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Current developments in deformation analysis

W. Niemeier

50 Years of Deformation Monitoring - What has been achieved?

H. Kutterer, M. Even, A. Seidel, J. Weisgerber

Bridging the scales - Earth observation infrastructure and geodetic deformation monitoring

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J. Stähle, A. Volovikova, S. Freitag, A. Stark

Artificial Intelligence-Based Deformation Analysis for Damage Identification in Structural Health Monitoring

K. Karsznia, E. Świerczyńska, K. Książek, W. Odziemczyk

Development of an expert system for the deformation monitoring of historical sites using Artificial Intelligence (AI)

Enhanced deformation monitoring by means of data fusion I

D. Bolkas, M. Olsen, E. Che, C. Simpson

First steps towards creating multi-sensor DEMs using optimal weighting for change estimation and monitoring applications

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N. Dal Santo, A. Michellini

A data fusion approach for combined Terrestrial Radar Interferometry (TRI) and Robotic Total Station (RTS) monitoring

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T. V. Pattela, L. Disperati, E. D'Addario, D. Rappuoli

Multi-Temporal GNSS, RTS, and InSAR for Very Slow-Moving Landslide Displacement Analysis

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A. Seidel, M. Even, H. Kutterer, M. Westerhaus

Surface displacement monitoring and geophysical source modeling at the gas storage cavern field Epe

Research Unit “TLS-Defo”: An holistic approach for TLS-based dam monitoring

E. Koller, B. Jost, H. Kuhlmann

Towards the calibration of terrestrial laser scanners – A case study at a water dam

O. AbdelGafar, S. Palaz, Y. Yang, Ch. Holst

An efficient strategy for determining intensity-based range variances of terrestrial laser scanners for rigorous deformation analyses

E. Ötsch, C. Harmening, H. Neuner

Employing variance component estimation for point cloud based geometric surface representation by B-splines

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S. Sadiq, C. Harmening

Investigating the potential of stochastic relationships to model deformations

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N. Wielgocka, G. Jóźków, D. Teodorczyk

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F. Grassi, P. Rossi, B. Brunelli, F. Mancini, C. Castagnetti, L. Vincenzi, E. Bassoli, A. Capra

Ensembling satellite monitoring and numerical cartography towards the safety assessment of infrastructures

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D. Tondas

An open-source Python library developed for GNSS & InSAR integration

TLS and MLS for deformation monitoring

Th. Pfaffinger, M. A. Ortiz Rincón, A. Nothnagel, Ph. Mey, J. Quick, R. Botha, P. Stronkhorst, M. Nickola, Ch. Holst

Quality-controlled deformation analysis of the 26-m HartRAO radio telescope's main reflector: First results

B. Riedel, O. Welke, M. Altmann, M. Gerke

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N. C. Meyer, T. Medic, E. Friedli, R. Senti, A. Wieser

Investigation of different registration methods for TLS-based deformation analysis of hydroelectric dams – A case study

F. Schill, M. Horn, Th. Moser, W. Lienhart

Investigating the precision of remote geodetic sensors for bridge monitoring: a large-scale field study

M. Wagner, B. Jost, L. Klingbeil, H. Kuhlmann

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Innovative approaches for deformation monitoring

C. Qiu, S. Pytharouli, J. Souter

The potential of tiltmeters as a low-cost technology in baseline ground movement monitoring

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E. Barnefske, C. Semmelroth, A. Scheider, H. Sternberg

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F.-B. Cartiaux, J. Semiao, A. Mege-Ythier

Deformation monitoring and model updating: three case studies on the Paris Metro

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P. Krnjak, A. Kosor, H. Tomić, A. Marendić, R. Paar

Comparative Analysis of Achieved Accuracy Using Low-Cost Mobile Phone LiDAR and Remote Sensing Techniques

Geomonitoring with TLS

N. Shi, T. Medic, N. Meyer, A. Voordendag, A. Wieser

Quantifying and Reducing the Uncertainty of 3D Displacement Estimates from Terrestrial Laser Scanner Point Clouds – A Case Study in Alpine Geomonitoring

D. Czerwotka-Schröder, F. Schulte, W. Albert, K. Hosseini, R. Tabernig, Y. Yang, B. Höfle, Ch. Holst, K. Zimmermann

Almon5.0 - Real-time monitoring of gravitational mass movements for critical infrastructure risk management with AI-assisted 3D metrology

