

# DIGITAL OUTCROP MODELLING IN BRAZIL

## TLS for Use in Geology

Terrestrial Laser Scanning (TLS) enables 3D coordinates to be obtained of points which can be georeferenced with respect to a national geodetic system using GNSS (Global Navigation Satellite System). Textures and colours of objects captured are obtained by the digital camera mounted on or integrated in the scanner. In Brazil, TLS is applied on a regular basis in engineering, cartography and architecture but its application in Digital Outcrop Modelling (DOM) still requires further scrutiny. The author captured and processed an outcrop in Brazil using TLS and GNSS.

The digital modelling of outcrops using TLS and the interpretation and visualisation of the resulting DOM requires an interdisciplinary approach involving land surveying, geology, information technology and cartography. A DOM is a digital 3D model – mostly in the form of a textured/tinted polygon mesh – of outcrops; these are parts of the Earth's surface where rocks have become visible and tangible, thus giving direct access to the geological history of the Earth. Outcrops allow in-situ measurements and are therefore invaluable for understanding geological timelines.

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