DATA REPOSITORY FIGURE CAPTIONS

Fig. DR1. Lithologic descriptions of four key excavations at the Stolbovaya site (Fig. 3), with sampled horizons noted for glass chemical analyses (Fig. 6, Table DR1) and for radiocarbon dates. Results of all local radiocarbon dating are shown; their accuracy is discussed in the text. Radiocarbon dates considered most reliable are illustrated in the main text, Fig. 4. Radiocarbon dates were produced at the Radiocarbon Lab, Geological Institute, Moscow, L. Sulerzhitsky, Director.

Fig. DR2. Summary stratigraphy for Profile 1 (located on Fig. 3). The lower profile shows topography (from local sea level) with no vertical exaggeration. The upper profile shows only the excavated part of the profile, with stratigraphy illustrated at the same scale as the topographic profile (35x vertical exaggeration). Details from this profile are illustrated in text Figure 7.

Fig. DR3. Summary stratigraphy for Profile 2 (located on Fig. 3). The lower profile shows topography (from local sea level) with no vertical exaggeration. The upper profile shows only the excavated part of the profile, with stratigraphy illustrated at the same scale as the topographic profile (35x vertical exaggeration).

Fig. DR4. Summary stratigraphy for Profile 3 (located on Fig. 3). The lower profile shows topography (from local sea level) with no vertical exaggeration. The upper profile shows only the excavated part of the profile, with stratigraphy illustrated at the same scale as the topographic profile (35x vertical exaggeration).

Fig. DR5. Summary stratigraphy for Profile 4 (located on Fig. 3). The lower profile shows topography (from local sea level) with no vertical exaggeration. The upper profile shows only the excavated part of the profile, with stratigraphy illustrated at the same scale as the topographic profile (35x vertical exaggeration).

Fig. DR6. Summary stratigraphy for Profile 5 (located on Fig. 3). The lower profile shows topography (from local sea level) with no vertical exaggeration. The upper profile shows only the excavated part of the profile, with stratigraphy illustrated at the same scale as the topographic profile (35x vertical exaggeration). The highest part of this profile is interpreted as relict (now vegetated) eolian dunes.

Fig. DR7. Summary stratigraphy for Profile 7 (located on Fig. 3). The lower profile shows topography (from local sea level) with no vertical exaggeration. The upper profile shows only the excavated part of the profile, with stratigraphy illustrated at the same scale as the topographic profile (35x vertical exaggeration). Section 99-04 is a key section, illustrated in Figures 4 and DR1. An interpretation of Profile 7 is shown in Figure 9.

Fig. DR8. Summary stratigraphy for Profile 8 (located on Fig. 3). The lower profile shows topography (from local sea level) with no vertical exaggeration. The upper profile shows only the excavated part of the profile, with stratigraphy illustrated at the same scale as the topographic profile (35x vertical exaggeration). An interpretation of Profile 8 is shown in Figure 9. Excavation 130 is illustrated in Figures 4 and DR1.

Fig. DR9. Summary stratigraphy for Profile 9 (located on Fig. 3). The lower profile shows topography (from local sea level) with no vertical exaggeration. The upper profile shows only the excavated part of the profile, with stratigraphy illustrated at the same scale as the topographic profile (35x vertical exaggeration). Dots at the top of excavations 132 and 133 are the "1999 storm" deposit.

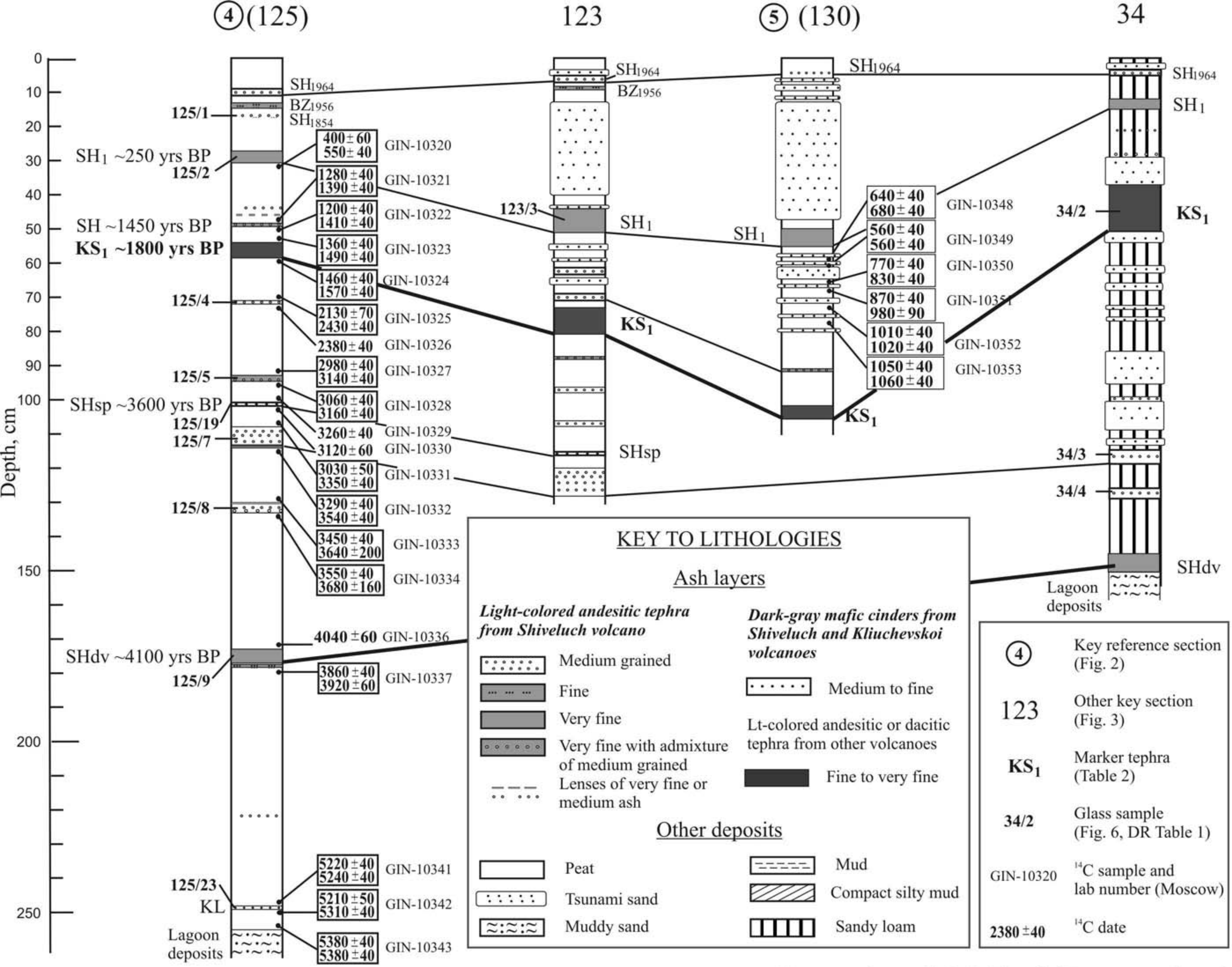
Fig. DR10. Summary stratigraphy for Profile 10 (located on Fig. 3). The lower profile shows topography (from local sea level) with no vertical exaggeration. The upper profile shows only the excavated part of the profile, with stratigraphy illustrated at the same scale as the topographic profile (35x vertical exaggeration).

Fig. DR11. Summary stratigraphy for Profile J1 (located on Fig. 3). The lower profile shows topography (from local sea level) with no vertical exaggeration. The upper profile shows only the excavated part of the profile, with stratigraphy illustrated at the same scale as the topographic profile (35x vertical exaggeration).

Fig. DR12. Summary stratigraphy for Profile J2 (located on Fig. 3). The lower profile shows topography (from local sea level) with no vertical exaggeration. The upper profile shows only the excavated part of the profile, with stratigraphy illustrated at the same scale as the topographic profile (35x vertical exaggeration).

