

Farming in the Norse Fjords

in the Comparative Island Ecodynamics in the North Atlantic (CIE)

Interim Field report on surveys and sampling

in the southern Eastern Settlement

Summer 2013



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NABO
North Atlantic Biocultural Organisation

Table of Contents:

Introduction - Comparative Island Ecodynamics in the North Atlantic Project (CIE)	3
Field Work 2013 – Outline and Methodology	4
Field Diary 2013.....	12
Catalogue	18
E60 – ISORTARFIK 60V2-0IV-618	18
E79 –ILLORSUIT 60V2-0IV-632	22
E80 – KANASSUT 60V2-0IV-634	23
E80a, Ruin and Feature Descriptions:.....	25
E80b, Ruin and Feature Descriptions:.....	26
E80c, Ruin and Feature Descriptions	32
E89 – TASIUSSARSSUK 60V2-0IV-509	34
E89a – TASIUSSARSSUK 60V2-0IV-634	34
E96 – SAQARMIUT 60V2-0IV-634	37
Steatite quarry.....	44
E119 – IMARTUNAATSIAQ 60V2-0IV-575	45
E149 – NARSARSUAQ 60V2-0IV-504.....	48
E150 – PUIATERAQ Qingua 60V2-0IV-506	49
E157 – ILLORSUATASIAAT 60V2-III-528	53
E162 – NARSAQ 60V2-III-527	53
E174 – 60V2-0IV-580.....	54
E182 – KANGERLUARSORUJUUP QIINGUA 60V2-0IV-582	54
Ø184 – TASILUARAQ 60V2-0IV-579.....	55
Ø331 – QENERTUT 60V2-0IV-581.....	58
Ø333 – 60V2-0IV-576.....	58
NEW RUIN GROUP 13_01	61
SUMMARY – FIELD SEASON 2013	65
APPENDIX – DATED SAMPLES.....	66

Introduction - Comparative Island Ecodynamics in the North Atlantic Project (CIE)

Objectives

The *Comparative Island Ecodynamics in the North Atlantic Project* (CIE) seeks to improve scientific understanding of complex interactions between human governance, climate change, human environmental impact, and world system effects on the diverging fates of two closely related Scandinavian communities in Greenland and Iceland.

What are the lessons from these two thousand year cases of long-term human ecodynamics with radically different outcomes? And how can these cases of the past be mobilized to serve modern efforts to secure a genuinely sustainable future? What lessons of survival and extinction can be learned and taught for both local northern community heritage and for global education for sustainability?

Research question - Greenland

Why didn't Norse Greenland survive multiple stresses in the later Middle Ages when Iceland did?

Norse Greenland focal points

- Resilience to climate changes – victims to historical and cultural conjunctures.
- Identity and cultural limits to adaptation.
- Subsistence (climate impacts, farming and hunting practices, changing settlement patterns).
- Social organization - governance and the ecclesiastical landscape.
- Local and inter-regional interactions Norse Greenland/Iceland/Europe and Norse/Inuit.
- Does increased dependence on the marine resources (migrating seals) result in increased Norse coastal settlement? And how does that impact social structure?
- Are the Inuit present in the region? If so how does simultaneous presence impact the two cultures?
- The organization of trade and exchanges with Europe.

Research Methods

The North Atlantic Biocultural Organization field work included:

Selective excavation of stratified midden deposits (with emphasis on those that are both multi-period and endangered) to recover stratified artifact, zooarchaeological, archaeobotanical, and soil/sediment micro-morphology samples;

DGPS surveys recording structures, pasture boundaries, route ways, and herding structures aimed at both precise location relative to existing DEM used for the PLACE & Movement Models and quantifying farm and enclosure size for stocking and pasture area estimates and to model rates of erosion and site loss;

Second stage test trenching to recover C14 and tephra evidence for settlement and abandonment patterns and test organic preservation;

Selective cemetery excavation aimed at recovering bioarchaeological evidence, isotopic (N, C, Sr, Pb) and aDNA samples (both human and domestic animal) to expand current data sets.

Field Work 2013 – Outline and Methodology

Participants

Christian Koch Madsen (CKM), Michael Nielsen (MN), Ian Simpson (IS) and Konrad Smiarowski (KS).

Map/plan signatures

Dark grey with black cross hatching= building interpreted as dwelling, grey = building in stone/turf, turf/stone, black = stone structure/stone wall/dyke, circle with dot inside = Thule-culture grave, square with square inside = fox trap, triangle = meat cache.

GPS Coordinates

UTM 23N

Ruin Description

Stone/turf signifies a majority of stone in the construction and turf/stone vice versa. Unless otherwise noted, all measurements describe outside dimensions.

Original Field Notes and Photos

Field notes: Are archived at the National Museum of Denmark, Department for Danish Middle Age and renaissance.

Photos: Are found with the participants of the 2013 field season (see above).

Samples

Soil samples for geo-archaeological analyses of especially the home fields have been collected by Ian Simpson at Ø60, Ø80b, Ø89a, Ø96, Ø119, Ø149, Ø150, Ø174, Ø182 and Ø184. Processing of the samples is still in process, but the first dates are attached in the report.

The Site Surveys (Christian Koch Madsen)

The sites investigated during the 2013 field work were selected from several overlapping conditions: first, they were ruin groups located within pre-designated case study areas of the CIE, i.e. sites representing settlement patterns and land use in a transect running from south to north and outer fjord to inner fjord in the Norse Eastern Settlement; second, they were sites lying in some proximity for logistical purposes; and third, and most importantly, they were sites where erosion threats or recent farming activities (buildings, cutting of drainage channels) offered possibility of low-intrusion test trenching, i.e. cutting back, cleaning, and sampling small parts of already exposed profiles in middens or home fields.

The *surveys* of ruins was carried out with a Leica SR20 DGPS, which has a normal <20cm precision within the local coordinate system, <2m precision within the external geographical coordinate system. All the ruins were described and photographed, as well as occasionally paced off for reference. Subsequently, the surveys were corrected for increased accuracy using baseline corrections in Leica GeoOffice.

All in all, 69 ruins or features at 10 ruin groups were documented by this survey method.

Coring of middens (Konrad Smiarowski and Michael Nielsen)

The 2013 season we completed a program of systematic midden surveys and coring (using a tube-type Oakfield soil corer) of 16 Norse sites (listed below). We located 16 middens based on topography, association with main dwellings (farmhouses), vegetation, and soil accumulation; and assessed the organic/bone preservation (to a degree possible without archaeological test trenching). We have acquired a rich data set reflecting location, depth, composition, and organic preservation conditions of Norse middens in the region. Based on this data, site accessibility, and field observations we were able to assess the potential for further zooarchaeological investigation at those sites.

As in the previous years of midden surveys in the Eastern Settlement in Greenland, almost all the sites surveyed in 2013 did not exhibit good organic and bone preservation. The outer fjord sites have only ca. 10-15 cm of topsoil accumulated within the turf/roots of the modern vegetation. This poor soil accumulation did not favor creation of middens, due to the cool climate, strong winds and salt spray.

The glacial moraine that underlies most of the Eastern Settlement area favors water drainage at those sites. Coupled with climate change, that leaves these sites unfrozen for longer periods of time in the summer; these conditions favor increased decomposition of organic matter in the midden deposits. Almost no solid bone fragments, that would not smear when touched, were recorded at the sites surveyed in 2013.

Zooarchaeological work is not recommended at these sites, except for E80, where a sondage trench is recommended before any large scale excavation.

Cleaning eroding midden sections (Konrad Smiarowski)

This was carried out with spade, shovel, and trowel, i.e. cutting back a small vertical section (< 50 cm) in the already eroded or disturbed middens; these sections were then cleaned, photographed, drawn, and sampled for datable material. After surveying the position of the trenches, soil and turf was finally put back. Since there were no finds other than a few bits of charcoal and poorly preserved steatite, and the latter was found out of context during the cutting back the sections, we left these few finds at the bottom of the trenches.

Test trenches were made in middens at Ø89a, Ø119, and Ø184.

Field-based geoarchaeological investigation of Norse homefields in Kangerluarsorujuk, Igaliku Fjord and Uunartoq Fjord (Ian Simpson)

Introduction

The Norse home field area was immediately adjacent the farm, and in Greenland was often but not always enclosed. It contained ancillary buildings, areas for craft and tool manufacture, waste midden areas and, significantly, areas that were managed to enhance vegetation productivity, which was then harvested to help sustain livestock during the winter. Today these areas are often evident as the greener areas around Norse archaeological settlement and with a more grass-based vegetation cover. From an archaeological perspective the homefield is emerging as arguably the most sensitive indicator of long-term agricultural resilience within the Norse system of land management. Homefield attributes integrate environmental and organizational change and as such they open new debate on what makes a resilient land management system; they also demonstrate how limited understanding of environmental change and poor adaptation can contribute to collapse.

The properties of soil and sediment stratigraphies within the home field area are a record of environmental and management change, and the relationships between them. Our long term work on homefield soils of the eastern settlement has considered the Brattahlið and Vatnahverfi / Hvalsay areas, finding significant differences between them, but as yet the outer fjord areas are under-represented within our sampling frame. Accordingly, the purpose of field work during July 2013 was to undertake survey, sampling and analyses of two outer fjord locations – Kangerluarsorujuk / Igaliku Fjord and Uunartoq Fjord. Within these localities our objectives were to:

- expose soil and sediment stratigraphies outer fjord home field locations, formally describe the field properties and draw the stratigraphies,
- make preliminary field interpretations of environmental and management conditions associated with the soils,
- collect stratigraphically controlled fine charcoal samples for radiocarbon dating at all profiles,
- collect samples for optically stimulated luminescence dating at selected profiles including measurement of the background luminescence dose rates in the field,
- collect samples for thin section micromorphology, to allow more detailed microscopic and SEM-EDX characterization of the soils in the laboratory.

In doing so these samples and analyses will provide an outer fjord counterpoint to the mid fjord Vatnahverfi / Hvalsay and inner fjord Brattahlið homefield analyses. They give a vital new dimension to our understanding of Norse sustainability, resilience and collapse in Greenland.

Field Methods

Our home field sampling protocols ensured that we exposed soils stratigraphies in the centre of homefield area and at least 20 metres for archaeological remains. We also collected samples from exposed midden stratigraphies (cultural sediments) where these were been examined for zooarchaeological material. We undertook analyses and sampling of five homefields in the Kangerluarsorujuk / Igaliku Fjord area (Ø80, Ø60, Ø119 – with parallel midden, Ø182 – with parallel midden, Ø182 with parallel midden at Ø174) and four homefield areas in the Uunartoq Fjord area (Ø149, Ø96, Ø150, Ø89a).

Soil and sediment stratigraphies were exposed by hand digging. Stratigraphies were formally drawn and described using Munsell colour, texture and stoniness, and description of inclusions. Fine charcoal material, often less than 1mm in diameter was collected from all of the stratigraphies where found; sampling and dose rate measurement for optically stimulated luminescence analyses was undertaken at Ø149. Undisturbed soils and sediment samples for thin section micromorphology were collected in Kubiena tins from key points in the stratigraphies; a total of twenty-one Kubiena samples were collected.

Preliminary findings

Soil stratigraphies (Figures 1 and 2) indicate accumulating polygenetic soil profiles – there is buildup of soil material over time and differentiation of that material as indicated by the varying colours, textures and structures observed in the stratigraphy. Formal classification of these soil stratigraphies typically give a general model of accumulation with an almost uniformly stable *podsol* or *histosol* surface at the onset of Norse settlement, followed by various combination of cultural amendments to give darker coloured and finer textured *anthrosol* accumulations. Within this *anthrosol* sequence, and

sometimes beneath but superimposed on the landnám surface, eroded material is evident. Present day surface soils are generally organic or podzols, formed on eroded wind blown, water borne and slope deposits. Our current assessment is that erosion impacts were far greater in the outer fjord areas than they were in inner and mid fjord localities. Our laboratory based thin section micromorphology analyses is currently assessing the variations in the details of amendments and eroded material accumulations; all thin section samples have been submitted to the Thin Section Micromorphology Laboratory, University of Stirling (<http://www.thin.stir.ac.uk>). We have also extracted and identified charcoal from the stratigraphies (Appendix 1) and have submitted this for radiocarbon measurement at the Scottish Universities Environment Research Centre. Samples for optically stimulated luminescence measurement have also been submitted to the Scottish Universities Environment Research Centre. Our preliminary field based observations suggest that the set of homefields considered, the soil and sediment stratigraphies examined and the samples collected and currently being analysed will add significantly to our understanding of homefield environments and management giving distinctive contrasts in chronologies, environments and management practices with inner and mid fjord areas.

Identified charcoal for AMS samples (in process) (Ian Simpson)

Context	Sample	Charcoal Taxa
Ø60: Homefield	1	* <i>Betula</i> sp (0.01g)
	2	Indet cinder (5 frags) (0.09g)
	3	<i>Betula</i> sp (<0.01g)
	4	* <i>Betula</i> sp (<0.01g)
	5	<i>cf Picea</i> sp (0.02g) <i>cf Picea</i> sp (<0.01g) <i>cf Picea</i> sp (<0.01g)

Ø80: Homefield	Lower landnám	* <i>Betula</i> sp (0.02g) <i>Betula</i> sp (<0.01g) <i>Betula</i> sp (<0.01g)
	Middle horizon	Indet cinder (0.01g) <i>Betula</i> sp (<0.01g)
	Upper horizon	* <i>Betula</i> sp (<0.01g)

Context	Sample	Charcoal Taxa
Ø119: Midden	[03]	<i>*Betula</i> sp (0.02g) <i>Betula</i> sp (0.01g) <i>Betula</i> sp (<0.01g) <i>Betula</i> sp (<0.01g) <i>Betula</i> sp (<0.01g) <i>Betula</i> sp (<0.01g)
	[04 – upper]	<i>*Betula</i> sp (0.02g) <i>Betula</i> sp (0.01g) <i>Betula</i> sp (<0.01g) <i>Betula</i> sp (<0.01g)
	[04 – lower]	<i>*Betula</i> sp (0.08g) <i>Betula</i> sp (0.05g)
	[05]	Indet cinder (8 frags) (0.98g)

Ø174: Midden	[04 – upper]	<i>*Betula</i> sp (0.08g) <i>Betula</i> sp (0.01g) <i>Betula</i> sp (0.01g) <i>Betula</i> sp (0.01g)
	[04 – lower]	<i>*Betula</i> sp (0.09g) <i>Betula</i> sp (0.01g) <i>Betula</i> sp (0.01g) <i>Betula</i> sp (0.<01g)
	[05]	<i>*Betula</i> sp (0.03g) <i>Betula</i> sp (0.01g) <i>Betula</i> sp (0.01g) <i>Betula</i> sp (0.<01g) <i>Betula</i> sp (0.<01g)

Context	Sample	Charcoal Taxa
Ø182: Homefield (coastal, eroding)	upper	<i>*Betula</i> sp (<0.01g) <i>Betula</i> sp (<0.01g)
	lower	<i>*Betula</i> sp (0.05g)

Ø184: Midden	[03 – upper]	<i>*Betula</i> sp (0.04g) <i>Betula</i> sp (0.03g) <i>Betula</i> sp (0.03g) <i>Betula</i> sp (0.02g) <i>Betula</i> sp (0.01g) <i>Betula</i> sp (<0.01g)
	[03 – lower]	<i>*Betula</i> sp (0.10g) <i>Betula</i> sp (0.10g) <i>Betula</i> sp (0.05g) <i>Betula</i> sp (0.02g) <i>Betula</i> sp (0.02g)

Ø184: Homefield (peat dominated)	6cm	<i>*Salix</i> sp (<<0.01g)
	10cm	<i>Betula</i> sp (0.01g) <i>Betula</i> sp (<0.01g)
	16cm	<i>*Betula</i> sp (0.01g)
	lower landnám	<i>*Betula</i> sp (0.01g) <i>Betula</i> sp (<0.01g) <i>Betula</i> sp (<0.01g) <i>Betula</i> sp (<0.01g)

Context	Sample	Charcoal Taxa
Ø184: Homefield (peat dominated)	upper landnám	<i>Betula</i> sp (0.03g) <i>Betula</i> sp (0.02g) <i>Betula</i> sp (0.01g) <i>Betula</i> sp (<0.01g) <i>Betula</i> sp (<0.01g)
	clear upper landnám	* <i>Betula</i> sp (0.02g)

Ø089a Homefield	upper-10cm	* <i>Betula</i> sp (<0.01g) <i>Betula</i> sp (<0.01g)
	mid-26cm	<i>cf Picea</i> sp (0.03g) <i>Betula</i> sp (0.01g) <i>Betula</i> sp (<0.01g)
	lower-37cm	* <i>Betula</i> sp (0.01g) <i>Betula</i> sp (0.01g) <i>Betula</i> sp (0.01g) <i>Betula</i> sp (<0.01g) <i>Betula</i> sp (<0.01g)

Ø96 Homefield (Steatite quarry site)	1	<i>Betula</i> sp (<<0.01g)
	2	<i>cf Picea</i> sp (<0.01g) * <i>Betula</i> sp (<0.01g) <i>cf Picea</i> sp (<0.01g)
	3	No charcoal present

Context	Sample	Charcoal Taxa
Ø96 Homefield (Steatite quarry site)	4	<i>Betula</i> sp (0.01g) <i>Betula</i> sp (<0.01g)
	5	<i>Betula</i> sp (0.04g) <i>Betula</i> sp (0.04g)
	6	* <i>Betula</i> sp (0.01g)
	7	<i>Betula</i> sp (<0.01g)

Ø149 Homefield (with OSL measurement of erosion accumulation)	1	* <i>Betula</i> sp (0.02g) <i>Betula</i> sp (0.01g) <i>Betula</i> sp (0.01g) <i>cf Picea</i> sp (0.02g) <i>cf Picea</i> sp (0.01g) * <i>Betula</i> sp (<0.01g)
Ø150 Shieling (sheet midden / alluvial mix)	1	* <i>Betula</i> sp (<0.01g) <i>Betula</i> sp (<0.01g) <i>Betula</i> sp (<0.01g) Indet cinder (0.03g)

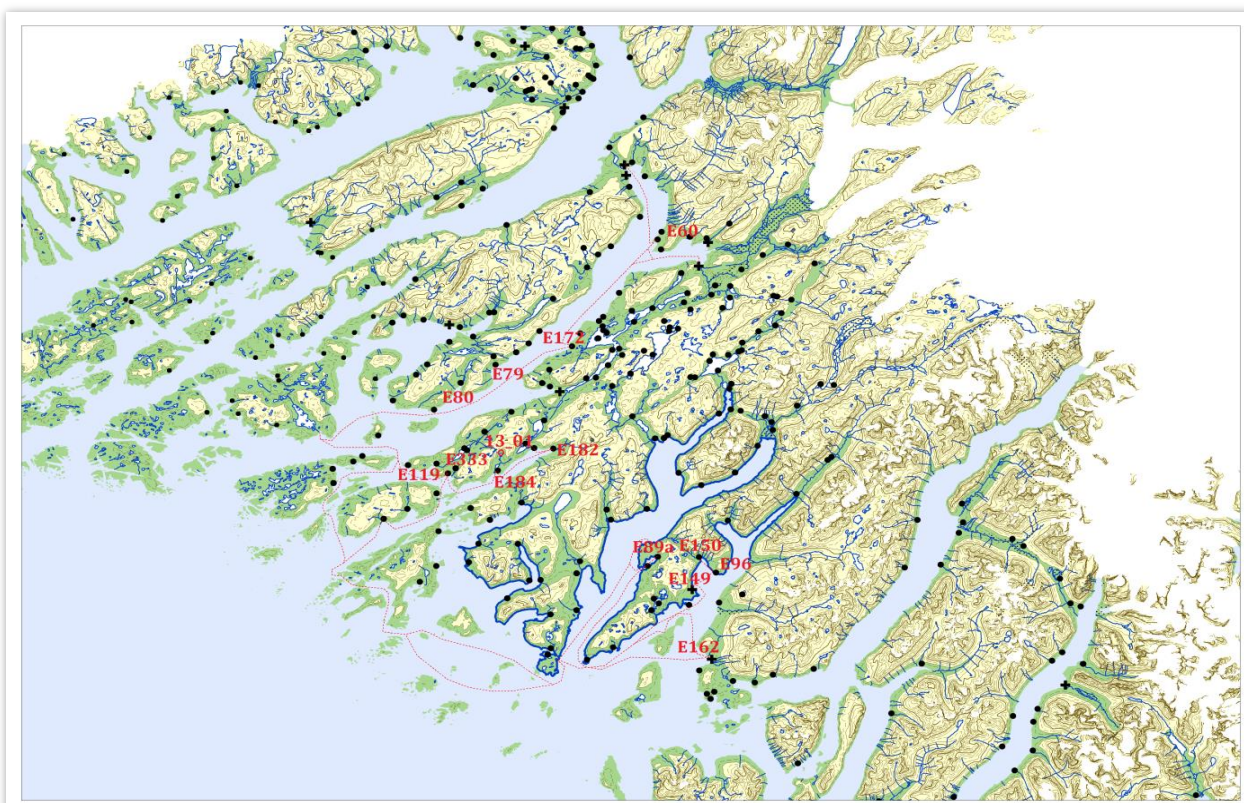


Fig.1 Overview map of the main travel routes and sites worked in 2013.

Field Diary 2013

Tuesday Jul. 16.: Departure from Reykjavik airport 14.45, arrival in Narsarsuaq c.15.30, where we were joined by Hans Kapel and Niels Christian Clemmensen from Copenhagen about an hour later. After having located the boxes with equipment from polar services, we had this and our other equipment driven to the harbor and sailed on to Itilleq with Hans Kapel, who was to help us ready the zodiac. Camilla from the Igaliku Hotel was waiting at Itilleq and we immediately started driving our equipment across the “King’s Road” to Igaliku, where we arrived with all our equipment c.18.30. After supper we went about repacking the boxes and equipment and readying the boat. It turned out that we needed a few tools for preparing the boat and we stopped 22.30.

Weather: Sunshine with a few scattered clouds, a light breeze and c.15 degrees.

Wednesday Jul. 17.: After breakfast we put the zodiac in the water, bought gasoline, lunch, did the final amendments to the boat and around 11.00 we started out towards Kujalleq to pick up the rifle and a few pieces of remaining equipment. However, we did not make further it than the mouth of the Kujalleq fjord, before a strong wind from the ice forced us to turn around and land at Fox Bay (E61) to wait for the wind to subside. We hiked along the coast to E60 and back again, going a little higher up the slope on the way back, where Michael and Christian located 3 prior registered ruins that were missing from the 2006 survey. We then set out from Fox Bay and sailed along the coast to E60, where Ian and Christian got off with the equipment, while Konrad and Michael sailed out to try and make it to Kujalleq, seeing that the wind had resided a bit. While they did so, Ian sampled and documented a trench in the homefield, while Christian surveyed the 3 newly located ruins.

Around 18.00 Konrad and Michael returned after successfully having reached Kujalleq and picked up the equipment we needed from sheep farmer Andala's old sheep stable. We immediately set out again towards E79/Illorsuit. However, after the wind from the ice now had resided completely, we were now sailing against a brisk fjord wind, making our progress slow. Thus, we decided to camp at E172 half way out the fjord, which we reached c.20.45.

Weather: Apart from the changing winds described above, the day was sunny, bright, and clear, though not especially warm.

Thursday Jul. 18.: Around 9.00 we sailed from E172 in a light fjord wind headed for Qaqortoq to pick up the final supplies, as well as additional gas, emergency rockets, and a few tools. After having done so, we sailed towards Alluitsup Paa (Sydprøven) north and west of Kangeq and via the route through the inner skerries. We had lunch in the narrow north easternmost passage Allaangasoq between the island of Simiutaq and the mainland around 14.30, where after we continued to Alluitsup Paa, reaching the settlement c.17.00. Once there, we were invited in for coffee with Nuka (Claus), one of Michaels childhood classmates from Narsaq. Around 18.00 we sailed from Alluitsup Paa heading for Narsarsuaq (E149) in the Uunartoq Fjord. We reached Narsarsuaq just before 19.00, set up camp and then inspected the ruins.

Weather: slightly overcast with banks of fog, but calm and with temperatures around 10°C.

Friday Jul. 19.: After breakfast we sailed to E96 just east of Saqqarsuaq. We spent about an hour locating the site, which is slightly misplaced on the heritage maps. Once located, we surveyed the ruins, cored the midden, and trenched the homefield for datable material. While wrapping up this work strong gusts of wind started blowing from this ice. We therefore quickly finished and made our way back to Narsarsuaq. Although the wind never rose to any storm, it was still strong enough to prevent us from anchoring the boat in front of Narsarsuaq, because this plain is completely exposed to winds from the ice and because of the poor anchor we had brought along, not being able to find the proper one. Konrad and Christian thus decided to move the boat to the sheltered side of the small point – Inugap Nuua – just SE of Narsarsuaq and await change in the wind. Having secured the boat in a sheltered location behind Inugap Nuua we hiked back to Ian and Michael at Narsarsuaq. We then took down Christian's tent and him and Konrad walked back to the point, where Christian was going to stay overnight with the boat.

However, around 22.00 the wind from the ice subsided and a mean fjord wind took over instead, making anchoring on the outer side of the point impractical with the poor anchor. Christian therefore sailed the zodiac back to Narsarsuaq and hiked back to his tent on Inugap Nuua. However, around 02.30 the wind from the ice again started pounding against the coast at Narsarsuaq. This time, however, the anchor had caught a rock and it remained fixed in its position over the night, while Konrad was watching it hourly.

Weather: Until around 15.00 calm and slightly overcast, thereafter with strong winds from either the ice or the fjord, at times both, depending on where we were located; the change in wind direction occurred right around the point of Inugap Nuua, the winds north of the point coming from the ice, the wind south of the point coming from the fjord, while the meeting point could be quite calm. In short, extremely local wind conditions!

Saturday Jul. 20.: After breakfast we sailed to E150/Puiattooqqap Qingua a bit further into the Uunartoq Fjord. We briefly inspected the ruins at the site, where after we started surveying, coring, and test trenching. While we were doing this, Nuka from Alluitsup Paa came to visit with his stepson. Around 12.00 we were finished at E150 and sailed back to Narsarsuaq, having invited Nuka to have lunch with us. We spend the rest of the day after lunch finishing the work at Narsarsuaq: Ian finished his trench in the homefield, Konrad and Michael cored and cut back drainage trenches in search of midden, and Christian surveyed anchor points in the excavated ruins, as well as a few new ruins located during the previous days.

Around 21.00 we were done at Narsarsuaq (a day during which we were terribly harassed by mosquitoes and mites), packed down the camp and sailed on to Uunartoq Island to set up camp there. Having done so, we headed to the hot spring to wash and relax around 23.00.

Weather: During the first half of the day a cool breeze was blowing of the fjord, but later it completely resided and the temperature rose considerably at Narsarsuaq.

Sunday Jul. 21.: After breakfast we sailed to E162/Narsaq, where we spend about 1 ½ hour inspecting the ruins and terrain. Thereafter, we headed to E157/Illorsuatsiaat on the opposite side of the fjord, which we briefly inspected: the ruins are placed about a kilometer from the fjord in a rather small and barren horseshoe shaped valley. Several of the ruins, especially the dwelling, seem completely undercut by foxes dens and tunnels. We made a brief stop at ruin group E89 close to Iterlassuaq in the Alluitsup Kangerlua. We continued on to Sletten to buy gas, but having forgotten it was Sunday we found the store closed and the newly built gas station did not take credit card (this having been too expensive an installation according to the municipality!).

Thus, we quickly continued on to E89a/Tasiusaarsuup Kilua where we had promised the National Museum of Greenland to inspect the Norse ruins in a place where farmer Otto Nielsen of Qallimiut wants to grow potatoes. As yet, the site is undisturbed: we located the already known ruins, surveyed them, as well as sampled a trench in the homefield, and cored and cut back the midden, the edge of which is slightly eroding towards the bay. From E89a, we sailed to Alluitsup Paa, where Nuka had invited us to supper. We reached his house around 19.00, had supper and stayed until c.21.30, at which time we headed back to Uunartoq and went to relax in the hot spring.

Weather: Until around 18.00 a remarkably calm, cloudless, and warm summer day. After c.18.00 a cool breeze from the south started blowing.

