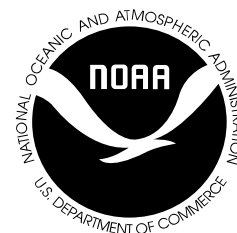


# NOAA Atlas NESDIS 45



## WORLD OCEAN DATABASE 2001 Volume 4: Temporal Distribution of Temperature, Salinity and Oxygen Profiles



Ricardo A. Locarnini  
Margarita E. Conkright  
Timothy P. Boyer  
John I. Antonov  
Olga K. Baranova  
Hernan E. Garcia  
Robert Gelfeld  
Daphne Johnson  
Paulette P. Murphy  
Todd D. O'Brien  
Igor Smolyar  
Cathy Stephens



Editor: Sydney Levitus

National Oceanographic Data Center  
Ocean Climate Laboratory

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National Oceanographic Data Center  
User Services Team  
NOAA/NESDIS E/OC1  
SSMC-III, 4th Floor  
1315 East-West Highway  
Silver Spring, MD 20910-3282

Telephone: (301)713-3277

Fax: (301)713-3302

E-mail: [services@nodc.noaa.gov](mailto:services@nodc.noaa.gov)

NODC World Wide Web site: <http://www.nodc.noaa.gov/>

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## PREFACE

The oceanographic databases described by this atlas series greatly expands on the *World Ocean Database 1998* (WOD98) product. We have expanded these earlier databases to include data from new instrument types such as profiling floats and new variables such as pCO<sub>2</sub> and TCO<sub>2</sub>. Previous oceanographic databases including the NODC/WDC profile archives, and products derived from these databases, have proven to be of great utility to the international oceanographic, climate research, and operational environmental forecasting communities. In particular, the objectively analyzed fields of temperature and salinity derived from these databases have been used in a variety of ways. These include use as boundary and/or initial conditions in numerical ocean circulation models, for verification of numerical simulations of the ocean, as a form of "sea truth" for satellite measurements such as altimetric observations of sea surface height, and for planning oceanographic expeditions. Increasingly nutrient fields are being used to initialize and/or verify biogeochemical models of the world ocean. The databases, and products based on these databases, are critical for support of international assessment programs such as the Intergovernmental Program on Climate Change (IPCC) of the United Nations.

It is well known that the amount of carbon dioxide in the earth's atmosphere will most likely double during the next century compared to CO<sub>2</sub> levels that occurred at the beginning of the Industrial Revolution. Regardless of one's scientific and/or political view of a possible "enhanced greenhouse warming" due to the increase of carbon dioxide, it is necessary that the international scientific community have access to the most complete historical oceanographic databases possible in order to study this problem, as well as other scientific and environmental problems.

The production of oceanographic databases is a major undertaking. Such work benefits from the input of many individuals and organizations. We have tried to structure the data sets in such a way as to encourage feedback from experts around the world who have knowledge that can improve the data and metadata contents of the database. It is only with such feedback that high quality global ocean databases can be prepared. Just as with scientific theories and numerical models of the ocean and atmosphere, the development of global ocean databases is not carried out in one giant step, but proceeds in an incremental fashion.

In the acknowledgment section of this publication we have expressed our view that creation of global ocean databases is only possible through the cooperation of scientists, data managers, and scientific administrators throughout the international community. I thank my colleagues at the Ocean Climate Laboratory of NODC for their dedication to the project leading to publication of this atlas series. Their commitment has made this database possible. It is my belief that the development and management of national and international oceanographic data archives is best performed by scientists who are actively working with the data.

Sydney Levitus  
National Oceanographic Data Center/World Data Center for Oceanography- Silver Spring  
Silver Spring, MD  
March 2002

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This work was made possible by a grant from the NOAA Climate and Global Change Program which enabled the establishment of a research group, the Ocean Climate Laboratory (OCL), at the National Oceanographic Data Center. The purpose of the OCL is to prepare research quality oceanographic databases, as well as to compute objective analyses of, and diagnostic studies based on, these databases.

The data made available as part of this atlas include a part of the oceanographic data archives maintained by NODC/WDC as well as data acquired as a result of the IODE/IOC “Global Oceanographic Data Archaeology and Rescue” (GODAR) project. At NODC/WDC, “data archaeology and rescue” projects are supported with funding from the NOAA Environmental Science Data and Information Management (ESDIM) Program and NOAA Climate and Global Change Program. The majority of funding for these efforts is now provided by the ESDIM program. Support for this work from joint NASA/NOAA and DOE/NOAA Global Change data management programs is appreciated. Support for some of the regional IOC/GODAR meetings was provided by the MAST program of the European Union.

We acknowledge the scientists, technicians, and programmers who have submitted data to national and regional data centers as well as the managers and staff at the various data centers. Our database allows for the storage of metadata including information about Principal Investigators to recognize their efforts.

The OCL expresses thanks to those who provided comments and helped develop an improved *World Ocean Database 2001* (WOD01) product. In particular, Steve Worley of NCAR and Steve Hankin of PMEL for testing the CD-ROMs prior to distribution; Roy Lowry (BODC) for help with the BODC project data; and Tom Whitworth (TAMU) for information on database problems. Any errors in WOD01 are the responsibility of the Ocean Climate Laboratory.

Ervin Godfrey Trammell and Charlotte Sazama of the NODC International Data Exchange Team helped locate data in the WDC archives for digitization. We thank Mike Chepurin, Igor Minin, Dan Smolyar, Alexandra Grodsky, and Carla Forgy of the OCL for their work in data digitization and their assistance in quality control of the data and metadata in WOD01. Renee Tatusko identified many missing metadata. The OCL acknowledges the help received over the last several years from colleagues in other NODC divisions. Francis Mitchell helped with all the code lists and accessions, Melanie Hamilton supplied GTSP data.

Declassification of naval oceanographic data by various navies is acknowledged. The Intergovernmental Oceanographic Commission has requested such declassification efforts in recent years.

# **World Ocean Database 2001, Volume 4: Temporal Distribution of Ocean Station Data (OSD) Temperature, Salinity and Oxygen Profiles**

*R. A. Locarnini, M. E. Conkright, T. P. Boyer, J. I. Antonov, O. K. Baranova, H. E. Garcia, R. Gelfeld, D. Johnson, P. P. Murphy, T. D. O'Brien, I. Smolyar, C. Stephens*

*Ocean Climate Laboratory  
National Oceanographic Data Center / NOAA  
Silver Spring, MD*

## **ABSTRACT**

This atlas describes a collection of scientifically quality controlled Ocean Station Data (OSD) temperature, salinity and oxygen profiles. Yearly distributions for individual years of all OSD temperature, salinity and oxygen profiles in the database are presented to provide information on the state of ocean OSD profile observations.

## **1. INTRODUCTION**

Ocean Station Data (OSD) has historically referred to measurements made from a stationary research ship using reversing thermometers to measure temperature and making measurements of other variables such as salinity, oxygen, nutrients, chlorophyll, *etc.* on seawater samples gathered using special bottles. The two most commonly used bottles are the Nansen and Nisken bottles. Data that are in the OSD files are frequently referred to as “bottle data” and the entire collection of data from these files may be alternatively referred to as the “Bottle Data File”. WOD01 includes measurements of temperature, salinity, oxygen, nitrate, nitrate+nitrite, phosphate, silicate, pCO<sub>2</sub>, tCO<sub>2</sub>, pH, alkalinity, chlorophyll and plankton.

## **2. OCEAN STATION DATA (OSD) TEMPERATURE, SALINITY AND OXYGEN PROFILE DISTRIBUTIONS**

Figure 1 shows the number of OSD temperature profiles contained in WOD01 for the world ocean as a function of year. Figures 2 and 3 show the time series for the southern and northern hemispheres respectively. Figure 4 shows the distribution of OSD temperature profiles contained in WOD01 for the world ocean. There are a total of 1,951,157 OSD temperature profiles for the entire World Ocean with 201,642 profiles (10.3 %) measured in the southern hemisphere and 1,749,515 profiles (89.7 %) measured in the northern hemisphere. Table 1 provides the number of OSD temperature profiles included in WOD01 as a function of year. Tables 2 and 3 show the numbers for the southern and

northern hemispheres respectively. The geographic distribution of OSD temperature profiles for individual years for 1900-2001 are shown in Appendix A, Figures A1-A102. Most profiles have been made in the northern hemisphere, but the southern hemisphere coverage has been increased due to international data archaeology and rescue efforts and the World Ocean Database project (Levitus *et al.* 1994, 2002).

Figure 5 shows the number of OSD salinity profiles contained in WOD01 for the world ocean as a function of year. Figures 6 and 7 show the time series for the southern and northern hemispheres respectively. Figure 8 shows the distribution of OSD salinity profiles contained in WOD01 for the world ocean. There are a total of 1,767,288 OSD salinity profiles for the entire World Ocean with 192,827 profiles (10.9 %) measured in the southern hemisphere and 1,574,461 profiles (89.1 %) measured in the northern hemisphere. Table 4 provides the number of OSD salinity profiles included in WOD01 as a function of year. Tables 5 and 6 show the numbers for the southern and northern hemispheres respectively. The geographic distribution of OSD salinity profiles for individual years for 1900-2000 are shown in Appendix B, Figures B1-B101. Most profiles have been made in the northern hemisphere, but the southern hemisphere coverage has been increased due to international data archaeology and rescue efforts and the World Ocean Database project (Levitus *et al.* 1994, 2002).

Figure 9 shows the number of OSD oxygen profiles contained in WOD01 for the world ocean as a function of year. Figures 10 and 11 show the time series for the southern and northern hemispheres respectively. Figure 12 shows the distribution of OSD oxygen profiles contained in WOD01 for the world ocean. There are a total of 586,443 OSD oxygen profiles for the entire World Ocean with 122,035 profiles (20.8 %) measured in the southern hemisphere and 464,408 profiles (79.2 %) measured in the northern hemisphere. Table 7 provides the number of OSD oxygen profiles included in WOD01 as a function of year. Tables 8 and 9 show the numbers for the southern and northern hemispheres respectively. The geographic distribution of OSD oxygen profiles for individual years for 1900-2000 are shown in Appendix C, Figures C1-C99. Most profiles have been made in the northern hemisphere, but the southern hemisphere coverage has been increased due to international data archaeology and rescue efforts and the World Ocean Database project (Levitus *et al.* 1994, 2002).

Table 1 The number of OSD temperature casts in WOD01 as a function of year for the World Ocean.  
The total number of casts = 1,951,157

YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE
1772	2	1818	3	1864	1798	1910	2294	1956	18675
1773	1	1819	0	1865	352	1911	3662	1957	22517
1774	0	1820	2	1866	1494	1912	2532	1958	24499
1775	0	1821	0	1867	78	1913	2680	1959	22811
1776	0	1822	0	1868	791	1914	2090	1960	24619
1777	0	1823	0	1869	557	1915	693	1961	25806
1778	0	1824	2	1870	727	1916	406	1962	25894
1779	0	1825	10	1871	0	1917	635	1963	36498
1780	0	1826	18	1872	0	1918	714	1964	43700
1781	0	1827	30	1873	29	1919	941	1965	44435
1782	0	1828	13	1874	131	1920	1769	1966	44267
1783	0	1829	0	1875	85	1921	2269	1967	44514
1784	0	1830	0	1876	500	1922	2308	1968	44897
1785	0	1831	0	1877	383	1923	3341	1969	52438
1786	0	1832	0	1878	25	1924	4276	1970	46419
1787	0	1833	0	1879	17	1925	4104	1971	51361
1788	0	1834	0	1880	49	1926	4782	1972	56449
1789	0	1835	0	1881	2	1927	4510	1973	53324
1790	0	1836	8	1882	1	1928	5172	1974	46585
1791	0	1837	17	1883	6	1929	5390	1975	43223
1792	0	1838	11	1884	1	1930	5216	1976	44194
1793	0	1839	15	1885	0	1931	5571	1977	42683
1794	0	1840	9	1886	17	1932	8175	1978	44729
1795	0	1841	21	1887	27	1933	8803	1979	50430
1796	0	1842	8	1888	128	1934	10004	1980	43648
1797	0	1843	0	1889	224	1935	11397	1981	43361
1798	0	1844	0	1890	61	1936	11278	1982	40899
1799	0	1845	0	1891	92	1937	11624	1983	42900
1800	0	1846	3	1892	90	1938	13587	1984	46701
1801	0	1847	28	1893	178	1939	15090	1985	52619
1802	0	1848	0	1894	184	1940	9556	1986	49111
1803	0	1849	1	1895	41	1941	8357	1987	45710
1804	10	1850	3	1896	46	1942	5086	1988	42847
1805	1	1851	1	1897	18	1943	5173	1989	44774
1806	0	1852	0	1898	441	1944	4170	1990	45685
1807	0	1853	0	1899	841	1945	3046	1991	27838
1808	0	1854	0	1900	941	1946	5886	1992	25875
1809	0	1855	4	1901	1053	1947	7861	1993	25527
1810	0	1856	0	1902	1163	1948	11071	1994	12308
1811	0	1857	6	1903	1825	1949	13112	1995	11787
1812	0	1858	23	1904	1962	1950	14997	1996	8939
1813	0	1859	5	1905	2344	1951	20046	1997	7596
1814	0	1860	0	1906	1607	1952	19294	1998	5583
1815	0	1861	0	1907	2091	1953	18114	1999	3930
1816	5	1862	299	1908	1308	1954	17884	2000	3921
1817	27	1863	0	1909	2282	1955	17806	2001	1283



Table 2 The number of OSD temperature casts in WOD01 as a function of year for the southern hemisphere. The total number of casts = 201,642

YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE
1772	2	1818	3	1864	323	1910	0	1956	1343
1773	1	1819	0	1865	0	1911	107	1957	2752
1774	0	1820	1	1866	0	1912	27	1958	2396
1775	0	1821	0	1867	0	1913	43	1959	2473
1776	0	1822	0	1868	0	1914	258	1960	3553
1777	0	1823	0	1869	0	1915	417	1961	4101
1778	0	1824	1	1870	0	1916	296	1962	5126
1779	0	1825	7	1871	0	1917	528	1963	6505
1780	0	1826	10	1872	0	1918	446	1964	6224
1781	0	1827	18	1873	4	1919	289	1965	6698
1782	0	1828	10	1874	23	1920	269	1966	5930
1783	0	1829	0	1875	77	1921	221	1967	7711
1784	0	1830	0	1876	26	1922	0	1968	8081
1785	0	1831	0	1877	0	1923	34	1969	6076
1786	0	1832	0	1878	0	1924	4	1970	4999
1787	0	1833	0	1879	0	1925	232	1971	6264
1788	0	1834	0	1880	0	1926	331	1972	5785
1789	0	1835	0	1881	0	1927	197	1973	5319
1790	0	1836	3	1882	0	1928	281	1974	5013
1791	0	1837	8	1883	2	1929	467	1975	5175
1792	0	1838	10	1884	0	1930	572	1976	6362
1793	0	1839	15	1885	0	1931	471	1977	5598
1794	0	1840	9	1886	14	1932	390	1978	6079
1795	0	1841	21	1887	5	1933	197	1979	6768
1796	0	1842	8	1888	0	1934	209	1980	5326
1797	0	1843	0	1889	15	1935	138	1981	5745
1798	0	1844	0	1890	0	1936	421	1982	5728
1799	0	1845	0	1891	0	1937	323	1983	5986
1800	0	1846	0	1892	0	1938	490	1984	5103
1801	0	1847	28	1893	0	1939	243	1985	6956
1802	0	1848	0	1894	1	1940	121	1986	6025
1803	0	1849	0	1895	0	1941	322	1987	6646
1804	2	1850	1	1896	0	1942	166	1988	6711
1805	0	1851	0	1897	1	1943	68	1989	4725
1806	0	1852	0	1898	15	1944	398	1990	3164
1807	0	1853	0	1899	10	1945	60	1991	2054
1808	0	1854	0	1900	73	1946	113	1992	4462
1809	0	1855	0	1901	42	1947	367	1993	3347
1810	0	1856	0	1902	15	1948	935	1994	3026
1811	0	1857	6	1903	81	1949	396	1995	3620
1812	0	1858	8	1904	0	1950	745	1996	1292
1813	0	1859	2	1905	0	1951	710	1997	1026
1814	0	1860	0	1906	21	1952	705	1998	472
1815	0	1861	0	1907	0	1953	660	1999	83
1816	2	1862	112	1908	0	1954	705	2000	41
1817	0	1863	0	1909	0	1955	1294	2001	7

Table 3 The number of OSD temperature casts in WOD01 as a function of year for the northern hemisphere. The total number of casts = 1,749,515

YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE
1772	0	1818	0	1864	1475	1910	2303	1956	18217
1773	0	1819	0	1865	352	1911	3565	1957	20354
1774	0	1820	1	1866	1494	1912	2508	1958	22831
1775	0	1821	0	1867	78	1913	2646	1959	21297
1776	0	1822	0	1868	791	1914	2092	1960	22030
1777	0	1823	0	1869	557	1915	471	1961	22357
1778	0	1824	1	1870	727	1916	170	1962	21849
1779	0	1825	3	1871	0	1917	108	1963	31731
1780	0	1826	8	1872	0	1918	269	1964	39926
1781	0	1827	12	1873	25	1919	654	1965	39600
1782	0	1828	3	1874	108	1920	1505	1966	39907
1783	0	1829	0	1875	9	1921	2061	1967	41187
1784	0	1830	0	1876	474	1922	2332	1968	38714
1785	0	1831	0	1877	383	1923	3314	1969	47528
1786	0	1832	0	1878	25	1924	4302	1970	42431
1787	0	1833	0	1879	17	1925	3880	1971	47124
1788	0	1834	0	1880	49	1926	4451	1972	53881
1789	0	1835	0	1881	2	1927	4315	1973	50025
1790	0	1836	5	1882	1	1928	4902	1974	43266
1791	0	1837	9	1883	4	1929	4977	1975	40943
1792	0	1838	1	1884	1	1930	4679	1976	40913
1793	0	1839	0	1885	0	1931	5125	1977	41409
1794	0	1840	0	1886	3	1932	7824	1978	47114
1795	0	1841	0	1887	22	1933	8613	1979	52014
1796	0	1842	0	1888	128	1934	9895	1980	45487
1797	0	1843	0	1889	209	1935	11268	1981	48099
1798	0	1844	0	1890	61	1936	10937	1982	45653
1799	0	1845	0	1891	92	1937	11307	1983	41400
1800	0	1846	3	1892	90	1938	13123	1984	46681
1801	0	1847	0	1893	178	1939	14870	1985	50723
1802	0	1848	0	1894	183	1940	9442	1986	48432
1803	0	1849	1	1895	41	1941	8038	1987	43180
1804	8	1850	2	1896	46	1942	4926	1988	39147
1805	1	1851	1	1897	17	1943	5105	1989	44995
1806	0	1852	0	1898	426	1944	3772	1990	47001
1807	0	1853	0	1899	832	1945	3025	1991	31626
1808	0	1854	0	1900	941	1946	5787	1992	25660
1809	0	1855	4	1901	1015	1947	7568	1993	25914
1810	0	1856	0	1902	1150	1948	10577	1994	12644
1811	0	1857	0	1903	1758	1949	12833	1995	14649
1812	0	1858	15	1904	1962	1950	15696	1996	11731
1813	0	1859	3	1905	2344	1951	19794	1997	11064
1814	0	1860	0	1906	1588	1952	19256	1998	8182
1815	0	1861	0	1907	2094	1953	18714	1999	6607
1816	3	1862	187	1908	1310	1954	18913	2000	3887
1817	27	1863	0	1909	2285	1955	18224	2001	1276

Table 4 The number of OSD salinity casts in WOD01 as a function of year for the World Ocean. The total number of casts = 1,767,288

YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE
1874	3	1906	1601	1938	12401	1970	42813
1875	37	1907	1310	1939	13176	1971	47502
1876	7	1908	1307	1940	8684	1972	51682
1877	1	1909	1435	1941	7514	1973	50332
1878	4	1910	1532	1942	4667	1974	43246
1879	1	1911	2488	1943	4651	1975	39355
1880	22	1912	1765	1944	3197	1976	41439
1881	0	1913	1732	1945	2737	1977	39428
1882	0	1914	1851	1946	5253	1978	40570
1882	0	1915	854	1947	6957	1979	40620
1884	0	1916	425	1948	9625	1980	40841
1885	0	1917	614	1949	11909	1981	40296
1886	0	1918	686	1950	14857	1982	38414
1887	0	1919	923	1951	16826	1983	39878
1888	0	1920	1534	1952	16650	1984	43197
1889	27	1921	2038	1953	15912	1985	48807
1890	48	1922	2105	1954	15466	1986	44348
1891	65	1923	2811	1955	15650	1987	42784
1892	77	1924	3917	1956	15590	1988	41231
1893	117	1925	3742	1957	18779	1989	42954
1894	46	1926	4666	1958	21525	1990	43668
1895	10	1927	4424	1959	19454	1991	28199
1896	20	1928	4749	1960	21753	1992	25146
1897	16	1929	5099	1961	23993	1993	25715
1898	92	1930	4884	1962	24290	1994	13098
1899	233	1931	5334	1963	32592	1995	12500
1900	242	1932	7871	1964	36007	1996	7079
1901	363	1933	8470	1965	40185	1997	7230
1902	650	1934	9405	1966	39643	1998	4212
1903	1316	1935	9697	1967	41435	1999	2637
1904	1406	1936	10569	1968	41737	2000	198
1905	1457	1937	10705	1969	47953		

Table 5 The number of OSD salinity casts in WOD01 as a function of year for the southern hemisphere. The total number of casts = 192,827

YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE
1874	3	1906	21	1938	252	1970	4810
1875	36	1907	0	1939	219	1971	5728
1876	0	1908	0	1940	120	1972	5203
1877	0	1909	0	1941	258	1973	4968
1878	0	1910	0	1942	161	1974	4687
1879	0	1911	107	1943	67	1975	4700
1880	0	1912	26	1944	381	1976	5809
1881	0	1913	41	1945	60	1977	5108
1882	0	1914	258	1946	106	1978	5249
1882	0	1915	417	1947	165	1979	5683
1884	0	1916	290	1948	265	1980	4547
1885	0	1917	527	1949	205	1981	4928
1886	0	1918	444	1950	676	1982	4874
1887	0	1919	289	1951	707	1983	5161
1888	0	1920	49	1952	596	1984	4292
1889	0	1921	1	1953	579	1985	5610
1890	0	1922	0	1954	677	1986	4883
1891	0	1923	0	1955	1074	1987	5494
1892	0	1924	1	1956	1275	1988	6190
1893	0	1925	100	1957	1945	1989	4331
1894	0	1926	330	1958	2244	1990	2614
1895	0	1927	195	1959	2395	1991	1649
1896	0	1928	280	1960	3146	1992	2669
1897	0	1929	439	1961	3883	1993	3120
1898	0	1930	569	1962	4585	1994	2961
1899	0	1931	470	1963	5566	1995	3447
1900	0	1932	293	1964	5130	1996	1088
1901	42	1933	117	1965	5654	1997	352
1902	15	1934	194	1966	5077	1998	204
1903	79	1935	106	1967	5831	1999	18
1904	0	1936	343	1968	7045		
1905	0	1937	140	1969	5884		

Table 6 The number of OSD salinity casts in WOD01 as a function of year for the northern hemisphere. The total number of casts = 1,574,461

YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE
1874	0	1906	1580	1938	12149	1970	38003
1875	1	1907	1310	1939	12957	1971	41774
1876	7	1908	1307	1940	8564	1972	46479
1877	1	1909	1435	1941	7256	1973	45364
1878	4	1910	1532	1942	4506	1974	38559
1879	1	1911	2381	1943	4584	1975	34655
1880	22	1912	1739	1944	2816	1976	35630
1881	0	1913	1691	1945	2677	1977	34320
1882	0	1914	1593	1946	5147	1978	35321
1882	0	1915	437	1947	6792	1979	34937
1884	0	1916	135	1948	9360	1980	36294
1885	0	1917	87	1949	11704	1981	35368
1886	0	1918	242	1950	14181	1982	33540
1887	0	1919	634	1951	16119	1983	34717
1888	0	1920	1485	1952	16054	1984	38905
1889	27	1921	2037	1953	15333	1985	43197
1890	48	1922	2105	1954	14789	1986	39465
1891	65	1923	2811	1955	14576	1987	37290
1892	77	1924	3916	1956	14315	1988	35041
1893	117	1925	3642	1957	16834	1989	38623
1894	46	1926	4336	1958	19279	1990	41054
1895	10	1927	4229	1959	17059	1991	26550
1896	20	1928	4469	1960	18607	1992	22477
1897	16	1929	4660	1961	20110	1993	22595
1898	92	1930	4315	1962	19705	1994	10137
1899	233	1931	4864	1963	27026	1995	9053
1900	242	1932	7578	1964	30877	1996	5991
1901	321	1933	8353	1965	34531	1997	6878
1902	635	1934	9211	1966	34566	1998	4008
1903	1237	1935	9591	1967	35604	1999	2619
1904	1406	1936	10226	1968	34692	2000	198
1905	1457	1937	10565	1969	42069		

Table 7 The number of OSD oxygen casts in WOD01 as a function of year for the World Ocean. The total number of casts = 586,443

YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE
1893	2	1920	66	1947	682	1974	15230
1894	0	1921	231	1948	1645	1975	14532
1895	0	1922	347	1949	4058	1976	14880
1896	0	1923	433	1950	5880	1977	14674
1897	0	1924	367	1951	6046	1978	14542
1898	5	1925	523	1952	6501	1979	12939
1899	18	1926	759	1953	6390	1980	15139
1900	12	1927	507	1954	5513	1981	13406
1901	10	1928	735	1955	6154	1982	13013
1902	89	1929	994	1956	5387	1983	13697
1903	74	1930	750	1957	6603	1984	14454
1904	110	1931	805	1958	9456	1985	13056
1905	205	1932	1495	1959	8649	1986	13854
1906	287	1933	1562	1960	8658	1987	13950
1907	122	1934	1560	1961	8934	1988	13853
1908	88	1935	1128	1962	9804	1989	13184
1909	75	1936	1204	1963	13191	1990	13485
1910	170	1937	1505	1964	12833	1991	9138
1911	320	1938	2068	1965	14352	1992	7620
1912	270	1939	1636	1966	14865	1993	7952
1913	377	1940	1065	1967	14126	1994	7688
1914	307	1941	1284	1968	14989	1995	7452
1915	6	1942	64	1969	17274	1996	4341
1916	6	1943	316	1970	14458	1997	5091
1917	0	1944	302	1971	16759	1998	2668
1918	0	1945	116	1972	18422	1999	1331
1919	37	1946	331	1973	18703	2000	199

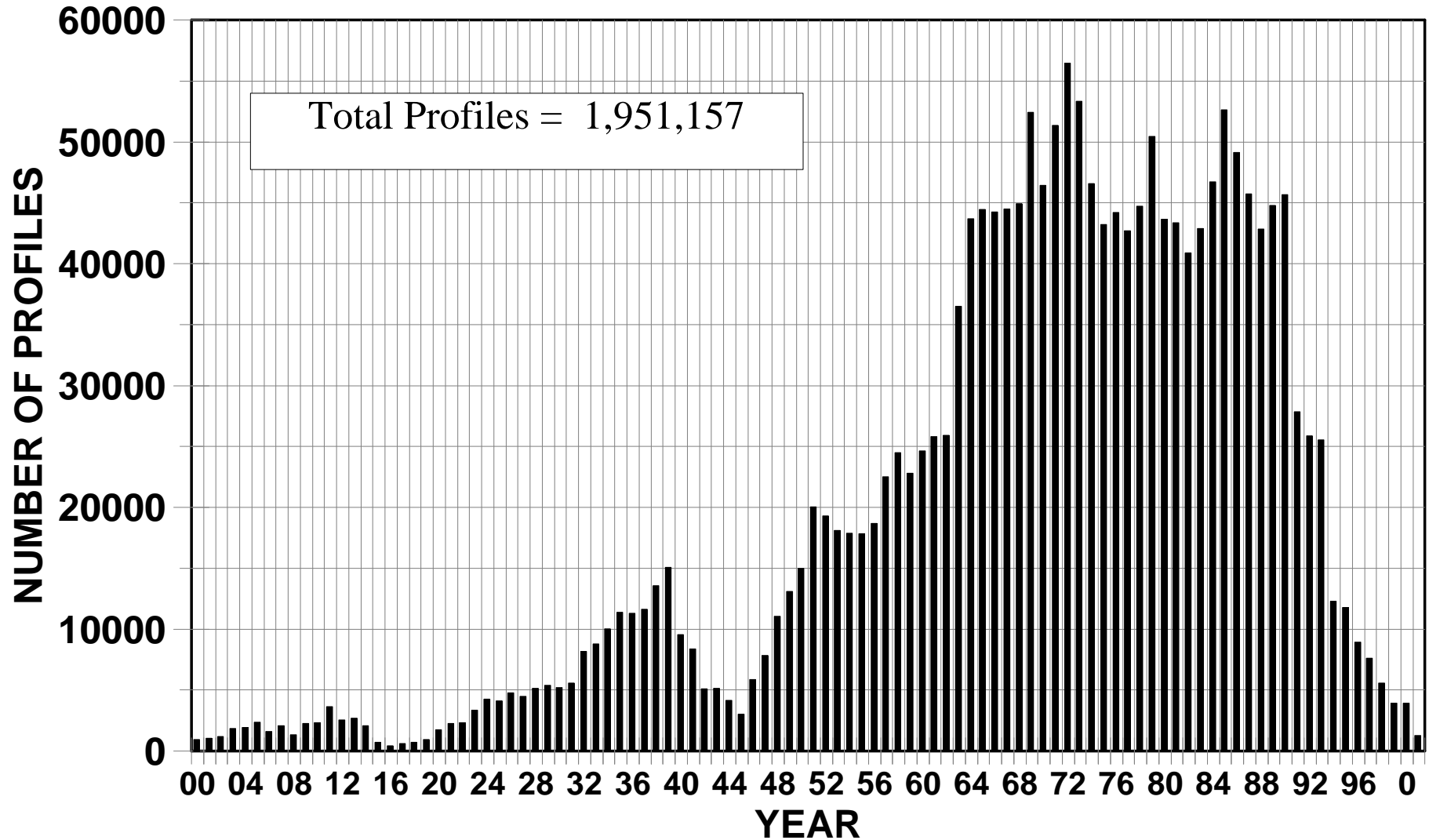
Table 8 The number of OSD oxygen casts in WOD01 as a function of year for the southern hemisphere. The total number of casts = 122,035

YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE
1893	0	1920	0	1947	100	1974	3308
1894	0	1921	0	1948	269	1975	3425
1895	0	1922	0	1949	154	1976	4322
1896	0	1923	0	1950	258	1977	3825
1897	0	1924	1	1951	294	1978	3603
1898	0	1925	97	1952	308	1979	3665
1899	0	1926	217	1953	177	1980	3356
1900	0	1927	60	1954	282	1981	3482
1901	0	1928	125	1955	365	1982	2820
1902	0	1929	233	1956	754	1983	2981
1903	0	1930	290	1957	1346	1984	2786
1904	0	1931	202	1958	1443	1985	2484
1905	0	1932	208	1959	1664	1986	2476
1906	20	1933	114	1960	1981	1987	3185
1907	0	1934	178	1961	2158	1988	3015
1908	0	1935	81	1962	2972	1989	2483
1909	0	1936	266	1963	4156	1990	1758
1910	0	1937	129	1964	3833	1991	1561
1911	28	1938	174	1965	3832	1992	1802
1912	22	1939	75	1966	3327	1993	1863
1913	0	1940	0	1967	3395	1994	2108
1914	0	1941	15	1968	4316	1995	1823
1915	0	1942	49	1969	4039	1996	856
1916	0	1943	33	1970	3281	1997	248
1917	0	1944	51	1971	3890	1998	95
1918	0	1945	59	1972	3747	1999	14
1919	0	1946	85	1973	3537		

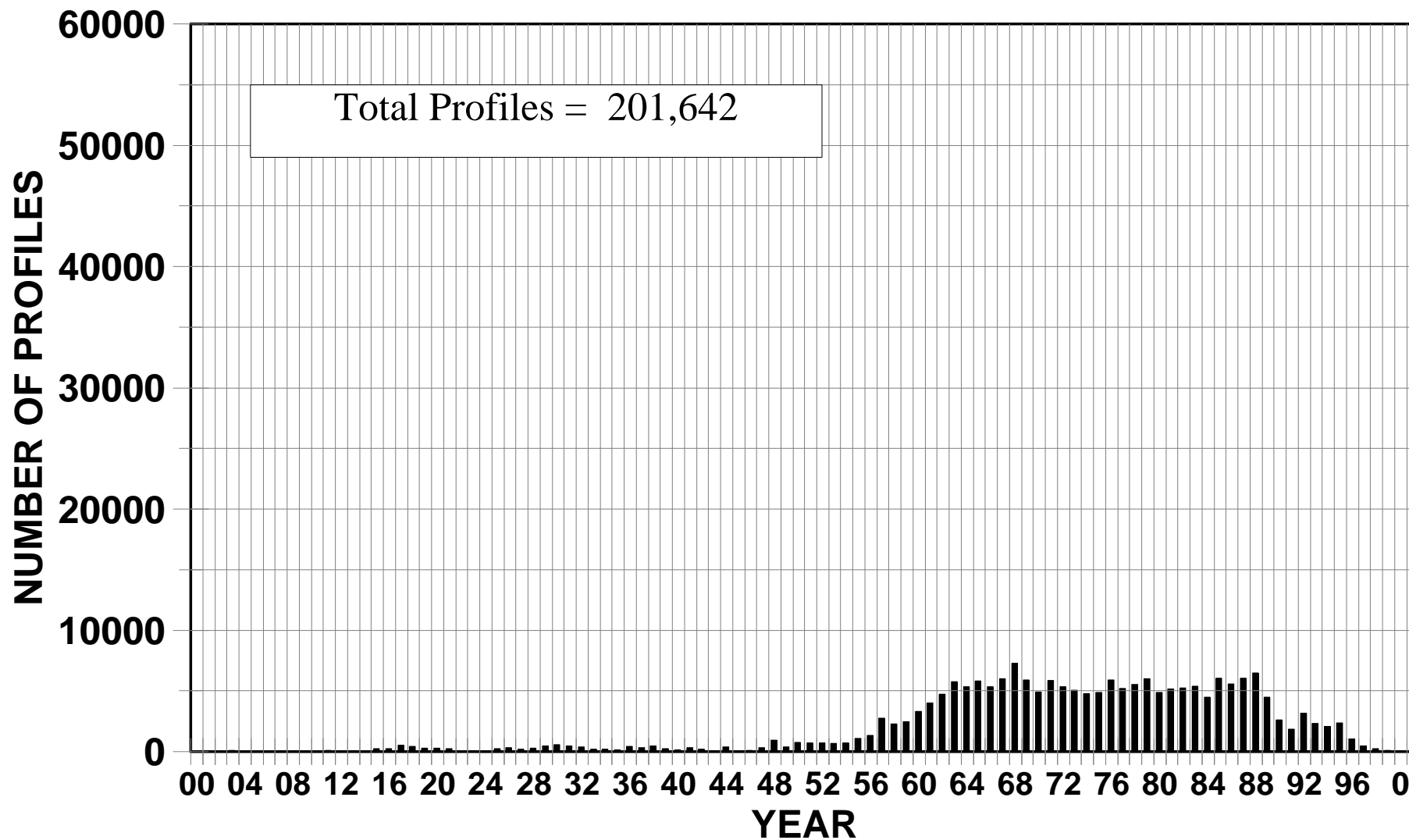
Table 9 The number of OSD oxygen casts in WOD01 as a function of year for the northern hemisphere. The total number of casts = 464,408

YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE	YEAR	PROFILE
1893	2	1920	65	1947	582	1974	11922
1894	0	1921	231	1948	1376	1975	11107
1895	0	1922	347	1949	3904	1976	10558
1896	0	1923	433	1950	5622	1977	10849
1897	0	1924	366	1951	5752	1978	10939
1898	5	1925	426	1952	6193	1979	9274
1899	18	1926	542	1953	6213	1980	11783
1900	12	1927	447	1954	5231	1981	9924
1901	10	1928	610	1955	5789	1982	10193
1902	89	1929	761	1956	4633	1983	10716
1903	74	1930	460	1957	5257	1984	11668
1904	110	1931	603	1958	8013	1985	10572
1905	205	1932	1287	1959	6985	1986	11378
1906	267	1933	1448	1960	6677	1987	10765
1907	122	1934	1382	1961	6776	1988	10838
1908	88	1935	1047	1962	6832	1989	10701
1909	75	1936	938	1963	9035	1990	11727
1910	170	1937	1376	1964	9000	1991	7577
1911	292	1938	1894	1965	10520	1992	5818
1912	248	1939	1561	1966	11538	1993	6089
1913	377	1940	1065	1967	10731	1994	5580
1914	307	1941	1269	1968	10673	1995	5629
1915	6	1942	15	1969	13235	1996	3485
1916	6	1943	283	1970	11177	1997	4843
1917	0	1944	251	1971	12869	1998	2573
1918	0	1945	57	1972	14675	1999	1317
1919	37	1946	246	1973	15166	2000	199

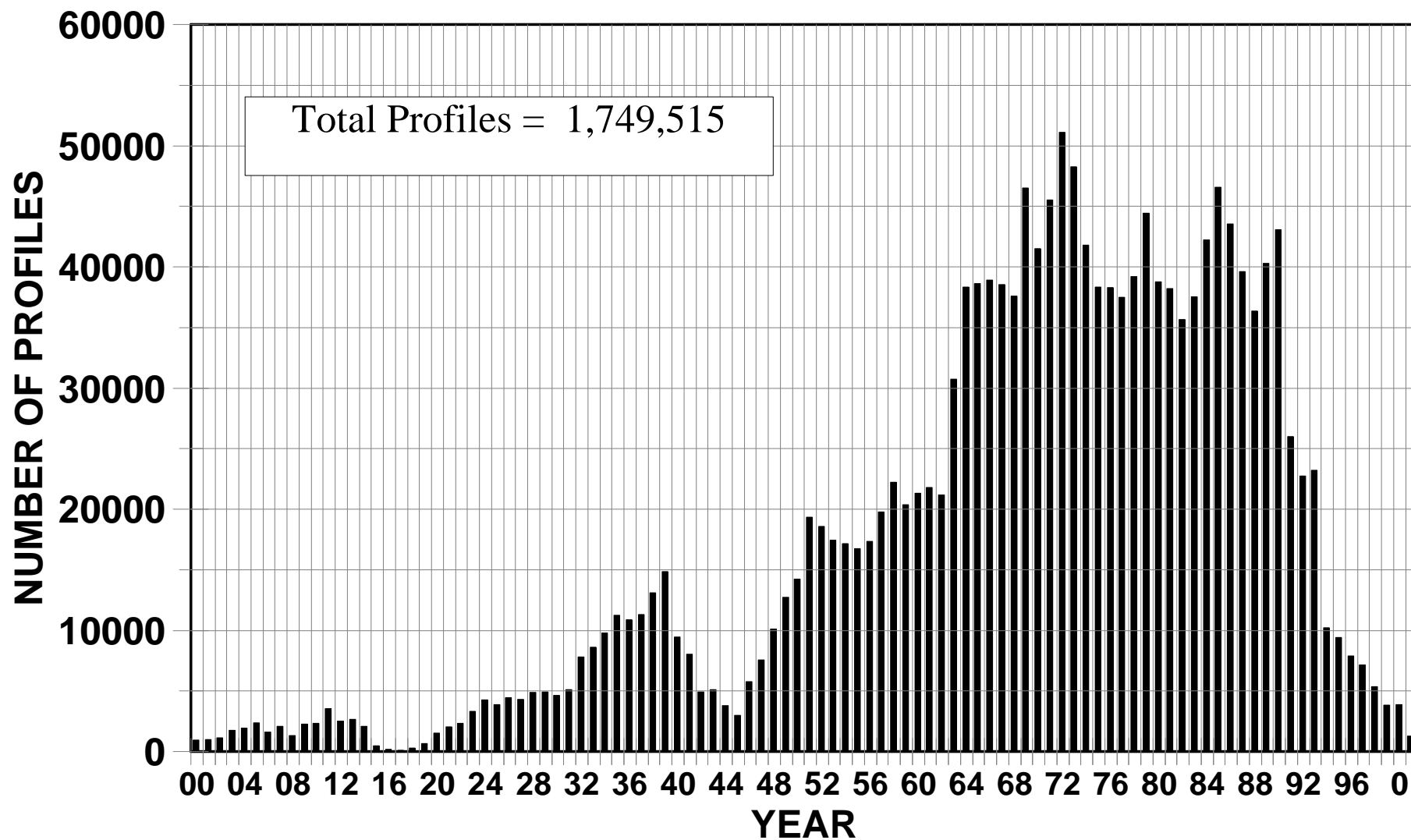




**Fig. 1 Time series of Ocean Station Data (OSD) temperature profiles in WOD01 for the world ocean as a function of year**



**Fig. 2 Time series of Ocean Station Data (OSD) temperature profiles in WOD01 for the southern hemisphere as a function of year.**



**Fig. 3** Time series of Ocean Station Data (OSD) temperature profiles in WOD01 for the northern hemisphere as a function of year.

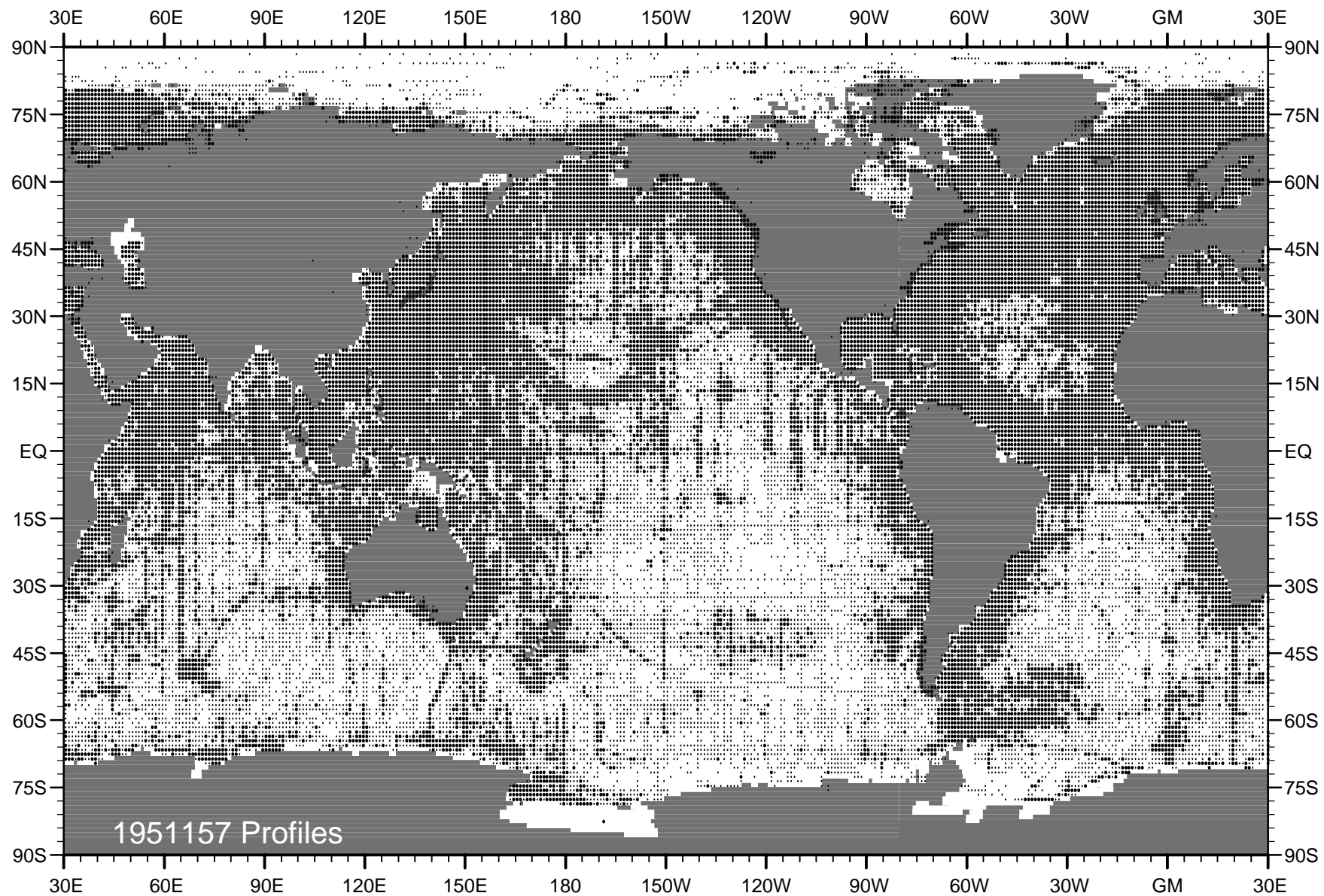
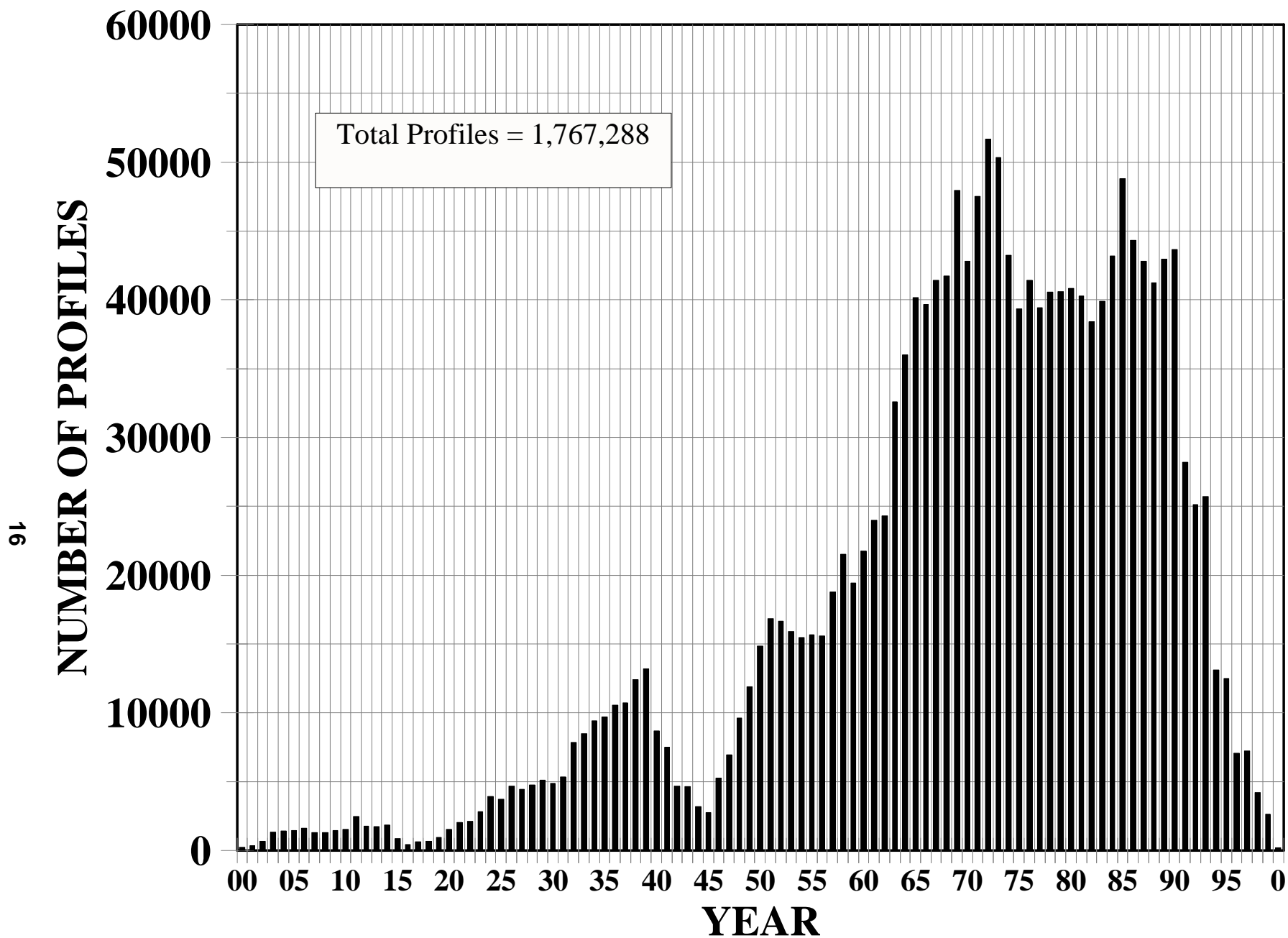
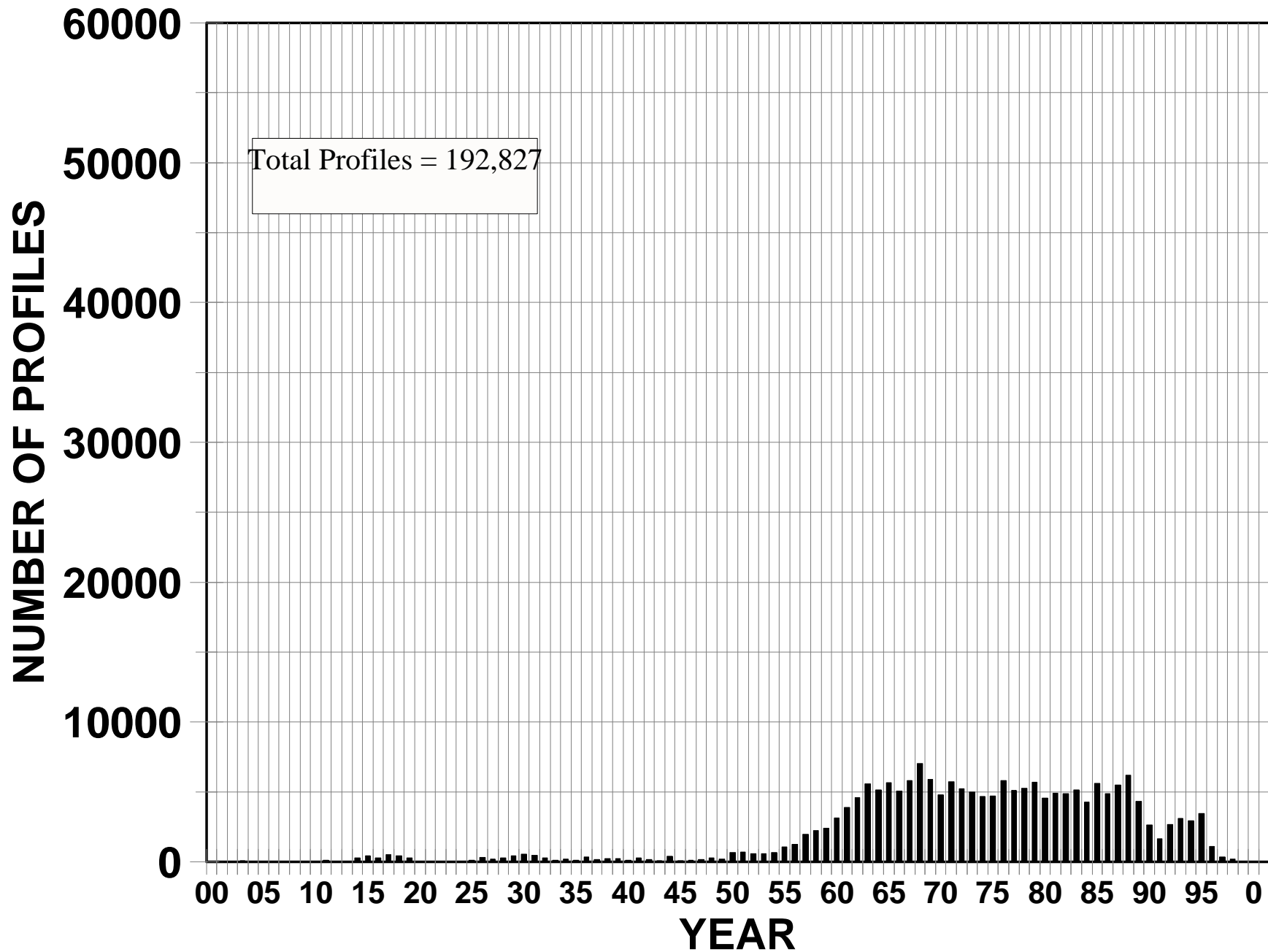


Fig. 4 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01.