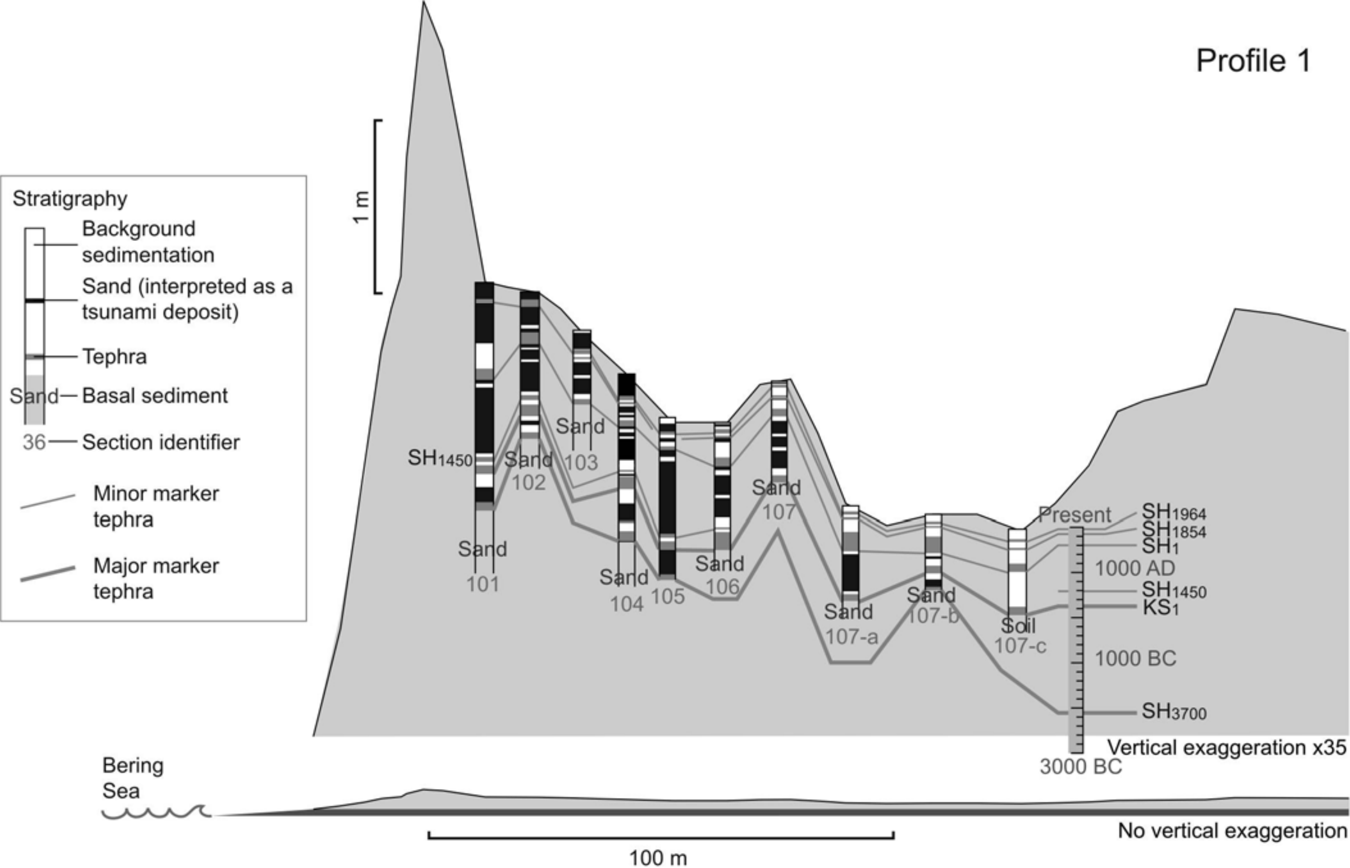
Fig. DR13. Summary stratigraphy for Profile J3 (located on Fig. 3). The lower profile shows topography (from local sea level) with no vertical exaggeration. The upper profile shows only the excavated part of the profile, with stratigraphy illustrated at the same scale as the topographic profile (35x vertical exaggeration).

Fig. DR14. Summary stratigraphy for Profile J4 (located on Fig. 3). The lower profile shows topography (from local sea level) with no vertical exaggeration. The upper profile shows only the excavated part of the profile, with stratigraphy illustrated at the same scale as the topographic profile (35x vertical exaggeration).

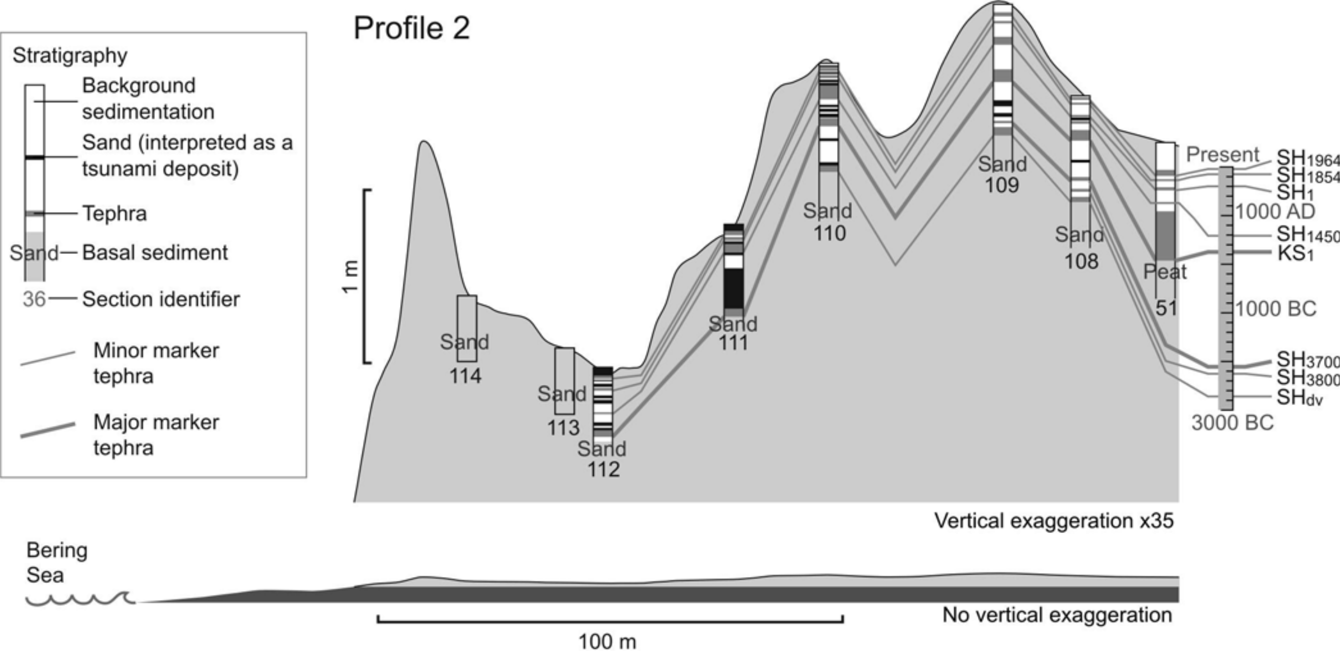


Bourgeois et al. DR Fig. 1 (Data repository)

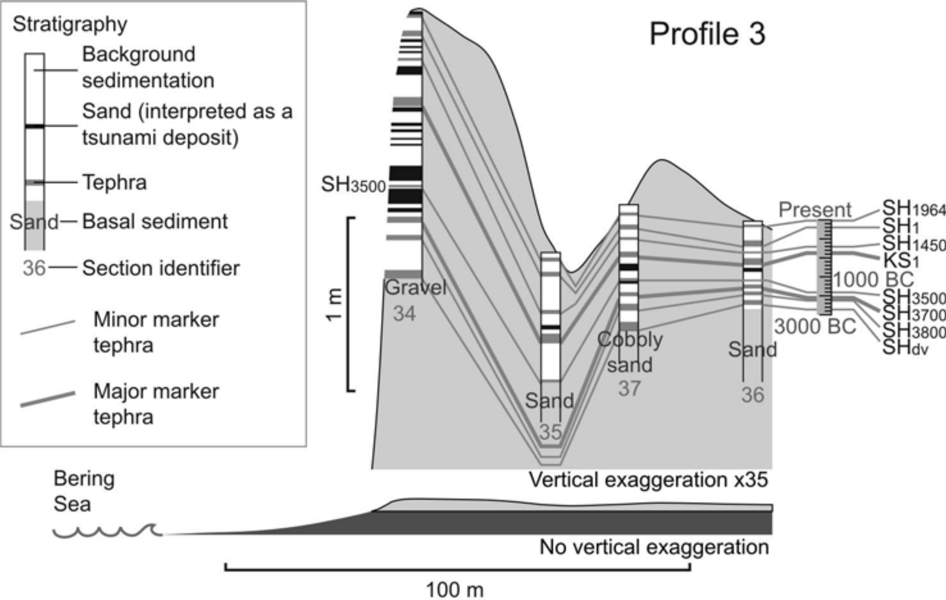
Bourgeois et al. DR Fig. 1 (Data repository)



