

Geophysical and archaeological investigations on Scottish Crannogs (partially artificial islands) with examples from Orkney

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Creating the University of the Highlands and Islands

Contents

- 1 Introduction
- 2 Orkney
- 3 Geophysical Instruments and Techniques
- 4 Results

Definition

A reconstruction

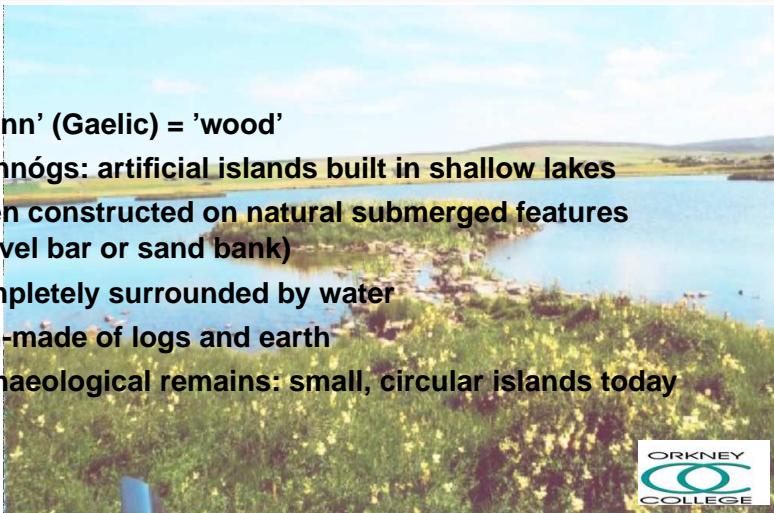


Abbildung: Reconstruction drawing of a crannog

Definition

General description

- 1 'Crann' (Gaelic) = 'wood'
- 2 Crannógs: artificial islands built in shallow lakes
- 3 Often constructed on natural submerged features (gravel bar or sand bank)
- 4 Completely surrounded by water
- 5 Man-made of logs and earth
- 6 Archaeological remains: small, circular islands today



Examples

Lochrutton crannog, Dumfries and Galloway



Examples

Reconstruction of Oakbank crannog, Loch Tay



Examples

Reconstruction, Connemara Heritage Centre, Ireland



Llangorse crannog Powys, South Wales



Llangorse crannog Powys, South Wales



Excavations

Llangorse crannog Powys, South Wales



Llangorse crannog Powys, South Wales



Excavations

Ederline crannog, Loch Awe underwater excavations



Is there no other way?



Excavations

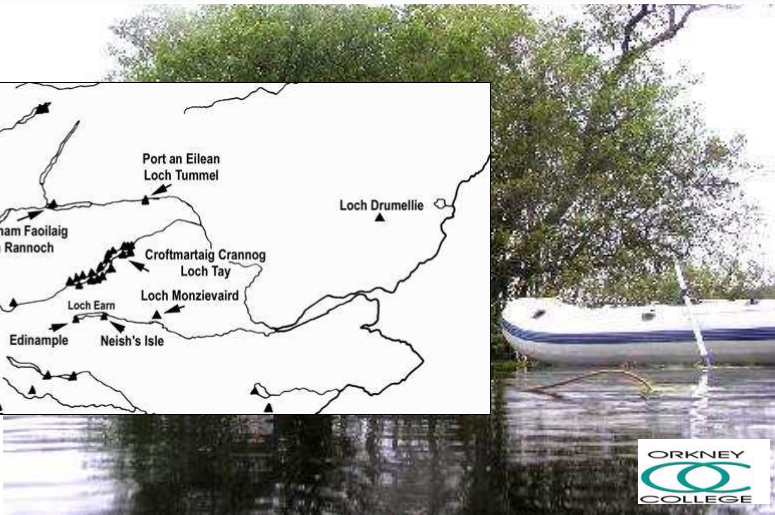
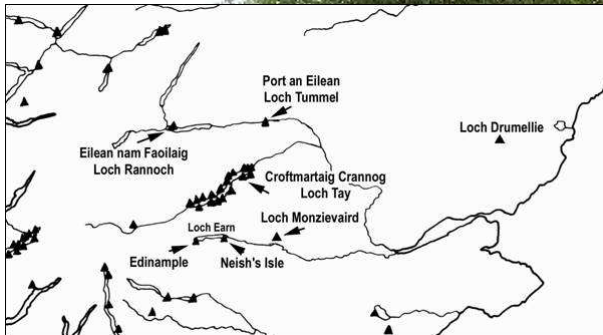
Map of Scotland



