

# VGC 23

## UNVEILING THE DYNAMIC EARTH WITH DIGITAL METHODS



### 5TH VIRTUAL GEOSCIENCE CONFERENCE

The VGC is a multidisciplinary forum for researchers in geoscience, geomatics and related disciplines to share their latest developments and applications.

#### WHEN

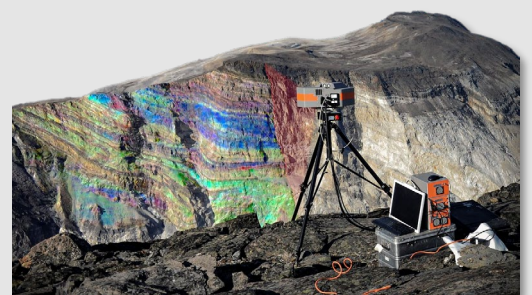
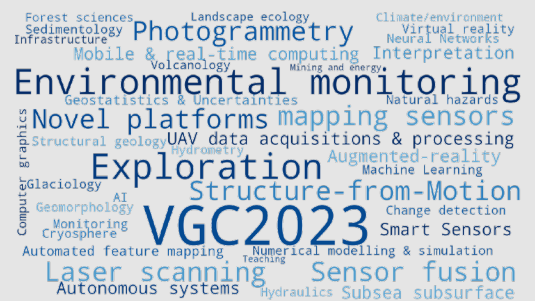
**September 20**  
(Short courses)

**September 21-22**  
(Conference)

#### WHERE

**Dresden & Freiberg**

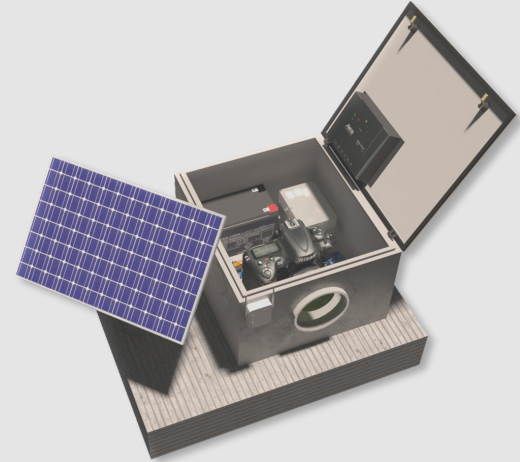
Technische Universität Dresden  
Helmholtz-Institut Freiberg für Ressourcentechnologie



# LIST OF THEMES

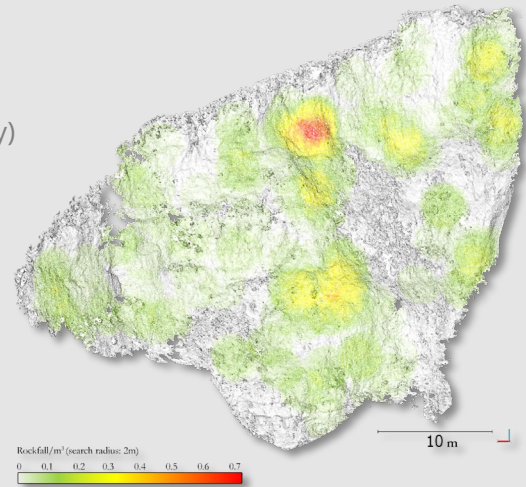
## METHOD DEVELOPMENTS

**LASER SCANNING (LIDAR) & NOVEL 3D MAPPING SENSORS**  
**PHOTOGRAMMETRY** (e.g., Structure from Motion)  
**SENSOR FUSION & INTEGRATION** (e.g., multi/hyperspectral, radar, thermal)  
**NOVEL PLATFORMS** (e.g., smartphones, minidrones)  
**UAV DATA ACQUISITIONS & PROCESSING**  
**MOBILE & REAL-TIME COMPUTING**  
**VIRTUAL & AUGMENTED REALITY IN FIELDWORK/TEACHING**  
**SUBSEA & SUBSURFACE (KARST, TUNNELS) ACQUISITIONS**  
**AUTONOMOUS SYSTEMS & SMART SENSORS**  
**LABORATORY-SCALE MEASUREMENT** (e.g., fossils, plaster, sediment tanks)



## DATA ANALYSIS

**FEATURE EXTRACTION & MAPPING**  
**COREGISTRATION, GEOREFERENCING & DATA FUSION**  
**CHANGE DETECTION & MONITORING** (e.g., Time-Lapse SfM, Historical imagery)  
**GEOSTATISTICS & UNCERTAINTIES**  
**NUMERICAL MODELLING & SIMULATION**  
**VISUALISATION, VIRTUAL & AUGMENTED REALITY, COMPUTER GRAPHICS**  
**AI APPLICATIONS** (e.g., Machine Learning, Deep Learning)



## APPLICATIONS & CASE STUDIES

**SEDIMENTOLOGY** (e.g., facies mapping, geobody modelling)  
**STRUCTURAL GEOLOGY** (e.g., fracture/fault mapping, fracture network modelling)  
**GEOMORPHOLOGY** (e.g., characterisation of earth surface processes)  
**NATURAL HAZARDS** (e.g., rockfalls, landslides, coastal erosion, soil erosion)  
**GLACIOLOGY & CRYOSPHERE** (e.g., glacier front monitoring)  
**CLIMATE & ENVIRONMENT** (e.g., carbon storage, wildfire impact)  
**TEACHING, COMMUNICATION & GENERAL PUBLIC AWARENESS**  
**FOREST SCIENCES** (e.g., vegetation structure, species classification)  
**INFRASTRUCTURE** (e.g., tunnelling, railway, roads)  
**ENERGY** (e.g., geothermal, storage)  
**MINERAL EXPLORATION & MINING** (e.g., mine face mapping, drill cores, exploration geology)  
**VOLCANOLOGY** (e.g., lava flow mapping, crater modelling, laboratory methods)  
**HYDRAULICS, THROUGH-WATER MAPPING & HYDROMETRY** (e.g., bathymetry, camera gauge)

