



Estonian Land Board 3D Web Application

Andres Kasekamp
MSc student at University of Tartu
Chief Specialist at Estonian Land Board



<https://3d.maaamet.ee/kaart/>

Introduction

Land Board's 3D Web Application is a part of a larger Geo3D strategic program. Geo3D is defined as Land Board's actions in three-dimensional spatial data capture, mapping, modeling, sharing, and visualization.

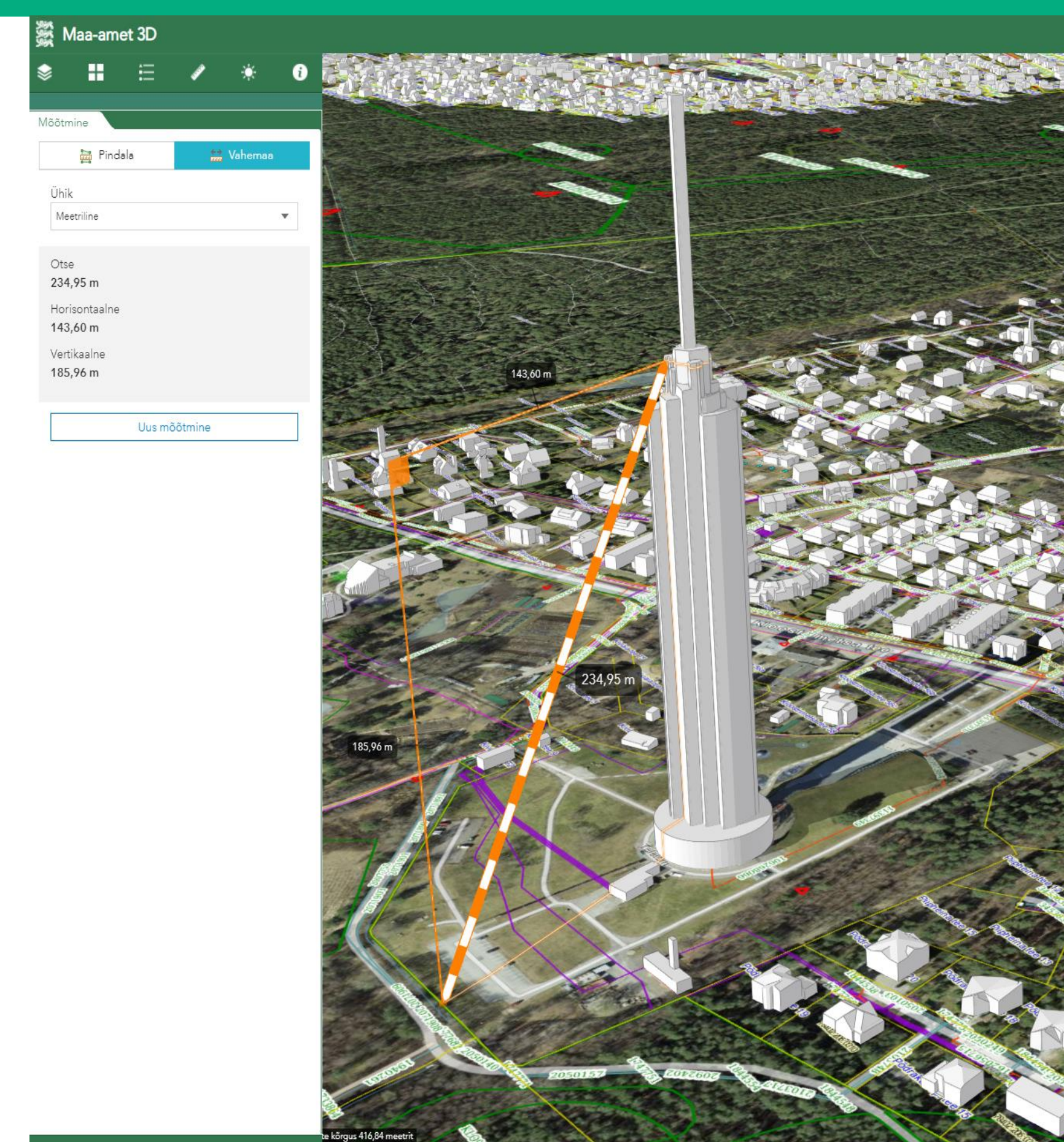
The web application is based on ArcGIS Online's Web AppBuilder. The spatial data has been processed with 3D Analysis tools provided by Esri.

Purpose

Creating a user-friendly web map application, which complements the Land Board's Geo3D strategy.

Application

- Out-of-the-box theme and style were modified in a developmental environment.
- Application includes a Land Board's basemap gallery, parcel data, and restriction zones.
- Measurement and daylight 3D widgets.
- ArcGIS API for Python is used to automatically update data.
- Application's instructional videos have been uploaded to YouTube.



Datasets

Buildings

Building footprints originate from the Estonian Topographic Database (ETD). Building roofs were generated with point clouds and TerraScan.

The buildings were later processed using ArcGIS Pro and ArcPy module. As a result, over 800 000 buildings in LOD1 and LOD2 with attribute data from various national registries can be seen in the web application.

Digital Elevation Model

Elevation model with 1-m spatial resolution covers the entire mainland Estonia.

Point clouds

Detailed point clouds (18 p/m²) in four city regions.

Vegetation

Realistic and analytic trees were generated with point clouds and workflow in a 3D basemaps solution.



Future

- Upload additional 3D data, such as bridges, vegetation, and point clouds.
- Develop the datasets and application with CityEngine and ArcGIS API for JavaScript.
- Improve services for data download.



Acknowledgments

The application's initiative came from Estonian Land Board, implementation was carried out by the author.

I would like to thank Department Of Geography and Estonian Land Board for their help and guidance.



REPUBLIC OF ESTONIA
LAND BOARD



1919