

Recreating the archaeological landscape of Viking age Iceland

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THE UNIVERSITY
of EDINBURGH

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What do you do if you get lost
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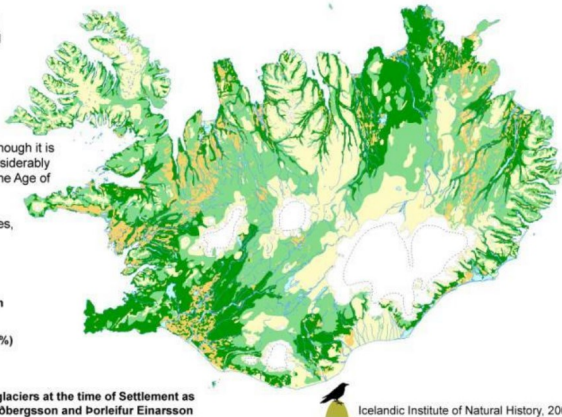
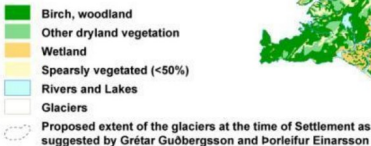
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Vegetation in Iceland at the Age of Settlement

This map was compiled by Eypör Einarsson and Einar Gíslason as an attempt to give idea of Iceland's vegetation at the Age of Settlement

The map is conjectural, based on a vegetation map of Iceland in scale 1:500 000 from 1998, diverse written sources and various expert opinions

Glaciers, valley train and outwash plains are shown in their present distribution, although it is known that they covered a considerably smaller surface of the land in the Age of Settlement. The shoreline has also changed greatly in the course of eleven centuries, especially on the south coast



Icelandic Institute of Natural History, 2001

Guðmundur et al. 2011

Building a sustainable future

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The nation lived, but the forests died.

“Þjóðin lifði en skógurinn dó” – Þórarinnsson 1974



PROTECT, RESTORE AND PROMOTE SUSTAINABLE USE OF TERRESTRIAL ECOSYSTEMS, SUSTAINABLY MANAGE FORESTS, COMBAT DESERTIFICATION, AND HALT AND REVERSE LAND DEGRADATION AND HALT BIODIVERSITY LOSS

UN SDG 2015

Understanding the past

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- Iceland is a harsh country forged by fire and shaped by ice
- Yet Norse settlers survived in this landscape, developing economic and political networks

How?

Aim: Create a 3D model of the archaeological landscape

O1 Re-imagine the archaeological landscape in the Þingvellir depression at the time of first settlement 870 AD.

O2 Create the landscape in a 3D environment.

O3 Evaluate the capabilities of the 3D model for spatial analyses.

RQ1 To what degree do multidisciplinary data sources agree on the early settlement landscape at Þingvellir?

RQ2 What are the opportunities and limitations of creating and using 3D models for spatial analysis?

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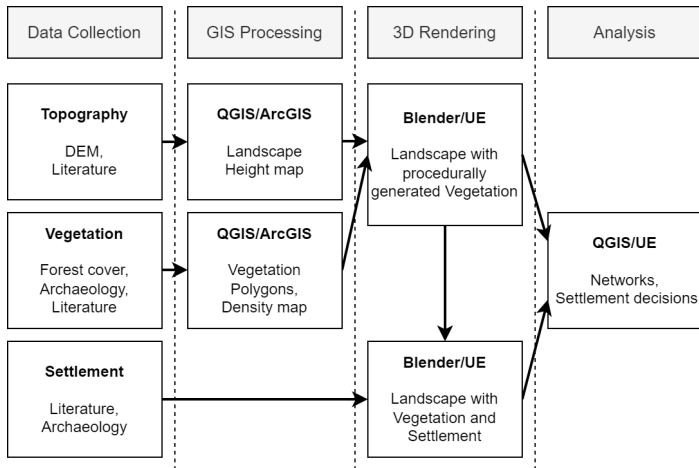
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GIS