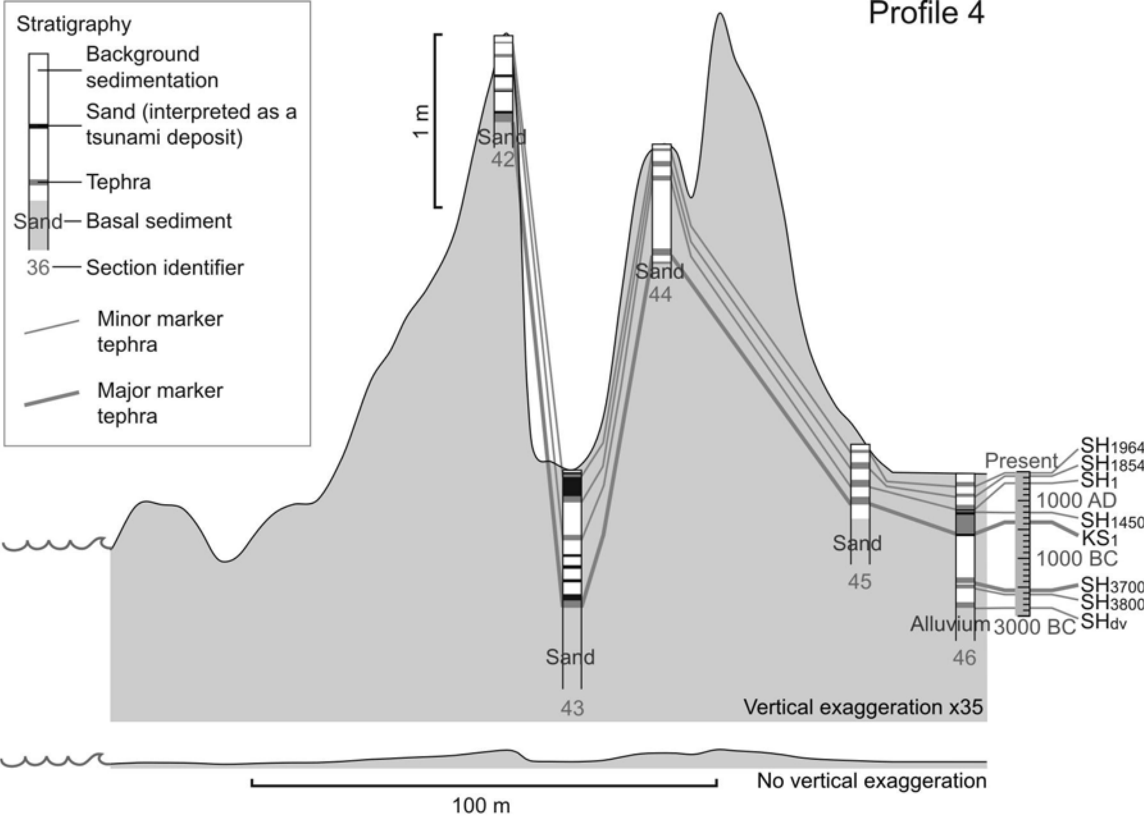
Bourgeois et al. Fig DR2



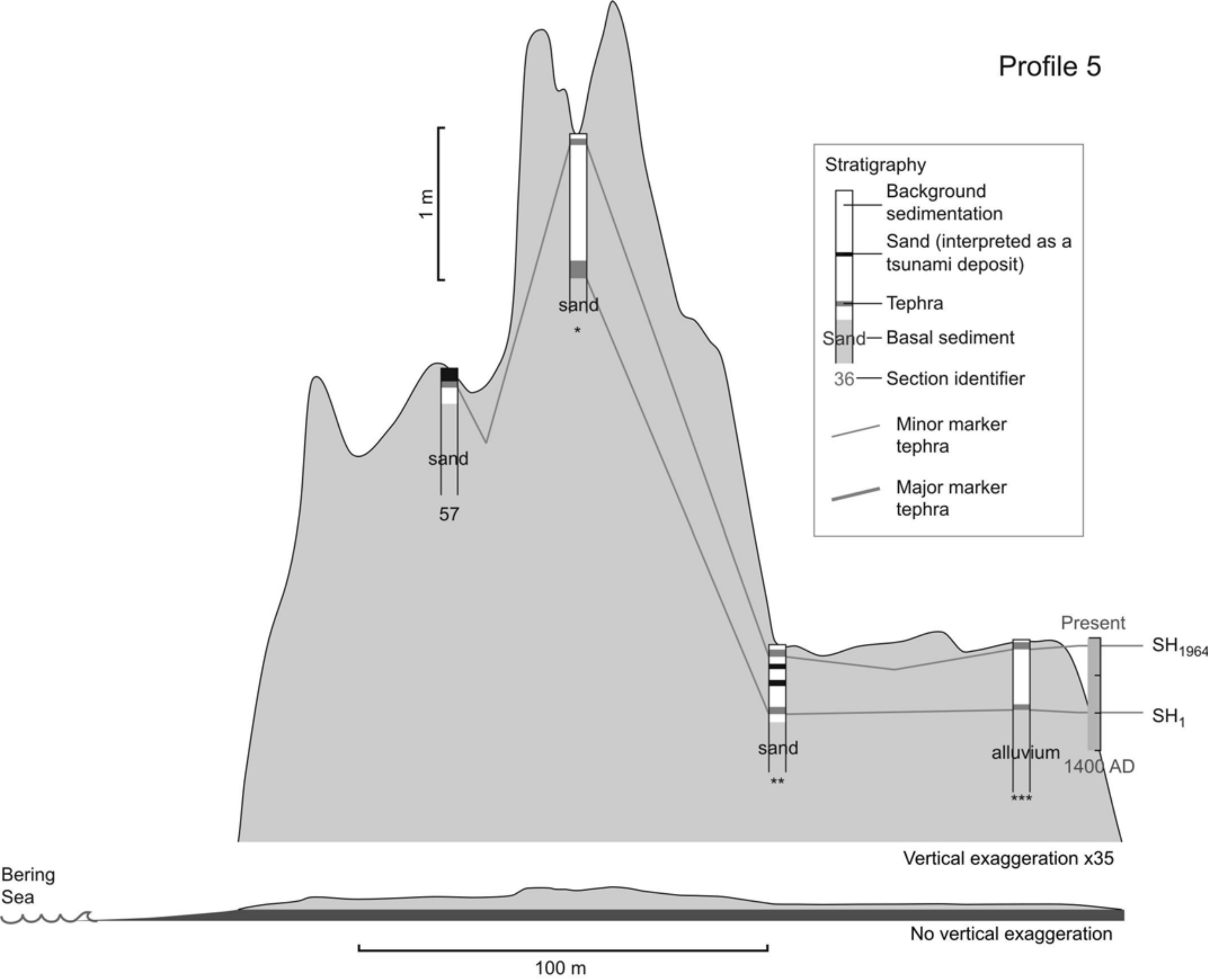
Bourgeois et al. Fig. DR3



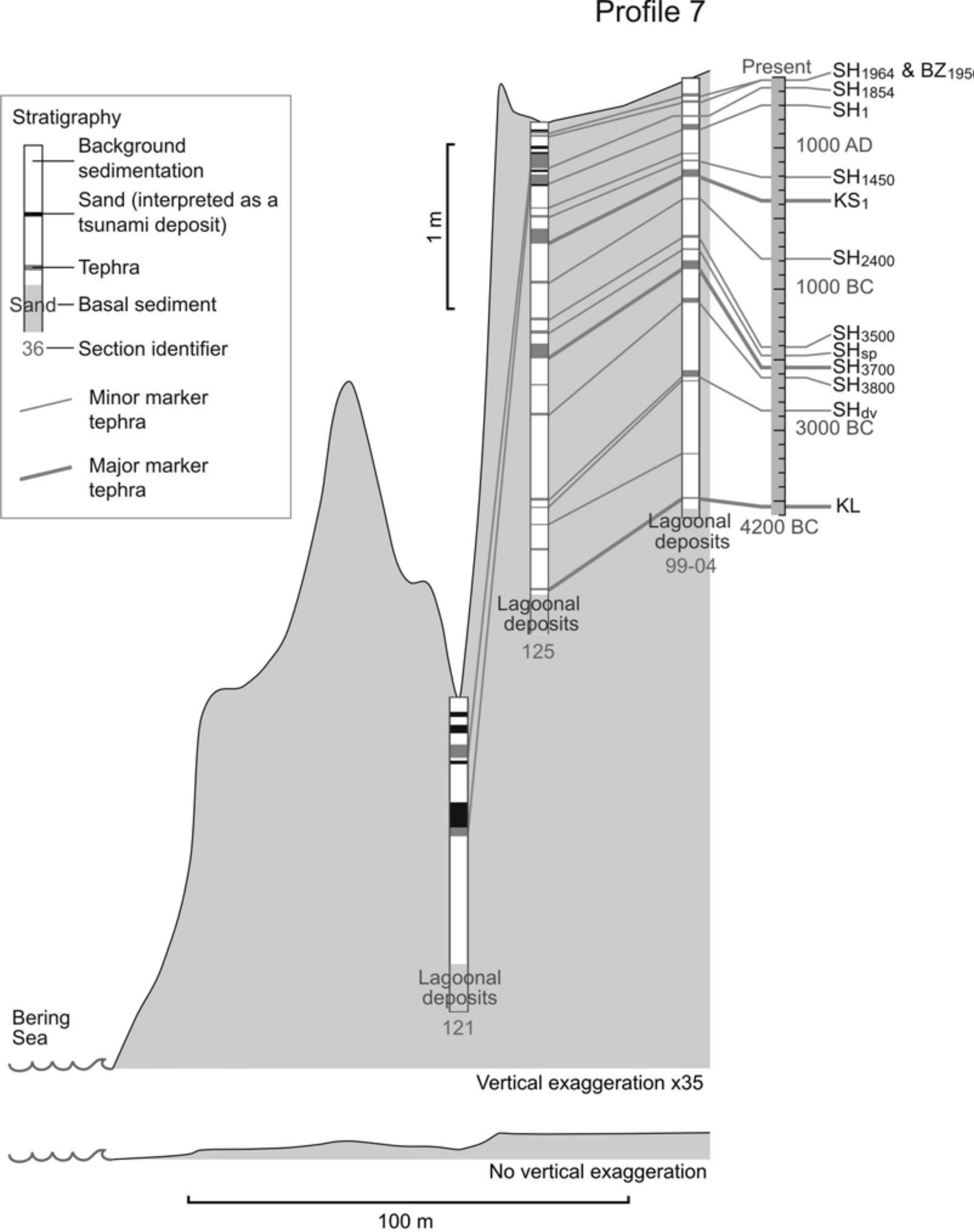
Bourgeois et al. Fig. DR4



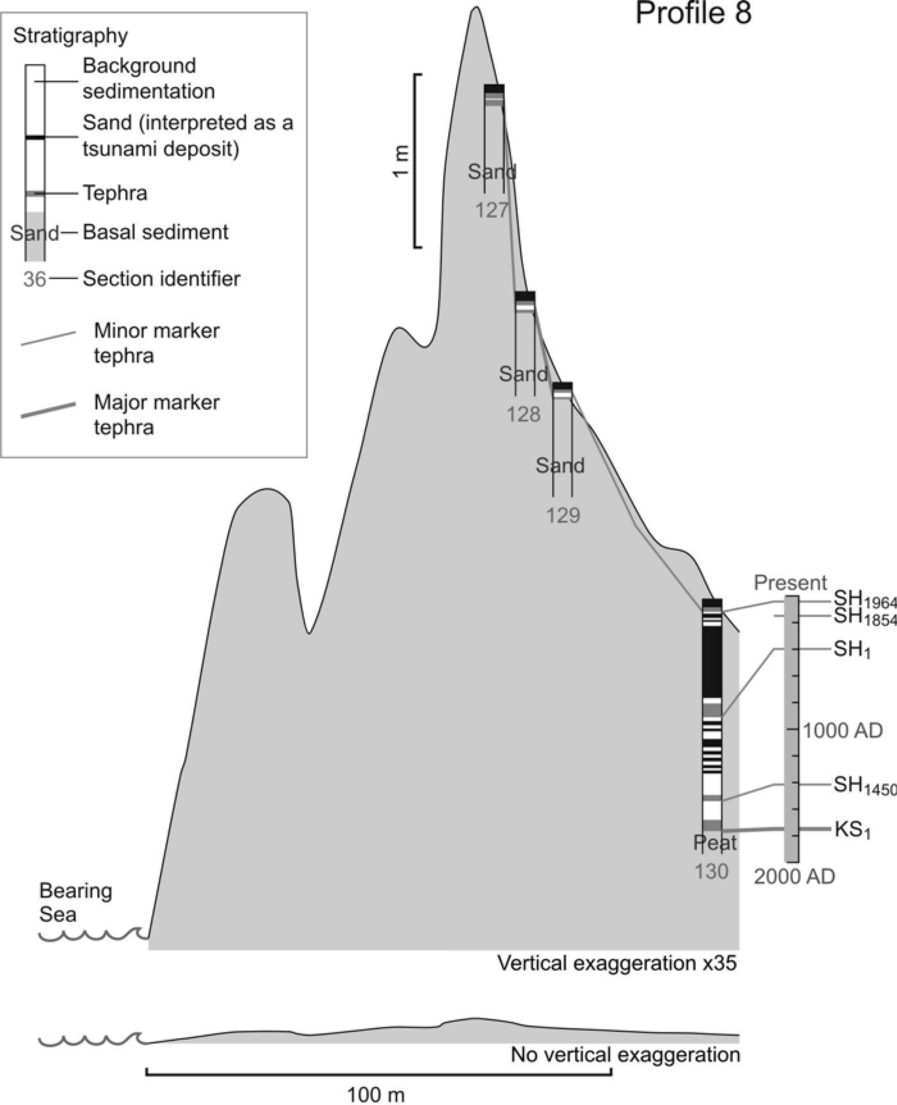
Bourgeois et al., Fig. DR5



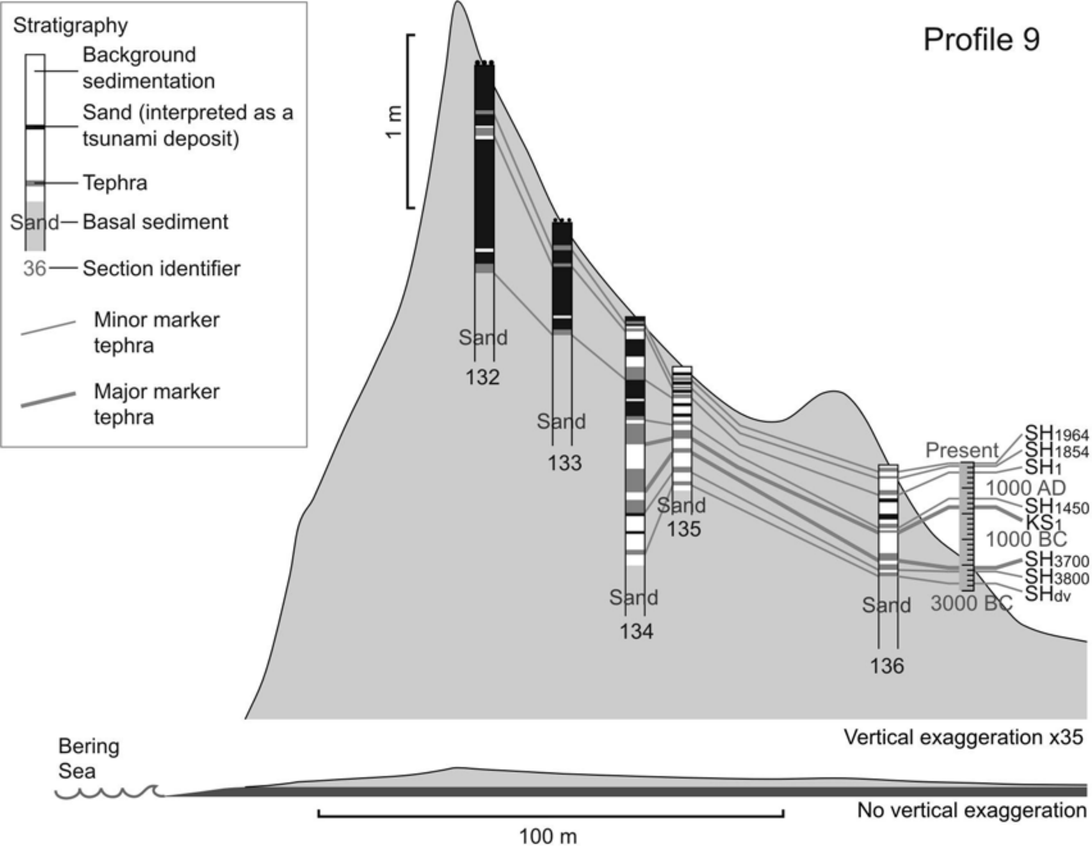
Bourgeois et al., Fig. DR6



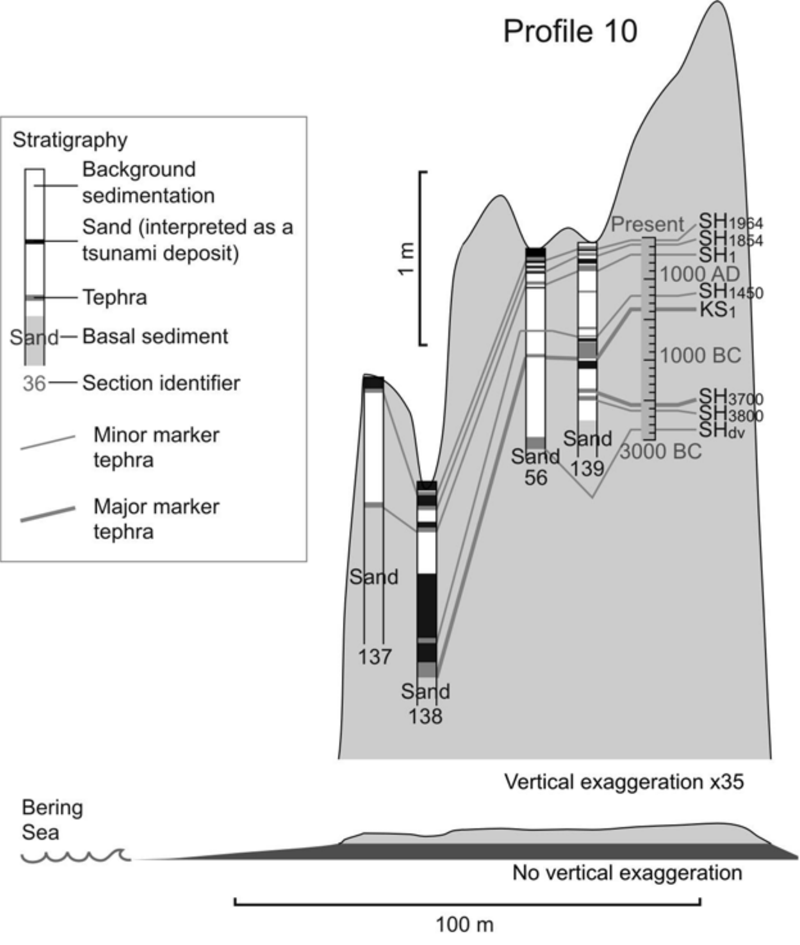
Bourgeois et al., Fig. DR7



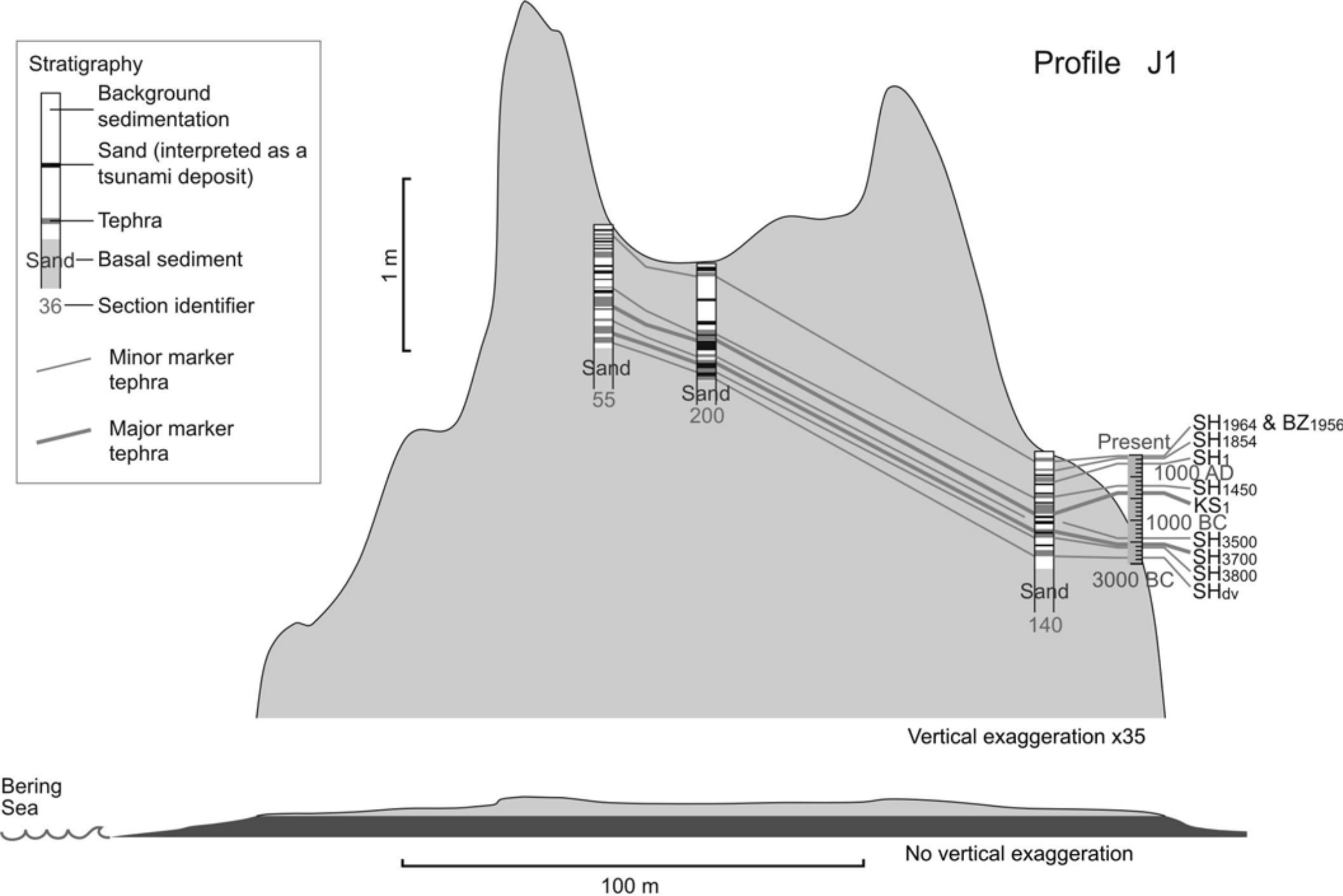
Bourgeois et al., Fig. DR8



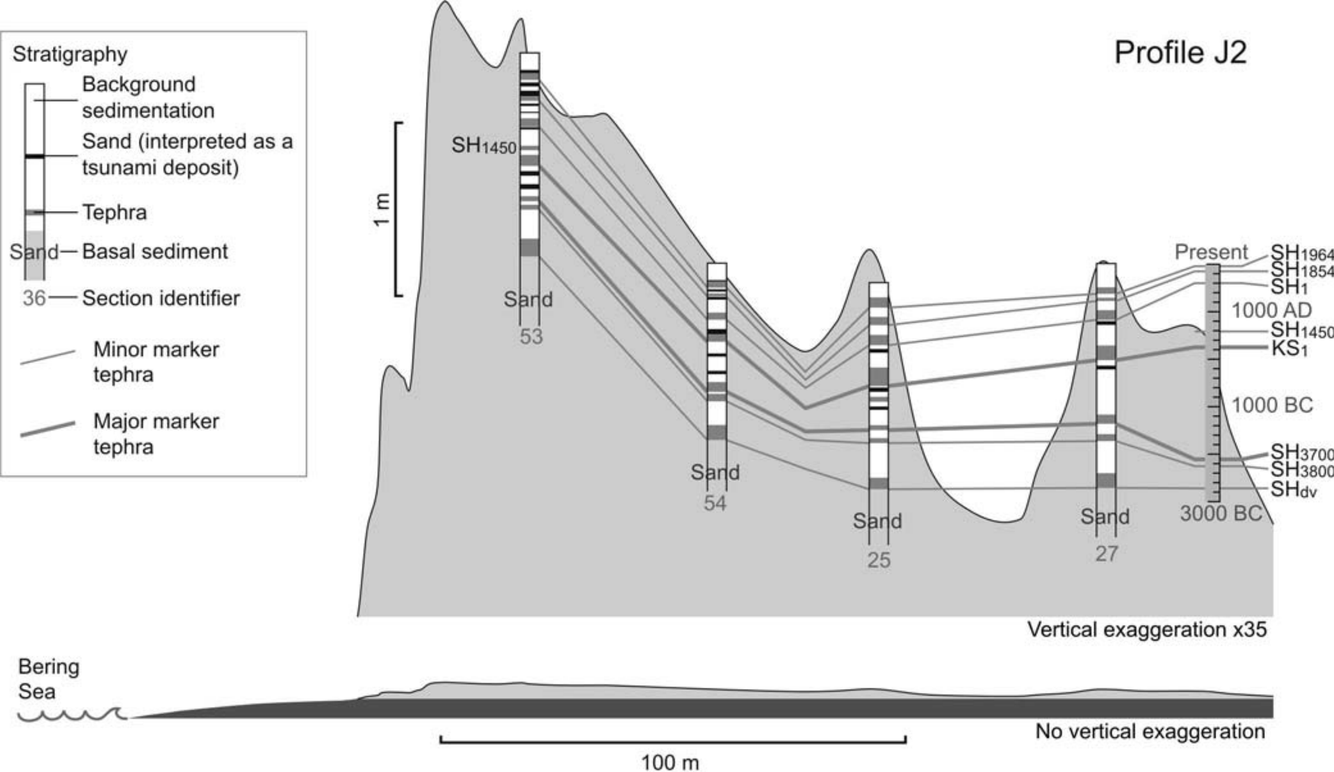
Bourgeois et al., Fig. DR9



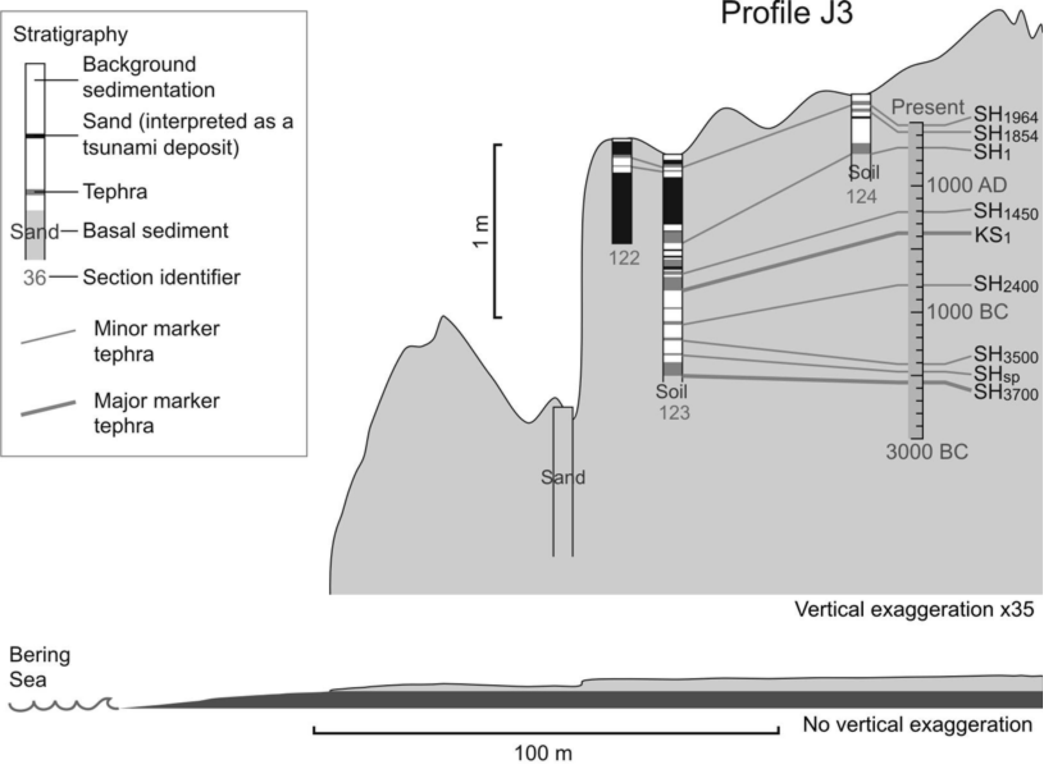
Bourgeois et al. Fig. DR10



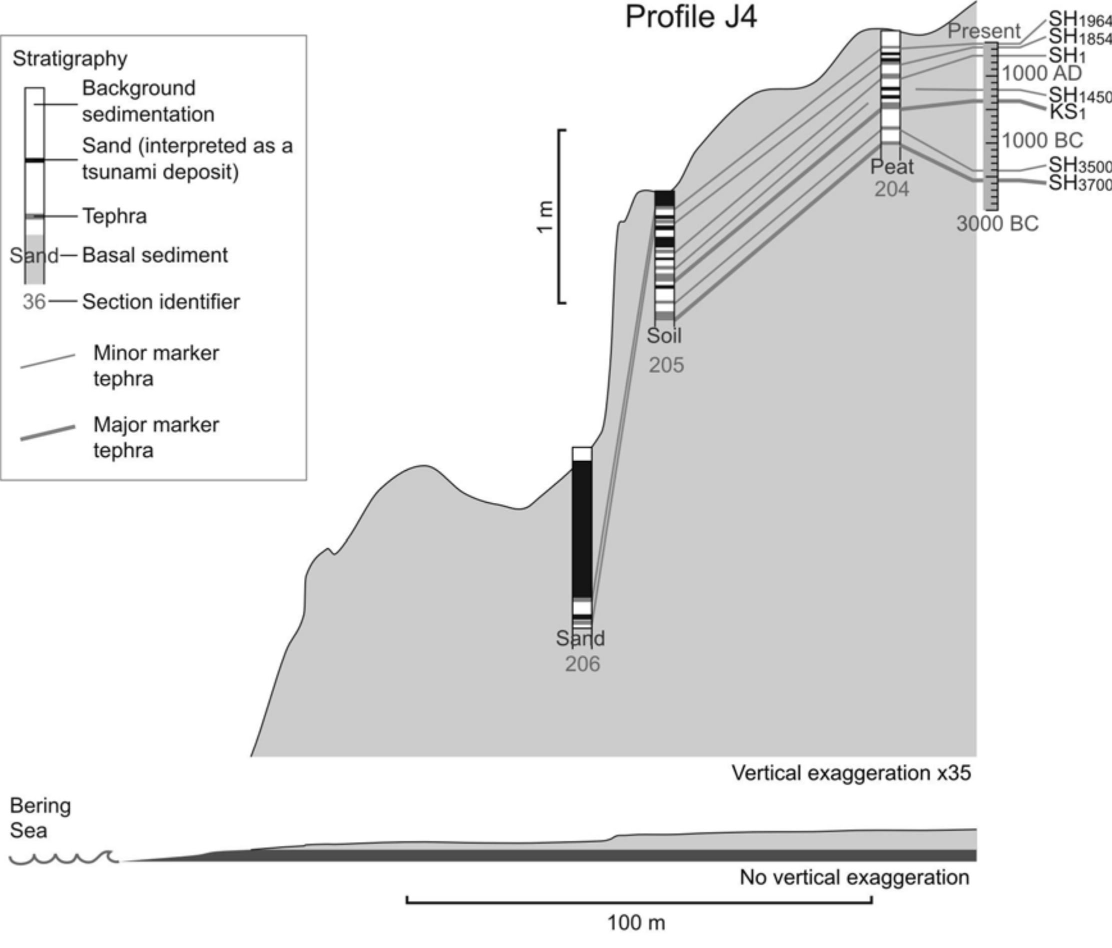
Bourgeois et al., Fig. DR11



Bourgeois et al., Fig. DR12



Bourgeois et al., Fig. DR13



Bourgeois et al., Fig. DR14

Table DR1

Bourgeois et al.
Data Repository Table 1

DR Table 1: REPRESENTATIVE MICROPROBE ANALYSES OF GLASS SHARDS FROM TEPHRA FOUND AT SOUTHERN OZERNOI BAY, NE COAST OF KAMCHATKA

Sample	**125/1**			**125/2**			**125/4**				**125/5**	
Ash	**SH 1854**			**SH_1**			**SH 2400**				**SH 3500**	
##	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
SiO_2	76,53	78,80	76,79	77,40	76,37	75,66	69,13	74,04	73,98	69,42	76,52	77,32
TiO_2	0,22	0,15	0,28	0,16	0,23	0,20	0,44	0,28	0,33	0,30	0,24	0,22
