RADIOCARBON, Vol 46, Nr 1, 2004, p 353–362

CHRONOLOGY OF PREHISTORIC CULTURAL COMPLEXES OF SAKHALIN ISLAND (RUSSIAN FAR EAST)

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ABSTRACT. A chronological framework for the prehistoric cultural complexes of Sakhalin Island is presented based on 160 radiocarbon dates from 74 sites. The earliest ^{14}C-dated site, Ogonki 5, corresponds to the Upper Paleolithic, about 19,500–17,800 BP. According to the ^{14}C data, since about 8800 BP, there is a continuous sequence of Neolithic, Early Iron Age, and Medieval complexes. The Neolithic existed during approximately 8800–2800 BP. Transitional Neolithic-Early Iron Age complexes are dated to about 2800–2300 BP. The Early Iron Age may be dated to about 2500–1300 BP. The Middle Ages period is dated to approximately 1300–300 BP (VII–XVII centuries AD).

INTRODUCTION

Sakhalin Island in the Russian Far East, known as the "landbridge" which connects the northern part of the Japanese archipelago with mainland Asia, is important for the study of prehistoric human migrations in Northeast Asia. The first radiocarbon dates of the archaeological sites on Sakhalin Island were obtained in the 1970s (Vasilievsky and Golubev 1976), but during the following decades, the chronology of the prehistoric cultural complexes on Sakhalin (cf. Shubin and Shubina 1987; Vasilevski 1995) was studied inadequately compared to the neighboring mainland Russian Far East (cf. Kuzmin 2001; Kuzmin et al. 1994, 1998a). During the last few years, dozens of new ^{14}C dates were obtained from Paleolithic, Neolithic, and Early Iron Age complexes on Sakhalin. Here, we present the first systematic study of the ^{14}C chronology of Sakhalin Island prehistory, and the main aim is to give original data and its interpretation to scholars who study the archaeology and paleoecology of Northeast Asia.

MATERIALS AND METHODS

The prehistory of Sakhalin may be sub-divided into several periods, namely Paleolithic, Neolithic, Early Iron Age, and the Middle Ages (Golubev and Lavrov 1988; Vasilevski 1992, 1995, 2000). The definition of the Neolithic in the Russian Far East is mostly based on the presence of pottery in the artifact assemblage (Kuzmin and Orlova 2000; Kuzmin 2003). The term "Early Iron Age" in Sakhalin is close to that of "Paleometal" in the mainland Russian Far East (Aleksandrov et al. 1982), and this definition is used for the complexes which existed after the Neolithic but are lacking metal production. There are several cultural complexes associated with the transition from the Neolithic to the Early Iron Age. Due to the small scale of excavations at some sites, they can not be affiliated with a particular culture and are indicated as an "unidentified culture" (Table 1, see pages 359–362).

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Proceedings of the 18th International Radiocarbon Conference, edited by N Beavan Athfield and R J Sparks
RADIOCARBON, Vol 46, Nr 1, 2004, p 353–362

The chronology of the prehistoric complexes of Sakhalin is now based on about 160 ^{14}C dates (Table 1) from 74 sites (Figure 1). Dates were produced mostly in 3 laboratories located in Novosibirsk, Tucson, and Magadan (86% of the total amount). The main material dated was wood charcoal (89%) and burnt food attached to the pottery (10%). Calibration of ^{14}C dates was done with the help of the CALIB rev. 4.3 software (Stuiver et al. 1998).