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Excavations

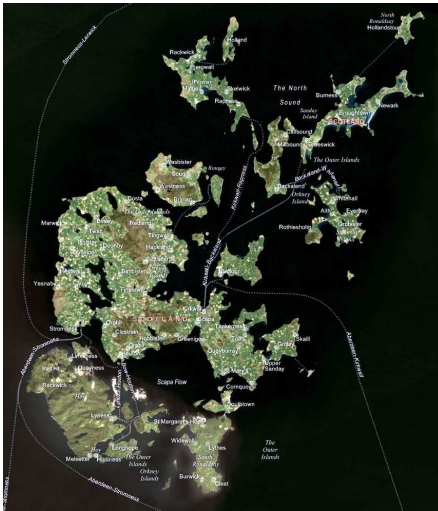
South eastern Scotland: crannog density



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Location

Orkney from space



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Location

Neolithic tomb Maes Howe, Harray



Related sites

Scara Brae neolithic settlement, West Mainland



Related sites

Stones of Stennes, Harray, Mainland



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Related sites

Ring of Brodgar, Harray, Mainland



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Related sites

Ring of Brodgar, looking towards Loch Bosquoy



Methods

1 GPS survey, local base station



Methods

1 GPS survey, local base station



Methods

- 1 **GPS survey, local base station**
- 2 **Magnetometry with gradiometer**



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- 3 **Resistivity: twin probe array on frame**



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- 4 **Electrical Imaging: Resistance sounding**
- 5 **Ground Penetrating Radar: Electromagnetic response sounding**



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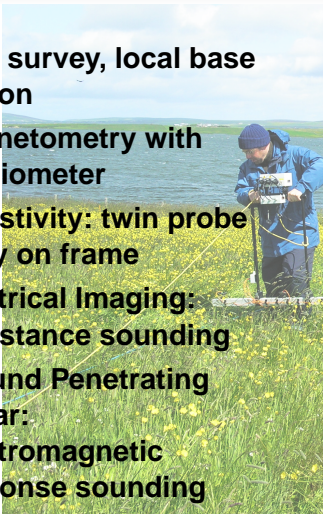
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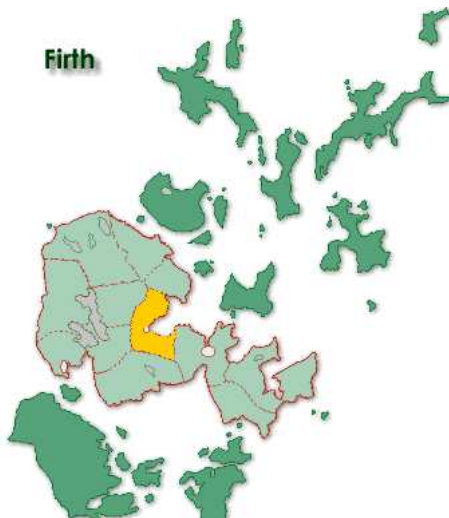
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Location