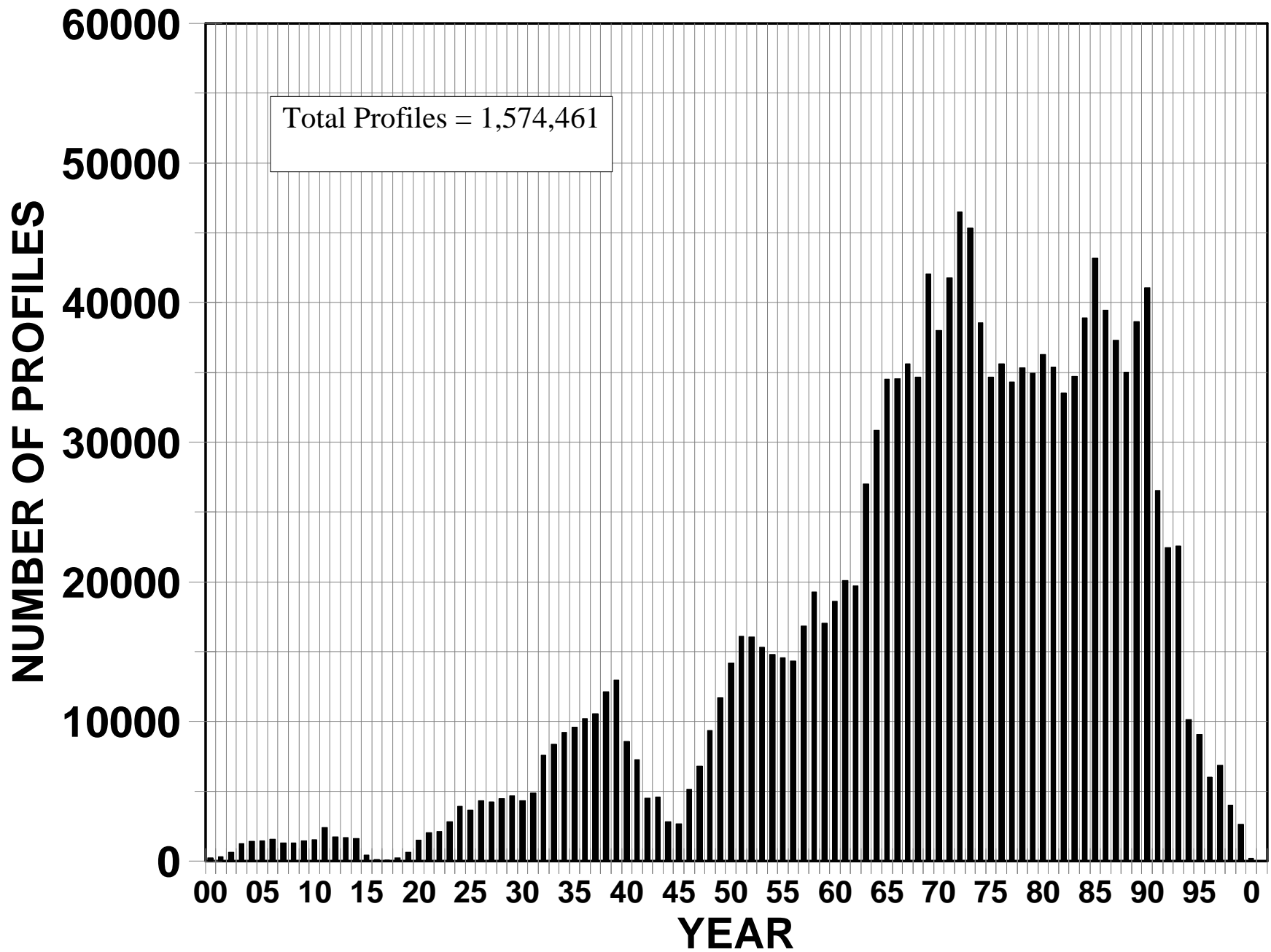
Dots show location of 1-degree squares containing any data.



**Fig. 5 Time series of Ocean Station Data (OSD) salinity profiles in WOD01 for the world ocean as a function of year.**



**Fig. 6 Time series of Ocean Station Data (OSD) salinity profiles in WOD01 for the southern hemisphere as a function of year.**



**Fig. 7 Time series of Ocean Station Data (OSD) salinity profiles in WOD01 for the northern hemisphere as a function of year.**

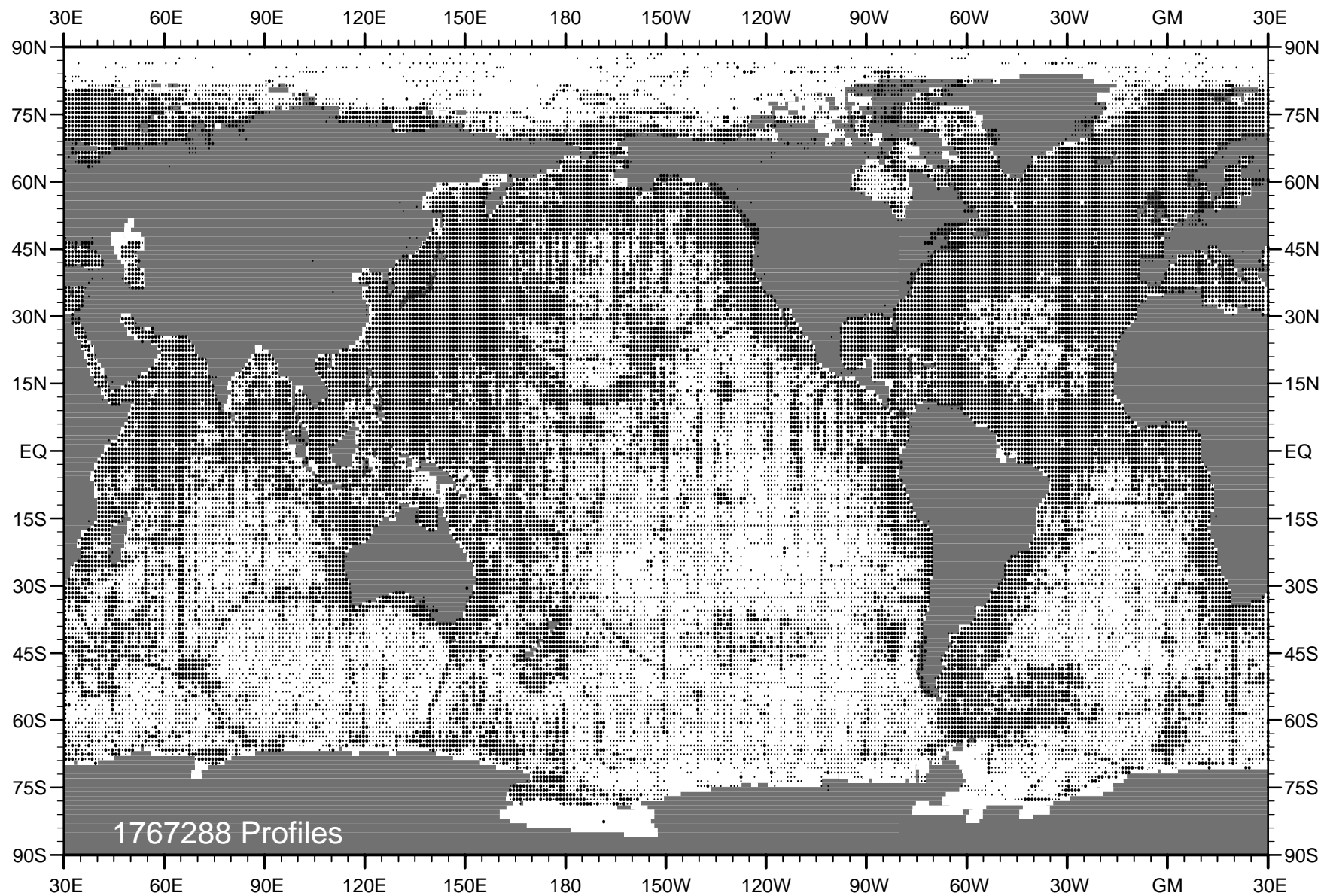
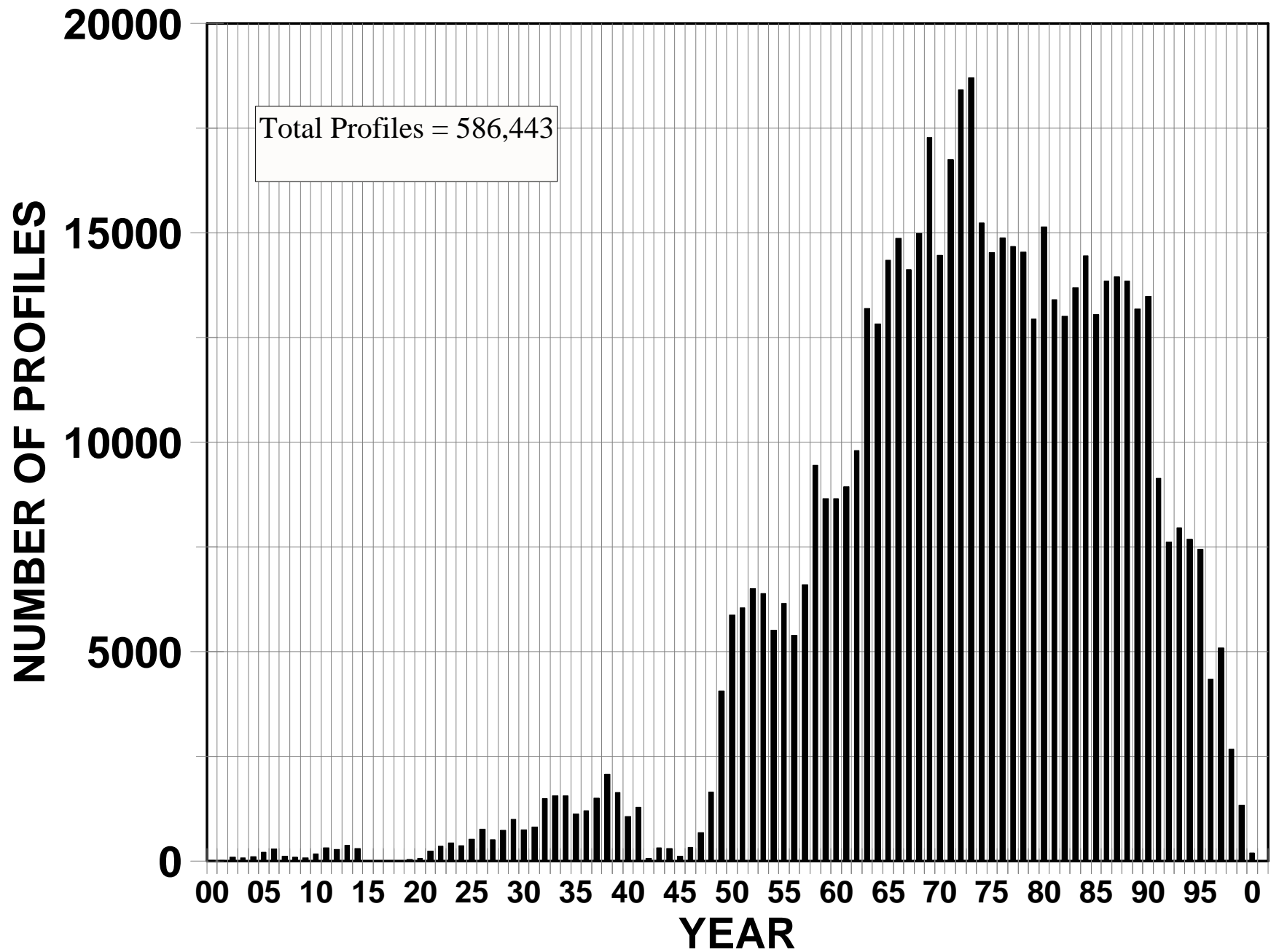


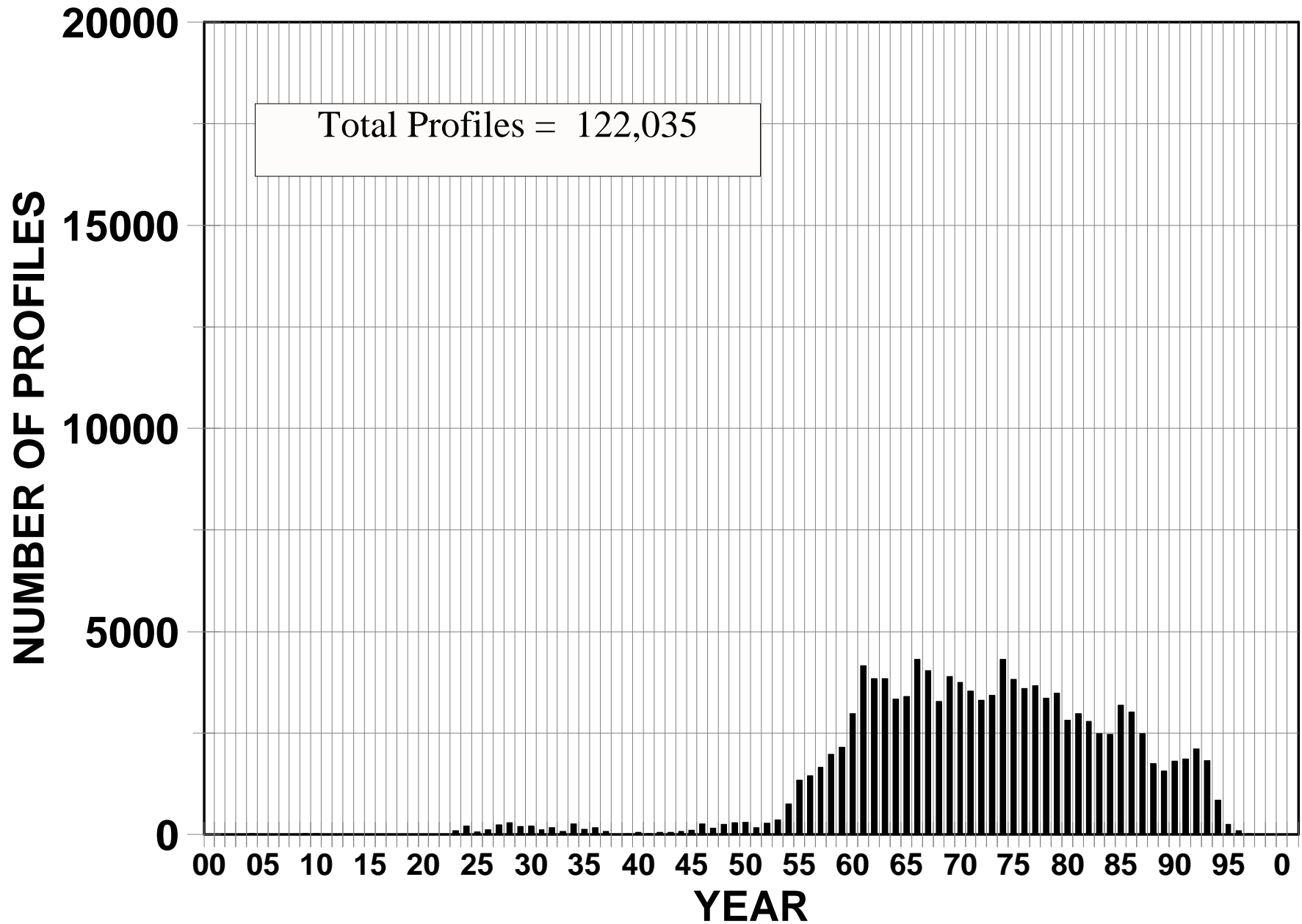
Fig. 8 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01.

Dots show location of 1-degree squares containing any data.

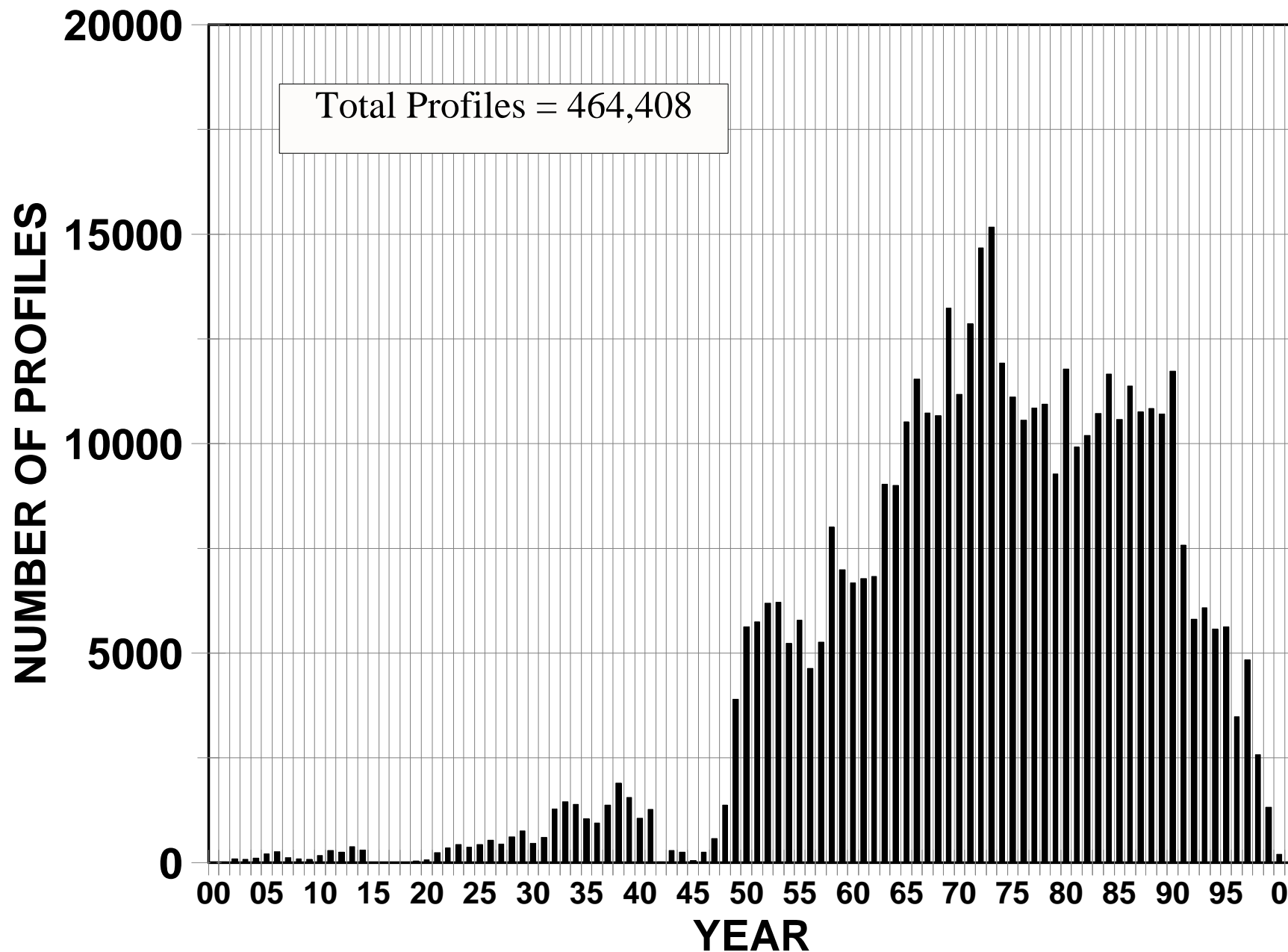




**Fig. 9** Time series of Ocean Station Data (OSD) oxygen profiles in WOD01 for the world ocean as a function of year.



**Fig. 10** Time series of Ocean Station Data (OSD) oxygen profiles in WOD01 for the southern hemisphere as a function of year.



**Fig. 11** Time series of Ocean Station Data (OSD) oxygen profiles in WOD01 for the northern hemisphere as a function of year.

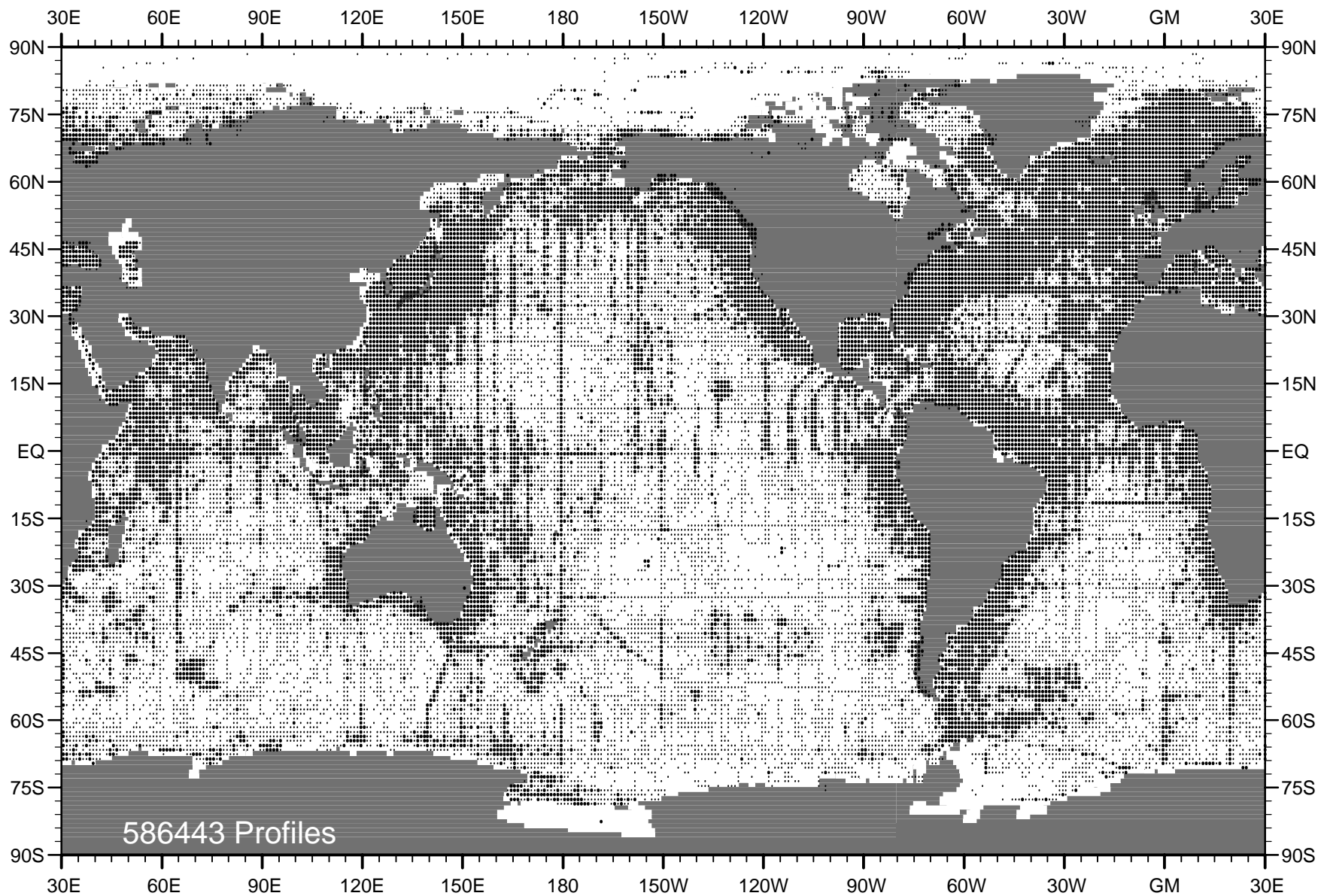


Fig. 12 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01.  
Dots show location of 1-degree squares containing any data.

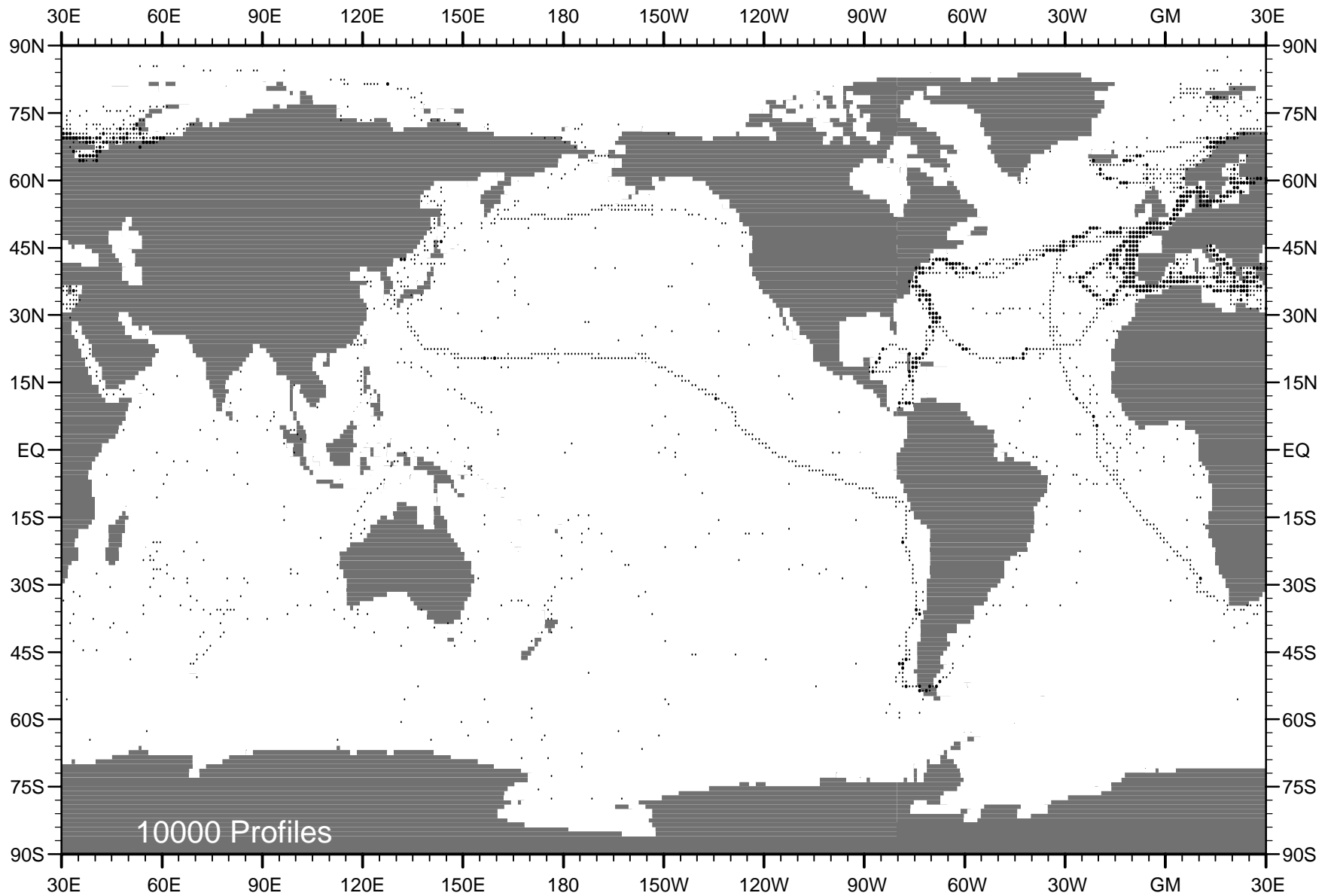


Fig. 13 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 from 1772-1899.  
Dots show location of 1-degree squares containing any data.

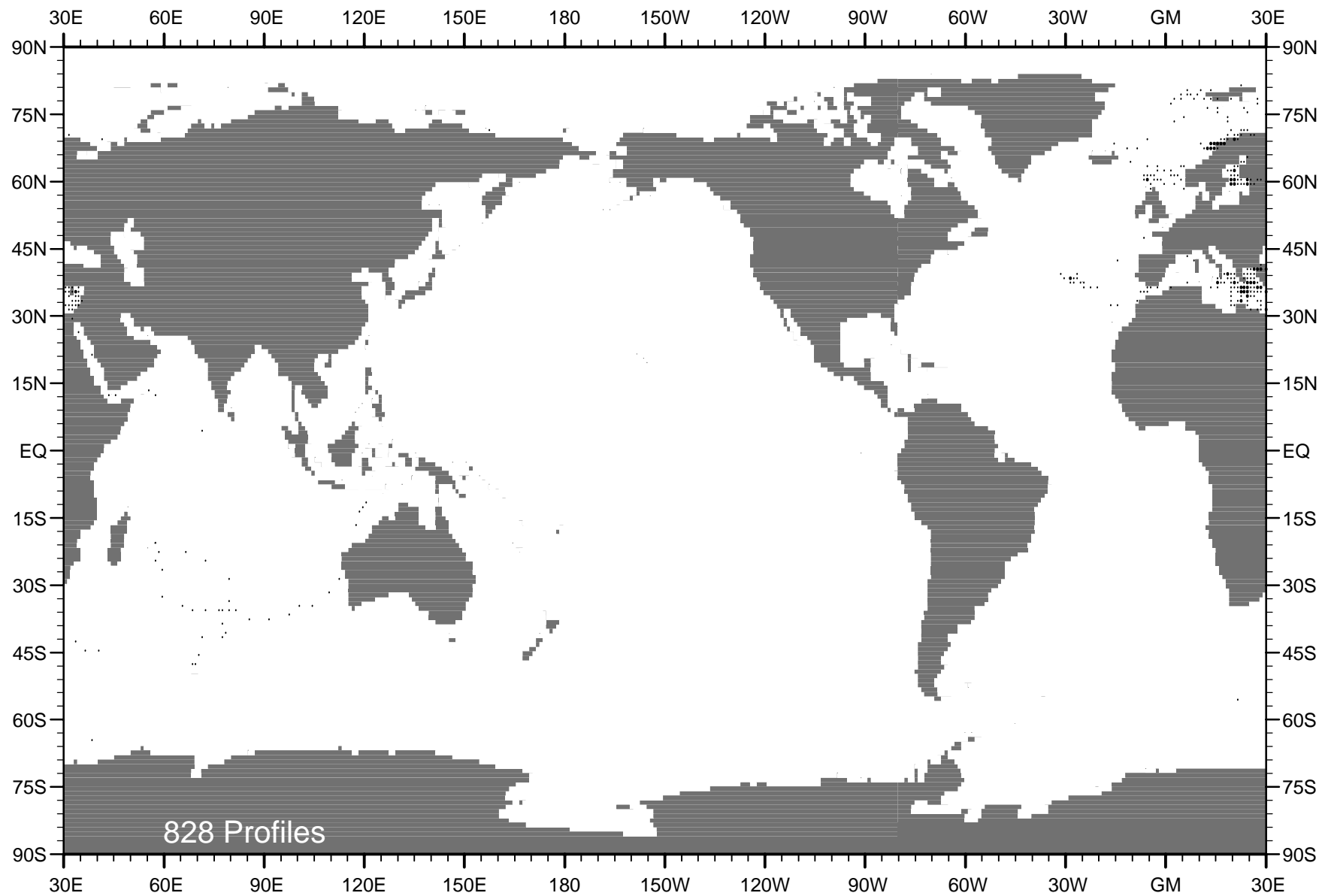


Fig. 14 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 from 1772-1899.

Dots show location of 1-degree squares containing any data.

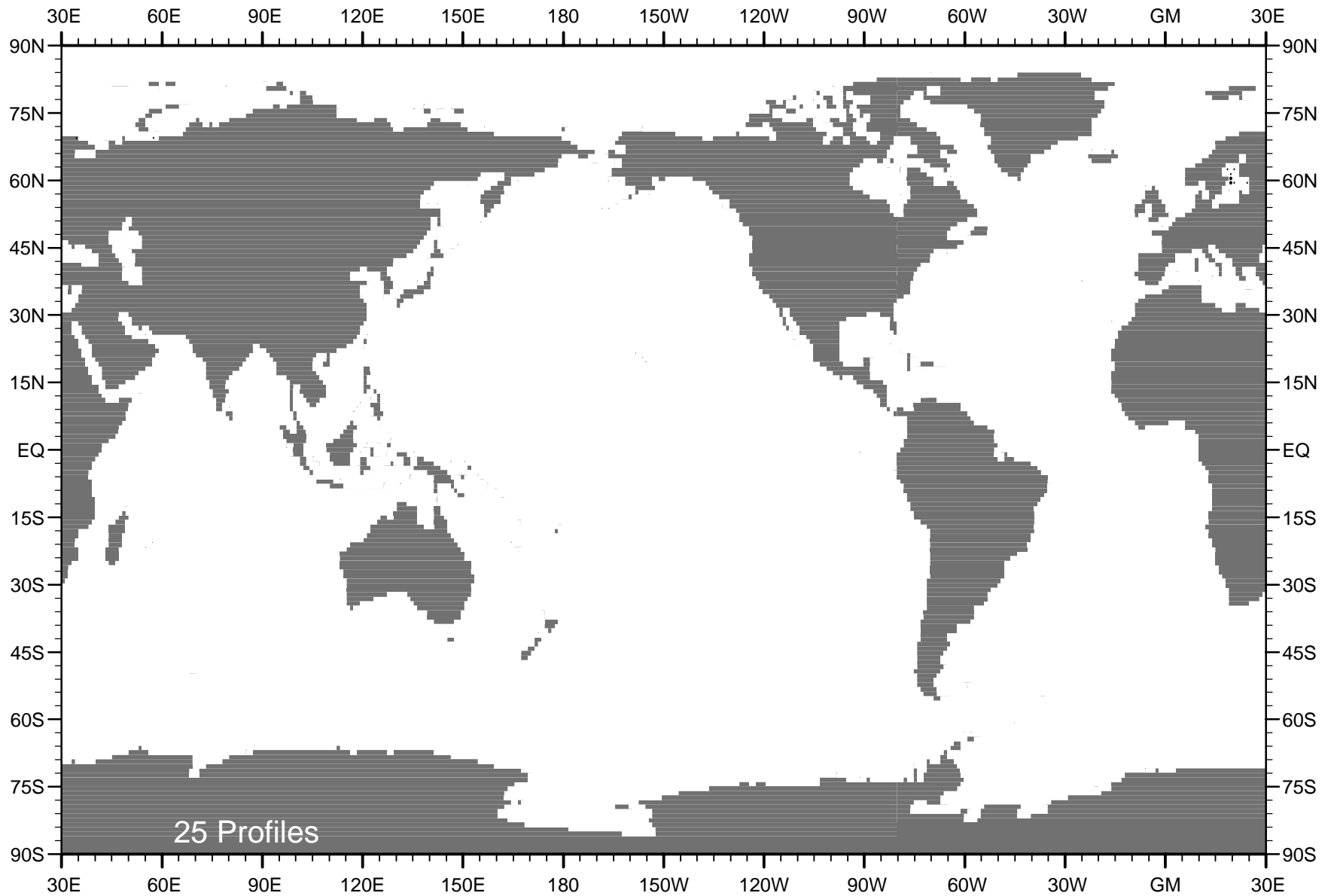


Fig. 15 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 from 1772-1899.  
Dots show location of 1-degree squares containing any data.

### 3. BIBLIOGRAPHY

Levitus, S., R. Gelfeld, T. Boyer, and D. Johnson, 1994: *Results of the NODC and IOC Data Archaeology and Rescue projects. Key to Oceanographic Records Documentation No. 19*, National Oceanographic Data Center, Washington, D.C., 67 pp.

Levitus, S., R. Gelfeld, M. Conkright, T.P. Boyer, D. Johnson, I. Smolyar, C. Jones, G. Trammell, R. Moffatt, T. O'Brien, O. Baranova, C. Forgy, 2002: *Results of the NODC and IOC Oceanographic Data Archaeology and Rescue Projects*. In preparation.



**4. APPENDIX A: DISTRIBUTIONS FOR INDIVIDUAL YEARS OF ALL OCEAN STATION DATA (OSD) TEMPERATURE PROFILES IN WOD01**

This appendix contains yearly distributions of all OSD temperature profiles contained in WOD01. These maps provide some history of the observational progress of the field of oceanography. They also serve as indicators of whether or not a particular data set from a scientist or institution is part of the NODC/WDC-A archive. The exchange of information provided by the publication of such maps has provided us with valuable information about deficiencies in the database. The locations of all WOD01 OSD temperature profiles are plotted including stations that may be erroneously located over land. However, WOD01 contains some stations from various lakes so care should be exercised in the use of these stations and the determination as to whether they represent errors in locations.

For all figures in Appendix A, a small dot indicates a one-degree square containing from one to four stations and a large dot indicates five or more stations.

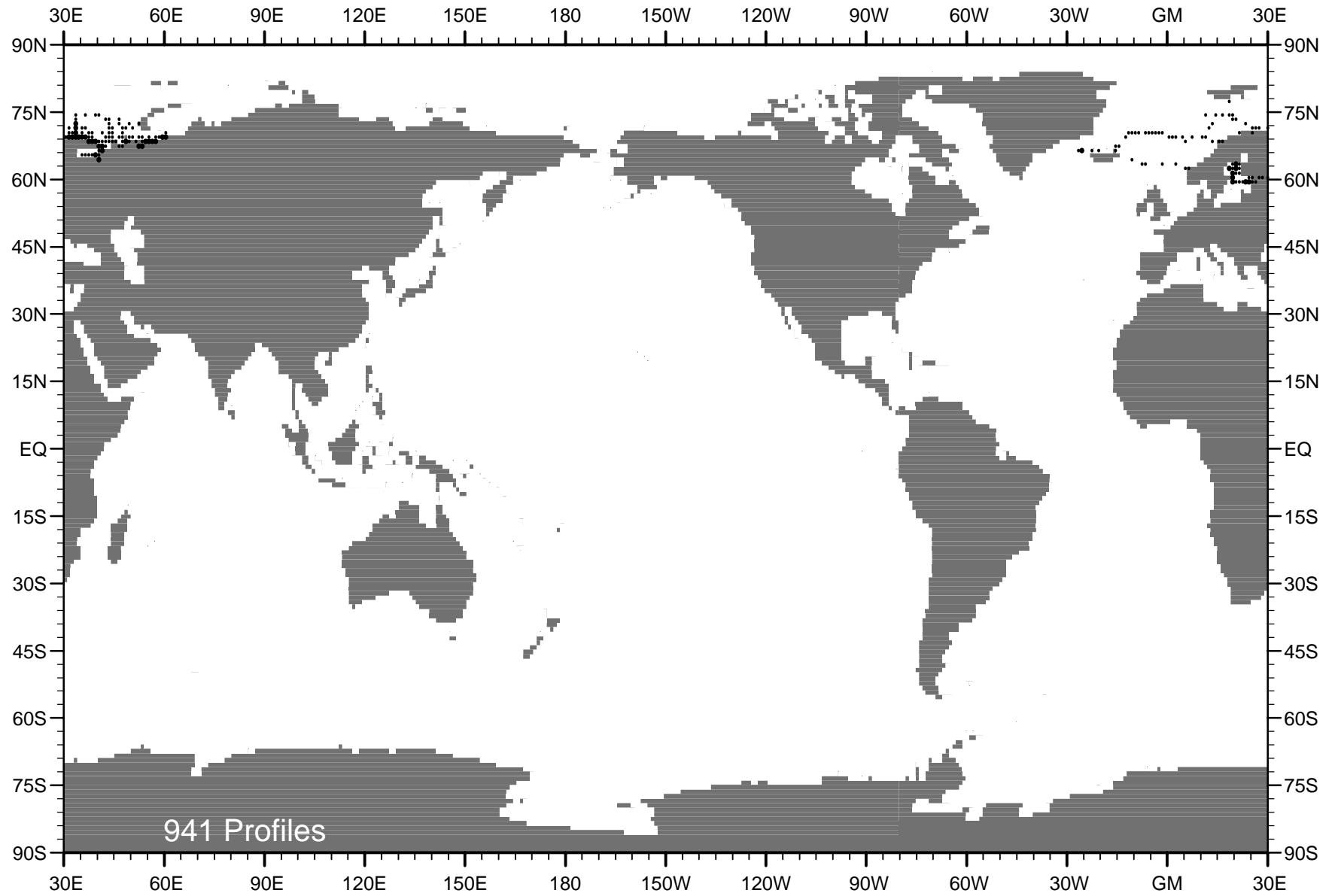


Fig. A1 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1900 .

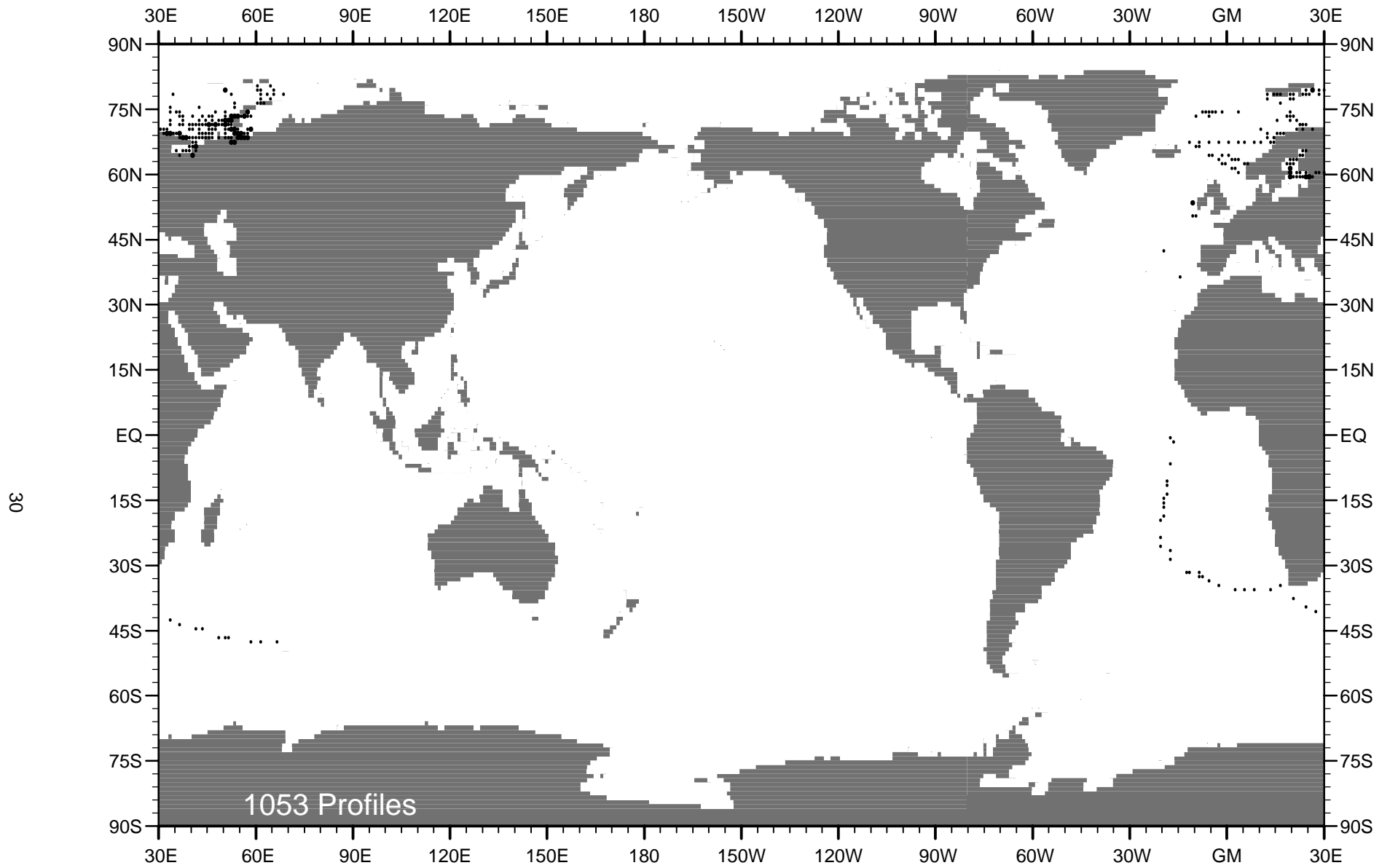


Fig. A2 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1901 .

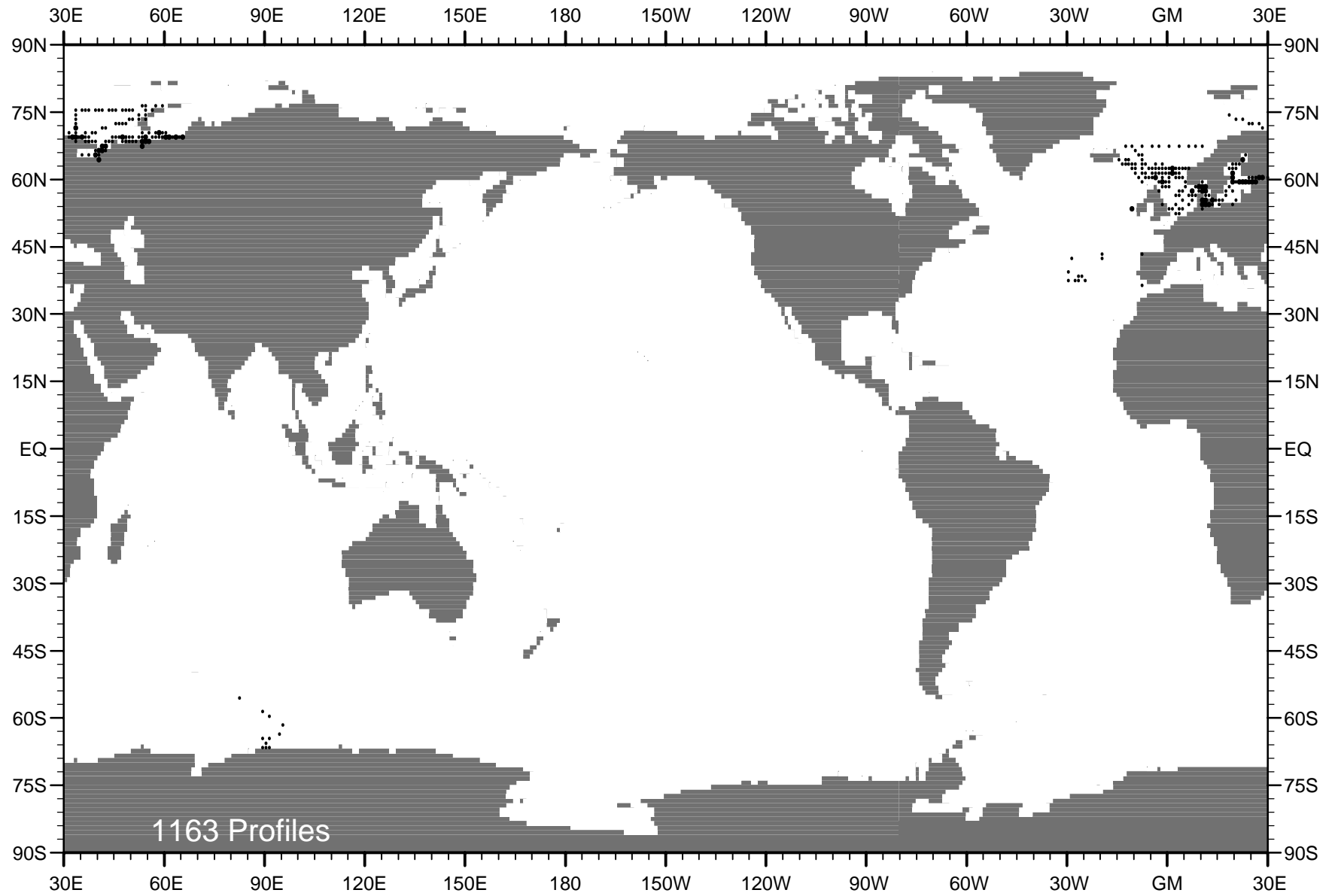


Fig. A3 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1902 .

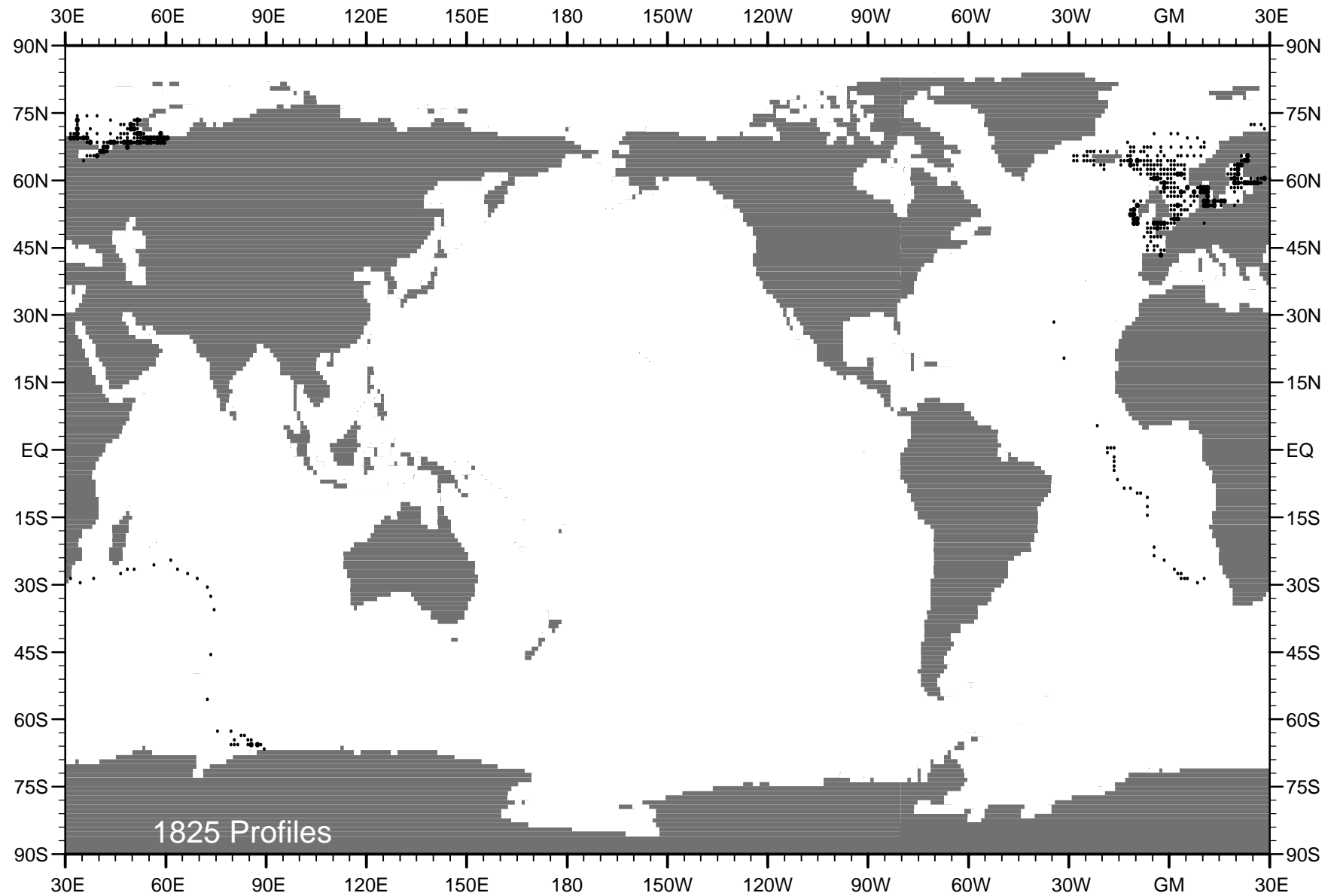


Fig. A4 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1903 .