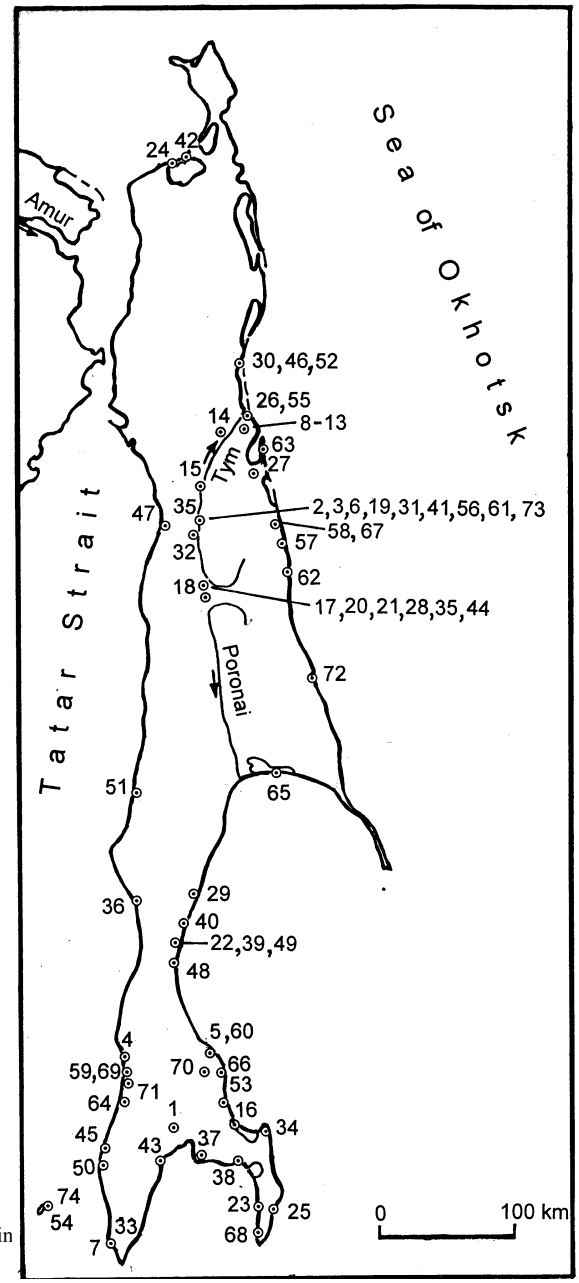

Figure 1 The location of ^{14}C-dated sites on Sakhalin Island (numbers correspond to those in Table 1).

https://doi.org/10.1017/S0033822200039655 Published online by Cambridge University Press

RESULTS AND DISCUSSION

There is a single ^{14}C-dated Paleolithic site on Sakhalin, Ogonki 5 (Vasilevski 2003) (Table 1, nr 1). The series of dates shows that it existed at approximately 19,500–17,800 BP, during the Last Glacial Maximum (Kuzmin et al. 1998b). After about 17,900 BP, there is a hiatus in the prehistoric chronology of Sakhalin until about 8800 BP (Figure 2). Recently produced ^{14}C dates for the Ostantsevaya cave (11,140 ± 100 BP, SOAN-5178; and 8040 ± 85 BP, SOAN-5176) allow placement of the Final Paleolithic of Sakhalin after about 11,100 BP. However, the time of the Paleolithic-Neolithic transition on Sakhalin is still uncertain, compared with the mainland Russian Far East where it occurred at approximately 13,300–10,300 in the Amur River basin and at about 10,800–9300 BP in Primorye (Jull et al. 2001; Kuzmin 2003).

