



[Volume XL-5](#)

Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XL-5, 589-596, 2014
www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XL-5/589/2014/
doi: 10.5194/isprsarchives-XL-5-589-2014
© Author(s) 2014. This work is distributed
under the Creative Commons Attribution 3.0 License.

Monitoring marginal erosion in hydroelectric reservoirs with terrestrial mobile laser scanner

A. M. G. Tommaselli¹, M. V. A. Moraes¹, L. S. L. Silva¹, M. F. Rubio², G. J. Carvalho², and J. T. G. Tommaselli¹

¹Faculty of Sciences and Technology, UNESP, 19060-900 Presidente Prudente, S.P. Brazil

²Duke Energy Internacional, Geração Paranapanema S.A., Brazil

Keywords: Mobile terrestrial laser scanner, Monitoring, LIDAR, Point Cloud

Abstract. Marginal erosions in reservoirs of hydroelectric plants have caused economic and environmental problems concerning hydroelectric power generation, reduction of productive areas and devaluing land parcels. The real extension and dynamics of these erosion processes are not well known for Brazilian reservoirs. To objectively assess these problems Unesp (Univ Estadual Paulista) and Duke Energy are developing a joint project which aims at the monitoring the progression of some erosive processes and understanding the causes and the dynamics of this phenomenon. Mobile LASER scanning was considered the most suitable alternative for the challenges established in the project requirements. A MDL DynaScan Mobile LASER M150 scanner was selected which uses RTK for real time positioning integrated to an IMU, enabling instantaneous generation of georeferenced point clouds. Two different reservoirs were chosen for monitoring: Chavantes (storage plant) and Rosana (run-of-river plant), both in the Paranapanema River, border of São Paulo and Paraná States, Brazil. The monitoring areas are scanned quarterly and analysed with base on the point cloud, meshes, contours and cross sections. Cross sections are used to visualize and compute the rate and the dynamics of erosion.

Some examples and quantitative results are presented along with an analysis of the proposed technique. Some recommendations to improve the field work and latter data processing are also introduced.

[Conference Paper](#) (PDF, 1499 KB)

Citation: Tommaselli, A. M. G., Moraes, M. V. A., Silva, L. S. L., Rubio, M. F., Carvalho, G. J., and Tommaselli, J. T. G.: Monitoring marginal erosion in hydroelectric reservoirs with terrestrial mobile laser scanner, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XL-5, 589-596, doi:10.5194/isprsarchives-XL-5-589-2014, 2014.

[Bibtex](#) [EndNote](#) [Reference Manager](#) [XML](#)