Firth parish



Location

Harray parish



Location

Loch Wasdale crannog, Firth, Orkney



Location

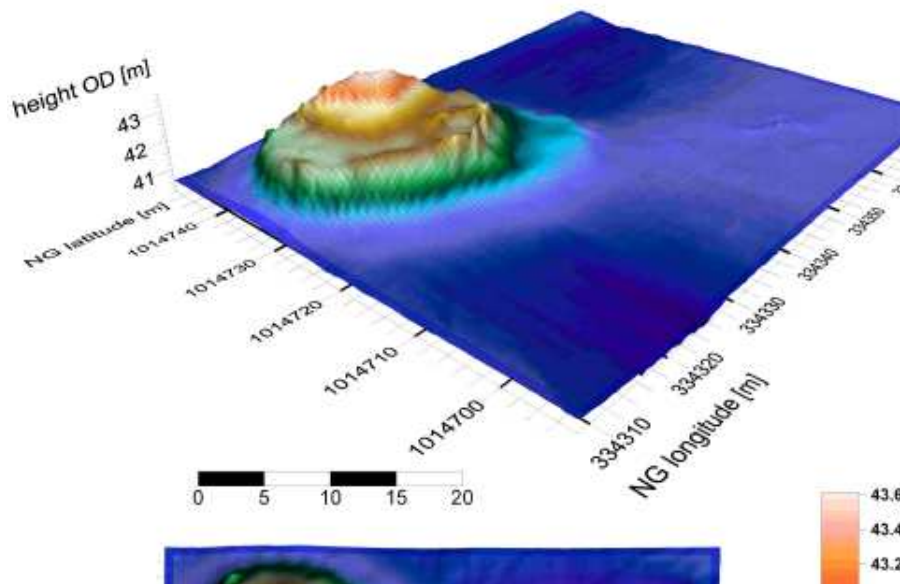
Loch Bosquoy crannog, Harray, Orkney



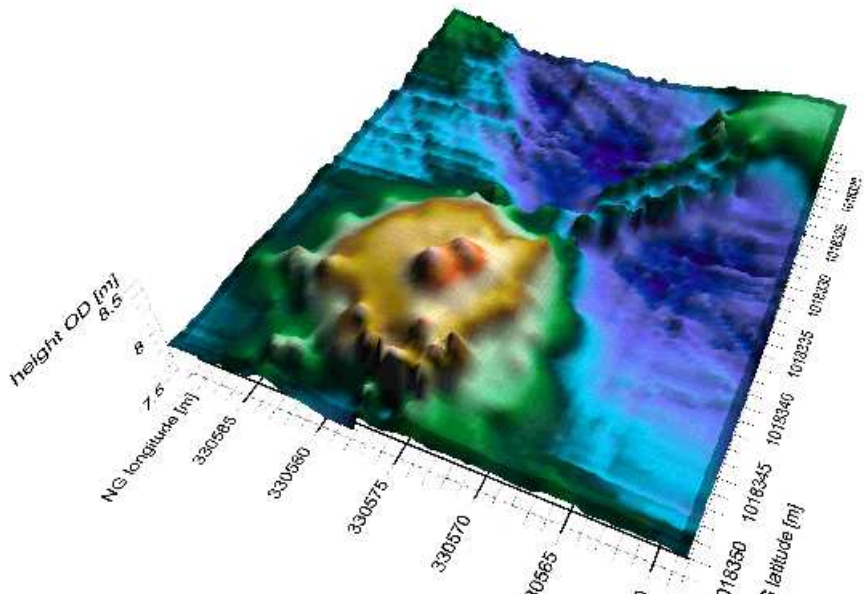
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Loch Wasdale crannog topography