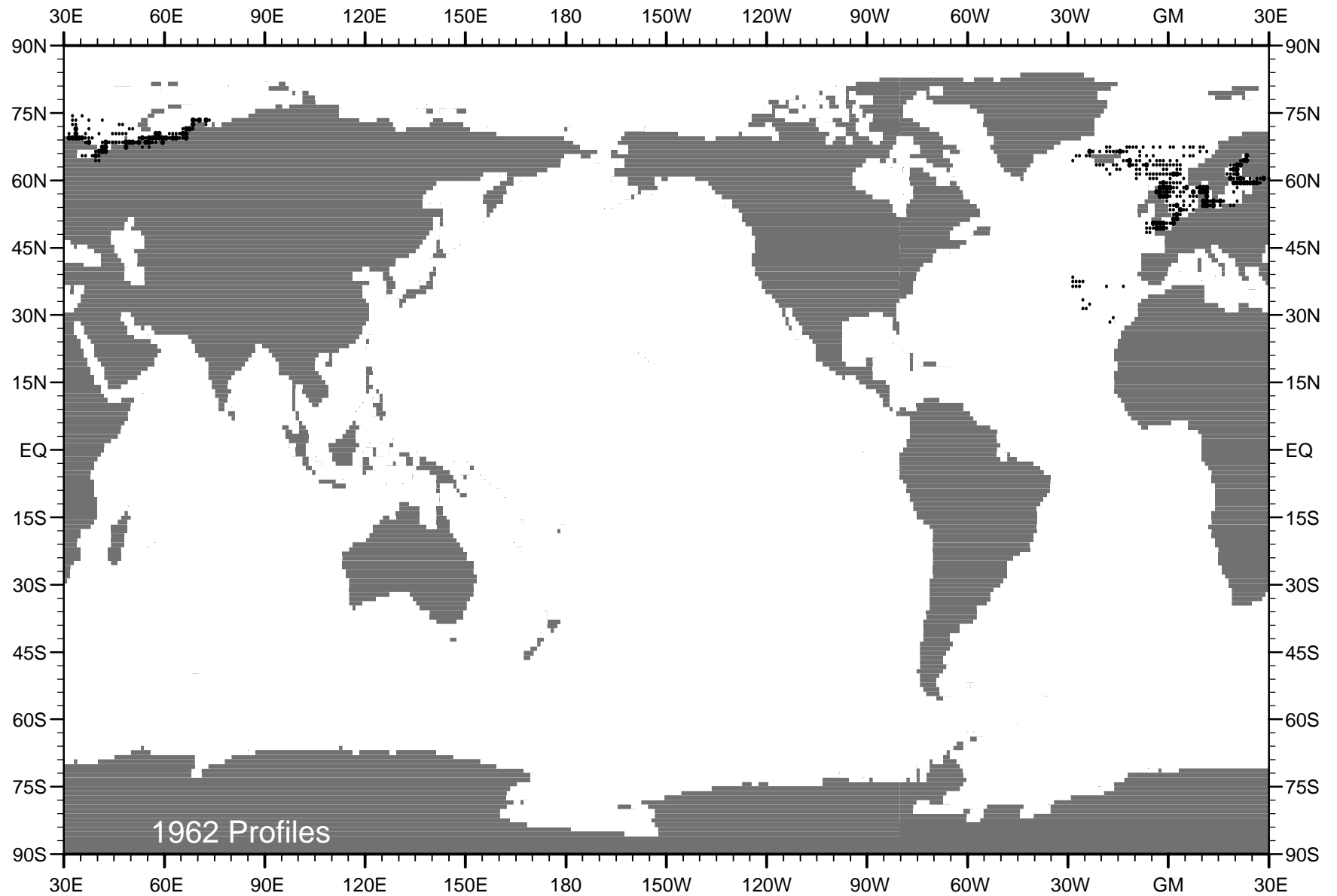


Fig. A5 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1962 .

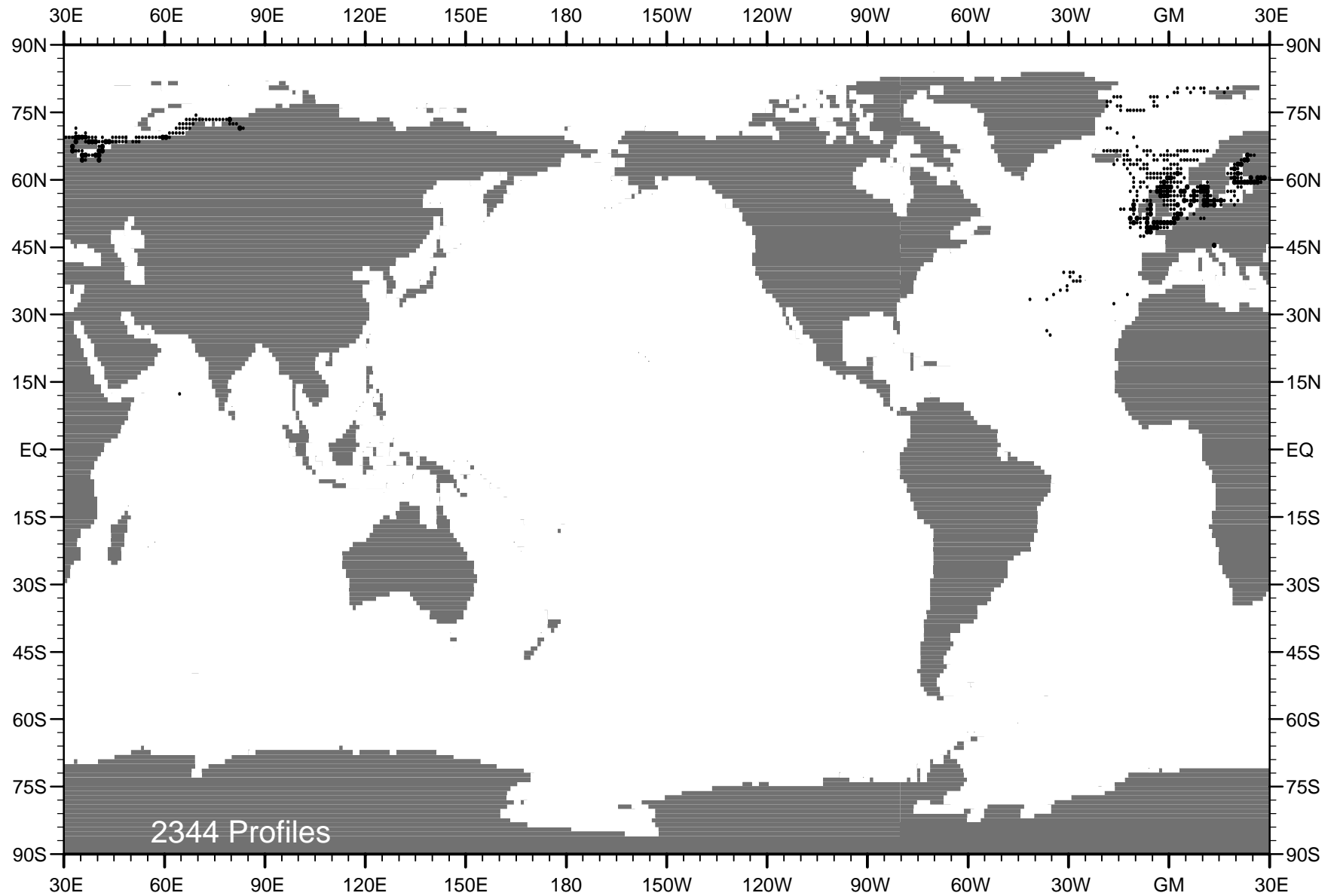


Fig. A6 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1905 .

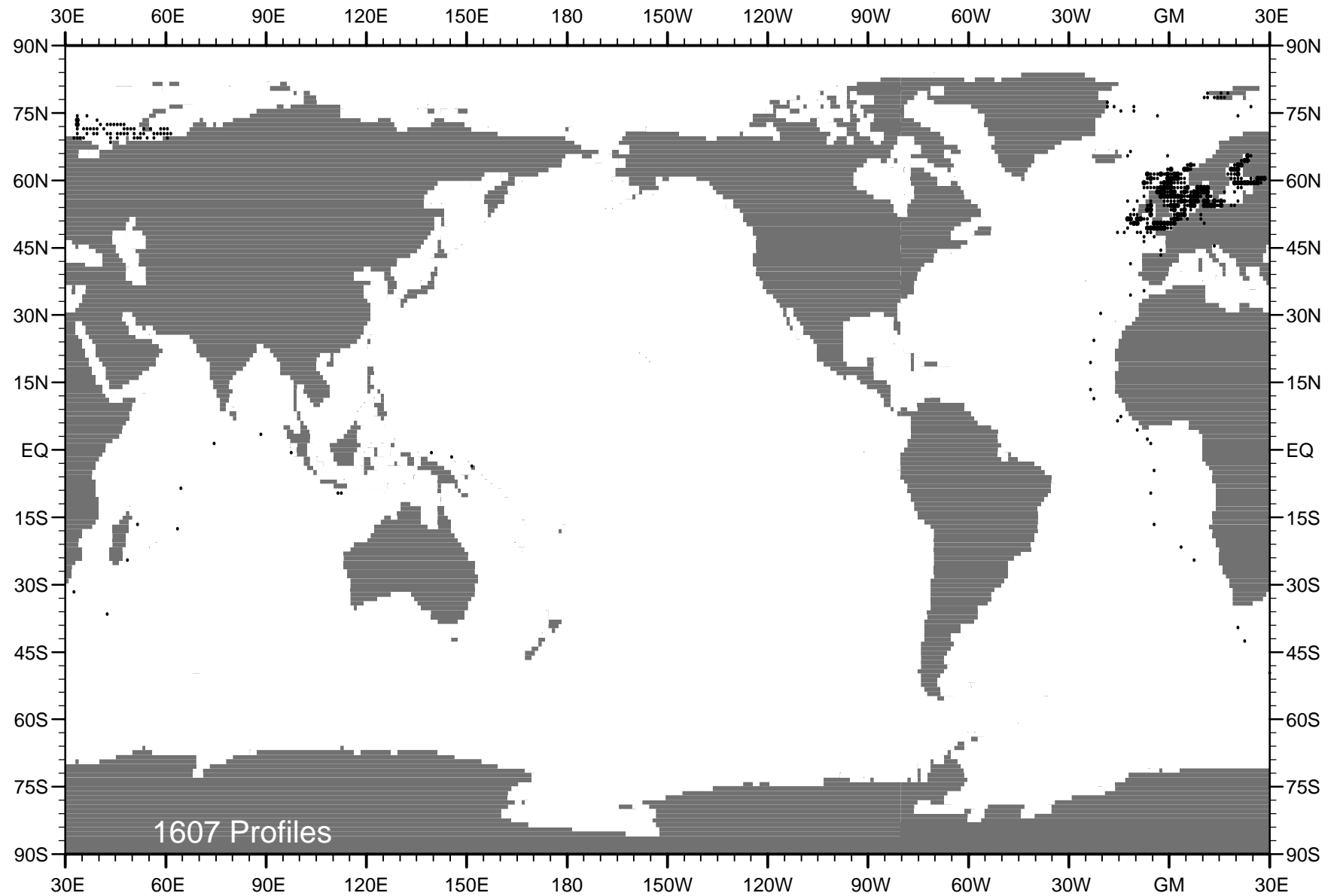


Fig. A7 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1906 .



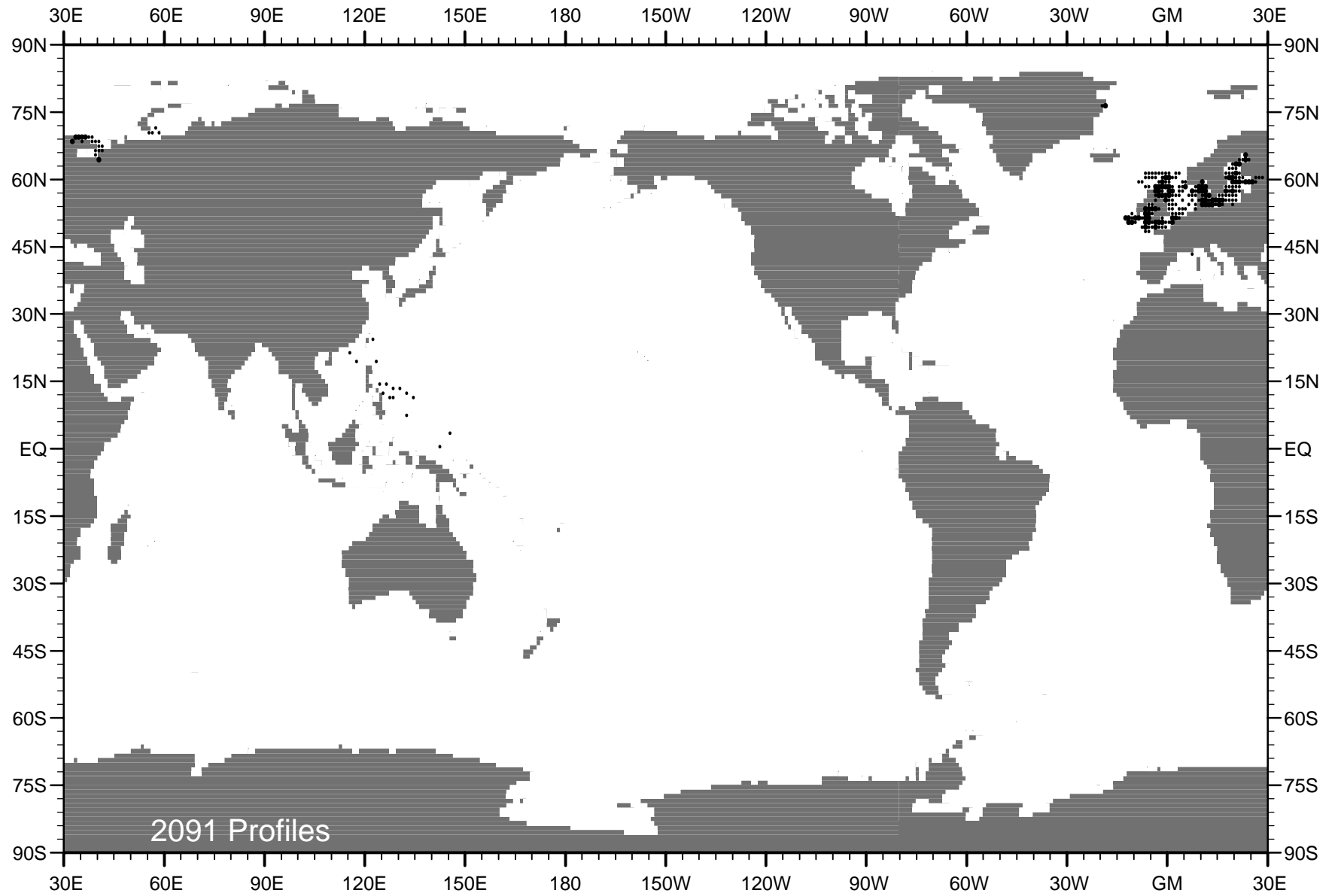


Fig. A8 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1907 .

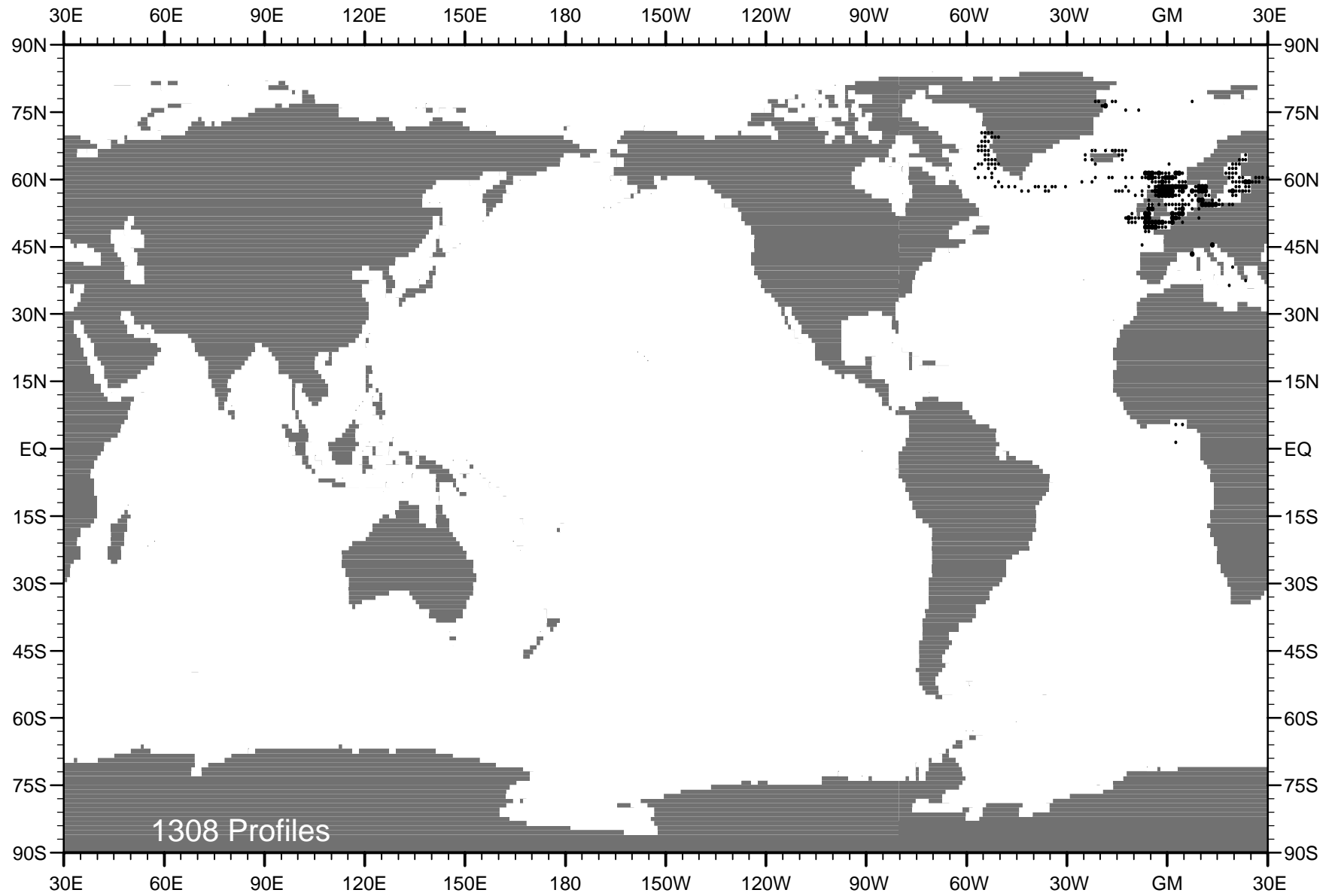


Fig. A9 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1908 .

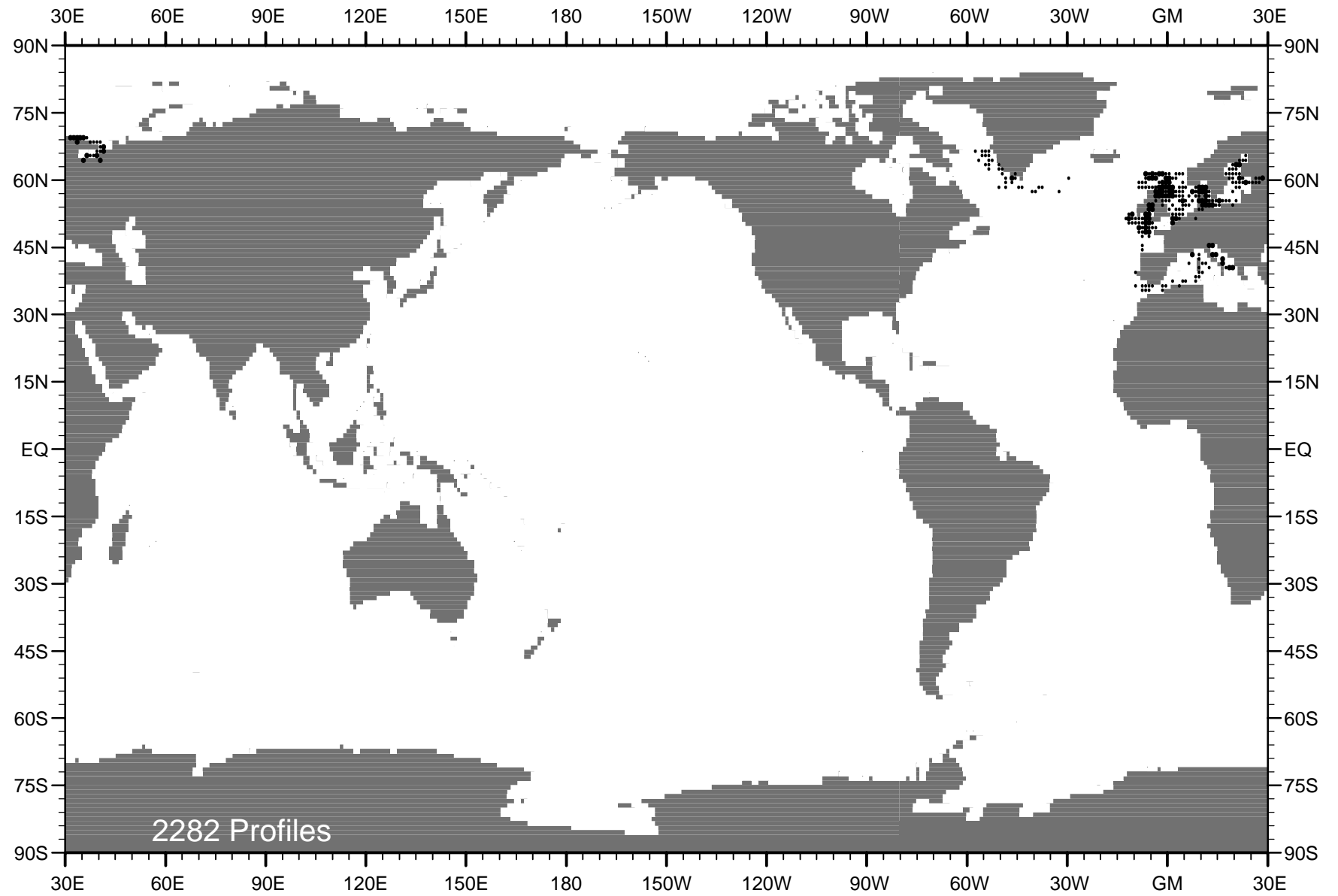


Fig. A10 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1909 .

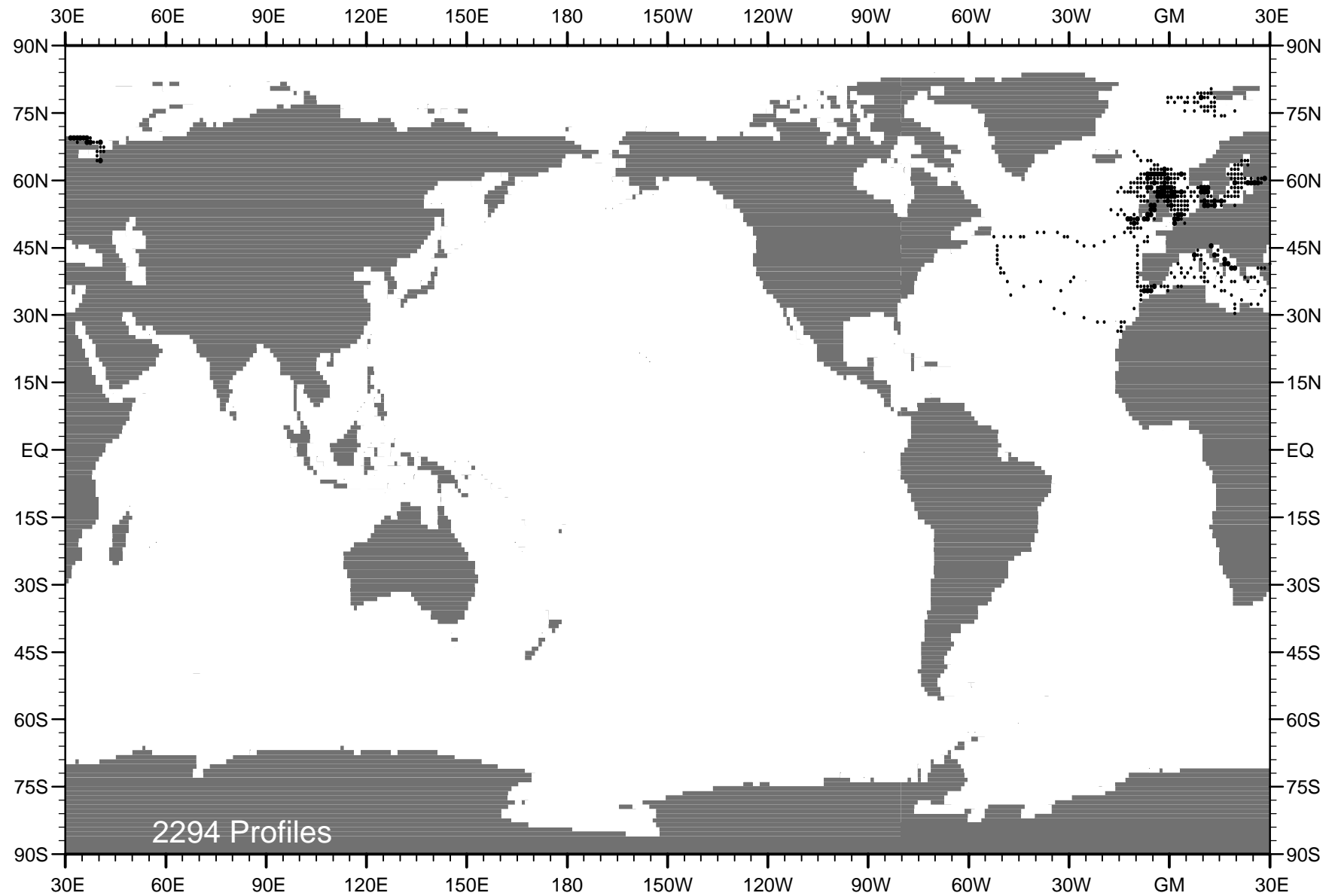


Fig. A11 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1910 .

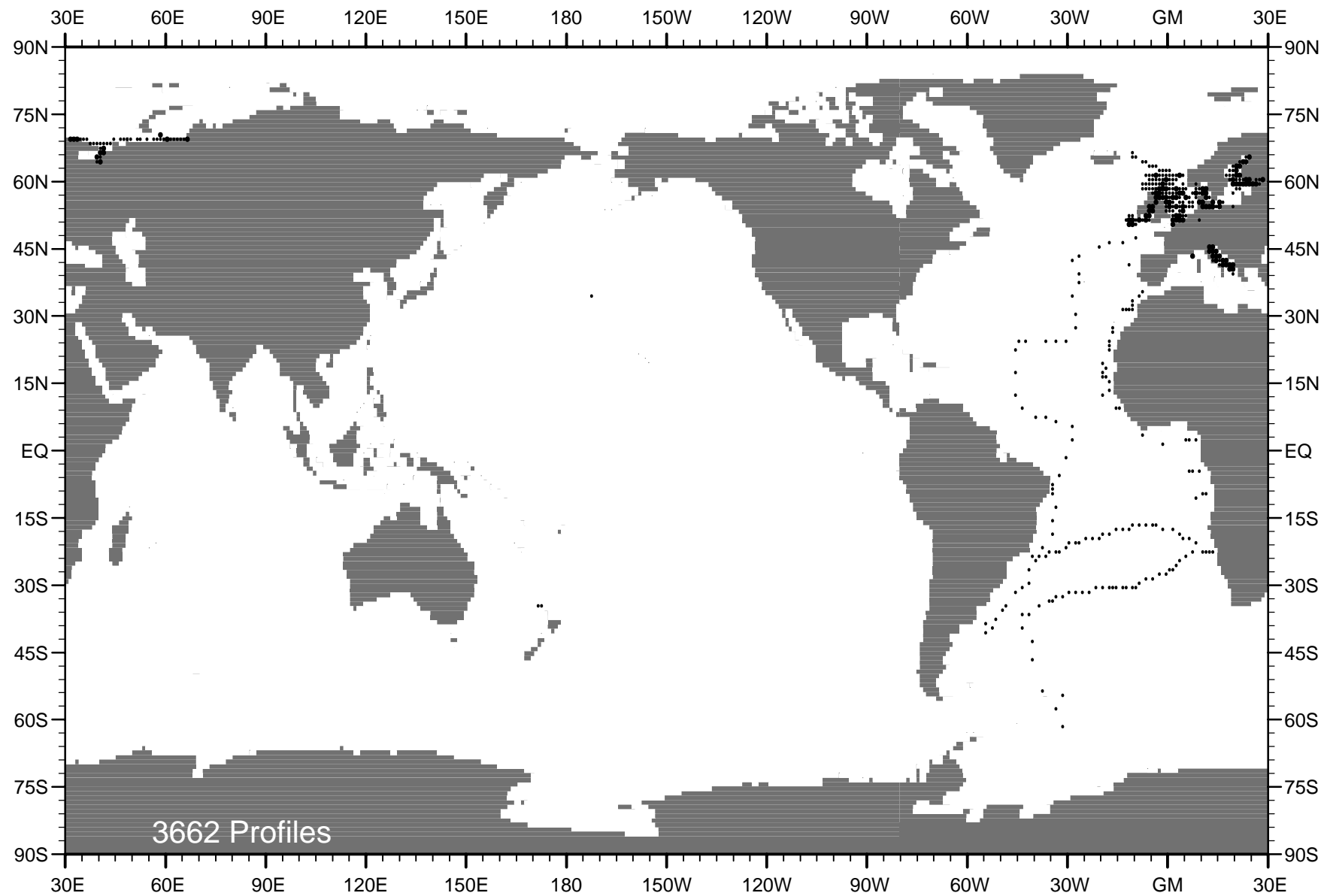


Fig. A12 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1911 .

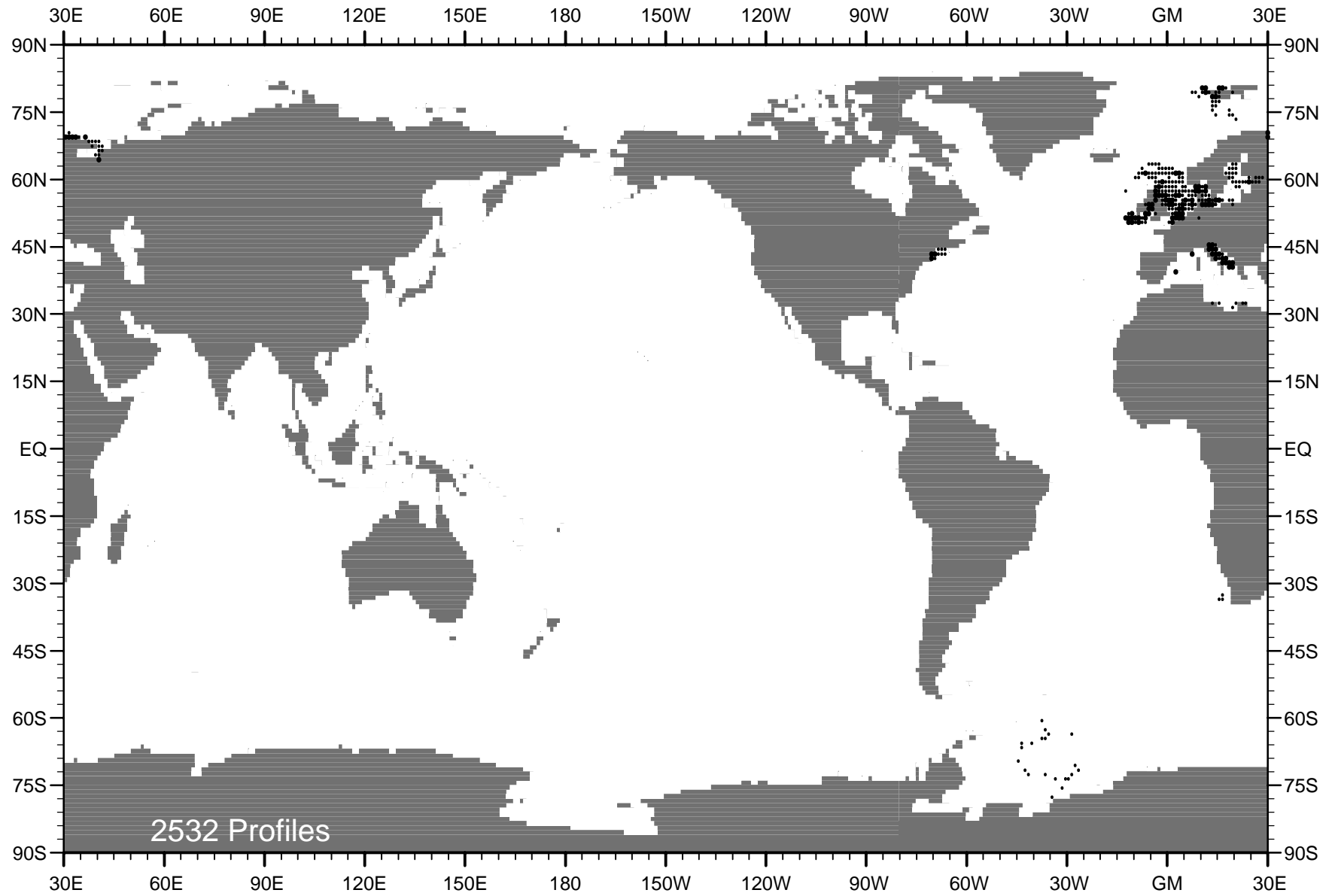


Fig. A13 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1912 .

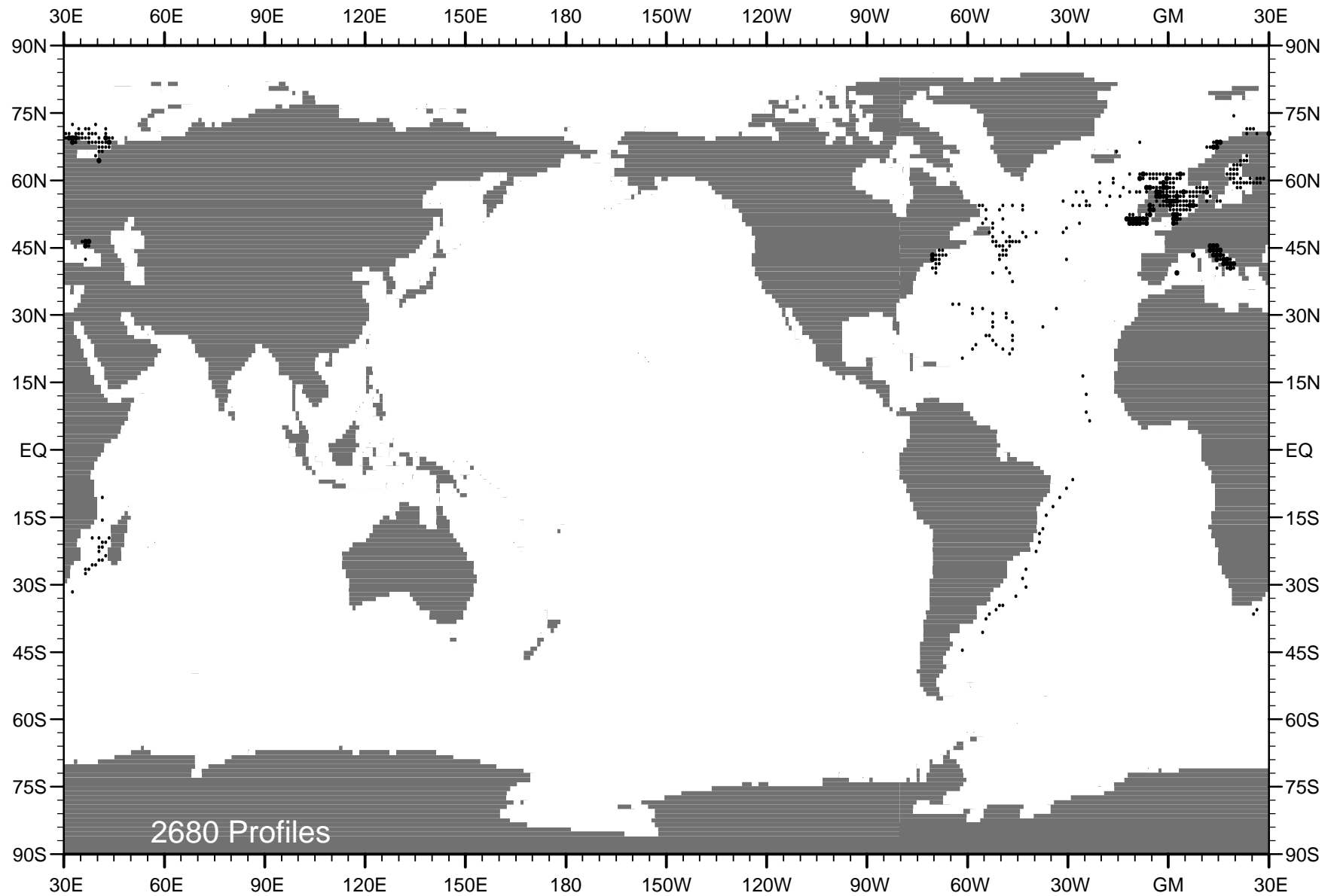


Fig. A14 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1913 .

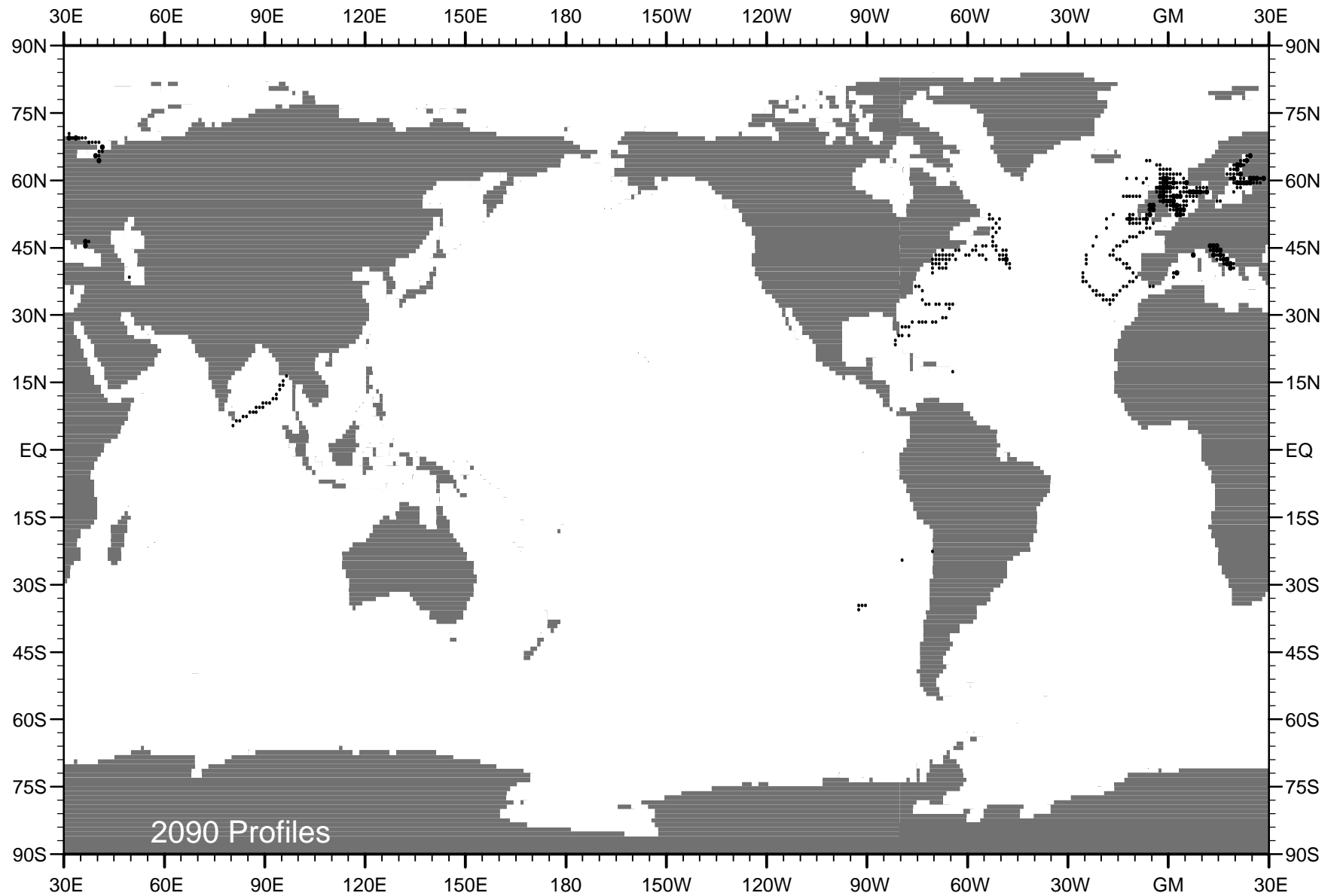


Fig. A15 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1914 .



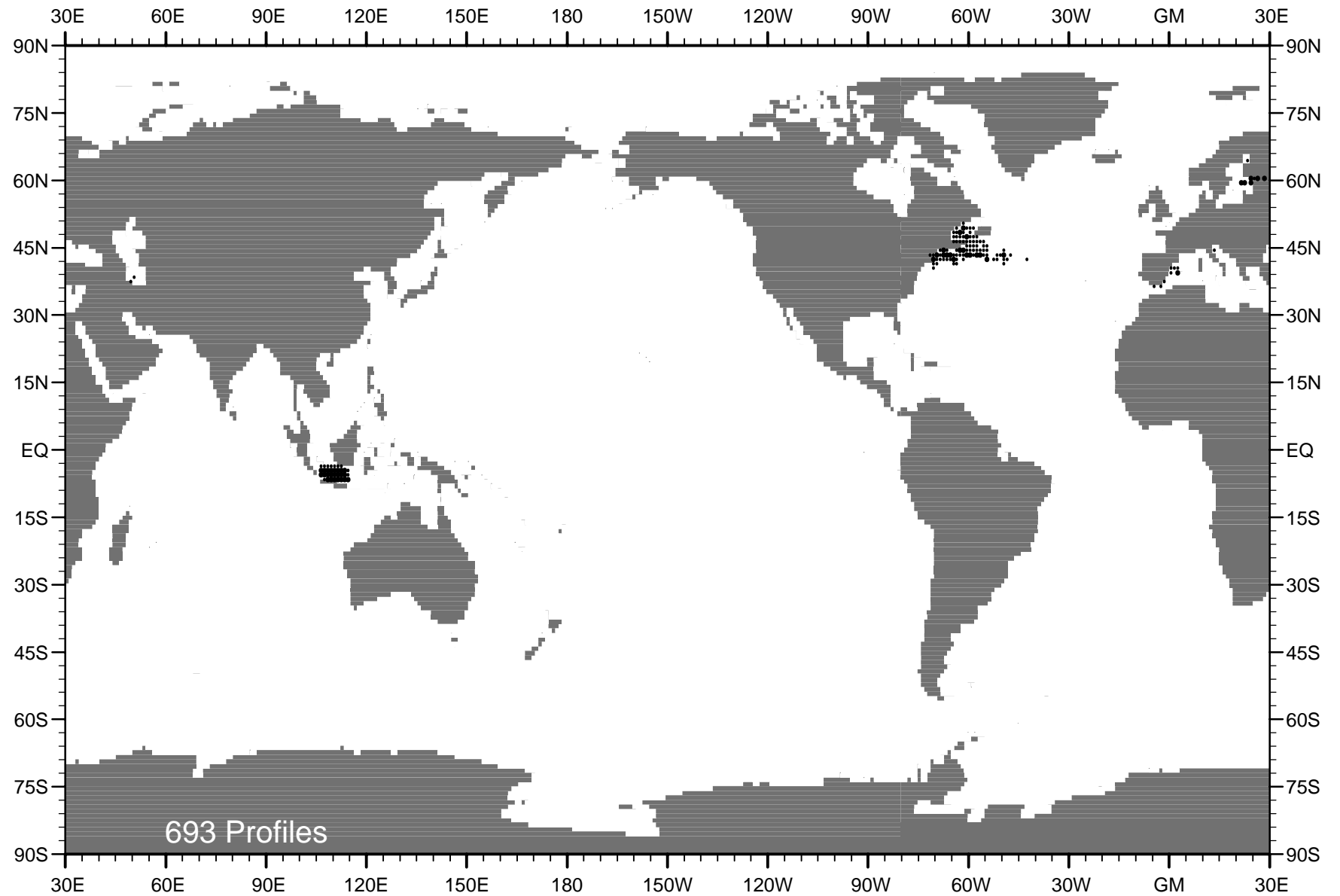


Fig. A16 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1915 .

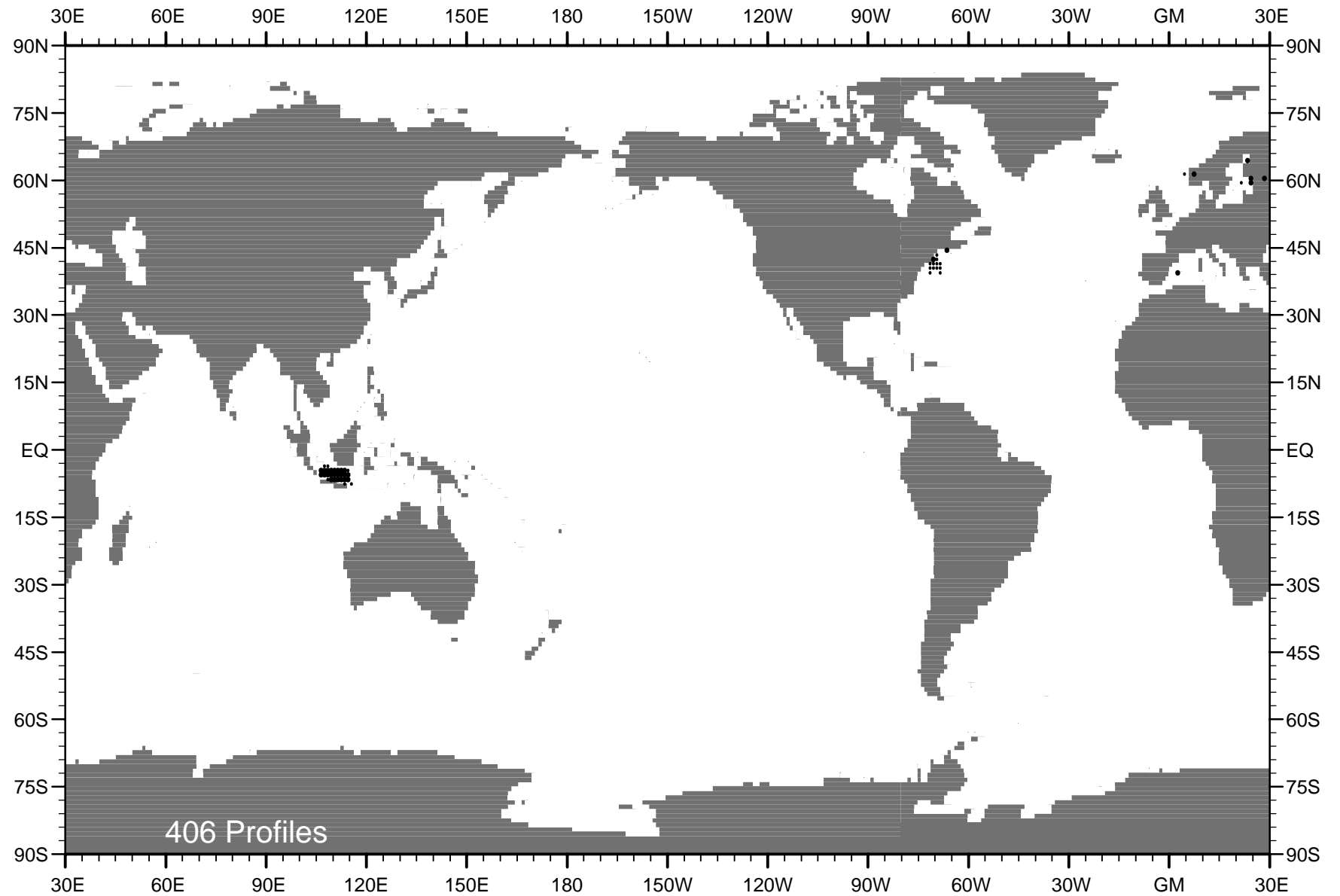


Fig. A17 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1916 .