Y. Yang, D. Czerwotka-Schröder, Ph. Seufert, Ch. Holst

Using point cloud registration to mitigate systematic errors in permanent laser scanning-based landslide monitoring

K. Hosseini, J. Hummelsberger, S. Zubareva, Ch. Holst

Contour line extraction and feature tracking for real-time 4D landslide monitoring based on point clouds: Proof of concept with lab experiments

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A. Piter, M. Haghsheenas Haghighi, M. Motagh

Temporarily Coherent Scatterer Selection for Transport Infrastructure Monitoring with Sentinel-1 InSAR

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K. Shahryarinia, M. Omidalizarandi, M. Heidarianbaei, M. A. Sharifi, I. Neumann

Detecting change points in time series of InSAR persistent scatterers using deep learning models

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M. Crosetto, S. Shahbazi, A. Barra

Mapping building differential deformations over wide areas

R. Eskandari, M. Scaioni

Joint Use of EGMS and Cosmo-SkyMed InSAR for Assessment of Ground and Structural Deformations: The Case of Como, Northern Italy

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Advanced point cloud analysis strategies for deformation analysis

O. Geißendörfer, Ch. Holst

Spatio-temporal mode description in LiDAR point clouds

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R. Tabernig, W. Albert, H. Weiser, B. Höfle

A hierarchical approach for near real-time 3D surface change analysis of permanent laser scanning point clouds

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Plane-based deformation analysis of railway tracks using airborne laser scanning data

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M. E. Kowalska, J. Zaczek-Peplinska

Exploring Planar Projection of Point Clouds: A Case Study with Cylindrical Objects

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Dynamic structural health monitoring

X. An, X. Meng, L. Hu, Y. Xie, F. Zhang

Integrated GNSS Positioning and Attitude Determination for Structural Health Monitoring of Large-span Bridges

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C. Xue, G. Li, J. Geng, P. Psimoulis

Feasibility analysis of smartphone GNSS data for low-frequency cm-level motion monitoring

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J. M. O. Jayamanne, P. Psimoulis, J. Owen, N. Penna, C. Xue

Incorporating Low-Cost GNSS Receivers for Deformation Monitoring in High-Rise Buildings

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Challenges in GNSS-based deformation monitoring

W. Dai, Y. Wen, W. Yu, Q. Wang

The usability evaluation and data processing methods of GNSS deformation monitoring in challenging environments

G. Ferhat, X. Wanner, M. Vidal, J.-P. Malet

Challenges and limitations in geodetic monitoring of landslides, case-study of Viella (Pyrenees mountains) and La Valette (Southern Alps), France

C. Hancock, Ch. Hill, P. Bhatia, J. Starkey, A. Athab, L. Yang, A. Arcia, A. Wong

Low-Cost GNSS Ground Monitoring for Land Planning: AI-Integrated Geospatial Solutions

Terrestrial radar for deformation monitoring

A. Michellini, N. Dal Santo, G. Alli, C. Testa

Water multipath effect in Terrestrial Radar Interferometry (TRI) in open-pit mine monitoring

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M. Talich, J. Havrlant, L. Soukup, T. Plachý, M. Polák, P. Ryjáček, V. Stančík

Appropriate strategy for GB-RAR measurements - One radar is not sufficient

M. Rebmeister, A. Schenk, J. Weisgerber, M. Westerhaus, S. Hinz, F. Andrian, M. Vonié

Ground-based InSAR and GNSS integration for enhanced dam monitoring

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Surface reconstruction as a basis for deformation analysis

L. M. Stausberg, N. Quadt, B. Jost, H. Kuhlmann

Investigating the applicability of surface models for laser scanner-based deformation analysis

R. Lindenbergh, Th. Dewez, D. Hulskemper

Assessing 3D morphological dune changes using medial axes

L. Winiwarter, F. Schulte, J. Wang, Q. Zhang, K. Anders, B. Jutzi

Assessing the Potential of Neural Radiance Fields and Gaussian Splatting for Change Detection and Change Quantification

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Ch. Michel, M. Ulrich

Automatic Inspection of Punched Metal Plate Fasteners on Timber-to-Timber Joints with Image-Based 3D Reconstruction

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About the importance of stochastic information in deformation analysis

G. Kerekes, V. Schwieger

Correlations in TLS point clouds: Should we care about them?

