



Potentials, challenges and limitations of the application of advanced surveying techniques in the Geosciences – Where are we and where we want to go?

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For some years now, an extreme rise in the development and the application of new surveying techniques is taking place in the Geosciences. Hence, the traditional field work has been altered massively by e.g. terrestrial Laserscanning, Unmanned Aerial Vehicles (UAVs), hyperspectral mapping or Structure-from-Motion (SfM). The next impetus for innovation is the demonstration and analysis of the digital models by means of Virtual Reality (VR) or Augmented Reality (AR).

On the market, there are a lot of new field tools and devices, numerous free or commercial software packages as well as diverse solutions for visualization. Therefore and because of the attracting affordability and the ease of learning of some methods, the number of users is increasing permanently.

However, what are the real scientific outcomes? Which methods make really sense compared to traditional field work and can be incorporated in everyday processes or teaching? Which standards does the community have and need? Where will be the challenges and trends in the upcoming years? Which accuracy and resolution do we need? What are the requirements in terms of sustainable (open) data management, presentation and advanced analysis methods of such data formats?

Our contribution presents some answers as well as impulses to stimulate the discussion in the 3D survey and modeling community.