Monday Jul. 22.: Having slept in a few hours after some busy days, we took down the camp and headed out around 10.00 towards Alluitsup Paa. We refueled there and 11.15 continued onwards towards Sarfarmiut to try and catch some cod for supper. However, we failed miserably and therefore continued on to E119/Imartunaatsiaq, where we meant to set up camp for the next couple of days. We arrived there around 15.20, set up camp and spend the rest of the day relaxing.

Weather: from the morning lightly overcast and a brisk wind from the coast, from around 11.00 the wind calmed down and it started raining heavily.

Tuesday Jul. 23.: We woke up to heavy rain and took a quiet morning writing up diaries and records, and set up a cooking and eating shelter with the green tarp. Around 10.00 when there was a break in the rain, we hiked out for E333, which we reached in c.35 min, quickly inspected the ruins and then headed back to E119 to have lunch. After lunch, Konrad and Michael started coring for midden and cut

back a trench in the midden made for a house at the time the site functioned as a sheep farm. Ian did a trench in the nearby homefield, while Christian hiked back to E333 with GPS-equipment to survey that site. Having done so, Christian returned to survey new features and trenches at E119. We wrapped up our investigations around 19.00 and returned to our tents to warm up and dry out.

Weather: A very calm day with only a few breaks in the pouring rain.

Wednesday Jul. 24.: We woke up to a beautiful, calm and sunny morning and rejuvenated sailed towards E184/Tasiluaraq in the fjord of Kangerluarsorujuk. Just arriving there we met the nearby sheep farmer at Qemertut, Claus, and his daughter. Besides pointing out an unregistered shieling site (see fig. 18 and 19), he also pointed us to an enclosure we had not surveyed in 2007, and Christian went to survey that, while Konrad and Michael cut back a drainage trench made along the midden back in the 1960's, when a farmer want to make a field there. Meanwhile Ian made a trench in the homefield. We finished around 13.15.

Thereafter, we headed further into the Kangerluarsorujuk to visit Claus and his family at E331/Qemertut, because upon our meeting at E184, he had told of a runic stone which he had found at E182 that we wanted to photograph and register. Having had coffee with Claus' wife, we then saw the mentioned steatite stone, which proved to have no runes, but rather an engraved cross and Thor's hammer! Just as we were leaving, Claus returned from Qaqortoq and showed us some ruins east of the river at E331 that we had missed during the 2006 survey of the site.

Thereafter we went to E182 to inspect the eroding ruins and talk with the sheep farmer to get a better photograph of the runic stone we had found in his collection of artifacts from the eroding ruin back in 2009. However, the farmer was in town, so after a brief inspection, we returned towards our camp at E119 around 19.00, reaching the camp c. 20.00 after having done a bit of unsuccessful fishing on the way back.

Weather: After the completely calm and sunny morning, the wind picked up with a brisk fjord wind until c.11.00, where after it again subsided and clouds started coming in from the coast. Around 18.00 it was again completely calm, warm, and overcast.

Thursday Jul. 25.: After breakfast we sailed out for E184/Tasiluaraq. There, Michael and Christian was dropped off to hike up the valley behind the Norse farm to search for an associated shieling expectedly located there, but not yet located. The hike to the horseshoe shaped end of the valley took some 40min and we did indeed locate an unregistered shieling there, which we surveyed and recorded and then hiked back to E184, which we reached around 15.00.

Meanwhile, Konrad sailed Ian to E182/Kangerluarsorujuup Qingua in order for him to sample the exposed section in the eroding home field and then sailed back to E331 and hiked up to core the midden at E174. Having done so, Konrad awaited Michael and Christian's return to E184. Once back to E184, Christian climbed the small ridge next to the farmstead to radio Konrad, who then went to pick up Ian at E182 and to photograph the steatite sherd with runic inscriptions found by the eroding ruin by E182 and noticed in 2009. However, the sheep farmer was unable to produce the sherd, so Konrad and Ian headed back E184, picked up Michael and Christian, and then we all headed back to our camp at E119.

Once back, we quickly took down the camp and sailed for Qaqortoq around 18.40 to buy gas for the last stretch of the field season, as well as to shower and supper. Finding the restaurant at the

“seaman’s home” closed, we decided to abandon the showers, quickly went to eat at the Thai-restaurant by the harbor and thereafter headed out for E80/Kanassut, which we reached c. 22.30 having sailed in pouring rain for the last two hours.

Weather: During the first part of the day calm, warm and slightly overcast. From around 14.00 increasing rain until reaching a steady downpour around 18.00, which continued all throughout the night.

Friday Jul. 26.: Woke up to another day of cold and pouring rain, so we had to take another slow day working around E80, E80a, and E80b. Ian managed to get samples from the homefield, Christian surveyed the ruins of E80 and E80b, while Michael and Konrad cored the middens at E80 and E80a for preservation, finding some potential at E80. The rain was so intense and cold that we had occasionally to return to our tents to dry and warm up, but we continued working at intervals until c.22.00, when the rain had finally ceased.

Weather: Pouring rain and a brisk cold wind the whole day until c. 21.00, when it stopped raining.

Saturday Jul.27.: After breakfast we sailed to E79/Illosuit, where we were invited in for coffee with the old sheep farmer and his wife, his son – the present sheep farmer – being in Qaqortoq. The old sheep farmer had been there since the 1960’s and knows the area extremely well. Thus, he was able to point out several sites with unregistered ruins. After coffee and a tour of the farm, we inspected the ruins, Christian, Konrad, Michael cored the midden for preservation finding little, while Ian went about locating a site that had not been disturbed by recent farming activities; he found this very hard, but a drainage trench which he cut back showed some potential, although we would have to cut it back significantly. We decided to leave this for another field season.

Having finished at E79, we then sailed for E78/Eqaluit to visit the sheep farmer Lasse Bjerre. After coffee with him, we sailed out again, noticing on the way that a camp school had been built in the previous years at E196/Nimerialik north of the Eqaluit bay. Suspecting that the school had been built very close to or actually disturbing the ruins, we went to inspect the situation. We found some of the ruins undisturbed, though without a site plan we were not sure whether some had been disturbed or removed. We GPS’ed the corners of the new building to compare it with the survey once back home. We then sailed back to E80, where we arrived c.19.15.

Weather: Clear day with scattered clouds and a cool light fjord wind.

Sunday Jul. 28.: After breakfast, Christian went to survey the ruins of E80a, while Konrad, Michael, and Ian started taking down the camp at E80 and repacking the boxes for home shipment. Around 12.00 we set out for Kujalleq – reaching it c.13.00 – to return the rifle and equipment to sheep farmer Andala’s sheep stable. Thereafter we headed for Igaliku, which we reached c.15.00. We booked room in the hostel and then went about packing and showering.

Weather: Beautiful sunny, warm, and calm summer day.

Monday Jul. 29.: We took a slow morning waiting for the high tide at 11.15 to ease the work of getting the zodiac back in the shed. Meanwhile, we made the shed ready, cleaned it up, while prepared the zodiac and suits for winter storage. Around 15.00, we had gotten the zodiac into the shed and were finished packing up equipment, so we took the rest of the day off.

Weather: Beautiful sunny, warm, and calm summer day.

Tuesday Jul. 30.: At 09.15 we were picked up with our equipment at the hostel and in two rounds driven to Itilleq and then sailed on to Narsarsuaq, where we spent about two hours waiting for our flights. We split up around 15.10, thereby ending the 2013 field season in South Greenland.

Weather: Beautiful sunny, warm, and calm summer day.



Fig.2 The 2013 field team sheltering. From left to right: Ian Simpson (IS), Michael Nielsen (MN), Konrad Smiarowski (KS), and Christian Koch Madsen (CKM) (*photo: C.K. Madsen 2013*).

Catalogue

E60 – ISORTARFIK

60V2-0IV-618

Medium farmstead

Coordinates (UTM 23N: 481.047,8 / 6.754.920,5)



Fig.3 Ruin group Ø60 seen towards the SSW (photo: C.K. Madsen 2013).

Earlier work: Bruun 1895:362p, Møller&Madsen 2006:7, Møller *et al.* 2007:19

Ruin Group Description

Ø60 is located by a small bay on the eastern side of the inner Igalikup Kangerlua. The main cluster of ruins – with a small infield in front – is located on small patch of grassland sloping very gently right down to the fjord. To the east the terrain continues to rise gently over the next c. 200-250m, but is littered with stones and boulders between rocky outcrops; the remaining ruins are found here at some distance from the farmstead. Still further to the east, the small steep sided mountain of Akuliaruseq (ca.400m.a.s.l.) rises more abruptly. A saddle between this mountain and the towering Tallorutit (1660m.a.s.l.) to the NE allows for fairly easy passage to the closest farmstead – Ø63/Iterlak – some 3.1 km to the ESE.

Ø60 was revisited and investigated because a possible föhn-storm was gusting out the Igaliku Kujalleq, forcing us to stop for a few hours. We landed the boat at Fox Bay about 1 km to the south and surveyed the headland in two tempi: one going from Fox Bay along the shore, the other going back higher up the headland. Drainage trenches have been cut S and E of the ruin group to drain nearby small meadows, which must have been important to the Norse farmstead as well.

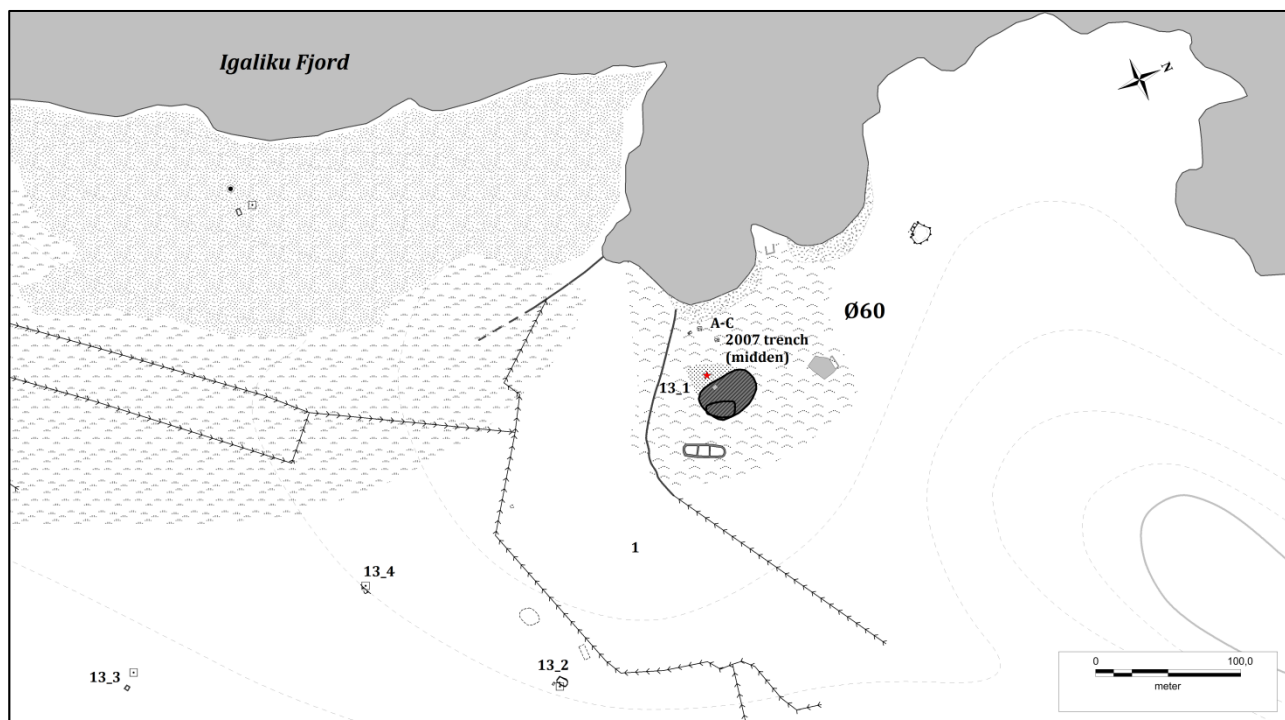




Fig.4 Ø60 Survey plan. Note that the ruin numbering is preliminary


Ruin and Feature Descriptions


Ruin no. 3 In the 2005 survey, ruin 3 was described and measured in as a massive totally dilapidated turf/stone building, undoubtedly a dwelling (Møller&Madsen 2005:7). While that general description still applies, the 2013 inspection made it clear that the ruin must have been substantially smaller and a large part of the ruin circumference in the 2005 survey actually comprised collapse/ midden. A stone-rich area – ca. 20x11 m (outlined in Fig.4) – in the southern part of the complex may better represent the original size of the dwelling.

Ruin no.: 13_1	Length: 3.3 m	Width: 2.7 m	Height: 125 cm	Wall width: ?
Ruin description: Just in front of and down slope ruin no. 3 towards the fjord is squared depression, along the E side and S gable of which seems to be wall foundation of 1-2 courses of stone. Bruun also noted the probable presence of a small turf/stone building here, which has been overlooked in the subsequent surveys. The ruin is partly covered by midden deposits.				
Type/function: ?			Seen towards: NE	Build. Mat.: Turf/Stone

Ruin no.: 13_2	Length: 8.05 m	Width: 5.6 m	Height: 75 cm	Wall width: 75 cm
Ruin description: Well-preserved ruin – fold – built in dry-stone masonry, preserved in up to 6 courses, against a low vertical rock outcrop; a clear entrance is visible in the S corner. Just 1 m S of the ruin is another small rectangular feature, measuring 2.3x1.45 m, and preserved only as a single-course stone foundation – 0.25-0.35 m wide – for a turf wall. On top of the outcrop is a later collapsed chambered fox trap, which has reused some of the stones from the walls.				
Type/function: <i>Milking fold w. lambakró</i>			Seen towards: SE	Build. Mat.: Stone

Ruin no.: 13_3	Length: 3.5 m	Width: 3.2	Height: 50 cm	Wall width: 75cm
Ruin description: On a stretch of exposed bedrock 440 m SSE of the main cluster of ruins lies a small square building, now considerably collapsed. However, the outline of walls is fairly distinct and, where best preserved, stands 4 courses high. Clearly, there is not enough collapse stones for the stone building to have stood very high, although some stones have been removed to build a chambered fox trap, now collapsed, ca. 10 m NW of the ruin. The ruin is probably a skemma related to drying hay from the nearby meadow.				
Type/function: <i>Storehouse</i>			Seen towards: SE	Build. Mat.: Stone

Ruin no.: 13_4	Length: 2.45 m	Width: 2.45 m	Height: 25 cm	Wall width: 40 cm
Ruin description: Build against a vertical cliff face some 250 m SSE of the main cluster of ruins is a small, rounded stone foundation standing max. two courses high and with few collapse stones lying around; the cliff face faces SE. If there has been any super structure to this stone foundation, it must have been built purely in turf. However, it is more like an Inuit hunter's bed.				
Type/function: <i>Hunter's bed / fold ?</i>			Seen towards: SE	Build. Mat.: Stone

Ruin no.: A-C	Length: -	Width: -	Height: -	Wall width: -
Ruin description: Some 40 m W of the dwelling and very close to the fjord are 3 roughly square depressions, some with visible stones in the surface. The depressions all appear man-made although nothing certain can be said in regard to their purpose or age. If not old test pits, they could perhaps be from stripping of turf for the nearby Thule-culture tent foundations?				
Type/function: ?			Seen towards: S	Build. Mat.: Cut

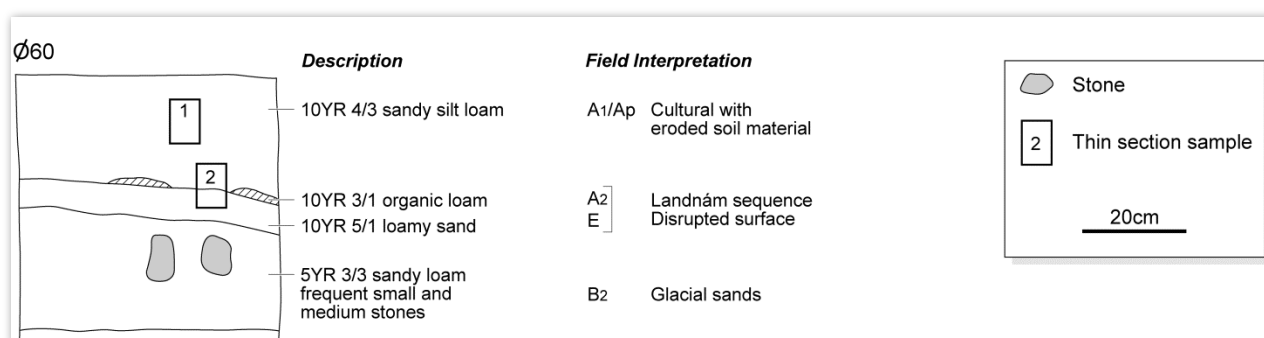


Fig.5 Home field trench section at Ø60 – see Fig.4.

Ø60 - Ruin Group Summary

As interpreted by Bruun (1895:362), ruin group Ø60 appears to have been a modest farmstead, which also corresponds with the rather miserable surrounding vegetation. The various sheep/goat pens and smaller outbuildings also hints at a farm with an economy based on sheep/goat husbandry.



Fig.6 Modern sheep farm at ruin group Ø79 (photo: C.K. Madsen 2013).

This large ruin group was briefly inspected, but not surveyed, because we did not have the time considered the size of the ruin group. Instead, we talked with the local sheep farmer about the history of the site, the ruins, and any of neighboring undiscovered ruin groups. He pointed to four or five unknown nearby locations nearby, most in the highlands between ruin groups Ø79 and Ø80. Afterwards we cored the midden in front of and around the presumed, massive dwelling, finding some cultural layers with bone and charcoal, but they were fairly shallow and preservation poor.

Midden Assessment

Judgmental and systematic midden assessment revealed a midden that was heavily disturbed by modern agriculture, and only ca. 15-40cm thick in most places. The preservation was poor and only occasional bone mash was recovered from the core blade. No further zooarchaeological work is recommended at this site in the near future.

Large farmstead, multiple farm

Coordinates (UTM 23N: 458.612,8 / 6.736.852,5)



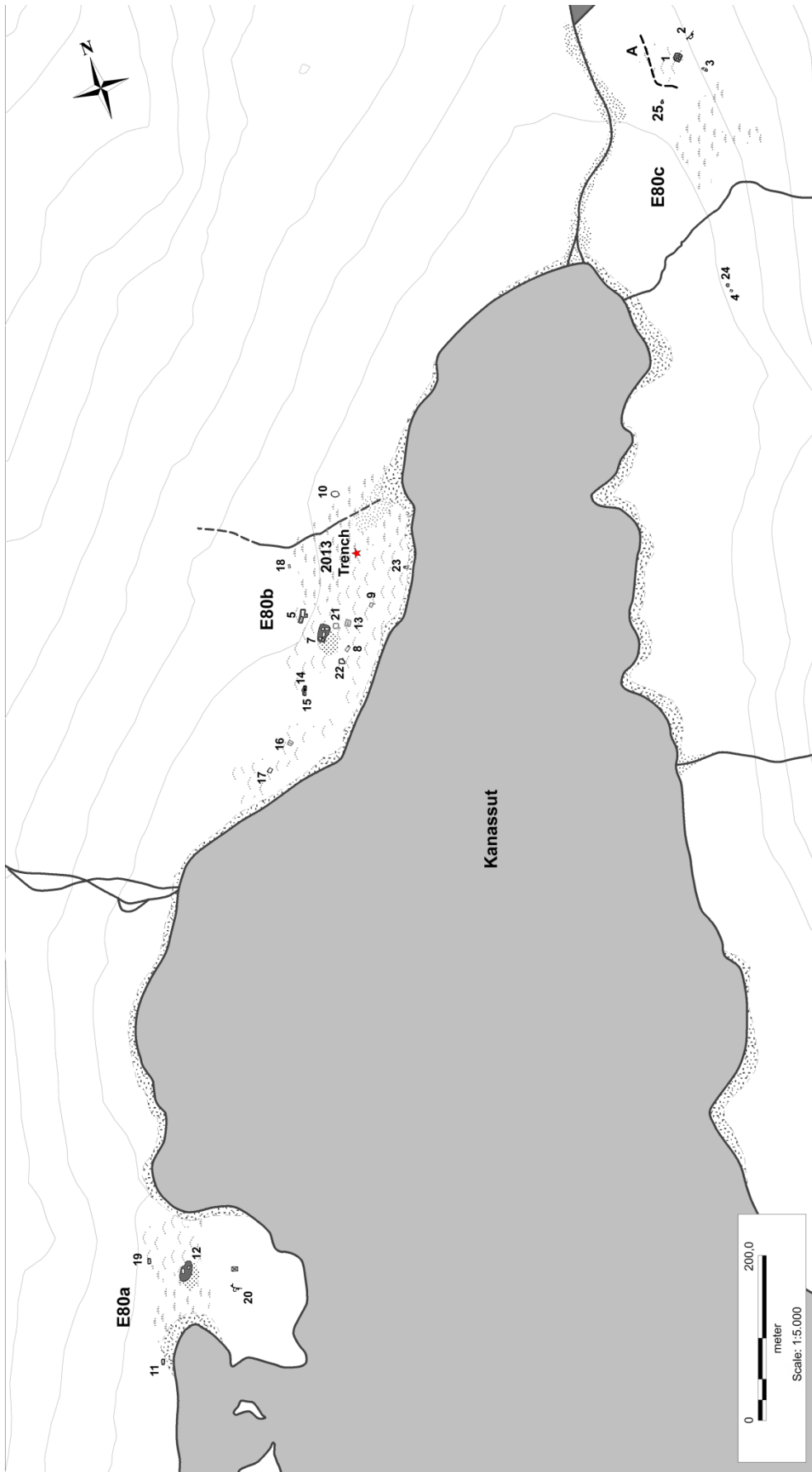
Fig.7 Ruin group Ø80a-c seen towards the NE (photo: C.K. Madsen 2013).

Earlier work: Holm 1883:103, NMA: Vebæk 1939, NMA: Albrethsen 1971, Gulløv 2000

Ruin Group Description:

Ø80 is located on the northern shores in the inner part of the nicely sheltered bay of Kanassut, which is fairly shallow, especially at its head. Low mountains circle the inlet with slopes mostly covered by dwarf-shrub vegetation, but in places with some grass and, especially near the main cluster of ruins Ø80a, patches of meadow. Towards the north, a wide pass with a large river offers access to inland pasture areas and, if one continues, passage to either Ø79 or the head of the Qaqortup Imaa (Hvalsey Fjord).


As observed by Gulløv (2000:23), the bay of Kanassut could fit the Norse '*Thorvaldsvig*' found in the description of Ivar Baardson; certainly, the many and substantial ruins must represent a large farmstead, perhaps even one worth of contemporary historical mention. However, the large number of ruins at the site also reflects that the farm mostly likely consisted of three separate units, although these must evidently have been part of the same farm or holding. In the following description, we follow the partition of Gulløv (2000:23) of Ø80 into three units of buildings labeled Ø80a, Ø80b, Ø80c. The numbering of the individual ruins follow NMA: Vebæk 1939 and NMA: Albrethsen 1971 (Fig.8).





**Fig.8 Ø80a-c 2013
survey plan**


E80a, Ruin and Feature Descriptions:

(note that Gulløv 2000, ruin 2 is considered a natural feature)

Ruin no.: 11	Length: 6.9 m	Width: 3.85 m	Height: 50 cm	Wall width: 75 cm
Ruin description: Small ruin with fairly distinct wall lines and slightly sunk into the surface. There is a clear entrance in the middle of the eastern long wall. The walls are preserved in up to three courses; the limited amount of surrounding collapse stone suggests that the remainder of the walls must have been built in turf.				
Type/function: <i>Sheep/goat shed?</i>			Seen towards: NE	Build. Mat.: stone/turf


Ruin no.: 12	Length: 26 m	Width: 13.5 m	Height: -	Wall width: -
Ruin description: Low grass covered farm mound littered with protruding collapse stone; at least two rooms are discernible, several other possible rooms are indicated by wall lines. Down slope SE of this dwelling is a distinct lush midden area. Note: Gulløv 2000 Ø80a ruin no. 1				
Type/function: <i>Dwelling</i>			Seen towards: NW	Build. Mat.: Turf/stone


Ruin no.: 19	Length: 6.5 m	Width: 3.65 m	Height: 50 cm	Wall width: 65 cm
Ruin description: Fairly distinct ruin located, and dug slight into, the drained gravel slope just W of the dwelling (ruin 12). Rather large rounded stones demarcate the foundation – standing up to four courses high – for a turf superstructure.				
Type/function: <i>Sheep/goat shed?</i>			Seen towards: S	Build. Mat.: Stone/turf


Ruin no.: 20	Length: 5 m	Width: 3.8 m	Height: 25 cm	Wall width: 60 cm
Ruin description: Fairly indistinct foundation of larger stones for a turf super-structure and placed against a vertical cliff face. Only the lowest course of the foundation is still preserved. It has likely been disturbed by the building a recent summer house.				
Type/function: <i>Enclosure</i>			Seen towards: E	Build. Mat.: Stone foundation


E80b, Ruin and Feature Descriptions:


(note Vebæk's ruin 6 could not be located)


Ruin no.: 4	Length: 3.2 m	Width: 2.95 m	Height: 200 cm	Wall width: 70 cm
Ruin description: Ruin 4 is one of the best preserved buildings in the Eastern Settlement with three of the walls standing intact and only the front side with entrance in the SW corner somewhat collapsed; limited amount of collapse stone could imply that part of the front wall was built in other material, perhaps wood. The building has been erected on top of a huge boulder, giving the building a total height of more than three meters. Although located across the bay, the ruin must belong to Ø80b.				
Type/function: <i>Storehouse</i>			Seen towards: SW	Build. Mat.: Stone


Ruin no.: 5	Length: 17.3	Width: 5.25 m	Height: 60 cm	Wall width: 120 cm
Ruin description: Well-preserved byre/barn; the byre is in the S end and has inner stone walls with thick outer turf padding; 4 stall stones are still standing in place; the barn in the N end is more collapsed and was built in more stones. The entrance to the building is on the eastern long wall and seems to have been of the passage type. Note: Gulløv 2000 Ø80b ruin no. 2				
Type/function: <i>Byre/barn w. passage entrance</i>			Seen towards: NE	Build. Mat.: Turf/stone


Ruin no.: 7	Length: 21.8	Width: 13.37	Height: -	Wall width: -
Ruin description: Low grass covered farm mound with many protruding collapse stones and clear outlines of rooms and wall lines. Just east of this dwelling is a sizable midden area. Note: background of photo. Gulløv 2000 Ø80b ruin no 1				
Type/function: <i>Dwelling</i>			Seen towards: ESE	Build. Mat.: Turf/stone


Ruin no.: 8	Length: 7.2 m	Width: 4.0 m	Height: 40 cm	Wall width: 70 cm
Ruin description: Completely collapsed stone/turf building. On closer inspection, a rectangular foundation – preserved in one course – for a single room building is discernable. Gulløv 2000 Ø80b ruin no. 3				
Type/function: <i>Sheep/goat shed?</i>			Seen towards: E	Build. Mat.: Stone/turf


Ruin no.: 9	Length: 5.75 m	Width: 4.4 m	Height: 30 cm	Wall width: 90 cm
Ruin description: Completely collapsed ruin preserved mainly as large rounded stones that seem to demarcate the foundation for a small, single-roomed building with fairly thick walls. A possible entrance is seen in the NE corner.				
Type/function: ?			Seen towards: NE	Build. Mat.: Turf/stone


Ruin no.: 10	Length: 10.2 m	Width: 7.5m	Height: 60 cm	Wall width: 65 cm
Ruin description: Stone built oval enclosure built on exposed bedrock on top of a drained low ridge and sloping considerably towards the wet meadow below. The walls are fairly well-preserved in places standing up three courses.				
Type/function: <i>Enclosure</i>			Seen towards: N	Build. Mat.: Stone


Ruin no.: 13	Length: 8.5 m	Width: 6.9 m	Height: -	Wall width: 110 cm
Ruin description: Completely collapsed turf/stone building. Yet, upon closer inspections, stone foundations for turf walls appear to outline a two-room building. Gulløv 2000 Ø80b ruin no. 5				
Type/function: <i>Double-sheep/goat shed?</i>			Seen towards: NE	Build. Mat.: Turf/stone


Ruin no.: 14	Length: 6.4 m	Width: 3.2 m	Height: 30 cm	Wall width: 75 cm
Ruin description: Turf/stone wall placed against a sloping rocky outcrop so that a partially roofed shelter or enclosure is created. The stone foundation is fairly well-preserved. An entrance seems to be in the SE corner.				
Type/function: <i>Shelter/enclosure</i>			Seen towards: S	Build. Mat.: Turf/stone


Ruin no.: 15	Length: 4.7 m	Width: 3.3 m	Height: 40 cm	Wall width: 80 cm
Ruin description: Just about 1 m SW of ruin 14 is another ruin of the same type, a turf/stone wall placed against a vertical boulder.				
Type/function: <i>Shelter/enclosure</i>			Seen towards: SSW	Build. Mat.: Turf/stone

Ruin no.: 16	Length: 5.95 m	Width: 6.1 m	Height: 30 cm	Wall width: 85 cm
Ruin description: Well-preserved stone foundation for box wall – preserved in one single course – of a turf building. It appears to have been a double-shed/goat shed with entrance to both rooms from the SE gable. Gulløv 2000 Ø80b ruin no. 8				
Type/function: <i>Double-sheep/goat shed</i>			Seen towards: NW	Build. Mat.: Stone foundation


Ruin no.: 17	Length: 5.8 m	Width: 4.9 m	Height: 40 cm	Wall width: 50 cm
Ruin description: Some 35 m SW of ruin 16 is a stone foundation for a turf built enclosure. Gulløv 2000 Ø80b ruin no. 7				
Type/function: <i>Enclosure</i>			Seen towards: ESE	Build. Mat.: Stone foundation

Ruin no.: 18	Length: 4.5 m	Width: 2.8 m	Height: 100 cm	Wall width: 70 cm
Ruin description: Well-preserved ruin with box wall, which have had an inner face of stone and outer padding of turf. The building is cut into the slope. A clear entrance is visible on the W long wall.				
Type/function: ?			Seen towards: N	Build. Mat.: Turf/stone

Ruin no.: 21	Length: 7.15 m	Width: 6.75 m	Height: -	Wall width: -
Ruin description: Square depression sunk somewhat into the surface just a few meters NE of the dwelling (ruin no.7). It could be the remains of a turf/stone building of unknown use, or perhaps an enclosure?				
Type/function: ?			Seen towards: SE	Build. Mat.: Turf/stone

Ruin no.: 22	Length:	Width:	Height: -	Wall width: 60 cm
Ruin description: Possible foundation for a building rounded of shape. The building is placed on exposed bedrock, perhaps pointing to some kind of enclosure, for instance a hay-yard? The foundation is preserved only as one course of somewhat dispersed stones. Gulløv 2000 Ø80b ruin no. 3?				
Type/function: Enclosure/Hay-yard?			Seen towards: SSW	Build. Mat.: Stone foundation

Ruin no.: 23	Length: 4.2 m	Width: 3.6 m	Height: 40 cm	Wall width: 95 cm
Ruin description: Turf- and stone built ruin placed against a large boulder; the entrance must have been in the SE gable. Gulløv 2000 found slag and charcoal in front of the building, which made them suggest that it could have been a smithy. Note: Gulløv 2000 Ø80b ruin no. 10		-		
Type/function: Smithy?			Seen towards: -	Build. Mat.: Turf/stone

Ruin no.: 24	Length: 3.6 m	Width: 3.5 m	Height: 25 cm	Wall width: 50 cm
Ruin description: On a 1,15 m high boulder right next to the one on top of which ruin 4 is placed, is the stone foundation – preserved only in a single course – for a similar square building. At the rounded edges of the boulder, it has been levelled with dry-stone masonry. Although a little stone collapse lie around the boulder, there is certainly not enough for a building similar to ruin 4. Thus, if the two buildings stood at the same time, the superstructure of ruin 23 must have been in other material.				
Type/function: Storehouse?			Seen towards: S	Build. Mat.: Stone foundation

Midden Assessment

Judgmental and systematic midden assessment revealed a midden that was ca. 15-20 cm thick in most places, but the preservation was poor. Only occasional bone mash was recovered from the core blade. No further zooarchaeological work is recommended at this site in the near future.

