK MANAGEMENT (Abstract)

R. Capes & al., *The NPA Group, USA*

THE 1995 GREVENA (NORTHERN GREECE) EARTHQUAKE: FAULT MODEL CONSTRAINED WITH TECTONIC OBSERVATIONS AND SAR INTERFEROMETRY (Abstract)

B. Meyer & al., *Institut de Physique du Globe, France*

OBSERVATION AND MODELLING OF THE SAINT-ETIENNE-DE-TINEE LANDSLIDE USING SAR INTERFEROMETRY

F. Bénédicte & al., *Institut de Physique du Globe, France*

Session 2 - DEM Applications

Chairman: S. Coulson

INSAR QUANTITATIVE EVALUATION

B. Carron, *MATRA CAP SYSTEMES, France*

ACCURACY OF INSAR MEASUREMENTS IN FORESTED AREAS

P. B.G. Dammert, *Chalmers University of Technology, Sweden*

ACCURACY ASSESSMENT OF DEMs DERIVED FROM ERS TANDEM INTERFEROMETRY AND COMPARISON WITH SPOT-STEREO (Abstract)

J.-P. Muller & al., *University College London, UK*

ACCURACY ASSESSMENT OF INTERFEROMETRICALLY DERIVED DTMs

L. Kenyi & H. Raggam, *Institute for Digital Image Processing, Austria*

VALIDATION OF HEIGHT MODELS FROM ERS INTERFEROMETRY

D. Small & D. Nüesch, *Remote Sensing Laboratories (RSL), Switzerland*

SAR INTERFEROMETRIC DEM QUALITY ASSESSMENT

L. Polidori & al., *Aérospatiale Espace & Défence, France*

MULTIRESOLUTION ANALYSIS OF DEMs: ERROR AND ARTIFACT CHARACTERISATION

D. Luca & al., *ETHZ, CH*

GEMSAR: DLR'S PROJECT FOR THE GENERATION OF GLOBAL DIGITAL ELEVATION MODELS (Abstr.)
W. Noack & al., *DLR, Germany*

THE DIGITAL ELEVATION MODEL MARKET: CURRENT SITUATION AND PERSPECTIVES (Abstract)
L.-F. Guerre & al., *Spot Image, France*

ASSESSMENT OF INTERFEROMETRIC SAR DEM FOR UK NATIONAL MAPPING
J.-P. Muller & al., *University College London, UK*

Session 3 - Forest & Landcover Applications
Chairman: M. Borgeaud

INITIAL TESTING OF TANDEM QUALITY FOR INSAR APPLICATIONS, EXAMPLES FROM TAIWAN, MADAGASCAR, ZAIRE, MALI, IVORY COAST AND GREENLAND (Abstract)
G. Solaas & F. Gatelli, *RS/E Data Utilisation Section, ESRIN, ESA, Italy*

ON THE USE OF ERS SAR INTERFEROMETRY FOR THE RETRIEVAL OF GEO- AND BIO-PHYSICAL INFORMATION
M. Borgeaud, *ESA/ESTEC, NL* & U. Wegmüller, *GAMMA Remote Sensing AG, CH*

FOREST INSAR DECORRELATION AND CLASSIFICATION PROPERTIES
J. Askne & G. Smith, *Chalmers University of Technology, Sweden*

FOREST MONITORING OVER HILLY TERRAIN USING ERS INSAR DATA
A. Beaudoin & al., *LCT Cemagref-ENGREF, France*

INTERFEROMETRY FOR FOREST STUDIES
N. Flourey & al., *Centre d'Etudes Spatiales de la Biosphère, France*

ANALYSIS OF ERS-SAR TANDEM TIME SERIES USING COHERENCE AND BACKSCATTERING COEFFICIENT
O. Stebler & al., *Remote Sensing Laboratories (RSL), Switzerland*

FEASIBILITY OF ERS-1/2 INTERFEROMETRY FOR FOREST INVENTORY
J. Hyyppä & al., *Helsinki University of Technology, Finland*

THE USE OF INTERFEROMETRIC RESULTS WITH OTHER REMOTE SENSING DATA IN THE EMAP-PROJECT
M. Reich & A. Wehr, *Universität Stuttgart, Institut für Navigation, Germany*

ASSESSMENT OF LAND COVER MAPPING POTENTIAL IN AFRICA USING TANDEM ERS INTERFEROMETRY
B. Mumford & al., *University College London, UK*