Loch Bosquoy crannog topography

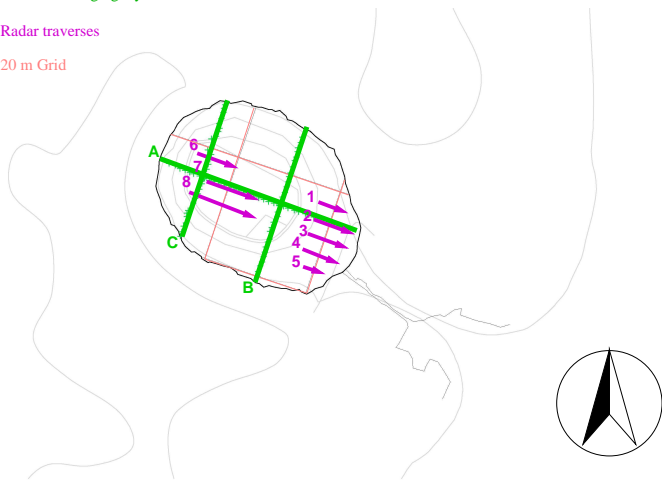


Loch Wasdale

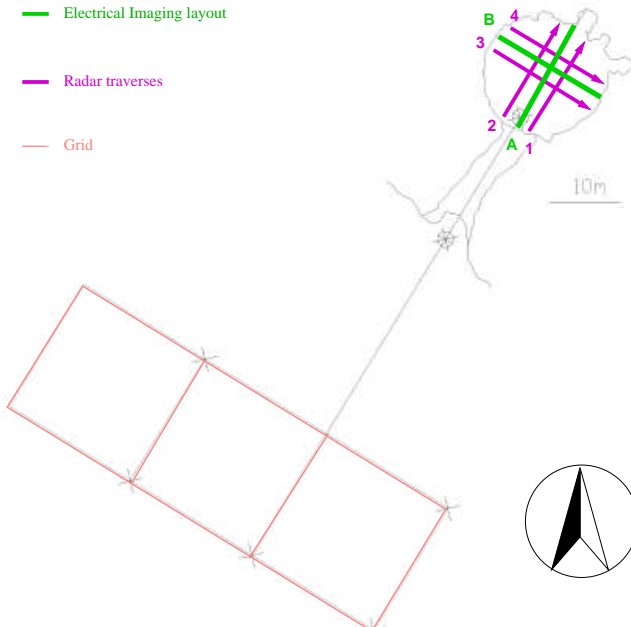
— Electrical Imaging layout

— Radar traverses

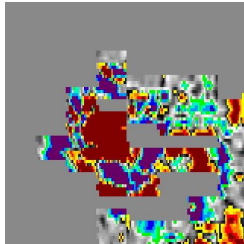
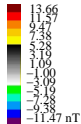
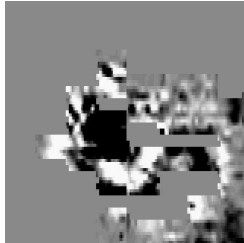
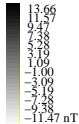
— 20 m Grid



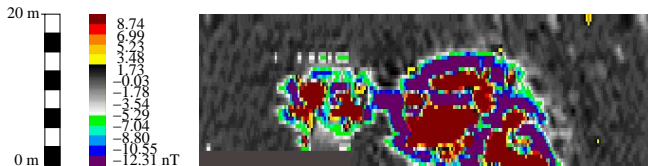
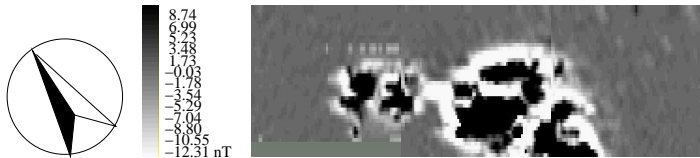
Loch Bosquoy



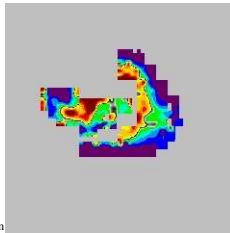
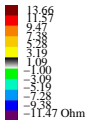
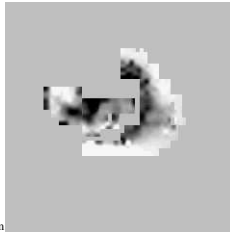
Loch Wasdale magnetometry