Home field trenching

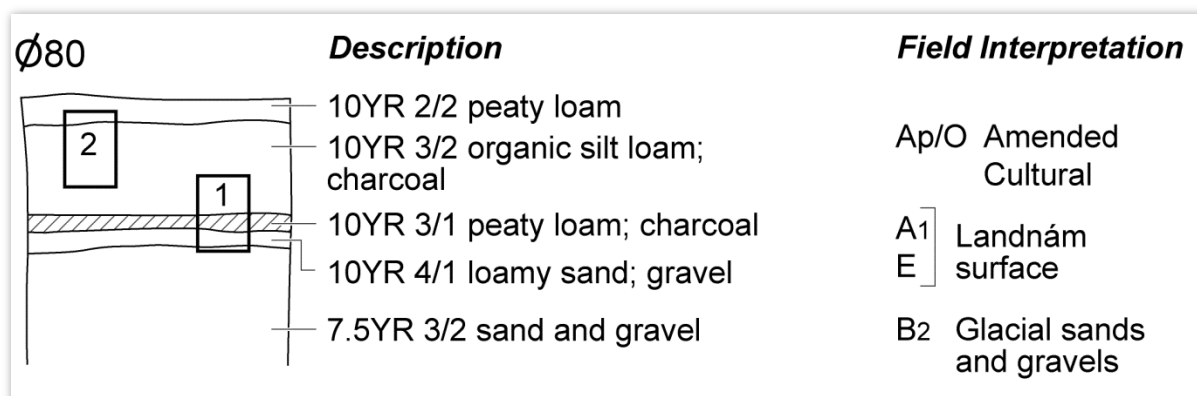






Fig.9 Home field trench section at Ø80b – see Fig.8.

E80c, Ruin and Feature Descriptions

Ruin no.: 1	Length: 10.3 m	Width: 9.2 m	Height: 40 cm	Wall width: -
Ruin description: A small square outline of slightly elevated turf walls with protruding stones. Several small rooms are clearly discernable. Undoubtedly a small dwelling of the centralized type with byre/barn.				
Type/function: <i>Dwelling</i>			Seen towards: S	Build. Mat.: Turf/stone

Ruin no.: 2	Length: 5.4 m	Width: 3.5 m	Height: 160 cm	Wall width: 65 cm
Ruin description: Small well-preserved stone-built fold placed against a low vertical cliff bluff. The walls are preserved in up to six courses.				
Type/function: <i>Fold</i>			Seen towards: NW	Build. Mat.: Stone

Ruin no.: 3	Length: 4.7 m	Width: 3.4 m	Height: 50 cm	Wall width: 90 cm
Ruin description: Small structure built between two low boulders. An entrance is visible to the W. Of the walls, only the lower stone courses are preserved, but no collapse is lying about, so the remainder of the walls must have been built in turf.				
Type/function: <i>Sheep/goat shed?</i>			Seen towards: SW	Build. Mat.: Turf/stone

Ruin no.: 25	Length: 3.6 m	Width: 3.4 m	Height: 30 cm	Wall width: 75 cm
Ruin description: Small structure built between low boulders. An entrance is visible to the SE. Of the walls, only the lower stone courses are preserved, but no collapse is lying about, so the remainder of the walls must have been built in turf.				
Type/function: <i>Sheep/goat shed?</i>			Seen towards: W	Build. Mat.: Turf/stone

Feature A: While post-processing the survey-data, a possibly new feature at E80c was recognized from GoogleEarth satellite imagery: just right of and following the dashed line in Fig.9 is a likely infield dyke, which was however not recorded during the field survey.



Fig.9 GoogleEarth satellite imagery of E80c and with the extent of a possible unregistered infield dyke.

Ruin Group Summary

With 25 registered ruins, ruin group Ø80 would appear a very large farmstead. However, as discussed the site seems to consist of three units: Ø80a with dwelling and 3 ruins, Ø80b with dwelling and 18 ruins, and Ø80c with dwelling and 3 ruins. The smaller Ø80a and Ø80c both lie ca. 800m from the larger ruin Ø80b, which appears to short a distance for them to have functioned as shielings. In all likelihood, then, Ø80a and Ø80c were small dependent farms to Ø80b; neither of them had an identified byre. With a total of 19 ruins, Ø80b must in itself still be considered a substantial farmstead.

Midden Assessment

Coordinates (UTM 23N: 478.238,2/ 6.713.253,2)

Judgmental and systematic midden assessment revealed a midden that was ca. 10-20 cm thick in most places, but the preservation was poor. Only occasional bone mash was recovered from the core blade. No further zooarchaeological work is recommended at this site in the near future. Cleaning of a small section of the old drainage cutting through the midden confirmed the coring results, as no preserved organic material was present in this profile.

E89a – TASIUSSARSSUK

60V2-0IV-634

Small farmstead/full shieling

Coordinates (UTM 23N: 480.230,2/ 6.716.773,9)

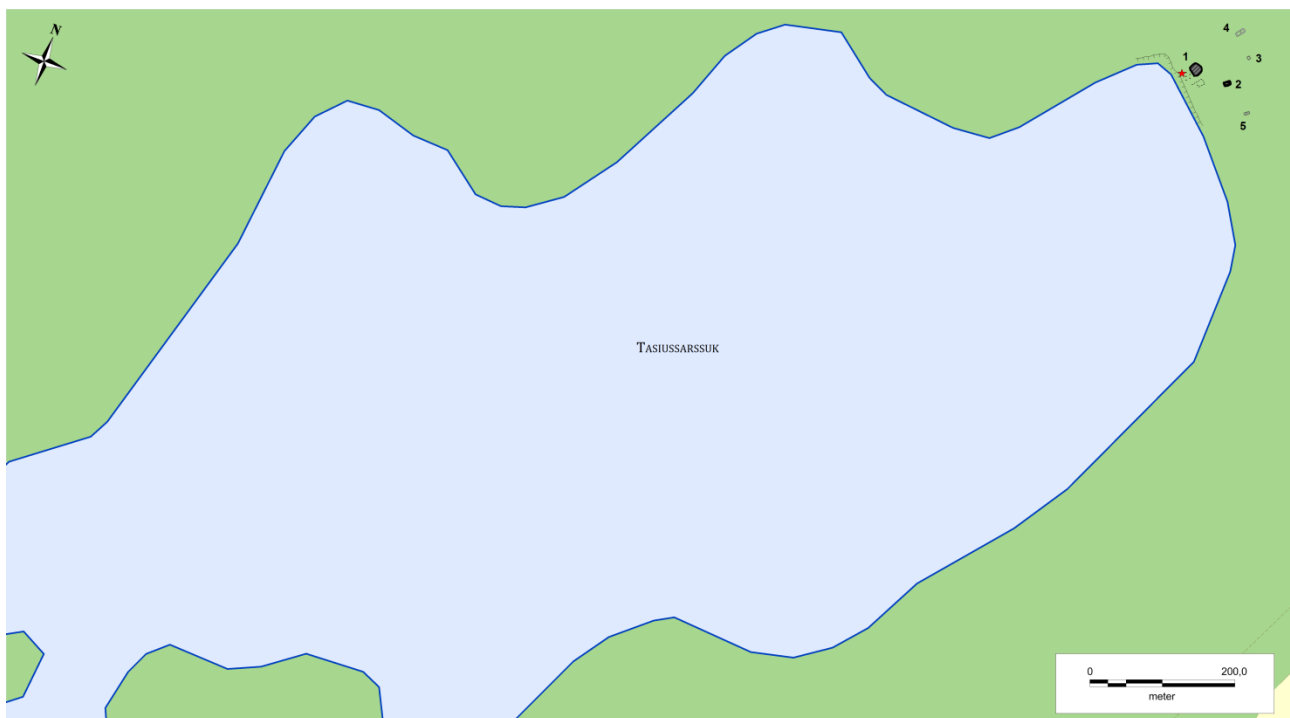
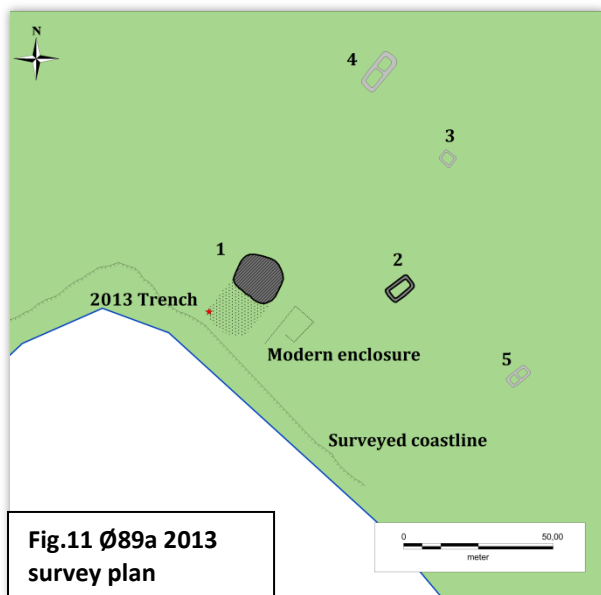


Fig.10 Ø89a 2013 survey plan; below: close-up (Fig.11).

Earlier work: NMA: Holtved 1932, NMA: Bak 1968

Ruin Group Description


Ø89a is located at the head of a very deep and perfectly sheltered inlet; the mouth of the inlet – some 1.7 km from ruin group – is only some 100 meters wide, where after it opens up into a lake-like basin. At the head of this basin is a horseshoe green shaped valley, which upon closer inspection proves to be less fertile than first perceived, the valley is dominated by mire and dwarf shrub heath. The ruins lie at the head of the inlet, very close to shore and right next to a small stream.





Ø89a was visited on behalf of the National Museum of Greenland (NKA); the sheep farmer Otto Nielsen from Qallimiut have requested permission to use the valley for potato fields and the NKA wanted to have the ruins inspected. Also, the ruin group lies within a case study area of the CIE selected after the field season. A slightly eroding midden in down slop from the dwelling allowed for making a small trench. The site have been used as a sheep gathering station, with old fencing left standing just S of the dwelling ruin no. 1, but otherwise not interfering with the ruins.


Ruin and Feature Descriptions


(numbering after NMA: Holtved 1932).

Ruin no.: 1	Length: 15.4 m	Width: 14.4 m	Height: -	Wall width: -
Ruin description: Fairly large and grass covered, but low farm mound with a few protruding stones. From the edge of the dwelling, the slope steepens down towards the inlet; here a large midden area is found and is partly eroding in its edge				
Type/function: <i>Dwelling</i>			Seen towards: E	Build. Mat.: Stone/turf

Ruin no.: 2	Length: 9.25 m	Width: 5.6 m	Height: 40 cm	Wall width: 110 cm
Ruin description: Very indistinct ruin of a rectangular building. The building seem to have been sunk slightly into the surface; a few possible fallen over stall stones suggest that this could have been a small byre. This is also indicated by the thick walls.				
Type/function: <i>Byre/barn</i>			Seen towards: NE	Build. Mat.: Turf/stone

Ruin no.: 3	Length: 4.75 m	Width: 4.15 m	Height: 20 cm	Wall width: 60 cm
Ruin description: Stone foundation for an almost square turf building with one single room. It appears to have had an entrance towards the SW.				
Type/function: <i>Unknown</i>			Seen towards: N	Build. Mat.: Stone foundation

Ruin no.: 4	Length: 14.0 m	Width: 6.0 m	Height: 30 cm	Wall width: 120 cm
Ruin description: Rectangular very collapsed building, which appear to have had walls with an inner face of stone and outer turf padding; the ruin was partitioned into two rooms.				
Type/function: <i>Livestock building</i>			Seen towards: SW	Build. Mat.: Turf/stone

Ruin no.: 5	Length: 7.9 m	Width: 4.1 m	Height: 20 cm	Wall width: 80 cm
Ruin description: The very faint traces of a stone foundation for a turf building, divided into two rooms.				
Type/function: <i>Sheep/goat shed?</i>			Seen towards: SW	Build. Mat.: Stone foundation

Midden Assessment

Judgmental and systematic midden assessment revealed a midden that was ca. 10-20 cm thick in most places, but the preservation was poor. Not even occasional bone mash was recovered from the core blade. No further zooarchaeological work is recommended at this site in the near future. Cleaning of a small section of an eroding midden edge, confirmed the coring results as no preserved organic material was present in this profile.

Home field trenching

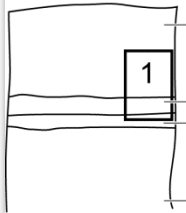
Ø89A	Description	Field Interpretation
	10YR 2/2 organic sandy loam	A1 Peat formation eroded material accumulation
	10YR 2/1 peaty loam	A2 E Landnám surface; podzol B
	10YR 4/2 sand	
	7.5YR 3/3 sand	

Fig.12 Home field trench section at Ø89a - see Fig.11.

Ruin Group Summary:

With 5 registered ruins, one of them a moderate sized dwelling, ruin group Ø89a probably represents a very small farmstead, or perhaps even a full shieling. The small size of the farm corresponds with the meager vegetation found near the site.

E96 – SAQARMIUT

60V2-0IV-634

Middle-sized farmstead

Coordinates (UTM 23N: 486.749,8/ 6.714.851,6)



Fig.13. 180 degrees of the headland with Ø96 (located near the greenest patch on the right), seen towards the SW. Ruin group Ø150 is located at the bay on the right side of the photo (photo: C.K. Madsen 2013).

Earlier work: Holm 1883:130, NMA: Roussell 1935

Ruin Group Description

About two thirds into the Uunartoq fjord the mountain Innap Qava (1110m.a.s.l.) juts out into the fjord as a small peninsula; ruin group Ø96 is located at southern foot of this mountain. There, the terrain slopes gently from the fjord over the first ca. 300m, thereafter quickly steepening. Most of the ruins are found on the edge of the flat part of the slope just where it begins to steepen. Although the flat part of the slope appears green, it turns out to be swampy and vegetated by low dwarf shrub heath. The only patches of real grassland are found near the dwelling.

On the very tip of the peninsula is a number of Thule-culture winter houses (not surveyed), but Thule-culture graves are found in the terrain all around the ruins. Most of these were surveyed, but not included in this report. The concentration of Thule-culture features – as well as the placing of the Norse farmstead – could be related to the soap stone quarry which is found a couple of hundred of meters ESE of the ruins.

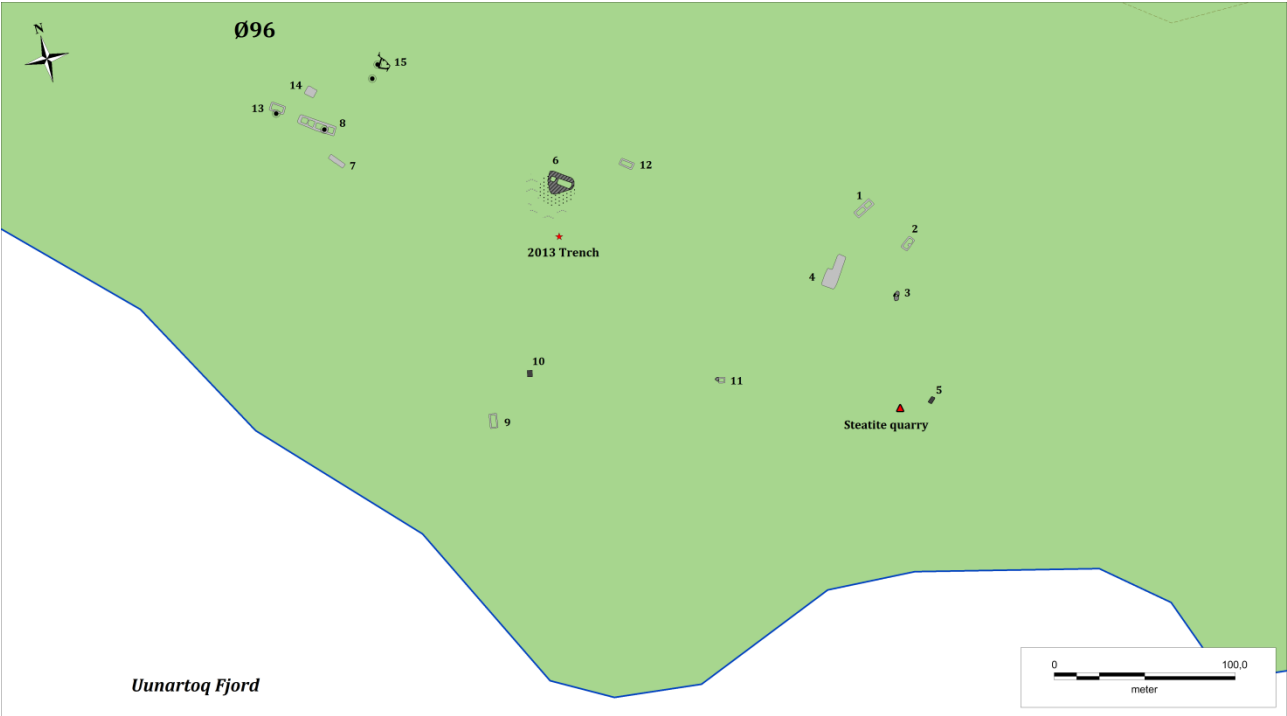





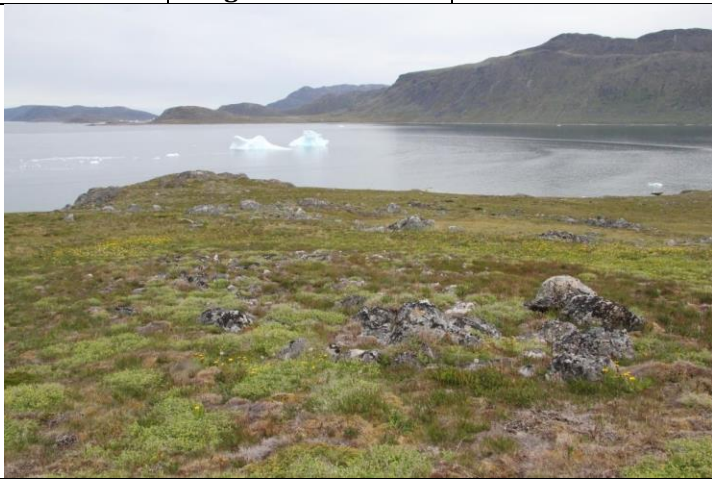
Fig.14. Ø96 2013 survey plan.


Ruin and Feature Descriptions:
(numbering after NMA: Roussell 1935).


Ruin no.: 1	Length: 11,5 m	Width: 4.25 m	Height: -	Wall width: 95 m
Ruin description: Fairly well-preserved rectangular building divided into two rooms.				
Type/function: <i>Livestock building</i>			Seen towards: SW	Build. Mat.: Turf/stone


Ruin no.: 2	Length: 7.65 m	Width: 4.15 m	Height: -	Wall width: 80 cm
Ruin description: Small rectangular building barely preserved above ground level and divided into two small rooms. The building appears to have been dug – at least 40 cm – into the surface.				
Type/function: <i>Unknown</i>			Seen towards: SW	Build. Mat.: Turf/stone


Ruin no.: 3	Length: 2.7 m	Width: 0.95 m	Height: -	Wall width: 70 cm
Ruin description: Small room created by building dry-stone wall between two large boulders.				
Type/function: <i>Shelter/pen</i>			Seen towards: SE	Build. Mat.: Stone


Ruin no.: 4	Length: 18.95 m	Width: 7.70 m	Height: 10 cm	Wall width: -
Ruin description: Indistinct ruin mostly visible as an area with many stones in the surface, but barely rising above ground level.				
Type/function: Livestock building			Seen towards: SW	Build. Mat.: Turf/stone


Ruin no.: 5	Length: 3.7 m	Width: 2.10 m	Height: -	Wall width: -
Ruin description: Small completely collapsed stone building located on a slightly elevated wind exposed rocky outcrop directly onto the bedrock. There is hardly enough collapse stone for the building to have stood very large, although some stones have undoubtedly been removed to build the nearby Thule-culture graves. The soapstone quarry is found just a few meters to the W.				
Type/function: <i>Storehouse</i>			Seen towards: SW	Build. Mat.: Stone


Ruin no.: 6	Length: 14.6 m	Width: 11.9 m	Height: -	Wall width: -
Ruin description: Fairly large, but very low farm mound with many protruding smaller stones. 2, perhaps 3, rooms are seen in the E side of the ruin, one of them fairly large. SW of the ruin is an area with different lush vegetation indicating midden, but coring revealed nothing in the sort of proper midden layers. Neither did test trenches dug by Roussell.				
Type/function: <i>Dwelling (?)</i>			Seen towards: WSW	Build. Mat.: Turf/Stone


Ruin no.: 7	Length: 9.7 m	Width: 2.8 m	Height: 50 cm	Wall width: -
Ruin description: Rectangular stone foundation for turf building made from larger rounded stones. In the northern end the foundation stands preserved in two courses, in the southern end, only in one; the southern end may be a later addition of this two-room building.				
Type/function: Unknown			Seen towards: NW	Build. Mat.: Stone foundation


Ruin no.: 8	Length: 21.1 m	Width: 5.6 m	Height: 60 cm	Wall width: 110 cm
Ruin description: Fairly distinct rectangular building divided into four rooms. The walls have been made partly from larger rounded stones, now preserved in up to two courses. Some stones have been used to make a Thule-culture grave in the SW corner in one of the two middle rooms.				
Type/function: <i>Stable complex</i>			Seen towards: S	Build. Mat.:


Ruin no.: 9	Length: 7.9 m	Width: 4.2 m	Height: 30 cm	Wall width: 65 cm
Ruin description: Completely collapsed, but fairly distinct turf/stone building, rectangular. The foundation was made from larger rounded stones, now only preserved in one course. There is a more recent disturbance in the NW corner of the ruin.				
Type/function: <i>Sheep/goat shed?</i>			Seen towards: SSE	Build. Mat.: Stone foundation


Ruin no.: 10	Length: 3.6 m	Width: 2.8 m	Height: 30 cm	Wall width: -
Ruin description: Small and almost square collapsed stone building, now appearing as a pile of rounded stones.				
Type/function: <i>Storehouse?</i>			Seen towards: S	Build. Mat.: Stone

Ruin no.: 11	Length: 4.0 m	Width: 3.1 m	Height: 50 cm	Wall width: 65 cm
Ruin description: Foundation of larger rounded stone for a small turf building erected against a boulder.				
Type/function: <i>Unknown</i>			Seen towards: WNW	Build. Mat.: Stone foundation

Ruin no.: 12	Length: 7.6 m	Width: 3.8 m	Height: 40 cm	Wall width: 80 cm
Ruin description: Very indistinct and collapsed rectangular turf/stone building, now visible only as a slight elevated area with protruding rounded stones.				
Type/function: <i>Sheep/goat shed</i>			Seen towards: NW	Build. Mat.: Turf/stone

Ruin no.: 13	Length: 8.25 m	Width: 4.75 m	Height: 40 cm	Wall width: 80 cm
Ruin description: Completely collapsed rectangular stone/turf building. The walls are preserved in 1 course and were partly made from larger rounded stones. A Thule-grave has been built along the southern long wall, reusing some of the building stones.				
Type/function: <i>Unknown</i>			Seen towards: S	Build. Mat.: Stone/turf

Ruin no.: 14	Length: 5.6 m	Width: 4.8 m	Height: -	Wall width: -
Ruin description: Completely collapsed stone/turf building, apparently dug slightly into the slope. Now preserved only as a low depression with a pile of rounded stones.				
Type/function: <i>Unknown</i>			Seen towards: SW	Build. Mat.: Stone/turf

Ruin no.: 15	Length: 5.9 m	Width: 5.8 m	Height: 50 cm	Wall width: 65 cm
Ruin description: Stone built fold placed against a 90 degree angled vertical cliff face, thereby creating a sheltered corner. Although still wee-preserved, quite a few stones have been removed from the walls to build a massive Thule-culture grave in SW corner of the ruin.				
Type/function: <i>Fold</i>			Seen towards: WSW	Build. Mat.: Stone

Midden Assessment

Judgmental and systematic midden assessment revealed a midden that was ca. 15-20 cm thick in most places, but the preservation was poor. Not even occasional bone mash was recovered from the core blade. No further zooarchaeological work is recommended at this site in the near future.