Al_2O_3	13,78	13,29	14,19	13,98	13,56	13,67	14,88	13,75	14,11	17,14	13,69	13,64
FeO	1,06	1,06	2,13	1,13	1,20	1,35	2,21	1,36	1,28	1,73	1,45	1,21
MnO	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
MgO	0,14	0,13	0,12	0,28	0,29	0,22	0,66	0,31	0,32	0,50	1,13	0,22
CaO	1,19	1,17	1,17	1,22	1,34	1,35	2,47	1,31	1,43	3,08	1,44	1,18
Na_2O	1,76	0,42	1,28	0,67	3,85	1,29	1,27	0,59	0,79	3,83	2,47	4,04
K_2O	3,13	3,08	3,09	3,12	2,99	2,96	2,88	2,74	3,01	2,68	3,04	2,83
TOTAL	**97,81**	**98,1**	**99,05**	**97,96**	**99,83**	**96,7**	**93,94**	**94,38**	**95,25**	**98,68**	**99,98**	**100,66**
SiO_2	78,24	80,33	77,53	79,01	76,50	78,24	73,59	78,45	77,67	70,35	76,54	76,81
TiO_2	0,22	0,15	0,28	0,16	0,23	0,21	0,47	0,30	0,35	0,30	0,24	0,22
Al_2O_3	14,09	13,55	14,33	14,27	13,58	14,14	15,84	14,57	14,81	17,37	13,69	13,55
FeO	1,08	1,08	2,15	1,15	1,20	1,40	2,35	1,44	1,34	1,75	1,45	1,20
MnO	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
MgO	0,14	0,13	0,12	0,29	0,29	0,23	0,70	0,33	0,34	0,51	1,13	0,22
CaO	1,22	1,19	1,18	1,25	1,34	1,40	2,63	1,39	1,50	3,12	1,44	1,17
Na_2O	1,80	0,43	1,29	0,68	3,86	1,33	1,35	0,63	0,83	3,88	2,47	4,01
K_2O	3,20	3,14	3,12	3,18	3,00	3,06	3,07	2,90	3,16	2,72	3,04	2,81
TOTAL	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00

Table DR1

Sample	**125/7**			**125/8**						
Ash	**SH 3700**			**SH 3800**						