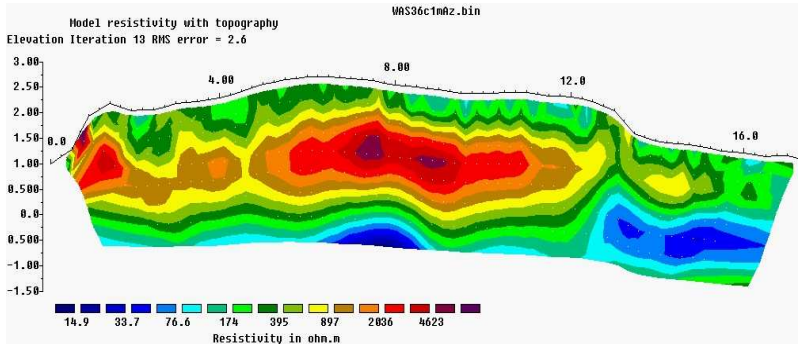
Loch Bosquoy magnetometry



Loch Wasdale resistivity



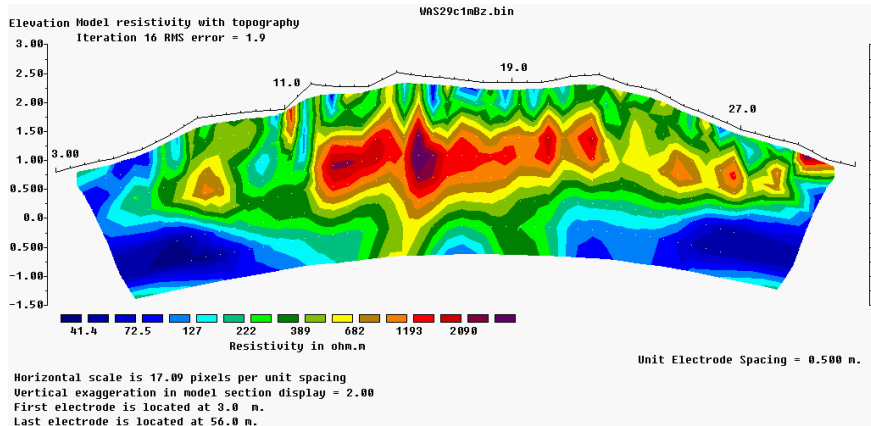
Loch Wasdale EI section A



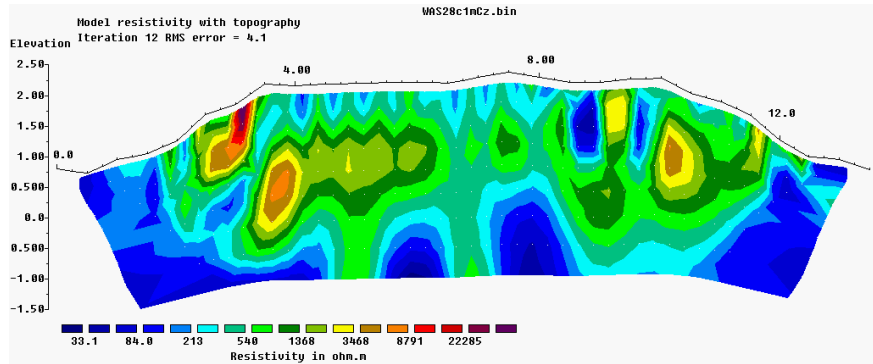
Unit Electrode Spacing = 0.500 m

Horizontal scale is 13.89 pixels per unit spacing
Vertical exaggeration in model section display = 2.00
First electrode is located at 0.0 m.
Last electrode is located at 35.0 m.

Loch Wasdale EI section B



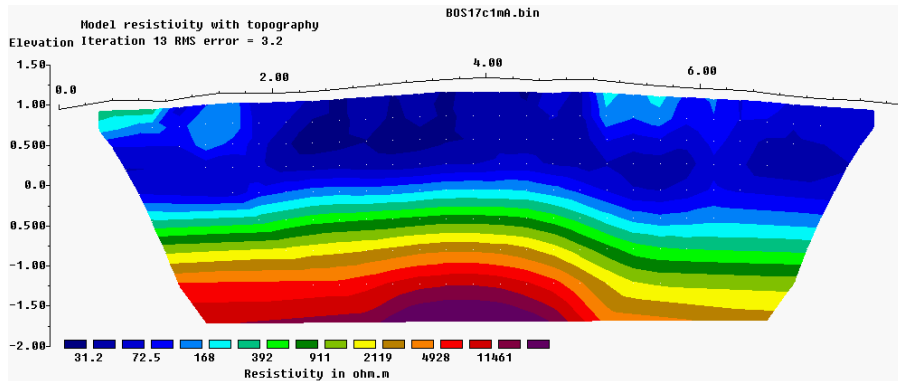
Loch Wasdale EI section C



Unit Electrode Spacing = 0.500 m.

