Settlement Order & Site Size: Results of the Skagafjörður Archaeological Settlement Survey

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Initial Land Claims in Skagafjörður
(Based on Landnámabók)
Historically known farms in Skagafjörður
Regional focus on settlement sequence: Langholt
Tools of the Trade…

Abandoned Turf Structures Dating from the Late 1960s

Geophysical Targets
(electrical, magnetic and electromagnetic contrasts)

- Turf Wall / Surrounding Soil and Fill Deposits
- Rock / Surrounding Soil and Fill Deposits
- Fill Deposit (Midden) / Naturally Compacted Soil
- Differences arising from Stratigraphic Layering
- Graves (Skeleton, Container, Disturbance / NCS
### Summary of Geophysical Surveying in Langholt

<table>
<thead>
<tr>
<th>Method</th>
<th>Year</th>
<th>2001</th>
<th>2002</th>
<th>2005</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>Total</th>
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<tr>
<td><strong>Electromagnetics</strong></td>
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<td>Sites Investigated</td>
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<td>3</td>
<td>10</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>15*</td>
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<tr>
<td>Surveys Conducted</td>
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<td>19</td>
<td>47</td>
<td>8</td>
<td>11</td>
<td>2</td>
<td>5</td>
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<tr>
<td>Linear Coverage (m)</td>
<td></td>
<td>33,675</td>
<td>107,351</td>
<td>18,600</td>
<td>16,355</td>
<td>6,640</td>
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<td><strong>Resistivity</strong></td>
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<td>6</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>15*</td>
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<td>Surveys Conducted</td>
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<td>87</td>
<td>55</td>
<td>18</td>
<td>5</td>
<td>24</td>
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<td>Linear Coverage (m)</td>
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<td>3,842</td>
<td>2,611</td>
<td>741</td>
<td>370</td>
<td>774</td>
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<td><strong>Ground-Penetrating Radar</strong></td>
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<td>5</td>
<td>7</td>
<td>2</td>
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<td>11*</td>
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<tr>
<td>Surveys Conducted</td>
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<td>18</td>
<td>49</td>
<td>9</td>
<td>21</td>
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<tr>
<td>Linear Coverage (m)</td>
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<td>--</td>
<td>87,563</td>
<td>33,607</td>
<td>17,710</td>
<td>60,491</td>
<td>199,371</td>
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</table>
Integrated Survey Protocol

- **Resistivity surveying using an Iris Instruments 24-channel meter**
- **GPR surveying using a Mala X3M system with 500 MHz antenna**
- **EM surveying using a Geonics EM31 ground conductivity meter**

**Systematic Hand Coring (20-100m)**
- detect signs of domestic occupation
- identify bulldozed fields
- identify areas with thick post-settlement deposits

**Reconnaissance Electromagnetic Surveying (1D)**
- identify the presence of structures

**Hand Coring Electromagnetic Anomalies**
- ground truth initial interpretations

**Resistivity Surveying (2D)**
- locate specific walls and boundaries of structures

**Ground-Penetrating Radar Surveying (pseudo 3D)**
- high-resolution imaging of inner features

**Test Excavations**
- complete ground truthing and dating occupational sequences

**Overlay Image: 21-37 cm bgs (wall) + 106-112 cm bgs (grave) from Stora-Seyla**
Skeletal Remains from Stóra-Seyla

Radar profile through churchyard and grave.
Radar profiles showing relatively wide hyperbolas associated with the upper body chest cavity (C-E) and the narrower ones with the lower body (H-K). Arrows point to reflections from long bones lying next to the chest cavity.
From Survey to Settlement Pattern

- Location
- Establishment date
- Viking Age farmstead size
  - Area of turf and other cultural under the Hekla 1104 AD tephra layer
Initial Settlements, before ca. AD 900

FARMSTEAD SETTLEMENT SEQUENCE

Date Established
- ca. AD 875
- ca. AD 930
- ca. AD 975
- After AD 1000

Farmsteads
- REYNISTAÐUR
- STÓRA-SEYLA

Kilometers
- wetlands
- < 1,000
- > 5,000

Farmstead Size (m²)
- 0
- 2,000
- 4,000
- 6,000
- 8,000
- 10,000
- 12,000

Farmstead Establishment Date
- 850
- 900
- 950
- 1000
- 1050
- 1100
- 1150
Late Settlements, ca. AD 900-930

Farmstead Size (m²)

Farmstead Establishment Date

Date Established
- ca. AD 875
- ca. AD 930
- ca. AD 975
- After AD 1000

Farmland Area (m²)

- < 1,000
- > 5,000

wetlands

Kilometers

0 0.5 1 1.5 2 2.5
“Fully settled” after ca. AD 930
Late farmsteads, ca. AD 950-1000
Small farmsteads, after ca. AD 1000
A scatter plot shows the relationship between Farm Mound Area (m²) and Date (AD) for various sites, with an R² value of 0.785 for the linear regression line.
Date and Size

• There are advantages to being first
  – What are they?
    • Imported pre-existing social status?
    • Access to better land?
    • Control over later settlers?
  – But the fact that there are advantages helps to explain the rapidity of the settlement.

• These advantages seem to endure
An Enduring Landscape ...

... But Icelandic society not static.
Practical approaches to change

• How do we understand these changes archaeologically?

• Back to the practicalities of region-wide investigations
  – What can we recover that shows change on the regional scale?
Early Christian Churches

• New research shows many previously unknown early Christian household churches and cemeteries

• In Skagafjörður:
  – The Church Project
  – Guðný Zoëga and Sigríður Sigurðsdóttir, Byggðasafn Skagfirðinga

• Cemeteries as proxy for changing household status
  – Who gets them?
  – Who loses them?
  – Who keeps them?
Churches as a geophysical target

Grafarkirkja in Skagafjörður
Geophysics of church complexes
Churches, cemeteries and farmhouses:
Viking Age Farmstead at Stóra-Seyla
An integrated project
The Skagafjörður Church and Settlement Survey (SCaSS)

• Systematically investigate farmstead settlement history and the distribution of early household Christian churches.
  – Langholt
  – Hegranes
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□ Skagafjarðarsýsla and the farmers of Langholt
□ SASS project members 2001-2012