##	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**
SiO_2	77,34	74,97	74,70	78,68	73,85	73,40	76,88	75,03	74,55	74,46
TiO_2	0,26	0,23	0,21	0,41	0,23	0,45	0,43	0,20	0,28	0,27
Al_2O_3	13,60	13,17	13,63	11,97	13,81	14,33	13,33	10,82	13,88	13,80
FeO	1,25	1,39	2,99	1,28	0,99	1,62	1,54	0,65	1,58	1,85
MnO	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
MgO	0,20	0,19	0,64	0,21	0,05	0,07	0,02	0,01	0,30	0,27
CaO	1,27	1,10	1,28	0,53	1,47	1,78	0,96	0,56	1,47	1,45
Na_2O	0,66	2,45	1,66	4,34	2,60	5,09	1,92	2,92	1,26	2,36
K_2O	2,49	3,01	2,77	3,63	3,91	3,19	3,57	3,41	2,63	2,62
TOTAL	**97,07**	**96,51**	**97,88**	**101,05**	**96,91**	**99,93**	**98,65**	**93,6**	**95,95**	**97,08**
SiO_2	79,67	77,68	76,32	77,86	76,20	73,45	77,93	80,16	77,70	76,70
TiO_2	0,27	0,24	0,21	0,41	0,24	0,45	0,44	0,21	0,29	0,28
Al_2O_3	14,01	13,65	13,93	11,85	14,25	14,34	13,51	11,56	14,47	14,22
FeO	1,29	1,44	3,05	1,27	1,02	1,62	1,56	0,69	1,65	1,91
MnO	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
MgO	0,21	0,20	0,65	0,21	0,05	0,07	0,02	0,01	0,31	0,28
CaO	1,31	1,14	1,31	0,52	1,52	1,78	0,97	0,60	1,53	1,49
Na_2O	0,68	2,54	1,70	4,29	2,68	5,09	1,95	3,12	1,31	2,43
K_2O	2,57	3,12	2,83	3,59	4,03	3,19	3,62	3,64	2,74	2,70
TOTAL	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00

Table DR1

Sample	**125/9**				**125/19**			**125/23**		