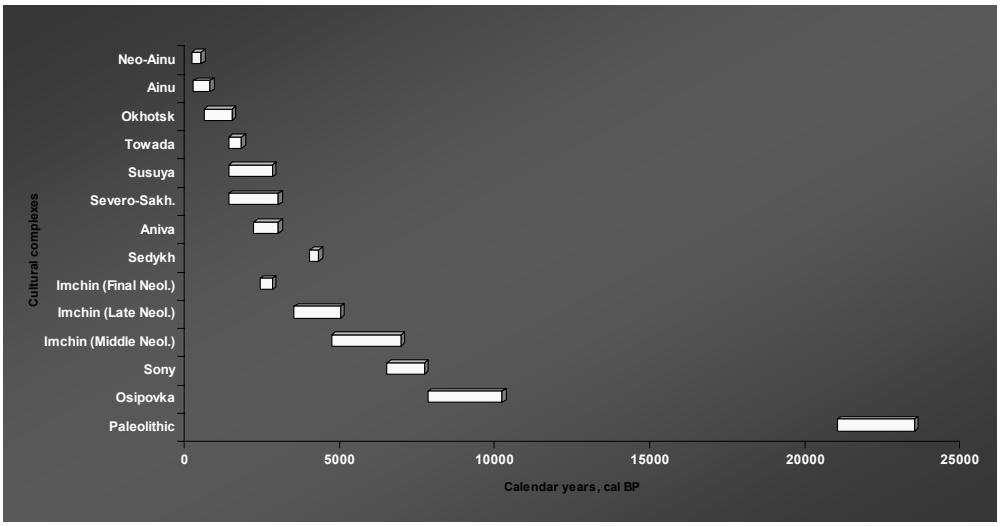

Figure 2 Calibrated ages of the main archaeological complexes of Sakhalin Island

The Neolithic of Sakhalin may be sub-divided into Early, Middle, and Late stages (Table 1). The Early Neolithic or the Paleolithic-Neolithic transitional site of Sokol has no ^{14}C dates; it was dated by the obsidian hydration method to about 11,800 yr ago, but no pottery was found at this site. The first pottery-containing assemblage is associated with the Early Neolithic at the Puzi 2 site and is dated to about 8800 BP. The Early Neolithic sites dated to approximately 8800–7000 BP may be roughly associated with the Osipovka culture, which could have survived at the Sakhalin after it disappeared in the lower stream of the Amur River at about 10,000 BP (Kuzmin 2001, 2002, 2003). The Middle Neolithic is associated with the Yuzhno-Sakhalinsk culture, earlier identified by Japanese scholars as Sony, and it existed at about 6700–5800 BP. The Imchin culture, originally determined as a single complex (Vasilievsky and Golubev 1976), now may be sub-divided into 3 components belonging to the Middle and Late Neolithic and to the Neolithic-Early Iron Age transition (Table 1). The earliest Imchin component is dated to about 5900–4300 BP and the middle component to about 4100–3300 BP. The latest Imchin culture sites correspond to approximately 2600–2500 BP (~970–260 cal BC) (Vasilevski 1995). A single ^{14}C date, about 3800 BP, is associated with the Sedykh culture of the Late Neolithic.

The Neolithic-Early Iron Age transition on Sakhalin continued for a long time, during about 2600 to 1700 BP. At that time, the Aniva culture (as part of the early Epi-Jomon sphere) existed in southern

https://doi.org/10.1017/S0033822200039655 Published online by Cambridge University Press

Sakhalin at approximately 2800–2300 BP (~1000–200 cal BC). The Susuya culture, located in southern and central Sakhalin, is dated to about 2500–1600 BP (~800 cal BC–800 cal AD). Two ^{14}C dates, 2750 ± 150 BP (MAG-693) from the Kuznetsovo 1 site and 2700 ± 200 BP (MAG-692) from the Svobodnoe 1 site, are earlier than the rest of the values for the Susuya culture (Table 1). It is possible that a hearth at Kuznetsovo 1 dated to about 2750 BP might correspond to the Late Jomon or the earliest Epi-Jomon component. At Svobodnoe 1, a small test pit was excavated, and it is not clear if, besides the Susuya component, earlier cultural component might exist at this site. The Severo-Sakhalinsk (Nhabil) culture, located in northern and central Sakhalin, may be provisionally dated to about 2900–1100 BP (~1400 cal BC–1150 cal AD).

The Towada culture is associated with the Early Iron Age period; 2 ^{14}C dates place it at about 1600 BP (~200–700 cal AD). Taking into account the few late dates of the Susuya culture (~1600–1500 BP), we can determine the existence of the Towada culture during the V–VII centuries AD. The most important Early Iron Age complex on Sakhalin is the Okhotsk culture, widely distributed also in Hokkaido and the southern Kurile Islands (Vasilievsky and Golubev 1976; Vasilevski 1990; Amano and Vasilevski 2002). According to the most recent ^{14}C dates and archaeological information, the Okhotsk culture existed in southern and central Sakhalin at about 1400–800 BP (~500–1300 cal AD) (Table 1). There are some earlier ^{14}C dates which may be associated with the Okhotsk culture (Nevelsk 1, Venskoe 2, Ivanovka, and Sedykh 1 sites, ~2100–1800 BP), and additional study is necessary to establish the exact timing of this cultural complex. The Middle Ages period on Sakhalin is associated with the Ainu (or Neiji) and Neo-Ainu cultures, at about 800–200 BP (~1300–1800 cal AD).

Using the chronological outline for ancient cultural complexes of the Sakhalin Island, it is possible to firmly date the important events in the prehistoric economy. The exchange of high-quality raw material for stone tool manufacture, namely obsidian, between Sakhalin Island (where it does not occur) and the neighboring sources on Hokkaido Island, began as early as the Upper Paleolithic, about 19,500 BP (Kuzmin et al. 2002). Obsidian exchange was practiced for most of the prehistory of Sakhalin, until about 1500 BP. The distance of exchange in the Upper Paleolithic was about 300 km, and since the Early Neolithic (~10,000–8000 BP), it increased to up to 1000 km.

The earliest evidence of maritime adaptation on Sakhalin, such as seal hunting, corresponds to the Early Neolithic (~6000 BP). Shellfish exploitation was most intensive during the Neolithic-Early Iron Age transition and the Early Iron Age (mainly the Susuya and Okhotsk cultures) in southern and central Sakhalin, at about 2700–800 BP.