PHASE SHIFT INTERPRETATION ON ERS-1 INTERFEROGRAMS AND LABORATORY MEASUREMENTS
J.-P. Rudant & al., *UMLV & UPMC, France*

WETLAND MONITORING IN MALI USING SAR INTERFEROMETRY
J. Morley & al., *University College London, UK*

MULTIPLE IMAGES SAR INTERFEROMETRY
D. Derauw, *Centre Spatial de Liège* & J. Moxhet, *Université de Liège, Belgium*

LAND APPLICATIONS USING ERS-1/2 TANDEM DATA
U. Wegmüller & C. L. Werner, *GAMMA Remote Sensing AG, Switzerland*

WEATHER EFFECTS ON SAR BACKSCATTER FOR AGRICULTURAL SURFACES
S. Hobbs, *Cranfield University, UK*

ON THE ACCURACY OF DIFFERENTIAL SAR INTERFEROMETRY OVER MT ETNA (Abstract)
J.-P. Muller & al., *University College London, UK*

Session 4 - Processors & Products
Chairman: J-P. Guignard

THE DEVELOPING OF A WIDE-AREA INTERFEROMETRIC PROCESSOR
D. Carrasco & al., *Universitat Politècnica de Catalunya, Spain*

DESCRIPTION OF THE DIAPASON SOFTWARE DEVELOPPED BY CNES CURRENT AND FUTURE APPLICATIONS (Abstract)
D. Massonnet & F. Adragna, *CNES, France*

OPERATIONAL USE OF SAR INTERFEROMETRY FOR DEM GENERATION AND LAND USE MAPPING
E.-A. Herland, *VTT Automation, Finland*

- GEMSAR:DLR'S SYSTEM FOR THE GENERATION OF GLOBAL DIGITAL ELEVATION MODES FROM SAR (Abstract)
M. Eineder & al., *DFLR, Germany*
- AN INTERFEROMETRIC QUICK-LOOK PROCESSOR
F. Gatelli & al., *Politecnico di Milano, Italy*
- AN INTEGRATED METHODOLOGY FOR DEM COMPUTATION THROUGH FUSION OF INTERFEROMETRIC, RADARGRAMMETRIC AND PHOTOGRAMMETRIC DATA (Abstract)
I. Tannous & F. Le Goff, *SYSECA, France*
- THE UCL 3D IMAGE MAKER SYSTEM FOR AUTOMATED DIFFERENTIAL SAR INTERFEROMETRY (Abstract)
M. Upton & al., *University College London, UK*
- A WORKSTATION FOR SPACEBORNE INTERFEROMETRIC SAR DATA (Abstract)
M.W.A. van der Kooij & al., *Atlantis Scientific Systems Group Inc., Canada*
- COMPARISON OF SEVERAL MULTI-LOOK PROCESSING PROCEDURES IN INSAR PROCESSING FOR ERS-1&2 TANDEM MODE
Y. Huang & J.L. van Genderen, *ITC, NL*
- IMPACT OF PRECISE ORBITS ON SAR INTERFEROMETRY
C. Reigber & al., *GeoForschungsZentrum Postdam, Germany*
- ERS INTERFEROMETRIC PRODUCTS DEVELOPMENT AT ASI-SPACE GEODESY CENTRE
E. Lopinto, *Nuova Telespazio & C. Marzo, ASI, Italy*
- A NOVEL INTERFEROMETRIC PROCESSOR BASED ON CHIRP SCALING (Abstract)
D. Fernandes & al., *DLR Institut für Hochfrequenztechnik, Germany*
- INSAR PRODUCTS OF THE JENA-SAR SOFTWARE SYSTEM (Abstract)
T. Fiksel & al., *Daimler Benz Aerospace, Germany*
- TOWARDS AN OPERATIONAL INSAR PROCESSOR FOR TOPOGRAPHIC RADAR MAPPING (Abstract)
H. Eichenherr & al., *Dornier Satellitensysteme GmbH, Germany*
- VEXCEL/GAMMA 3D SATELLITE SAR GROUND PROCESSING SYSTEM (Abstract)
J. Curlander, *Vexcel Corporation, USA* & U. Wegmüller, *Gamma Remote Sensing AG, CH*
- SCALABLE SAR PROCESSING
D. Curkendall, *Jet Propulsion Laboratory, USA*