Ash	**SHdv**				**SHsp**			**KL**		
##	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**
SiO_2	71,14	71,58	74,67	77,21	56,24	58,84	54,94	55,20	55,45	55,65
TiO_2	0,31	0,37	0,22	0,16	0,60	0,61	0,61	1,21	1,10	1,25
Al_2O_3	14,38	14,67	13,14	13,31	17,01	16,46	17,50	15,61	15,72	15,26
FeO	1,70	1,92	1,35	1,10	3,88	4,08	3,98	10,88	10,41	10,75
MnO	0,00	0,00	0,00	0,00	0,10	0,20	0,10	0,26	0,19	0,19
MgO	0,24	0,24	0,18	0,25	1,11	2,59	1,92	4,44	4,41	4,46
CaO	1,83	1,78	1,36	1,21	4,86	6,46	6,10	8,08	8,12	7,88
Na_2O	2,54	0,91	2,03	1,94	2,67	3,48	3,52	2,75	2,95	2,76
K_2O	2,96	2,91	2,89	2,95	1,85	3,68	2,88	0,96	0,95	1,03
TOTAL	**95,1**	**94,38**	**95,84**	**98,13**	**88,96**	**97,41**	**92,18**	**99,61**	**99,48**	**99,43**
SiO_2	74,81	75,84	77,91	78,68	63,22	60,40	59,60	55,41	55,75	55,96
TiO_2	0,33	0,39	0,23	0,16	0,68	0,63	0,66	1,21	1,11	1,26
Al_2O_3	15,12	15,54	13,71	13,56	19,12	16,90	18,99	15,67	15,80	15,34
FeO	1,79	2,03	1,41	1,12	4,37	4,19	4,31	10,93	10,46	10,82
MnO	0,00	0,00	0,00	0,00	0,12	0,21	0,11	0,26	0,19	0,19
MgO	0,25	0,25	0,19	0,25	1,24	2,66	2,09	4,46	4,43	4,49
CaO	1,92	1,89	1,42	1,23	5,46	6,63	6,62	8,11	8,16	7,92
Na_2O	2,67	0,96	2,12	1,98	3,00	3,57	3,82	2,76	2,96	2,77
K_2O	3,11	3,08	3,02	3,01	2,08	3,78	3,13	0,97	0,96	1,04
TOTAL	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00

