Geophysical Research Abstracts, Vol. 8, 01218, 2006
SRef-ID: 1607-7962/gra/EGU06-A-01218

Assessment of the implementation of laser scanning technology in connection to various engineering applications

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Laser Scanning Technology (LST) has witnessed tremendous improvements during recent years. In this study, Bridgeport bridge located nearby Indianapolis International Airport in the state of Indiana, USA, was scanned using state-of-the-art laser scanners twice; on May 27, 2002 and on September 26, 2002 just before the scheduled time of its demolition. The enormous amount of data collected, represented by millions of points, was manipulated using manufacturers' own software packages and other generic ones. One package required the availability of control points to register various scans on each other, while the other did not. This allowed careful assessment of both approaches to highlight the advantages and disadvantages of each. As long as the software package being used is efficient in handling huge volume of points, it is possible to conduct various engineering applications like modeling, volume measurement, distance measurement, meshing, and even generation of digital elevation model. Such applications will be presented and conclusions will be drawn. The first and foremost conclusion states the advantageous nature of LST in connection to the completeness and precision of its data.