

Technical Programme

Notes:

This programme is subject to change.

Registration desk on Wednesday 21st September is located at Uni Research CIPR premises - 4th floor, Realfagbygget (Natural Science Building), Allégaten 41, University of Bergen.

<http://virtualoutcrop.com/vgc2016>

Wednesday 21st September

08:30 – 09:00	Registration and Morning Coffee (UiB RFB*, 4 th floor)		
	Short Course: Virtual Geoscience	Short Course: CloudCompare	IQmulus Workshop
09:00 – 10:30	Session 1 Room: 3G10e <i>UiB RFB*, 3rd floor</i>	Session 1 Room: CIPR 4060 <i>UiB RFB*, 4th floor</i>	Room: 4A10b <i>UiB RFB*, 4th floor</i>
10:30 – 11:00	Coffee Break		
11:00 – 12:30	Session 2 Room: 3G10e <i>UiB RFB, 3rd floor</i>	Session 2 Room: CIPR 4060 <i>UiB RFB, 4th floor</i>	
12:30 – 13:30	Lunch		
13:30 – 15:00	Session 3 Room: Fjellhallen <i>UiB RFB, 2nd floor</i>	Session 3 Room: CIPR 4060 <i>UiB RFB, 4th floor</i>	
15:00 – 15:30	Coffee Break		
15:30 – 17:00	Session 4 Room: Fjellhallen <i>UiB RFB, 2nd floor</i>	Session 4 Room: CIPR 4060 <i>UiB RFB, 4th floor</i>	
19:00 – 22:00	Conference Icebreaker: Mikrobryggeriet, Zachariasbryggen		

* UiB RFB: Realfagbygget (Natural Science Building), Allégaten 41, University of Bergen.

Thursday 22nd September, A.M.

08:00 – 08:30	Registration and Morning Coffee	
08:30 – 10:30	Terminus Hall	
	Welcome and Conference Opening	
	<p>Keynote: The importance of geomatics in mapping and monitoring geohazards in Norway</p> <p><i>Lars Harald Blikra, Norwegian Water Resources and Energy Directorate, Norway</i></p> <p style="text-align: center;">Chair: Michel Jaboyedoff, University of Lausanne</p> <p>Handheld mobile laser scanners Zeb-1 and Zeb-Revo to map an underground quarry and its above-ground surroundings <i>Thomas Dewez, BRGM - French Geological Survey, France</i></p> <p>Increasing safety along rock fall exposed highway sections by using ground-based radar and RPAS captured photography <i>Regula Frauenfelder, Norwegian Geotechnical Institute (NGI), Norway</i></p> <p>Optimising UAV topographic surveys processed with structure from motion: Ground control and bundle adjustment <i>Mike R. James, Lancaster University, UK</i></p>	
10:30 – 11:00	Coffee Break	
11:00 – 12:20	Terminus Hall	Terminus Forum
	Chair: Marc-Henri Derron, University of Lausanne	Chair: Roderik Lindenbergh, TU Delft
	<p>Insights from constant near-realtime laser scanning of actively failing rockslopes <i>Nick Rosser, Durham University, UK</i></p> <p>Fast surveying of a sea cliff and a landslide based on structure from motion photogrammetry <i>Giordano Teza, University of Padua, Italy</i></p> <p>GB-InSAR and lidar for mapping and predicting slide events in steep terrain <i>Lene Kristensen, Norwegian Water Resources and Energy Directorate, Norway</i></p> <p>3D change detection analysis of a coastal landslide performed by multi-temporal point cloud comparison <i>Giuseppe Esposito, University of Siena, Italy</i></p>	<p>The potential of non-semantic features for UAV remote sensing data fusion <i>Eduard Angelats, CTTC, Geomatics Division, Spain</i></p> <p>An approach for considering beam divergence in voxel space transformation of full-waveform airborne laser scanning data <i>Nadine Stelling, TU Dresden, Germany</i></p> <p>Using high-resolution digital surface models for wetland water level assessment <i>Marko Kohv, University of Tartu, Estonia</i></p> <p>Technical aspects related to monitoring riverbank erosion in mountain catchments using point clouds <i>Marco Scaioni, Politecnico di Milano, Italy</i></p>
12:20 – 13:30	Lunch	

Thursday 22nd September, P.M.

