**Online Supplementary Material**

**LiDAR and conflict archaeology: the Battle of the Bulge (1944–1945)**

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**Table S1. Raw recording data from two datasets.**

|  |  |  |
| --- | --- | --- |
|  | **1m-DTM** | **15cm-DTM** |
| **Sensor used** | Riegl Litemapper 6800i | GeoSLAM ZEB Horizon |
| **Aerial platform** | Aircraft | Matrice 600 drone |
| **Scan angle** | 60° scan angle, 30% lateral overlap | 360° rotating scanner |
| **Flight altitude** | 1200–1550m | 40m AGL (above ground level) |
| **Dates of flight mission** | Flown between 12/12/2012 and 9/03/2014, most likely during wintertime, no exact flight data is available | August 2020 |
| **Point cloud density** | Density between 0.78 p/m² (1500m altitude) and 0.96 p/m² (1200m altitude) | 44p/m² |
| **Point classification software** | n/a | CloudCompare software |
| **Used filters** | n/a | Rasterize (height grid values – direction Z – minimum height) CSF-filter (Cloth resolution = 1, max iterations = 500, Classification threshold = 0.8) |
| **Georeferencing method** | n/a | Laserscanner with attached intertial measurement unit (IMU). Point cloud processed in local coordinate system – aligned to 1m-DTM (point pairs + fine registration) |
| **Resolution of the DTM used for visualisations** | 1m-DTM | 15cm-DTM |
| **LiDAR visualisations used for mapping features** | multiple hill shading, analytical (simple) hill shading, local relief model, skyview factor | multiple hill shading, analytical (simple) hill shading, local relief model, skyview factor |
| **Software used for LiDAR visualisations** | Relief visualisation toolbox (RVT 1.3) | Relief visualisation toolbox (RVT 1.3) |

**Table S2. Comparison between feature visibility at two different resolutions in the area where high-resolution data is available.**

|  |  |  |
| --- | --- | --- |
| **Type** | **DTM 15cm** | **DTM 1m** |
| Artillery emplacements | 4 | 4 |
| Bomb craters | 1 | 1 |
| Dugouts with entrance | 13 | 10 |
| Dugouts | 19 | 12 |
| Fox holes | 44 | 4 |
| Slit trenches | 5 | 0 |
| Undefined | 5 | 1 |