Session 5 - Algorithms & Techniques
Chairman: E. Attema

- MULTI-BASELINE INTERFEROMETRIC TECHNIQUES AND APPLICATIONS
A. Ferretti & al., *Politecnico di Milano, Italy*
- COMPARISON OF REPEAT TRACK INTERFEROMETRIC CORRELATION FROM ERS-1, ERS TANDEM, SIR-C AND JERS-1
C. L. Werner & al., *Jet Propulsion Laboratory, USA*
- PRESENTATION OF AN IMPROVED PHASE UNWRAPPING ALGORITHM BASED ON KALMAN FILTERS COMBINED WITH LOCAL SLOPE ESTIMATION
R. Krämer & O. Loffeld, *Universität-GH-Siegen, Germany*
- A PHASE UNWRAPPING METHOD BASED ON NETWORK PROGRAMMING
M. Costantini, *ESA/ESRIN, Italy*
- THE MULTIREOLUTION APPROACH IN SAR INTERFEROMETRY
M. Datcu, *DLR, Germany*
- NEW METHODS OF PHASE UNWRAPPING AND BASELINE ADJUSTMENTS IN SAR INTERFEROMETRY
H. Tarayre-Oriot & D. Massonnet, *ONERA, France*
- THE POTENTIAL OF ERS TANDEM FOR GLOBAL 100m TOPOGRAPHY BY THE YEAR 2000 (Abstract)
J.-P. Muller, *University College of London, UK*
- A FIRST QUANTITATIVE EVALUATION OF ATMOSPHERIC EFFECTS ON SAR INTERFEROMETRY
R. Hanssen, *Delft University of Technology* & A. Feijt, *KNMI, NL*
- ATMOSPHERIC ARTIFACTS ON INTERFEROGRAMS
H. Tarayre-Oriot & D. Massonnet, *ONERA, France*

ESTIMATING THE DERIVATIVE OF MODULO-MAPPED PHASES

O. Loffeld & al., *Zentrum für Sensorsysteme, Germany*

AN EFFICIENT TIME-FREQUENCY HYBRID METHOD FOR PHASE UNWRAPPING

G. Fornaro & al., *Università degli Studi di Napoli "Federico II"*

LINEAR FEATURE EXTRACTION FROM ERS SAR SCENES USING INSAR COHERENCE MAPS (Abstr.)

O. Hellwich, *Technical University Munich, Germany*

Session 6 - Validation

Chairman: G. Solaas

CROSS-COMPATIBILITY OF ERS-SLC PRODUCTS

A. Barmettler & al., *Remote Sensing Laboratories, CH*

ON THE INTERFEROMETRIC COHERENCE: A MULTIFREQUENCY AND MULTITEMPORAL ANALYSIS

K.P. Papathanassiou & al., *DLR, Germany*

AN APPROACH OF ERROR PROPAGATION MODELLING OF SAR INTERFEROMETRIC DATA

R. Gens & al., *ITC, NL*

Session 7 - Ice & Glaciers

Chairman: Y-L. Desnos

FIRST RESULTS FROM ERS TANDEM INSAR PROCESSING ON SVALBARD

K. Eldhuset & al., *Forsvarets Forskningsinstitut, Norway*

MULTI-PASS INTERFEROMETRY FOR STUDIES OF GLACIER DYNAMICS

J.J. Mohr & al., *Technical University of Denmark, Denmark*

GLACIER FLOW MEASUREMENTS WITH ERS TANDEM MISSION DATA

I. Cumming & al., *University of British Columbia, Canada*

INSAR AT ASF: ANALYSIS OF THE 1993 BERING GLACIER SURGE (Abstract)

D.R. Fatland, *University of Alaska, USA*

SAR INTERFEROMETRY OVER RUTFORD ICE STREAM AND CARLSON INLET, ANTARCTICA (Abstr.)

R. Frolich & Ch. Doake, *British Antarctic Survey, UK*

GLACIER FLOW MEASUREMENTS IN SPITSBERGEN, SVALBARD, FROM DIFFERENTIAL INTERFEROMETRY (Abstract)

B. Lefauconnier & al., *Norsk Polarinstitut, Norway*

Full List of Papers:

Forest INSAR decorrelation and classification properties (Askne et al.)

Cross-Compatibility of ERS-SLC Products (A. Barmettler, P. Pasquali, D. Small and D. Nüesch)

Forest Monitoring over Hilly Terrain Using ERS INSAR Data (André BEAUDOIN Thierry CASTEL Thierry RABAUTE)

Observation and modelling of the Saint-Etienne-de-Tinée landslide using SAR interferometry (Benedict et al.)