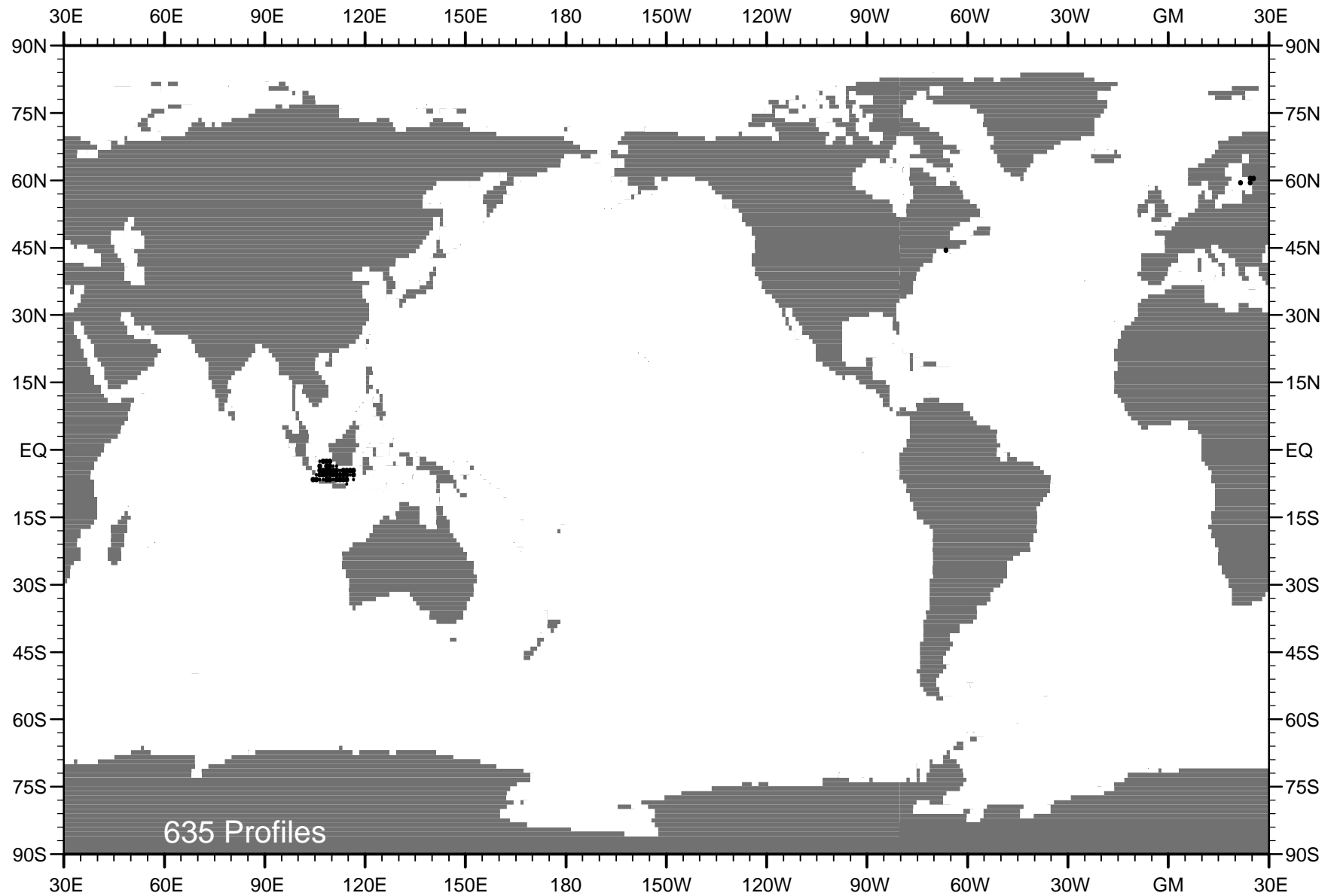


Fig. A18 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1917 .

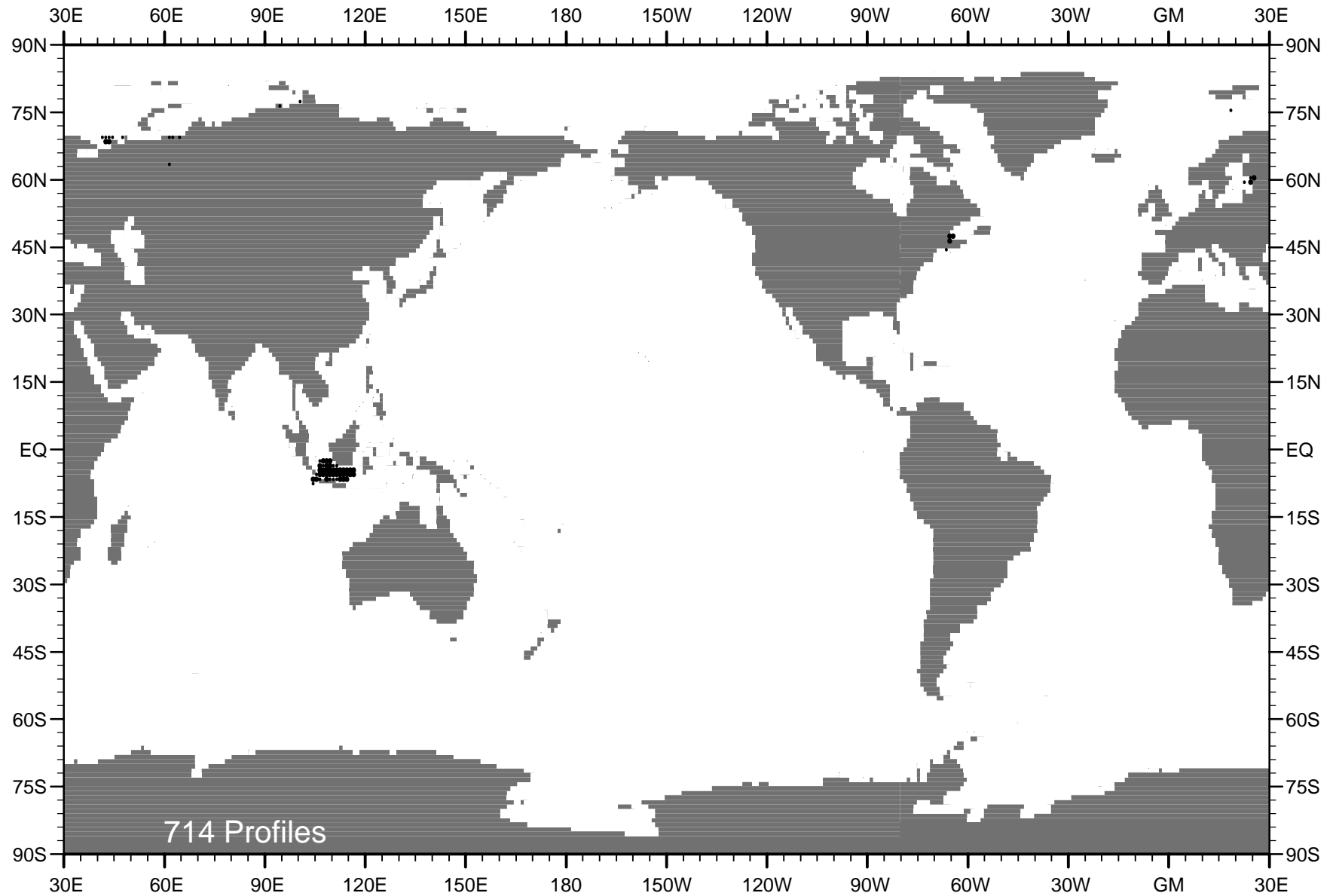


Fig. A19 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1918 .

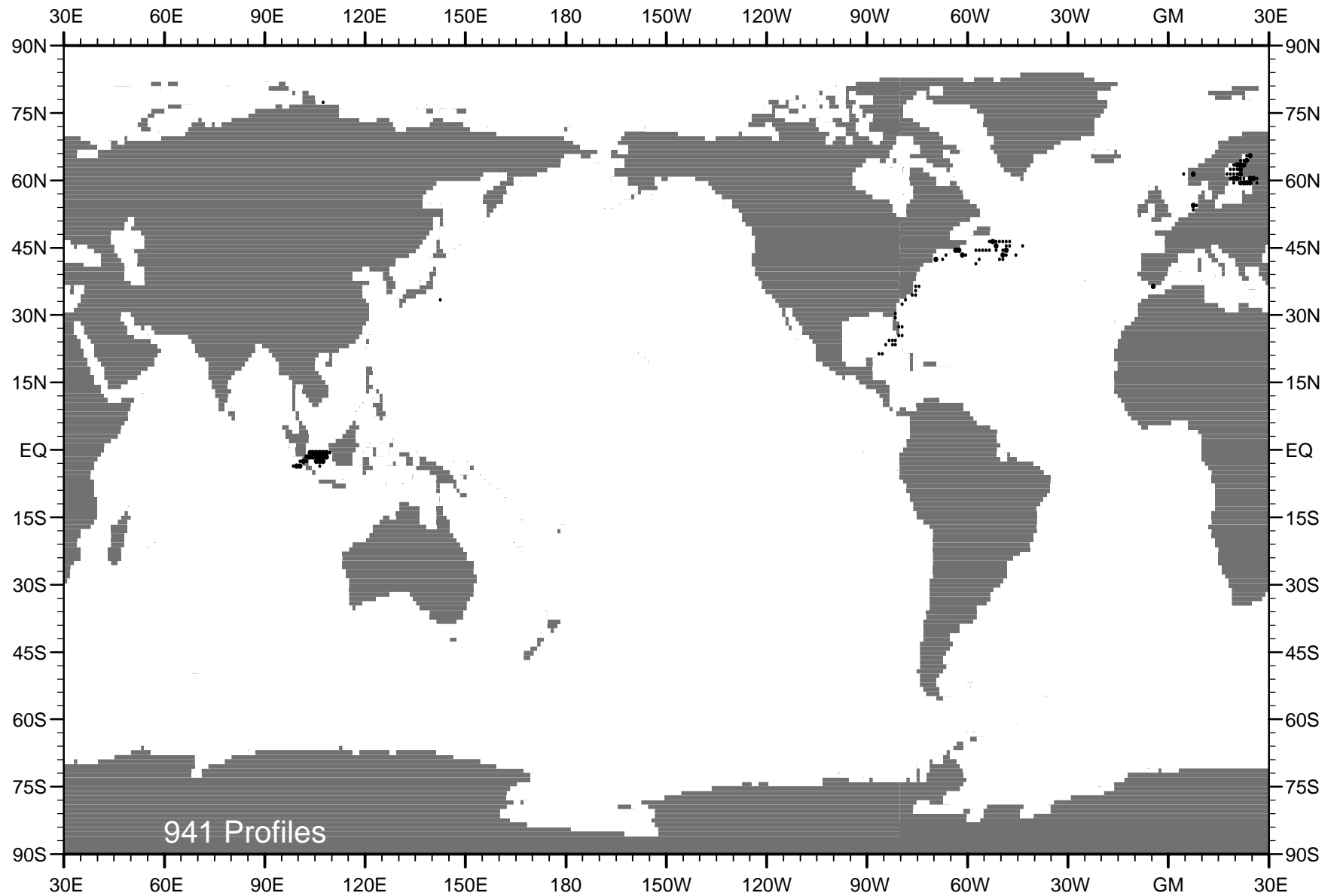


Fig. A20 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1919 .

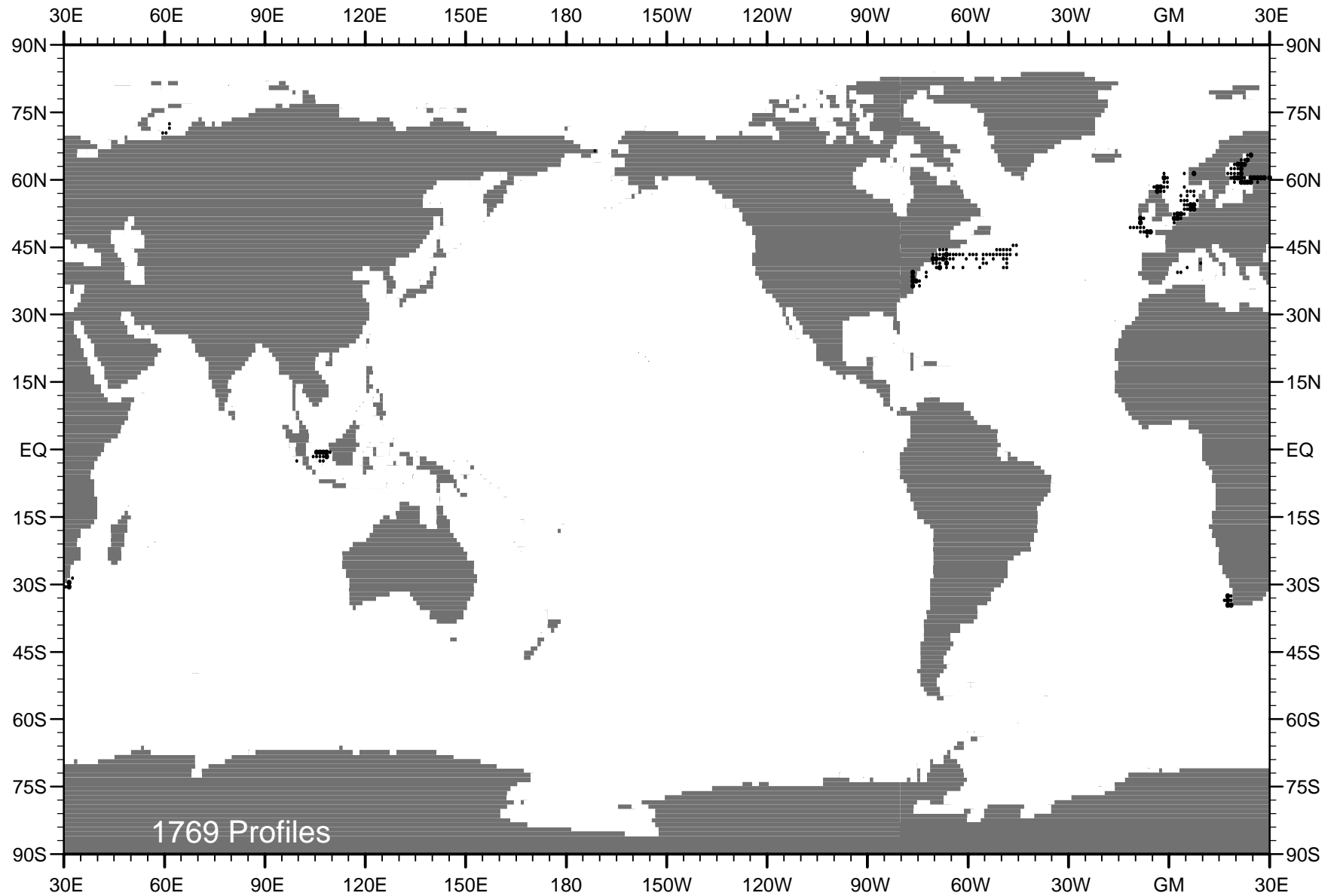


Fig. A21 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1920 .

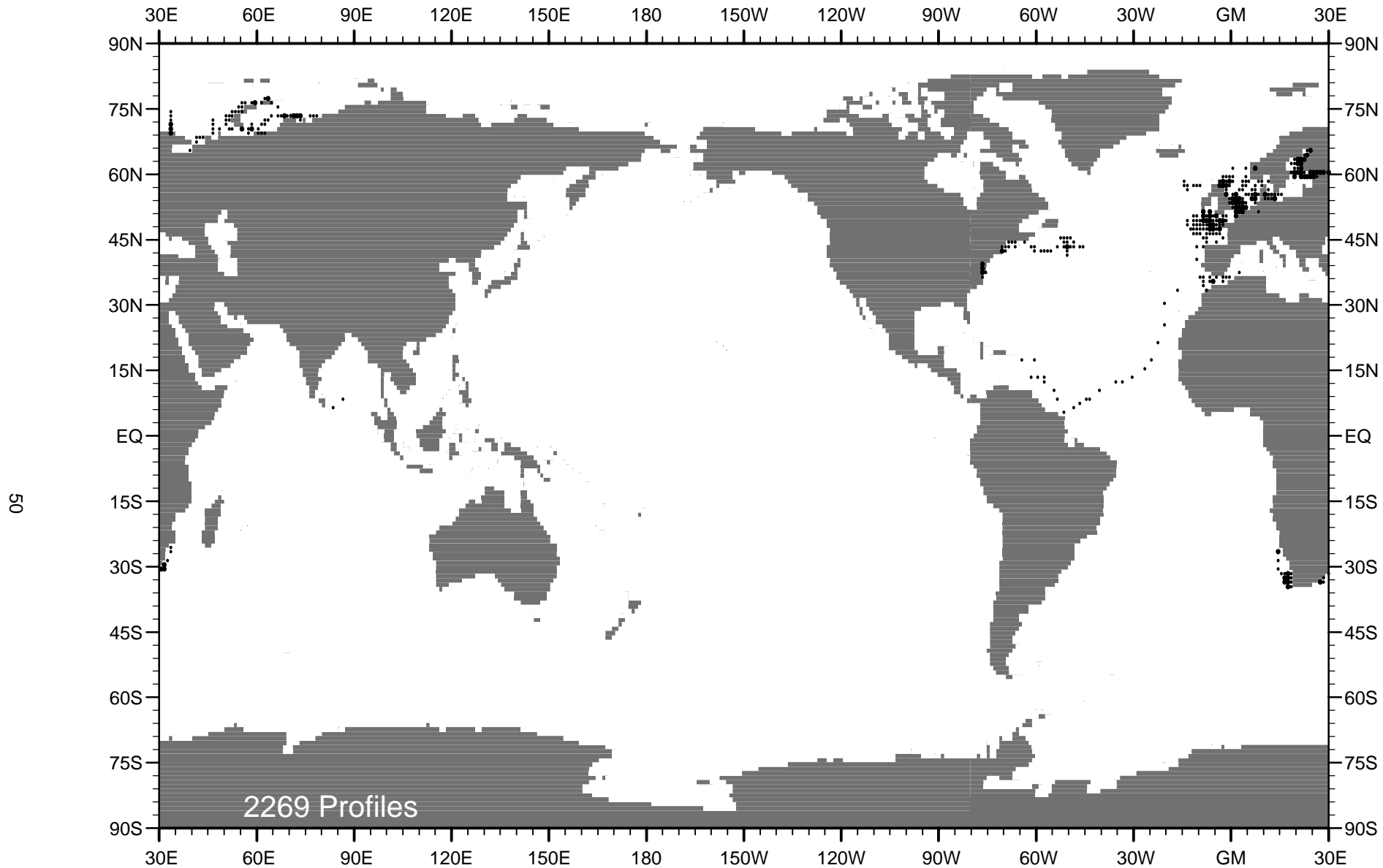


Fig. A22 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1921 .

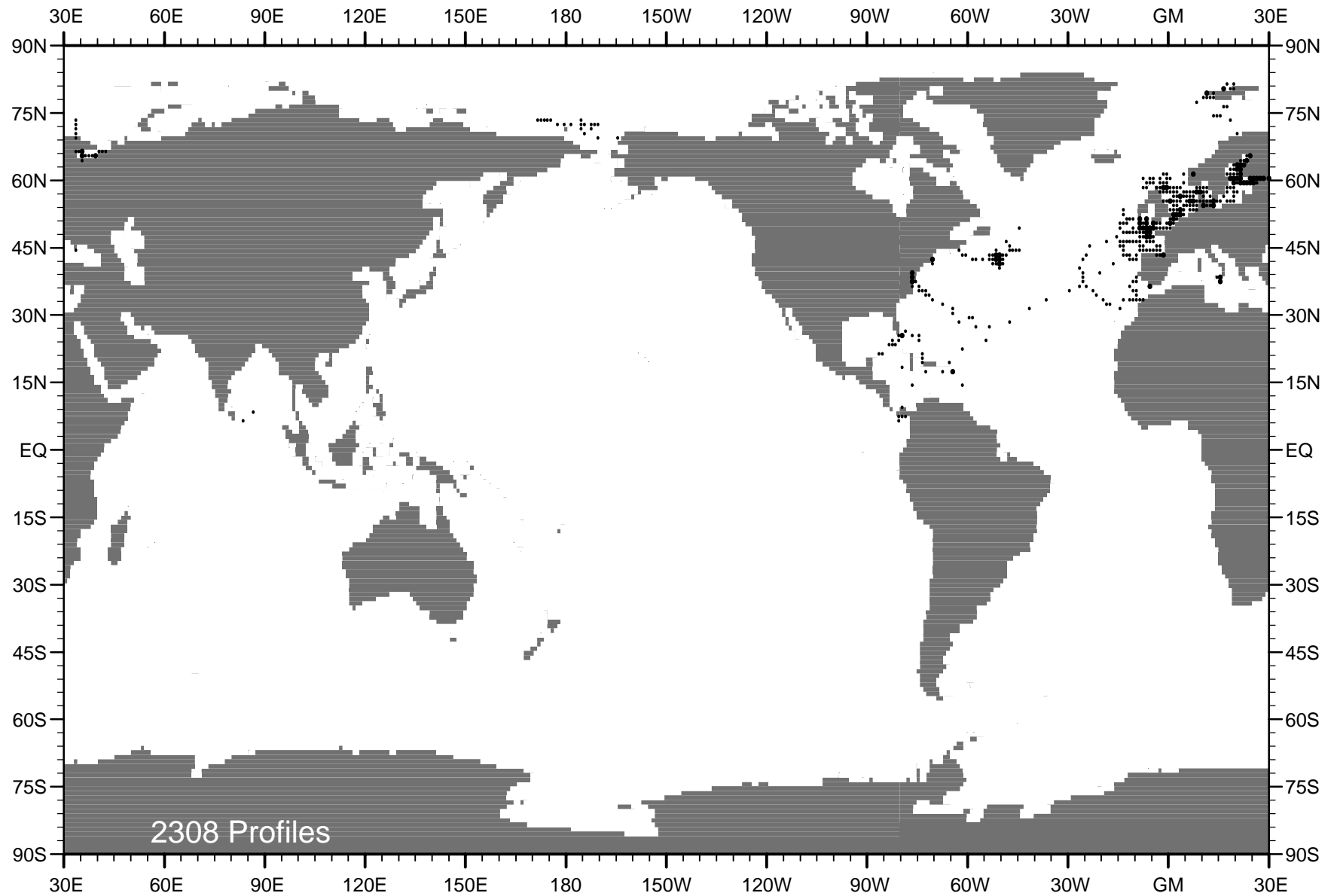


Fig. A23 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1922 .



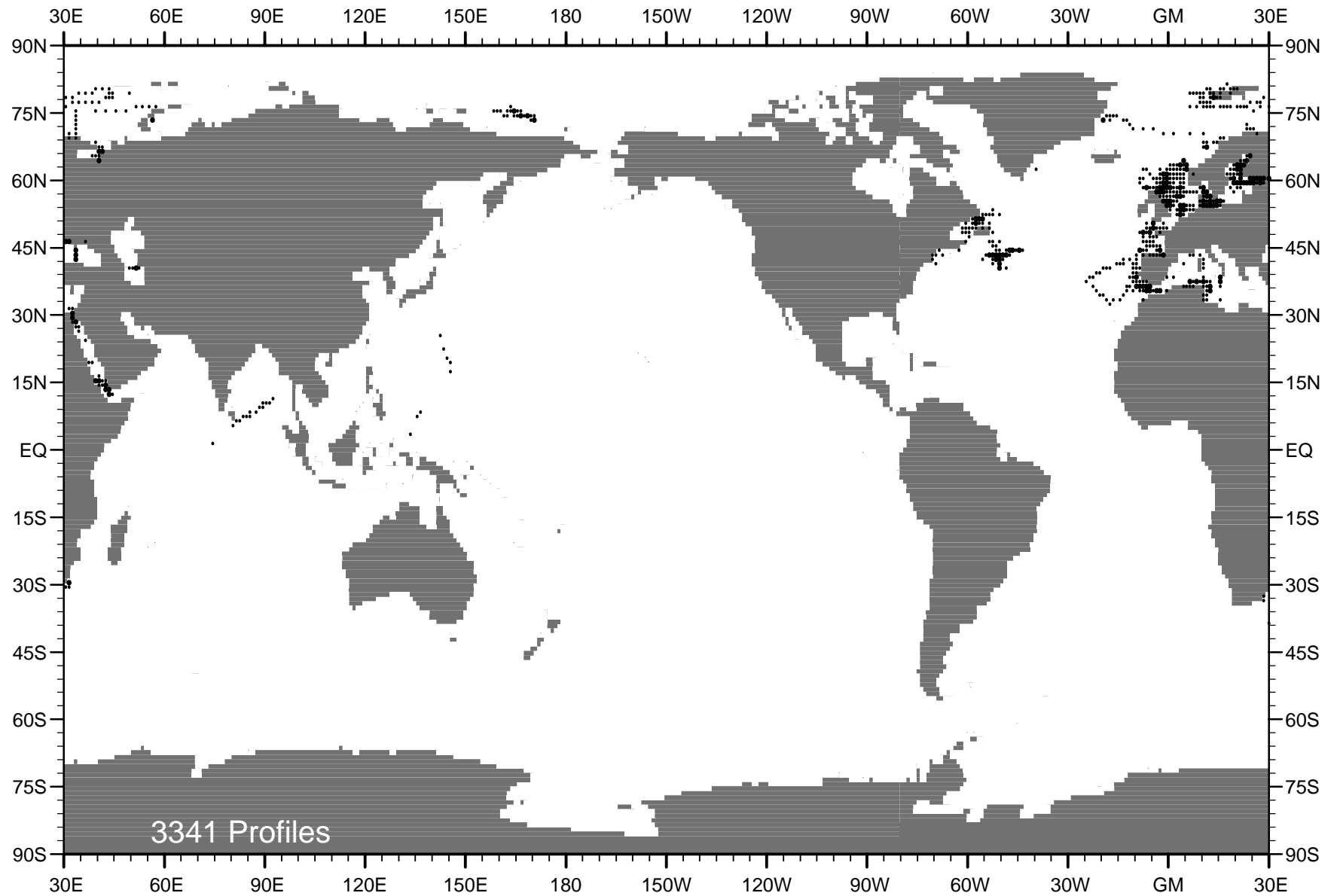


Fig. A24 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1923 .

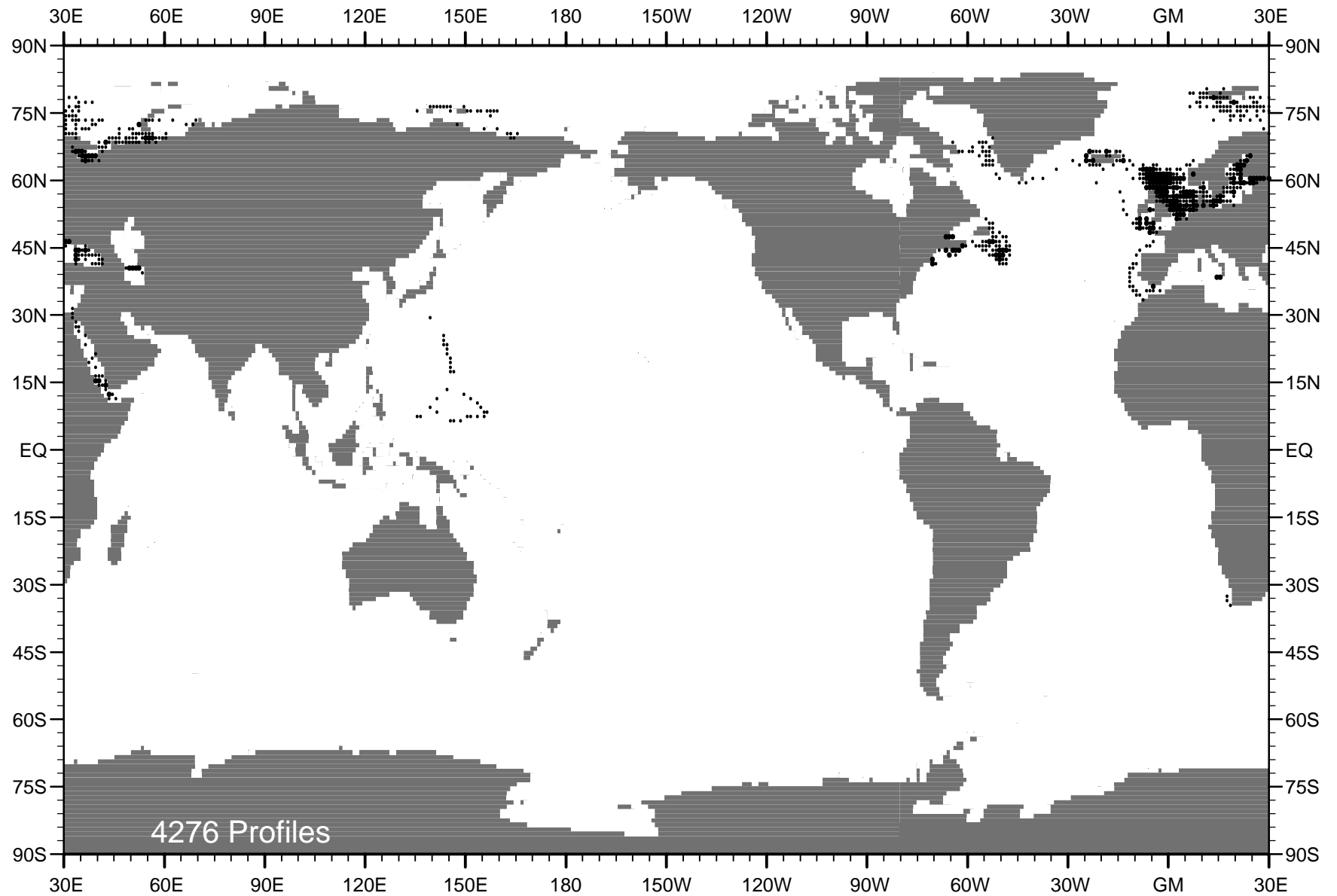


Fig. A25 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1924 .

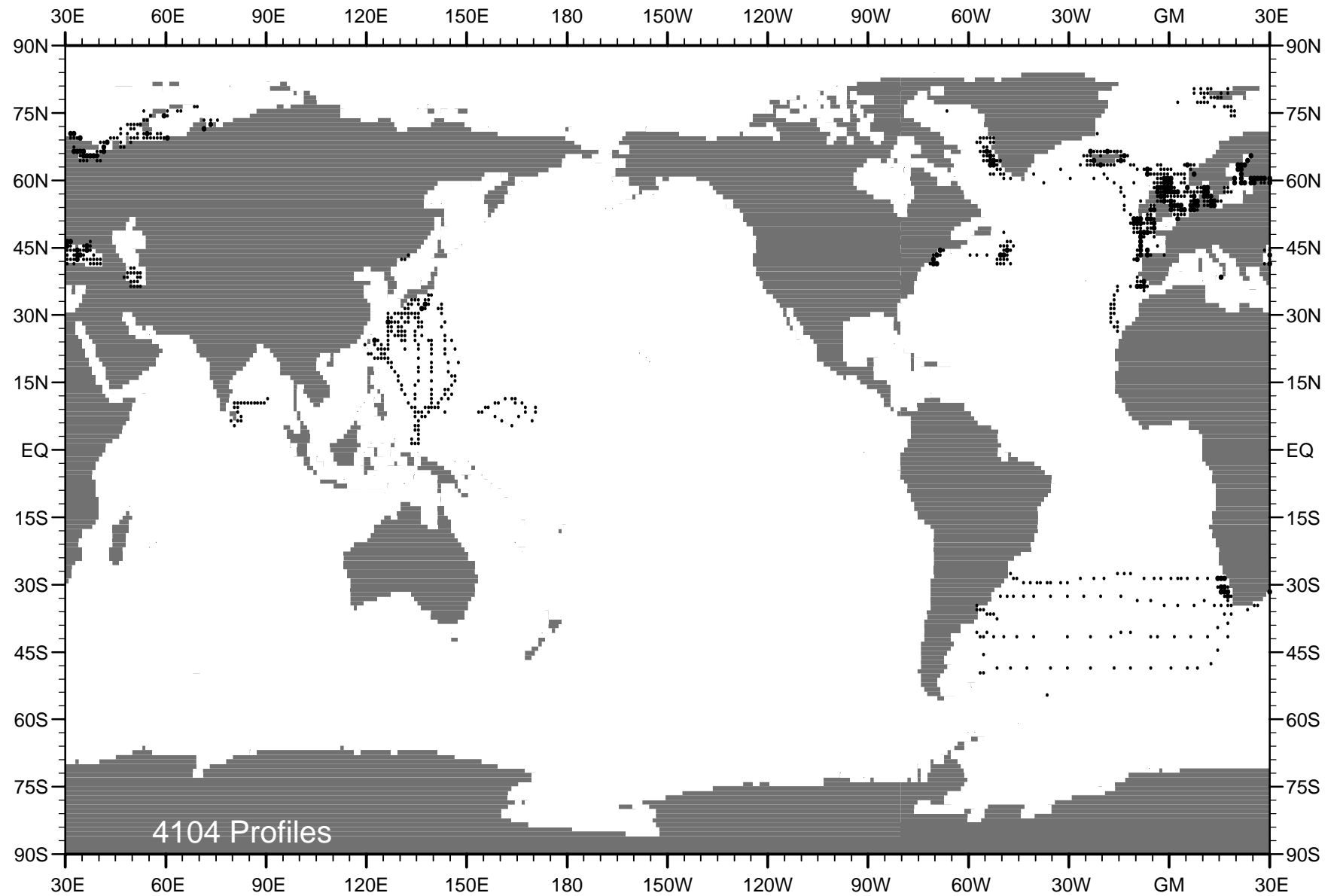


Fig. A26 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1925 .

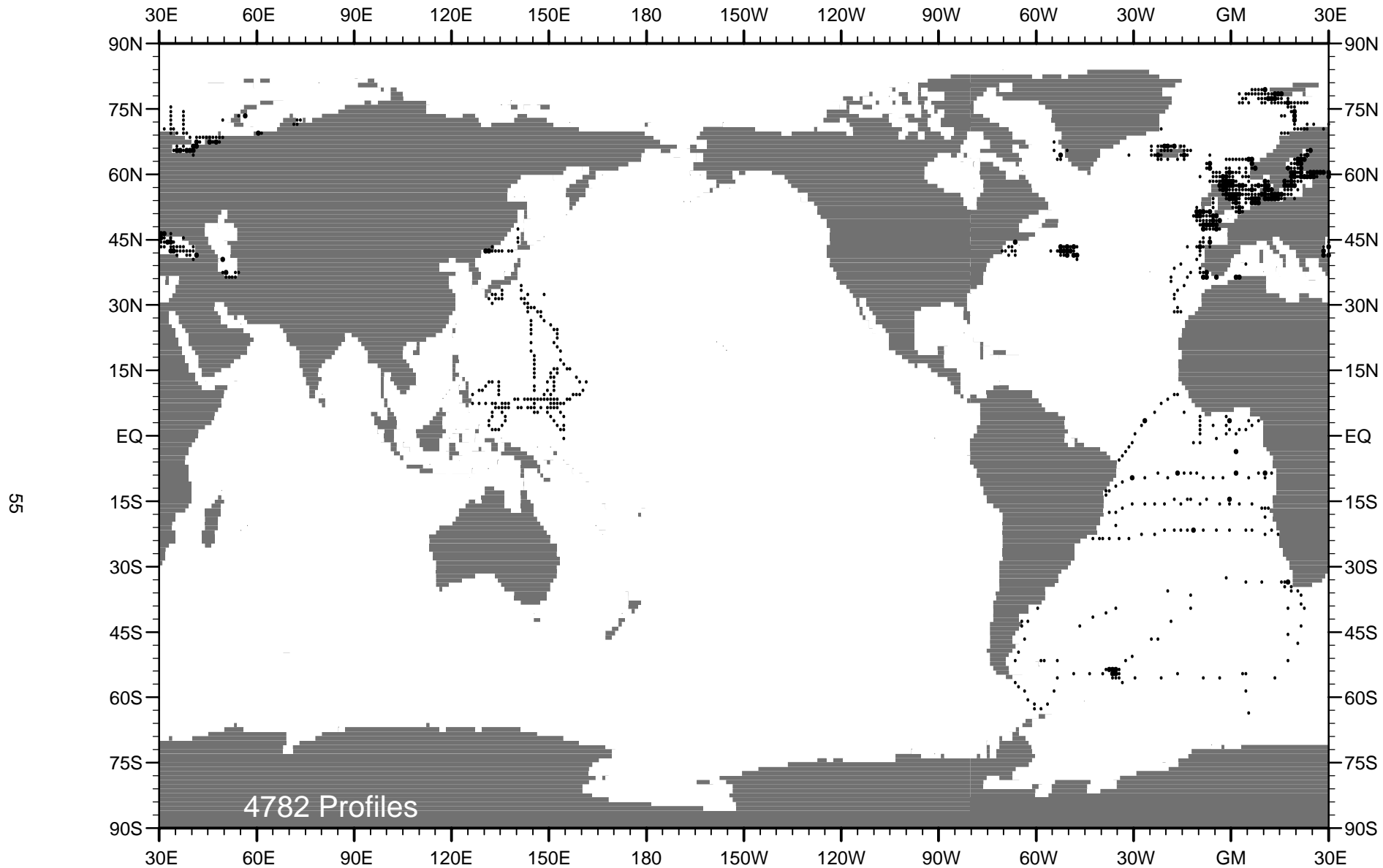


Fig. A27 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1926 .

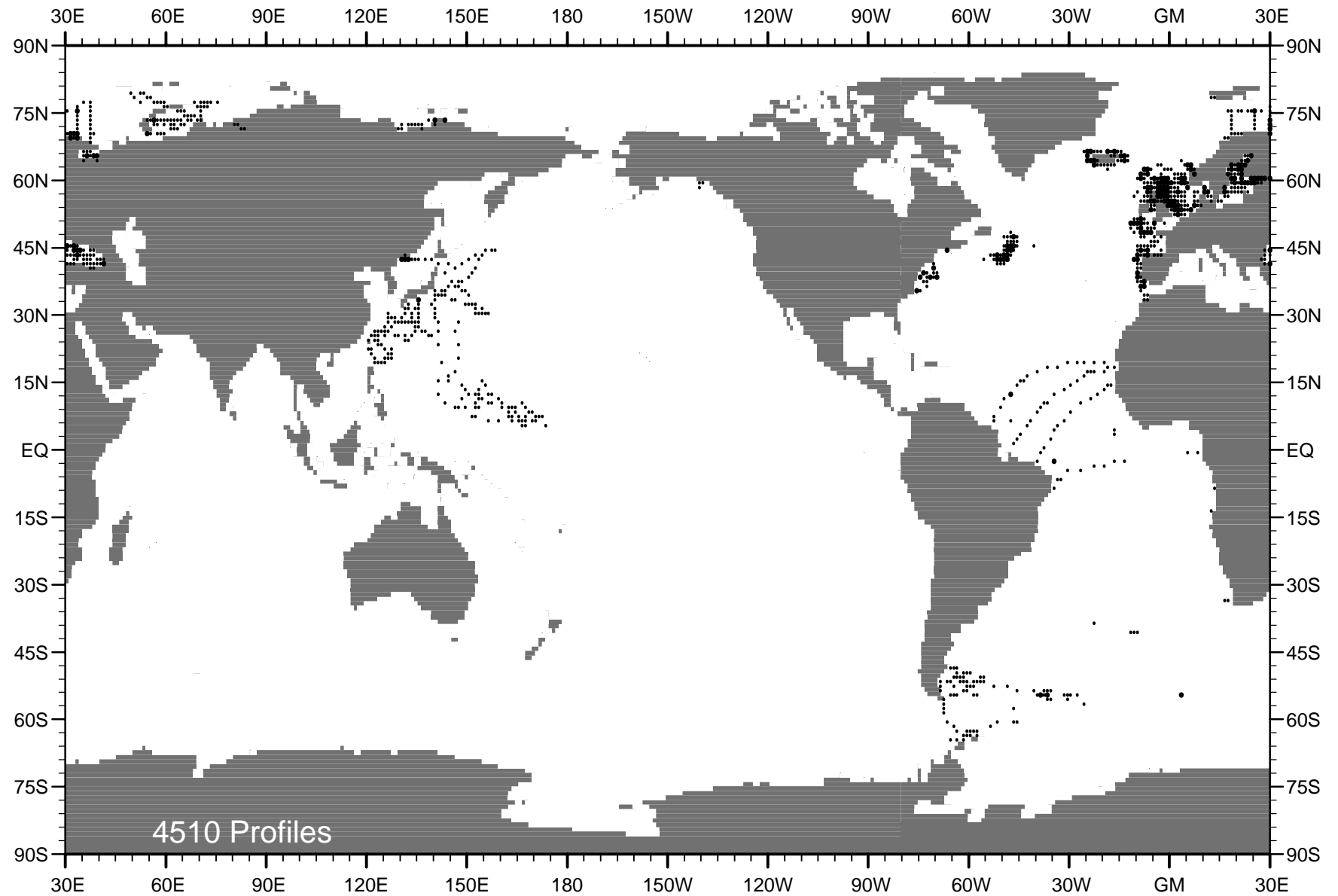


Fig. A28 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1927 .

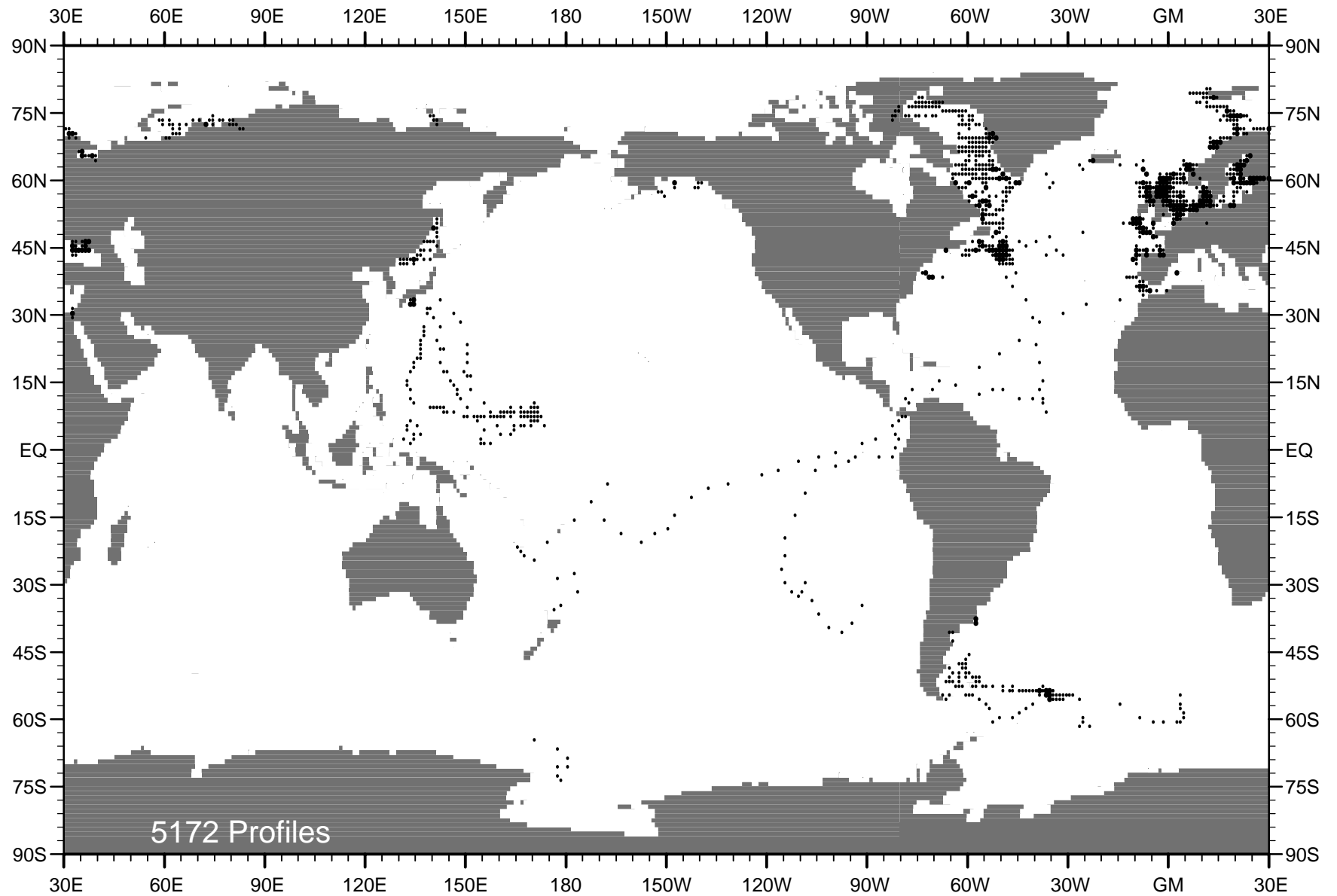


Fig. A29 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1928 .

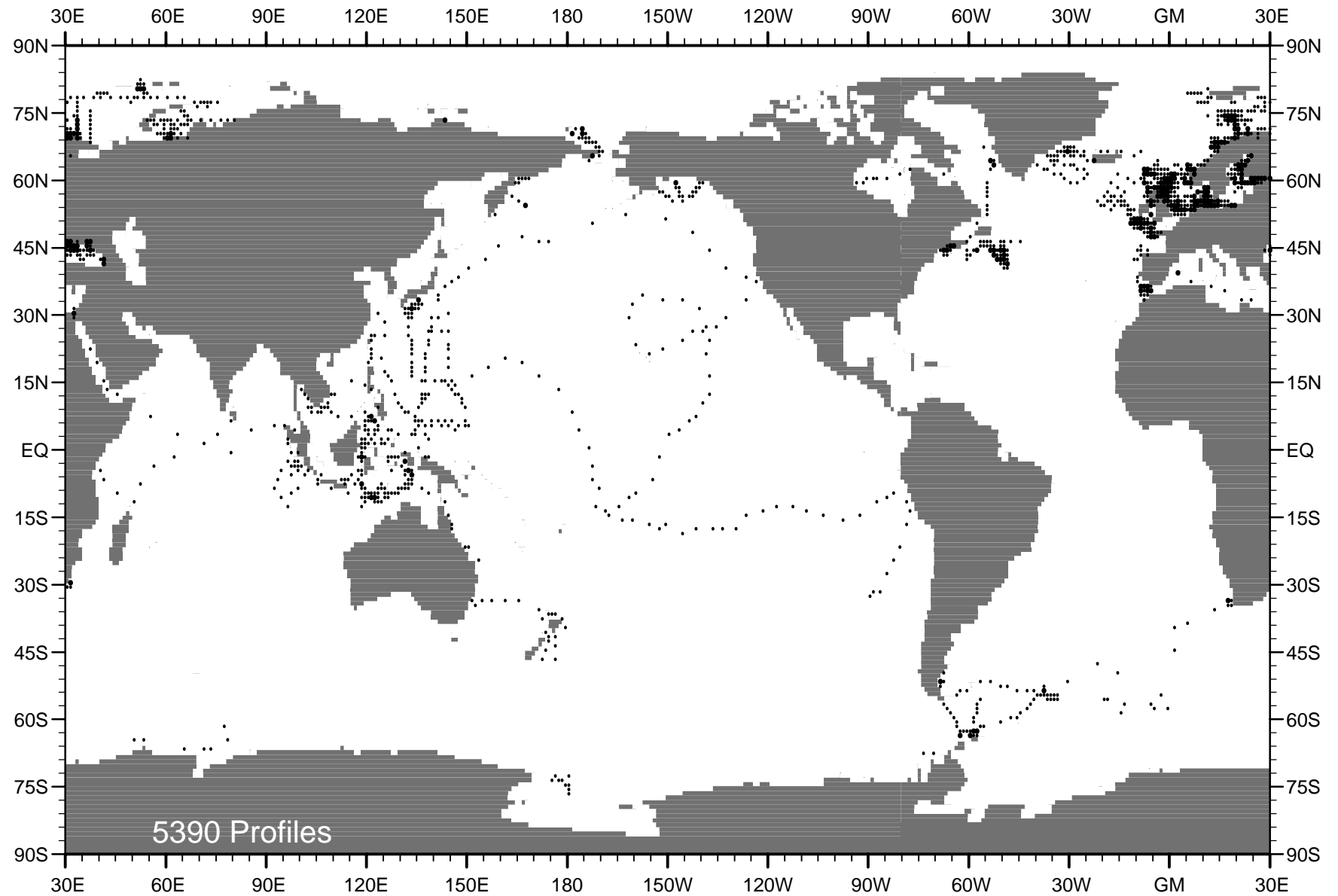


Fig. A30 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1929 .

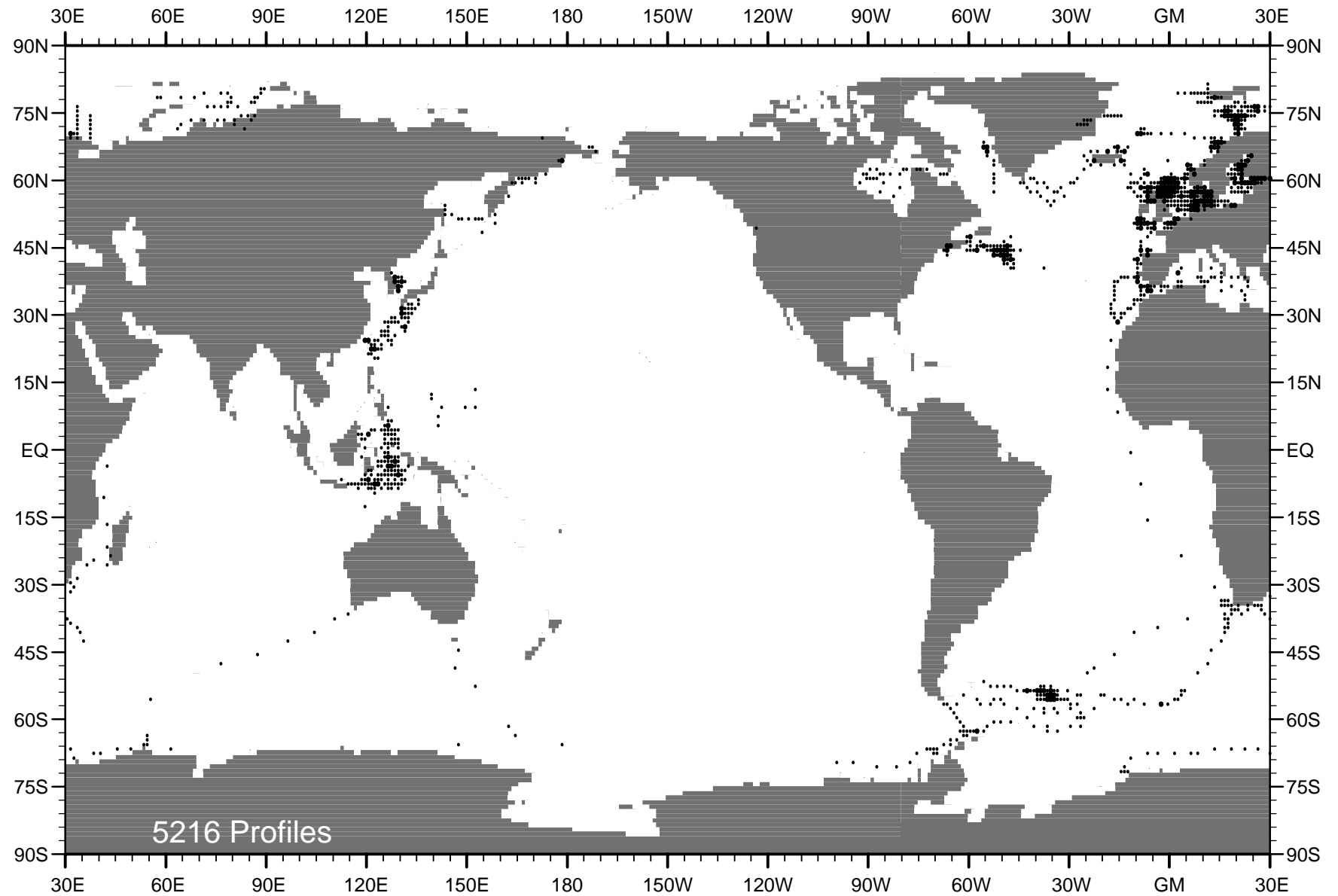


Fig. A31 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1930 .