CONCLUSION

Recent ^{14}C dating of the prehistoric cultural complexes of Sakhalin Island allows us to establish the main chronological framework (Figures 2 and 3). The Upper Paleolithic was ^{14}C dated to about 19,500–17,800 BP (~21,500–19,000 cal BC or ~23,500–21,000 cal BP) (Figure 2). At about 8800 BP (~8200–7600 cal BC or ~10,100–9600 cal BP), pottery appeared on Sakhalin for the first time and marked the beginning of the Early Neolithic (Figure 3). The Middle Neolithic (Sony and middle stage of the Imchin complex) is dated to approximately 6700–4300 BP (~5700–2700 cal BC or ~7700–4700 cal BP). The Imchin culture can now be sub-divided into 2 main complexes: the early complex is dated to about 5900–4300 BP (~4950–2700 cal BC or ~7900–6300 cal BP) and the late one to about 4100–3300 BP (~3000–1500 cal BC or ~5000–3500 cal BP). Several Middle and Late Neolithic sites without clear cultural complex affiliation were dated to about 5500–2900 BP. The Neolithic-Early Iron Age transitional Epi-Jomon complex represented by the Aniva culture was

dated to about 2800–2300 BP (~1000–200 cal BC or ~3000–2200 cal BP). The Early Iron Age complexes are dated to about 1600–600 BP (~200 cal BC–1400 cal AD or ~1800–600 cal BP). The Ainu and Neo-Ainu complexes, attributed to the Middle Ages, are dated to about 800–200 BP (~1200–1800 cal AD or ~800–150 cal BP). Intensive contacts between the Sakhalin and Hokkaido islands began very early, at least at about 19,500 BP. Marine food resource exploitation in southern Sakhalin was practiced in the Middle and Late Holocene at about 6000–1500 BP.

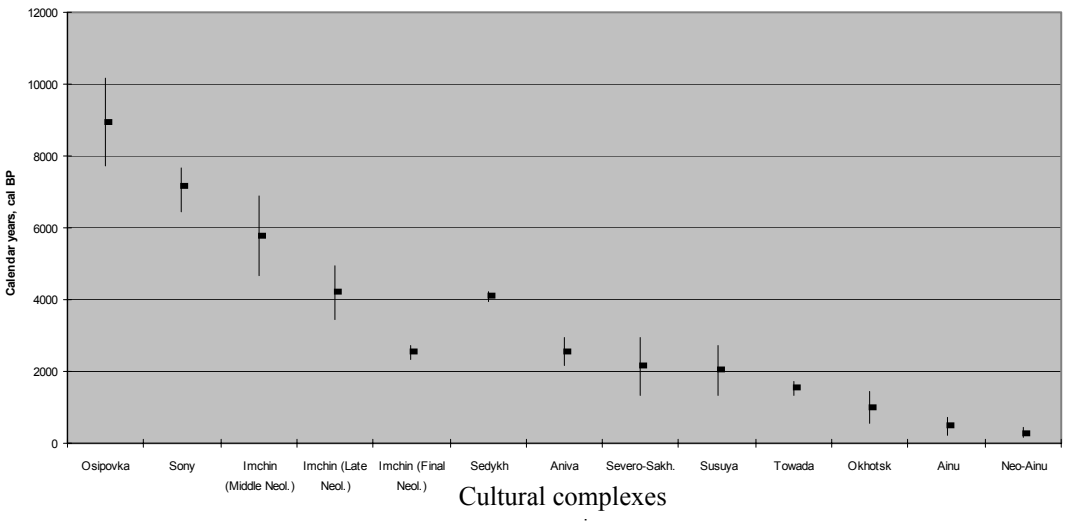

Figure 3 Calibrated ages of the Neolithic, Early Iron Age, and Middle Ages archaeological complexes of Sakhalin Island (ambiguous dates and values with a large standard deviation were not used).

ACKNOWLEDGEMENTS

We are grateful to colleagues who conducted the ^{14}C dating of the Sakhalin archaeological sites prior to our studies, Drs A V Lozhkin, G I Zaitseva, T Nomura, V I Razov, and Y A Mikishin; Mr V G Volkov and Mr A V Orishchenko. We are also grateful to Dr S G Keates for grammar polishing and to Dr B Obelić for useful comments of the earlier version of this paper. This study was supported partly by grants from US NSF (EAR97-30699, EAR01-15488) and Russian RFFI (96-06-80688, 02-06-80282).

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Table 1 ^{14}C dates for the prehistoric sites on Sakhalin Island.