Create landscape height map and vegetation density map

- QGIS - Open, written in Python
- ArcGIS - SDK available for Unreal Engine

3D

Render the landscape in 3D and populate vegetation

- Blender - Open 3D modelling software, written in Python
- Unreal Engine - Free game engine, integrates ArcGIS SDK

Þingvellir

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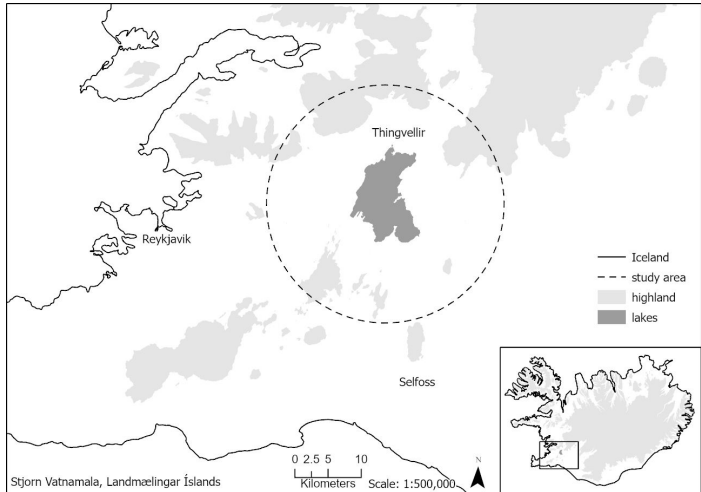
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Topography	2x2m DEM	ArcticDEM (Porter 2018)
Environment	Soil, land-use, river, weather tephrochronology	Lmi (Arnalds 2009) Iceland Met Office Dugmore, Newton
Vegetation	Forest estimates based on research	Icelandic Forest Service (e.g. Trbojevic 2016)
Historical	Sagas of Icelanders, Book of Settlement	Saga-map (Lethbridge)
Archaeological	Viking age burials, settlements	NABO (Schmid 2021)