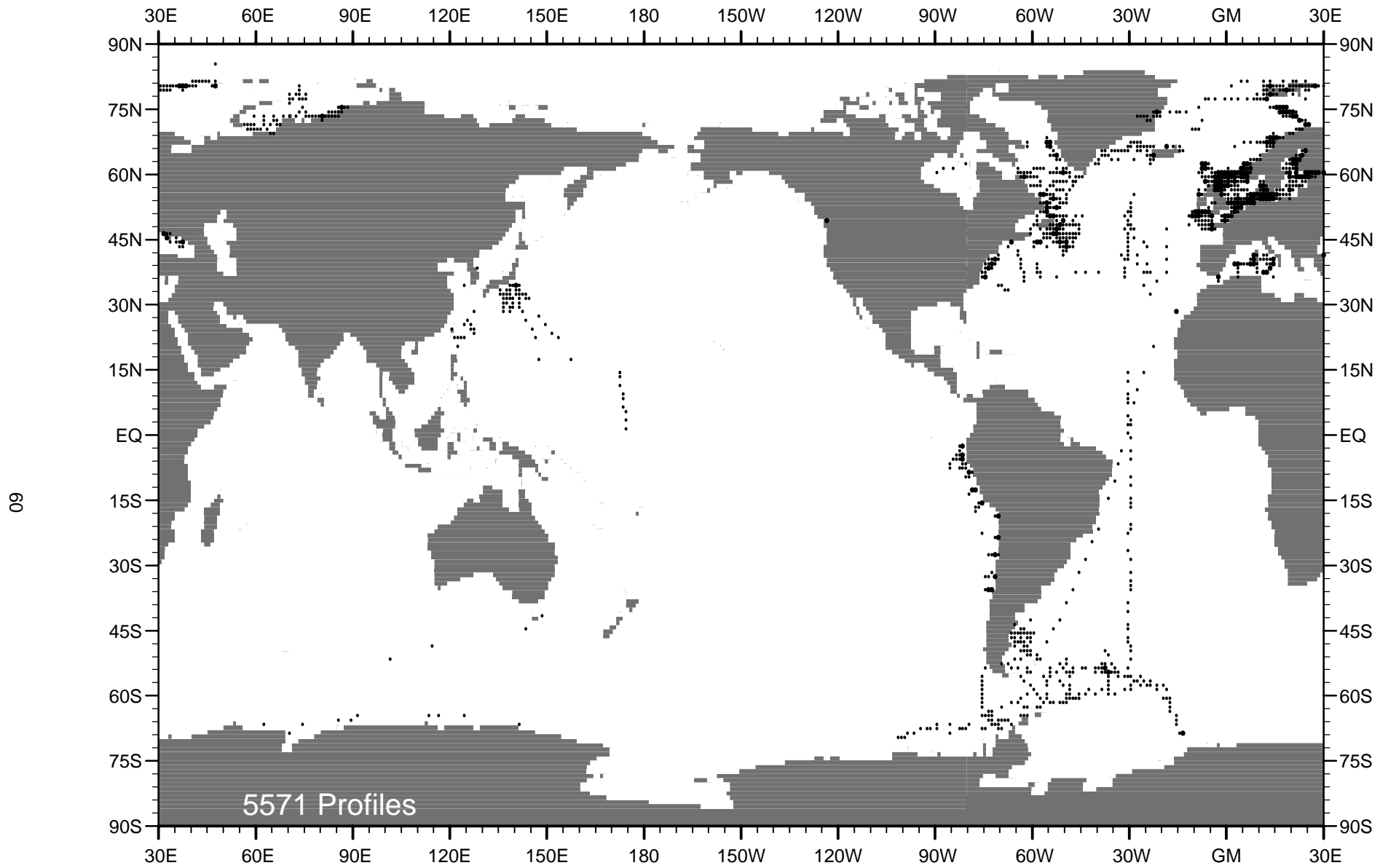


Fig. A32 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1931 .

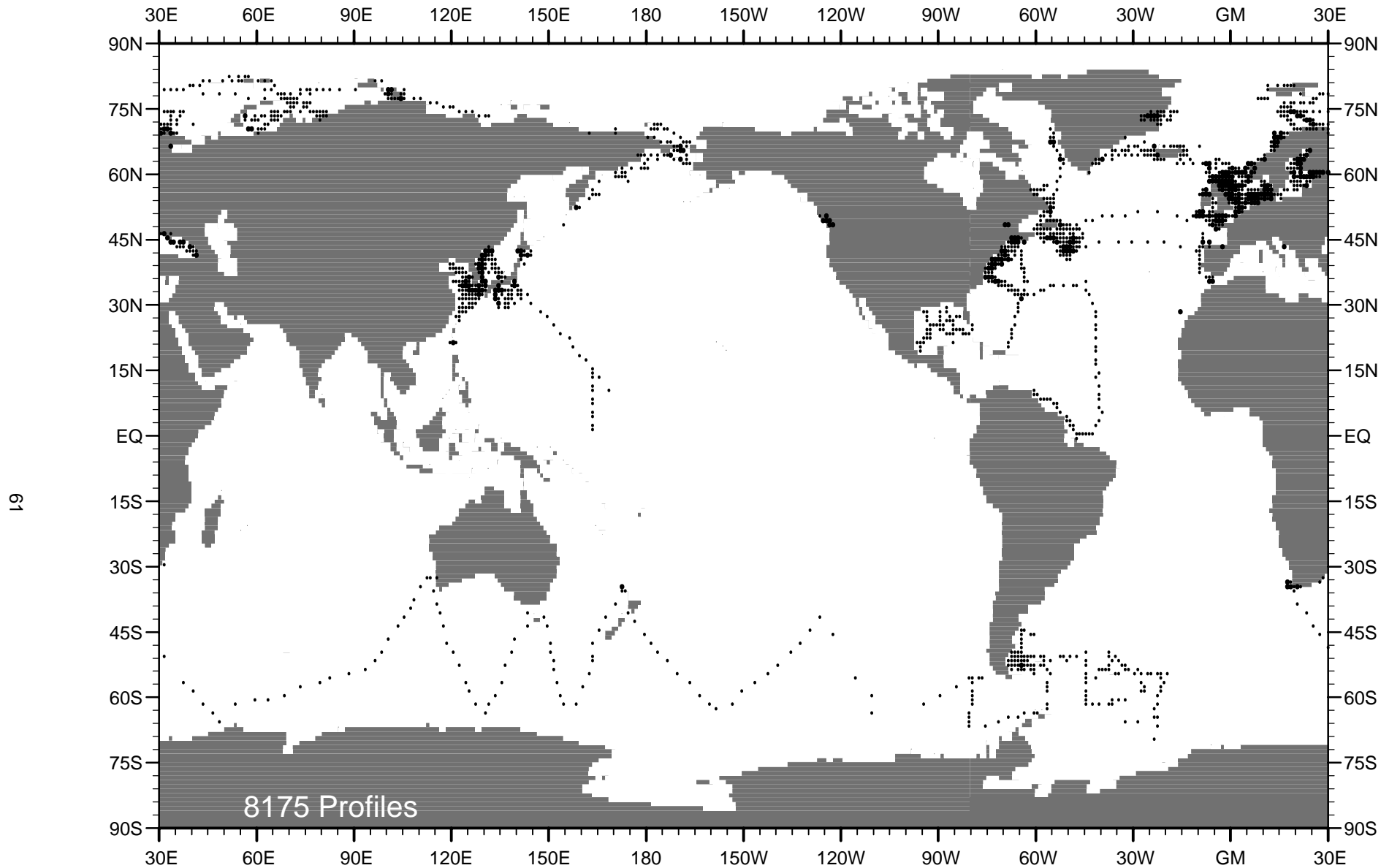


Fig. A33 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1932 .

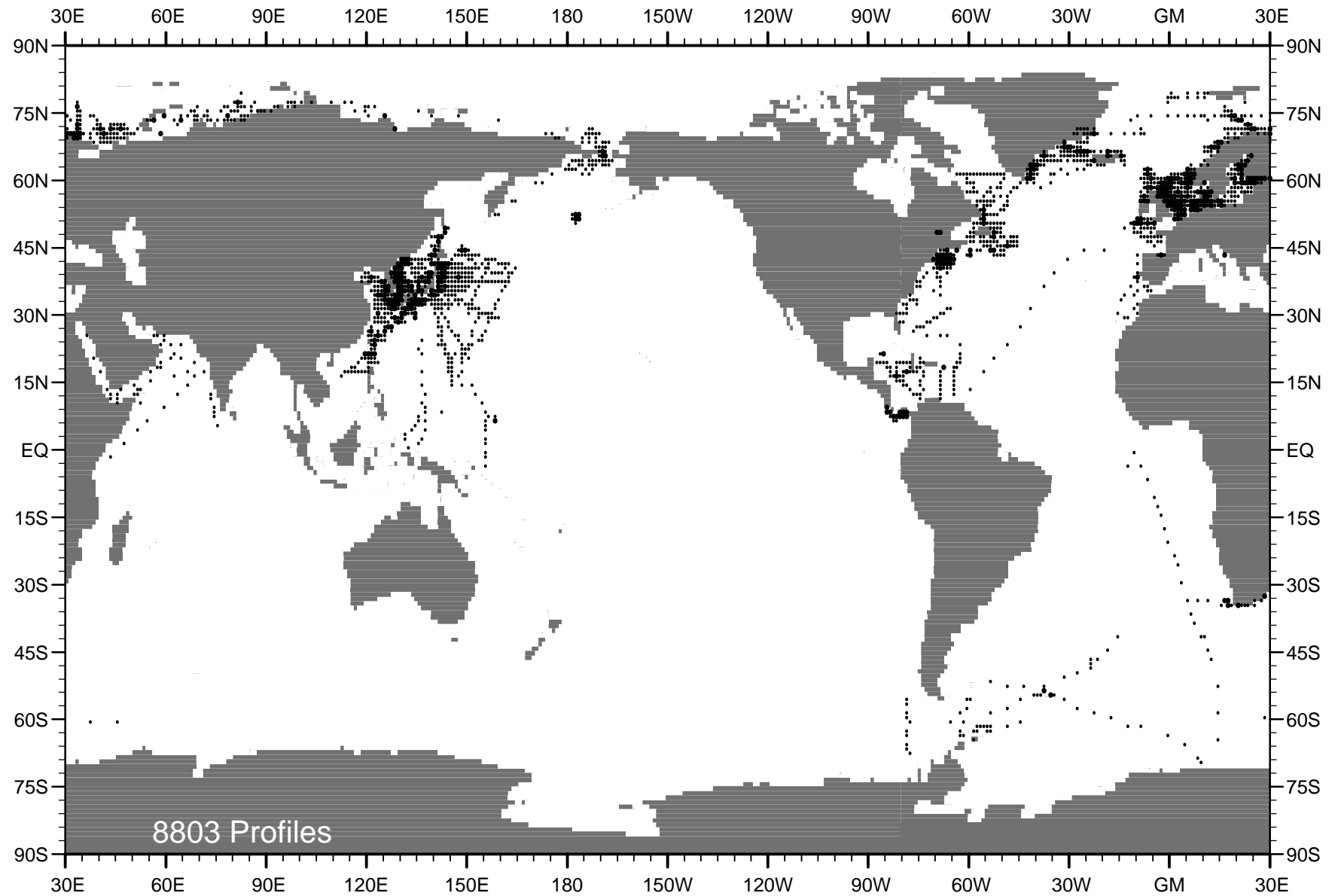


Fig. A34 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1933 .

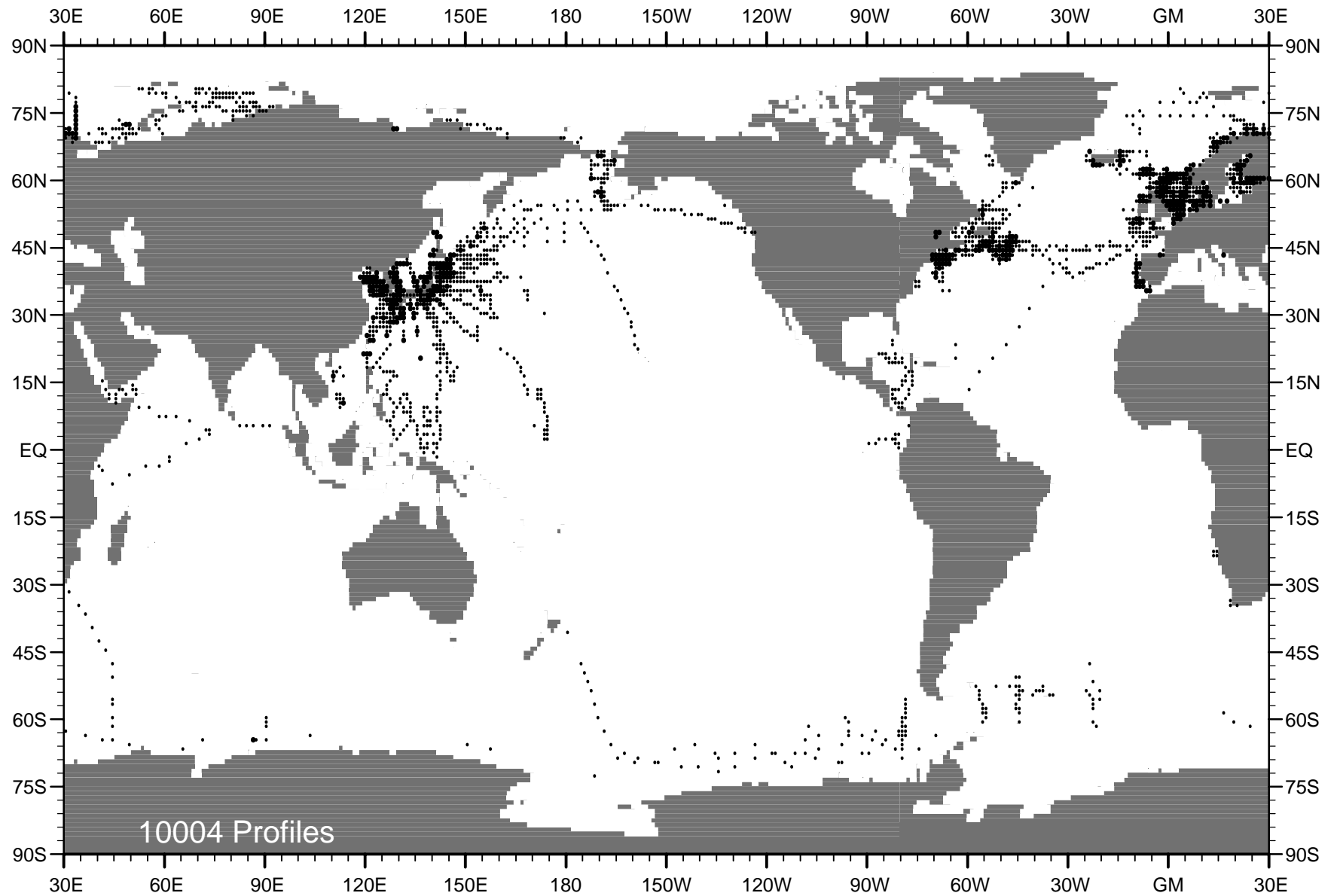


Fig. A35 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1934 .

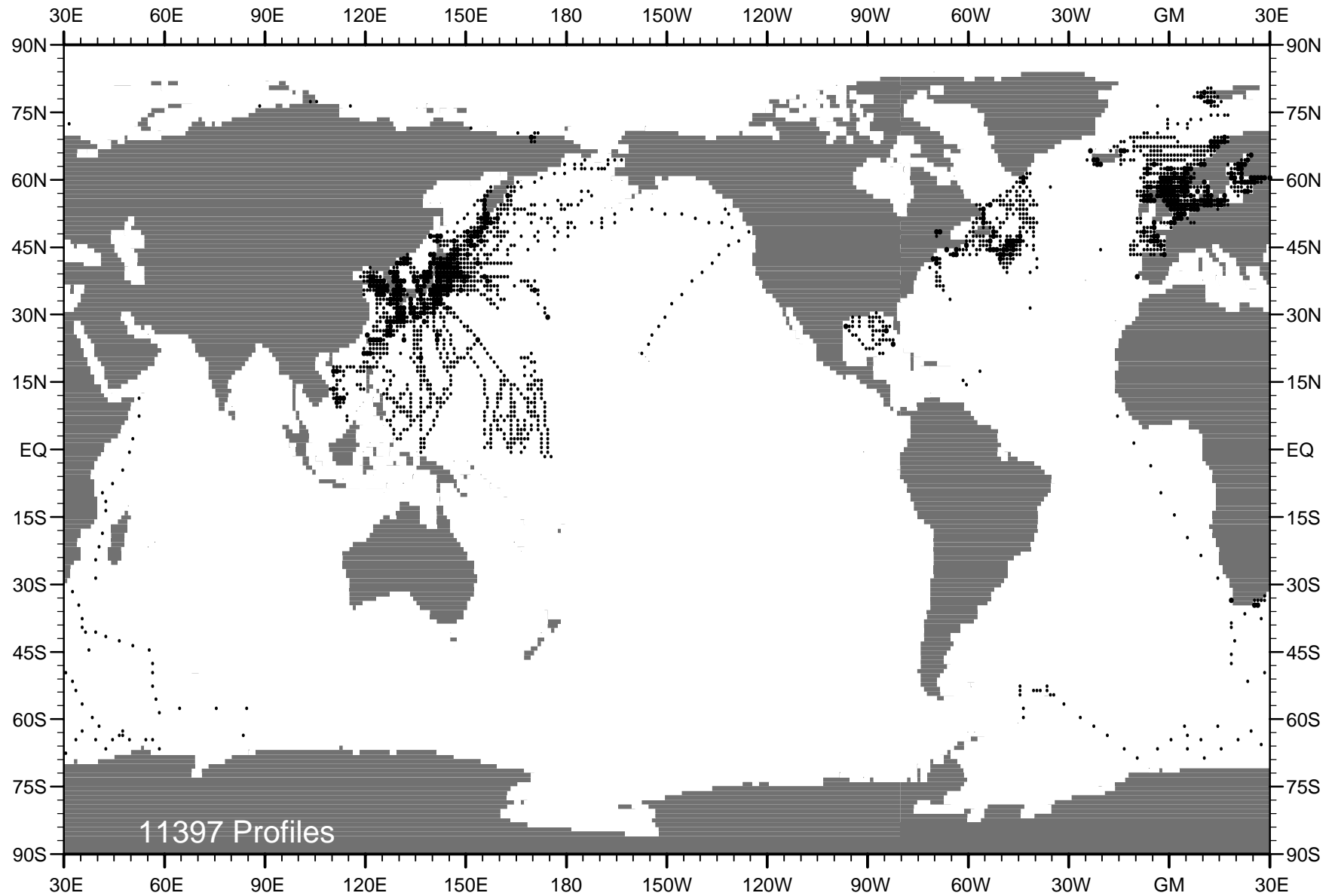


Fig. A36 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1935 .

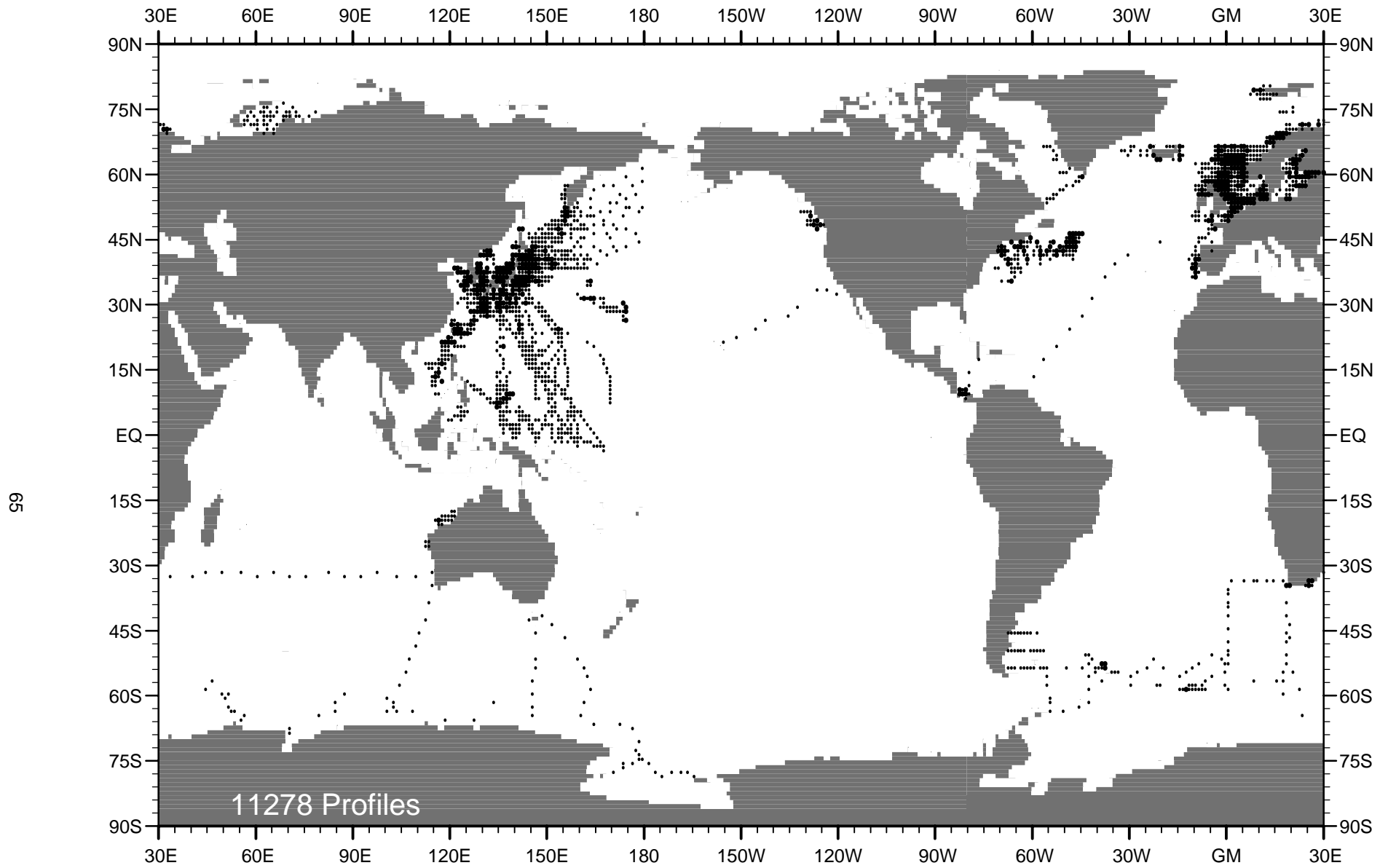


Fig. A37 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1936 .

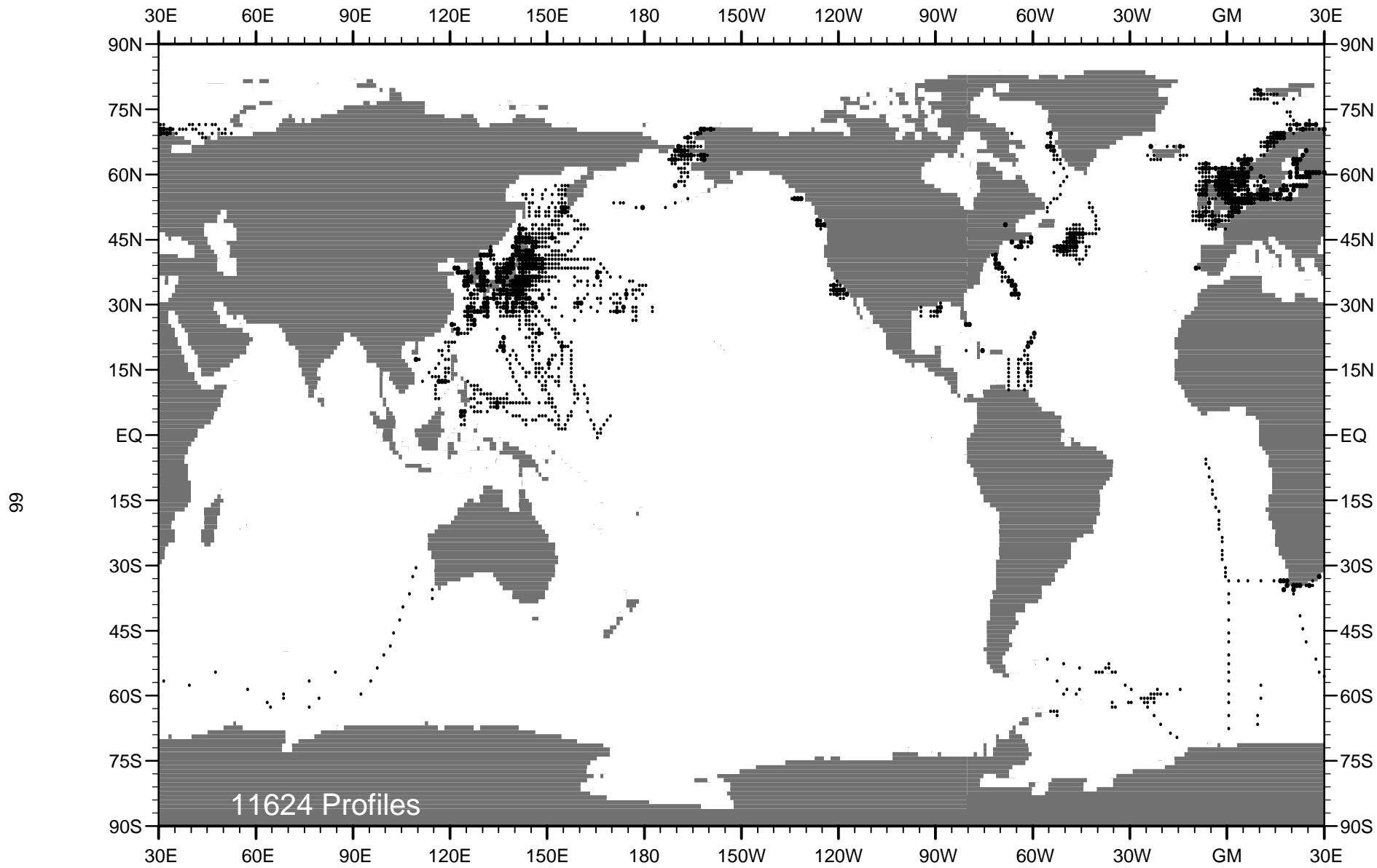


Fig. A38 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1937 .

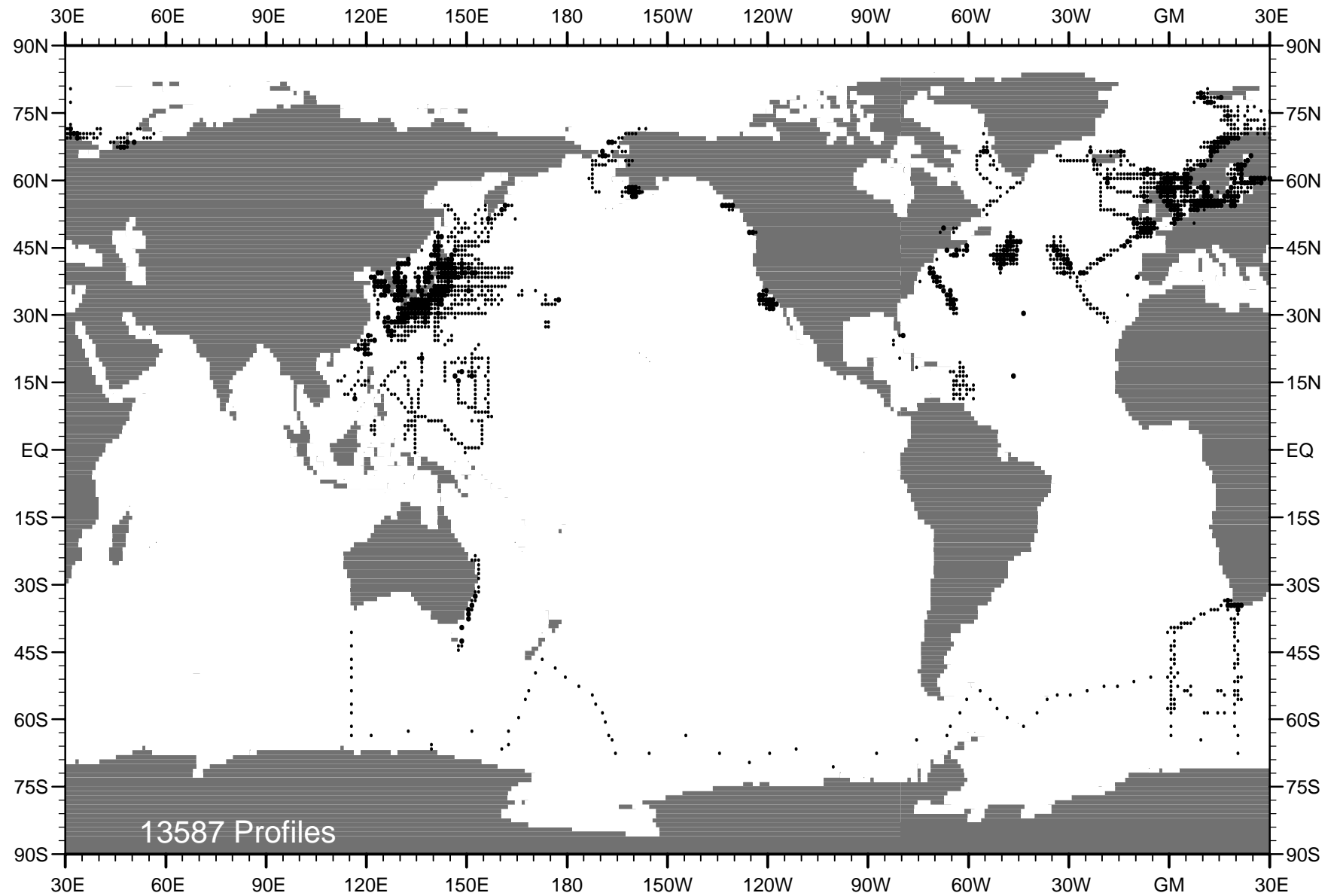


Fig. A39 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1938 .



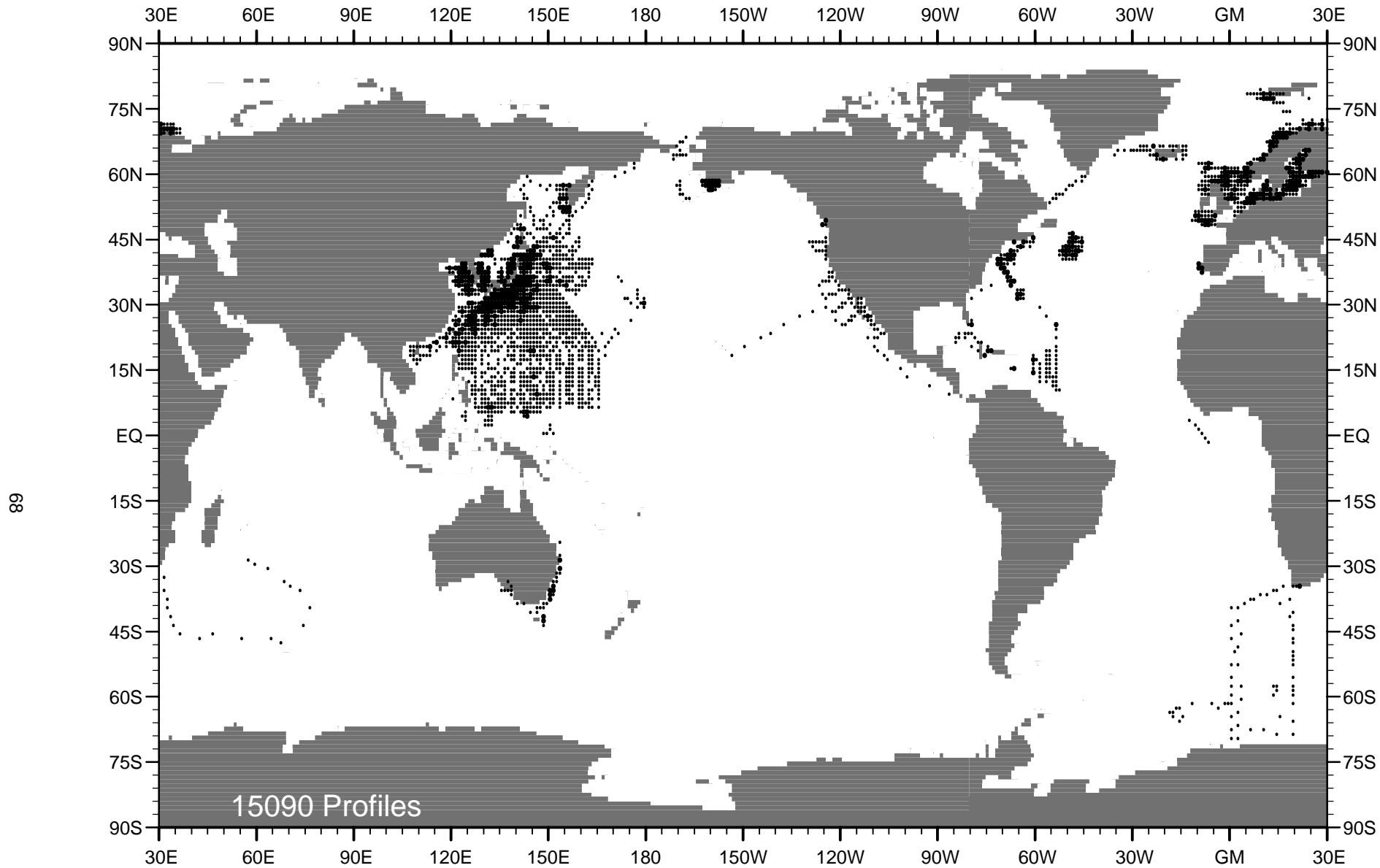


Fig. A40 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1939 .

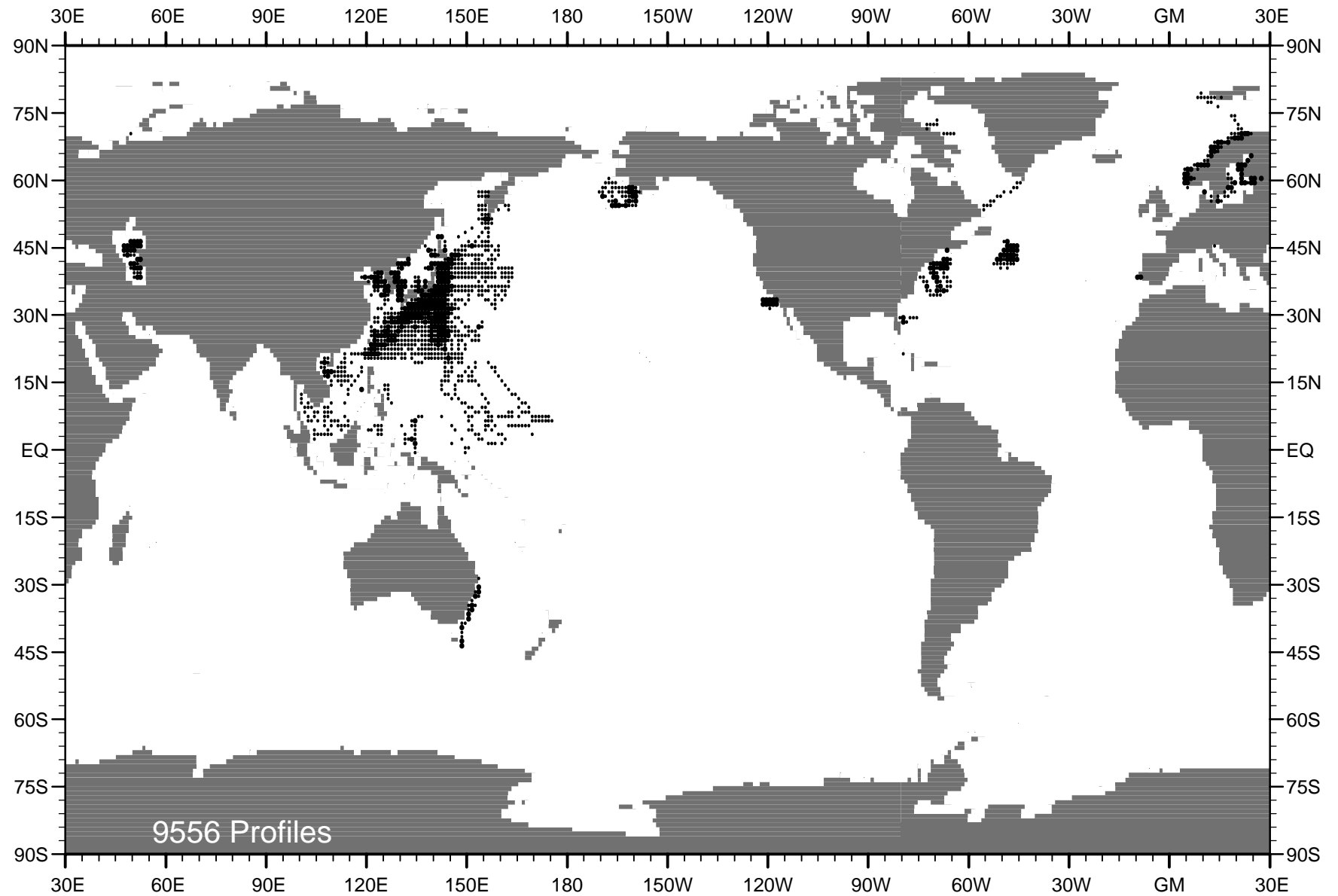


Fig. A41 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1940 .

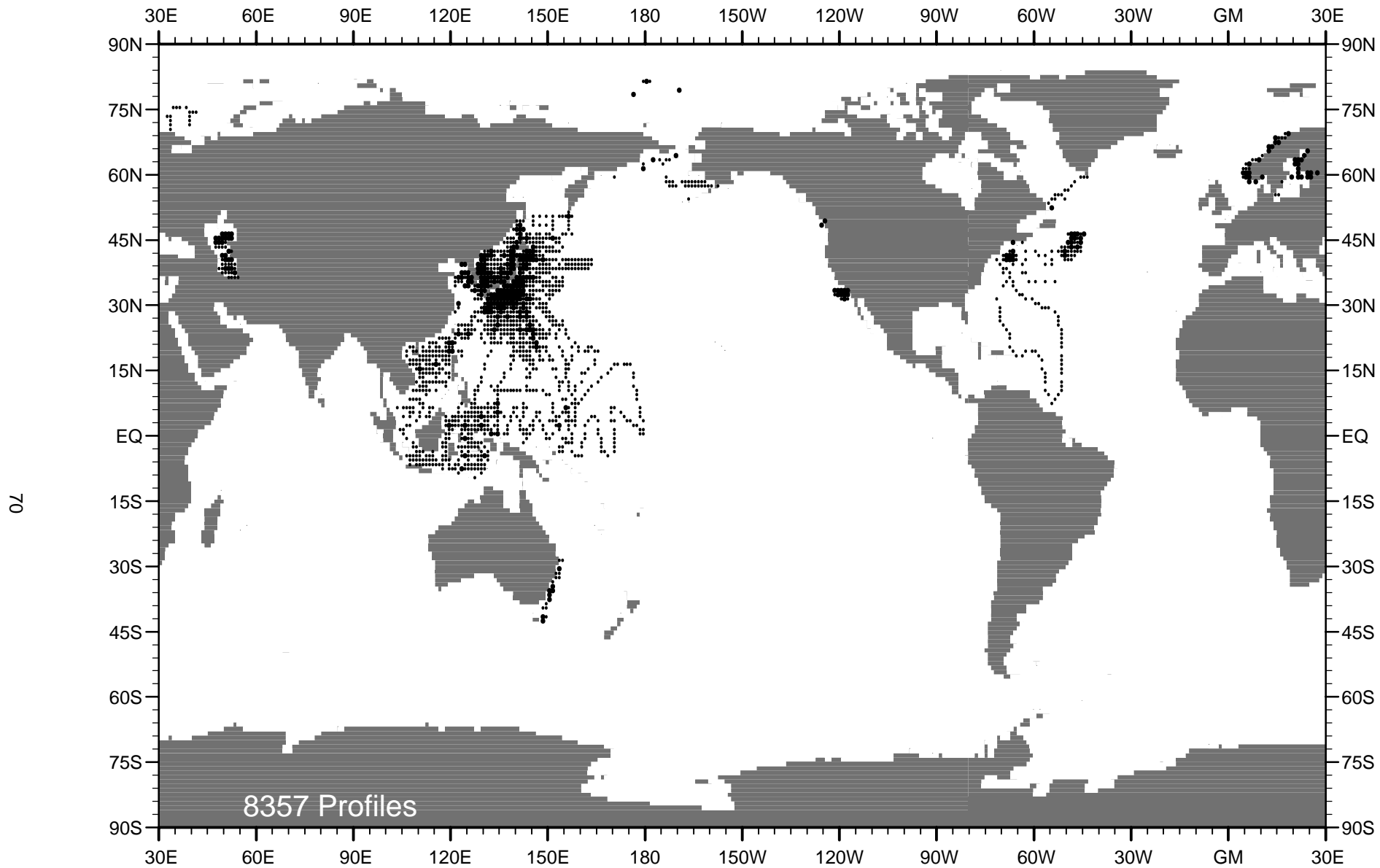


Fig. A42 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1941 .

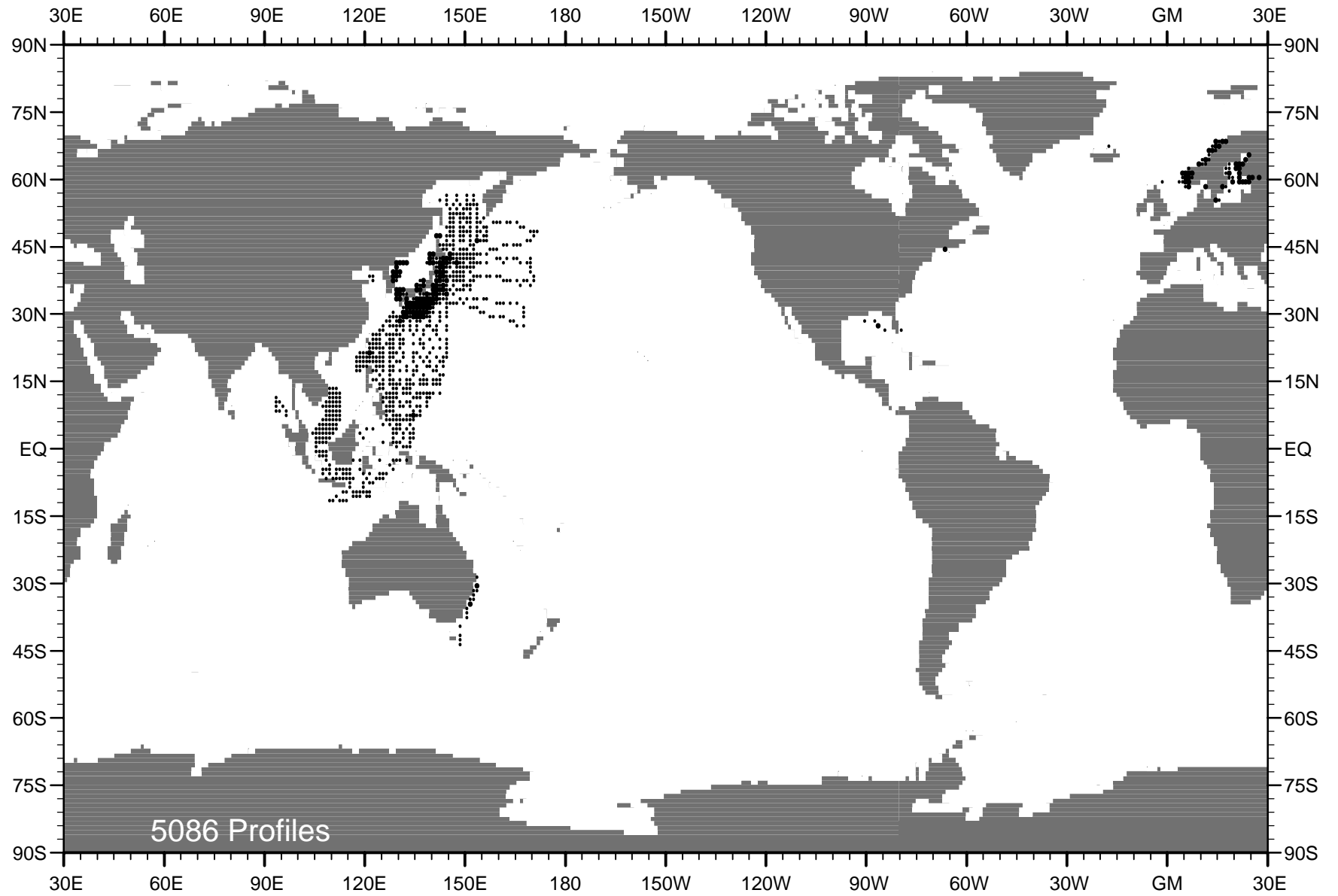


Fig. A43 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1942 .

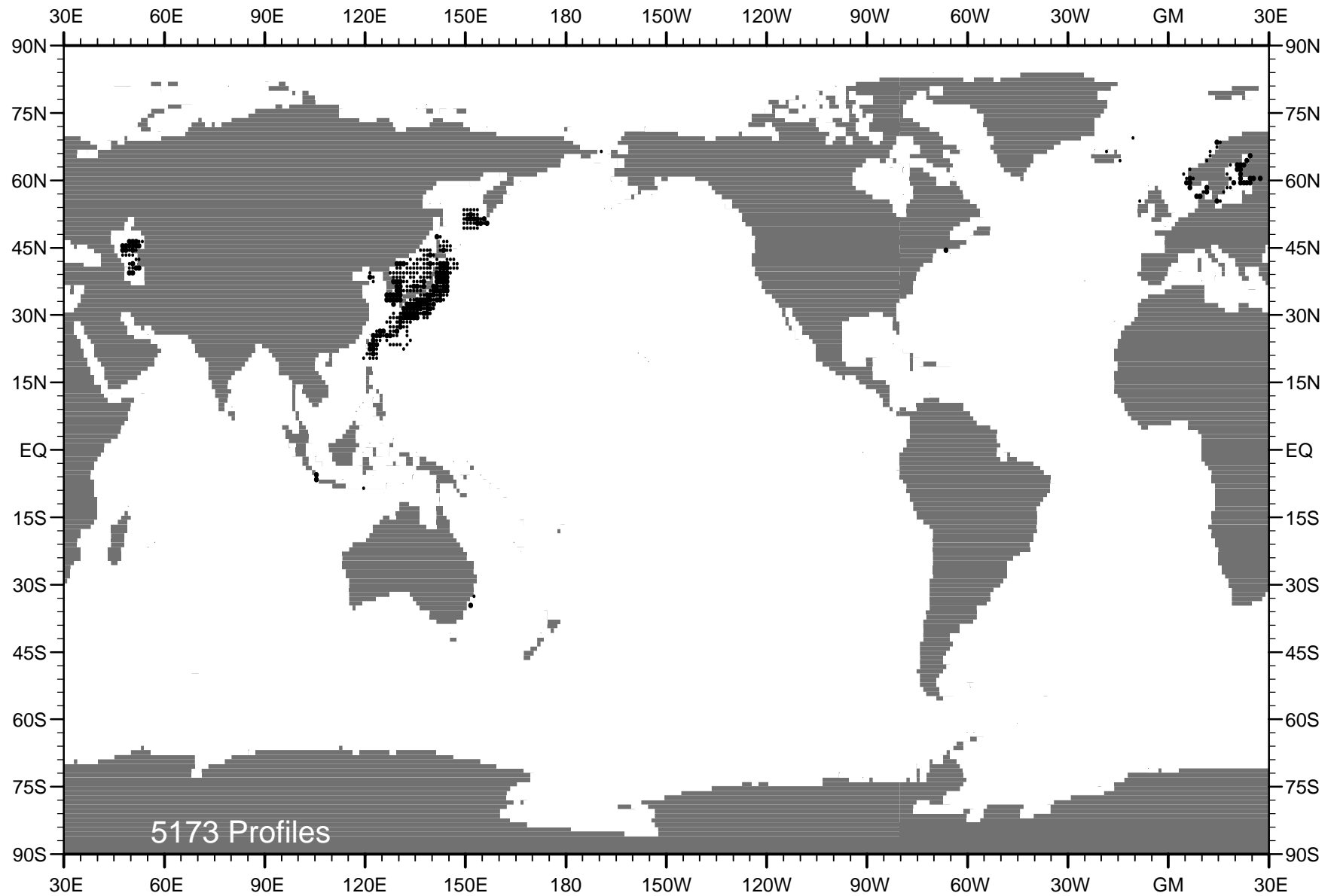


Fig. A44 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1943 .

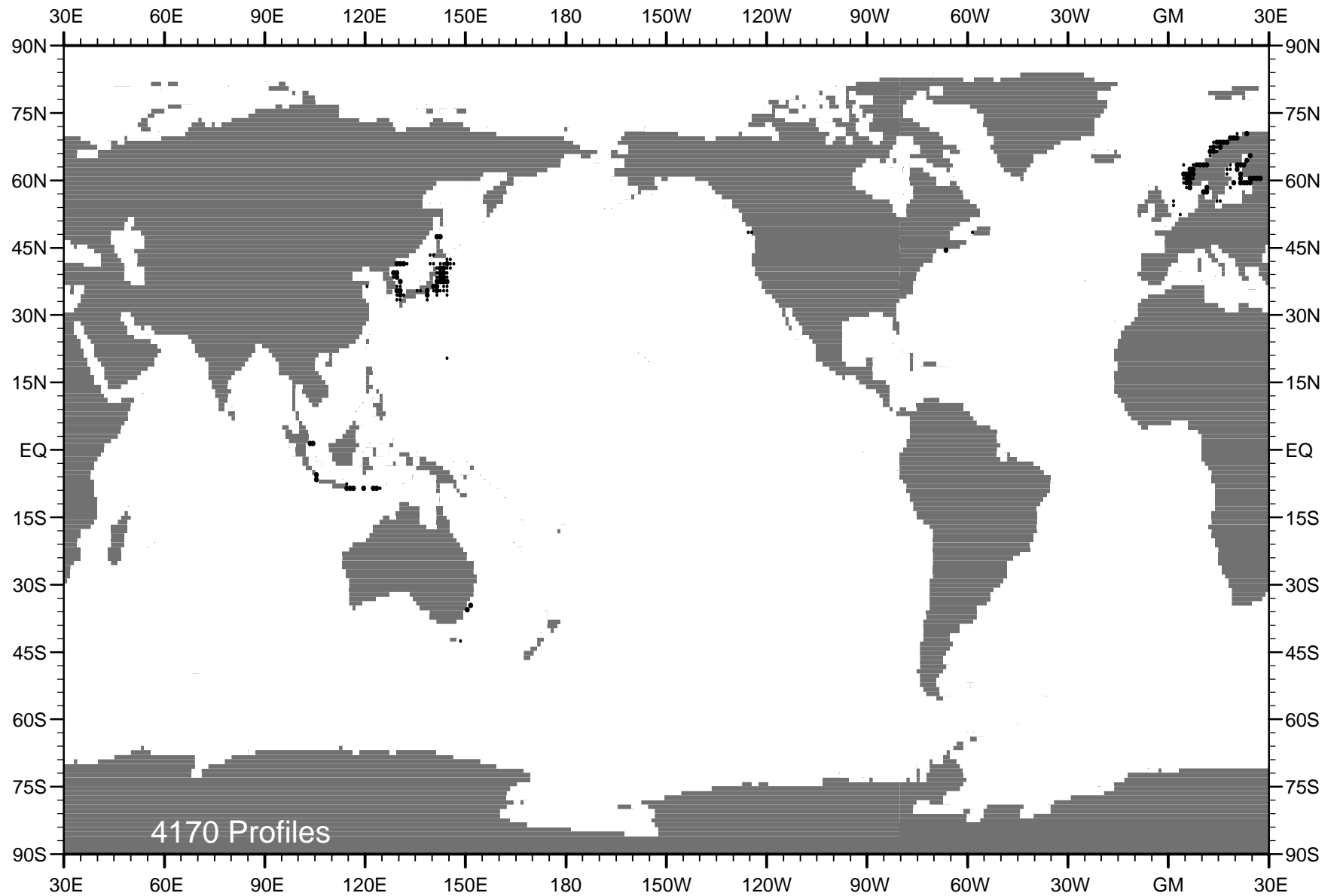


Fig. A45 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1944 .