Home field trenching

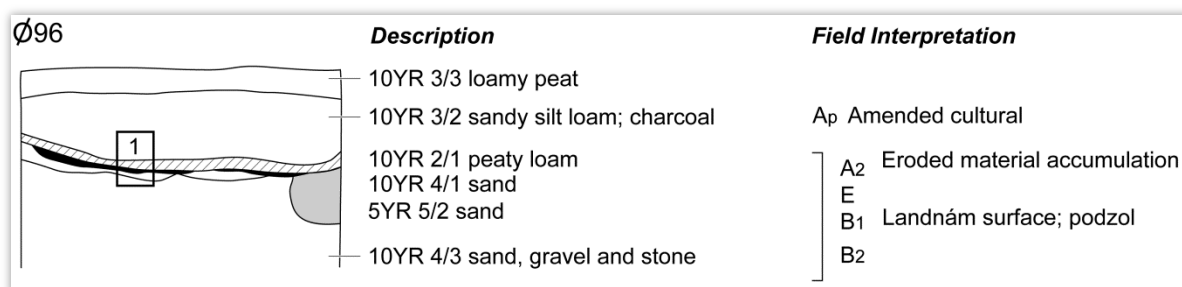


Fig.15 Home field trench section at Ø96 - see Fig.14.

Steatite quarry

Some 215 m WSW of the dwelling (ruin no. 6) and just below storehouse (no. 5) is a small steatite quarry which have been worked up to recently, as evident from the rusty tools still lying about. We searched the quarry for signs of Norse steatite extraction, but if such marks were once there, they have been removed by later quarrying. We searched the immediate vicinity for other steatites ores without finding any; such ores could be found elsewhere on the peninsula. It does not seem unreasonable that the presence of steatite – which is fairly rare in South Greenland – could account for the location of the Norse farmstead on what is otherwise a poor farming location. Surely, the steatite quarry could also explain the many Thule-culture features at the site; Thule-culture steatite extraction is likely to have removed any signs of Norse steatite mining.



Fig.16 The steatite quarry close to Ø96, seen towards the SE. Tools from recent quarrying are lying about (*photo: C.K. Madsen 2013*).

Ruin Group Summary

With a total of 15 ruins, Ø96 would appear a decent sized farmstead. However, the close inspection of the ruins show that they are mostly small and narrow buildings, and the dwelling of small size, rather indicating a type of fairly modest farmstead accentuating sheep- and goat herding, which would also correlate well with surrounding rather poor vegetation.

Medium farmstead

Coordinates (UTM 23N: 457.382,7/ 6.726.610,7)



Fig.17. 180 degrees view of the bay with run group Ø119 (located near the green patch on the right), seen towards the SW (photo: C.K. Madsen 2013).

Earlier work: Clemmensen 1911, NMA: Thorvildsen 1964, Albrethsen 1969, Møller *et al.* 2007:10

Ruin Group Description

The ruin was surveyed and described in 2007 (see Møller *et al.* 2007:10) and the following description only concerns the test trenches and the possible stretches of a home field dyke (A. in Fig.11) discovered in 2013.



Fig.18. Survey plan of Ø119 with possible stretches of home field dyke and trenches.

Ruin and Feature Descriptions

A: Stretches of home field dyke? Along the edge of the home field, one can in two places and over some distance (see Fig.19) follow a line of stones. This could be the remains of the Norse home field dyke. However, as the home field has been recently farmed (the foundations of houses and parts of a tractor are still scattered around the location), the line of stone may simply mark the boundary to where the fields were recently cleared of stones; or perhaps in Norse times? At any rate, the lines of stone are very inconspicuous and irregular and not truly convincing as wall foundations. On other hand, home field dyke foundations consisting of a few larger and interspersed stones are not unknown.

Fig.19 Possible Norse infield dyke or recent stone clearance line (photo: C.K. Madsen 2013).

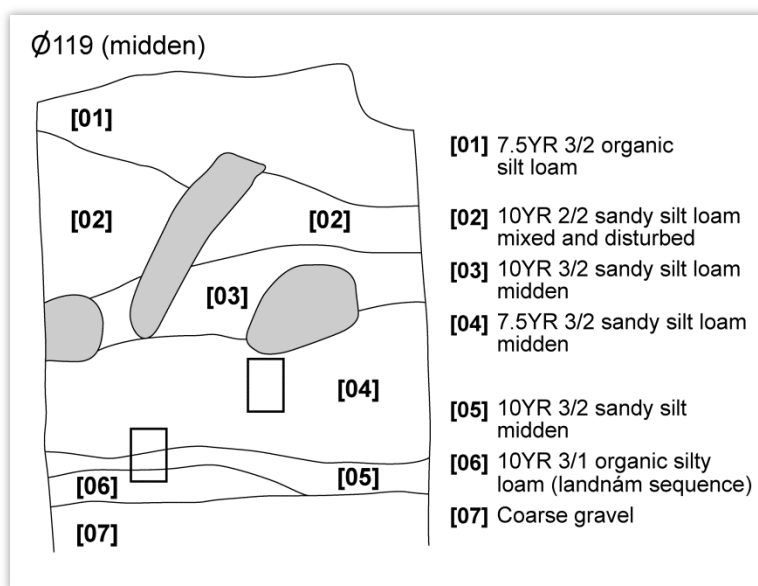
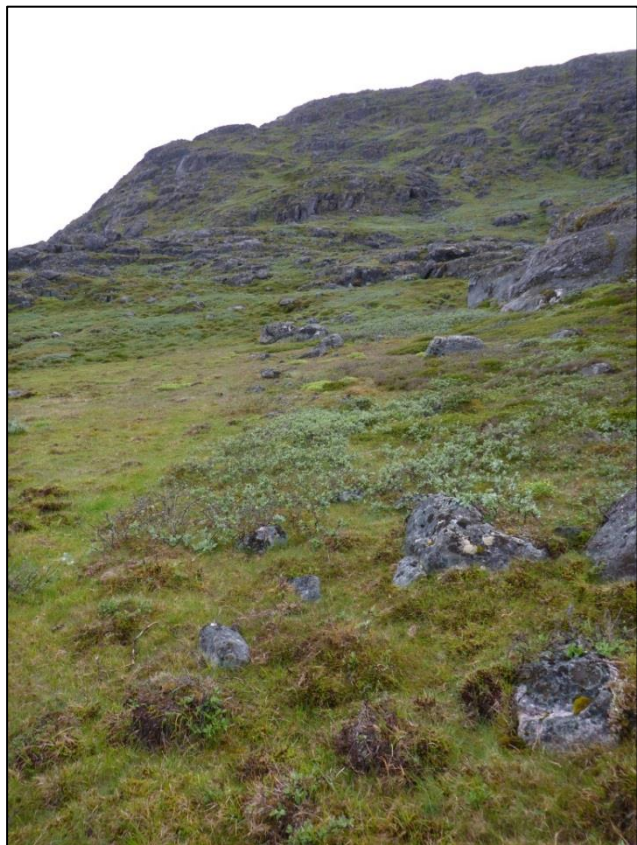


Fig.20 Section in midden at Ø119 - see Fig.18.

Midden Assessment

Judgmental and systematic midden assessment revealed a midden that was ca. 50-75cm thick in most places, but the preservation was poor. Only occasional bone mash was recovered from the core blade. No further zooarchaeological work is recommended at this site in the near future. Cleaning of two sections in an old foundation ditch (for 20th century building that does not exist anymore) that cut through the midden, confirmed the coring results, as very little poorly preserved organic material was present in these profiles.

Home field trenching

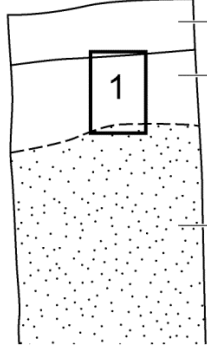
Ø119	<i>Description</i>	<i>Field Interpretation</i>
	10YR 4/2 organic silt loam occasional gravel, rare charcoal, rare bone	Ap Amended Cultural
	10YR 3/2 sandy loam and rounded/well rounded, well sorted gravel	B Fluvio glacial sands and gravels

Fig.21 Home field trench at Ø119 - see Fig.18

Ruin Group Summary

Apart from the survey of two newly discovered stretches of home field dyke, only follow-up correctional surveys were carried out on some of the ruins. The main focus of the 2013 field was the trenches in the home field and in the edge of the midden, where the foundations of a later sheep farmer's house had been cut into the midden and allowed for cleaning of a section?

Church Farm

Coordinates (UTM 23N: 484.102,7 / 6.712.712,0)



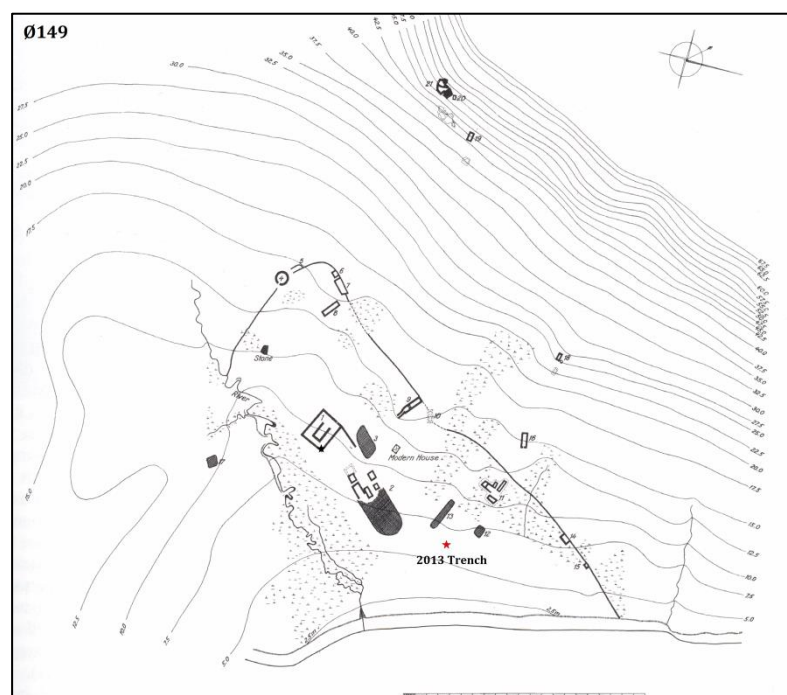
Fig.22. The plain with ruin group Ø149 seen towards the E (photo: C.K. Madsen 2013).

Earlier work: Vebæk 1945-46, 48.

Ruin Group Description

For description of this important church farm we refer to Vebæk (1991), who both surveyed and excavated this ruin group in 1945-46 and 1948. Apart from follow-up surveying and geo-referencing of some of Vebæk's ruins, our work at the site mainly consisted of making a trench in the home field and coring for midden preservation.

Fig.23. Georeferenced survey plan of Vebæk 1991 with the location of the 2013 trench.



Midden Assessment

Judgmental and systematic midden assessment revealed a midden that was ca. 50 cm thick in most places, but the preservation was poor. Only occasional bone mash was recovered from the core blade. No further zooarchaeological work is recommended at this site in the near future. Cleaning of a small section of the old drainage ditch located north of the dwelling, and cutting the midden confirmed the coring results, as no preserved organic material was present in this profile.

Home field trenching

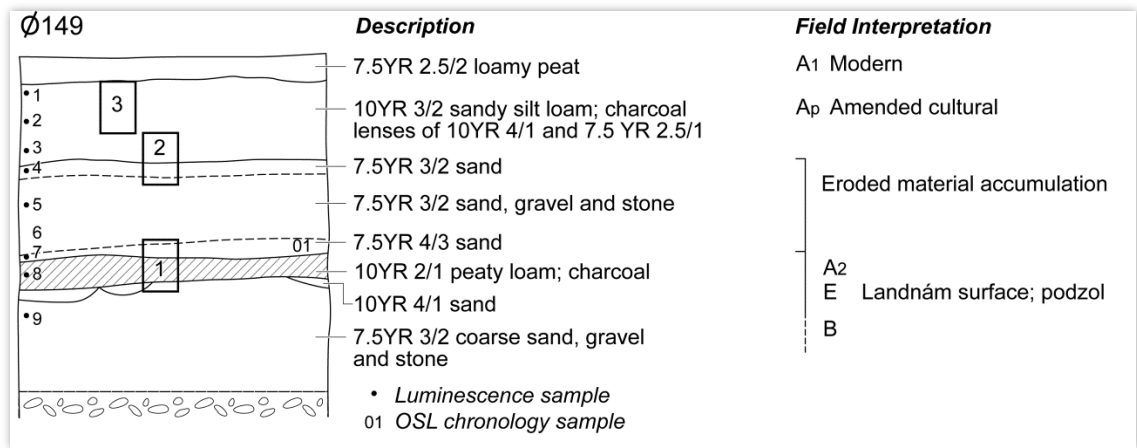


Fig.24 Home field trench section at Ø149 - see Fig. 23.

E150 – PUIATERAQ Qingua

60V2-0IV-506

Simple shieling

Coordinates (UTM 23N: 485.048,7/ 6.716.435,4)



Fig.25. The inner part of the bay and small plain with ruin group Ø150 , seen towards SE (photo: C.K. Madsen 2013).

Earlier work: NMA: Nørlund 1932, NMA: Bak 1968

Ruin and Feature Descriptions:


At the root of the mountain peninsula with ruin group Ø96 (see above) is a fairly deep and very shallow bay, where to small rivers spill into the fjord. Between the rivers and along the fjord is a small and fairly fertile, but also stony plain: most of Ø150's ruins are located here. About 100 meters from the fjord, the flat fertile plain rises abruptly onto a gravelly plateau, where the last of E150's ruins is located some 300 meter from the other ruins.


A number of Thule-culture and later features and ruins are found among the Norse ruins and it proved impossible to identify the ruins in the sketch survey of Bak 1968. Only the Norse features were systematically surveyed, renumbering them as we went along.




Fig.26 2013 survey plan of ruin group Ø150.


Ruin no.: 1	Length: 6.75 m	Width: 5.4	Height: -	Wall width: 90 cm
Ruin description: Fairly well-preserved rectangular ruin dug well into a gravelly bank. The walls were made mostly in large rounded stones; an entrance was in the SE gable.				
Type/function: <i>Unknown</i>			Seen towards: NW	Build. Mat.: Stone/turf


Ruin no.: 2	Length: 3.3 m	Width: 2.45 m	Height: 50 cm	Wall width: 60 cm
Ruin description: Stone foundation to a small and almost square building. The foundation consists of one course of larger stones, although some stones were probably later removed to build the nearby Thule-culture meat cache.				
Type/function: <i>Unknown</i>			Seen towards: ESE	Build. Mat.: Stone foundation


Ruin no.: 3	Length: 11.6 m	Width: 4.65 m	Height: 50 cm	Wall width: 100 cm
Ruin description: Rectangular building divided into two rooms; the northern end with more stones is best preserved, the southern end only as a stone foundation.				
Type/function: <i>Unknown</i>			Seen towards: WNW	Build. Mat.: Turf/stone

Ruin no. 4: has been reinterpreted as a natural feature.

Ruin no.: 5	Length: -	Width: -	Height: -	Wall width: -
Ruin description: Small stretch of stone built wall or dam, angled at 90 degrees to create a small corner. It could be a natural feature associated with erosion along an old riverbed.				
Type/function: <i>Unknown</i>			Seen towards: W	Build. Mat.: Stone

Ruin no.: 6	Length:	Width:	Height:	Wall width:
Ruin description: Very collapsed turf/stone building; the walls are, however, fairly distinct, implying a rectangular one-room building.				
Type/function: <i>Unknown</i>			Seen towards: NE	Build. Mat.: Turf/stone

Ruin no.: 7	Length: 8.6 m	Width: 3.7 m	Height: 60 cm	Wall width: 110 cm
Ruin description: Rectangular fairly distinct building with walls preserved in up to two courses. The building is divided into two rooms, of which the eastern-most may be a later addition. There is also a chance that ruin 6 and ruin 7 were built together and that it is a small dwelling? However, coring revealed no midden deposits.				
Type/function: <i>Unknown</i>			Seen towards: ESE	Build. Mat.: Turf/stone

Ruin no.: 8	Length: 15.9 m	Width: 11.4 m	Height: 120 cm	Wall width: 90 cm
Ruin description: Very well-preserved stone enclosure built on a sloping gravelly surface (for drainage?). The box walls are in places preserved in up to 7-8 courses; an entrance is seen in the SE corner.				
Type/function:			Seen towards:	Build. Mat.:

Midden Assessment

Judgmental and systematic midden assessment revealed a midden that was ca. 10 cm thick in most places, but the preservation was poor. Not even occasional bone mash was recovered from the core blade. No further zooarchaeological work is recommended at this site in the near future. Cleaning of a small section of the old drainage cutting through the midden confirmed the coring results, as no preserved organic material was present in this profile.

Home field trenching

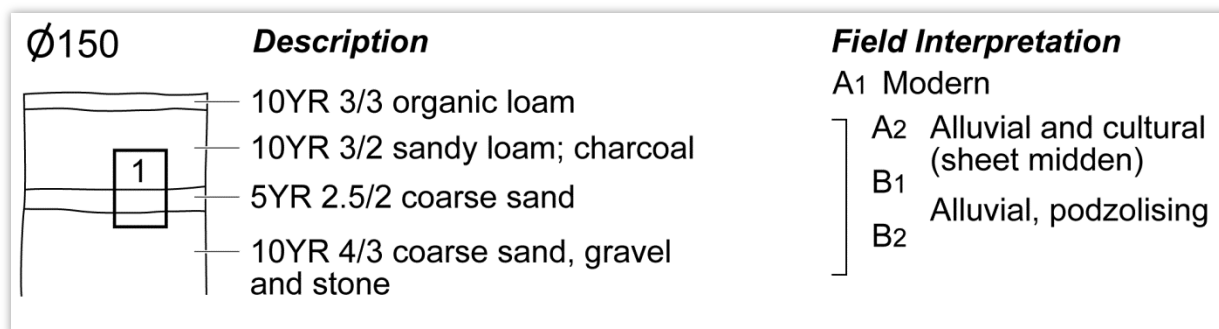


Fig.27 Home field trench section at Ø150.

Ruin Group Summary:

With 8 registered ruins, none of them a certain dwelling or byre/barn, Ø150 should most likely be interpreted as a shieling – probably connected to Ø96 (see above) and associated with exploiting upland pastures.

E157 – ILLORSUATASIAAT

60V2-III-528

Midden Assessment

Coordinates (UTM 23N: 475.411,8 / 6.705.884,3)

Judgmental and systematic midden assessment revealed a midden that was ca. 10-20 cm thick in most places, but the preservation was poor. Only occasional bone mash was recovered from the core blade. No further zooarchaeological work is recommended at this site in the near future

E162 – NARSAQ

60V2-III-527

Midden Assessment

Coordinates (UTM 23N: 486.326,6 / 6.704.441,4)

Judgmental and systematic midden assessment revealed a midden that was ca. 15 cm thick in most places, but the preservation was poor. Only occasional bone mash was recovered from the core blade. No further zooarchaeological work is recommended at this site in the near future.

Midden Assessment

Coordinates (UTM 23N: 465.956,1 / 6.730.023,0)

Judgmental and systematic midden assessment revealed a midden that was ca. 50-70 cm thick in most places, but the preservation was poor. Only occasional bone mash was recovered from the core blade. No further zooarchaeological work is recommended at this site in the near future. Cleaning of a small section of the old drainage cutting through the outer part of the midden confirmed the coring results, as no preserved organic material was present in this profile.

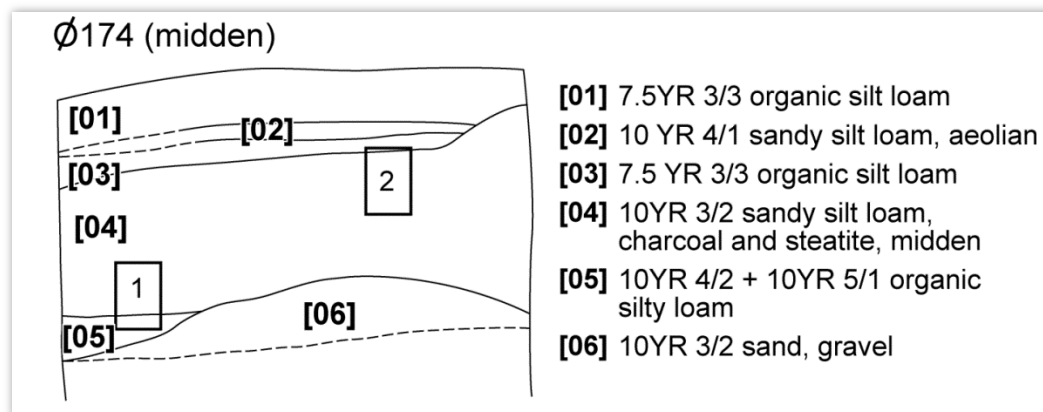


Fig.27 Section in midden at E174

Medium farmstead

Coordinates (UTM 23N: 462.881,2 / 6.726.868,5)

Ruin Group Description

For a description of the site, which was only briefly visited in 2013, see Heide&Madsen 2011:16pp. In 2011 the sheep farmer had showed us fragments of soap stone vessels that he had picked up by an eroding ruin (no.7) by the beach. One sherd was marked with a rune. In 2013 we went back to ask the farmer if could borrow this steatite sherd, only to find that the farm had been abandoned. We then proceeded to the next farm at Kangerluarsurujuk, where the farmer showed a nice steatite object he himself had picked up from the eroding ruin (Fig.28). The sheep farmer also pointed out some unnoticed ruins around his farm, although we had no time to survey these.



Fig.28. Ornamented front- and backside of the steatite found in the eroding ruin no. 7 of Ø182 (photo: C.K. Madsen 2013).

Midden Assessment

Judgmental and systematic midden assessment revealed a midden that was ca. 10-20 cm thick in most places, but the preservation was poor. Not even occasional bone mash was recovered from the core blade. No further zooarchaeological work is recommended at this site in the near future.

Home field trenching

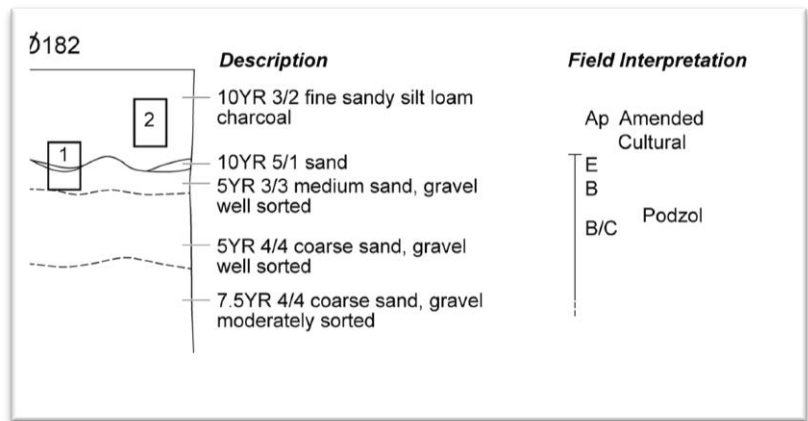


Fig.29 Home field trench section at E182

Ø184 – TASILUARAQ

60V2-0IV-579

Medium farmstead

Coordinates (UTM 23N: 468.991,9/ 6.729.398,3)



Fig.30. View of the plain with Ø184 seen towards the N (photo: C.K. Madsen 2013).

Earlier work: NMA: Vebæk 1950, NMA: Thorvildsen 1964, NMA: Albrethsen 1971, Møller *et al.* 2007:14p

Ruin Group Description

For a description of this ruin group refer to Møller *et al.* 2007. This site was visited only to clean up and sample a section in an old sheep farmer's drainage trench cut in the edge of the midden. However, as the present sheep farmer from Kangerluarsurojuuk dropped by, he directed our attention towards an undiscovered ruin some distance from the main cluster of ruins, as well as one on the island in the lake just NW. Unfortunately, we had no way of getting to the latter ruin.

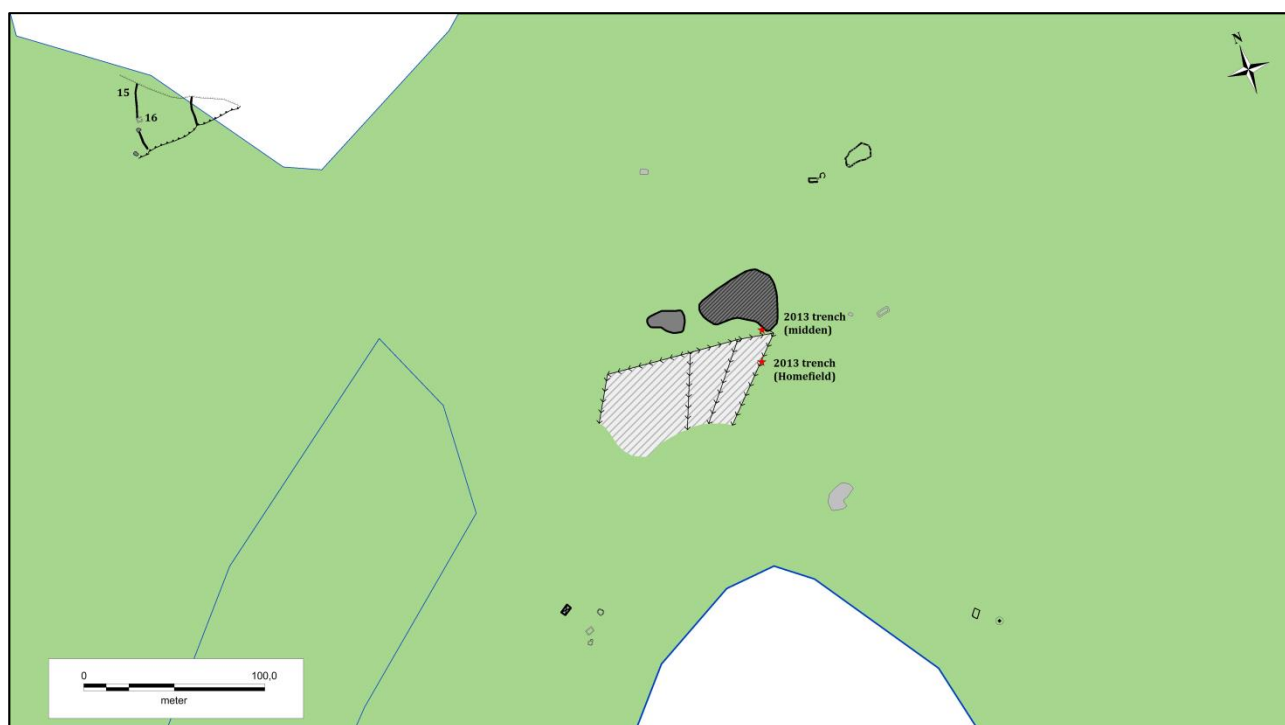




Fig.31. Survey plan of Ø184 with the new ruins nos. 15 and 16 and location of test trenches.

Ruin and Feature Descriptions

Ruin no.: 15	Length: 38 m	Width: 57 m	Height: 40 cm	Wall width: 100 cm
Ruin description: Large grazing enclosure created by bounding off an angle between a high vertical cliff face and a lake, thereby creating a large enclosure with reasonable grassland inside. A second wall divides the enclosure in two. Approx. in the middle of the western wall is a small turf house ruin no. 16. Although the lake is very shallow and the water clear, no trace that the walls would have extended out in to the lake could be seen.				
Type/function: <i>Enclosure</i>			Seen towards: W	Build. Mat.: Stone foundation

Ruin no.: 16	Length: 3.0 m	Width: 2.7 m	Height: -	Wall width: 80 cm
Ruin description: Small almost square turf building built together with the wall of ruin 15. The foundation consists of larger rounded stones.				
Type/function: <i>Unknown</i>			Seen towards: N	Build. Mat.: Stone foundation

Midden Assessment

Judgmental and systematic midden assessment revealed a midden that was ca. 50-70 cm thick in most places, but the preservation was poor. Only occasional bone mash was recovered from the core blade. No further zooarchaeological work is recommended at this site in the near future. Cleaning of a small section of the old drainage cutting through part of the midden confirmed the coring results, as no preserved organic material was present in this profile, despite the wet environment around the site (meadows).

