

## UPPSALA RADIOCARBON MEASUREMENTS VIII

ALLAN STENBERG and INGRID U. OLSSON

Fysiska Institutionen, Uppsala Universitet, Uppsala, Sweden

The following list covers the samples measured since autumn 1964, when Uppsala VI was written, to determine the increase of the  $C^{14}/C^{12}$  ratio due to explosion of nuclear devices.

The technique used is the same as that previously described by Olsson (1958). The collection of  $CO_2$  is still made by static absorption in 0.5 N NaOH as described earlier (Uppsala VI). The reference sample is 95% of the activity of the NBS oxalic-acid standard in the year 1950. Corrections for deviations from the normal  $C^{13}/C^{12}$  ratio are applied. No correction for industrial effect is applied. All results are given according to the Editorial Statement in Radiocarbon:

$$\Delta = \delta C^{14} - (2\delta C^{13} + 50) \left(1 + \frac{\delta C^{14}}{1000}\right)$$

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*A. Abisko, Sweden*

Abisko Naturvetenskapliga Station is scientific research station belonging to Kungliga Vetenskapsakademien. Sampling apparatus ( $68^\circ 20.5' N$  Lat,  $18^\circ 49.3' E$  Long) is 390 m above sealevel near the lake Torne Träsk in mountain district of Sweden. Railway passing near is used by electrical trains (except one engine used at railway station). The few houses and the tourist station 0.2 to 1.5 km away are heated either with oil or wood. Due to absence of a road connection only a few motor vehicles are used. Thus contamination of the locality by fossil fuels is minimal. Apparatus is placed above level of tops of trees.

Dating No.	No.,	Year, Month,	Day	$\delta\text{C}^{14}\text{‰}$	$\delta\text{C}^{13}\text{‰}$	$\Delta\text{‰}$	
U-351.	UA-134s,	1964,	July,	5 to 8.	986	-24.1	867 $\pm$ 13
U-352.	UA-135,	1964,	Sept,	5 to 8.	968	-28.5	982 $\pm$ 14
U-368.	UA-138,	1964,	Oct,	15 to 18.	894	-24.4	892 $\pm$ 23
U-369.	UA-140,	1964,	Nov,	25 to 28.	702	-23.5	697 $\pm$ 40
U-370.	UA-142,	1964,	Dec,	15 to 18.	782	-22.1	772 $\pm$ 13
U-371.	UA-143,	1965,	Jan,	15 to 18.	756	-25.2	756 $\pm$ 13
U-372.	UA-146,	1965,	Febr,	15 to 18.	754	-25.3	755 $\pm$ 13
U-373.	UA-149,	1965,	Mar,	15 to 18.	737	-26.7	743 $\pm$ 17
U-374.	UA-152,	1965,	April,	15 to 18.	748	-28.2	759 $\pm$ 13
U-375.	UA-137s,	1964,	Oct,	5 to 8.	918	-27.0	925 $\pm$ 14
U-376.	UA-157,	1965,	June,	15 to 18.	1150	-26.2	1155 $\pm$ 15
U-377.	UA-160,	1965,	July,	15 to 18.	1274	-30.2	1298 $\pm$ 15
U-378.	UA-139s,	1964,	Oct,	25 to 28.	892	-27.0	900 $\pm$ 14
U-379.	UA-163,	1965,	Aug,	15 to 18.	1034	-24.2	1030 $\pm$ 14
U-386.	UA-165,	1965,	Sept,	15 to 18.	1001	-25.6	1003 $\pm$ 17
U-387.	UA-168,	1965,	Oct,	15 to 18.	927	-25.4	928 $\pm$ 16
U-388.	UA-155,	1965,	May,	15 to 18.	2066	-26.5	2075 $\pm$ 17
U-389.	UA-176,	1966,	Jan,	15 to 18.	702	-25.4	704 $\pm$ 15
U-390.	UA-173,	1965,	Dec,	15 to 18.	773	-25.6	775 $\pm$ 13
U-391.	UA-171,	1965,	Nov,	15 to 18.	786	-27.3	794 $\pm$ 13
U-392.	UA-187,	1966,	May,	5 to 8.	687	-27.2	694 $\pm$ 21
U-393.	UA-153s,	1965,	April,	25 to 28.	35160	-25.8	35220 $\pm$ 140
U-394.	UA-161s,	1965,	July,	25 to 28.	1038	-25.8 <sup>x</sup>	(1041 $\pm$ 19)
U-2300.	UA-154s,	1965,	May,	5 to 8.	6969	-24.1	6954 $\pm$ 52
U-2301.	UA-161s,	1965,	July,	25 to 28.	1068	-25.8 <sup>x</sup>	(1072 $\pm$ 40)
U-2304.	UA-179,	1966,	Feb,	15 to 18.	641	-25.3	642 $\pm$ 12
U-2305.	UA-181,	1966,	Mar,	5 to 8.	643	-25.5	645 $\pm$ 11
U-2306.	UA-182,	1966,	Mar,	15 to 18.	721	-26.4	722 $\pm$ 15
U-2307.	UA-159s,	1965,	July,	5 to 8.	1420	-21.4	1403 $\pm$ 23
U-2308.	UA-156s,	1965,	June,	5 to 8.	1259	-25.4	1261 $\pm$ 14
U-2309.	UA-189,	1966,	May,	15 to 18.	700	-27.7	709 $\pm$ 15
U-2310.	UA-191,	1966,	June,	15 to 18.	721	-25.3	722 $\pm$ 13
U-2311.	UA-184,	1966,	April,	5 to 8.	744	-25.6	746 $\pm$ 15
U-2312.	UA-190,	1966,	May,	25 to 28.	674	-26.5	679 $\pm$ 12

