

Abstract submission for the NCG Symposium 2020

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Presentation title: Structural deformation measurement-based laser scanning: Challenges and Lessons

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Abstract (~100 words and optionally 1-2 figures):

During the operation cycle, building elements or infrastructure structures tend to damage due to environment and manmade. Any deficiency must be reported immediately to establish a protected strategy for the structure. A terrestrial laser scanner (TLS) can capture three-dimensional (3D) topographic information of visible objects' surfaces in a highly accurately and efficiently. The TLS point clouds are subsequently used to assess the current status of structures in a form of deformation. However, there are several factors impacting to resulted deformations. This study focuses to investigate three critical factors: (1) quality of the point cloud, (2) the methods used to extract a point cloud of the structure's surface and (3) the approach to select non-deformed surface of the structure. Various structures including a bridge, building, and oil storage tank, are used in this study.

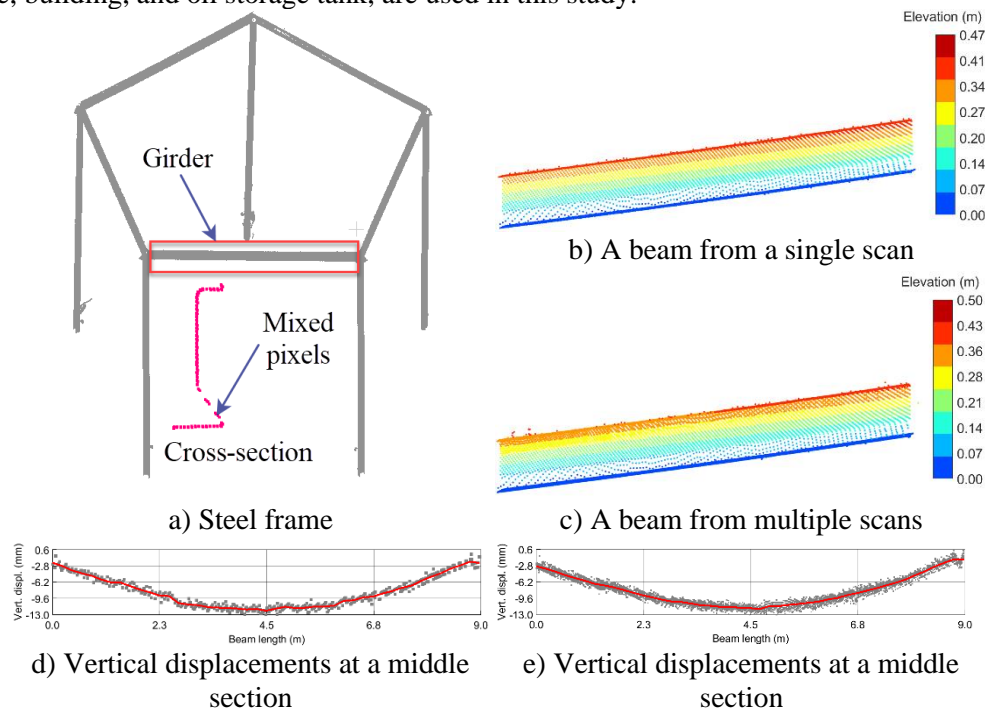


Fig. 1. Vertical displacements of the bottom surface of a girder