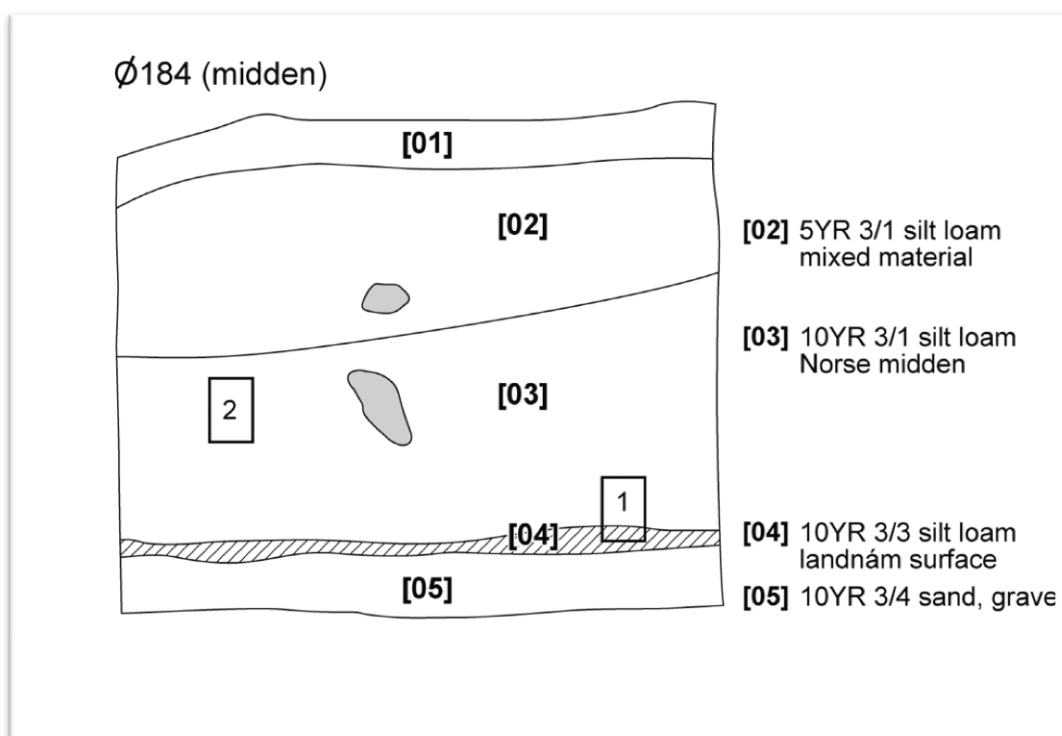


Fig.32 Cleaning section of old drainage at Ø184, see Fig. 31.

Home field trenching

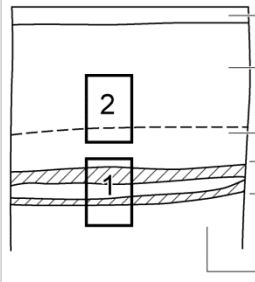
Ø184	Description	Field Interpretation
	root mat	
	10YR 3/1 peat, silt lenses	0m Post-settlement
	10YR 3/3 peat, fine silt lenses	0m Modified cultural
	10YR 2/1 peat, fine sand	0m Landnám surface
	7.5YR 3/3	0m Pre-landnám
	10YR 2/1 peat with fine sand	
	7.5YR 3/3 peat	

Fig.33 Home field trench section at Ø184, see Fig.31.

Ruin Group Summary

With 16 ruins, among them the newly identified large enclosure, which was undoubtedly related to pasturing livestock on the other side of the river draining the small lake NW of the ruin group, i.e. a type of shieling, Ø184 must be considered a middle-sized farmstead.

Ø331 – QENERTUT

60V2-0IV-581

The site was heavily damaged due to modern farming activity, and no midden was located.

Ø333 –

60V2-0IV-576

Small complex shieling

Coordinates (UTM 23N: 458.252,6/ 6.727.228,1)



Fig.34 the valley with ruin group Ø333 seen towards the NE. Ruins nos. 1 and 2 are located on the drained yellow knoll right center of the photo (photo: C.K. Madsen 2013).

Earlier work: NMA: Bak 1969

Ruin Group Description:

Ruin group Ø333 is located about 1 km NE of ruin group Ø119 at the head of a small valley that continues south towards the fjord, where it ends some 320 m ESE of Ø119. At the head of the valley, a meandering river has cut deeply into the gravel deposits, creating a meandering gorge; the ruin group sits one of the level gravel plateaus between the bends of these gorges. A bit of scrabing and coring showed that there is virtually no top soil, only a thin layer of vegetation that grows directly upon the gravel. Patches of grassland or mire are by in the river bed, but otherwise the vegetation is dominated by dwarf shrub heath. Besides from a basic survey, the site offered little in terms of sampling.

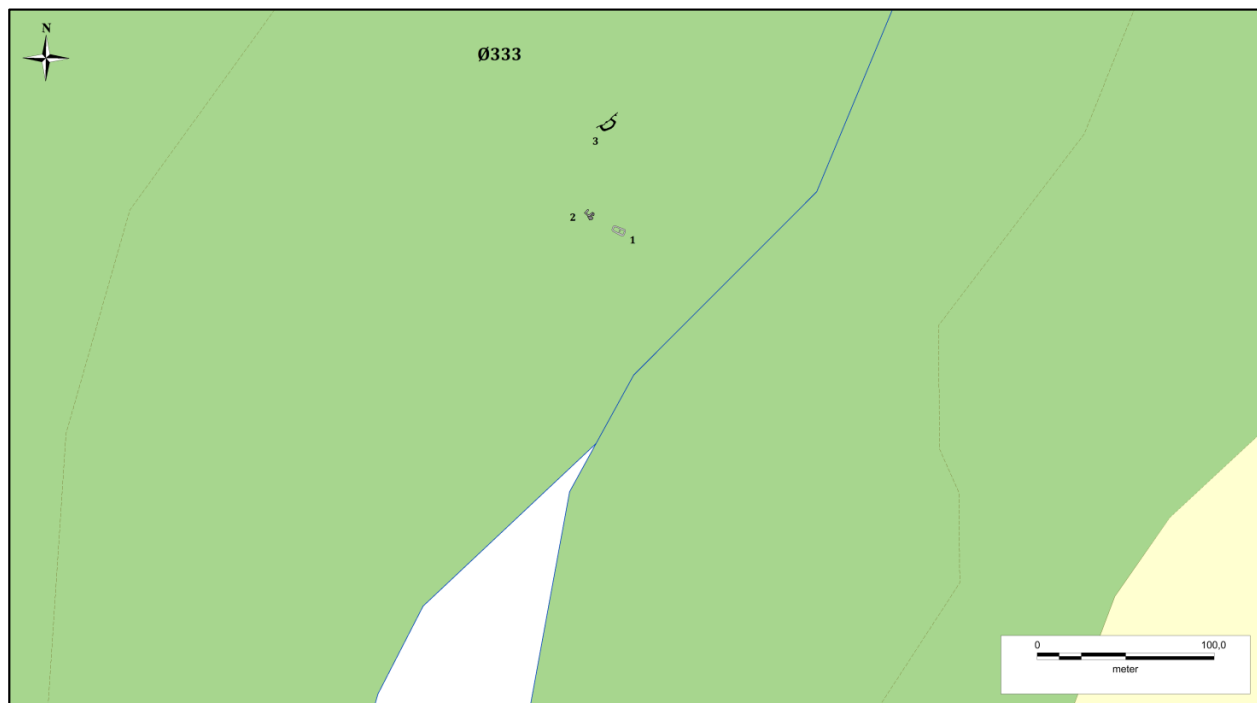





Fig.35 2013 survey plan of ruin group Ø333.

Ruin and Feature Descriptions

Ruin no.: 1	Length: 7.6 m	Width: 4.1 m	Height: -	Wall width: 80 cm
Ruin description: Small very low mound of collapse stones reveal a two-roomed building made in turf and stone. No evidence of midden.				
Type/function: Unknown			Seen towards: NW	Build. Mat.: turf/stone

Ruin no.: 2	Length: 3.85 m	Width: 3.55 m	Height: 50 cm	Wall width: 75 cm
Ruin description: Stone foundation for turf building erected on small drained outcrop. The walls have been made of smaller stones. An entrance must have been towards the north.				
Type/function: <i>Unknown</i>			Seen towards: SW	Build. Mat.: Stone foundation

Ruin no.: 6	Length: 8.6 m	Width: 4.5 m	Height: 120 cm	Wall width: 80-100 cm
Ruin description: Small fold built in stones against a vertical cliff face. The walls are preserved in up to 7 courses.				
Type/function: <i>Fold.</i>			Seen towards: SW	Build. Mat.: Stone

Ruin Group Summary:

With 3 ruins, none of them a sizable dwelling, ruin group Ø333 is undoubtedly a small shieling, which also corresponds with the poor vegetation in the valley. This shieling must have belonged to ruin group Ø119 (see above), which is the nearest farmstead.

Midden Assessment/profile cleaning

Judgmental and systematic midden assessment revealed a midden that was ca. 10-15 cm thick in most places, but the preservation was poor. Not even occasional bone mash was recovered from the core blade. No further zooarchaeological work is recommended at this site in the near future.

NEW RUIN GROUP 13_01

Simple shieling

Coordinates (UTM 23N: 463.043,8/ 6.728.684,5)



Fig.36. View of the new ruin group 13_01 seen towards the E. Most of the ruins are located around the massive split boulder seen centrally in the photo (*photo: C.K. Madsen 2013*).

Ruin Group Description:

North from Ø184 a valley stretches inland; the valley floor and sides is vegetated by rich shrub-heath and intermittent patches of mire and meadow. Some 1.9 km N of Ø184 the valley terminates in a perfectly horseshoe-shaped valley, the sides of which are vegetated by willow scrub surrounding a small lake in the middle. The ruin group is located on the SW edge of the small lake around a massive split boulder, which forms part of the ruins.

Since we did not know, but expected, that a shieling should be located there, only a two-man team equipped with GPS went to the site. However, the rather tall circling mountain ridge effected that we lost signal half-way through the survey and only part of the ruins were recorded. Although we spend some time searching for ruins, it must be expected that more ruins hide in the dense vegetation. On the way back to Ø184 we walked around the lake to look for additional ruins, but did not find any.

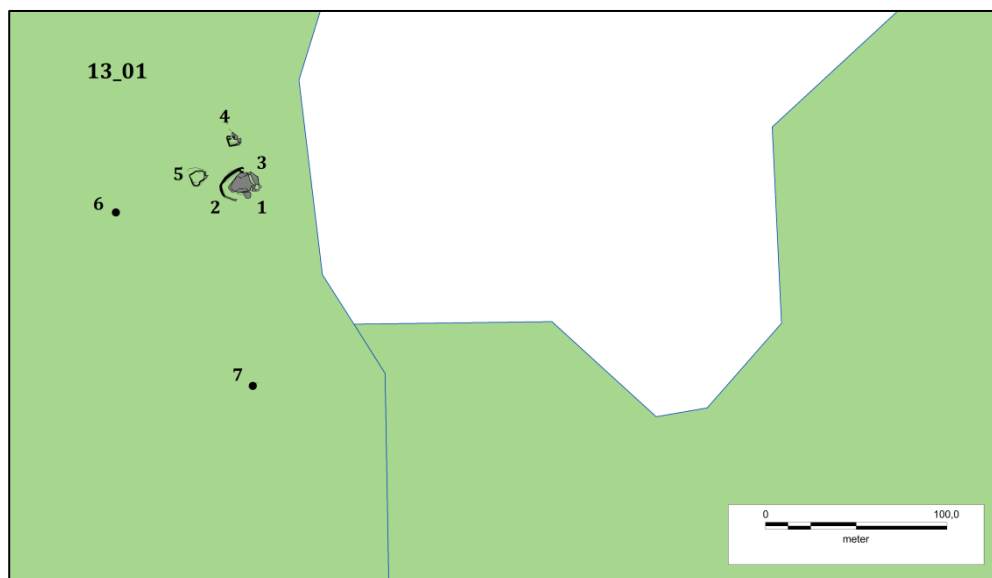






Fig.37. 2013 survey plan of the new ruin group 13_01 .


Ruin and Feature Descriptions:


Ruin no.: 1	Length: 3.8 m	Width: 3.2 m	Height: 40 cm	Wall width: 80 cm
Ruin description: Of all the ruins of 13_01, ruin 1 seems to have been the only one more regularly constructed, but still using the natural boulders for parts of the structure. From the back side of the small house was probably open to the crevice between the split massive boulder (ruin 3).				
Type/function: <i>Herder's shelter</i>			Seen towards: NW	Build. Mat.: Turf/stone


Ruin no.: 2	Length: 18.6 m	Width: 12.8 m	Height: 60 cm	Wall width: 100-120 cm
Ruin description: Foundation for an enclosure that runs against the side of, and partially around, the massive split boulder. The foundation stones are massive, in southern end consisting of one massive stone beam resting on its side. The boulder partly overhangs the enclosure, especially in the northern and southern ends, were regular low-roofed compartments have been created by building up small stretches of wall where necessary; in the N is a possible <i>lambakró</i>				
Type/function: <i>Enclosure</i>			Seen towards: NE	Build. Mat.: Stone foundation

Ruin no.: 3	Length:	Width:	Height:	Wall width:
Ruin description: Whereas the S of the crevice in the massive split boulder is blocked by ruin 1, the N end is blocked by a low wall, thereby creating a narrow room, which may or may not have been roofed.				
Type/function: <i>Unknown</i>			Seen towards: S	Build. Mat.: -

Ruin no.: 4	Length: 6.1 m	Width: 5.3 m	Height: 60 cm	Wall width: 60 cm
Ruin description: Enclosure created by building up stone wall between large natural boulders, thereby creating a somewhat lowered room. The ruin is preserved in up to 3 courses.				
Type/function: <i>Fold</i>			Seen towards: NE	Build. Mat.: Stone

Ruin no.: 5	Length: 8.7 m	Width: 7.8 m	Height: 120 cm	Wall width: 50 cm
Ruin description: Enclosure built at the edge of the boulder slope that rises west of the site. Partly using natural boulders, but mostly using nicely built stone wall – in places preserved in up to 4 courses, a sizable enclosure has been created.				
Type/function: <i>Enclosure</i>			Seen towards: SW	Build. Mat.: Stone

Ruin no.: 6	Length: -	Width: -	Height: 130 cm	Wall width: 50 cm
Ruin description: Some 30 meter above the main ruins in the boulder slope, one suddenly comes upon 4 neighboring small rooms created by simply piling up some of the round boulders and, in places, by erecting low stone walls. Since it is extremely difficult climbing the boulder slope, these rooms can hardly be sheep/goat pens. Perhaps it is a type of storehouse, placed at higher elevation for better ventilation?				
Type/function: <i>Unknown</i>			Seen towards: NE	Build. Mat.: Stone

Ruin no.: 7	Length: 5 m	Width: 4 m	Height: 150 cm	Wall width: 50 cm
Ruin description: Multiple-roomed shelter created by building wall – in places preserved in up to 6 courses –around the edge of a massive boulder, its overhanging ledges forming sort of roofing. There are several rooms or compartments. Unfortunately, we lost GPS signal before concluding the survey and measurements have simply been paced off.				
Type/function: <i>Shelter</i>			Seen towards: NE	Build. Mat.: Stone

Ruin Group Summary:

The 7 ruins of ruin group 13_01 are all of makeshift appearance, built rather simplistically and opportunistically wherever natural boulders offered an easy solution, i.e. a small shieling. The enclosures created are rather sizable, suggesting that this was a location for rounding up a substantial number of sheep/goats; however, the presence of more than one lambakró also suggests that this was a place where sheep/goats were milked, ruin no. 1 probably the herder's cabin, because it is the only ruin with more regular turf/stone walls.

With 3 ruins, none of them a sizable dwelling, ruin group Ø333 is undoubtedly a small shieling, which also corresponds with the poor vegetation in the valley. This shieling must have belonged to ruin group Ø119 (see above), which is the nearest farmstead.

SUMMARY – FIELD SEASON 2013

In addition to site surveys and sampling, the 2013 field season was carried out mainly to develop a consistent and robust methodology for sampling and dating sites, as well as to assess of middens and case study areas to focus on in the Comparative Island Ecodynamics in the North Atlantic (CIE). All of these goals were achieved and can be summarized accordingly:

- 19 Norse ruin groups were visited.
- DGPS-surveys were carried out at 11 ruin groups (E69, E80a-c, E89a, E96, E119, E150, E184, E333, and 13_01), and some 69 individuals ruins were surveyed and described.
- 1 new ruin group was located, simple shieling 13_01, as well as a steatite quarry at E96.
- Midden assessment was carried out 14 ruin groups, and 4 middens test trenched (E89a, E119, E174, E184. Midden preservation was found to be poor or non-existent in all of the tested middens.
- 9 relict Norse homefields were sampled and datable material retrieved.
- 3 new case study areas for the CIE were defined in the southern part of the Norse Eastern Settlement on the basis of the developed survey and sampling methodology.

In summary, the 2013 field season was a great success, only marred by the continued lack of midden preservation. We wish to thank all the sheep farmers, whose help and interest was a great help to us!



Fig.38 Sailing towards Uunartoq fjord in the fully loaded zodiac (photo: C.K. Madsen 2013).



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52504 (GU33599)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø60: Homefield

Sample Reference Sample 1

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -27.2 ‰

Radiocarbon Age BP 1108 \pm 25

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

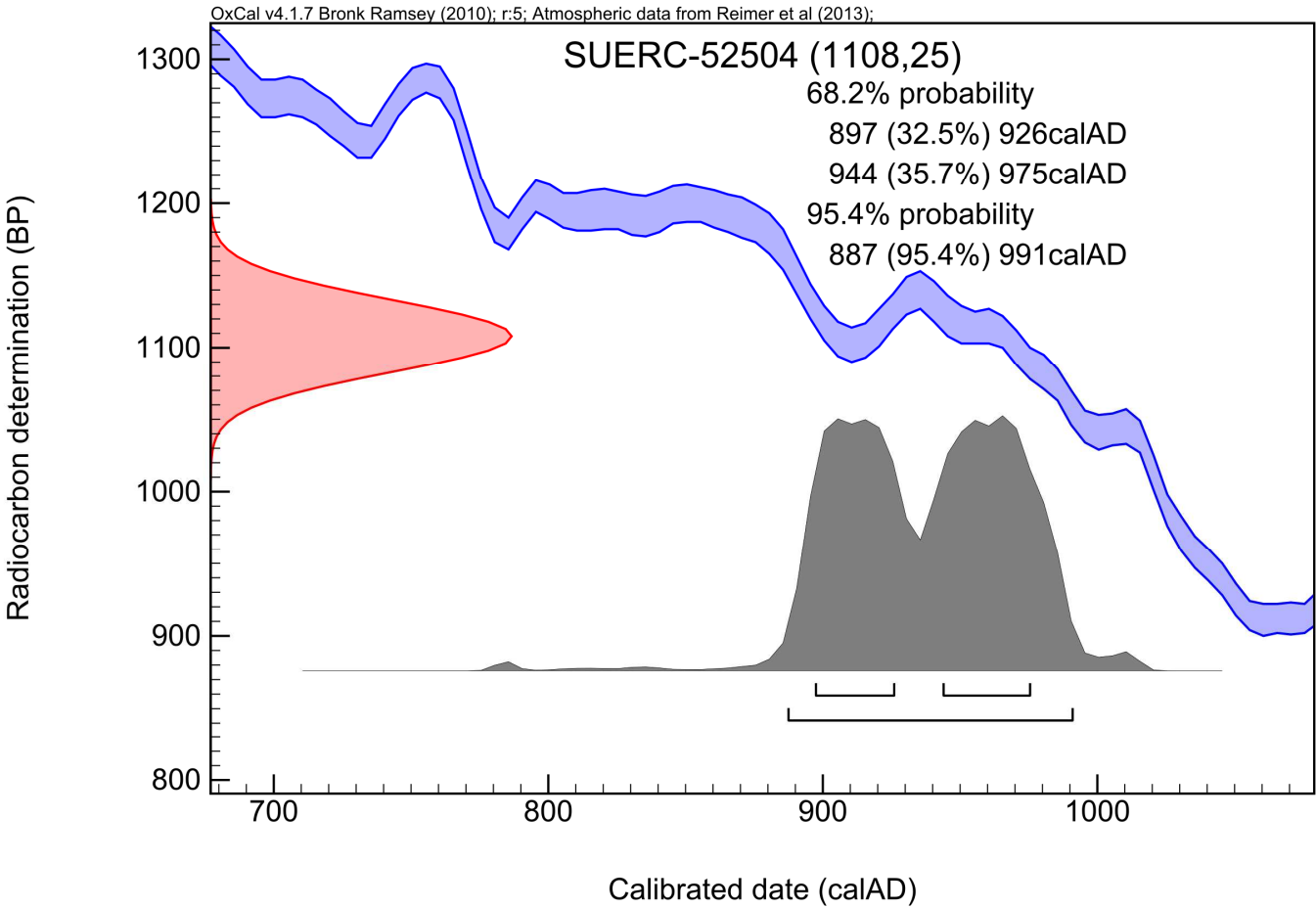
Date :-

Checked and signed off by :-

Date :-



Calibration Plot





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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52508 (GU33600)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø60: Homefield

Sample Reference Sample 4

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -27.2 ‰

Radiocarbon Age BP 1070 \pm 29

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

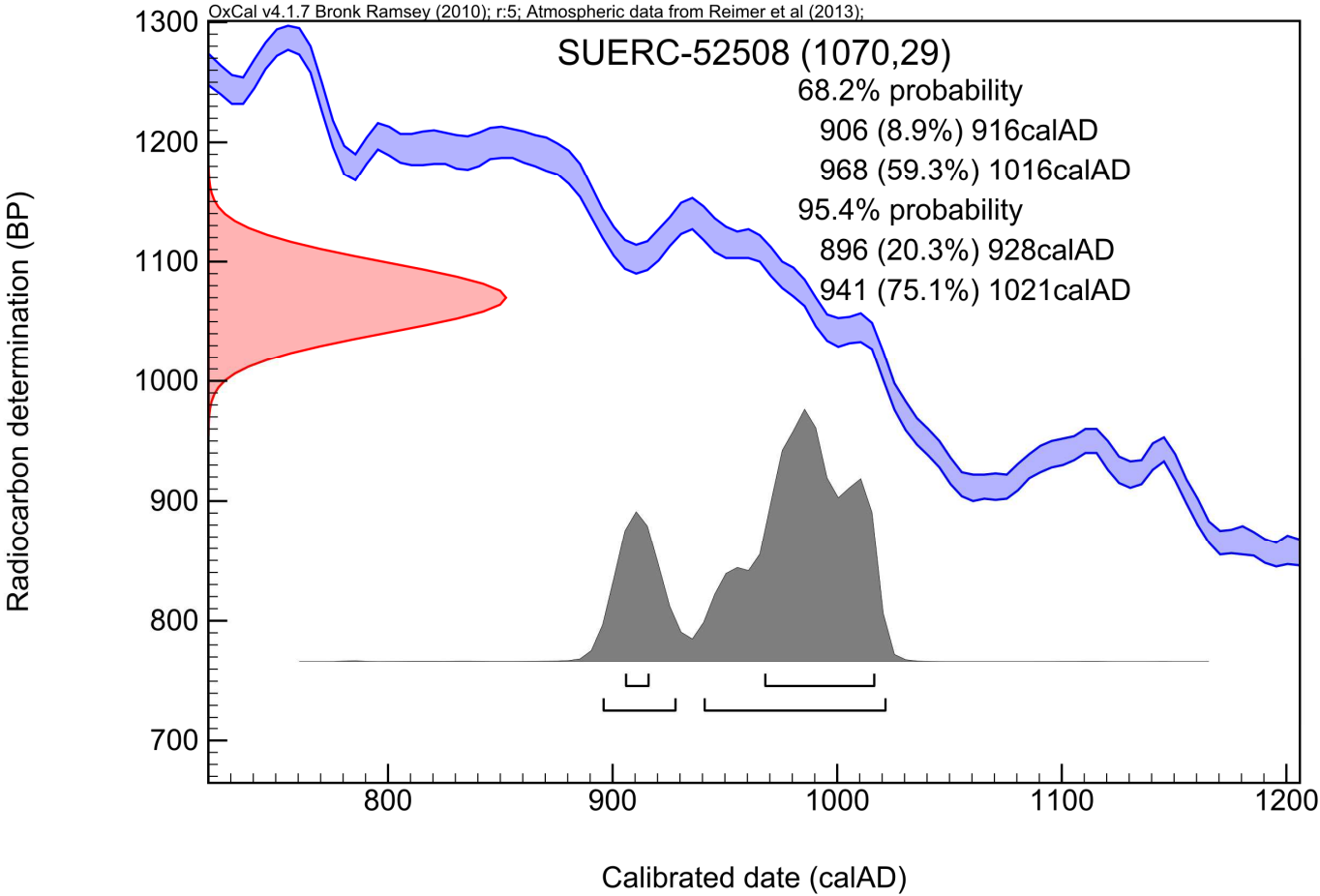
Date :-

Checked and signed off by :-

Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52509 (GU33601)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø80: Homefield

Sample Reference Lower landnám

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -25.7 ‰

Radiocarbon Age BP 1105 \pm 29

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

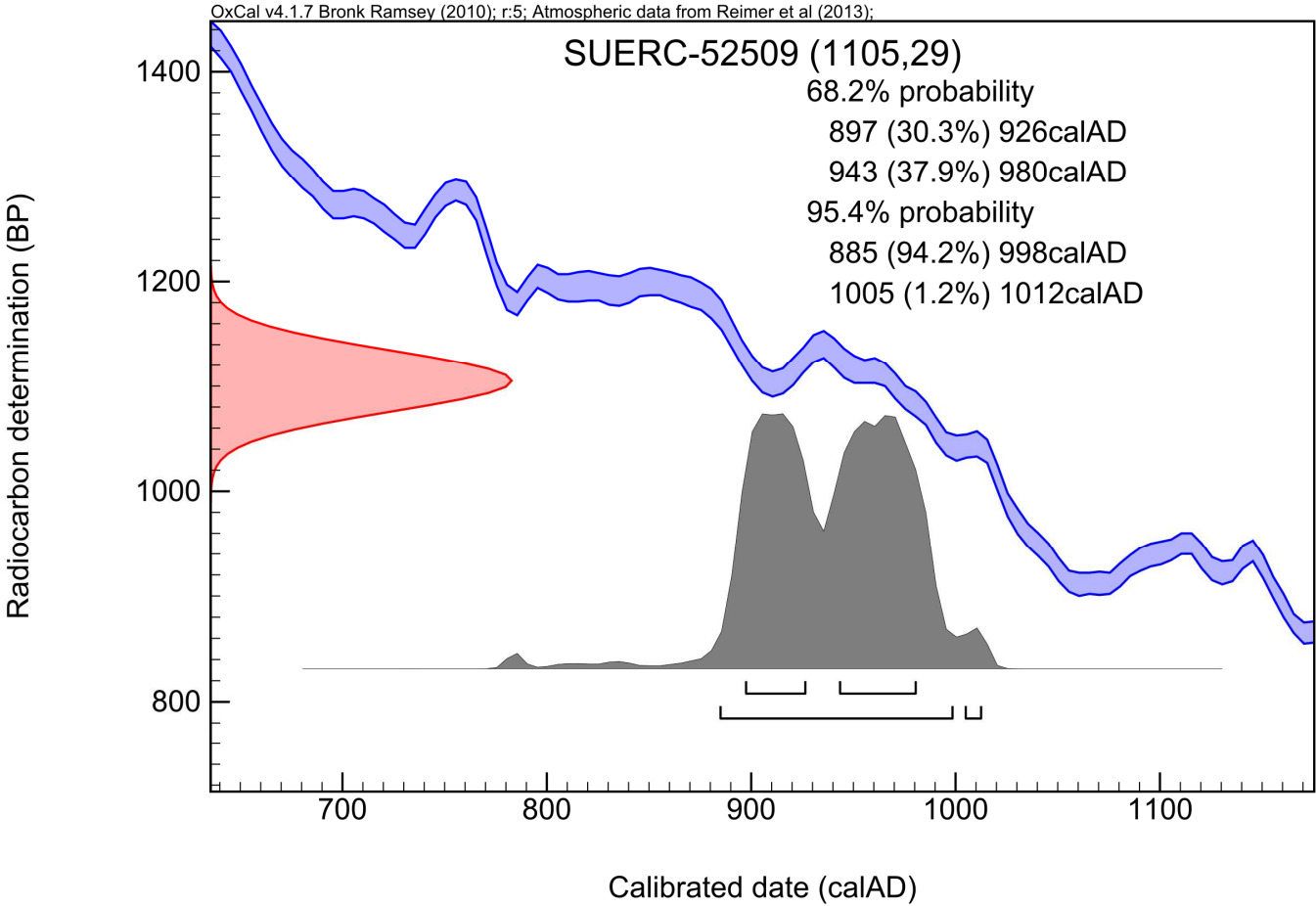
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Checked and signed off by :-

Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52510 (GU33602)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø80: Homefield

Sample Reference Upper horizon

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -27.1 ‰

Radiocarbon Age BP 1037 ± 26

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

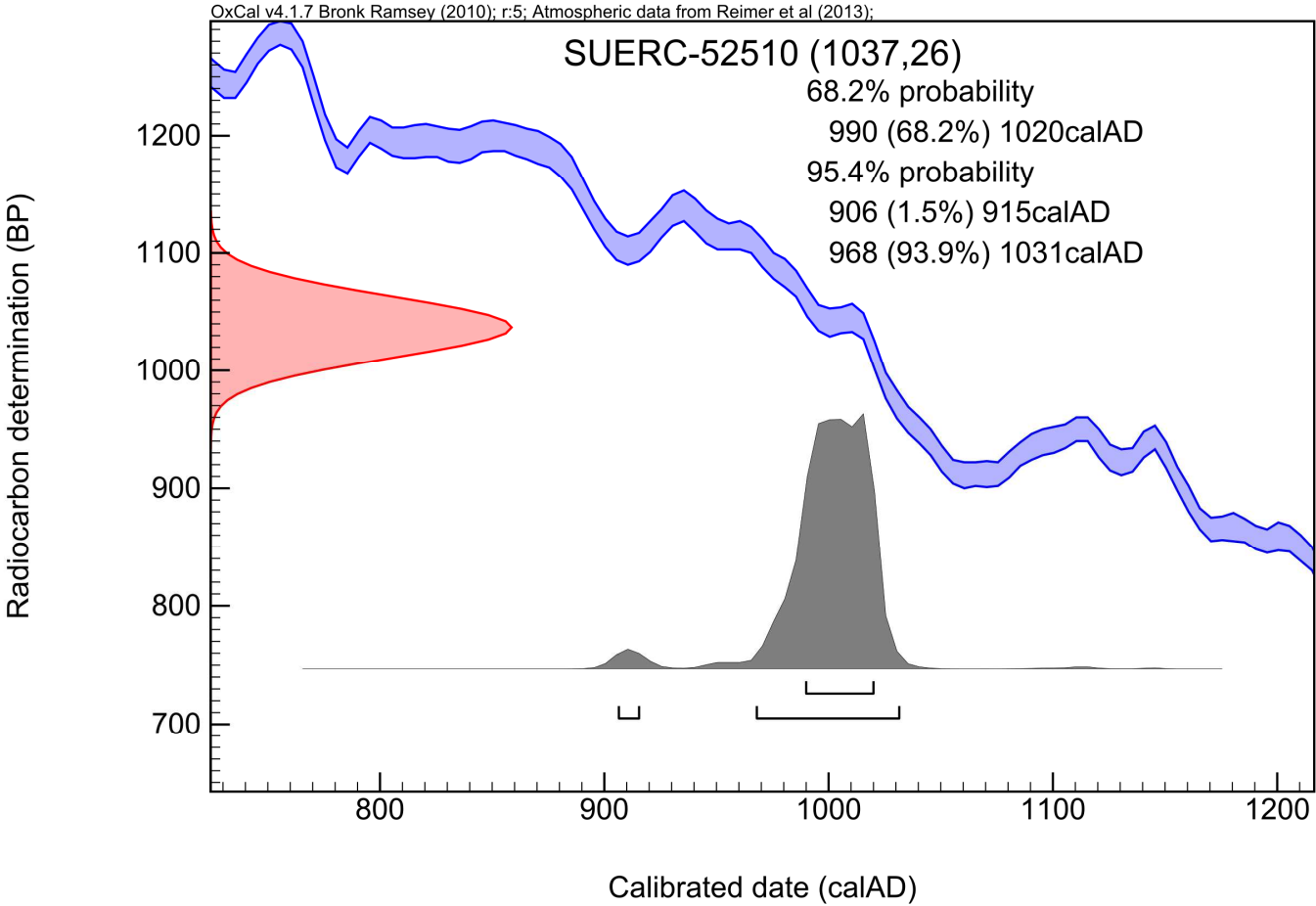
Date :-

Checked and signed off by :-

Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52511 (GU33603)

Submitter Ian Simpson
Biological and Environmental Sciences
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Stirling FK9 4LA

Site Reference Ø119: Midden

Sample Reference [03]

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -24.3 ‰

Radiocarbon Age BP 612 ± 29

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

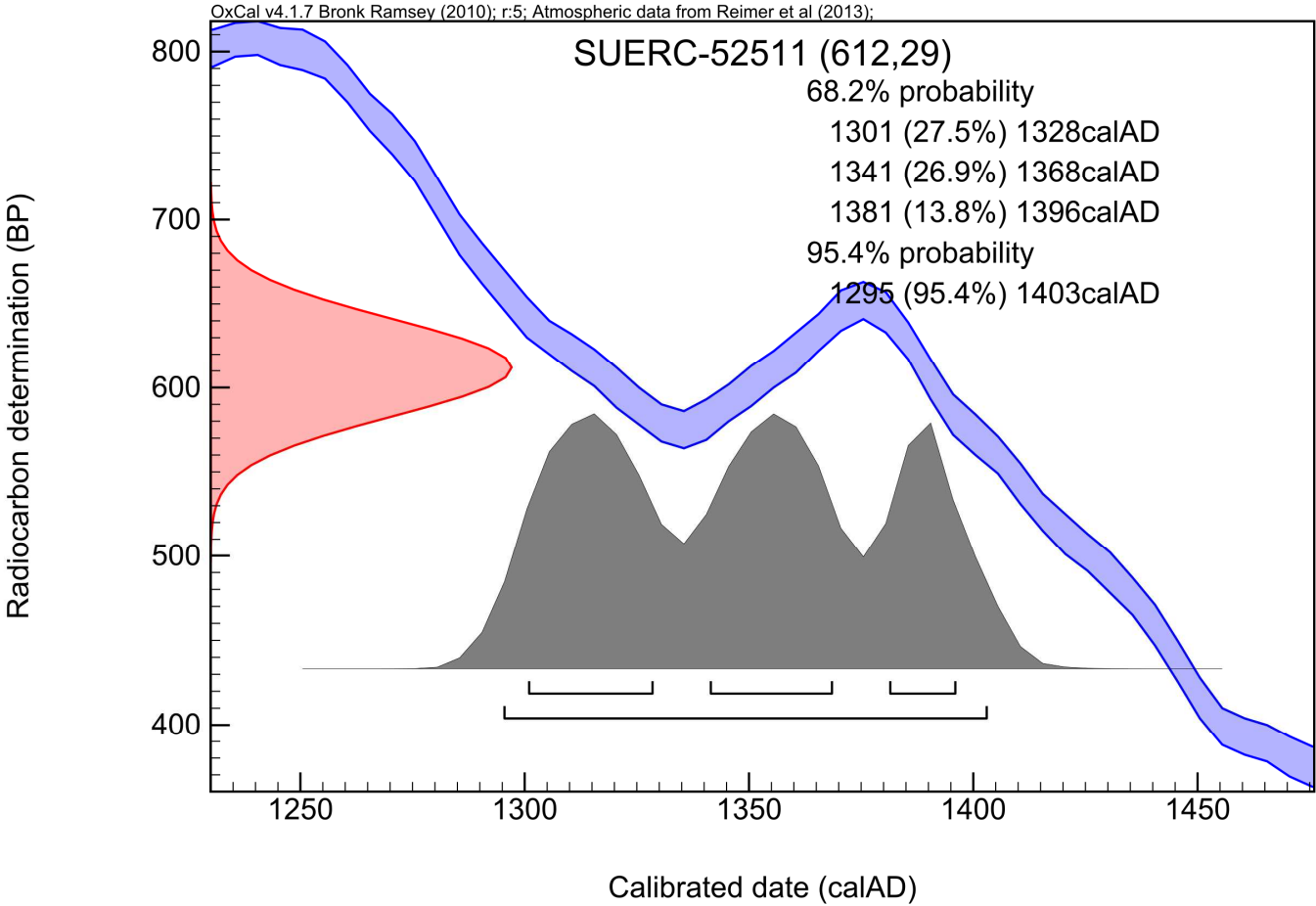
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Checked and signed off by :-

Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52512 (GU33604)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø119: Midden

Sample Reference [04 – upper]

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -25.7 ‰

Radiocarbon Age BP 886 ± 29

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

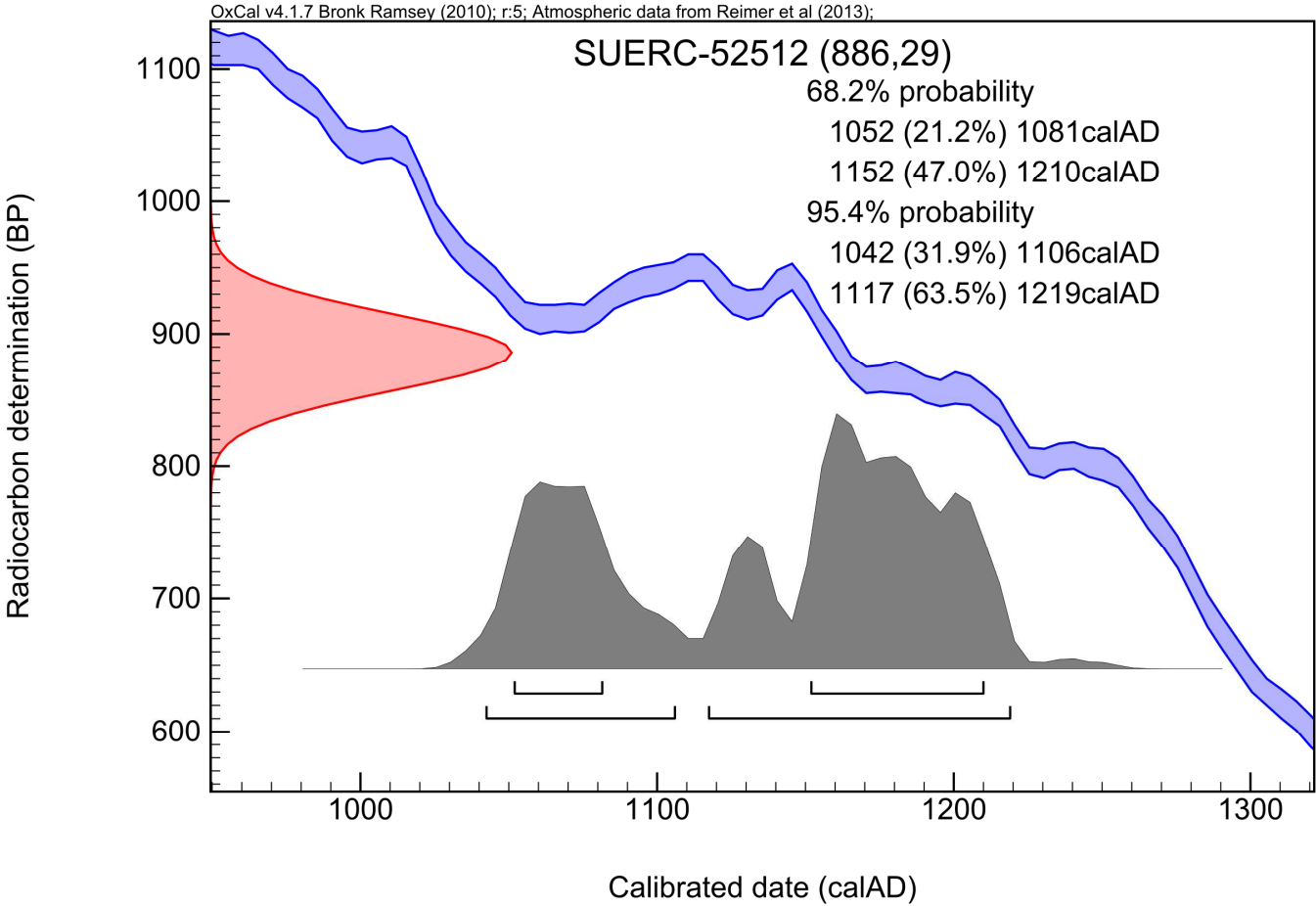
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Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52513 (GU33605)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø119: Midden

Sample Reference [04 – lower]

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -27.2 ‰

Radiocarbon Age BP 990 ± 29

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

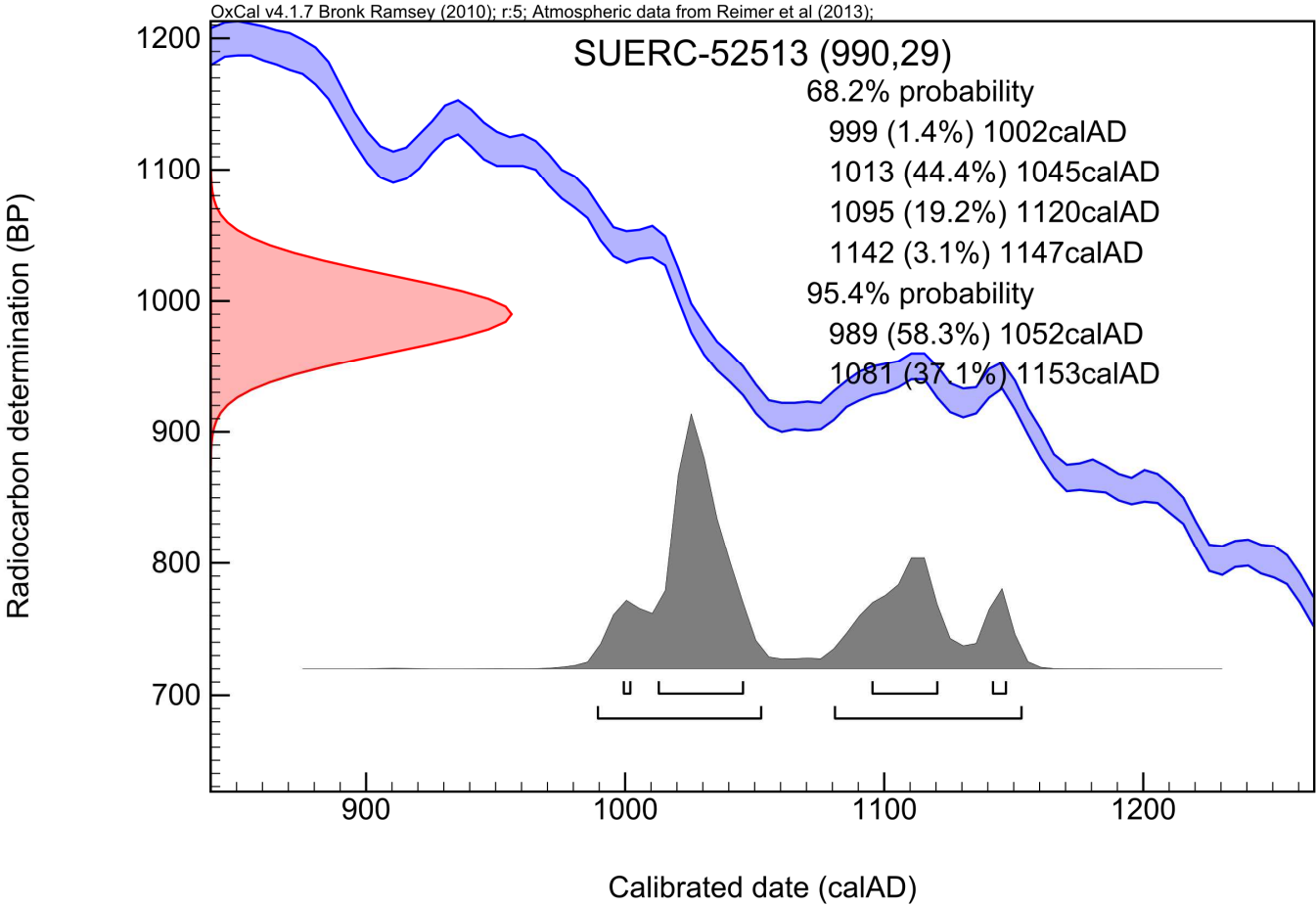
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Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52514 (GU33606)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø174: Midden

Sample Reference [04 – upper]

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -27.6 ‰

Radiocarbon Age BP 692 ± 26

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

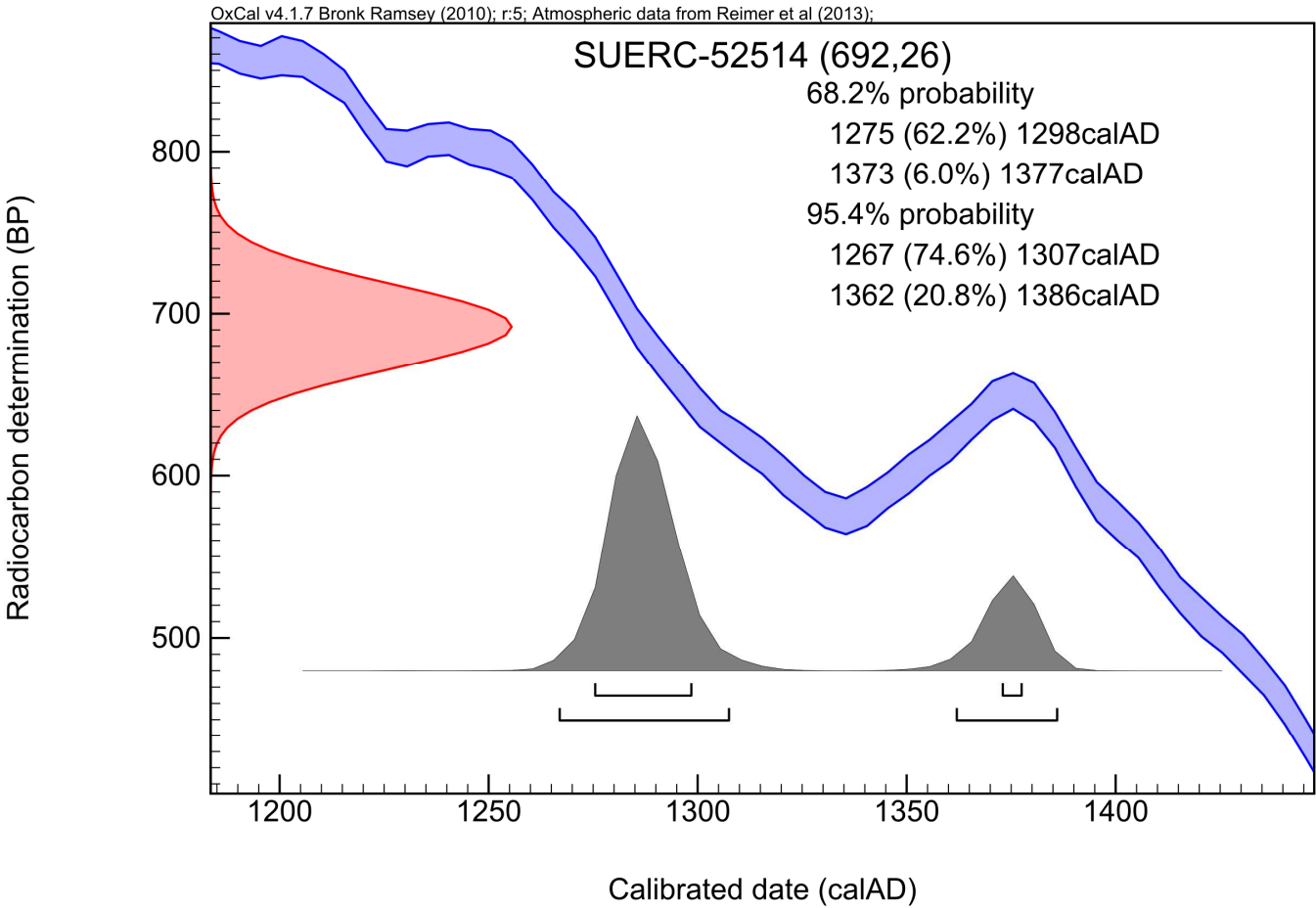
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Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52518 (GU33607)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø174: Midden

Sample Reference [04 – lower]

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -25.7 ‰

Radiocarbon Age BP 588 ± 29

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

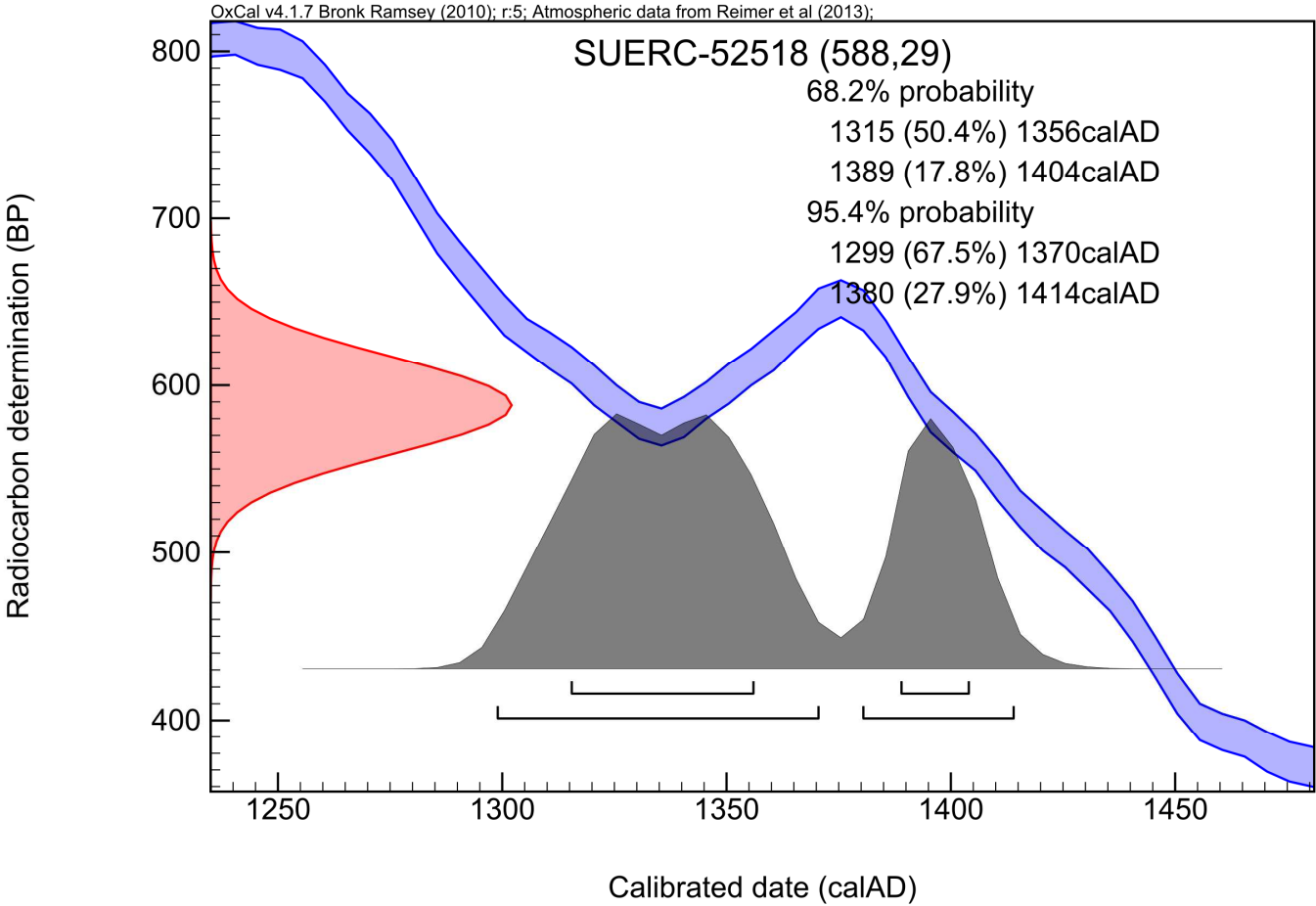
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Checked and signed off by :-

Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52519 (GU33608)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø174: Midden

Sample Reference [05]

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -26.8 ‰

Radiocarbon Age BP 899 ± 29

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

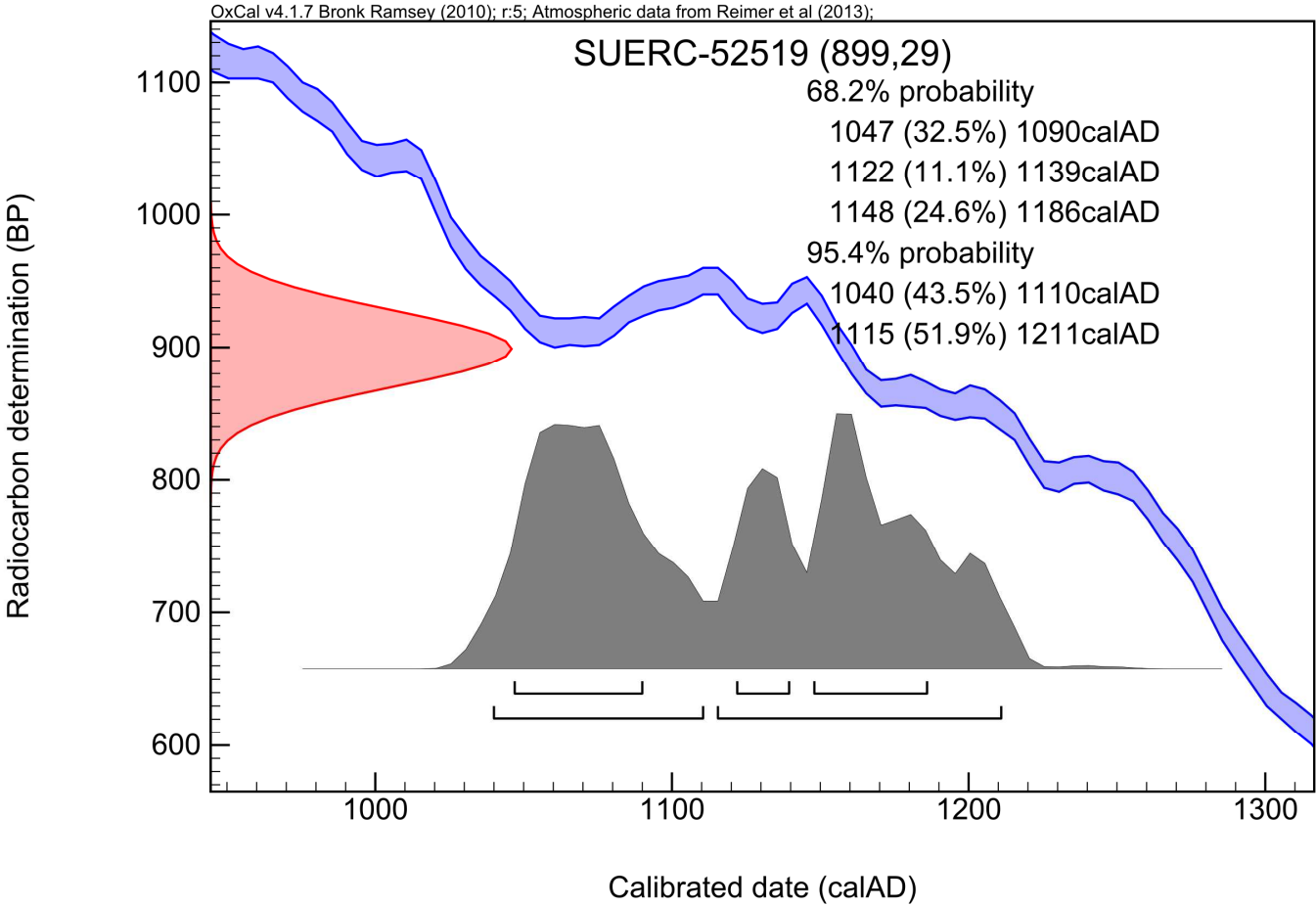
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Checked and signed off by :-

