Visual3D conference 2019

Visualization of 3D/4D Models in Geosciences, Exploration and Mining

1-2 October 2019

Uppsala University, Sweden

All talks and activities will take place at and adjacent to Hambergsalen, Geocentrum, Villavägen 16, SE 752 36, Uppsala, Sweden.

Day 1, 1 October 2019		**Main venue: Hambergsalen**
08.00		**Registration desk open**
09.00–09.30		**Welcome coffee**
09.30–10.00		**Opening ceremony**
Time	**Speaker**	**Title**
09.30–09.40	Tobias Kampmann	Welcome and introduction to the conference
09.40–09.50	Ian Snowball	Welcome and introduction to the Department of Earth Sciences at Uppsala University
09.50–10.00	Katarina Öquist	EIT RawMaterials: The World's largest innovation community in the raw materials sector
10.00–11.45		**Session 1: Education** Chair: Tobias Kampmann
Time	**Speaker**	**Title**
10.00–10.30	James Tibbett	**Keynote:** Over 10 years of applying VR to mining education, lessons learnt and where to from here
10.30–10.45	Michael Roach	AusGeol – The virtual library of Australia's geology
10.45–11.00	Tuomas Junna	Building digital 3D learning environments to support the teaching in geosciences
11.00–11.15	Håkan Vallin	The SIMS virtual mine for education
11.15–11.30	Manuel Labrador Ortega	MiReBooks – Mixed reality handbooks for mining education
11.30–11.45	Christopher Juhlin	Innovative exploration drilling and data acquisition: Test center and research school

Day 1, 1 October 2019		Main venue: Hambergsalen
12.00–13.00		**Lunch (Hassans EBC, Norbyvägen 14)**
13.00–14.15		**Session 2: Applications and case studies (Part 1)** Chairs: Pietari Skyttä, Florian Lowicki
Time	**Speaker**	**Title**
13.00–13.30	Jussi Mattila	**Keynote:** Digging deeper – visualisation and analysis of postglacial faults through remote sensing and field-based methods
13.30–13.45	Mats Svensson	Everyday application of 3D geotechnical modelling in infrastructure planning – 3 examples
13.45–14.00	Bruce Napier	UK Geo-energy observatories: developing a visualisation for site appraisal, investigation, and communication
14.00–14.15	Alex Hobé	Towards 3D/4D visualization for geothermal site characterization
14.15–14.45		**Coffee break**
14.45–16.15		**Session 2: Applications and case studies (Part 2)** Chairs: Pietari Skyttä, Florian Lowicki
Time	**Speaker**	**Title**
14.45–15.00	Tobias Bauer	Analysis of data from unmanned aerial systems (UAS) in a virtual reality environment
15.00–15.15	Ricky Terrington	Virtual field reconnaissance for mapping and exploration (Chile)
15.15–15.30	Pierpaolo Guarnieri	3D-photogrammetry in the Arctic
15.30–15.45	Sebastjan Meža	3D investigation of authigenic calcite in lignite by means of X-ray microtomography
15.45–16.00	Mikael Bergqvist	3D visualisation of structural, geochemical, textural and density data of drill cores from X-Ray scanning – new tool for understanding mineralisations
16.00–16.15	Johan Daniels	The 3D room at SGU – a new way to visualize the geology of Sweden
16.15–19.30		**Poster and interactive content session** Chairs: Ayse Kaslilar Sisman, Alba Gil de la Iglesia
18.00–19.30		**Guided city tour Uppsala (optional; starts from Geocentrum)**
20.00–22.00		**Conference dinner (optional; Norrlands Nation, Västra Ågatan 14)**

Day 2, 2 October 2019		Main venue: Hambergsalen
08.30–09.45		**Session 2: Applications and case studies (Part 3)** Chairs: Pietari Skyttä, Florian Lowicki
Time	**Speaker**	**Title**
08.30–08.45	Janne Kaukolinna	One model – geoscience integration and communication through 3D modelling
08.45–09.00	Paul Gabriel	Improving communication of 3D geological models by integrating borehole and seismic data in a web viewer
09.00–09.15	Jana Rechner	3D visualization for resources and reserves evaluation – a case study
09.15–09.30	Kateryna Poliakovska	3D geomodeling of the Alces Lake rare earth element project (Saskatchewan, Canada): New insights to targeting mineralization
09.30–09.45	Eva Wendelin	Three-dimensional geological mapping and modelling at the Geological Survey of Sweden
09.45–10.15		**Coffee break**
10.15–11.45		**Session 3: Outreach and communication** Chair: Tobias Bauer
Time	**Speaker**	**Title**
10.15–10.45	Tbd	**Keynote:** Outreach and communication (tbd)
10.45–11.00	Daniel Eger Passos	Adding the third dimension to historical maps of mining districts: A novel interactive augmented reality setup
11.00–11.15	Tobias Kampmann	The benefits of organized networking and matchmaking for the development of 3D/4D geomodel visualization
11.15–11.30	Michael Roach	Virtual minerals industry education
11.30–11.45	Björn Wieczoreck	A mobile app to visualize 3D geological structures in a collaborative augmented reality environment
12.00–13.00		**Lunch (Hassans EBC, Norbyvägen 14)**
13.00–13.30		**Session 4: Software and implementation** Chairs: Simon Virgo, Miguel de la Varga
Time	**Speaker**	**Title**
13.00–13.30	Matthew Jackson	**Keynote:** Creation, visualization and manipulation of 3D reservoir models using sketch-based interfaces and modelling