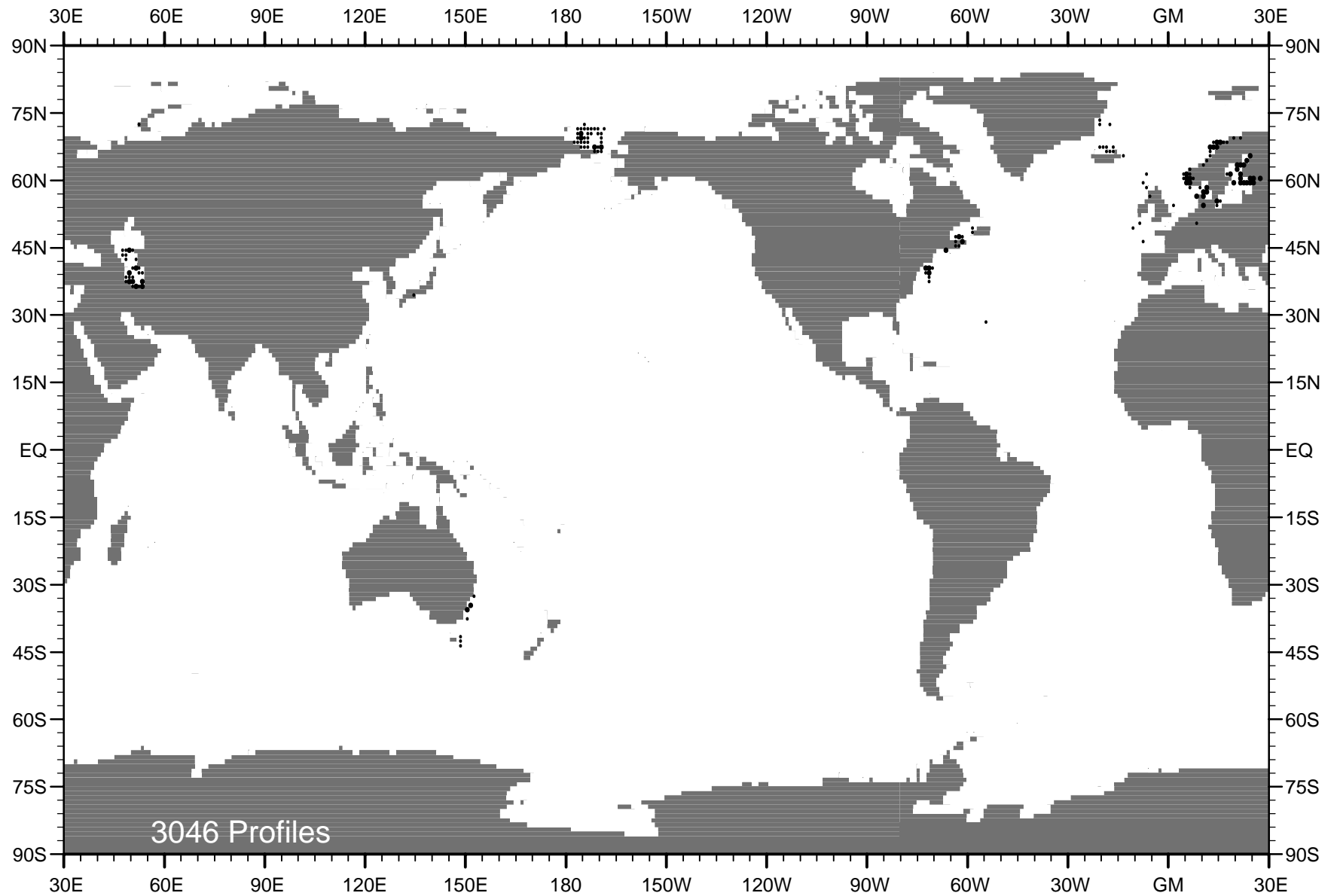


Fig. A46 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1945 .

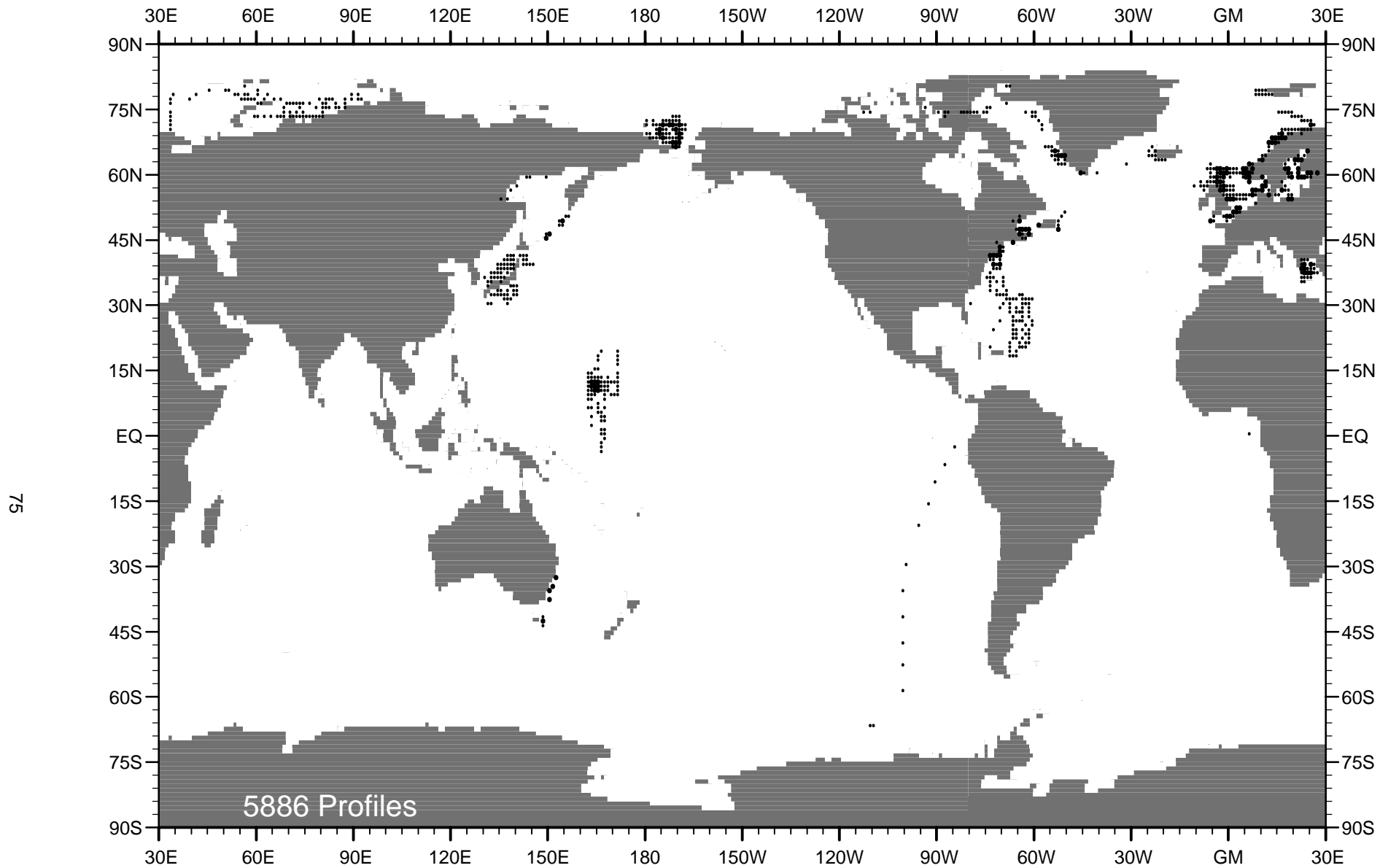


Fig. A47 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1946 .



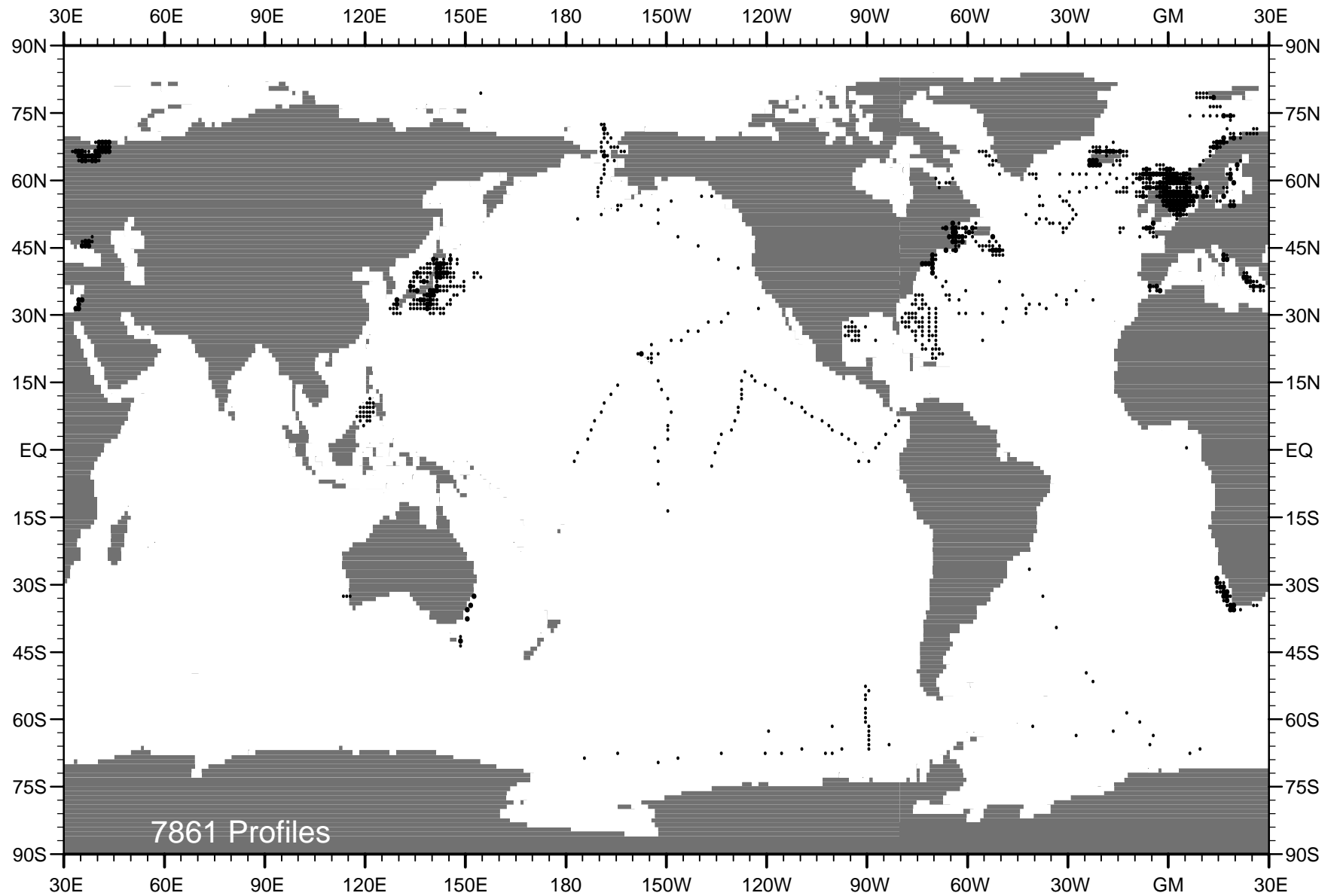


Fig. A48 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1947 .

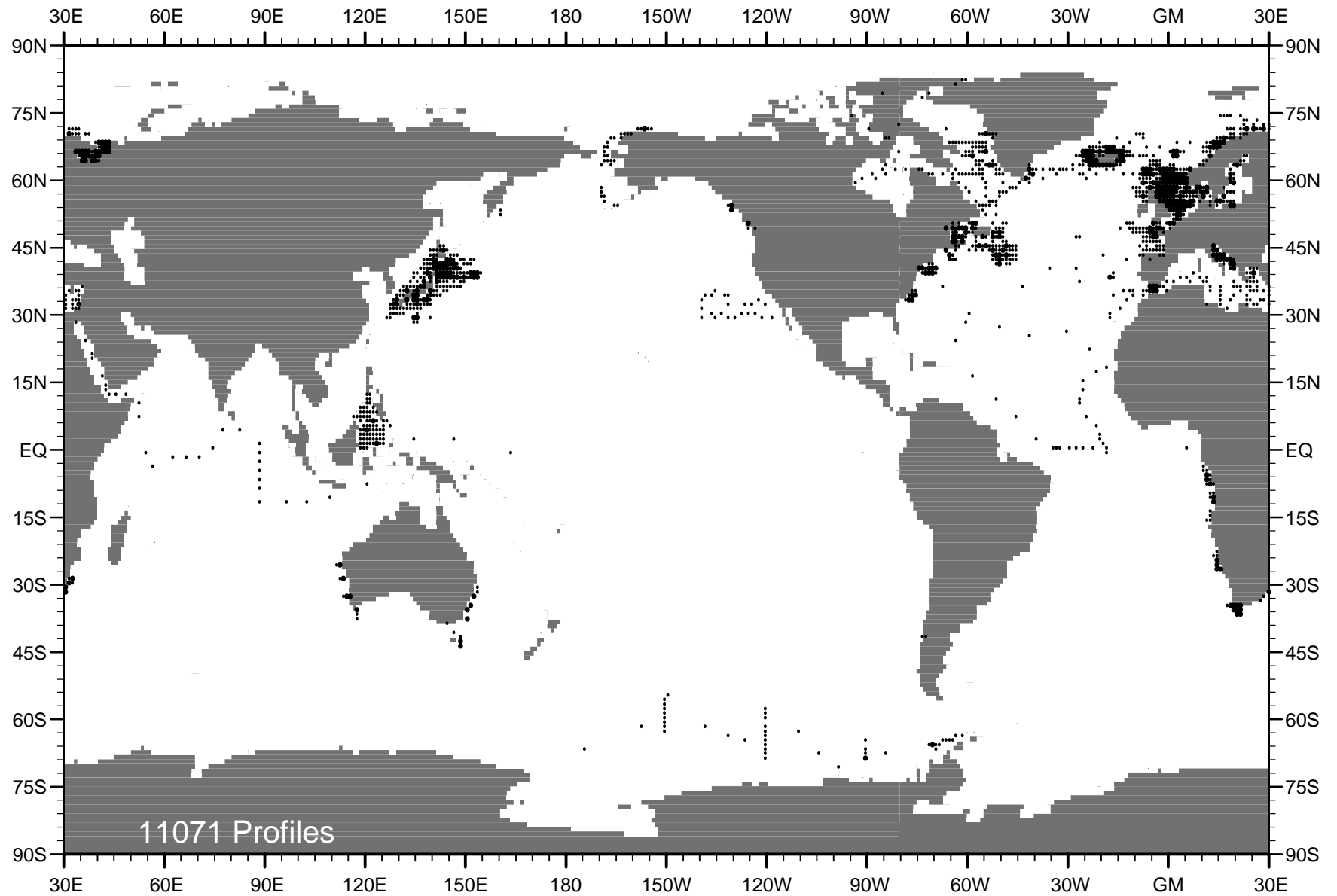


Fig. A49 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1948 .

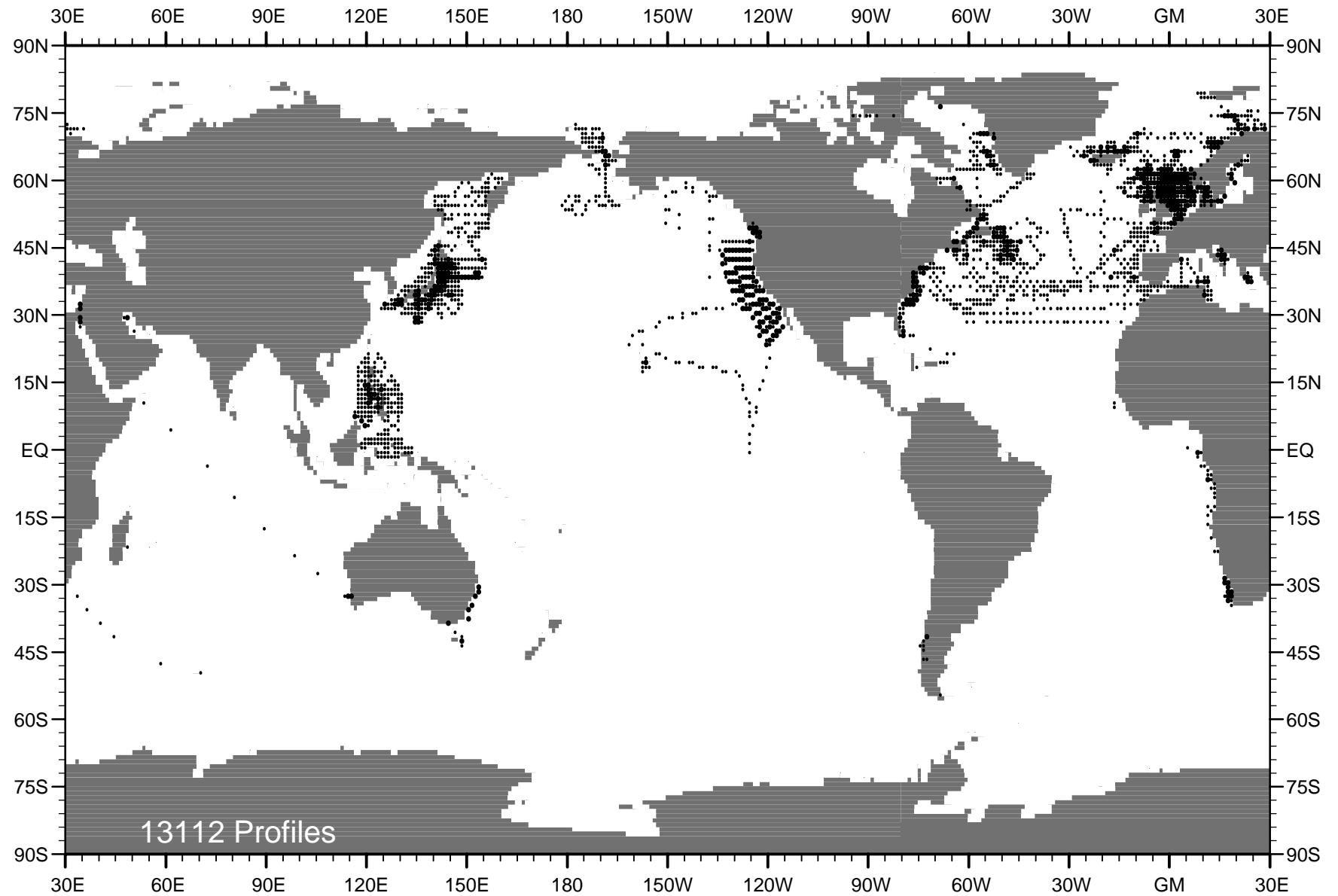


Fig. A50 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1949 .

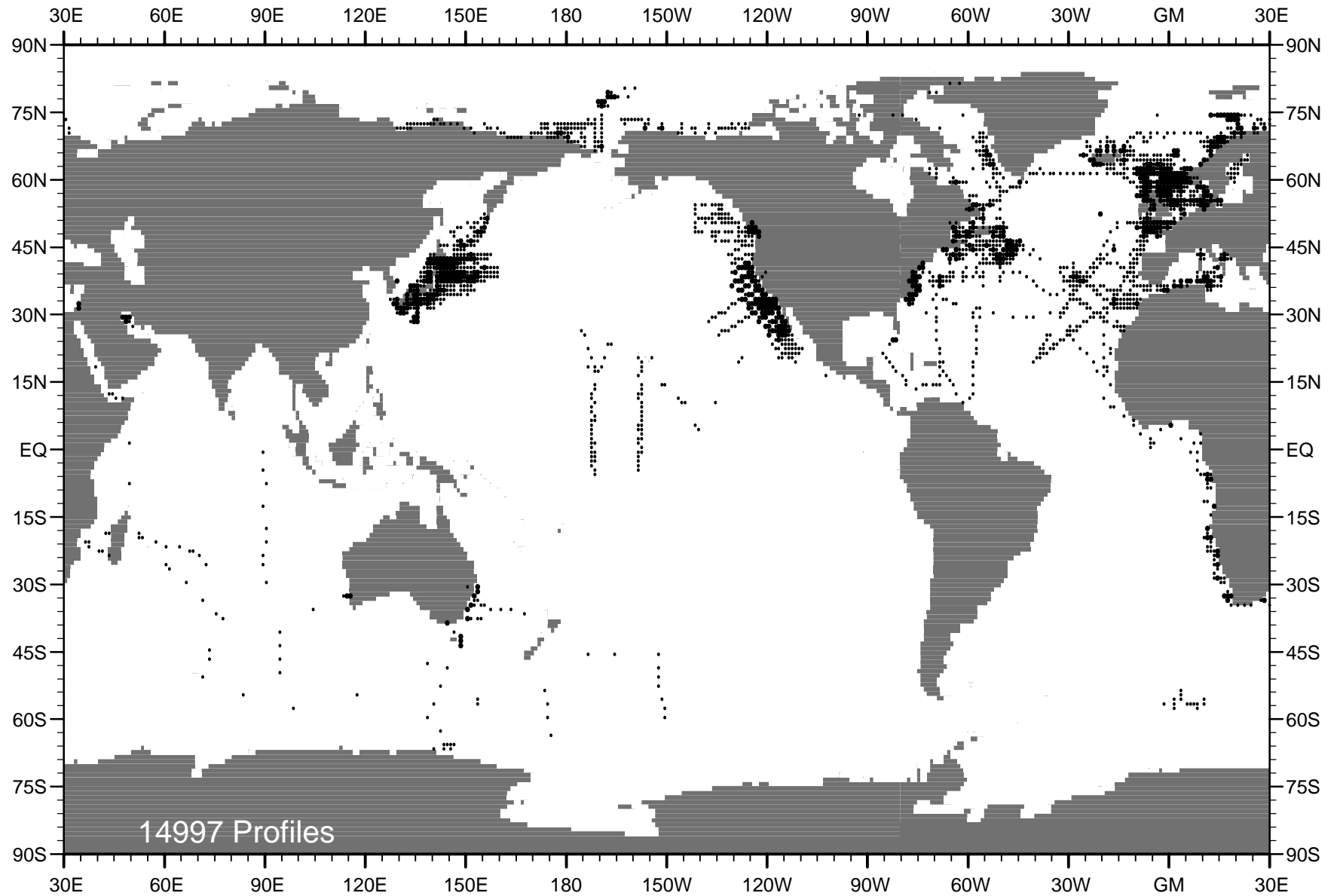


Fig. A51 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1950 .

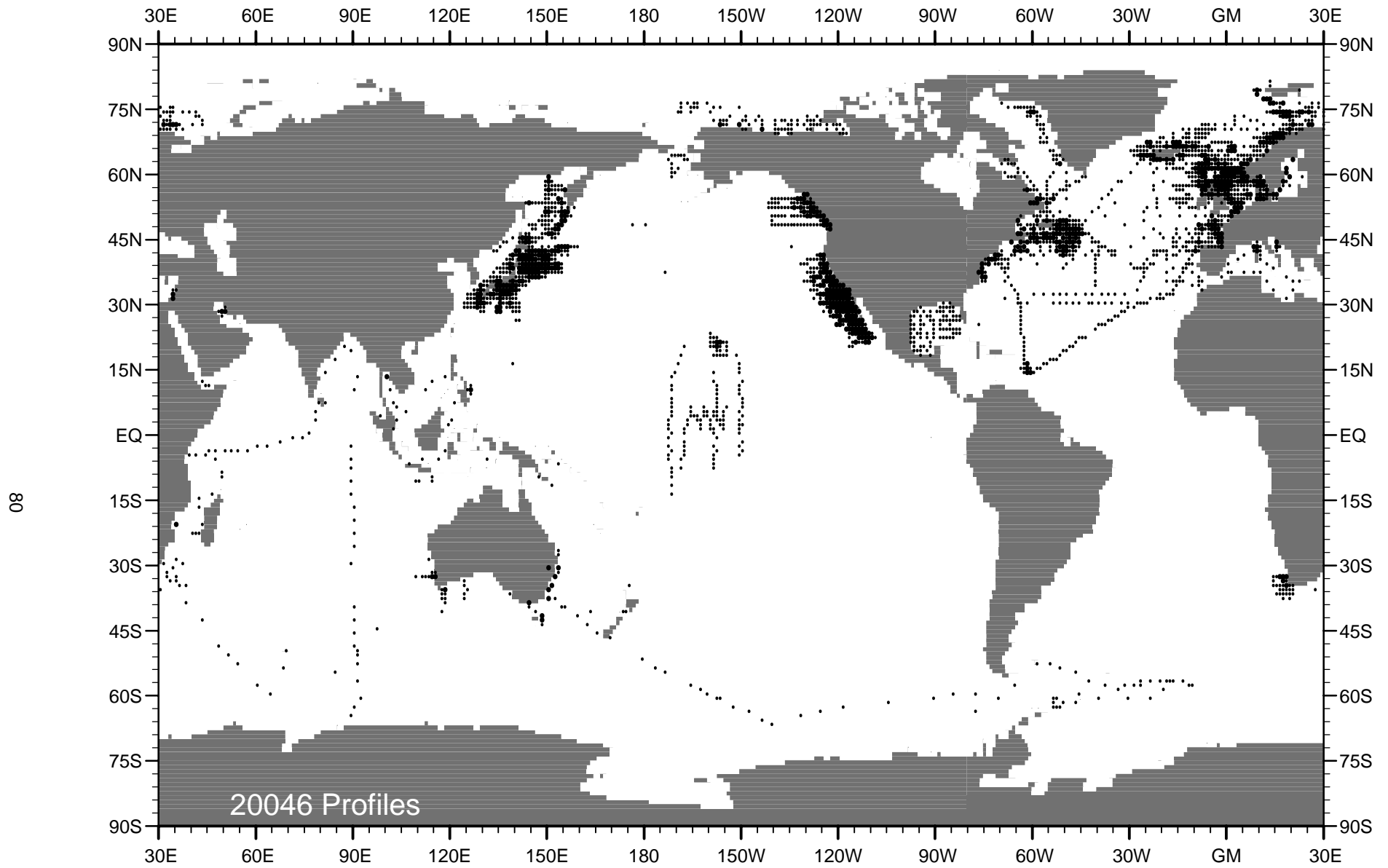


Fig. A52 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1951 .

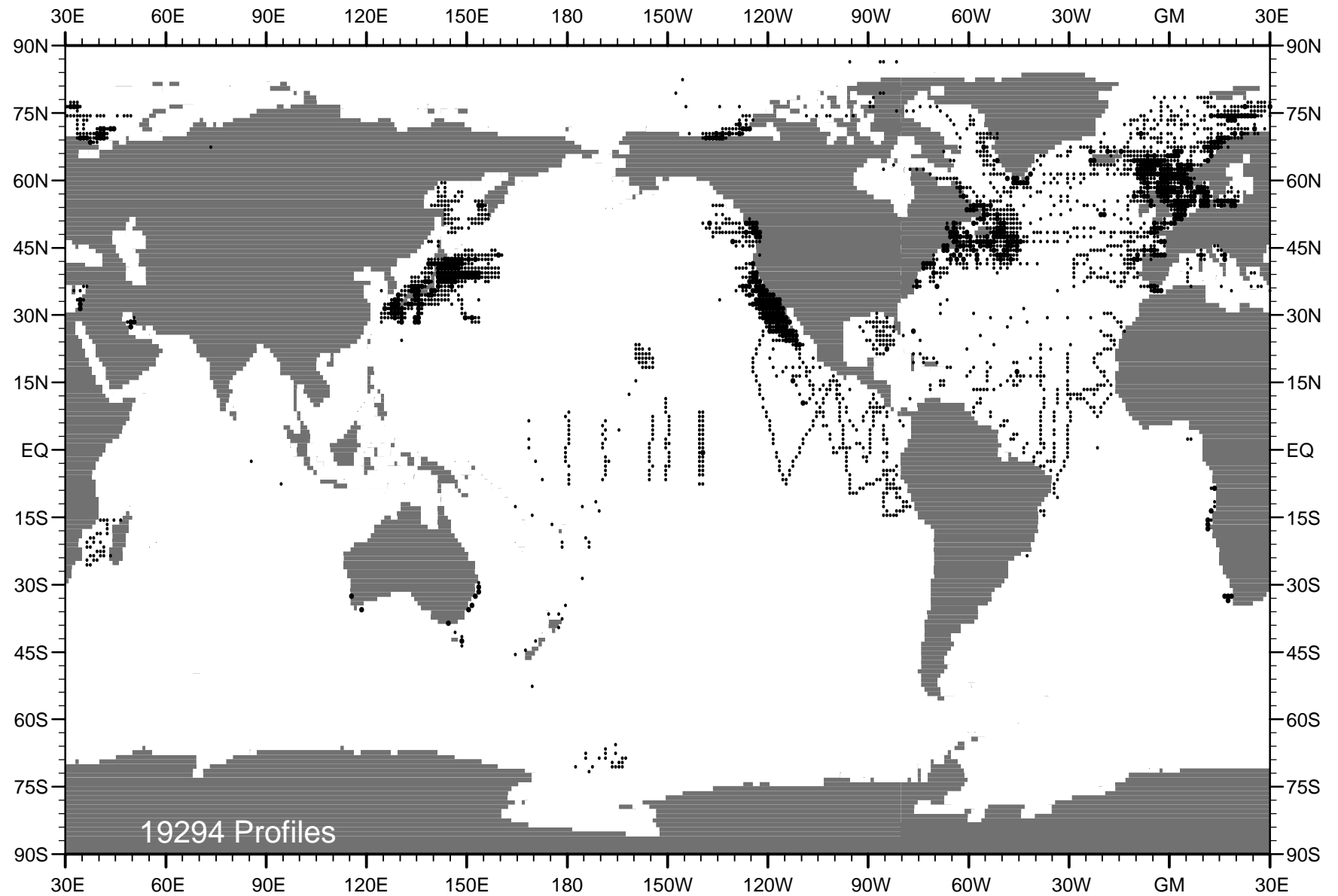


Fig. A53 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1952 .

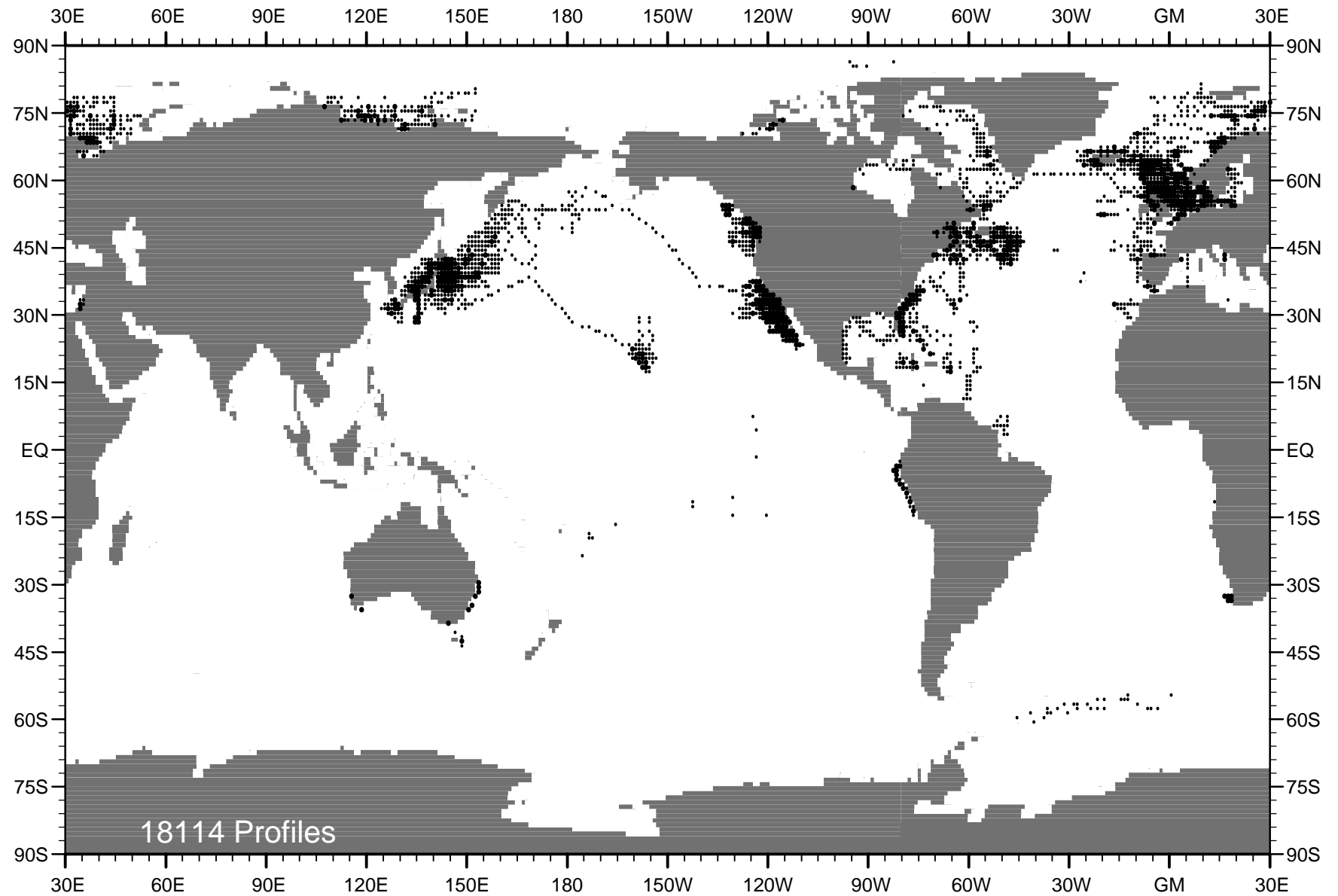


Fig. A54 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1953 .

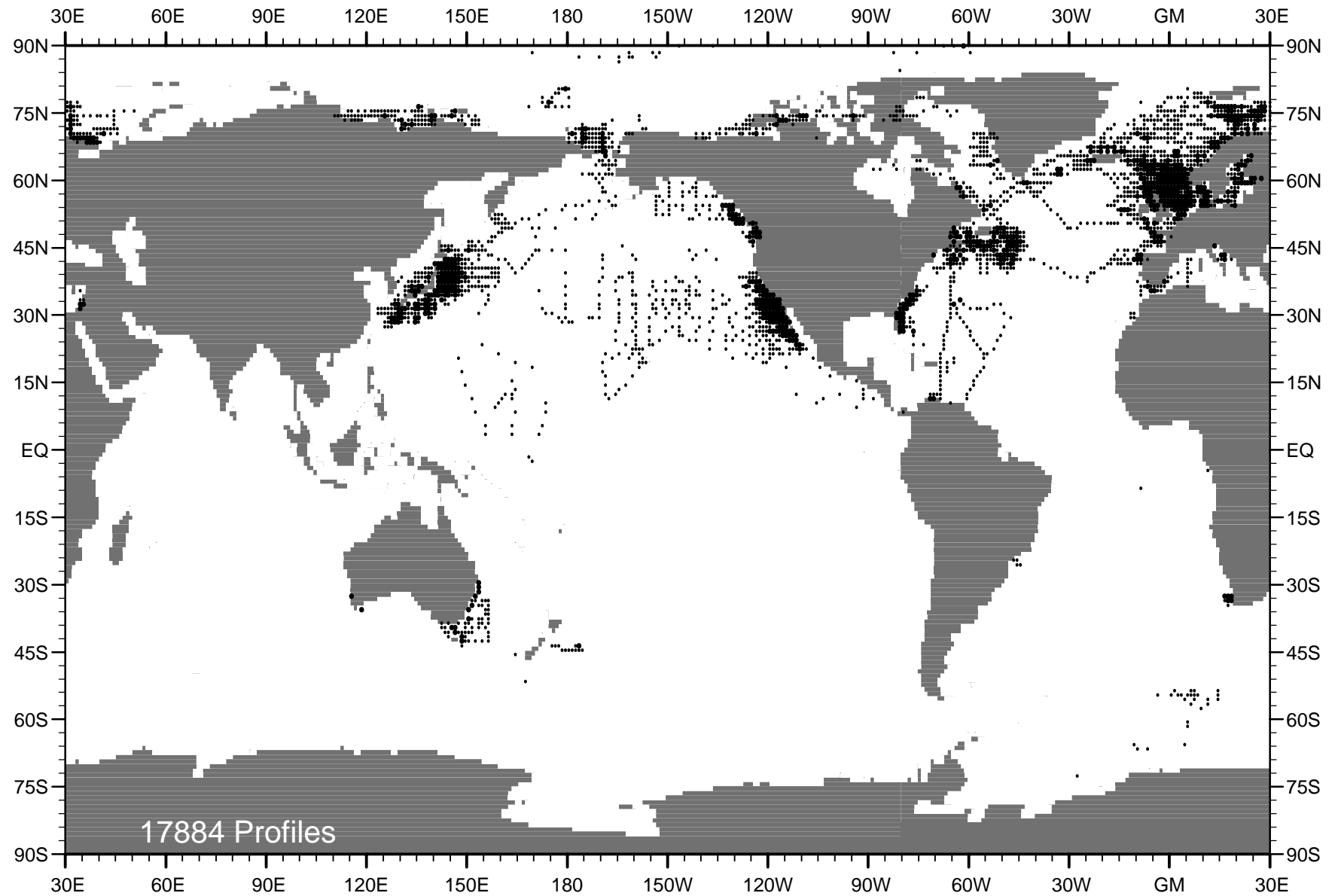


Fig. A55 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1954 .



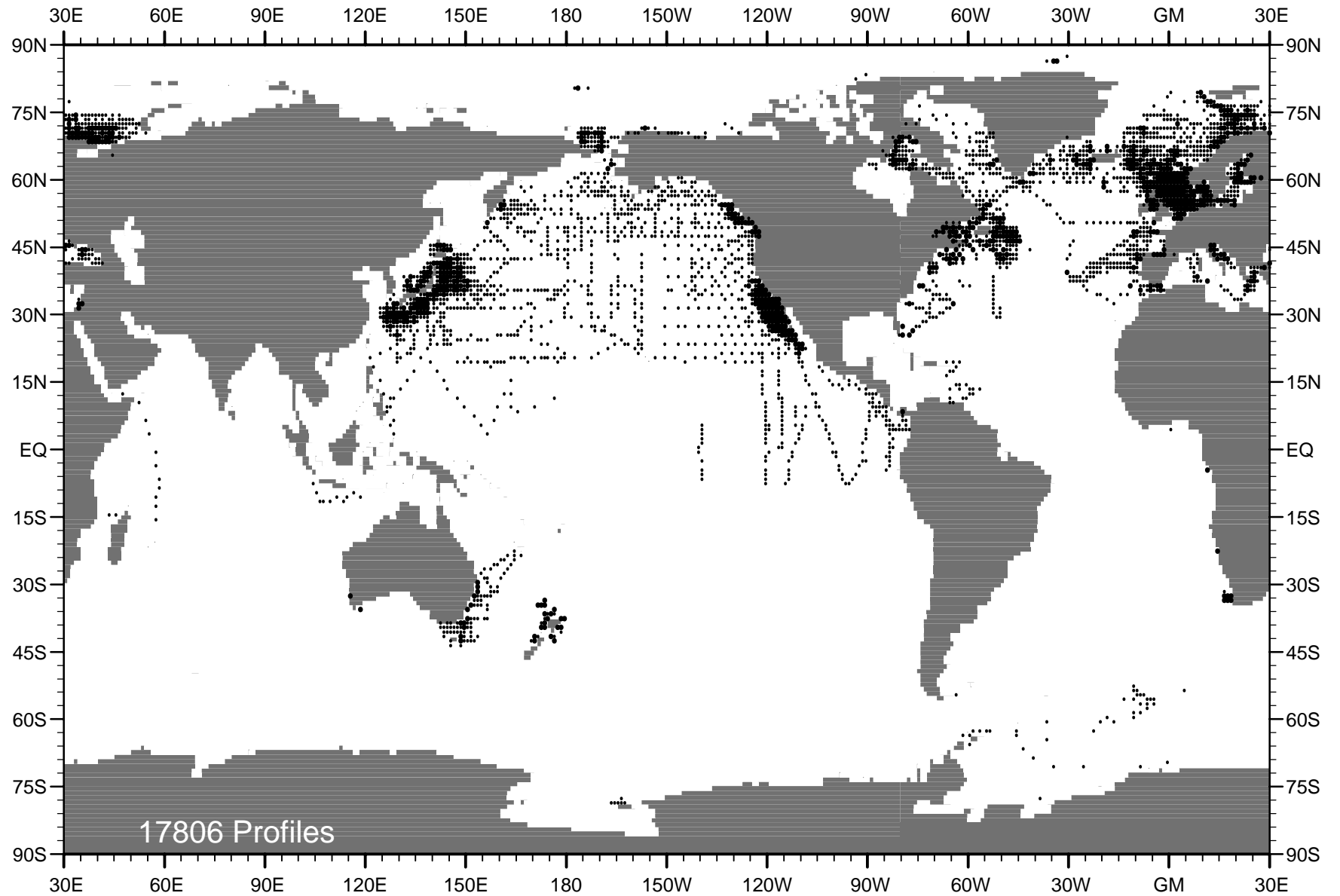


Fig. A56 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1955 .

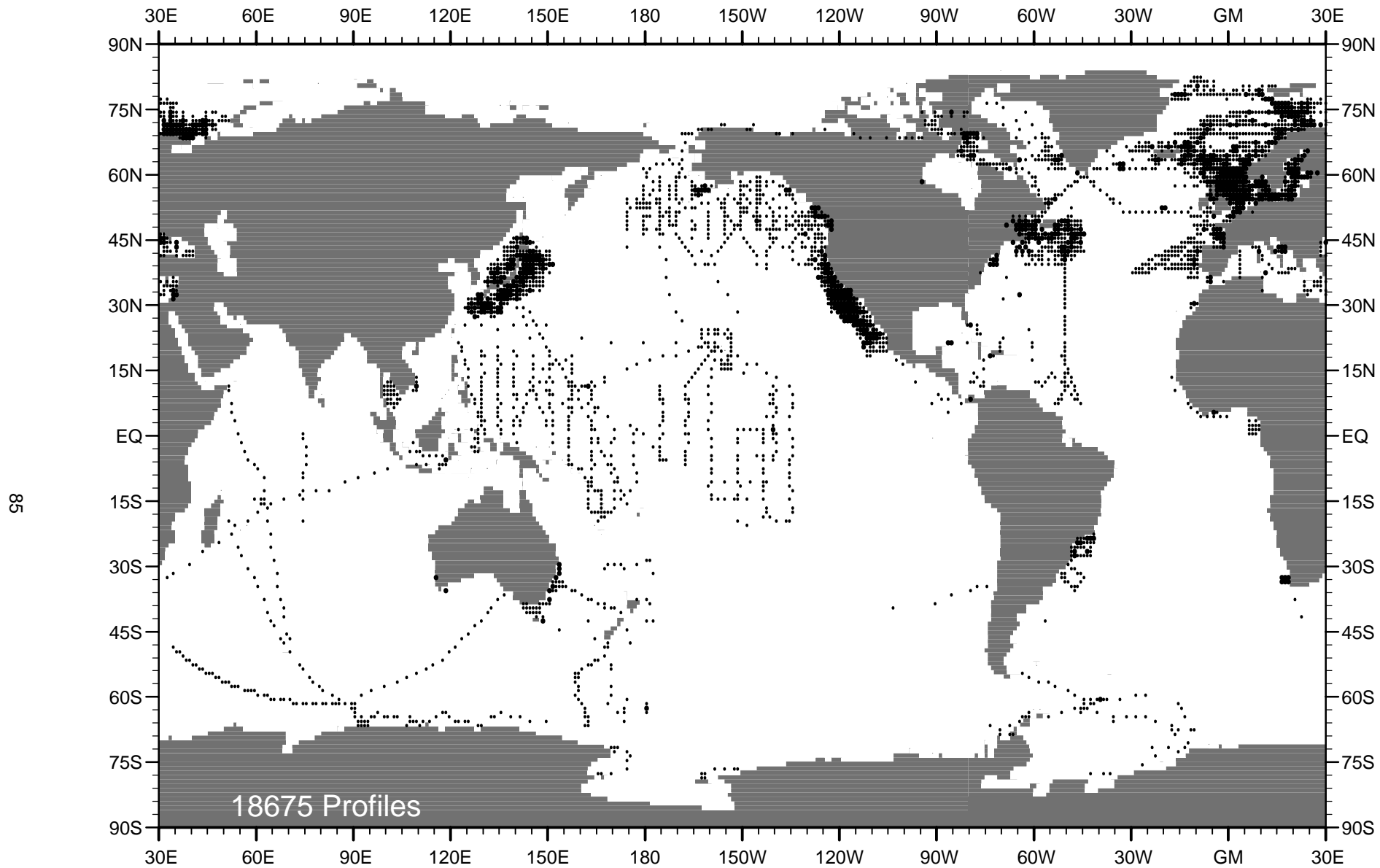


Fig. A57 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1956 .

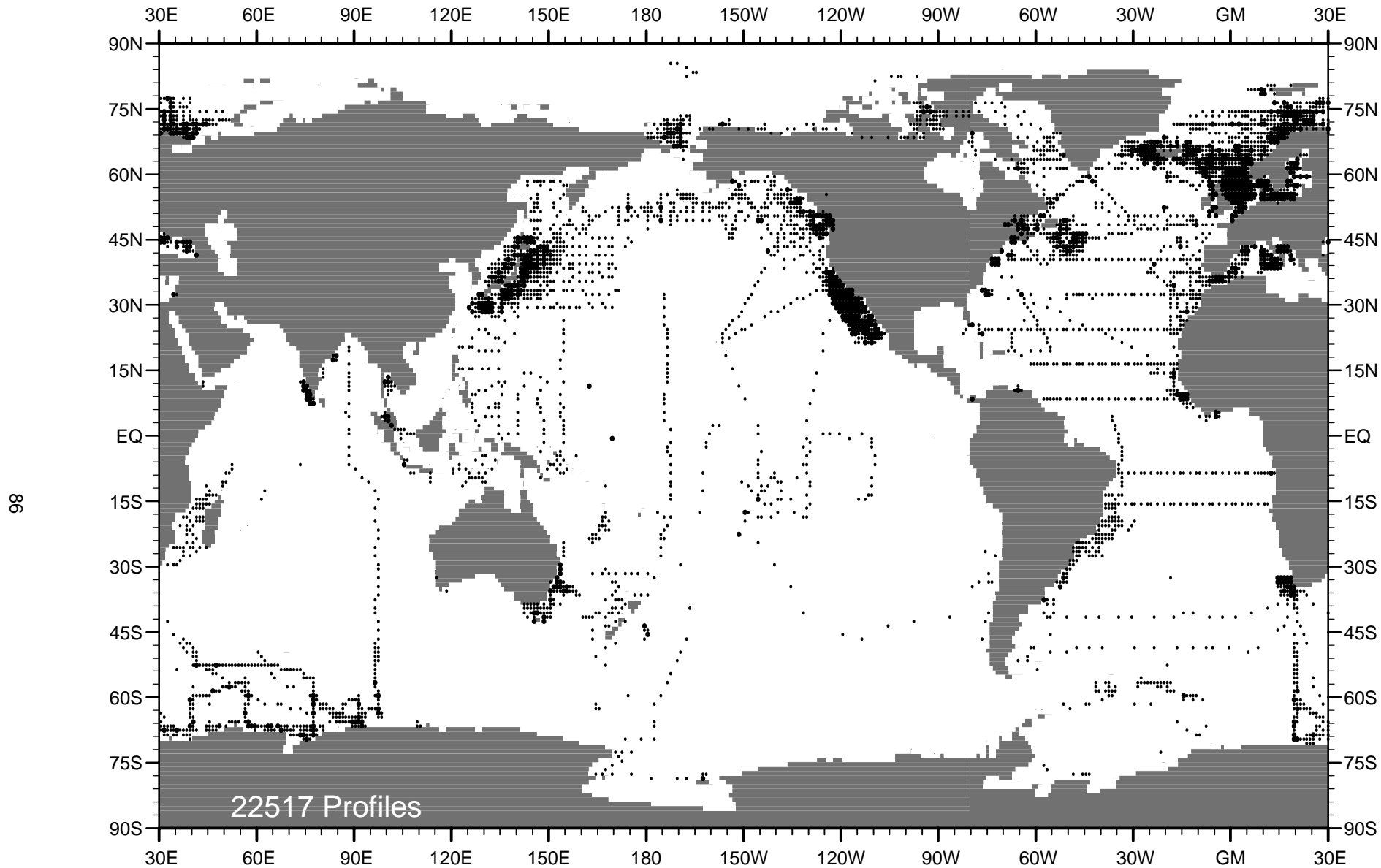


Fig. A58 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1957 .

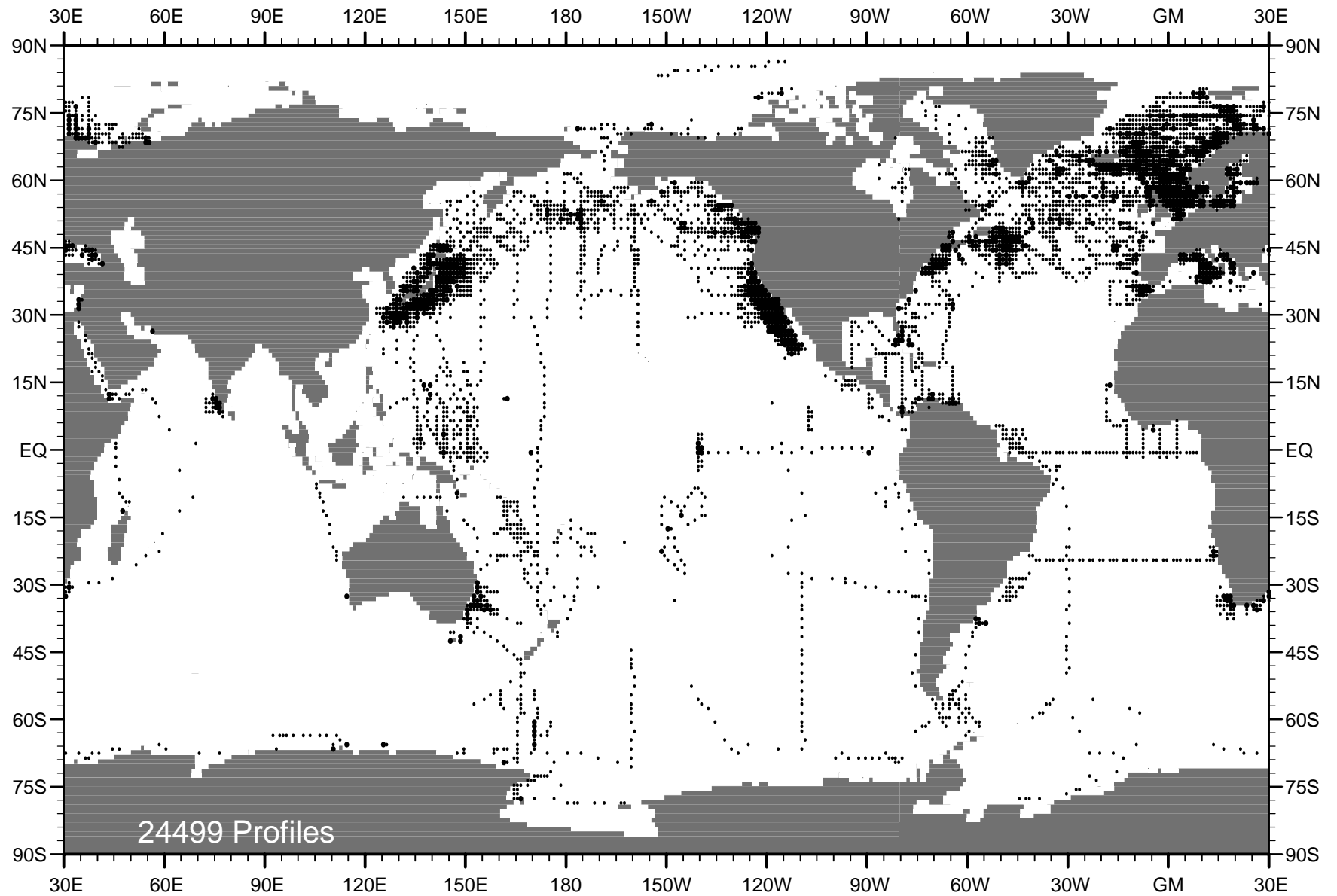


Fig. A59 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1958 .