Table DR1

Sample	123/3				34/2					34/3			34/4		
Ash	**SH_1**				**KS_1**					**SH3700**			**SH3800**		
##	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**
SiO_2	73,54	74,13	73,29	73,12	66,76	69,70	71,57	69,83	72,79	74,29	72,57	75,08	75,97	76,24	76,08
TiO_2	0,36	0,37	0,34	0,30	0,29	0,37	0,26	0,37	0,30	0,19	0,18	0,18	0,28	0,33	0,26
Al_2O_3	13,35	13,42	13,66	13,62	10,49	13,43	13,81	13,03	13,50	13,20	12,65	13,59	14,07	14,23	14,47
FeO	2,34	2,54	2,40	2,51	2,24	2,85	2,15	2,70	2,59	1,46	1,33	1,24	1,95	1,79	2,01
MnO	0,02	0,03	0,00	0,00	0,00	0,01	0,00	0,02	0,00	0,00	0,00	0,00	0,00	0,00	0,00
MgO	0,40	0,44	0,47	0,46	0,21	0,40	0,24	0,41	0,33	0,19	0,15	0,17	0,24	0,28	0,30
CaO	2,09	2,03	2,04	2,07	1,87	2,31	1,97	2,18	1,90	1,28	1,17	1,00	1,52	1,43	1,55
Na_2O	0,43	1,59	1,42	3,31	0,85	1,43	1,18	1,20	1,69	1,93	2,21	0,54	2,39	0,38	0,63
K_2O	1,48	1,51	1,48	1,46	1,22	1,34	1,47	1,45	1,17	3,11	2,87	2,71	2,66	2,76	2,62
TOTAL	**94,01**	**96,06**	**95,1**	**96,85**	**83,93**	**91,84**	**92,65**	**91,19**	**94,28**	**95,65**	**93,13**	**94,51**	**99,08**	**97,44**	**97,92**
SiO_2	78,23	77,17	77,07	75,50	79,54	75,89	77,25	76,58	77,21	77,67	77,92	79,44	76,68	78,24	77,70
TiO_2	0,38	0,39	0,36	0,31	0,35	0,40	0,28	0,41	0,32	0,20	0,19	0,19	0,28	0,34	0,27
Al_2O_3	14,20	13,97	14,36	14,06	12,50	14,62	14,91	14,29	14,32	13,80	13,58	14,38	14,20	14,60	14,78
FeO	2,49	2,64	2,52	2,59	2,67	3,10	2,32	2,96	2,75	1,53	1,43	1,31	1,97	1,84	2,05
MnO	0,02	0,03	0,00	0,00	0,00	0,01	0,00	0,02	0,00	0,00	0,00	0,00	0,00	0,00	0,00
MgO	0,43	0,46	0,49	0,47	0,25	0,44	0,26	0,45	0,35	0,20	0,16	0,18	0,24	0,29	0,31
CaO	2,22	2,11	2,15	2,14	2,23	2,52	2,13	2,39	2,02	1,34	1,26	1,06	1,53	1,47	1,58
Na_2O	0,46	1,66	1,49	3,42	1,01	1,56	1,27	1,32	1,79	2,02	2,37	0,57	2,41	0,39	0,64
K_2O	1,57	1,57	1,56	1,51	1,45	1,46	1,59	1,59	1,24	3,25	3,08	2,87	2,68	2,83	2,68
TOTAL	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00

Note: Analyses 1-26 and 33-47 were obtained by S. Moskaleva and V.Chubarov with CAMECA electron microscope in the Institute of Volcanology, Petropavlovsk-Kamchatsky; analyses 27-32 were obtained by Dr. Scott H.Kuehner with a four-spectrometer JEOL 733 electron microprobe at the University of Washington. We give both original and recalculated to 100 % analyses.

DR Table 2: RADIOCARBON DATES AND PLANT FOSSIL COMPOSITION FROM BULK PEAT SAMPLES IN SOUTHERN OZERNOI BAY

I. Section 4, Podgornaya River mouth, profile 7 on Fig. 3 (also referred to as section 125, or 99-04).

Sample number (GIN-)	**Depth (cm)**	**Stratigraphy**	**^{14}C ages (yrs B.P.)**	**Macrofossil plant composition (%)** **and notes on microfossils**		**Material**
10320	32	Under SH_1 ash	c 550±40 h 400±60	*Carex tenuiflora Wahlb.* *C. cryptocarpa C.A.Mey.* Shrubs bark and wood *Sphagnum* *Eriophorum*	65 10 20 + 5	Peat
10321	48	Above SH_{1450}	c 1280±40 h 1390±40	*C. cryptocarpa* *C. tenuiflora* *C. diastena V.Krecz.* Shrubs bark and wood *Eriophorum*	50 40 5 5 +	Peat
10322	50	Under SH_{1450}	c 1410±40 h 1200±40	*C. cryptocarpa* *C. tenuiflora* *C. diastena* Shrubs bark and wood *Equisetum*	50 20 20 10 +	Peat

10323	54	Above KS_1	c 1360±40 h 1490±40	*C. cryptocarpa* *C. tenuiflora* *C. diastena* Shrubs bark and wood *Calamagrostis*	60 15 5 20 +	Peat
10324	60	Under KS_1	c 1570±40 h 1460±40	*C. cryptocarpa* *C. tenuiflora* *C. diastena* *Equisetum* *Sphagnum* Shrubs bark *Eriophorum* *Calamagrostis*	55 20 5 5 5 5 5 +	Peat
10325	71	Above SH_{2400} ash	c 2430±40 h 2130±70	*C. cryptocarpa* *C. tenuiflora* *C. diastena* *Calamagrostis* Shrubs bark Herbs undeterminable *Eriophorum*	55 10 + 15 5 10 5	Peat
10326	74	Under SH_{2400} ash	c - h 2380±40	*C. cryptocarpa* *C. tenuiflora* *C. diastena* *Calamagrostis* *Eriophorum* *Sphagnum* Shrubs bark	50 20 5 15 10 + +	Peat

10327	93	Above SH ash	c 2980±40 h 3140±40	*C. cryptocarpa* *C. diandra Schrank* *C. tenuiflora* *Calamagrostis* *Menyanthes* *Equisetum* *Eriophorum* Shrubs bark Herbs undeterminable	55 15 5 10 5 + + + 10	Peat
10328	97	Under SH ash	c 3060±40 h 3160±40	*C. cryptocarpa* *C. diandra* *C. tenuiflora* *C. diastena* *Calamagrostis* *Sphagnum* *Menyanthes* *Equisetum* Shrubs bark	50 15 5 + 10 10 5 + 5	Peat
10329	101	Above SHsp ash	c 3260±40 h -	*C. cryptocarpa* *C. diandra* *C. diastena* *C. tenuiflora* Shrubs bark and wood *Calamagrostis* *Bryales* *Equisetum* *Menyanthes*	45 15 + + 25 15 + + +	Peat

10330	104	Under SHsp	c 3120±60 h -	*C. cryptocarpa* *C. diandra* *C. tenuiflora* *C. diastena* *C. wiluica Meinsh.* *Calamagrostis* *Bryales* *Equisetum* *Menyanthes*	70 10 5 + 10 5 + + +	Peat
10331	108	Above SH ash	c 3030±50 h 3350±40	*C. cryptocarpa* *C. diandra* *C. tenuiflora* *C. wiluica* Shrubs bark and wood *Calamagrostis* *Equisetum* *Menyanthes*	35 20 5 + 35 5 + +	Peat
10332	117	Under SH and fine green-brown thin ashes	c 3540±40 h 3290±40	*C. cryptocarpa* *C. diandra* *C. tenuiflora* *C. wiluica* Shrubs bark and wood *Bryales* *Calamagrostis* *Menyanthes* *Equisetum*	45 20 10 5 15 5 + + +	Peat

10333	132	Above SH yellow ash	c 3640±200 h 3450±40	*C. cryptocarpa* *C. diandra* *C. wiluica* *C. tenuiflora* *C. rhynchophysa C.A.Mey*. Shrubs bark *Equisetum* *Menyanthes* *Bryales* Deposits composition: Amorphous detritus Vascular plants Diatom algae Chrysophyta Mineral matter Diatoms, species of genera: *Pinnularia*, *Eunotia*, *Stauroneis*, *Diatoma*, *Gomphonema*, *Cymbella*, *Navicula*, *Synedra*, *Diploneis*, *Tabellaria*	55 20 15 5 + 5 + + + 15 40 15 + 30	Peaty gyttja