<sup>x</sup> $\delta\text{C}^{13}$  assumed

Erratum in Uppsala VI p. 332, read:

U-1305. UA-118, 1964, Jan, 15 to 18 761 -25.5 763  $\pm$  10*B. Kapp Linné, Spitsbergen*

Kapp Linné is a radiostation and meteorologic station belonging to Telegrafstyret, Oslo, Norway. Sampling apparatus (78° 04' N Lat,

13° 38' E Long) is only a few meters above sealevel near shore at mouth of Isfjorden. Apparatus is placed on top of a small house rather far from the generators and their smoke.

## Dating

No.	No.,	Year,	Month,	Day	$\delta C^{14}\text{‰}$	$\delta C^{13}\text{‰}$	$\Delta C_{cc}$
U-360.	US-31,	1964,	Jan,	15 to 18.	799	-30.8	$820 \pm 15$
U-380.	US-35,	1964,	July,	27 to 31.	967	-24.7	$966 \pm 14$
U-381.	US-36,	1964,	Aug,	23 to 27.	957	-27.8	$968 \pm 14$
U-382.	US-37,	1964,	Sept,	15 to 19.	925	-22.8	$917 \pm 14$
U-383.	US-38,	1964,	Oct,	20 to 24.	895	-26.2	$900 \pm 13$
U-384.	US-40,	1965,	June,	23 to 27.	809	-26.5	$814 \pm 13$
U-385.	US-41,	1965,	Aug,	23 to 27.	814	-25.8 <sup>x</sup>	$(820 \pm 13)$
U-2313.	US-45,	1965,	Dec,	19 to 23.	732	-24.9	$732 \pm 12$
U-2314.	US-46,	1966,	Jan,	22 to 26.	726	-28.7	$739 \pm 14$
U-2316.	US-44,	1965,	Nov,	22 to 26.	799	-23.5	$793 \pm 17$

<sup>x</sup> $\delta C^{13}$  assumed

## C. M/S Stratus

During 1964, CO<sub>2</sub> was collected onboard M/S Stratus by scientists taking care of the apparatus for registering the cosmic rays. CO<sub>2</sub> was collected in a bucket. This was put at various places on the ship to minimize contamination from the chimney. Collection periods were usually limited to one or two days, but this proved to be too short a time to get enough CO<sub>2</sub> for normal filling of proportional counter. As a consequence of this most samples had to be diluted.

*General Comment:* from Figure 1 it is obvious that increase in activity usually is 1/2 to 1 month later in Spitsbergen than Abisko during the last summers. The high peak in Abisko starting in the end of April 1965 seems to be a local event. It will be discussed at I.A.E.A. symposium in Monaco, 1967. The 1964 values from Southern hemisphere are lower than those from Northern hemisphere. Our values have partly been discussed previously (Olsson *et al.*, 1966). Reference list contains some recent papers not included in Uppsala VI.