Site nr[a]	Site name	Coordinates ° ′ N / ° ′ E	^{14}C date, BP (±1 σ)	Calibrated age[b]	Lab code and nr	Material dated[c]	Cultural affiliation[d]
UPPER PALEOLITHIC							
1	Ogonki 5	46 46 / 142 28	19,440 ± 140	21,520–20,710 BC	Beta-115987	C	
			19,380 ± 190	21,470–20,620 BC	Beta-115986	C	
			19,320 ± 145	21,380–20,570 BC	AA-20864	C	
			18,920 ± 150	20,900–20,120 BC	AA-25434	C	
			17,880 ± 120	19,670–18,960 BC	AA-23137	C	
NEOLITHIC							
Early and Middle Neolithic							
2	Puzi 2	51 09 / 142 39	8780 ± 135	8200–7600 BC	SOAN-3819	C	Os
			7790 ± 65	6980–6460 BC	AA-36388	C	Os
			7610 ± 60	6590–6270 BC	AA-36389	C	Os
			7535 ± 135	6470–6230 BC	SOAN-4064	C	Os
			7520 ± 70	6460–6230 BC	AA-36387	C	Os
3	Ado-Tymovo 4	51 08 / 142 40	7035 ± 40	5990–5810 BC	AA-36391	C	Os
4	Sadovniki 2	47 10 / 142 04	6740 ± 150	5740–5510 BC	MAG-694	C	YS (S)
			6100 ± 300	5370–4620 BC	MAG-691	C	YS (S)
5	Starodubskoye 3	47 25 / 142 49	6465 ± 85	5610–5300 BC	TIG-269	C	YS (S)
6	Ado-Tymovo 5	51 09 / 142 40	6190 ± 40	5300–5000 BC	AA-36437	C	UEN
7	Kuznetsovo 3	46 04 / 141 56	5960 ± 140	5000–4690 BC	LE-4044	C	YS (S)
			5770 ± 140	4780–4460 BC	LE-4043	C	YS (S)
8	Imchin 2	51 42 / 143 01	5890 ± 90	4950–4540 BC	SOAN-1145	C	MNI
			5650 ± 250	4780–4250 BC	MAG-680	C	MNI
			4750 ± 300	3910–3100 BC	MAG-674	C	MNI
			4550 ± 100	3500–3100 BC	MAG-683	C	MNI
			4250 ± 30	2910–2710 BC	SOAN-1040	C	MNI
Late Neolithic							
8	Imchin 2	51 42 / 143 01	4100 ± 200	2900–2350 BC	MAG-688	C	LNI
			4060 ± 50	2860–2470 BC	SOAN-1041	C	LNI
			3700 ± 250	2470–1740 BC	MAG-673	C	LNI
			3500 ± 100	1940–1690 BC	MAG-689	C	LNI
			3400 ± 80	1890–1520 BC	MAG-671	C	LNI
9	Imchin 10	51 42 / 143 01	4200 ± 200	3020–2490 BC	MAG-686	C	LNI
10	Imchin 11	51 42 / 143 01	4200 ± 200	3020–2490 BC	MAG-688	C	LNI
11	Imchin 4	51 42 / 143 01	4040 ± 85	2880–2310 BC	SOAN-1148	C	LNI
			3730 ± 70	2400–1920 BC	SOAN-1149	C	LNI
			3490 ± 75	2030–1620 BC	SOAN-1147	C	LNI
			3950 ± 100	2580–2290 BC	MAG-690	C	LNI
			3500 ± 100	1940–1690 BC	MAG-687	C	LNI
12	Imchin 7	51 42 / 143 01	3750 ± 150	2460–1940 BC	MAG-685	C	LNI
13	Imchin 12	51 42 / 143 01	3430 ± 70	1920–1530 BC	MAG-745	C	LNI
			3340 ± 20	1690–1530 BC	MAG-744	C	LNI
14	Tym-Zona	51 43 / 143 00	5470 ± 45	4430–4250 BC	AA-37188	BF	UN
15	Chkharnya	51 23 / 142 44	5440 ± 40	4350–4170 BC	AA-37079	C	UN
5	Starodubskoye 3	47 24 / 142 49	4500 ± 140	3490–2920 BC	SOAN-3580	C	UN
16	Sedykh, layer 2	46 51 / 143 09	4220 ± 55	2920–2600 BC	AA-23133	BF	UN
	Sedykh, layer 3		3760 ± 50	2330–1980 BC	AA-23134	BF	S
17	Kirpichny 3	50 42 / 142 40	4140 ± 75	2900–2470 BC	SOAN-4066	C	UN
3	Ado-Tymovo 4		4110 ± 125	2880–2470 BC	SOAN-3821	C	UN
			3575 ± 50	2110–1750 BC	AA-36390	C	UN

https://doi.org/10.1017/S0033822200039655 Published online by Cambridge University Press