10334	136	Under SH yellow ash	c 3680±160 h 3550±40	*C. cryptocarpa* *C. diandra* *C. rhynchophysa* *C. tenuiflora* Shrubs bark and wood *Bryales* *Equisetum* *Menyanthes* Herbs undeterminable Deposits composition: Amorphous detritus Vascular plants Diatom algae Chrysophyta Mineral matter Diatoms, species of genera: *Pinnularia*, *Eunotia*, *Diploneis*, *Cymbella*, *Gomphonema*, *Diatoma*, *Stauroneis*, *Navicula*, *Amphora*	55 20 5 + 10 + + + 10 10 45 5 + 40	Peaty gyttja

10336	174	Above SHdv ash	c 4040±40 h -	*C. cryptocarpa* *C. diandra* *C. wiluica* *C. rhynchophysa* *Calamagrostis* *Equisetum* *Bryales* *Menyanthes* Shrubs bark and wood Herbs undeterminable Deposits composition: Amorphous detritus Vascular plants Diatom algae Chrysophyta Mineral matter Diatoms, species of genera: *Pinnularia, Eunotia, Tabellaria, Cymbella, Gomphonema, Diploneis, Amphora,Synedra, Stauroneis, Navicula*	50 25 5 5 5 + + + + 10 10 35 15 + 40	Peaty gyttja

10337	182	Under SHdv and gray thin ash	c 3920±60 h 3860±40	*C. cryptocarpa* *C. diandra* *C. wiluica* *C. rhynchophysa* *C. tenuiflora* *Equisetum* *Menyanthes* *Calamagrostis* *Bryales* Shrubs bark Amorphous detritus Vascular plants Diatom algae Chrysophyta Animals (Rhizopoda) Mineral matter Diatoms, species of genera: *Pinnularia, Eunotia, Diploneis, Cymbella, Navicula, Stauroneis, Synedra, Tabellaria, Rhopalodia, Gomphonema*	40 25 15 20 + + + + + + 15 40 15 + + 30	Peaty gyttja

10340	214	In the middle of the peat layer between SHdv and KL ash	-	*C. rhynchophysa* *C. cryptocarpa* *C. diandra* *C. tenuiflora* *C. wiluica* Shrubs bark and wood *Equisetum* *Bryales* *Menyanthes* Amorphous detritus Vascular plants Diatom algae Chrysophyta Animals (Rhizopoda) Pollen and spores Mineral matter Diatoms, species of genera: *Pinnularia, Eunotia, Stauroneis, Synedra, Navicula, Diploneis, Diatoma, Gomphonema,Neidium, Surirella, Amphora, Cymbella,Melosira*	40 20 10 + + 30 + + + 15 35 20 + + + 30	Peaty gyttja
10341	249	Above the KL ash	c 5220±40 h 5240±40	*C. rhynchophysa* *C. cryptocarpa* *C. sp.* *Equisetum* Shrubs bark Herbs undeterminable	50 15 10 5 + 20	Peat

10342	252	Under the KL ash	c 5210±50 h 5310±40	*C. rhynchophysa* *C. cryptocarpa* *C. sp.* *Equisetum* Herbs undeterminable *Calamagrostis*	50 10 15 5 20 +	Peat
10343	257	Bottom of the peat overlying blue-gray sand	c 5380±40 h 5380±40	*C. rhynchophysa* *C. cryptocarpa* *C. sp.* *C. tenuiflora* *Equisetum* *Calamagrostis* Shrubs bark Herbs undeterminable	40 15 20 + 5 + + 20	Peat

II. Section 5, Stolbovaya River mouth, profile 8 on Fig. 3 (section 130).

10348	69	Between tsunami deposits	c 640±40 h 680±40	Calamagrostis *C. middendorfii Fr.Schmidt* *C. vesicata Meinsh.* *C. cryptocarpa C.A.Mey.* *C diastena V.Krecz.* *Alnus* bark	75 15 10	Peat

10349	73	Below tsunami deposit	c 560±40 h 560±40	*Calamagrostis* *C. diastena* *C. cryptocarpa* *C. middendorfii* *C. vesicata* *Alnus* Some increase of water supply to the bog, indicated by: 1) increase in total amount of common for this bog diatom algae (*Pinnularia*, *Eunotia*, *Nitzschia*); 2) increase in the diversity of algae species: there appeared desmids (Cosmarium), other green algae, euglenoids (Trachelomonus).	60 15 10 5 5 5	Peat
10350	80	Between tsunami deposits	c 770±40 h 830±40	*Calamagrostis* *C. cryptocarpa* *C. diastena* *C. middendorfii* *Sphagnum* *Alnus* Herbs undeterminable	40 25 20 5 + + 10	Peat

10351	83	Between tsunami deposits	c 980±90 h 870±40	*C. cryptocarpa* *C. diastena* *Calamagrostis* *Sphagnum* *Menyanthes* *Alnus* Herbs undeterminable	45 20 20 5 + + 10	Peat
10352	88	Between tsunami deposits	c 1020±40 h 1010±40	*C. cryptocarpa* *C. diastena* *C. middendorfii* *Calamagrostis* Shrub bark Herbs undeterminable	40 40 + 5 5 10	Peat
10353	91	Between tsunami deposits	c 1060±40 h 1050±40	*C. diastena* *C. cryptocarpa* *Calamagrostis* Shrub bark and wood Herbs undeterminable	65 10 10 5 10	Peat

* No signs of marine algae have been found in the samples.

Notes: First column gives Geological institute Radiocarbon lab numbers. c- cold alkaline extraction, h - hot alkaline extraction. “Peat” is applied to bog deposits, “gyttja” is applied to lacustrine deposits, “+” stands for “present”. Botanical composition was identified by O.A.Uspenskaia, “Torfgeologia” Geological survey, Moscow region, Russia.

Diatom data on muddy sand below basal peat, section 4 (or 125, or 99-04) at Stolbovaya [field interpretation—“lagoon deposits”] (In order of abundance), the sample contains specimens of diatom cell walls from: *Navicula humerosa*, *N. cincta*, *N. lacustris*, *N. cryptocephala v.angusta*, *Eunotia exiqua*, *E. praerupta*, and *Amphora ovalis*. Interpretation: The deposits were likely to have formed in waters with some salinity (brackish); typical marine forms were not found. The most common taxon is *Navicula humerosa*, a brackish-water species. *N. cincta* and *N. cryptocephala v.angusta* are brackish-to-fresh water species, characteristic of Kamchatka hot springs (ref. *Catalogue of fresh water algae of the USSR*, 1951) (O.A. Uspenskaia, personal communication, 2002)

Table DR3

DR Table 3: PRELIMINARY DATA ON TSUNAMI DEPOSITS AT OZERNOI CAPE AND SOLDATSKAYA BAY

<u>OZERNOI CAPE REGION (~50 excavations, 2003 field season)</u>

<table>
<tr><td>time interval</td><td>present-1854</td><td>1854-1000</td><td>1000-1500</td><td>1500-1800</td><td>1800-3000</td></tr>
<tr><td>years in time interval</td><td>150</td><td>850</td><td>500</td><td>300</td><td>1200</td></tr>
<tr><td># tsunami deposits</td><td>2</td><td>3</td><td>3</td><td>1</td><td>3</td></tr>
<tr><td># deposits/100 yr</td><td>1.3</td><td>0.4</td><td>0.6</td><td>0.3</td><td>0.25</td></tr>
<tr><td># deposits/1000 yr</td><td colspan="2">5 (1000)</td><td colspan="2">5 (800)</td><td>2.5 (1200)</td></tr>
<tr><td>(per time interval)</td><td colspan="3">5.3 (1500)</td><td colspan="2">2.7 (1500)</td></tr>
</table>

<u>SOLDATSKAYA REGION (~50 excavations, 2003 field season)</u>

<table>
<tr><td>time interval</td><td>present-1854</td><td>1854-1500</td><td>1500-1800</td><td colspan="2">1800-3600</td><td>3600-4100</td></tr>
<tr><td>years in time interval</td><td>150</td><td>1350</td><td>300</td><td colspan="2">1800</td><td>500</td></tr>
<tr><td># tsunami deposits</td><td>4</td><td>7</td><td>3</td><td colspan="2">6</td><td>3</td></tr>
<tr><td># deposits/100 yr</td><td>2.6</td><td>0.5</td><td>1.0</td><td colspan="2">0.3</td><td>0.6</td></tr>
<tr><td># deposits/1000 yr</td><td colspan="2">7.3 (1500)</td><td colspan="3">4.3 (2100)</td><td></td></tr>
<tr><td>(per time interval)</td><td></td><td colspan="3">6 (1650)</td><td colspan="2">4 (2300)</td></tr>
<tr><td></td><td colspan="4">8 (1800)</td><td colspan="2"></td></tr>
</table>

Table DR3

MARKER TEPHRA USED	approximate age of tephra (years ago)	found at	
SH1854	150 years ago (1854 A.D.)	OZERNOI	SOLDATSK
SH2	1000	OZERNOI	
SH ~1500	1500	OZERNOI	SOLDATSK
KS1	1800	OZERNOI	SOLDATSK
SH ~3000	3000	OZERNOI	
SHsp	3600		SOLDATSK
SHdv	4100		SOLDATSK

Notes: These data are preliminary principally because the marker tephra have not yet .
been fully established; KS1 is the most robust