	Terminus Hall	Terminus Forum
13:30 – 14:30	<p>Chair: Luc Girod, University of Oslo</p> <p>Detailed glacier crevasse morphology mapped by helicopter <i>Christopher Nuth, University of Oslo, Norway</i></p> <p>Multi-temporal UAV-survey of a calving glacier in Northwest Greenland <i>Yvo Weidmann, ETH Zürich VAW, Switzerland</i></p> <p>Is it worth going up there? <i>Fanny Brun, Université Grenobles Alpes, France</i></p>	<p>Chair: Mike James, Lancaster University</p> <p>Photogrammetric analysis of lava dome growth using digital photography and thermal imaging: Volcán de Colima 2013-2015 <i>Sam Thiele, Monash University, Australia</i></p> <p>Laboratory geodesy: Application of open-source photogrammetric software MicMac to monitor surface deformation in laboratory models <i>Olivier Galland, University of Oslo, Norway</i></p> <p>Mapping lava flow morphology and structure with unmanned aerial vehicles <i>Einat Lev, Columbia University, USA</i></p>
14:30 – 15:00	Coffee Break	
15:00 – 16:00	Terminus Hall	
	Chair: Jim Chandler, Loughborough University	
	<p>UAV studies of terrestrial analogs for Martian geology <i>Jeffrey E. Moersch, University of Tennessee, USA</i></p> <p>PRo3D®: A tool for geological analysis of Martian rover-derived digital outcrop models† <i>Robert Barnes, Imperial College London, UK</i></p> <p>Listening to 3D topography data with interactive sonification† <i>Karen Mair & Natasha Barrett, University of Oslo, Norway</i></p> <p>Announcement: Introduction to Poster Session</p>	
16:00 – 18:15	<p>Chair: Tobias Kurz, Uni Research</p> <p>Poster and Interactive Session‡, Aperitif</p>	
19:15 – 22:30	<p>Conference Dinner, Fløien Folkerestaurant</p>	

† Denotes supplementary presentation during Interactive Session.

‡ Poster and Interactive presentations are detailed below.

Friday 23rd September, A.M.

08:00 – 08:30	Registration and Morning Coffee	
	Terminus Hall	
08:30 – 10:15	<p>Keynote: The potential of visualisation and visual data analysis in geoscience <i>Helwiq Hauser, University of Bergen, Norway</i></p> <p style="text-align: center;">Chair: Thomas Dewez, BRGM – French Geological Survey</p> <p>Exfoliation sheets detection with terrestrial laser scanning and thermal imaging (Yosemite Valley, California, USA) <i>Antoine Guerin, University of Lausanne, Switzerland</i></p> <p>Simulated full-waveform laser scanning of outcrops for development of point cloud analysis algorithms and survey planning: An application of the HELIOS lidar simulation framework <i>Sebastian Bechtold, Heidelberg University, Germany</i></p> <p>Geological Registration and Interpretation Toolbox (GRIT): A visual and interactive approach for geological interpretation in the field <i>Christian Kehl, Uni Research AS, Norway</i></p>	
10:15 – 10:40	Coffee Break	
	Terminus Hall	Terminus Forum
10:40 – 12:00	<p>Chair: John Howell, University of Aberdeen</p> <p>Fracture network characterisation using multi-scale UAV imagery, line extraction and stochastic simulation tools <i>Roderik Lindenbergh, TU Delft, The Netherlands</i></p> <p>3D modelling of fractures from DOM and field data: Characterization of spatial distribution patterns in fracture corridors <i>Sophie Viseur, Aix-Marseille Université, France</i></p> <p>Advances in the automated geometric extraction and analysis of geological bodies from virtual outcrops <i>Björn Nyberg, University of Bergen, Norway</i></p> <p>Fault extraction using multi-remote sensing images <i>Li Wei, Northwest University, China</i></p>	<p>Chair: Daniel Wujanz, TU Berlin</p> <p>Surface roughness analysis of fossil oyster shells using 3D laser scanning data <i>Ana Djuricic, Vienna University of Technology, Austria</i></p> <p>Determination of roughness parameters based on dense image matching and structured light scanning <i>Kristofer Marsch, Technische Universität Berlin, Germany</i></p> <p>Characterization of geological structures with technical improvements in acquisition and processing <i>David García-Sellés, University of Barcelona, Spain</i></p> <p>Distinguishing facade material change using close-range hyperspectral imaging <i>Zohreh Zahiri, University College Dublin, Ireland</i></p>
12:00 – 13:00	Lunch	

Friday 23rd September, P.M.