Table 1 ^{14}C dates for the prehistoric sites on Sakhalin Island. *(Continued)*

Site nr[a]	Site name	Coordinates ° ′ N / ° ′ E	^{14}C date, BP (±1 σ)	Calibrated age[b]	Lab code and nr	Material dated[c]	Cultural affiliation[d]
18	Yasnoye	50 38 / 142 41	4065 ± 40	2860–2470 BC	AA-37463	C	UN
19	Puzi 4	51 10 / 142 39	3870 ± 45	2470–2200 BC	SOAN-3717	C	UN
16	Sedykh 1	46 51 / 143 09	3760 ± 40	2290–2040 BC	AA-37190	BF	UN
20	Beloye 1	50 44 / 142 39	3460 ± 35	1880–1690 BC	AA-37078	C	UN
			3250 ± 35	1620–1430 BC	AA-37125	C	UN
			2570 ± 35	810–560 BC	AA-37226	C	UN (?)
			2200 ± 35	380–170 BC	AA-37077	C	UN (?)
21	Kirpichny 12	50 41 / 142 40	3435 ± 35	1880–1640 BC	AA-37127	C	UN
22	Pugachevo 7	48 11 142 34	3150 ± 175	1620–1130 BC	SOAN-3564	C	UN
23	Yuzhnaya 2	46 18 / 143 24	3015 ± 40	1390–1130 BC	AA-37824	BF	UN
			3005 ± 125	1410–1020 BC	TIG-249	C	UN
24	Ush 4	53 32 / 142 18	2920 ± 65	1370–920 BC	SOAN-3563	C	UN
TRANSITION FROM THE NEOLITHIC TO THE EARLY IRON AGE							
8	Imchin 2		2570 ± 110	830–520 BC	MAG-672	C	FI
			2460 ± 100	790–400 BC	MAG-670	C	FI
23	Yuzhnaya 2		2550 ± 160	830–410 BC	LE-4038	C	An
			2450 ± 100	790–400 BC	LE-4041	C	An
			2360 ± 110	760–260 BC	LE-4040	C	An
			2320 ± 160	760–180 BC	LE-4039	C	An
6	Ado-Tymovo 5		1905 ± 100	20 BC–AD 240	SOAN-3723	C	SS (N)
25	Predreflyanka	46 33 / 143 33	2800 ± 45	1050–830 BC	AA-23131	BF	An
			2740 ± 45	990–800 BC	AA-25440	BF	An
26	Nyivo 9	51 51 / 143 11	2695 ± 50	970–800 BC	SOAN-3248	C	SS (N)
27	Nhabyl 1	51 28 / 143 17	2495 ± 40	790–410 BC	SOAN-3817	C	SS (N)
28	Beloye 3	50 43 / 142 40	2470 ± 40	790–410 BC	AA-37125	C	UC
5	Starodubskoe 3		2265 ± 50	400–180 BC	AA-20865	C	UC
29	Porechye 1	48 34 / 142 46	2365 ± 35	520–390 BC	AA-37076	C	Su
			2315 ± 35	410–260 BC	AA-37225	C	Su
			2180 ± 35	380–120 BC	AA-37124	C	Su
31	Ado-Tymovo 16	50 10 / 142 41	2875 ± 30	1210–940 BC	SOAN-3719	C	UC
32	Noksi 2	51 00 / 142 40	2870 ± 90	1370–830 BC	NU-431	C	SS (N)
33	Kuznetsovo 1	46 04 / 141 56	2750 ± 150	1110–800 BC	MAG-693	C	Su (?)
			2385 ± 270	810–120 BC	DVGU-91	C	Su
34	Svobodnoye 1	46 48 / 143 26	2700 ± 200	1110–560 BC	MAG-692	C	Su (?)
35	Ado-Tymovo 20	51 08 / 142 39	2610 ± 165	920–460 BC	SOAN-3823	C	SS (N)
			2495 ± 30	790–410 BC	SOAN-3822	C	SS (N)
			2200 ± 35	380–170 BC	AA-36438	C	SS (N)
36	Ust-Ainskoye	48 27 / 142 04	2540 ± 45	800–460 BC	AA-36621	BF	Su
37	Susuya	46 45 / 142 44	2520 ± 35	800–450 BC	SOAN-782	C	Su
			2040 ± 65	200 BC–AD 80	SOAN-783	C	Su
			1850 ± 150	AD 1–380	SOAN-1025	C	Su
38	Ozersk 1	46 36 / 143 13	2360 ± 35	520–390 BC	AA-37363	BF	Su
			2070 ± 100	200 BC–AD 50	MAG-677	C	Su
			1920 ± 55	40 BC–AD 240	SOAN-1019	C	Su
			1910 ± 65	40 BC–AD 240	SOAN-1018	C	Su
			1750 ± 100	AD 130–410	MAG-676	C	Su
			1600 ± 100	AD 340–600	MAG-678	C	Su
			1590 ± 200	AD 240–560	MAG-669	C	Su
39	Pugachevo 9	48 10 / 142 35	2315 ± 55	480–210 BC	SOAN-3264	C	Su