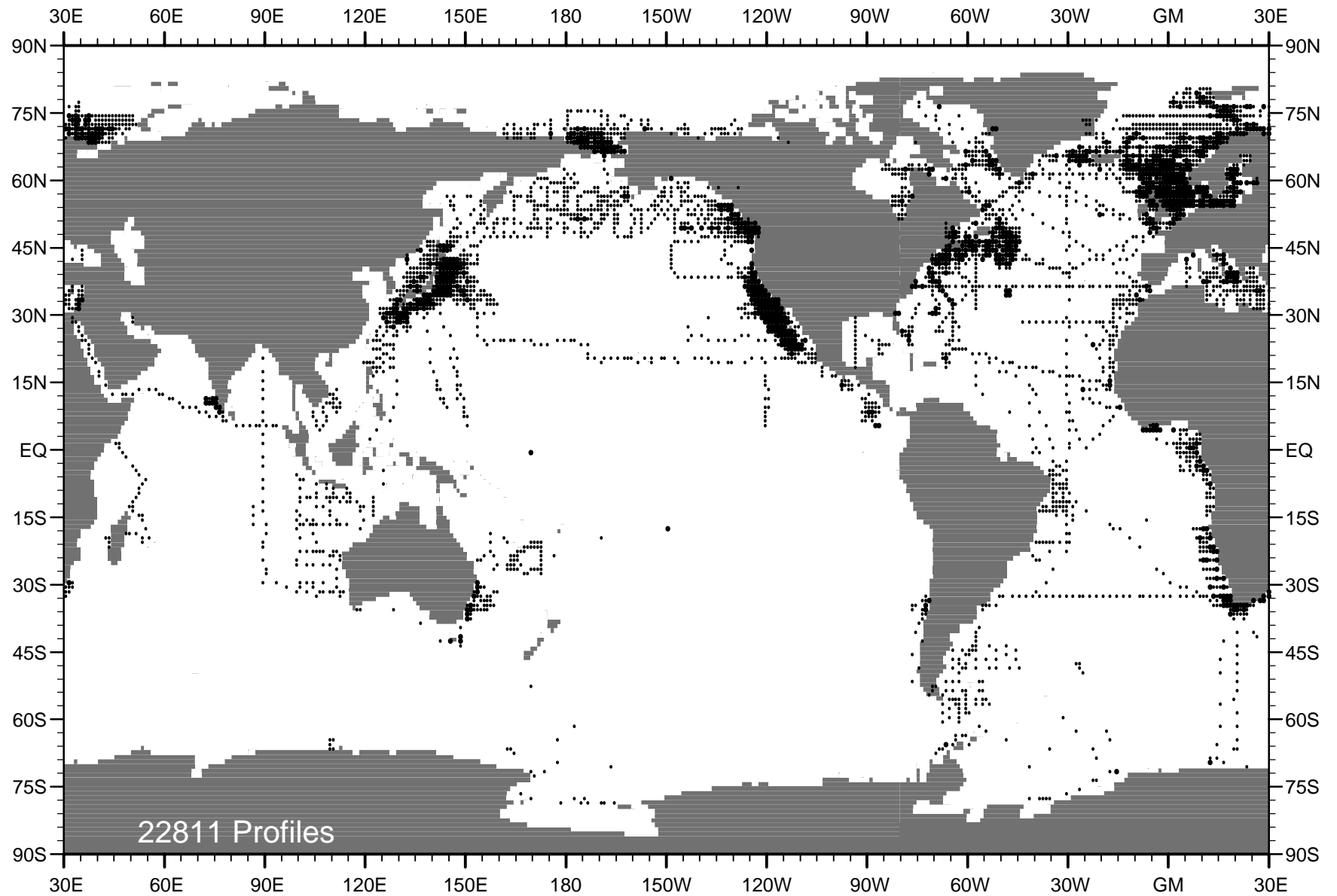


Fig. A60 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1959 .

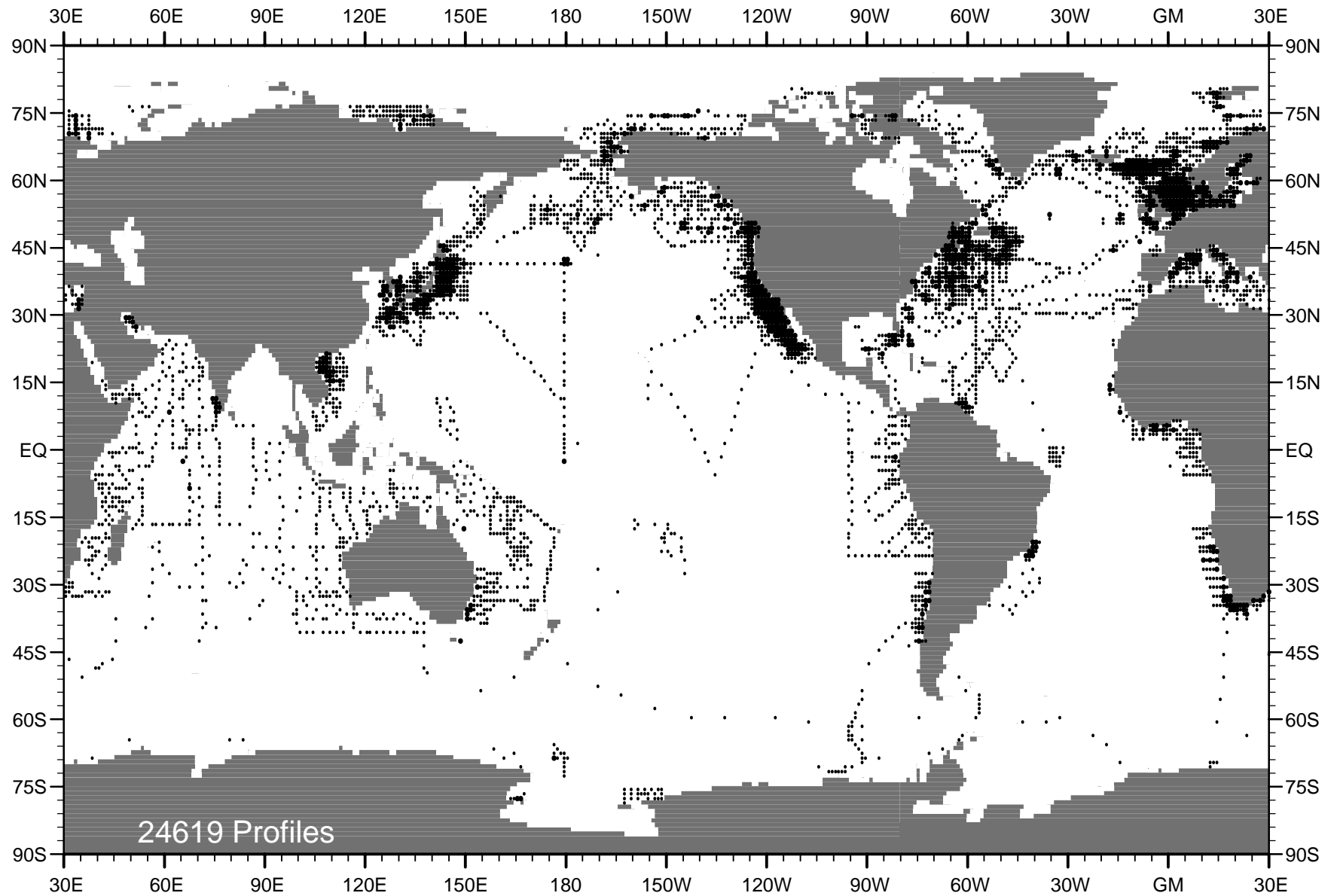


Fig. A61 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1960 .

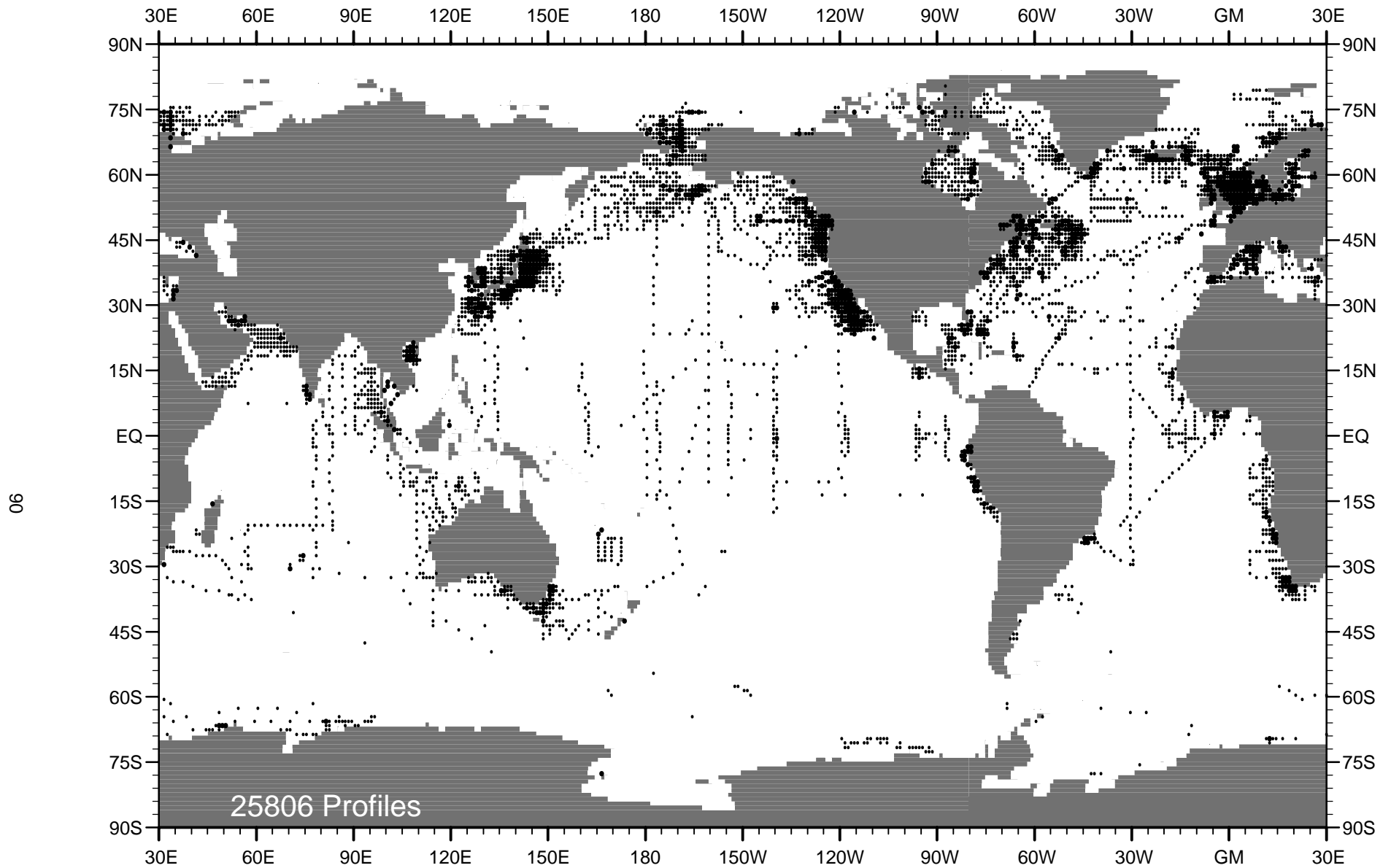


Fig. A62 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1961 .

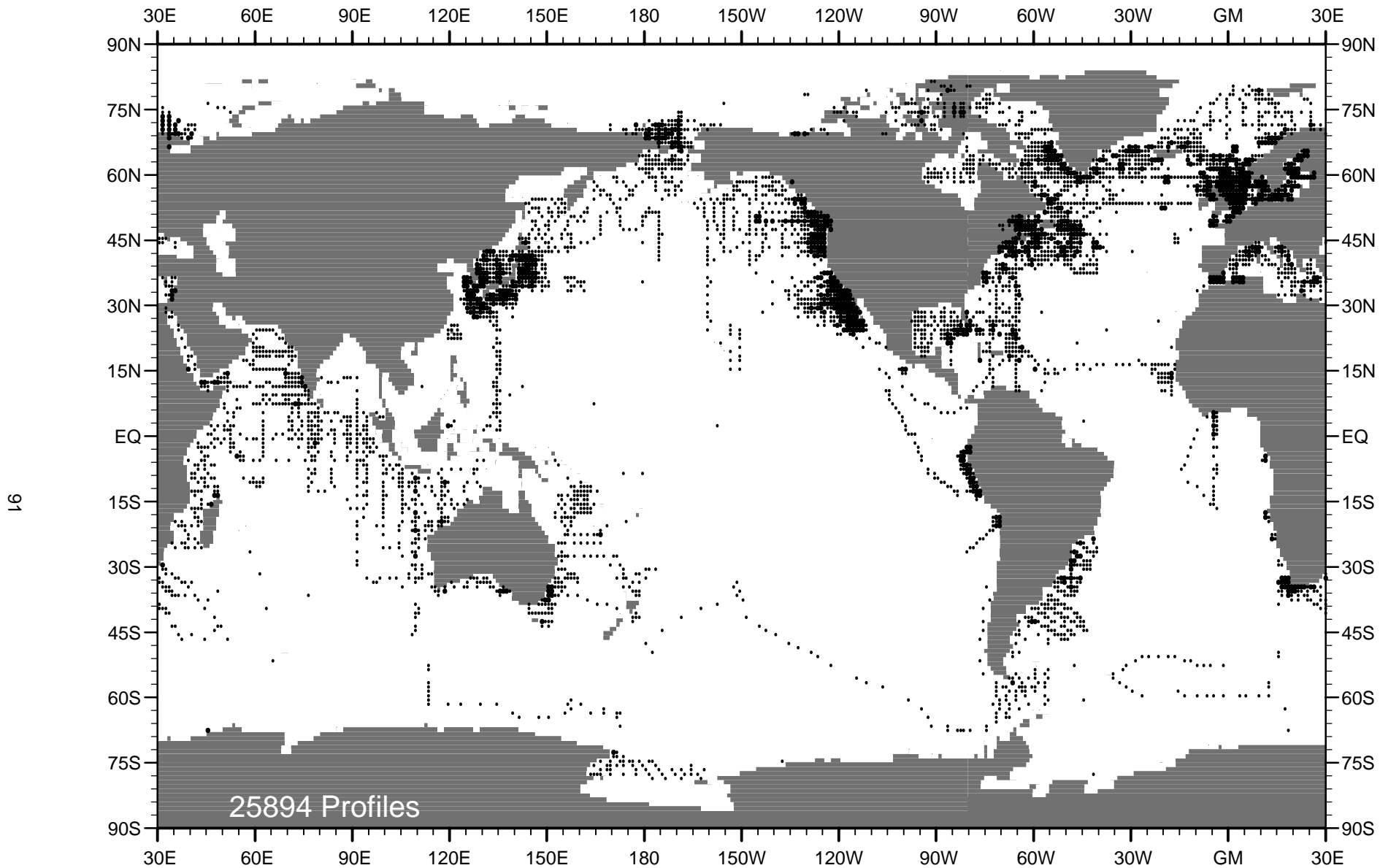


Fig. A63 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1962 .



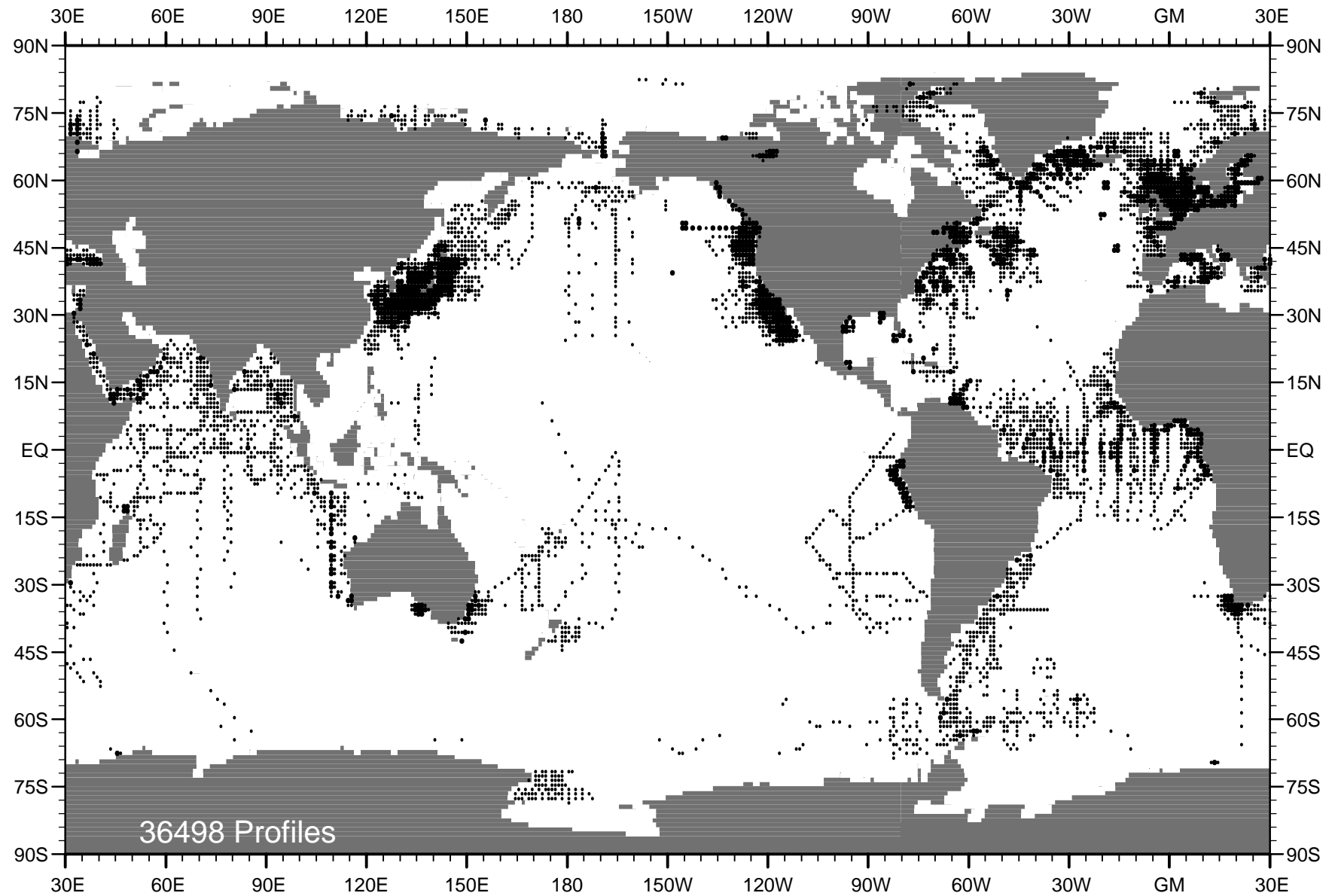


Fig. A64 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1963 .

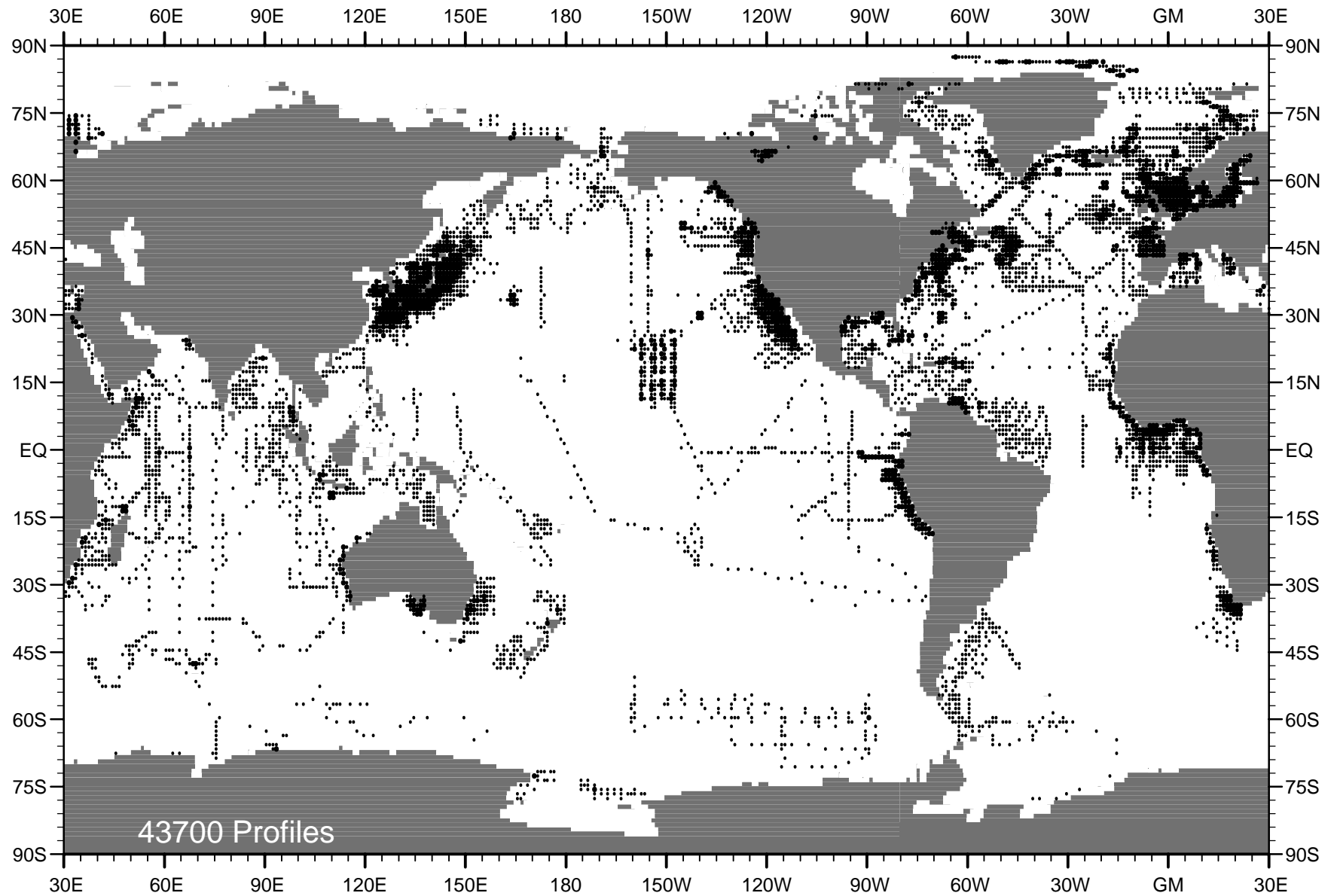


Fig. A65 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1964 .

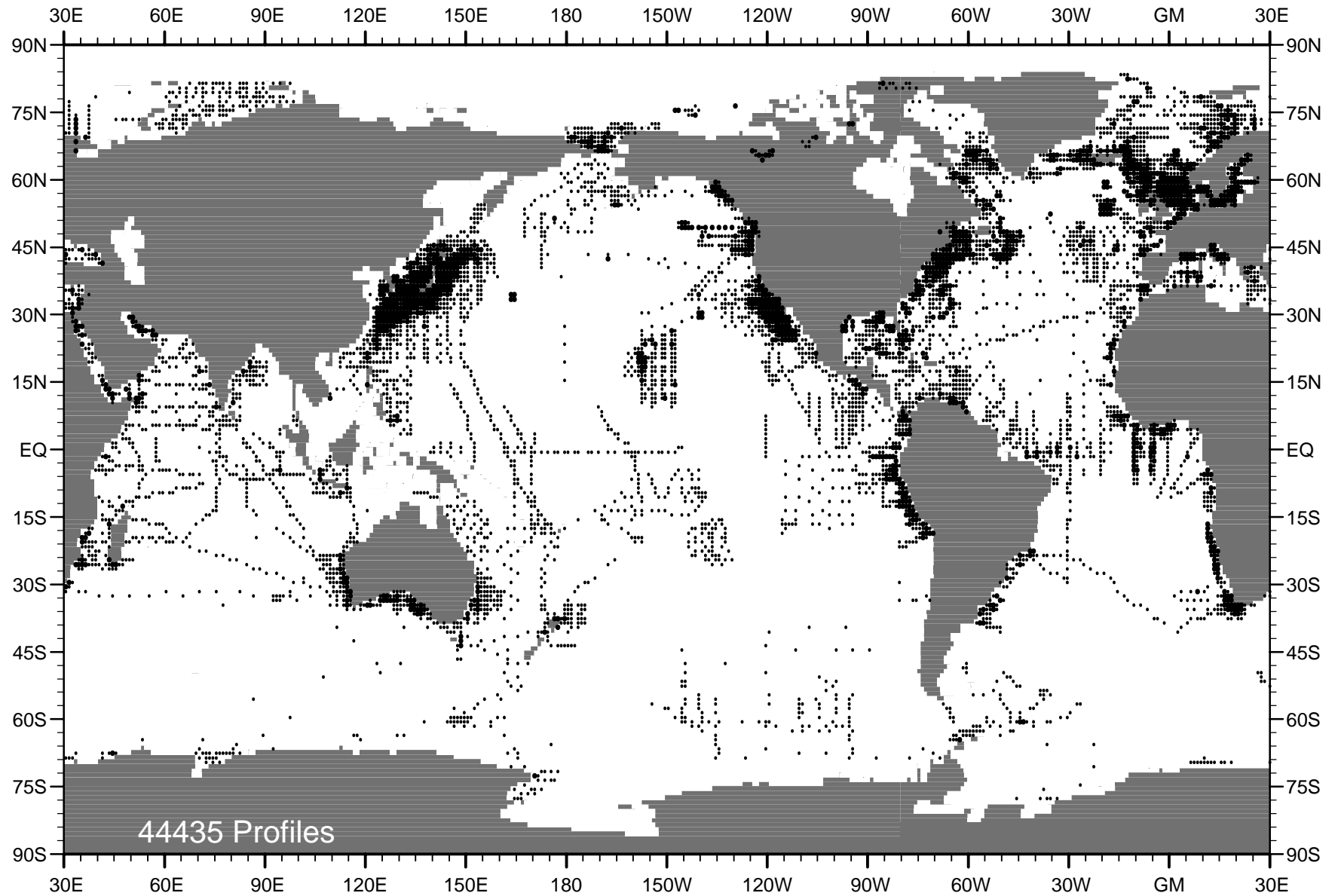


Fig. A66 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1965 .

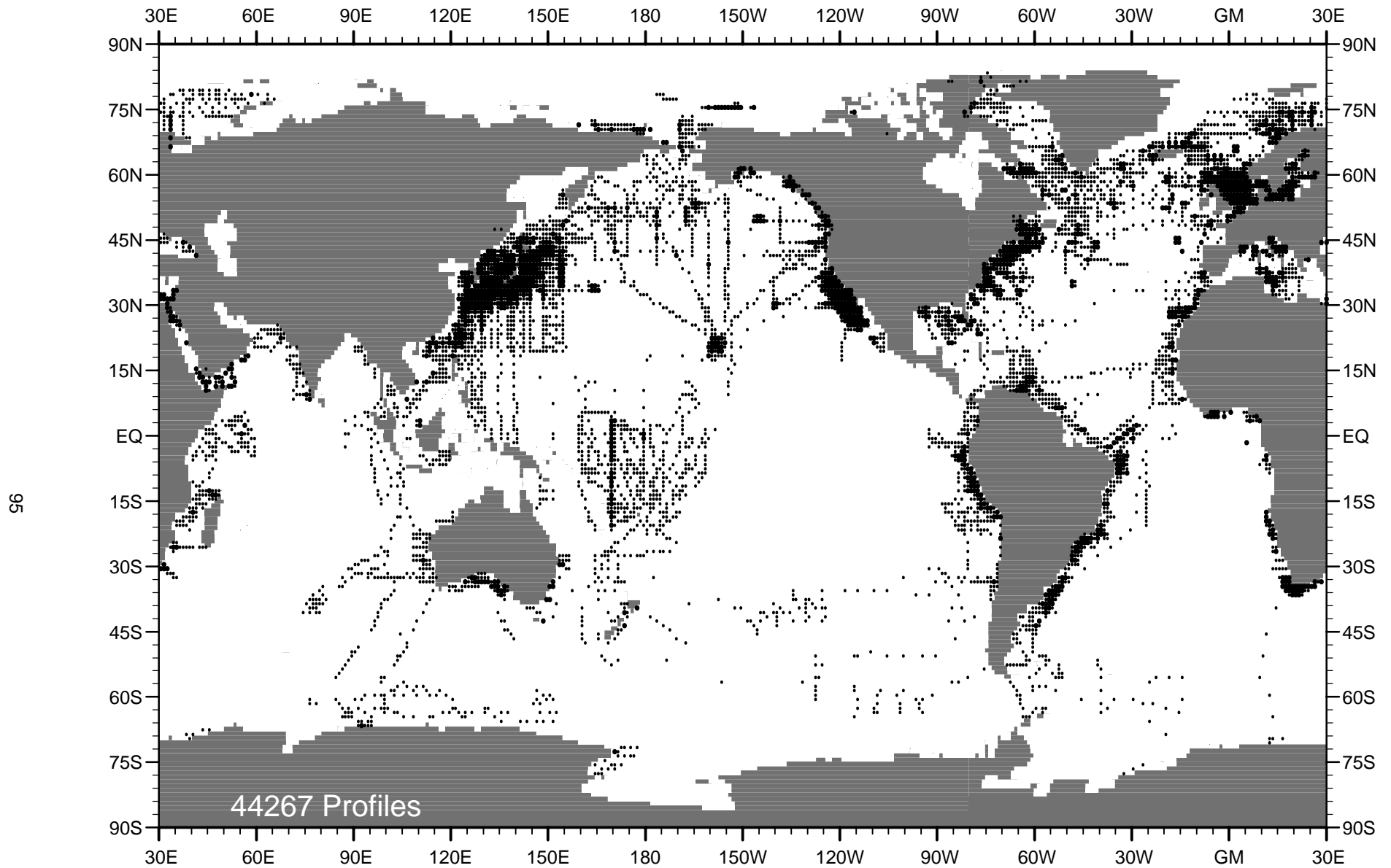


Fig. A67 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1966 .

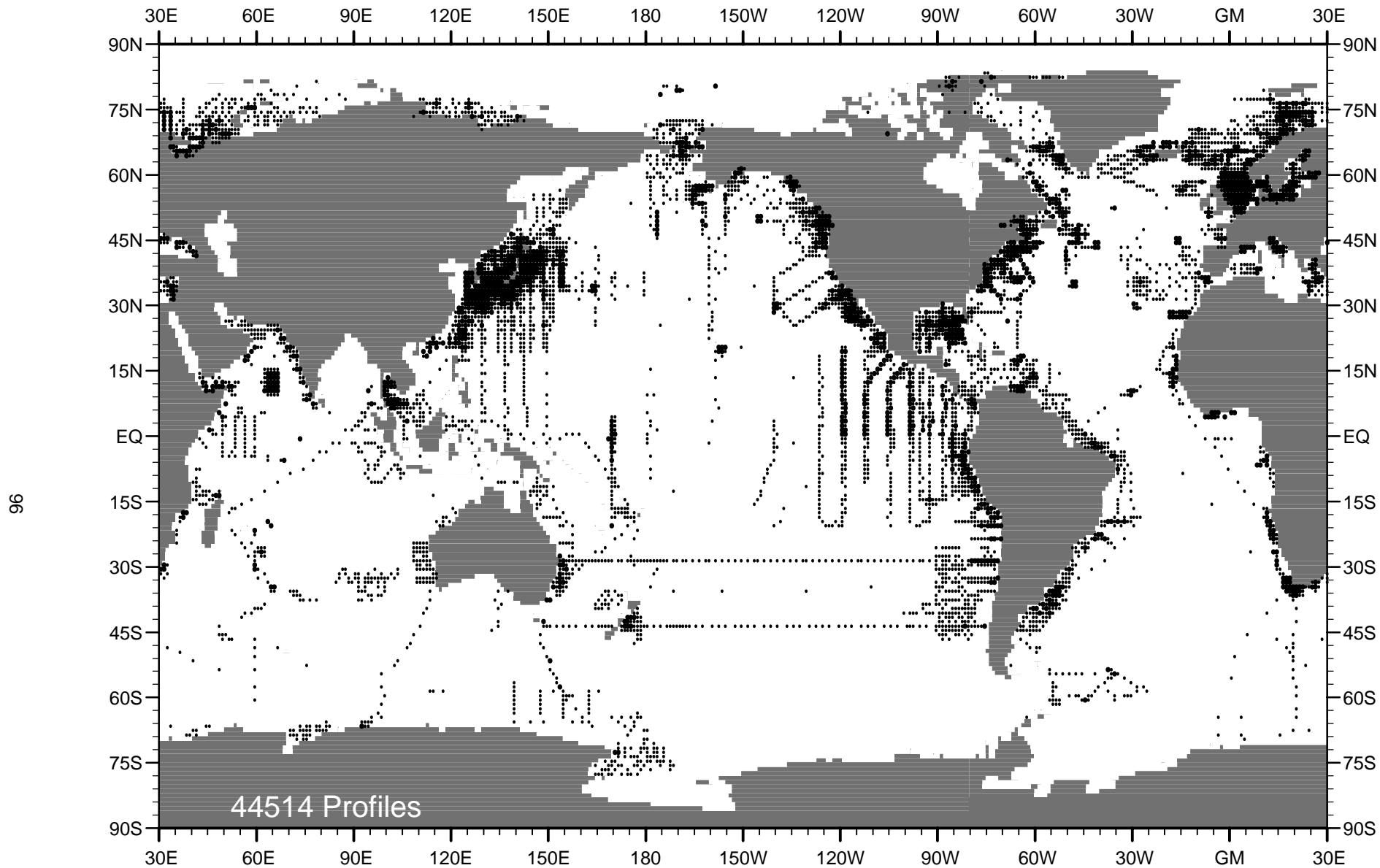


Fig. A68 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1967 .

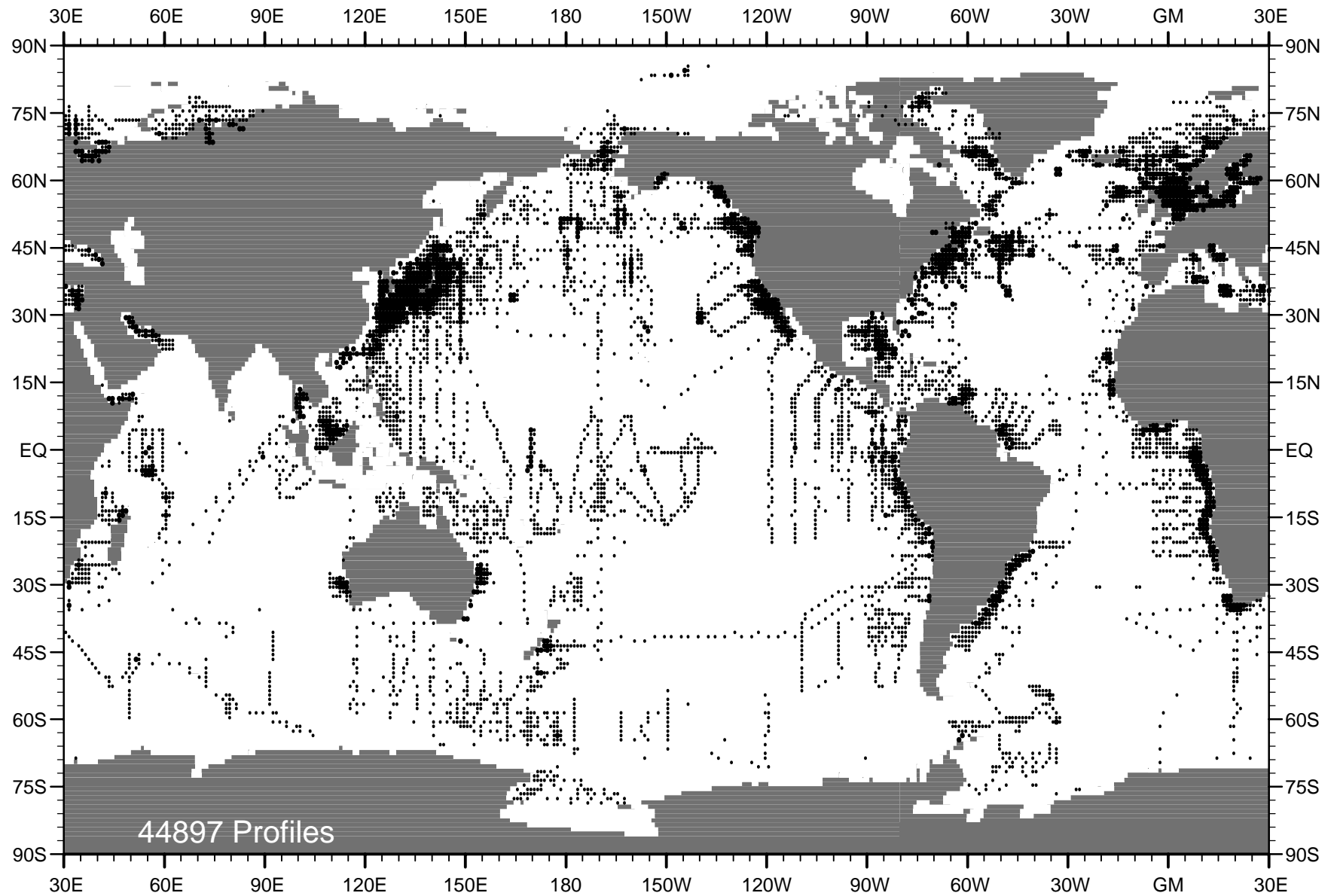


Fig. A69 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1968 .

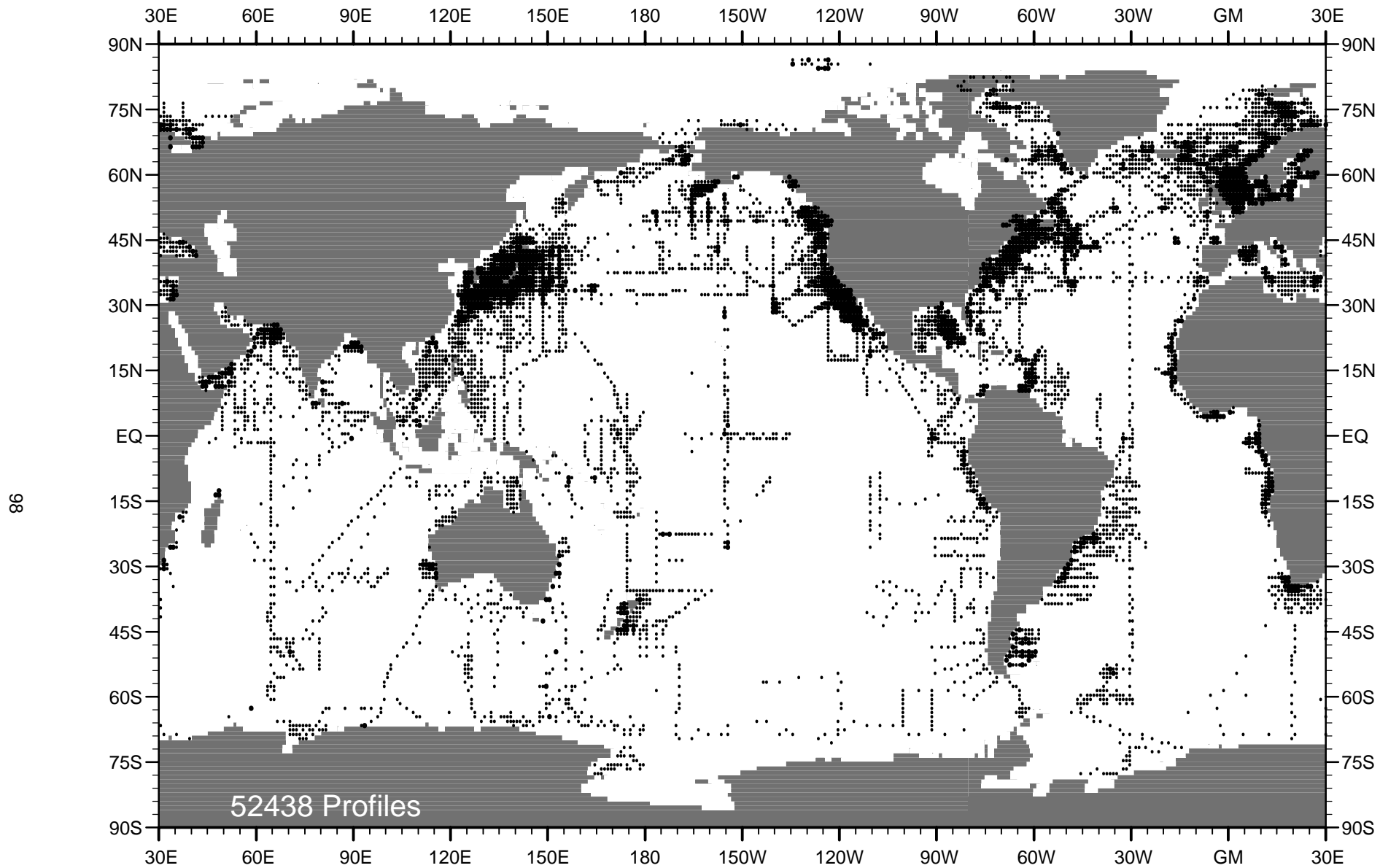


Fig. A70 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1969 .

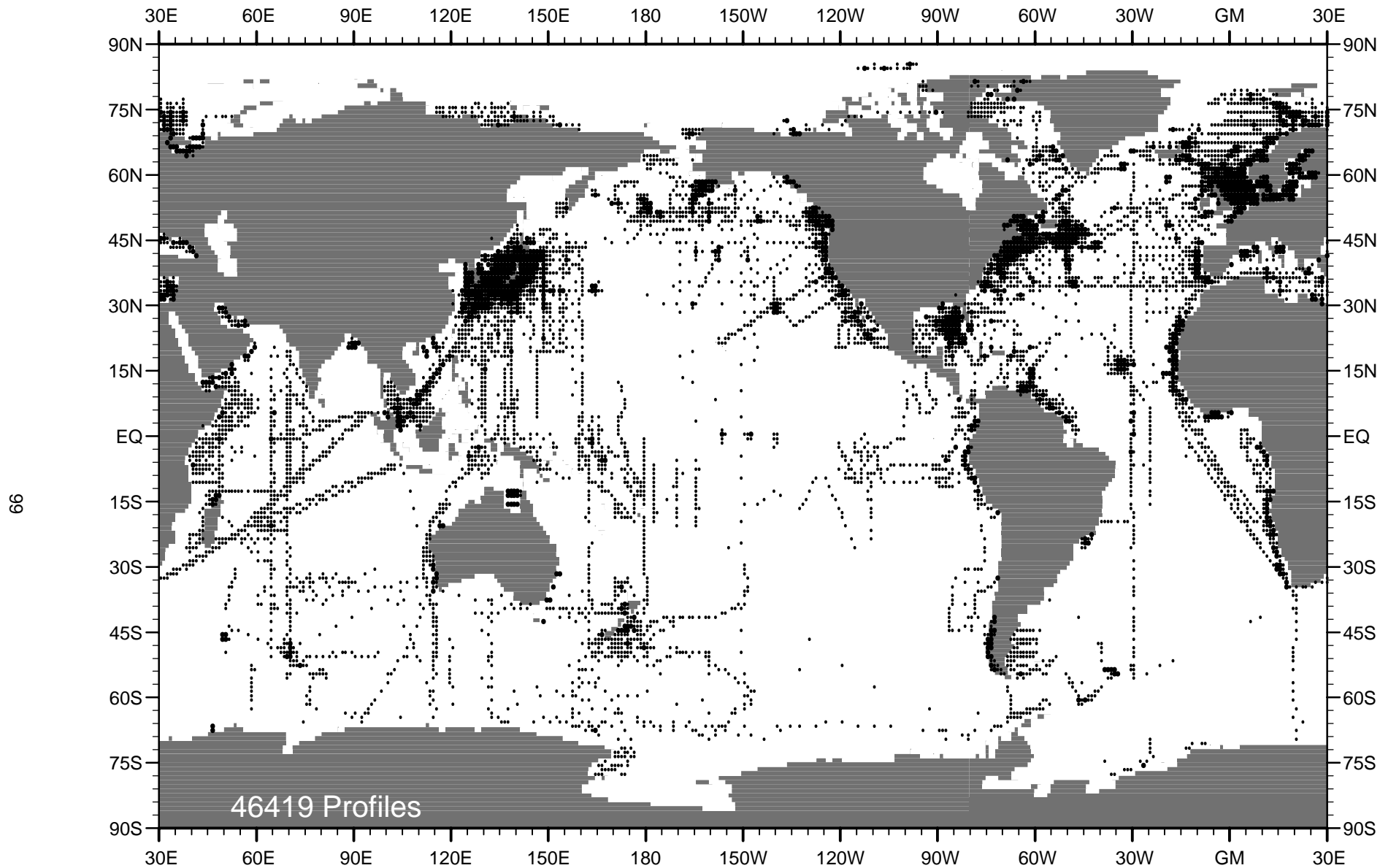


Fig. A71 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1970 .



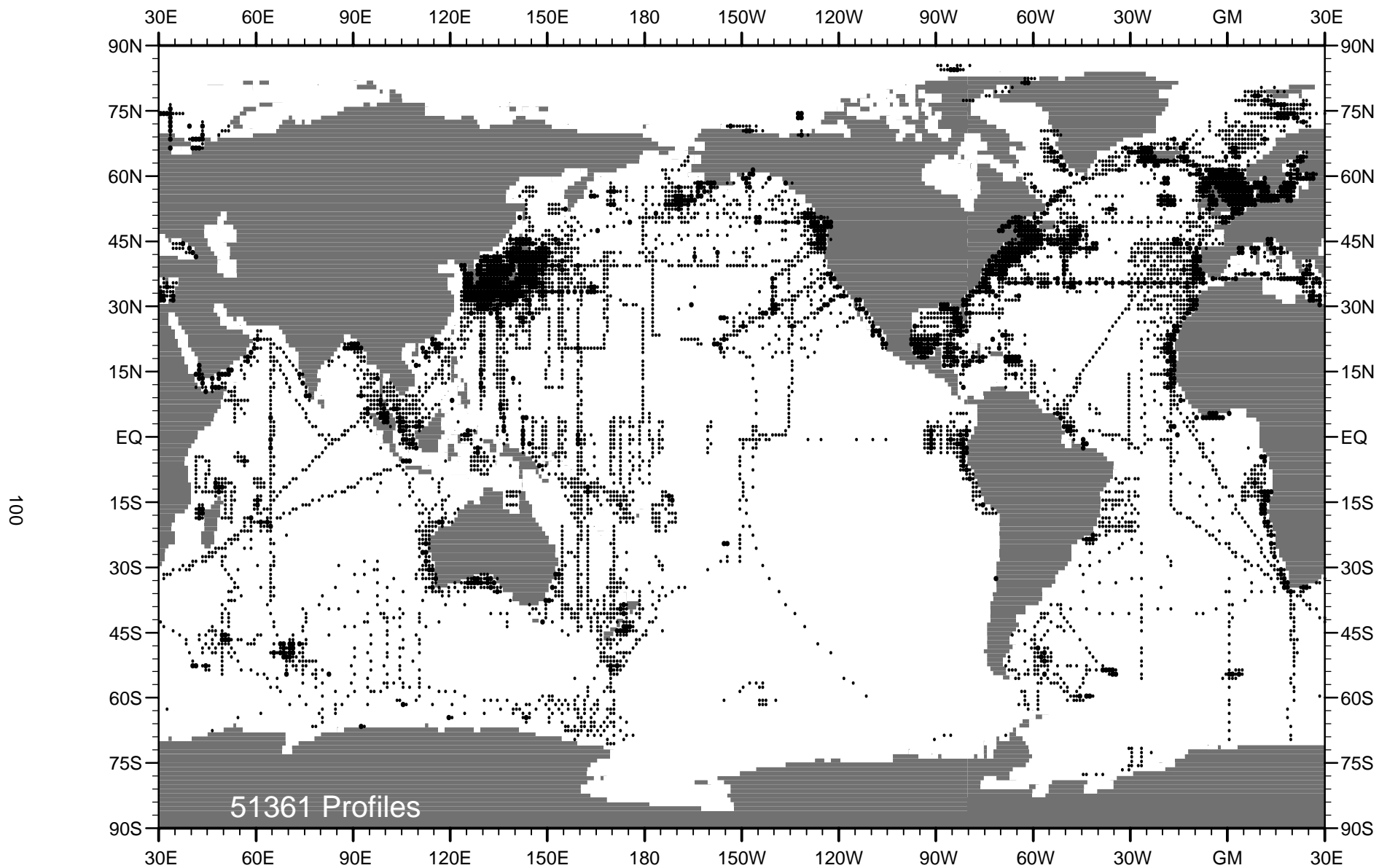


Fig. A72 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1971 .