	Terminus Hall	Terminus Forum
13:00 – 14:20	<p style="text-align: center;">Chair: Sophie Viseur, Aix-Marseilles Université</p> <p>Geostatistics and modelling algorithms for characterisation of sandstone intrusions <i>David Hodgetts, University of Manchester, UK</i></p> <p>Virtual outcrop mapping for CO₂ reservoir analogue modelling <i>Davide Pistellato, University of Queensland, Australia</i></p> <p>Utilisation of three-dimensional models in Exploration <i>Jens Grimsgaard, Statoil Research & Technology, Norway</i></p> <p>Lidar, photogrammetry & field measurements from Stackpole Quay: Contrasting methods and implications for structural model building and predictions <i>Adam Cawood, University of Aberdeen, UK</i></p>	<p style="text-align: center;">Chair: Nick Rosser, Durham University</p> <p>HPC implementation of image correlation techniques for monitoring slow-moving landslides with Sentinel-2 time series <i>Jean-Philippe Malet, University of Strasbourg, France</i></p> <p>Object-based change analysis of terrestrial laser scanning point clouds for shallow landslide monitoring <i>Andreas Mayr, University of Innsbruck, Austria</i></p> <p>Quantification of intact rock bridges and rock mass fragmentation after failure by means of remote sensing techniques <i>Margherita Cecilia Spreafico, University of Bologna, Italy</i></p> <p>Development of a TLS real-time monitoring system for landslides <i>Ryan Kromer, Queen's University, Canada/ University of Lausanne, Switzerland</i></p>
14:20 – 14:50	Coffee Break	
14:50 – 15:30	Terminus Hall	
	Chair: Nicole Naumann, Uni Research	
	<p>Surface kinematics of periglacial sorted circles over 8 years using SfM close range photogrammetry <i>Andreas Kääh, University of Oslo, Norway</i></p> <p>The application of UAV acquired photogrammetric models in natural disaster mitigation: Volcanic monitoring and crowd-sourced flood modelling <i>John Howell, University of Aberdeen, UK</i></p>	
15:30 – 16:40	<p>Panel Discussion: Issues, trends and the future of Virtual Geoscience Moderator: Simon Buckley</p> <p style="text-align: center;">Closing Remarks</p>	

Poster and Interactive Presentations, 22nd September

	Interactive Presentations
	<p>PRo3D®: A tool for geological analysis of Martian rover-derived digital outcrop models <i>Robert Barnes, Imperial College London, UK</i></p>
	<p>Collaborative and immersive analytics to support stratigraphic survey <i>Marcelo Kehl de Souza, Vale do Rio dos Sinos University, Brazil</i></p>
	<p>Listening to 3D topography data with interactive sonification <i>Karen Mair & Natasha Barrett, University of Oslo, Norway</i></p>
	<p>From photorealistic outcrop models to synthetic seismic images <i>Kari Ringdal, Uni Research, Norway</i></p>
	<p>Mapping Paleoproterozoic meta-volcanic rocks using photogrammetry <i>Erik Vest Sørensen, Geological Survey of Denmark and Greenland (GEUS), Denmark</i></p>

Poster Presentations	Location
<p>An evaluation of low cost consumer-grade UAS systems for 3D reality capture <i>Dietmar Backes, University College London, UK</i></p>	P1
<p>Investigating snow cover volumes and icings dynamics in the moraine of an Arctic catchment using UAV/ photogrammetry and lidar <i>Eric Bernard, University of Franche Comté, France</i></p>	P2
<p>GB-InSAR and terrestrial laser point clouds for characterising the transient deformation pattern of a large gravitational instability during rainfall events <i>Pierrick Bornemann, University of Strasbourg, France</i></p>	P3
<p>Point cloud time series for monitoring landslide processes: displacement field analysis using image correlation and optical flow algorithms <i>Pierrick Bornemann, University of Strasbourg, France</i></p>	P4
<p>Information system for subsurface geological data: Find the best solution for the State of Geneva <i>Maud Brentini & Stéphanie Favre, University of Geneva, Switzerland</i></p>	P5
<p>Extended temporal scale of Transantarctic outlet glacier hypsometry using stereographic techniques with historic aerial photographs <i>Sarah F. Child, University of Kansas, USA</i></p>	P6
<p>Evaluating roughness scaling properties of natural active fault surfaces by means of photogrammetry <i>Amerigo Corradetti, University of Naples Federico II, Italy</i></p>	P7