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Table 1 ^{14}C dates for the prehistoric sites on Sakhalin Island. *(Continued)*

Site nr[a]	Site name	Coordinates ° ′ N / ° ′ E	^{14}C date, BP (±1 σ)	Calibrated age[b]	Lab code and nr	Material dated[c]	Cultural affiliation[d]
40	Tagyu	48 19 / 142 40	2265 ± 35	400–200 BC	AA-37227	C	Su
30	Venskoye 2	51 57 / 143 06	1855 ± 30	AD 80–240	AA-36620	BF	Okh (?)
41	Ado-Tymovo 1	51 09 / 142 40	2220 ± 35	390–170 BC	AA-36440	C	SS (N)
			2105 ± 100	350 BC–AD 1	SOAN-4280	C	SS (N)
			1905 ± 100	20 BC–AD 240	SOAN-3723	C	SS (N)
42	Ush 2	53 35 / 142 27	2170 ± 60	390–50 BC	SOAN-3562	C	SS (N)
43	Taranai	46 37 / 142 26	2155 ± 65	390–1 BC	SOAN-1023	C	Su
			2050 ± 30	170 BC–AD 20	SOAN-1021	C	Su
			1970 ± 45	50 BC–AD 130	SOAN-1022	C	Su
44	Blagodatny 1	51 10 / 142 39	2110 ± 40	350–1 BC	SOAN-3718	C	SS (N)
			2030 ± 30	110 BC–AD 50	SOAN-3637	C	SS (N)
			1715 ± 30	AD 240–420	AA-36395	C	SS (N)
			1700 ± 35	AD 240–420	AA-36394	C	SS (N)
45	Nevelsk 1	46 40 / 141 52	2080 ± 35	200 BC–AD 1	AA-37180	BF	Okh (?)
46	Tabush	52 02 / 143 08	2075 ± 80	360 BC–AD 80	SOAN-3361	C	UC
47	Vtoraya Polovinka	50 57 / 142 11	2040 ± 60	200 BC–AD 80	SOAN-3818	C	UC
48	Buruny 1	48 06 / 142 33	1990 ± 25	40 BC–AD 70	SOAN-3250	C	Su
49	Pugachevo 38	48 11 / 142 36	1890 ± 55	20 BC–AD 240	SOAN-3565	C	Su
50	Ivanovka	46 44 / 141 53	1850 ± 90	40 BC–AD 400	TIG-270	W	Okh (?)
51	Shakhtersk	49 11 / 142 03	1780 ± 60	AD 80–410	SOAN-1024	C	Su
6	Sedykh 1	46 52 / 143 09	1775 ± 40	AD 130–380	AA-37466	BF	Okh (?)
52	Bauri 2	51 58 / 143 08	1720 ± 85	AD 90–540	SOAN-3415	C	SS (N)
			1080 ± 60	AD 780–1150	SOAN-3414	C	SS (N)
53	Mys Krugly	47 00 / 143 04	1700 ± 100	AD 240–430	MAG-675	C	Su
EARLY IRON AGE AND THE MIDDLE AGES							
54	Kitakotan 1	46 16 / 141 14	1640 ± 80	AD 240–600	NU-430	C	T
33	Kuznetsovo 1		1640 ± 370	40 BC–AD 770	DVGU-90	C	T
55	Nyivo 2	51 51 / 143 12	1620 ± 40	AD 340–540	SOAN-3269	C	SS (N)
56	Ado-Tymovo 28	51 07 / 142 40	1610 ± 30	AD 390–540	AA-36349	C	UC
			1220 ± 45	AD 690–960	SOAN-4065	C	UC
57	Delil-de-la-Kroiyer	50 48 / 143 40	1600 ± 45	AD 360–600	SOAN-3279	C	Su
			1440 ± 35	AD 540–660	AA-37128	C	Okh
			1430 ± 40	AD 540–670	AA-37229	C	Okh
			1235 ± 60	AD 660–960	SOAN-3376	C	Okh
58	Kiri 2	51 03 / 143 31	1550 ± 50	AD 410–640	AA-37465	C	UC
59	Antonovo 2	47 07 / 142 04	1550 ± 35	AD 420–600	SOAN-3820	C	Okh
60	Starodubskoye 2	47 25 / 142 48	1540 ± 30	AD 430–620	SOAN-1143	C	Su
61	Puzi Grotto	51 11 / 142 41	1540 ± 50	AD 420–640	SOAN-3814	C	UC
62	Vengeri 1	50 31 / 143 43	1515 ± 35	AD 430–640	AA-37080	C	UC
63	Stary Nabyl 1	51 29 / 143 18	1450 ± 45	AD 540–660	SOAN-3815	C	SS (N)
38	Ozersk 1		1400 ± 100	AD 560–690	MAG-679	C	Okh
			1140 ± 45	AD 780–1000	SOAN-1020	C	Okh
			1035 ± 35	AD 900–1030	SOAN-1140	C	Okh
			760 ± 25	AD 1220–1290	SOAN-1141	C	Okh
64	Kholmsk 4	47 02 / 142 03	1350 ± 45	AD 620–770	AA-36738	BF	Okh
50	Ivanovka 1		1280 ± 100	AD 660–890	NU-492	W	Okh
65	Promyslovoye 2	49 19 / 143 29	1210 ± 35	AD 690–940	SOAN-3403	C	Okh
66	Peschanoye 1	47 15 / 143 01	1040 ± 105	AD 890–1150	DVGU-149	C	Okh
67	Ygvo 2	51 17 / 143 30	1015 ± 35	AD 980–1150	AA-37228	C	UC