Horizontal scale is 18.05 pixels per unit spacing
Vertical exaggeration in model section display = 2.00
First electrode is located at 0.0 m.
Last electrode is located at 27.0 m.

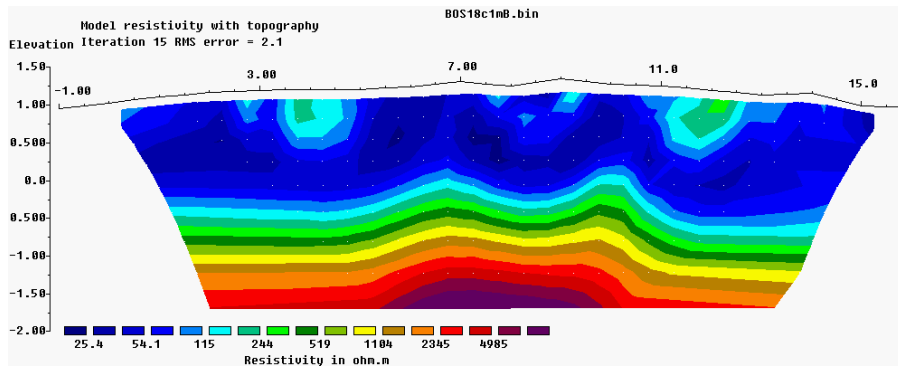
Loch Bosquoy EI section A



Unit Electrode Spacing = 0.500

Horizontal scale is 29.58 pixels per unit spacing
Vertical exaggeration in model section display = 1.50
First electrode is located at 0.0 m.
Last electrode is located at 16.0 m.

Loch Bosquoy EI section B

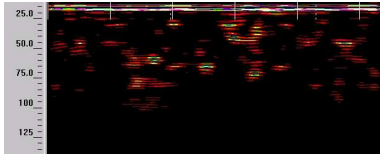


Unit Electrode Spacing = 0.500

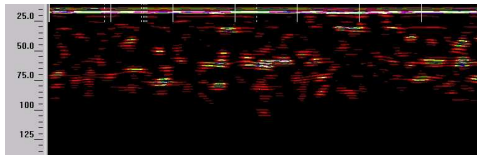
Horizontal scale is 27.80 pixels per unit spacing
Vertical exaggeration in model section display = 1.50
First electrode is located at -1.0 m.
Last electrode is located at 34.0 m.

Loch Wasdale GPR 6, 7 and 8

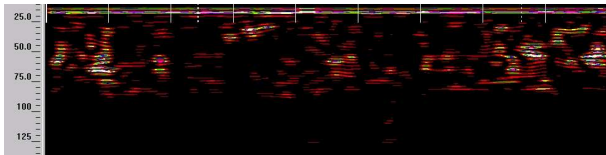
Traverse 6



Traverse 7

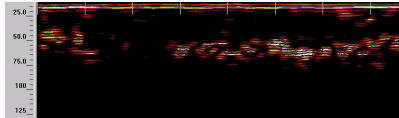


Traverse 8

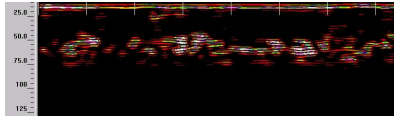


Loch Bosquoy GPR 1, 2, 3 and 4

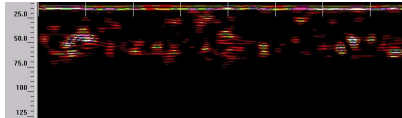
Traverse 1



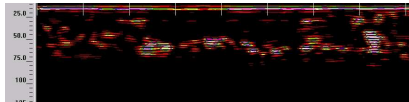
Traverse 2



Traverse 3



Traverse 4



Credits

**S. Ovenden, M. Carruthers, D. Bichan, A. Brend,
A. Brundle, R. Crowley, H. Flett, J. Gibson, J. Marwick,
P. McGray, M. Saunders.**

