Information on the data structure of the elevation data from 2014 to 2019

Here :   **Digital terrain and surface models, airborne laser scanning (DGM, DOM, LAZ format)**

The TLBG regularly uses the airborne laser scanning process to produce digital terrain and surface models.

reference systems

Position reference system:
- coordinate system ETRS89, central meridian of UTM zone 32, GRS80 reference ellipsoid,
    Mapping type UTM but without zone code

Altitude reference system:
until April 2016 (date of entry)
- German main elevation network 1992 (DHHN92); Altitudes in NHN **as of**
December 2016 (date of collection)
- German Main Height Network 2016 (DHHN2016); Heights in NHN

geoid:
- The AdV geoid used to calculate the heights is shown in the metadata of the respective storage unit.

DTM in ASCII format

- Digital terrain model / regular grid
- Grid width 1 m
- 1x1 km tile / non-redundant
- ASCII coordinate triplet format; easting northing elevation; two decimal places

- the tile name

dgm[grid]_[easting_LU]_[northing_LU]_[edge_length]_[country]_[period].xyz
is made of:
ÿ the product
ÿ the grid width in meters

ÿ the tile area (coordinate values of the lower left corner in kilometers (LU))
ÿ the edge length in kilometers
ÿ the state code ÿ the period

Example: *dgm1_636_5621_1_th_2014-2019.xyz*

DOM in ASCII format

- Digital surface model / regular grid
- Grid width 1 m
- 1x1 km tile / non-redundant

- ASCII coordinate triplet format ; easting northing elevation; two decimal places

- the tile name

> ### *dom[grid]_[easting_LU]_[northing_LU]_[edge_length]_[country]_[period].xyz*
> is made of:
>> ÿ the product
>>
>> ÿ the grid width in meters
>>
>> ÿ the tile area (coordinate values of the lower left corner in kilometers (LU))
>>
>> ÿ the edge length in kilometers
>>
>> ÿ the state code
>>
>> ÿ the period
>
> ### *Example: dom1_636_5621_1_th_2014-2019.xyz*

Laser scan data in LAZ format

- 1x1 km tile / non-redundant

- Format LAS 1.1 / 1.2 / compressed
- Point Data Record Format 1

- Strip edges that have been cut off will not be retained

- the tile name

> ### *las_[Easting_LU]_[Northing_LU]_[edge_length]_[country]_[period].laz*
> is made of:
>> ÿ the product
>>
>> ÿ the tile area (coordinate values of the lower left corner in kilometers (LU))
>>
>> ÿ the edge length in kilometers
>>
>> ÿ the state code ÿ the period

> ### *Example: las_636_5621_1_th_2014-2019.laz*

Allocation of the ASPRS Standard LIDAR Point Classes:

class	explanation
2	**Ground points, relevant for DTM as well as DOM**
13	**Non-ground points relevant to DOM**
16	**possibly bridge points below, relevant for DTM** (additional generated points under the bridge)
17	**possibly supplementary points, only relevant for DTM** (additionally generated points at terrain level; e.g. under large buildings)
30	**Outliers, neither relevant for DTM nor DOM,** eg birds

metadata

- A metadata file is provided for each storage unit (1x1 km tile).
- Format ASCII

- the tile name is formed from:
    [product][grid]_[easting_LU]_[northing_LU]_[edge_length]_[country]_[period].meta
        ÿ the product
        ÿ the grid width in meters *(only for dgm and dom)*
        ÿ the tile area (coordinate values of the lower left corner in kilometers (LU))
        ÿ the edge length in kilometers
        ÿ the state code ÿ the period

        Example: dgm1_636_5621_1_th_2014-2019.meta

- The metadata contains information about:
        ÿ File:
        ÿ Date of acquisition:
        ÿ Collection method:
        ÿ Laser area:
        ÿ EPSG code location:
        ÿ EPSG code height:
        ÿ Quasigeoid:
        ÿ Position accuracy: ÿ   *(only for laz)*
        Height accuracy: ÿ Copyright   *(only for laz and dgm)*