On the Use of ERS SAR Interferometry for the Retrieval of Geo- and Bio-Physical Information (Maurice Borgeaud Urs Wegmueller)

CivInSAR(TM) Quake Assessment: An integration of differential SAR interferometry into a GIS to assist in earthquake risk management (R. Capes, M. Haynes G. Lawrence A. Smith J.P. Muller B. Parsons, P. England, P. Clarke)

SAR Interferometry for monitoring land subsidence: Application to areas of underground earth resources mapping (Claudie Carnec, Christine King Didier Massonnet Thierry Rabaute)

The developing of a wide Area Interferometric Processor (Daniel Carrasco, Susanna Sanz, Ricardo Sousa, Antoni Broquetas)

INSAR Quantitative Evaluation (B. Carron)

A Phase Unwrapping Method Based on Network Programming (Costanti et al.)

Glacier Flow Measurements (Ian Cumming and Juan-Luis Valero Paris Vachon, Karim Mattar, Dirk Geudtner and Laurence Gray)

Scalable SAR Processing (Dave Curkendall)

Vexcel/Gamma 3D Satellite SAR Ground Processing System (John C. Curlander Urs Wegmueller)

Accuracy of INSAR Measurements in Forested Areas (Dammert et al.)

The multiresolution approach in SAR interferometry (Mihai Datcu)

Multiple Images SAR Interferometry (Dominique Derauw Jean Moxhet)

Towards an Operational INSAR Processor for Topographic Radar Mapping (Harald Eichenherr, Nikolaus P. Faller, Michael Voelker)

GEMSAR: DLR's project for the generation of global digital elevation models (Wolfgang Noack, Richard Bamler, Michael Eineder, Achim Roth,

Hartmut Runge)

First results from ERS tandem INSAR studies on Svalbard (Knut Eldhuset Frank Aanvik Kaare Aksnes Jostein Amlien Per Helge Andersen Svein Hauge Elisabeth Isaksson Terje Wahl Dan Johan Weydahl)

Topographic Signatures in Geology (T.G. Farr, D.L. Evans)

The Shuttle Radar Topography Mapper (T.G. Farr, M. Kobrick)

INSAR at ASF: Analysis of the 1993 Bering Glacier Surge (Dennis R. Fatland)

A Novel Interferometric Processor based on Chirp Scaling (D. Fernandes, K. Papathanassiou, A. Reigber, G. Riegler)

Multi Baseline Interferometric Techniques and Applications (A.Ferretti, A. Monti Guarnieri, C.Prati and F.Rocca)

INSAR Products of the JENA-SAR Software System (Fiksel T Hartmann R Winzer W)

Interferometry for Forest Studies (Nicolas FLOURY Thuy LE TOAN Jean-Claude SOUYRIS Kuldip SINGH Nicolas STUSSI Chih Chien HSU Jin Au KONG)

An efficient time-frequency hybrid method for Phase Unwrapping (Gianfranco Fornaro, Giorgio Franceschetti, Eugenio Sansosti, Manlio Tesoro Riccardo Lanari)

CD-ROM info

SAR interferometry over Rutford Ice Stream and Carlson Inlet, Antarctica (R. Frolich Ch. Doake)

An Interferometric Quick-Look Processor (F. Gatelli, A. Monti Guarnieri, C. Prati and F. Rocca)

An Approach of Error Propagation Modelling of SAR Interferometric Data (Gens et al.)

The Digital Elevation Model market: current situation and perspectives (L.-F. Guerre, A. Hirschfeld, L. Demargne C. Foucher)

A first quantitative evaluation of atmospheric effects on SAR interferometry (Ramon Hanssen Arnout Feijt)

Linear feature extraction from ERS SAR (Olaf Hellwich)

Operational use of SAR interferometry for DEM generation and land use mapping (Einar-Arne Herland)

Weather Effects on SAR Backscatter for Agricultural Surfaces (Hobbs et al.)

Comparison of several multi-look processing procedures in INSAR processing for ERS-1&2 tandem mode (Huang et al.)

Feasibility of ERS-1/2 Interferometry for Forest Inventory (Hyyppea et al.)

Accuracy assessment of interferometrically derived DTMs (Kenyi et al.)

A Workstation for Spaceborne Interferometric SAR Data (M.W.A. van der Kooij, B. Armour, J. Ehrismann, H Schwichow and S. Sato)

Presentation of an improved Phase Unwrapping Algorithm based on Kalman filters combined with local slope estimation (Kraemer et al.)

Glacier flow measurements in Spitsbergen, Svalbard, from differential interferometry (Bernard Lefauconnier Geir Anker Marc Rossi)

Estimation the derivative of modulo-mapped phases (Loffeld et al.)