Day 2, 2 October 2019		Main venue: Hambergsalen
13.30–14.45		**Session 5: Research and development (Part 1)** Chairs: Florian Wellmann, Simon Lopez
Time	**Speaker**	**Title**
13.30–14.00	Julie Digne	**Keynote:** Surface reconstruction and analysis from point sets
14.00–14.15	Elisa Heim	Mapped vs. simulated uncertainty: Which aspects of geological model uncertainty can be estimated with stochastic simulations?
14.15–14.30	Tobias Kampmann	Field augmented reality for mineral exploration and mining – an upscaling project
14.30–14.45	Stefan Luth	3D modelling of bedrock and ore deposits: Insights from XRF-XRT drill core scanning and field surveys in Sweden and Europe
14.45–15.15		**Coffee break**
15.15–16.00		**Session 5: Research and development (Part 2)** Chairs: Florian Wellmann, Simon Lopez
Time	**Speaker**	**Title**
15.15–15.30	Tero Niiranen	Exploration Lapland 3D (XL3D) data mining, data integration and 3D modelling concept
15.30–15.45	Nicklas Nordbäck	Mapping procedures and scaling relationships of brittle structures in southern Finland
15.45–16.00	Thorben Schöfisch	3D strain distribution within analogue modeling using magnetic fabrics
16.00		**End of conference**

Poster presentations	Venue: Entrance hall Geocentrum
The poster and interactive content session takes place on October 1, 16.15–19.30	
Session 1: Education	
Presenter	**Title**
Michał Cierzniak	VirtualMine as a modeling tool for wider society learning project as an Example of VR application in youth education and its potential for further use
Maximilian Getz	Bringing augmented reality to mining engineering education
Session 2: Applications and case studies	
Presenter	**Title**
Annika Åberg	Visualizing complex Quaternaty stratigraphy and weathered/fractured bedrock zone with Leapfrog Geo in Sakatti area, northern Finland
Mathieu Gosselin	Implicit modelling techniques applied to vein deposits and lithologies with 3D modelling software
Tuomo Karinen	Geologic 3D model within Alaliesi seismic profile in Sodankylä, northern Finland
Tuomas Kauti	3D modelling of the dolerite dyke network within the Siilinjärvi phosphate deposit
Aziz Nasuti	3D integrated geophysical modelling of the Kautokeino greenstone belt in Finnmark in northern Norway
Jude Ojero	Error analysis of clastic dyke dip measurements using digital outcrop data: An example from the Dosados Canyon, Panoche Hills, California
Niko Putkinen	The water story – Obtaining a social licence for groundwater abstraction at Kurikka aquifer, Finland through the use of a community accessible hydrogeological data and software platform
Susanne Åberg	Use of complex 3D hydrostratigraphy in groundwater flow modelling to estimate groundwater recharge/discharge patterns in mining development site
Tobias Schmiedel	Volcanic igneous plumbing systems (VIPS): A multi-scale analysis in 3D
Erik Vest Sørensen	3D photogrammetry in the Arctic – Interactive presentation
Session 3: Outreach and communication	
Presenter	**Title**
Philip Curtis	Urban geological models on the web
Session 4: Software and implementation	
Presenter	**Title**
Seyyedmohammad Moulaeifard	Parametric surfaced-based geological representation: Application in virtual and augmented reality

Poster presentations	Venue: Entrance hall Geocentrum
The poster and interactive content session takes place on October 1, 16.15–19.30	
Session 5: Research and development	
Presenter	**Title**
Eevaliisa Laine	Multiscale mineral potential studies of Outokumpu ore zone using 3D modelling and high performance computing for forward geophysical modelling
Moritz Kirsch	Hyperspectral point clouds for mineral exploration and geological research