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Table 1 ^{14}C dates for the prehistoric sites on Sakhalin Island. *(Continued)*

Site nr[a]	Site name	Coordinates ° ′ N / ° ′ E	^{14}C date, BP (±1 σ)	Calibrated age[b]	Lab code and nr	Material dated[c]	Cultural affiliation[d]
68	Mramornaya 1	46 09 / 143 25	1010 ± 40	AD 980–1160	UPI-805	C	Okh
			1000 ± 100	AD 900–1160	LE-4042	C	Okh
39	Pugachevo 9		970 ± 80	AD 900–1240	NU-597	C	Okh
			630 ± 20	AD 1300–1400	SOAN-3249	C	Okh
69	Antonovo-Chasi	47 08 / 142 04	940 ± 30	AD 1020–1190	SOAN-3636	C	Okh
34	Kuznetsovo 1		905 ± 75	AD 990–1280	DVGU-92	C	Okh
70	Takoe 2	47 18 / 142 47	805 ± 80	AD 1030–1380	SOAN-1144	C	Okh (A?)
71	Simakovo 1	47 05 / 142 03	515 ± 30	AD 1330–1440	SOAN-3716	C	Okh (A?)
72	Bogataya 1	49 59 / 143 59	805 ± 30	AD 1190–1280	AA-36618	BF	FA
38	Ozersk 1		770 ± 60	AD 1160–1380	AA-37230	BF	FA
			300 ± 100	AD 1470–1800	MAG-668	C	A
34	Svobodnoye 1		610 ± 30	AD 1300–1410	AA-36619	BF	A
73	Ado-Tymovo 6	51 08 / 142 40	550 ± 25	AD 1330–1430	SOAN-3725	C	UC
			180 ± 30	AD 1660–1950	AA-36392	C	UC
5	Starodubskoye 3		380 ± 85	AD 1410–1790	TIG-250	C	NA
74	Kitakotan 2	46 15 / 141 14	200 ± 70	AD 1520–1950	NU-493	C	NA

[a]Site numbers correspond to those in Figure 1.

[b]For ^{14}C dates with ±1 σ less than 100 yr, the ±2 σ calibration range is given; for ^{14}C dates with ±1 σ more than 100 yr, the ±1 σ calibration range is applied.

[c]C: charcoal; BF: burnt food attached to the pottery; W: wood.

[d]Os–Osipovka culture; YS (S)–Yuzhno-Sakhalinsk (Sony) culture; UEN–unidentified Early Neolithic; MNI–Middle Neolithic Imchin culture; LNI–Late Neolithic Imchin culture; S–Sedykh culture; UN–unidentified Neolithic culture; FI–Final Imchin culture; An–Aniva (Early Epi-Jomon) culture; SS (N)–Severo-Sakhalinsk (Nhabil) culture; UC–unidentified culture; Su–Susuya culture; Okh–Okhotsk culture; T–Towada culture; A–Ainu (Neiji) culture; NA–Neo-Ainu culture.

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