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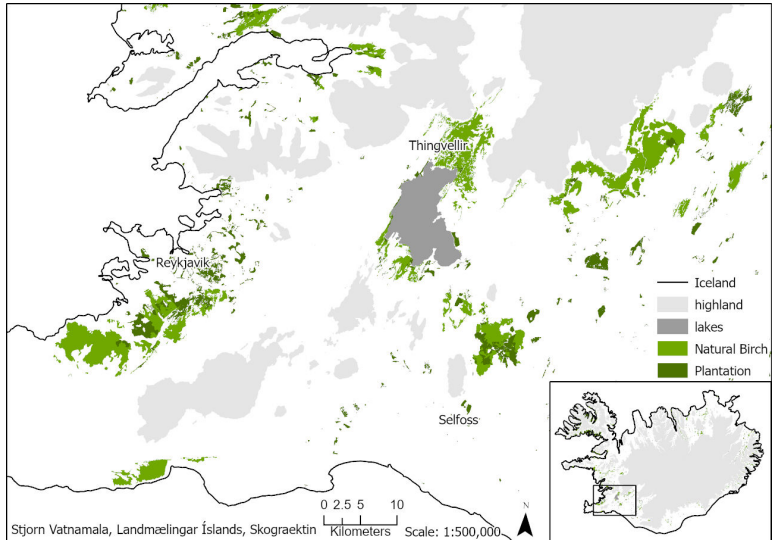
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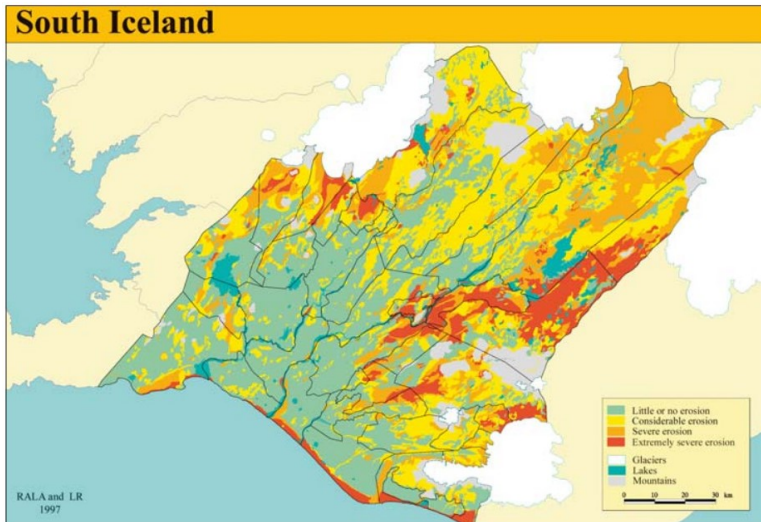
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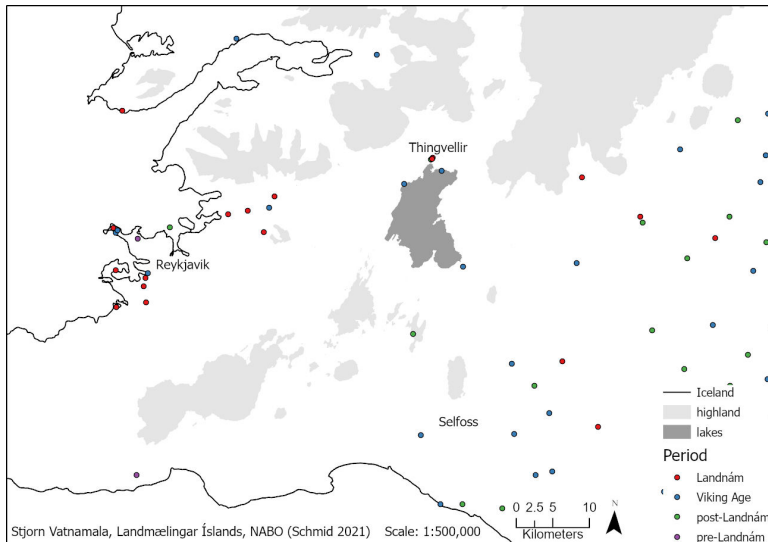
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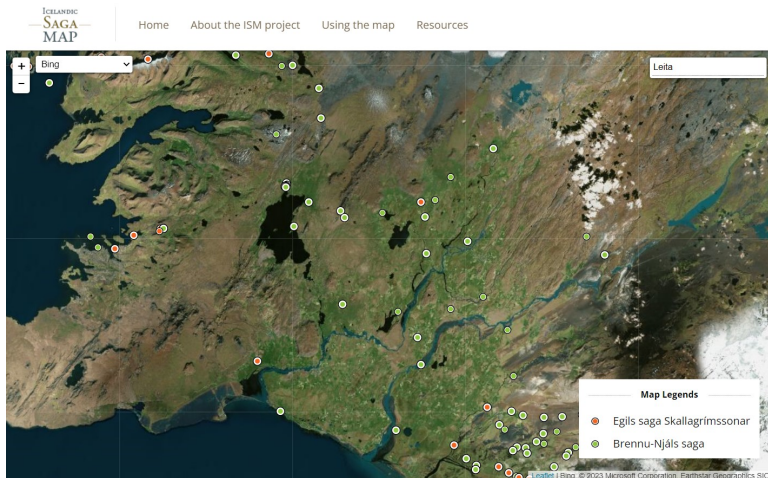
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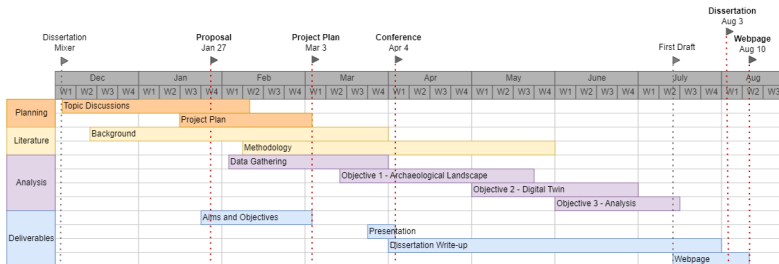
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Stand up.

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Any questions?

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