Date :-



Calibration Plot





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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52520 (GU33609)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø182: Homefield

Sample Reference Upper

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -27.8 ‰

Radiocarbon Age BP 606 ± 29

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

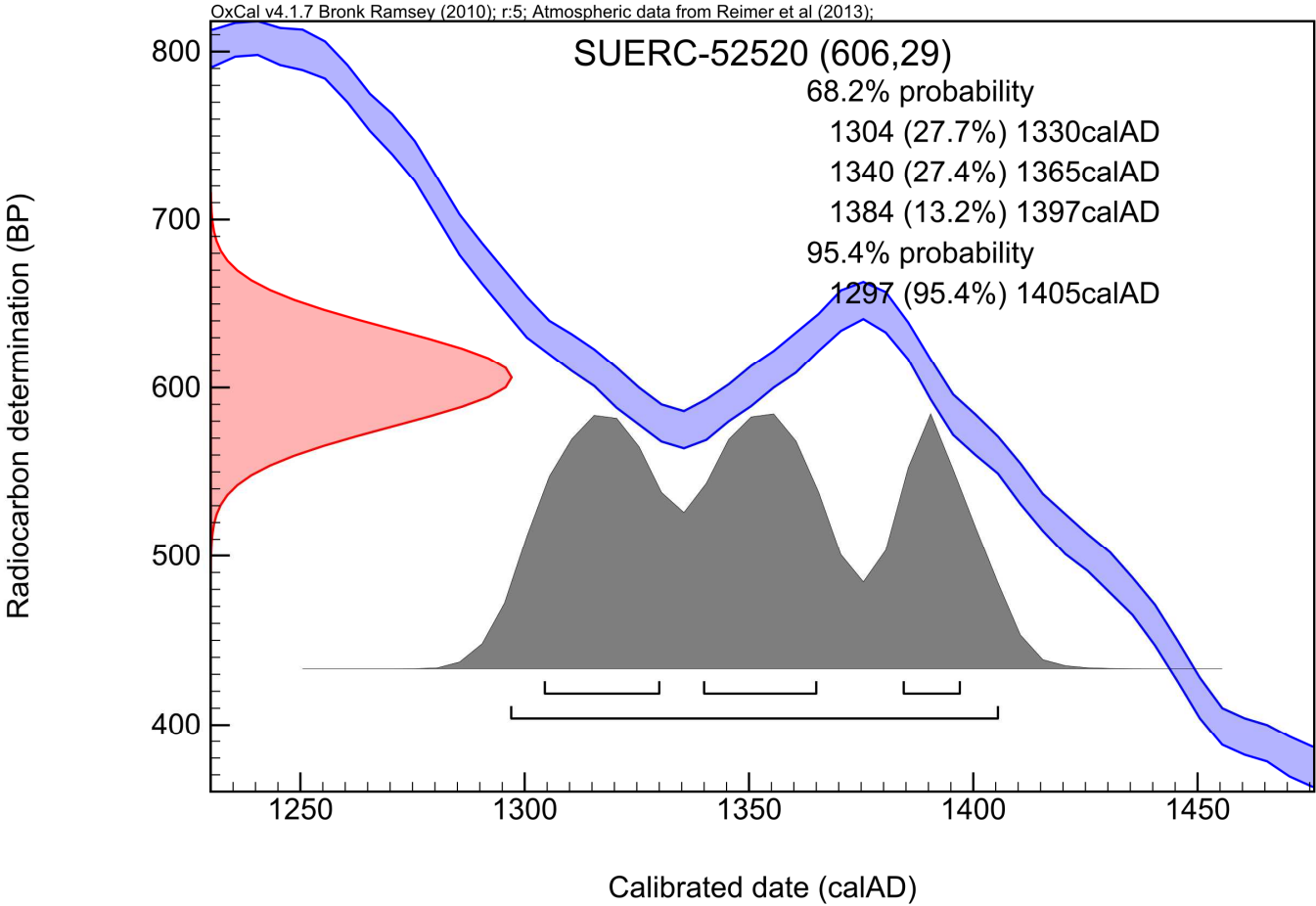
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Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52521 (GU33610)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø182: Homefield

Sample Reference Lower

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -25.7 ‰

Radiocarbon Age BP 981 ± 24

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

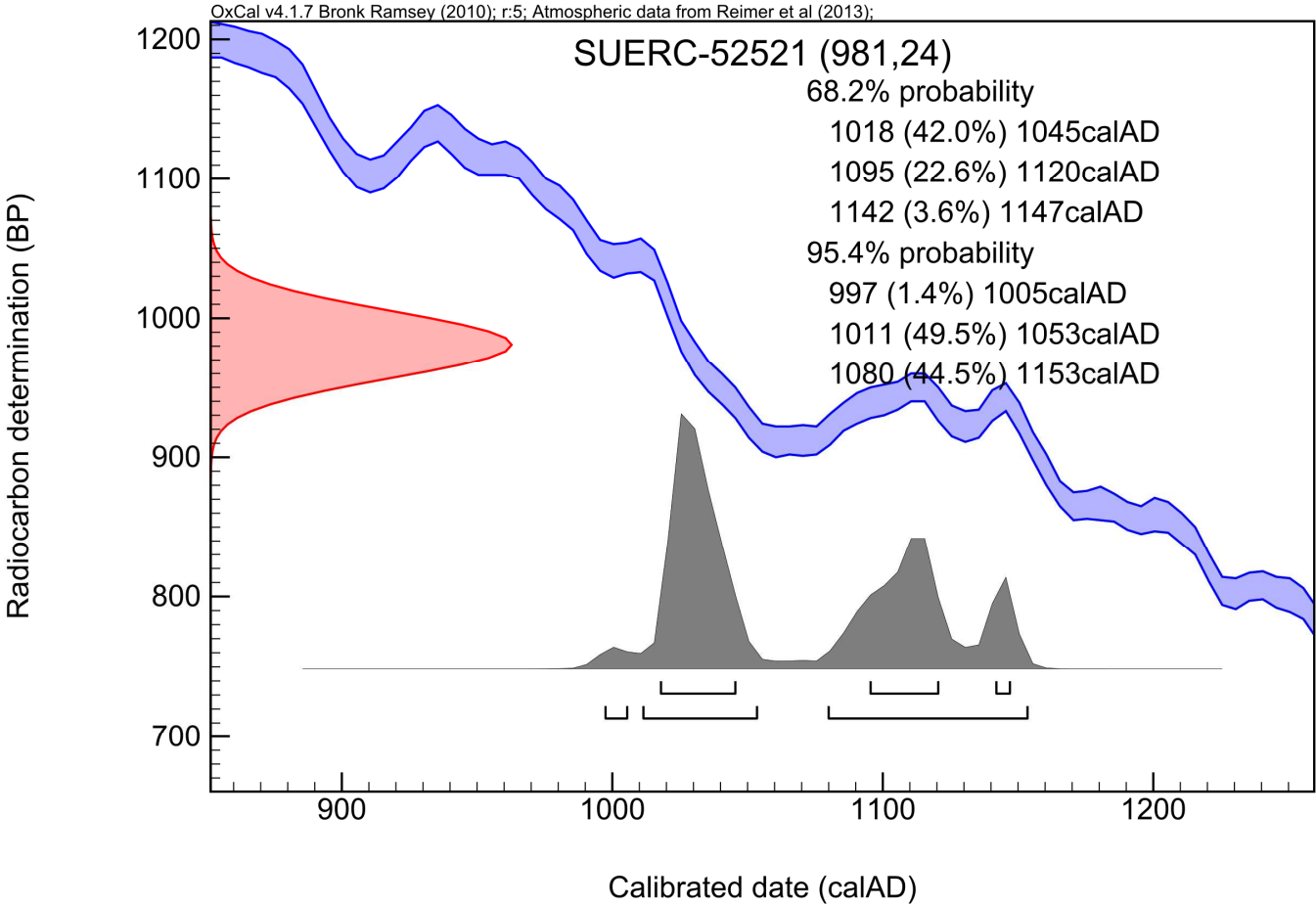
Date :-

Checked and signed off by :-

Date :-



Calibration Plot





Scottish Universities Environmental Research Centre

Director: Professor R M Ellam

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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52522 (GU33611)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø184: Midden

Sample Reference [03 – upper]

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -26.3 ‰

Radiocarbon Age BP 890 ± 29

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

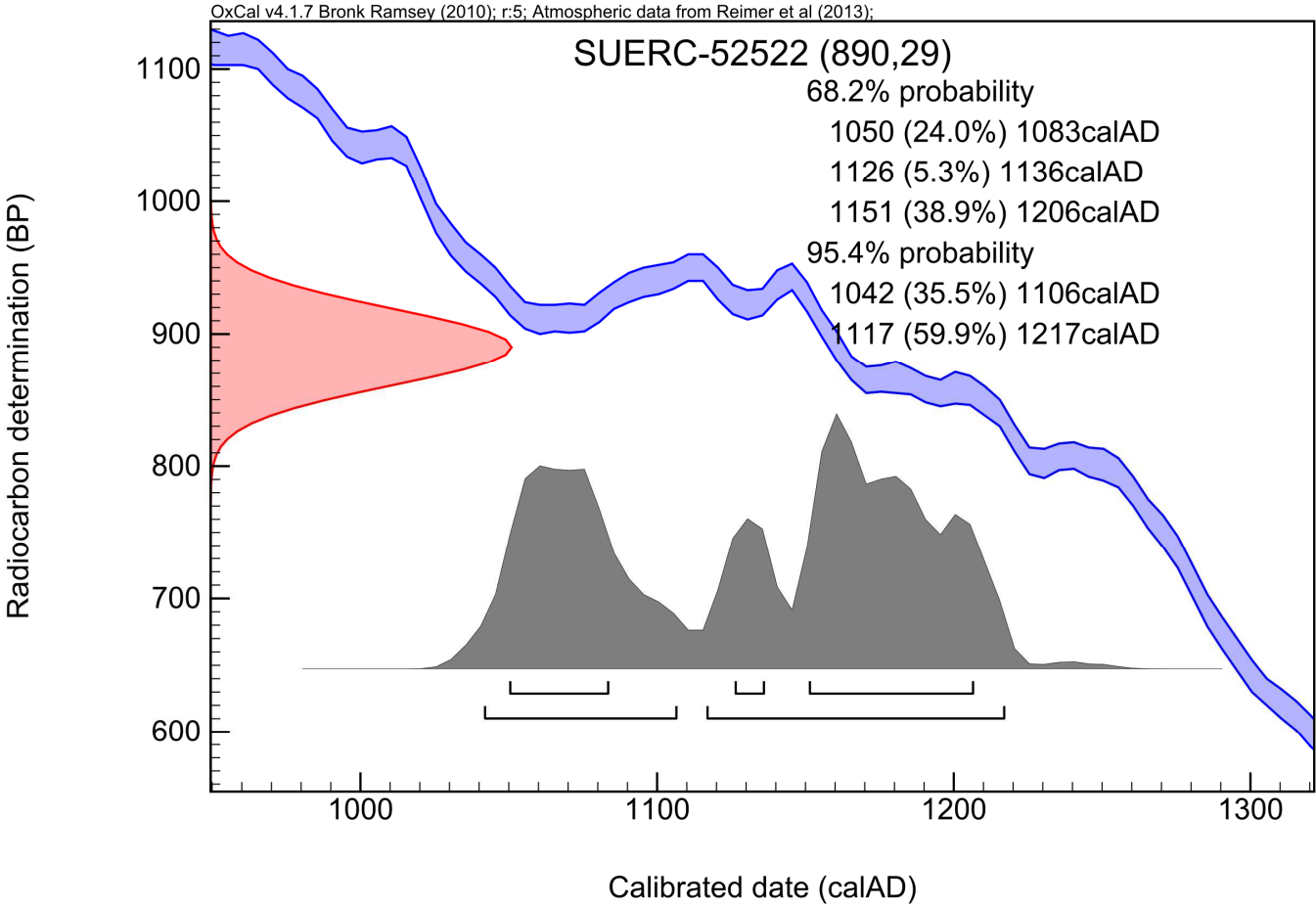
Date :-

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Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52523 (GU33612)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø184: Midden

Sample Reference [03 – lower]

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -27.2 ‰

Radiocarbon Age BP 648 ± 29

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

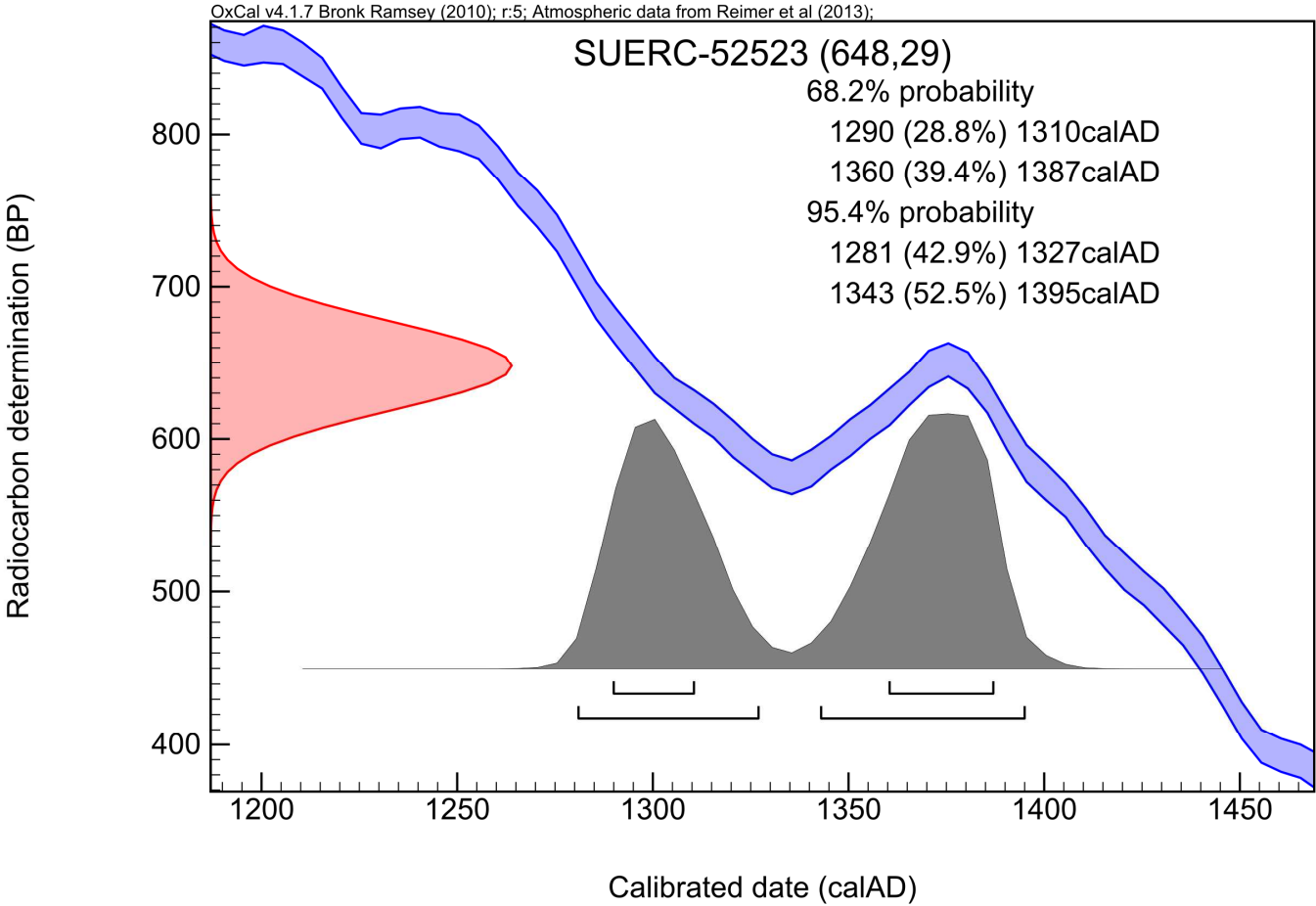
Date :-

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Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52524 (GU33613)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø184: Homefield

Sample Reference 6cm

Material Charcoal : Salix

$\delta^{13}\text{C}$ relative to VPDB -26.2 ‰

Radiocarbon Age BP 812 ± 29

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

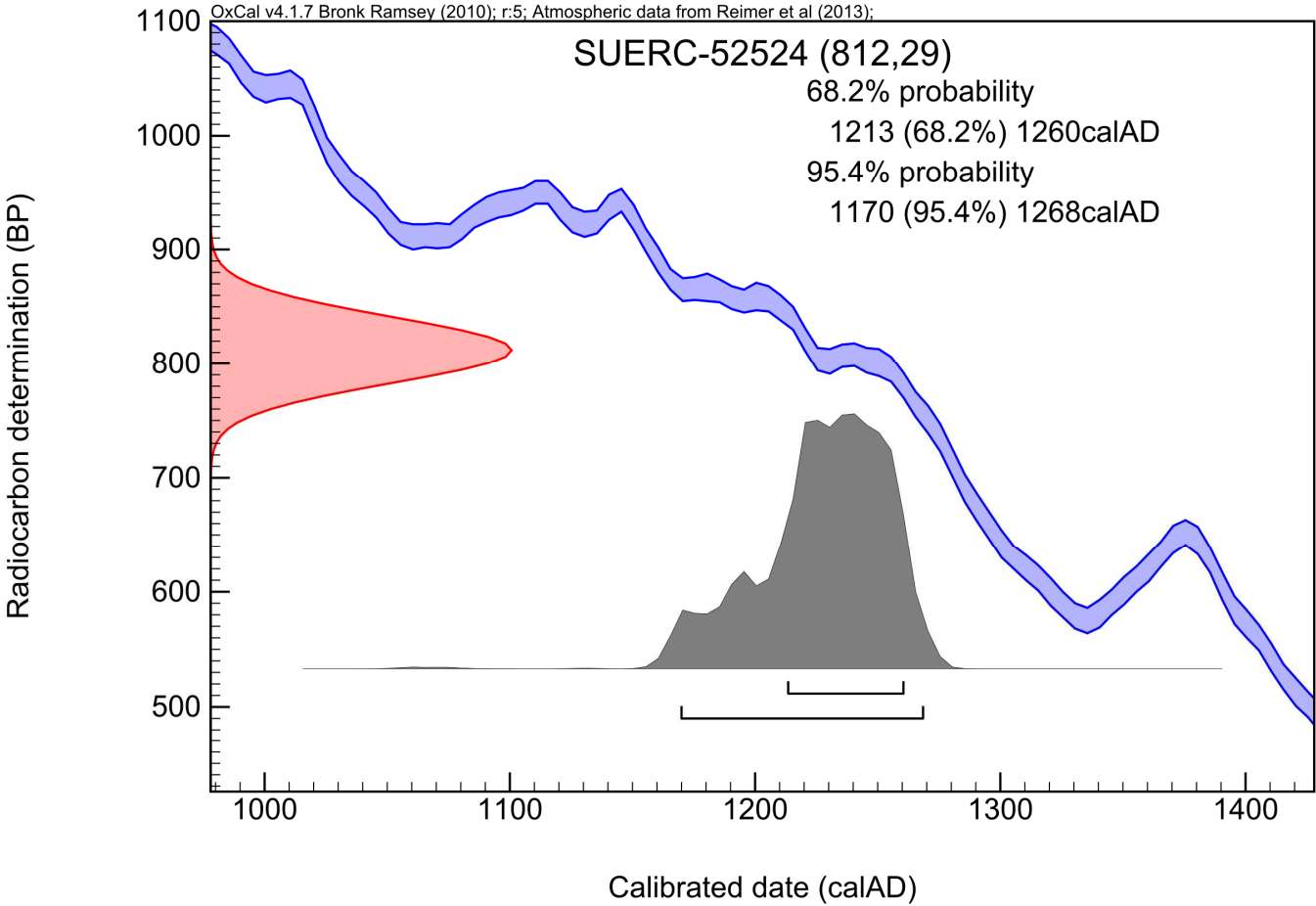
Date :-

Checked and signed off by :-

Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52528 (GU33614)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø184: Homefield

Sample Reference 16cm

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -25.1 ‰

Radiocarbon Age BP 652 ± 24

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

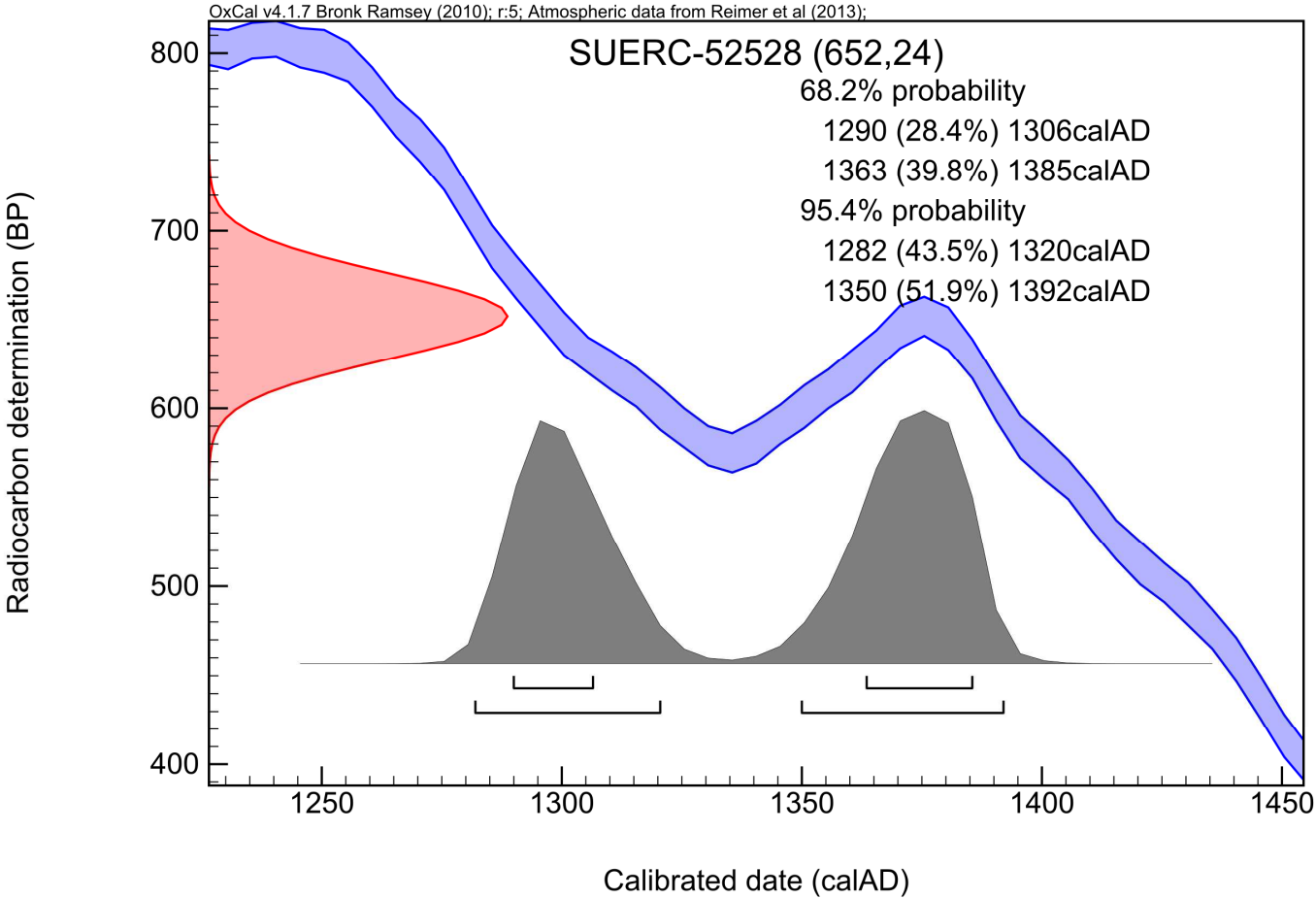
Date :-

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Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52529 (GU33615)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø184: Homefield

Sample Reference lower landnám

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -27.4 ‰

Radiocarbon Age BP 692 ± 26

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

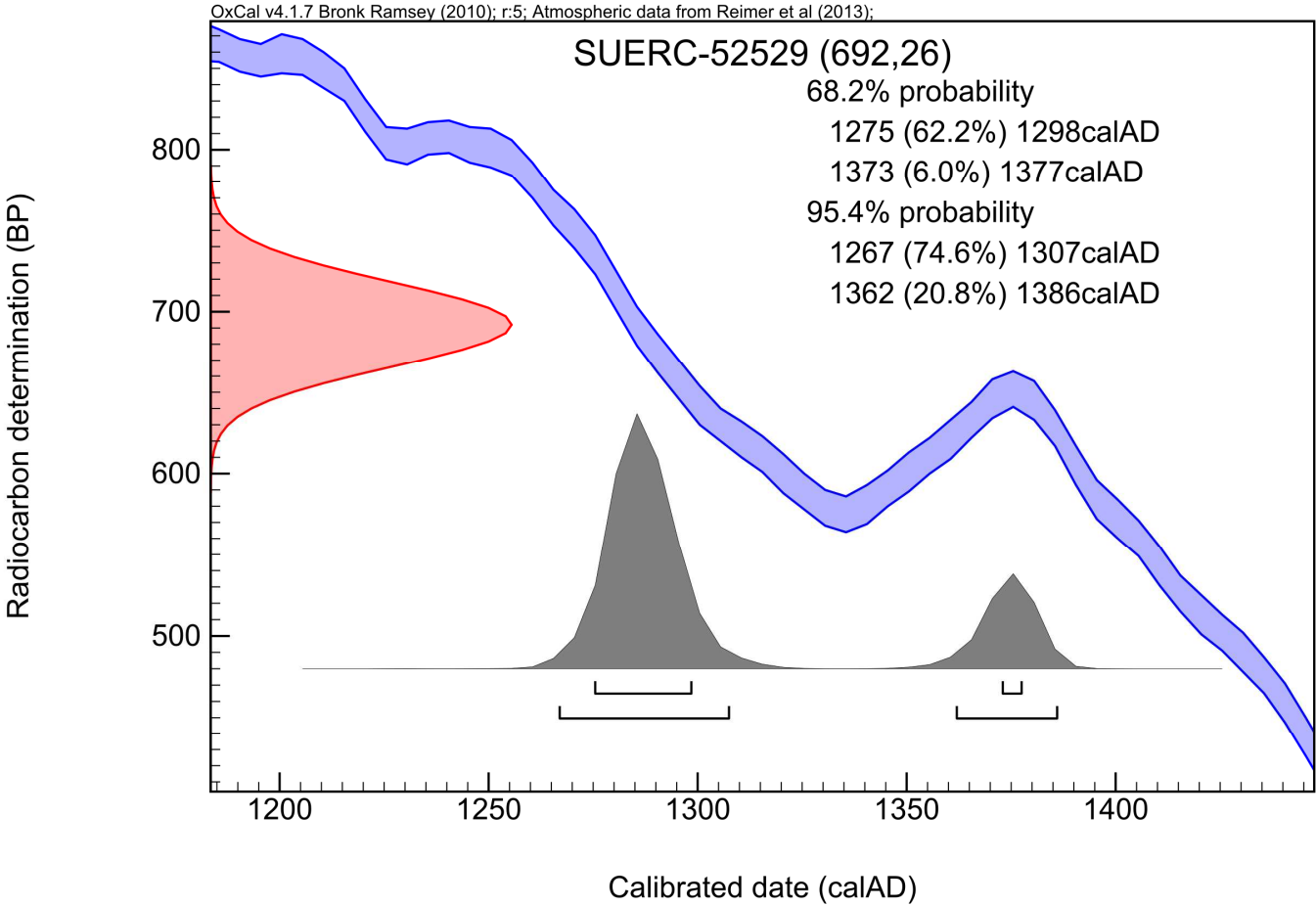
Date :-

Checked and signed off by :-

Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52530 (GU33616)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø184: Homefield