SAR Interferometric DEM quality assessment (Ettore Lopinto Cosimo Marzo)

Multiresolution Analysis of DEMs: Error and Artifact Characterization (Dragos Luca Mihai Datcu Klaus Seidel)

Description of the DIAPASON software developed by CNES current and future applications (Didier Massonnet, Frederic Adragna)

The 1995 Grevena Earthquake (B. Meyer et al.)

Multi-pass interferometry for studies of glacier dynamics (Mohr et al.)

Wetland monitoring in Mali using SAR interferometry (Jeremy Morley Jan-Peter Muller)

The potential of ERS tandem for global 100m topography by the year 2000 (J.-P. Muller)

On the accuracy of differential SAR interferometry over Mt Etna (J.-P. Muller, M. Upton, J. G. Morley G. Wadge, N. Stevens J.B. Murray)

Assessment of interferometric SAR DEM for UK National mapping (Jan-Peter Muller Athula Mandanayake K. Murray D Holland)

Accuracy assessment of DEMs derived from ERS tandem interferometry and comparison with SPOT-stereo (J.-P. Muller, A. Mandanayake, M. Upton)

Assessment of land cover mapping potential in Africa using tandem ERS interferometry (B. Mumford, J-P Muller (mailto:jpmuller@ps.ucl.ac.uk), A. Mandanayake,)

GEMSAR: DLR's project for the generation of global digital elevation models (Wolfgang Noack, Richard Bamler, Michael Eineder, Achim Roth, Hartmut Runge)

On the Interferometric Coherence: A Multifrequency and Multitemporal Analysis (K.P. Papathanassiou A. Reigber M. Coltelli)

Participants

Crustal deformation studies using synthetic aperture radar (SAR) interferometry (G. Peltzer, P. Rosen, F. Rogez, C. Werner, E. Fieldings K. Hudnut)

SAR Interferometric DEM quality assessment (Laurent Polidori Francois-X. Archambault Michel Kasser)

SAR Interferometry: potential and limits for mining subsidence detection, with examples in the Mulhouse area (eastern France) (Daniel Raymond, Jean-Paul Rudant)

The use of interferometric results with other remote sensing data in the EMAP-project (Reich et al.)

Impact of Precise Orbits on SAR Interferometry (Reigber et al.)

Glaciological Studies in the Alps and in Antarctica Using ERS Interferometric SAR (Helmut Rott and Andreas Siegel)

LABORATORY EXPERIMENTS FOR THE INTERPRETATION OF PHASE SHIFT IN SAR INTERFEROGRAMS (Rudant et al.)

DEM generation by means of ERS tandem data (Rufino et al.)

Validation of Height Models from ERS Interferometry (D. Small and D. Nüesch)

Initial testing of ERS Tandem data quality for InSAR applications - Examples from Taiwan, Madagascar, Zaire, Ivory Coast, Mali and Greenland (Gaute Aa Solaas Fabio Gatelli)

Analysis of ERS-SAR Tandem Time-Series (O. Stebler, P. Pasquali, D. Small, F. Holecz, and D. Nüesch)

Application of SAR Interferometry to the Imaging and Measurement of Neotectonic Movement Applied to Mining and other Subsidence/Downward Modelling. (R. Stow)

An integrated methodology for DEM computation through the fusion of interferometric, radargrammetric and photogrammetric data (Issam Tannous & Frederic Le Goff)

New methods of phase unwrapping in SAR interferometry (Hélène Tarayre-Oriot Didier Massonnet)

Atmospheric artifacts on interferograms (Hélène Tarayre-Oriot Didier Massonnet)

The Effects of different Land Covers on the Accuracy of Interferometric DEM (Xiaoqing Wu, Karl-Heinz Thiel, Aloysius Wehr)

Monitoring of Small Motions in Mining Areas by SAR Interferometry (Timmen et al.)

The UCL 3D Image Maker system for automated differential SAR interferometry (Mark Upton, Jan-Peter Muller Andy Smith)

Land Applications using ERS-1/2 Tandem data (Wegmuell et al.)

Comparison of Repeat Track Interferometric Correlation Signatures from ERS-1, ERS Tandem, SIR-C, and JERS-1 (Charles L. Werner, Scott Hensley and Paul A. Rosen Urs Wegmueller)

The Use of Tandem data in the Antarctic area (Xiaoqing Wu, Karl-Heinz Thiel, Stefan Wunderle)