Reservoir-scale fracture characterization from an inaccessible carbonate analogue: a UAV photogrammetry application to geology <i>Amerigo Corradetti, University of Naples Federico II, Italy</i>	P8
Distributed processing of Dutch AHN laser altimetry changes <i>Máté Cserép, Eötvös Loránd University, Hungary</i>	P9
Seismic imaging of deeply emplaced mafic sill complexes <i>Christian H. Eide, University of Bergen, Norway</i>	P10
Clay mineral mapping in underground potash mines using corrected intensity lidar data at 905 nm <i>Angus F.C. Errington, University of Saskatchewan, Canada</i>	P11
User-guided structural interpretation toolbox for digital outcrop models <i>Marie Etchebes, Schlumberger Stavanger Research Center, Norway</i>	P12
Rockfall source area detection and characterisation from terrestrial laser scanner (TLS) data <i>David García-Sellés, University of Barcelona, Spain</i>	P13
Opportunistic survey of glaciers using low-cost equipment <i>Luc Girod, University of Oslo, Norway</i>	P14
Generation of 3D models using panoramic camera for indoor and outdoor scenarios: system calibration, test and first results <i>Nives Grasso, Politecnico di Torino, Italy</i>	P15
Multi-temporal DEM extraction using archival aerial photos: Case study of the Czarny Dunajec River, Polish Carpathians <i>Maciej Hajdukiewicz, Kielce University of Technology, Poland</i>	P16
3D displacement retrieval on a scaled model of mountain slope by virtual multi-view photogrammetry <i>Haixing He, University of Savoie, France</i>	P17
High-resolution model of the Bilila-Mtakataka Fault, Malawi using Pleiades stereo-imagery and UAV-based structure from motion <i>Michael Hodge, Cardiff University, UK</i>	P18
Object-based time series analysis for landslide change detection using optical remote sensing imagery: Examples from Austria and Norway <i>Daniel Hölbling, University of Salzburg, Austria</i>	P19
Detection of surface water changes using TerraSAR-X data for flood hazard monitoring <i>Katherine Irwin, Queen's University, Canada</i>	P20

Time-lapse cameras and structure from motion algorithms: Continuous three-dimensional monitoring in geosciences <i>Andreas Kaiser, Technical University Bergakademie Freiberg, Germany</i>	P21
Digital taphonomic model as a tool to improve viewing of a bivalve mollusc-dominated fossil biofabric <i>Marcelo Kehl de Souza, Vale do Rio dos Sinos University, Brazil</i>	P51
Low-cost 3D scanning technique for digital outcrop modelling based on multiple view images <i>Marcelo Kehl de Souza, Vale do Rio dos Sinos University, Brazil</i>	P52
Multispectral spectroscopy as a tool for detection of surfaces and stacking patterns in a carbonate-siliciclastic basin to support sequence stratigraphy <i>Marcelo Kehl de Souza, Vale do Rio dos Sinos University, Brazil</i>	P53
Reflectance spectroscopy applied to the lithological characterization of Permo-Carboniferous siltstones and organic shales found in the Paraná Basin, Brazil <i>Marcelo Kehl de Souza, Vale do Rio dos Sinos University, Brazil</i>	P54
Unravelling the structure of the ocean-continent transition from high resolution, photo-based 3D reconstructions of onshore dyke complexes <i>Moritz Kirsch, Helmholtz-Institut Freiberg für Ressourcentechnologie, Germany</i>	P22
Application of photogrammetry for mapping of natural solution collapse breccia pipes in the Grand Canyon, USA <i>Matthias Klawitter, University of Queensland, Australia</i>	P24
The 3D visualization and analysis of fracturing by using laser scanning data, geological maps and geophysical data - study sites from Southern Finland <i>Eevaliisa Laine, Geological Survey of Finland, Finland</i>	P25
Rockfall monitoring of a poorly consolidated marly sandstone cliff by TLS and IR thermography <i>Caroline Lefevre, University of Lausanne, Switzerland</i>	P26
Natural neighbour kriging and its potential for quality mapping <i>Roderick Lindenbergh, TU Delft, The Netherlands</i>	P27
Virtual analogues of Ypresian carbonated fractured reservoir at Ousselat Cliff (Central Tunisia) using terrestrial laser scanning and GigaPan techniques <i>Raja Mastouri, University of Lausanne, Switzerland</i>	P28
Interpretation of compound dune dynamics using imagery and internal structure analysis <i>Alexandre Medeiros de Carvalho, Universidade Federal do Ceará-UFC, Brazil</i>	P29
Use of GIS, regional thematic data and site-specific procedures to assess/rank environmental risks at large scale: The Campania region case study <i>Giulia Minolfi, University of Naples Federico II, Italy</i>	P30