Sample Reference clear upper landnám

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -26.4 ‰

Radiocarbon Age BP 619 ± 29

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

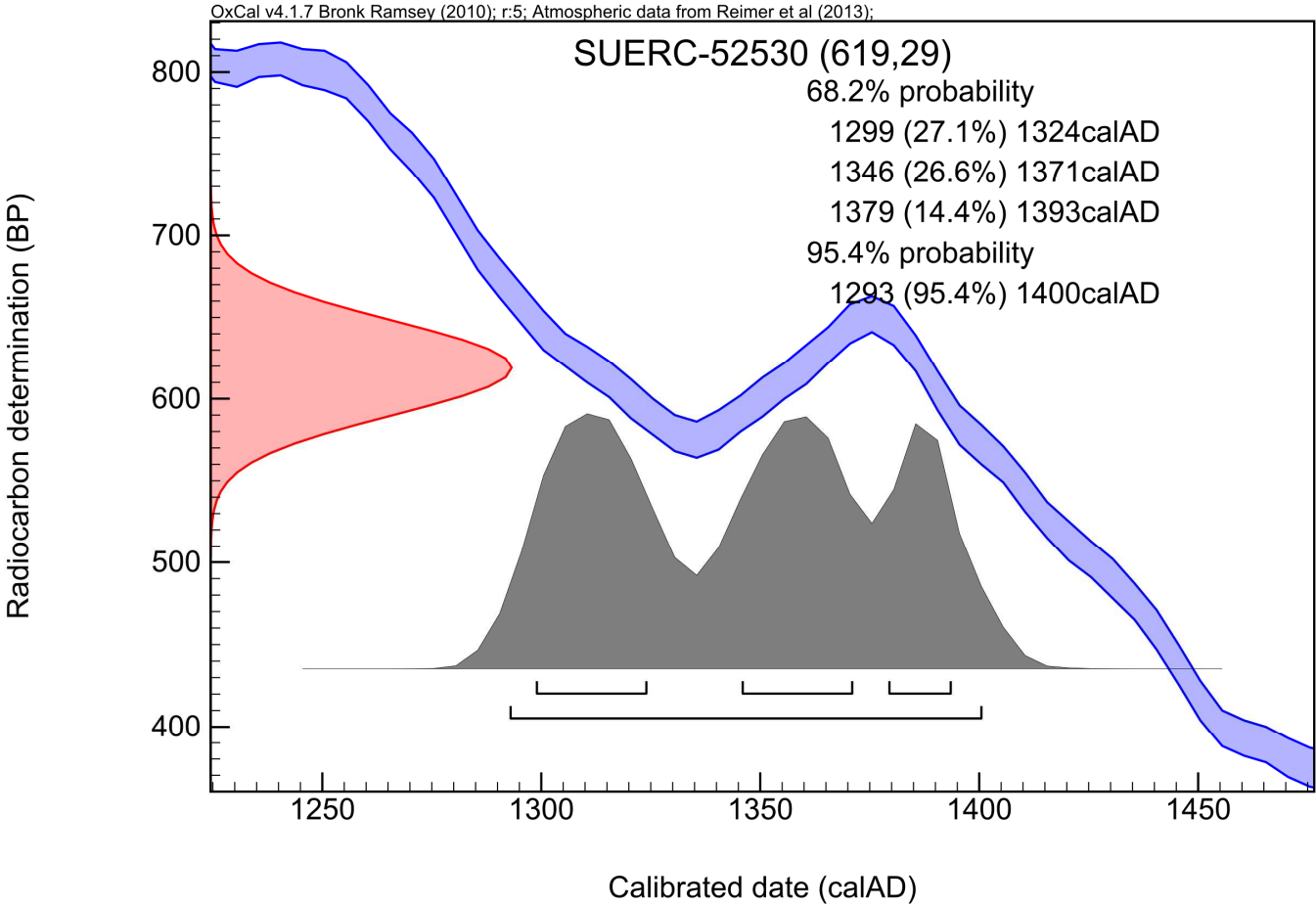
Date :-

Checked and signed off by :-

Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52531 (GU33617)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø089a Homefield

Sample Reference upper-10cm

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -28.1 ‰

Radiocarbon Age BP 659 ± 29

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

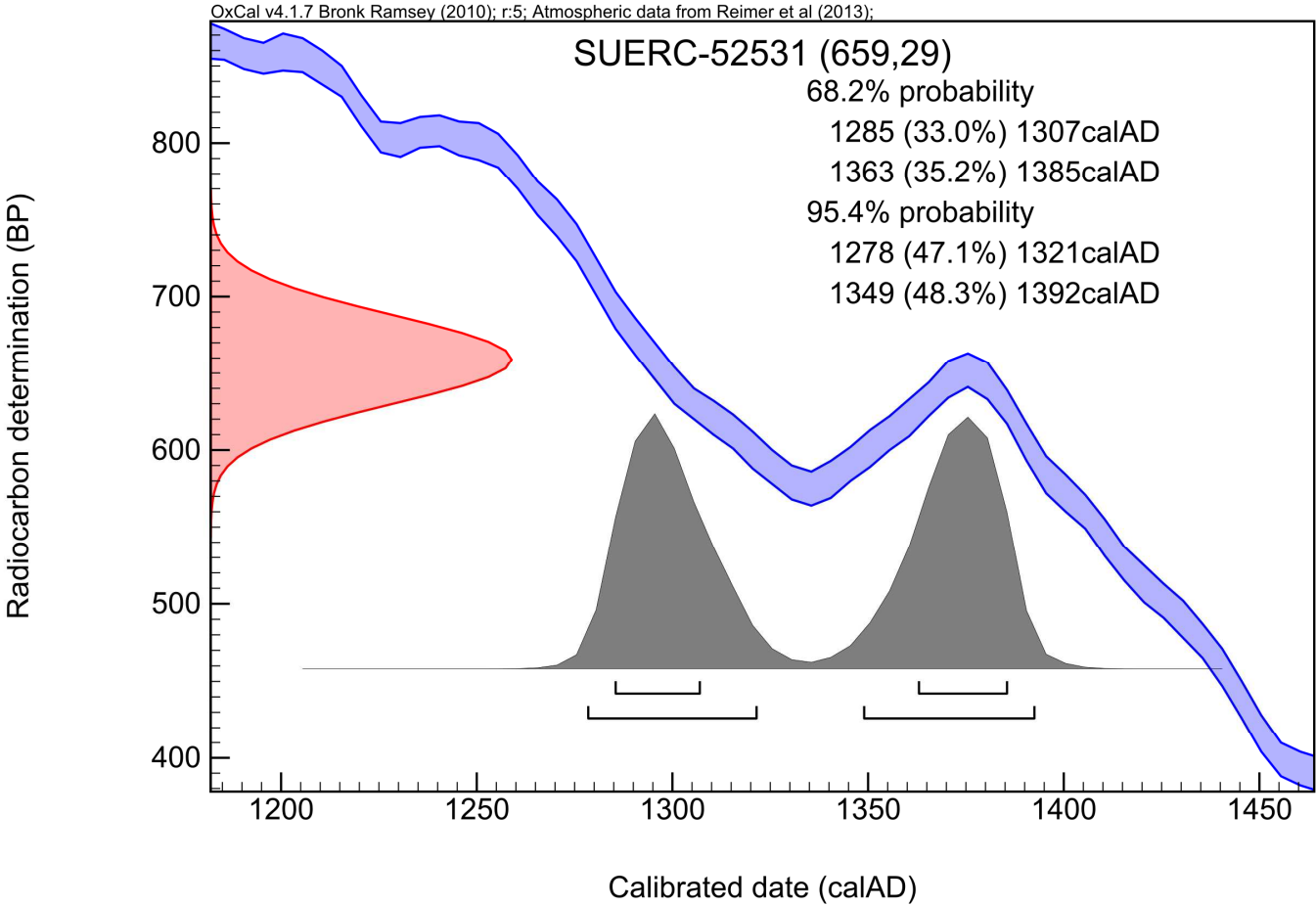
Date :-

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Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52532 (GU33618)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø089a Homefield

Sample Reference lower-37cm

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -25.9 ‰

Radiocarbon Age BP 1138 \pm 29

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

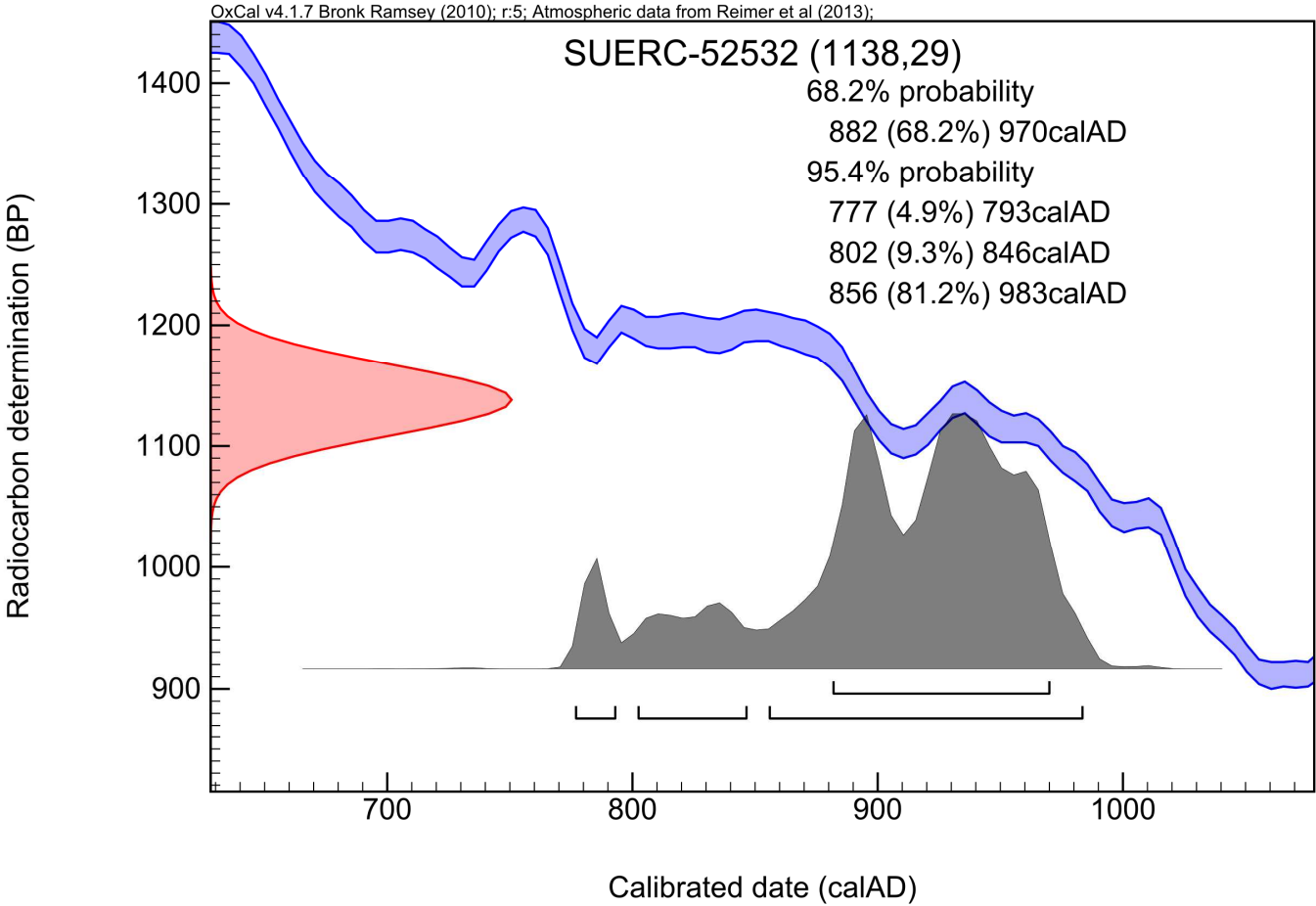
Date :-

Checked and signed off by :-

Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52533 (GU33619)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø96 Homefield

Sample Reference 2

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -23.2 ‰

Radiocarbon Age BP 1061 \pm 26

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

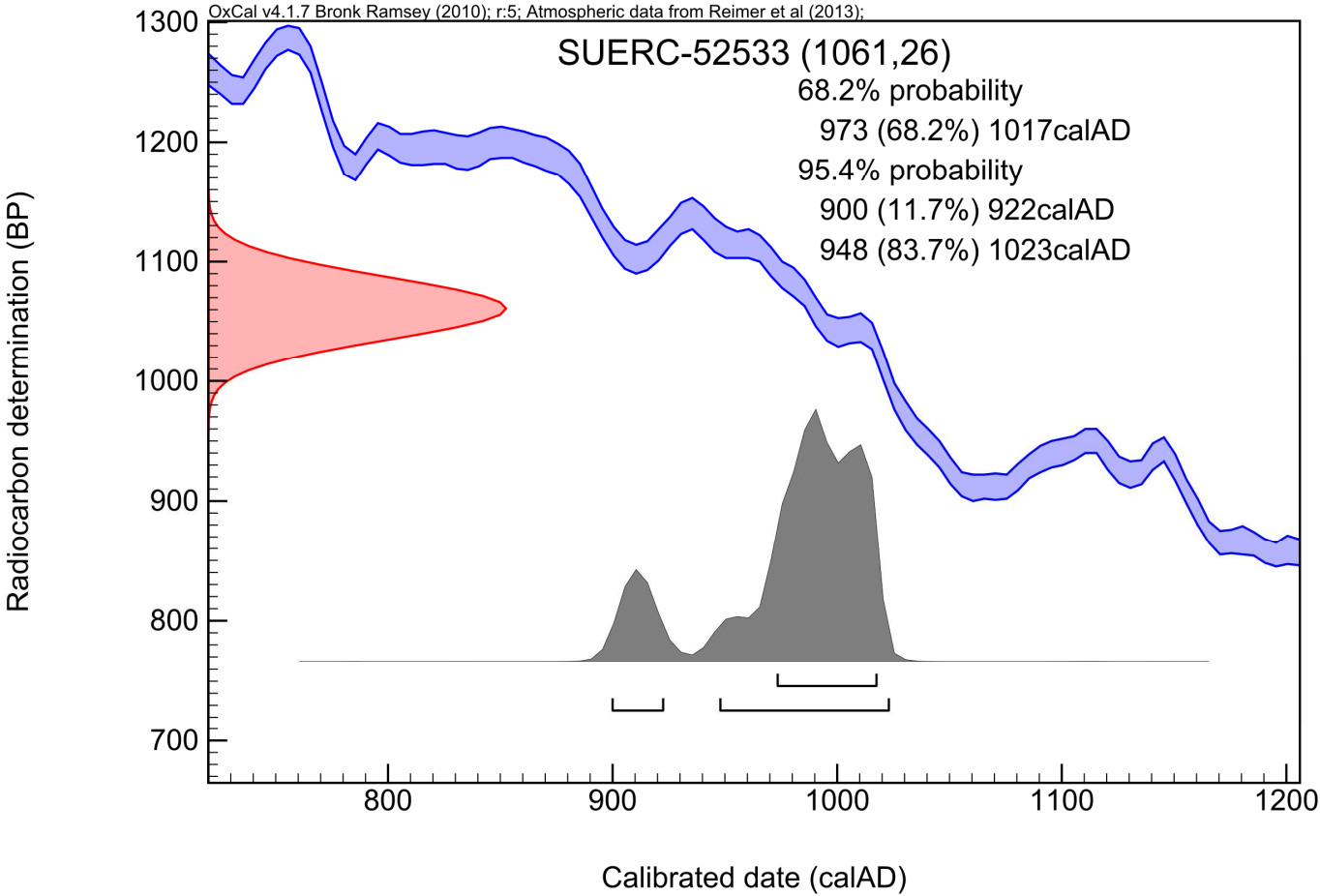
Date :-

Checked and signed off by :-

Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52534 (GU33620)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø96 Homefield

Sample Reference 6

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -25.6 ‰

Radiocarbon Age BP 946 ± 24

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

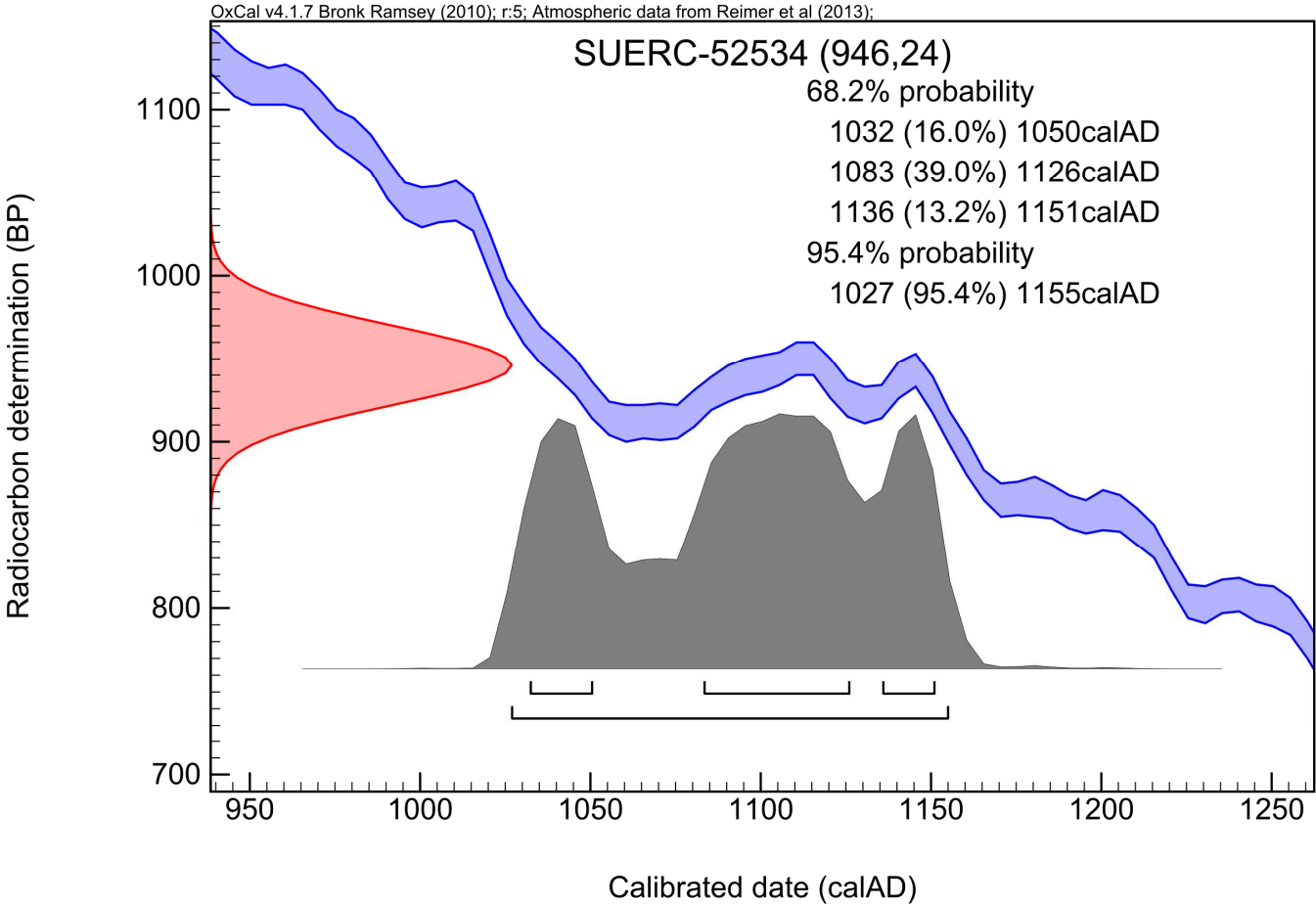
Date :-

Checked and signed off by :-

Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52538 (GU33621)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø149 Homefield

Sample Reference 1(a)

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -26.2 ‰

Radiocarbon Age BP 770 ± 26

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

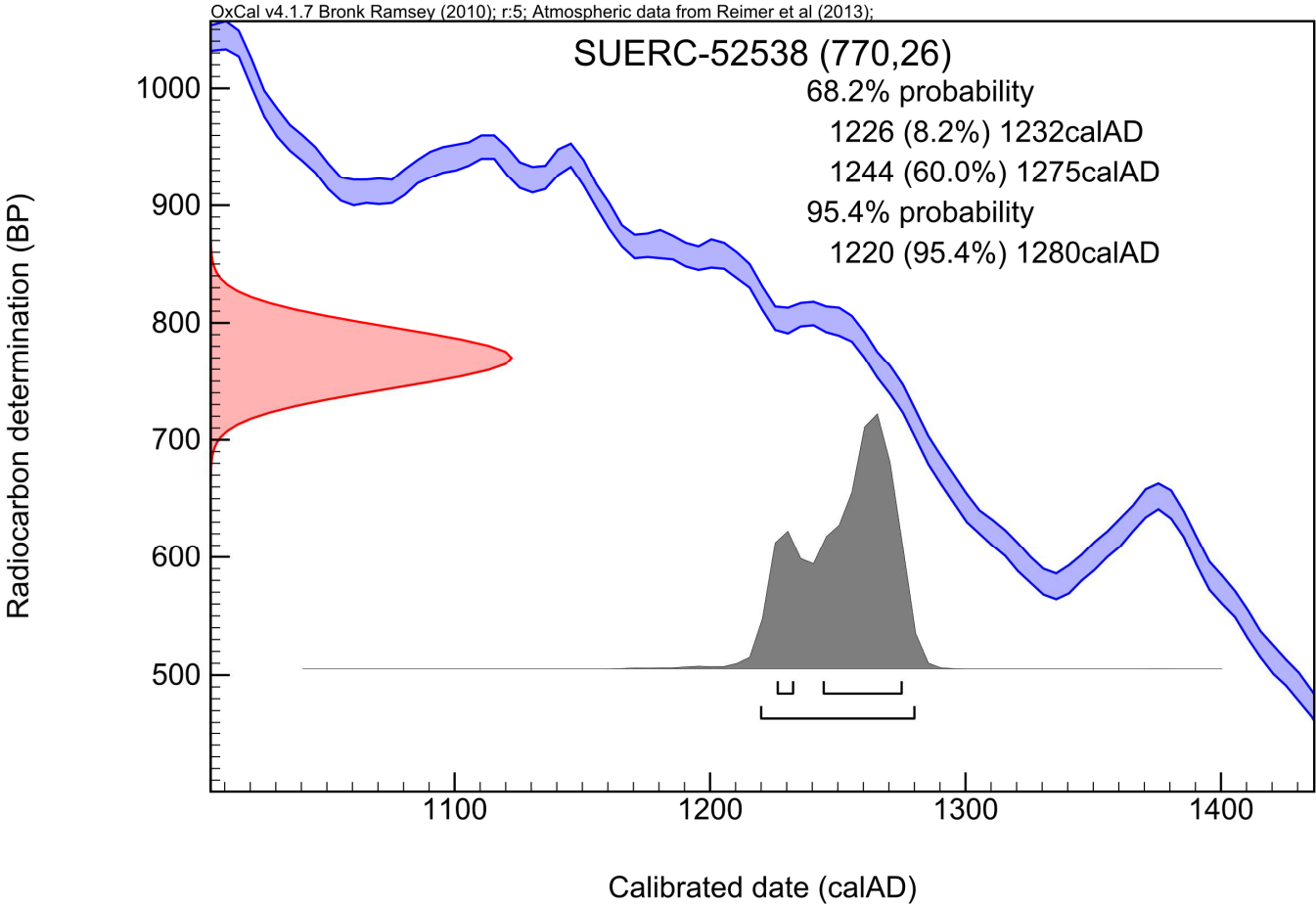
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Checked and signed off by :-

Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52539 (GU33622)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø149 Homefield

Sample Reference 1(b)

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -27.1 ‰

Radiocarbon Age BP 587 ± 26

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

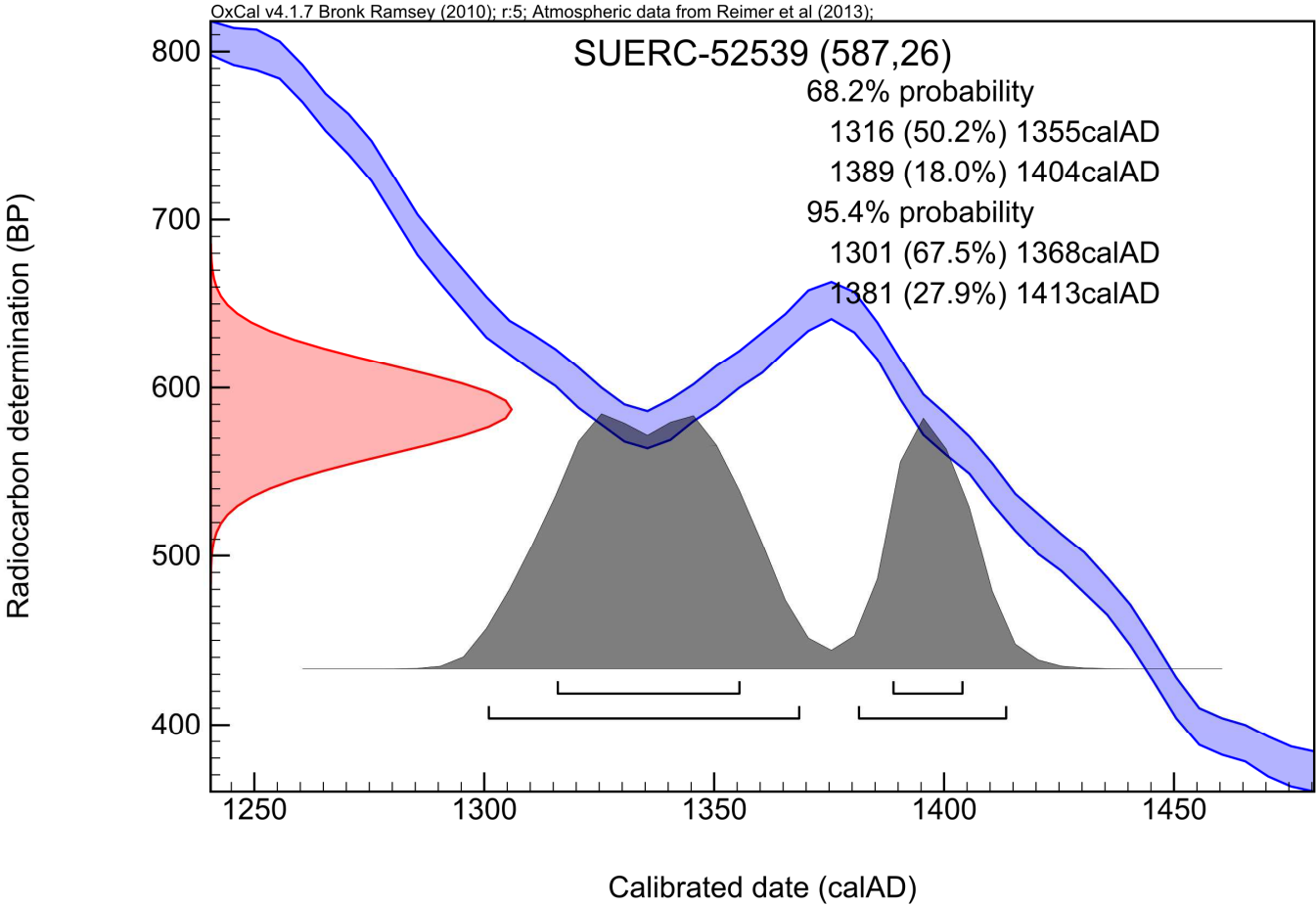
Date :-

Checked and signed off by :-

Date :-



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RADIOCARBON DATING CERTIFICATE

20 May 2014

Laboratory Code SUERC-52540 (GU33623)

Submitter Ian Simpson
Biological and Environmental Sciences
School of Natural Sciences
University of Stirling
Stirling FK9 4LA

Site Reference Ø150 Shieling

Sample Reference 1

Material Charcoal : Betula

$\delta^{13}\text{C}$ relative to VPDB -25.0 ‰ assumed

Radiocarbon Age BP 643 ± 26

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

Date :-

Checked and signed off by :-

Date :-



Calibration Plot