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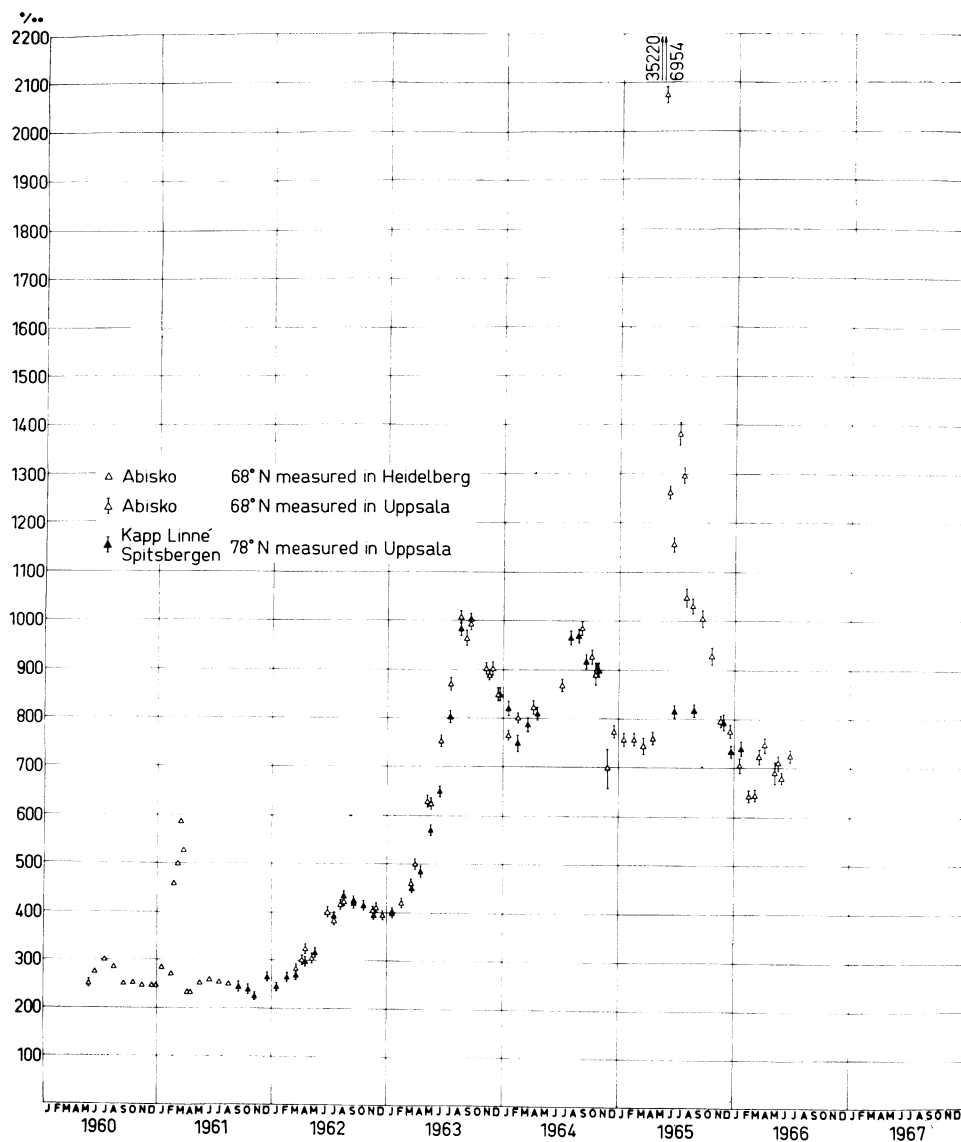


Fig. 1. The per mil  $C^{14}$  excess over natural concentration ( $\Delta$ ) at Abisko and Kapp Linné. Points given with statistical errors are determined at the Uppsala  $C^{14}$  lab. Points given without statistical errors are determined at the Heidelberg  $C^{14}$  lab. (Münnich and Vogel, 1963) but collected through the Uppsala lab.

Dating No.	No.,	Year,	Month,	Day	Position	$\delta C^{14}\text{‰}$	$\delta C^{13}\text{‰}$	$\Delta\text{‰}$
U-353.	1,	1964,	Jan,	25 to 26.	46° 54' — 38° 55' N 6° 35' — 11° 06' W	828	-27.7	838 ± 15
U-355.	3,	1964,	Feb,	5 to 6.	13° 27' — 19° 44' S 0° 37' — 5° 32' E	508	-26.3	512 ± 34
U-357.	5,	1964,	Feb,	9 to 10.	33° 33' — 34° 36' S 17° 27' — 24° 29' E	477	-29.7	491 ± 13
U-359.	7,	1964,	May,	3 to 4.	38° 18' — 37° 07' S 138° 13' — 130° 15' E	741	-24.0	738 ± 37
U-361.	8,	1964,	Aug,	16 to 18.	30° 03' — 32° 44' S 31° 33' — 45° 56' E	589	-27.9	598 ± 19
U-362.	9,	1964,	Aug-Sept,	31 to 2.	35° 44' — 37° 54' S 138° 08' — 144° 55' E	565	-24.9	564 ± 19
U-363.	10,	1964,	Nov,	6 to 8.	28° 00' — 20° 34' S 109° 03' — 97° 16' E	641	-25.8	643 ± 20
U-364.	11,	1964,	Aug,	2 to 4.	15° 20' — 3° 25' N 17° 40' — 12° 15' W	699	-25.8	702 ± 13
U-365.	12,	1964,	Nov,	8 to 10.	18° 51' — 11° 07' S 94° 41' — 83° 17' E	602	-21.0	590 ± 17
U-366.	13,	1964,	Nov,	11 to 13.	8° 53' — 0° 32' S 79° 58' — 68° 38' E	628	-22.8	621 ± 12
U-367.	14,	1964,	Nov,	13 to 15.	0° 05' — 8° 18' N 67° 47' — 57° 09' E	668	-25.5	670 ± 13

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