

## Supporting online material

Table S1. Average values over the indicated time periods for OC concentrations together with the biogenic contribution in percent (based on  $^{14}\text{C}$  AMS analysis). Additionally, the derived apportionment of OC into the biogenic ( $\text{OC}_b$ ) and the fossil ( $\text{OC}_f$ ) fraction is shown.

Time period	OC conc. [ $\mu\text{g kg}^{-1}$ ice]	biogenic contribution to OC [%]	$\text{OC}_b$ conc. [ $\mu\text{g kg}^{-1}$ ice]	$\text{OC}_f$ conc. [ $\mu\text{g kg}^{-1}$ ice]
1935-1940	57	59	33	23
1930-1934	39	76	30	9
1925-1929	26	69	18	8
1920-1924	18	88	16	< 3
1915-1919	26	83	21	4
1910-1914	29	74	22	7
1905-1909	29	89	26	3
1900-1904	34	94	32	< 3
1895-1899	40	56	22	17
1890-1894	35	51	18	17
1885-1889	39	61	24	15
1880-1884	33	63	21	12
1875-1879	32	72	23	9
1870-1874	38	88	33	5
1865-1869	33	84	28	5
1860-1864	26	89	23	3
1855-1859	23	90	21	< 3
1850-1854	55	88	48	7
1840-1849	77	81	63	14
1830-1839	15	84	12	< 3
1820-1829	26	86	23	4
1810-1819	47	91	42	4
1800-1809	22	85	19	3
1790-1799	13	83	11	< 3
1780-1789	24	84	20	4
1770-1779	28	84	23	4
1760-1769	24	94	22	< 3
1750-1759	22	98	22	< 3
1740-1749	22	92	20	< 3
1730-1739	24	92	22	< 3
1720-1729	29		26	3
1710-1719	30		28	3
1690-1709	40	93	37	3
1680-1689	44	89	39	5
1670-1679	50	84	42	8
1660-1669	28		25	3
1650-1659	23		20	< 3

Table S2. Average values over the indicated time periods for EC concentrations together with the biogenic contribution in percent (based on  $^{14}\text{C}$  AMS analysis). Additionally, the derived apportionment of EC into the biogenic ( $\text{EC}_b$ ) and the fossil ( $\text{EC}_f$ ) fraction is shown.

Time period	EC conc. [ $\mu\text{g kg}^{-1}$ ice]	biogenic contribution to EC [%]	$\text{EC}_b$ conc. [ $\mu\text{g kg}^{-1}$ ice]	$\text{EC}_f$ conc. [ $\mu\text{g kg}^{-1}$ ice]
1935-1940	39	22	9	31
1930-1934	19	29	6	14
1925-1929	21	35	7	14
1920-1924	25	30	7	17
1915-1919	35	31	11	24
1910-1914	36	31	11	25
1905-1909	37	31	12	26
1900-1904	35	31	11	24
1895-1899	28	31	9	19
1890-1894	19	24	5	15
1885-1889	24	24	6	18
1880-1884	25	24	6	19
1875-1879	20	32	6	14
1870-1874	8	48	4	4
1865-1869	12	48	6	6
1860-1864	10	55	5	4
1855-1859	9	58	5	4
1850-1854	10	58	6	4
1840-1849	11	58	6	4
1830-1839				
1825-1829				
1810-1824	19	49		
1800-1809	13	49		
1790-1799	11	49	6	6
1780-1789	10	49	5	5
1770-1779	9		5	4
1760-1769	12		7	5
1750-1759	13		7	5
1740-1749	13		8	6
1730-1739	16		8	6
1710-1729	24	41		
1690-1709	26	41		
1680-1689	20	41		
1670-1679	10		6	4
1660-1669	13		8	6
1650-1659	14		8	6