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M. Lösler, C. Eschelbach, R. Lehmann

Impact of Mathematical Correlations

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J. A. Butt

Building and Solving Probabilistic Instrument Models with CaliPy

K. Snow, B. Schaffrin

Total Least-Squares Collocation for Deformation Analysis

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Remote structural health monitoring

V. Belloni, N. E. Deresse, A. Nascetti, E. Verstrynge

Crack monitoring of masonry walls with standard and enhanced Digital Image Correlation methods

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A. Boney, S. Nishiyama, O. Murakami, S. Akita

A Feasibility Study to Monitor Crack Width Displacement using Images Taken with Pan-Tilt-Zoom Cameras

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Ch. Gaus, B. Jost, T. Piert, Ch. Hesse, K. Holste, H. Kuhlmann

Analysis and optimization of the reliable hole detection in sheet pile walls

A. Algadhi, P. Psimoulis, A. Grizi, L. Neves

Impact of surface orientation of structures on their seasonal deformation: a case-study in the UK

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Advanced approaches for total station-based deformation monitoring

L. García-Asenjo, R. Luján, S. Baselga

Mitigation of the refraction error in surveying techniques by using a network of meteorological sensors and a 3D refractivity model

A. Knöpfler

Deformation measurements on emergency sites

F. Schulte, L. Schneider, M. Lösler, S. Printz, D. Czerwonka-Schröder

Automatic geodetic monitoring with total stations based on the open source software library JAG3D – Case study of a rockfall in Trier/Germany

J. Zaczek-Peplinska, M. E. Kowalska

Principles and Case Study of IMSGeo: Automatic Displacement Monitoring System for Construction Sites

Poster session A

M. Ulm, M. Elias, A. Eltner, E. Lotsari, K. Anders

Automated change detection in photogrammetric 4D point clouds – Transferability and extension of 4D objects-by-change for monitoring riverbank dynamics using low-cost cameras

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S. Łapiński, P. Mąkowski

Detection analysis of displaced connection points for a different type of engineering survey networks connections

P. Wyszowska, R. Duchnowski

Sliding window algorithm applied to M_{split} estimation for seasonal change detection from LiDAR data

J. Steinbach, C. Harmening

Laser scanning based deformation analysis of a wooden dome under load

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M. C. Ramlie, P. Olea-Encina, Ch. Magnard, T. Strozzi, O. Monserrat, M. Crosetto, Ch. McDermott

The Potential of Multi temporal SAR Time Series Analysis for the Monitoring of the Geobattery Project

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P. Olea-Encina, M. Ramlie, M. Crosetto, O. Monserrat

Analyzing the Impact of Soil Moisture Dynamics on Ground Deformation in Salar de Atacama Using PSI and Sentinel Imagery

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J. Paziewski, R. Sieradzki, J. Koscielski, H. Szczepanik, D. Tomaszewski, K. Stepniak

Validation of mass-market GNSS and IMU MEMS sensors for millimeter-level displacement retrieval under simulated vibrations

R. Naeimaei, S. Schön

Deterministic Uncertainty for Terrestrial Laser Scanning Observations Based on Intervals

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Poster session B

C. Ito, S. Nishiyama

UAV Measurement Methods for Monitoring of Volume Reduction at Dredged Sediment Disposal Sites

R. Palamà, A. Barra, M. Cuevas-González, K. Pawłuszek-Filipiak, J. A. Navarro, O. Monserrat, M. Crosetto

Wide-Area Supervised Classification of Ground Deformation Phenomena from European Ground Motion Service Products

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G. Ferhat, I. Musq, P. Ulrich

Evaluation of several GNSS receivers: from low-cost to high-end geodetic receivers

A. M. Ruiz-Armenteros, M. Marchamalo-Sacristán, F. Lamas-Fernández, Á. Hernández-Cabezudo, A. Fernández-Landa, J. M. Delgado-Blasco, M. Bakon, M. Lazecky, D. Perissin, J. Papco, G. Corral, J. L. García-Balboa, J. L. Mesa-Mingorance, A. Da Penha Pacheco, J. M. Jurado-Rodríguez, J. J. Sousa

Integrated monitoring of dams and large ponds: the role of satellite radar interferometry and the European Ground Motion Service

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Z. Muszynski, M. Wyjadłowski, P. Kujawa, K. Gorska

Application of Terrestrial Laser Scanning and Inclinator for Comprehensive Monitoring of Deep Excavation

J. E. Blanco, M. C. de Lacy, M. A. Gomez-Villegas

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G. Ferhat, M. Meroni, M. Ajrouche, C. Fontaine, L. Krangnes

Some examples of landslide monitoring using Trimble equipment in Europe