From virtual outcrop models to multiple point statistics training images for improved reservoir modelling <i>James Mullins, University of Aberdeen, UK</i>	P31
Automated mapping of discontinuities within Cretaceous dolerite sills, Central Spitsbergen, Arctic Norway <i>Mark J. Mulrooney, University Centre in Svalbard (UNIS), Norway</i>	P32
Quantitative mapping of absorption by water, phyllosilicates and sulphate on a geological outcrop <i>Richard J. Murphy, University of Sydney, Australia</i>	P33
Insight on the contribution of photogrammetry and UAVs to the mapping and monitoring of unstable rock slopes <i>Pierrick Nicolet, Geological Survey of Norway (NGU), Norway</i>	P34
Photogrammetric study of fracture surface roughness in shale rocks <i>Marcin Olkowicz, Polish Geological Institute – National Research Institute, Poland</i>	P35
Understanding heterogeneity in aeolian reservoir analogues using virtual outcrop models <i>Colm Pierce, University of Aberdeen, UK</i>	P36
Observing ground deformation phenomena: High resolution topography data from remote to proximal sensing <i>Luca Pizzimenti, Istituto Nazionale di Geofisica e Vulcanologia (INGV), Italy</i>	P37
Repeated boat-borne lidar survey to quantify coastal erosion in Carry-le-Rouet (Southern France) <i>Mélody Prémaillon, Université de Toulouse, France</i>	P38
High resolution glacier monitoring over Nigardsbreen, Norway, using a GoPro camera and an acrobatic plane <i>Benjamin Aubrey Robson, University of Bergen, Norway</i>	P39
Photogrammetry with DJI Phantom 2 drone: 3D model of an area deformed by neotectonics in the Venezuelan Andes <i>Riccardo Rocca, unaffiliated, Spain</i>	P40
Integrating geophysical equipment and UAV technology: Considerations and limitations <i>Maxime Salman, University of Waterloo, Canada</i>	P41
State of the art 3D visualization of geotopes: A case study of the Cornberg Sandstone <i>Thomas Schmitz, Technische Universität Darmstadt, Germany</i>	P42
Making the Arctic accessible: The use of digital outcrops in research and education at 78°N <i>Kim Senger, University Centre in Svalbard (UNIS), Norway</i>	P43

Change detection using baselines extracted from single scans demonstrated on a masonry wall subject to seismic testing <i>Yueqian Shen, TU Delft, The Netherlands</i>	P44
Detailed structural mapping of syn-rift deposits by incorporating lidar data in reservoir modelling software <i>Espen Sigmundstad, University of Stavanger, Norway</i>	P45
Three-dimensional model of facies distribution within a Triassic half-graben, SW Edgeøya, Svalbard <i>Aleksandra Smyrak-Sikora, University Centre in Svalbard (UNIS), Norway</i>	P46
Regional geological 3D-mapping in Alpine terrain: An example of a large oblique image-block from West Greenland <i>Erik Vest Sørensen, Geological Survey of Denmark and Greenland (GEUS), Denmark</i>	P23
Mapping mountain-scale thrust zones using photogrammetry: Examples from the French Alps <i>Yukitsuqu Totake, University of Aberdeen, UK</i>	P47
Across spatial scales: Snow depth from combined satellite and airborne lidar <i>Désirée Treichler, University of Oslo, Norway</i>	P48
Mapping geological structure on mountain-scale photogrammetric models generated from national survey vertical aerial photos (Kamnik Alps, Slovenia) <i>Marko Vrabec, University of Ljubljana, Slovenia</i>	P49
Suitability of terrestrial lidar and digital photogrammetry for surveying and analysis of fold structures <i>Bianca Wagner, University of Göttingen, Germany</i>	P50
Use of terrestrial laser scanning data in monitoring anthropogenic objects and landscape elements <i>Janina Zaczek-Peplinska, Warsaw University of Technology, Poland</i>	P55
Integrating UAV-based photogrammetry to improve digital outcrop model quality <i>Ruisong Zhou, University of Illinois at Urbana-Champaign, USA</i>	P56