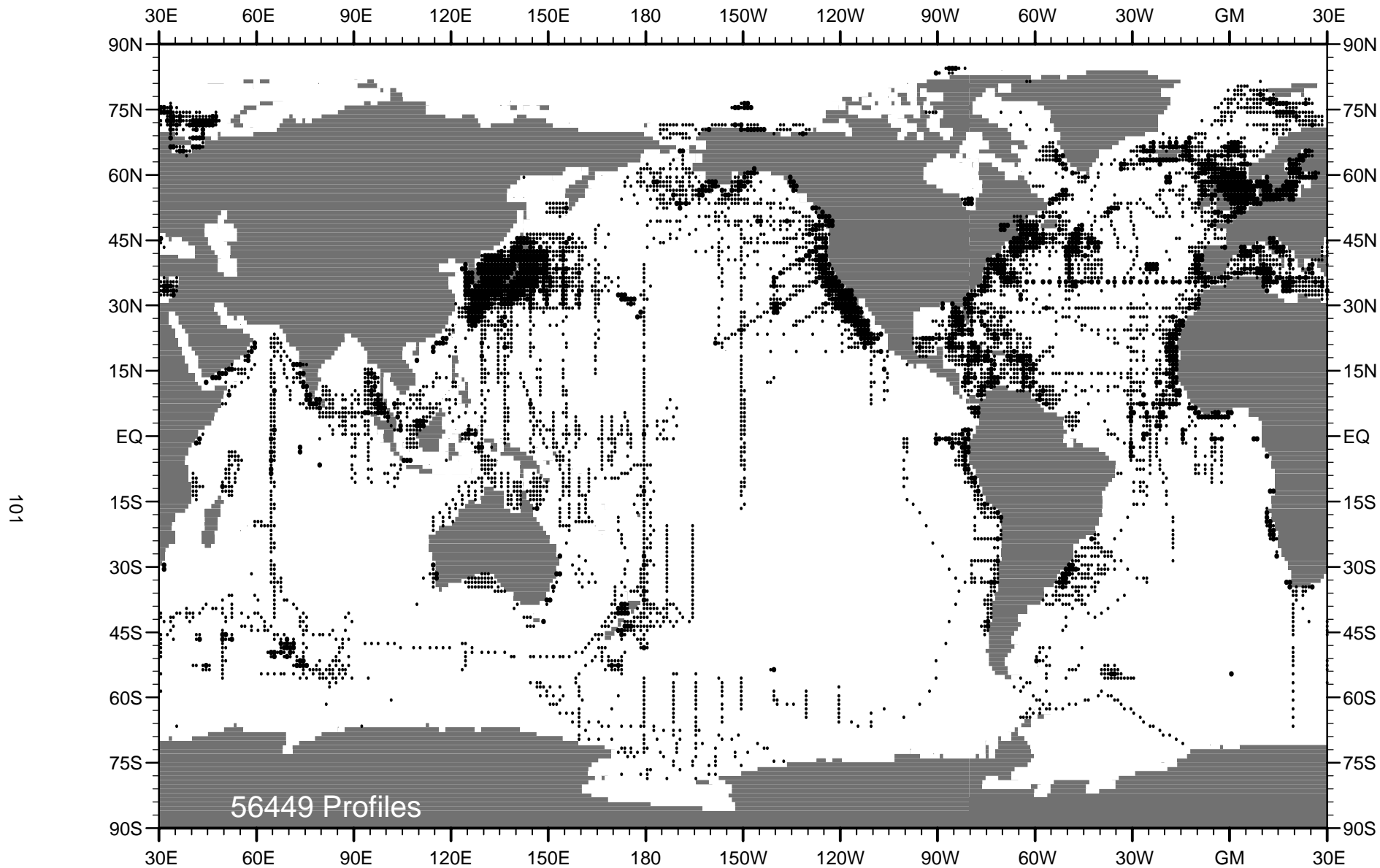


Fig. A73 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1972 .

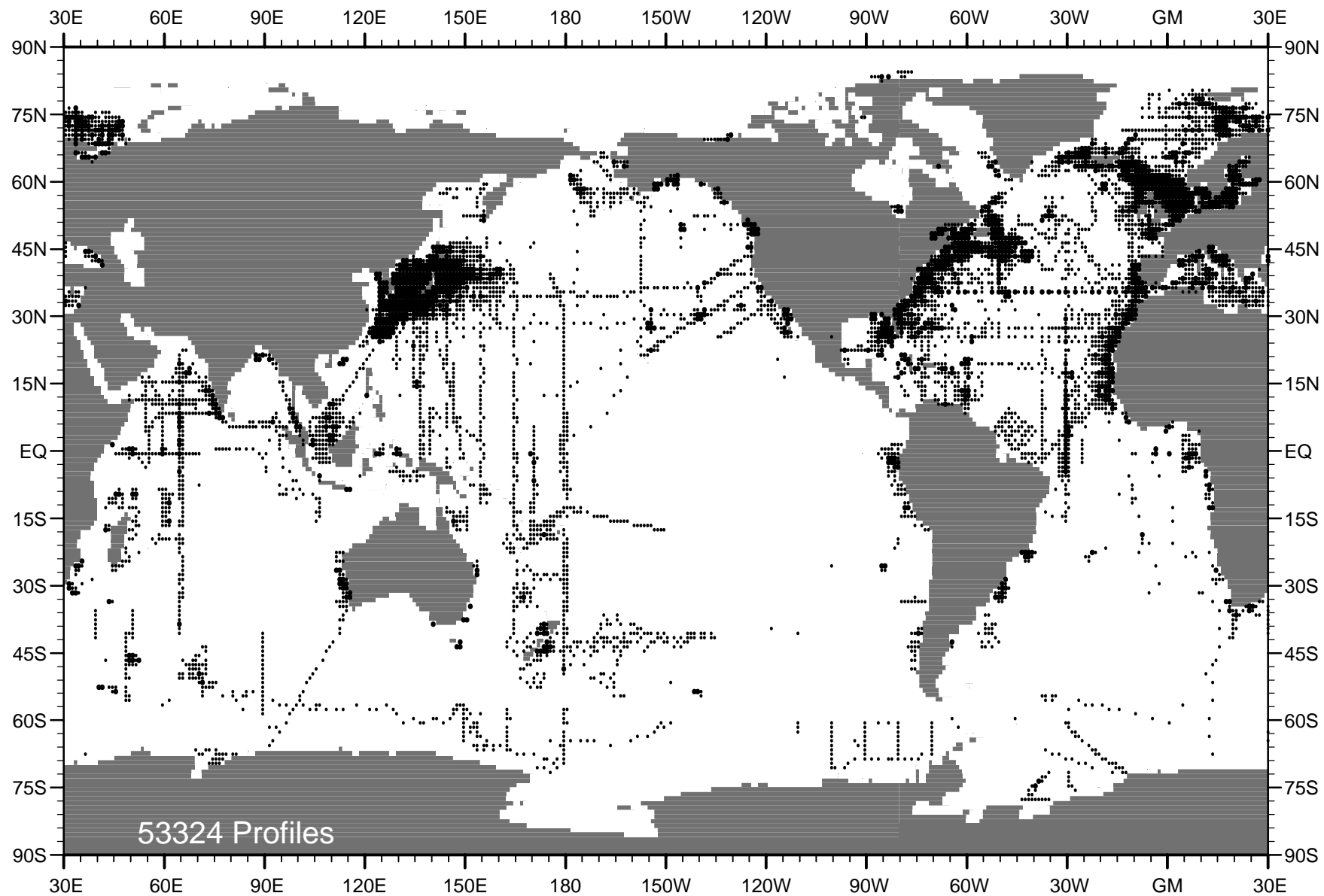


Fig. A74 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1973 .

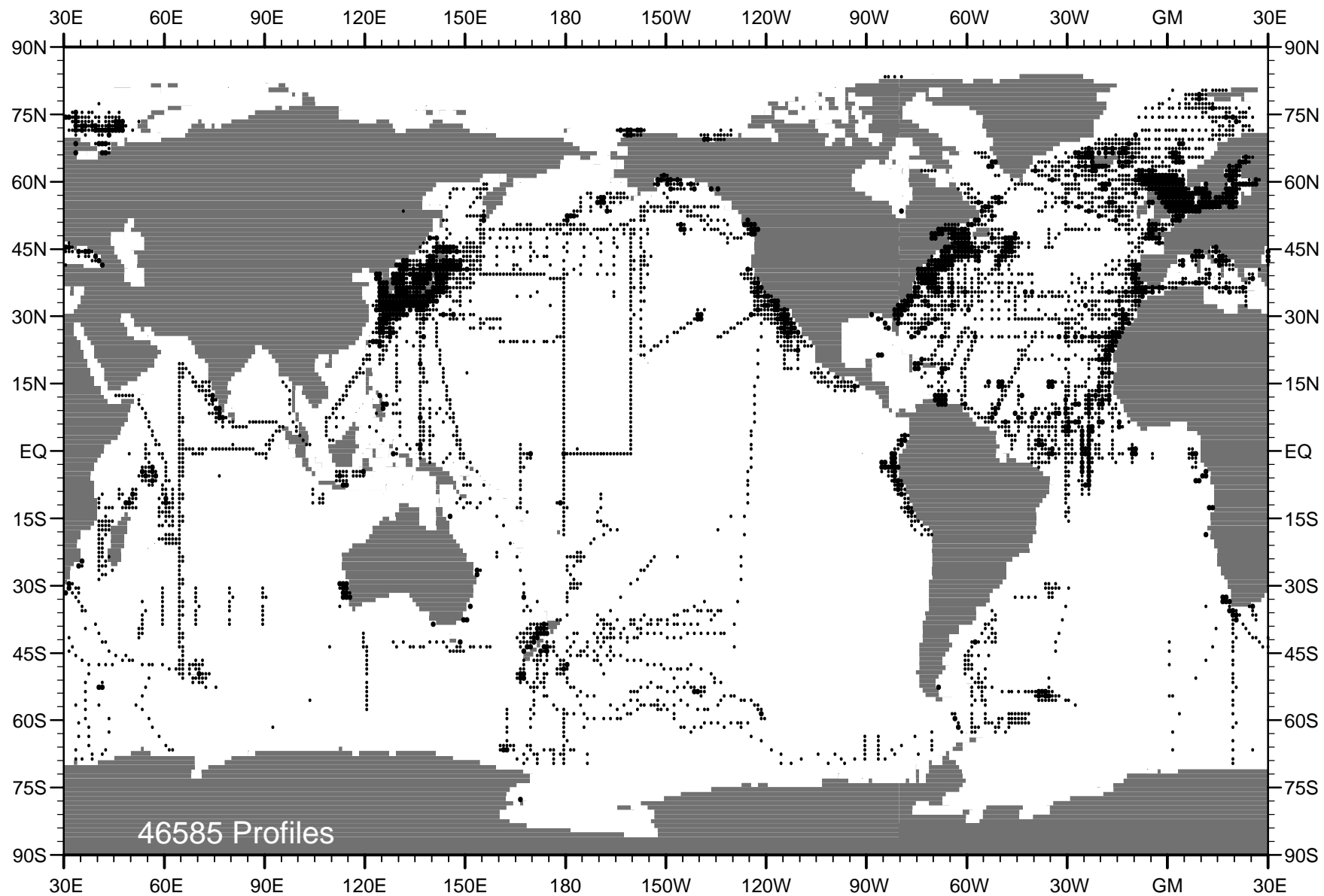


Fig. A75 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1974 .

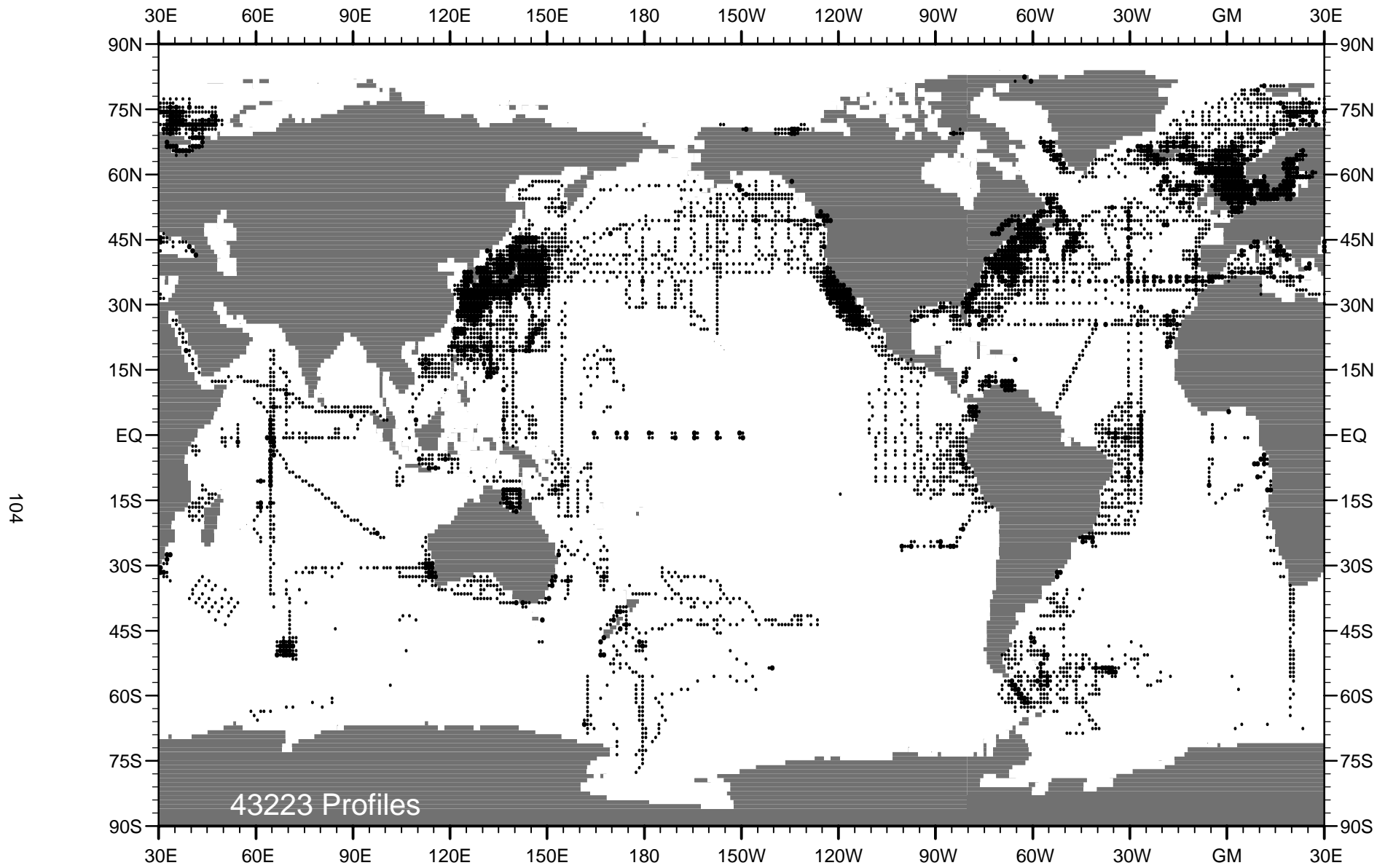


Fig. A76 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1975 .

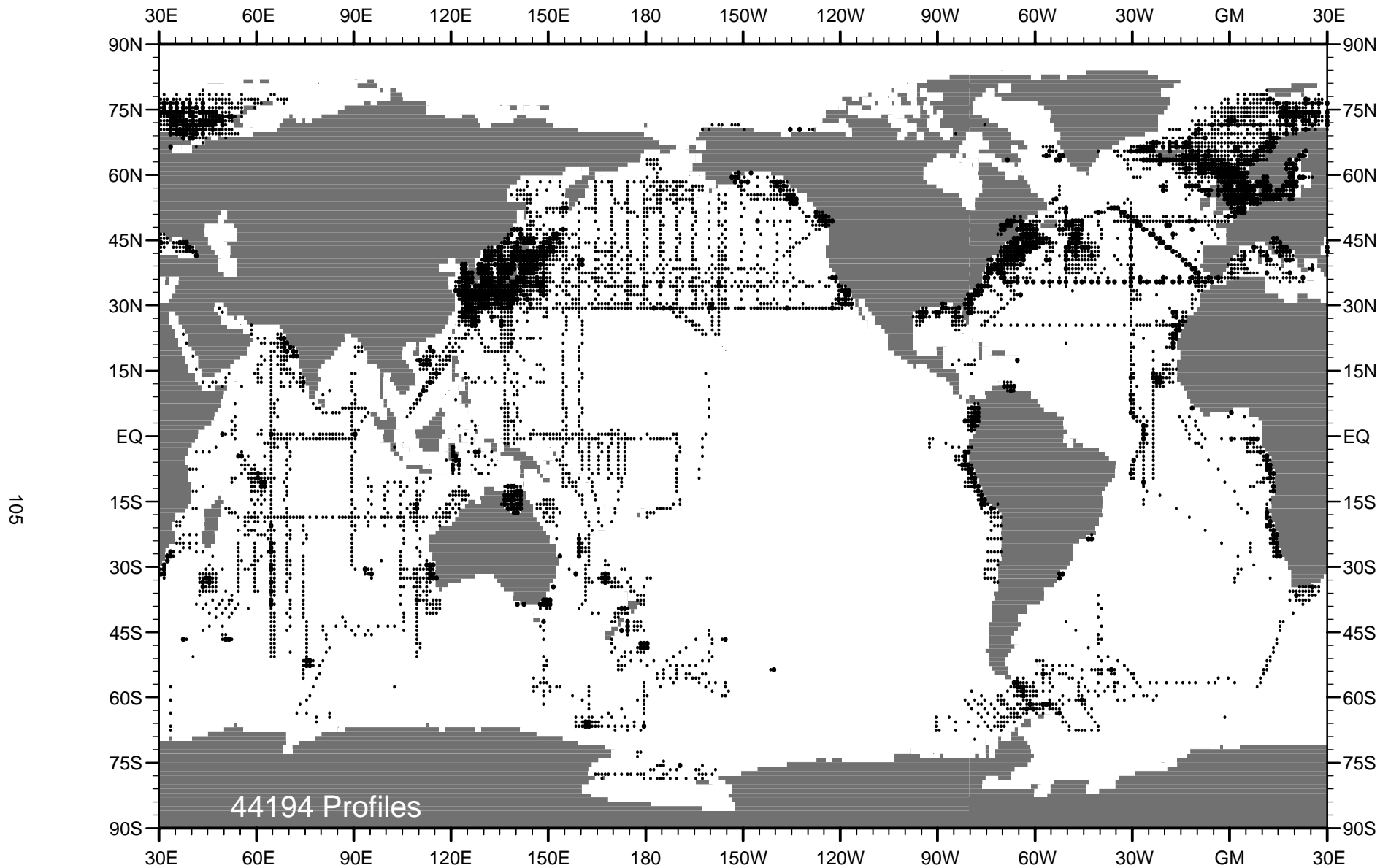


Fig. A77 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1976 .

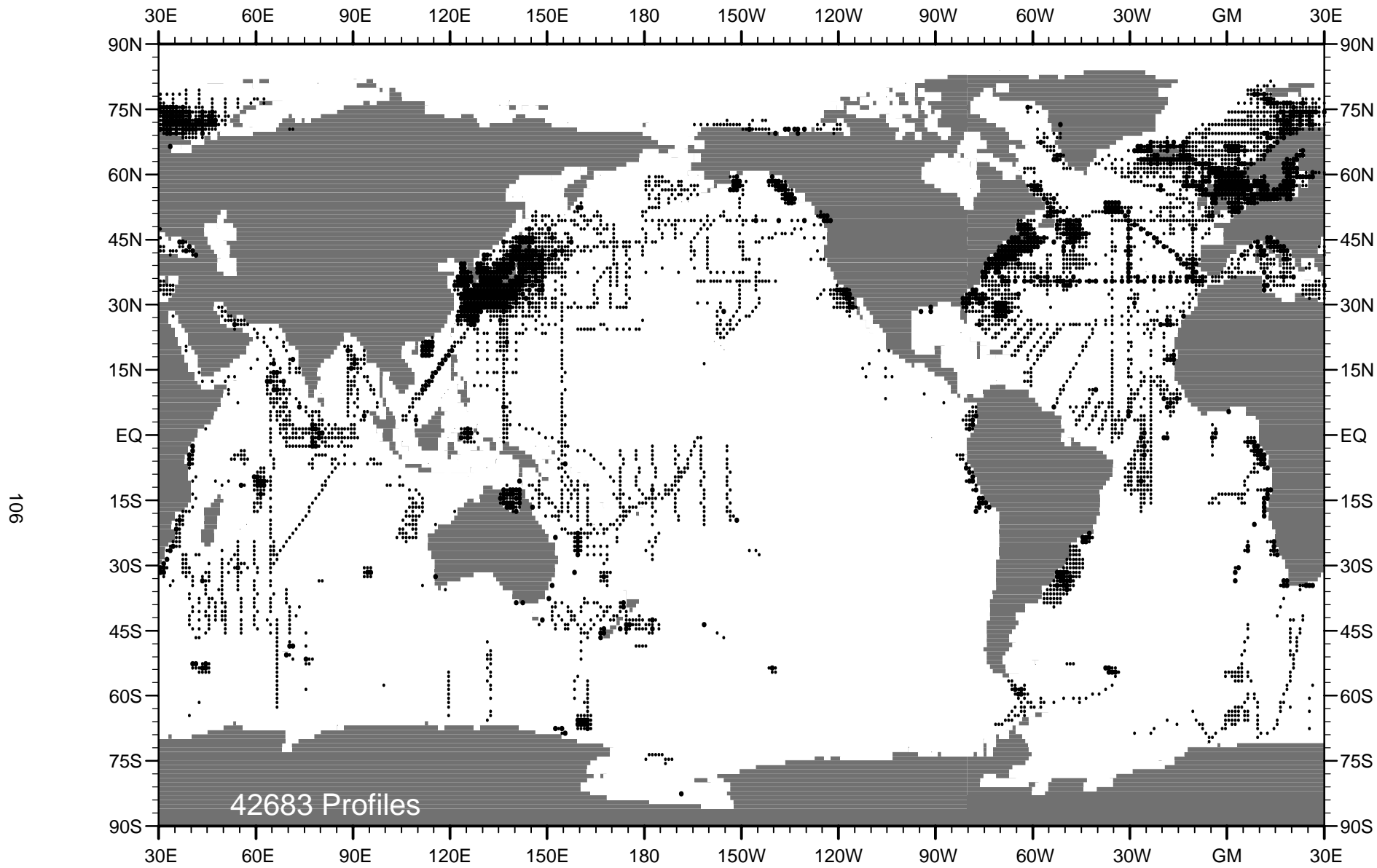


Fig. A78 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1977 .

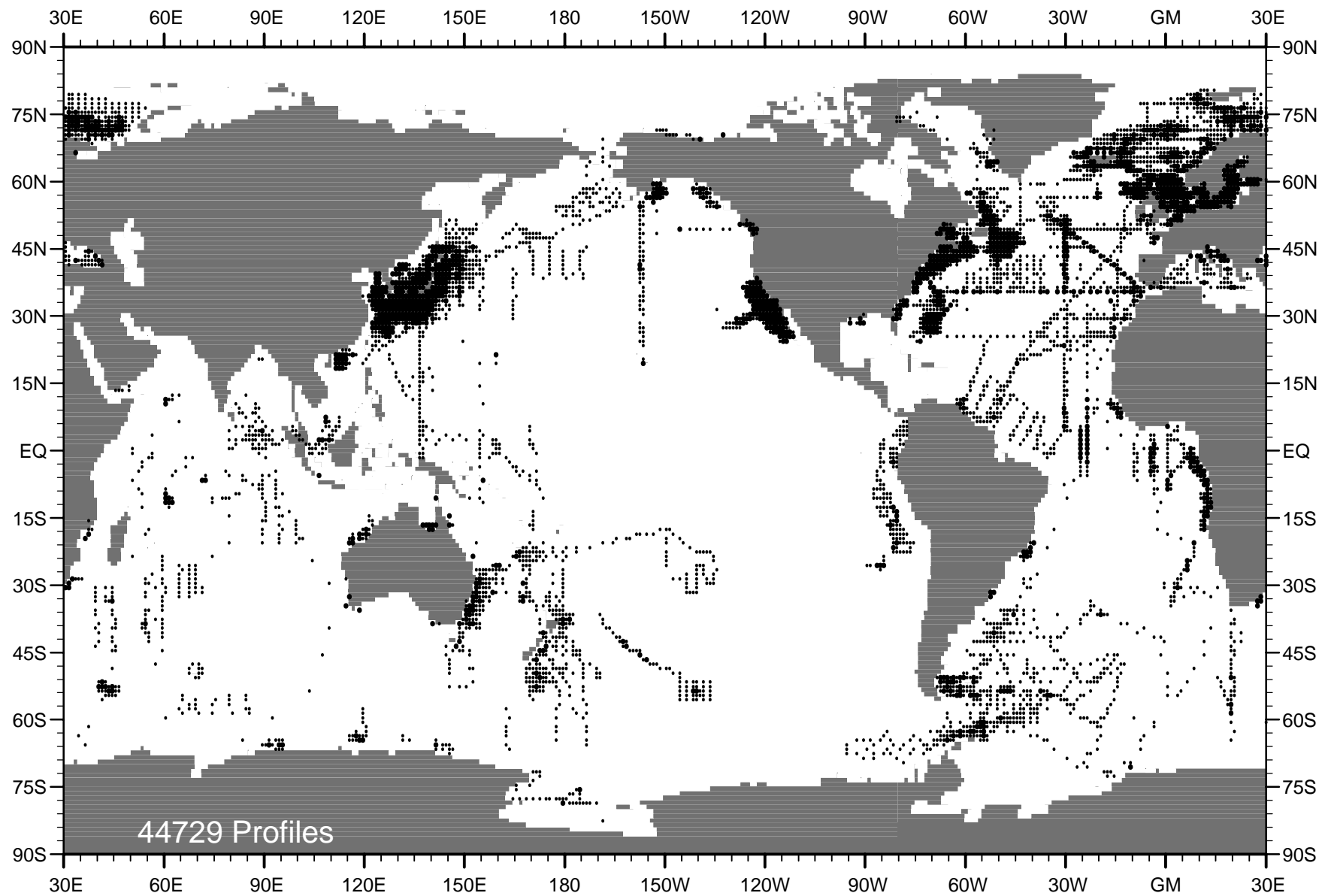


Fig. A79 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1978 .



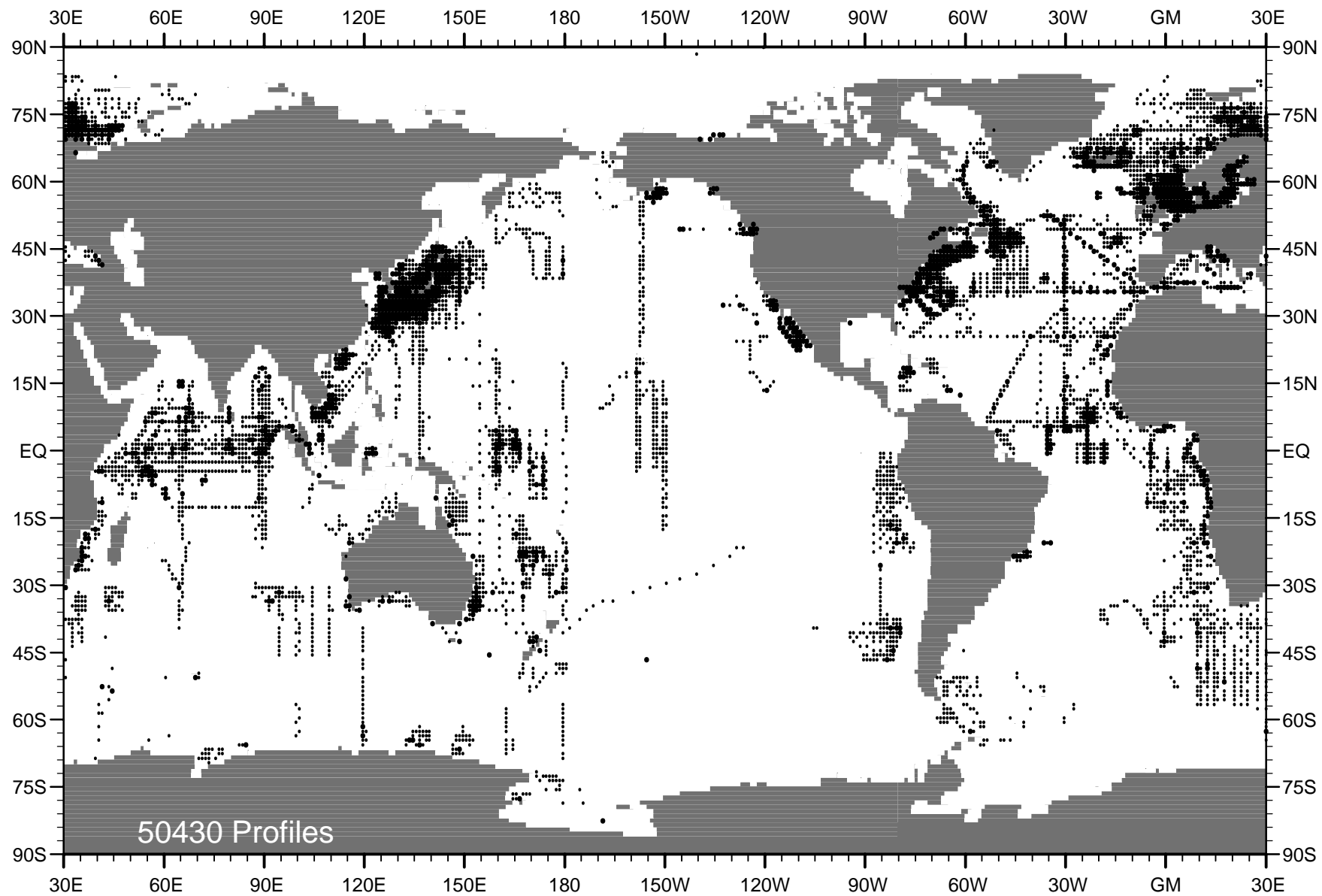


Fig. A80 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1979 .

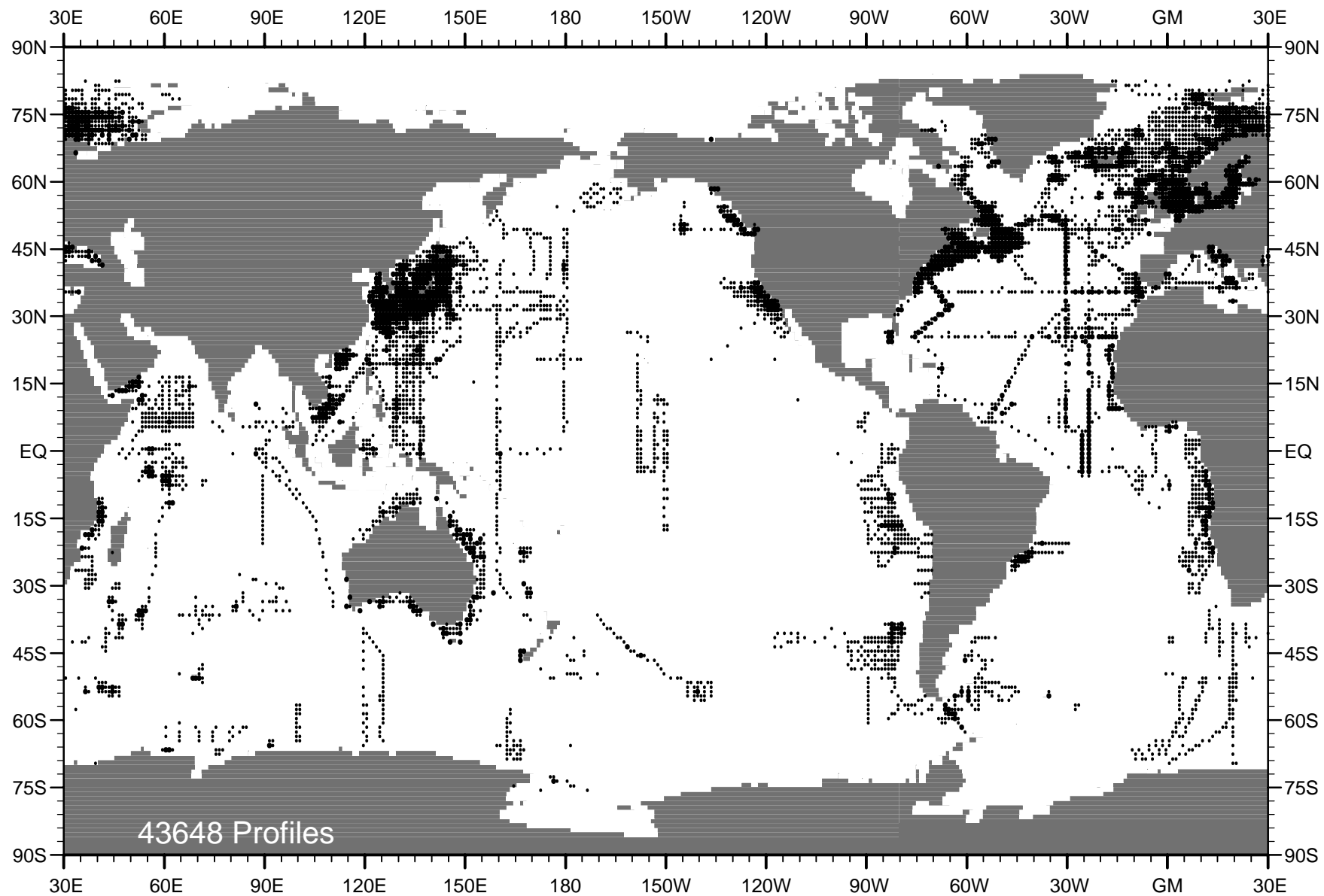


Fig. A81 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1980 .

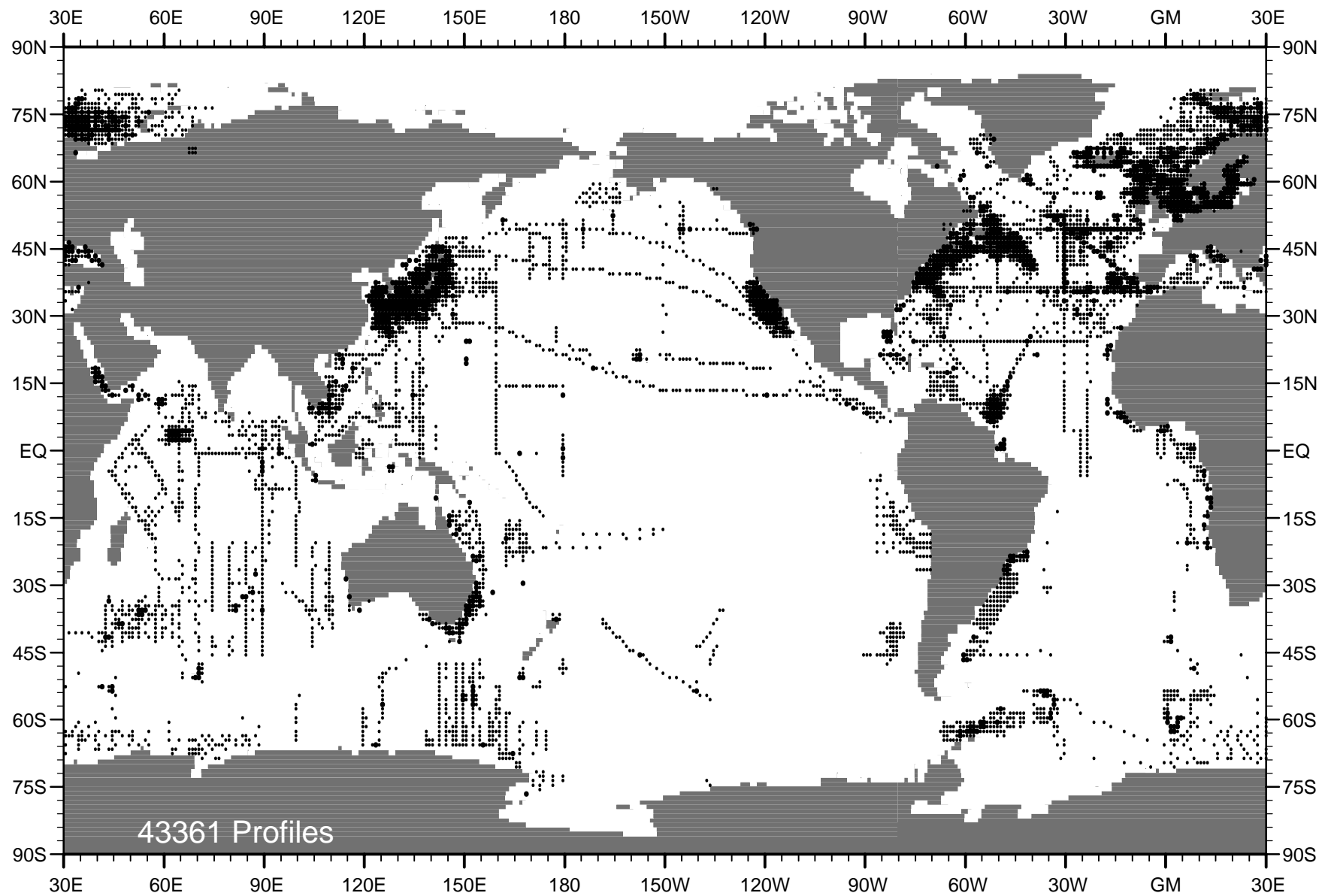


Fig. A82 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1981 .

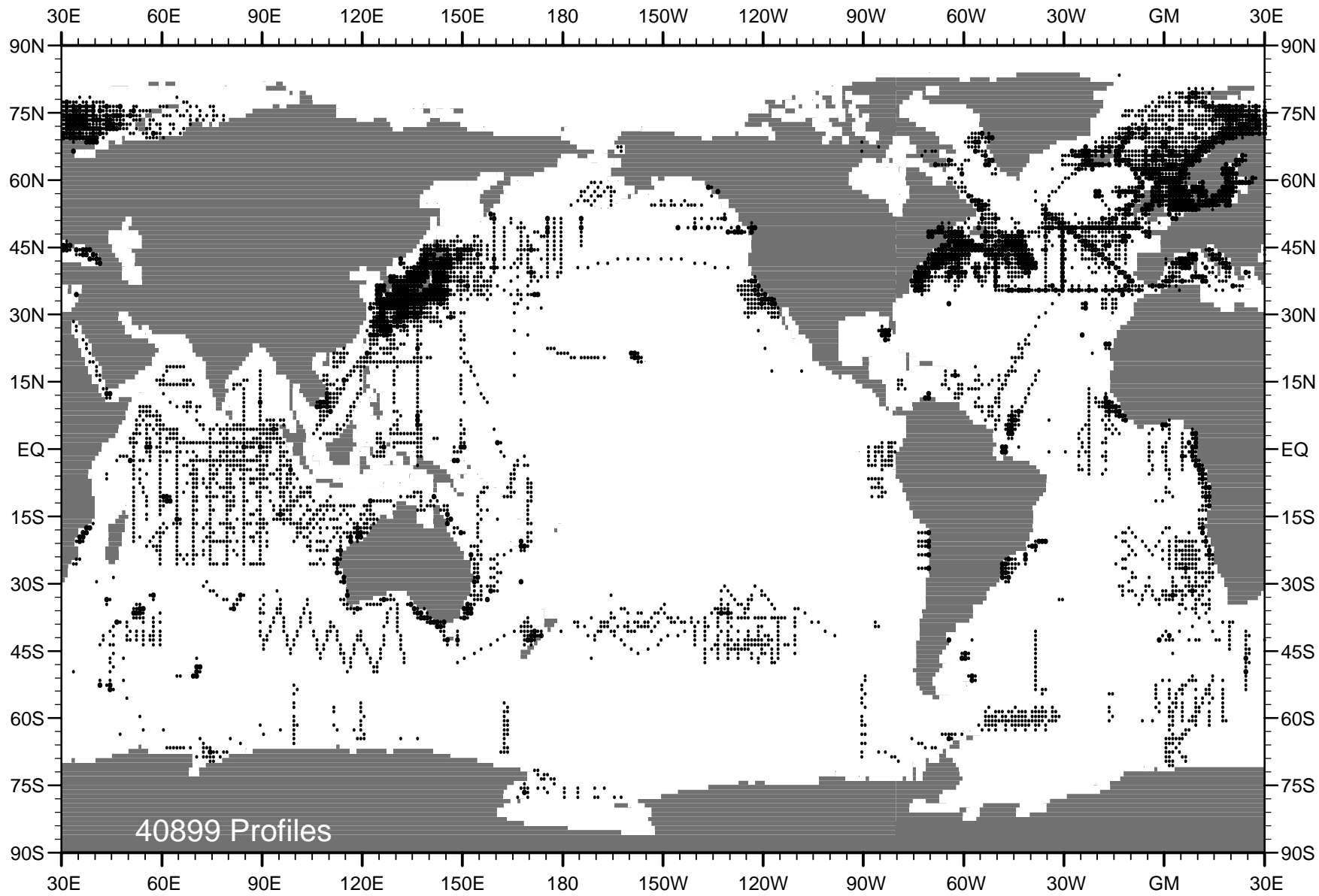


Fig. A83 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1982 .

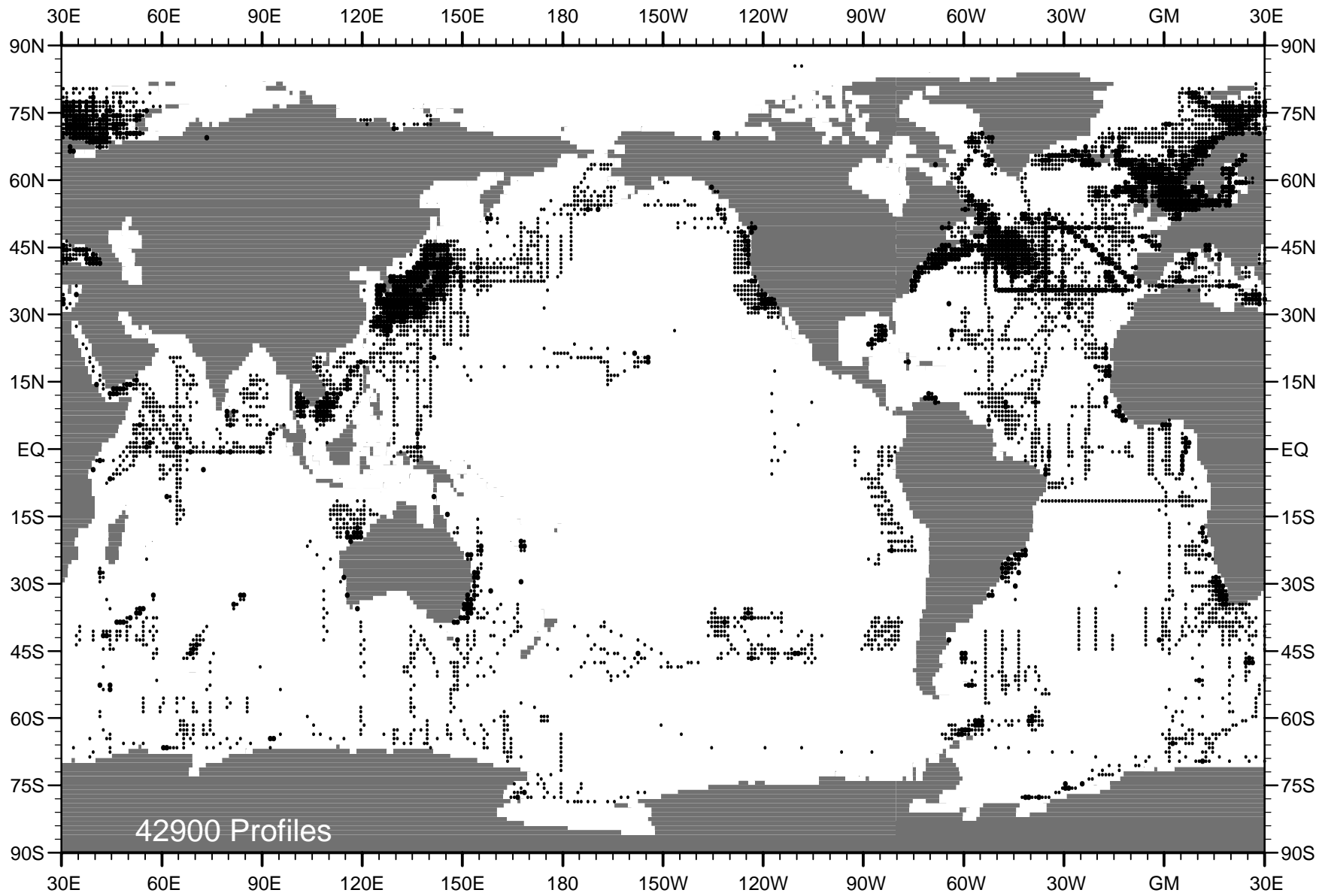


Fig. A84 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1983 .

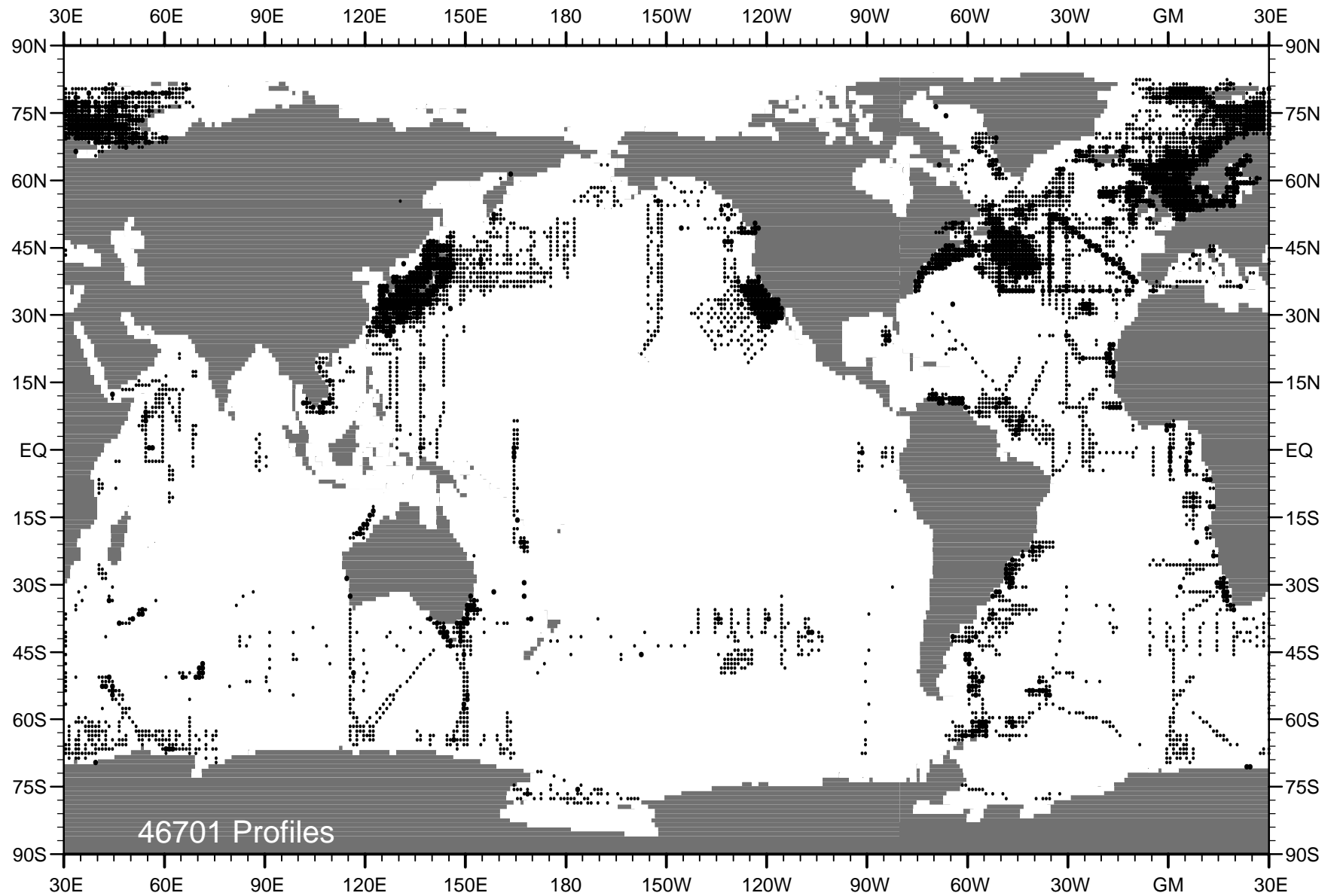


Fig. A85 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1984 .

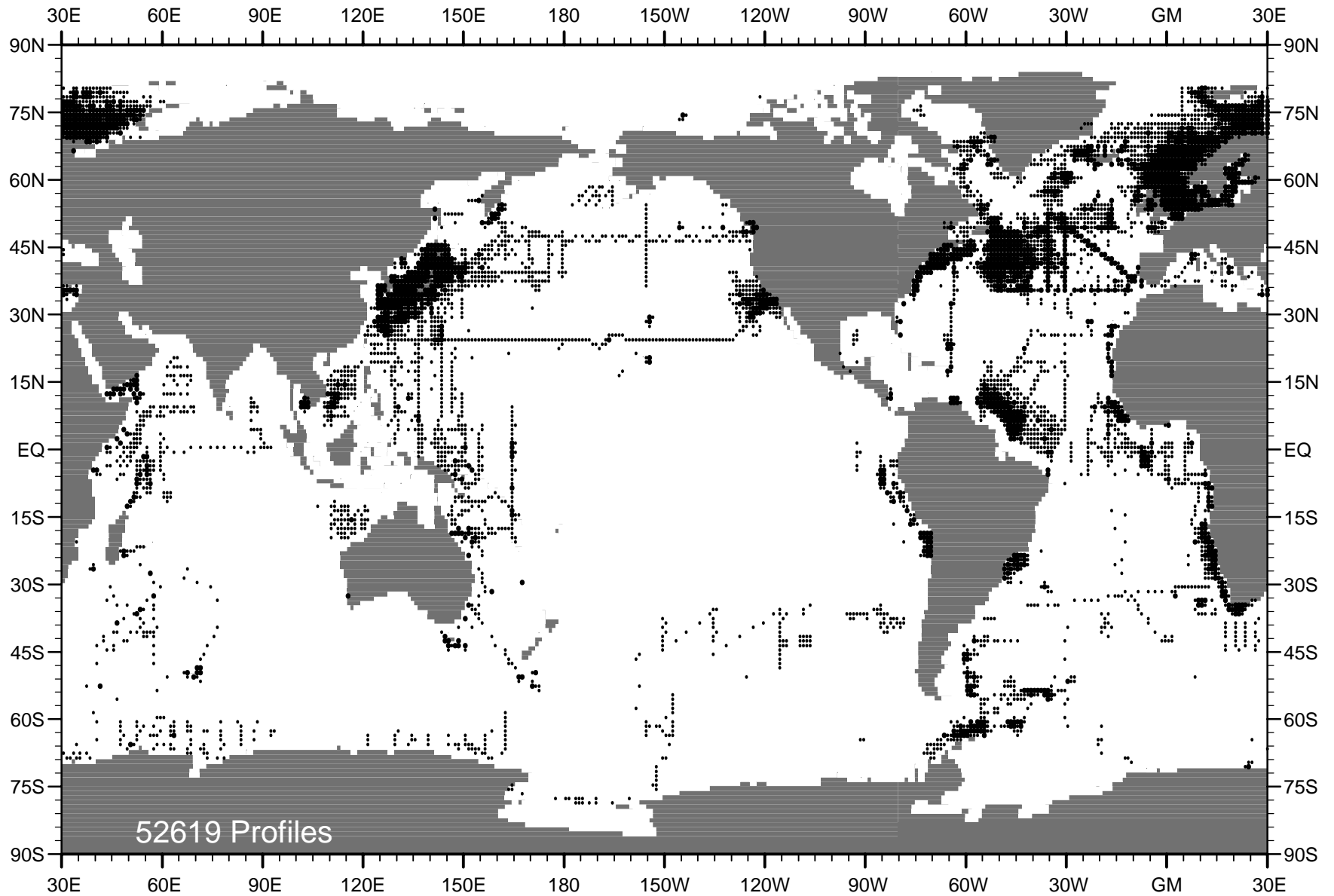


Fig. A86 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1985 .

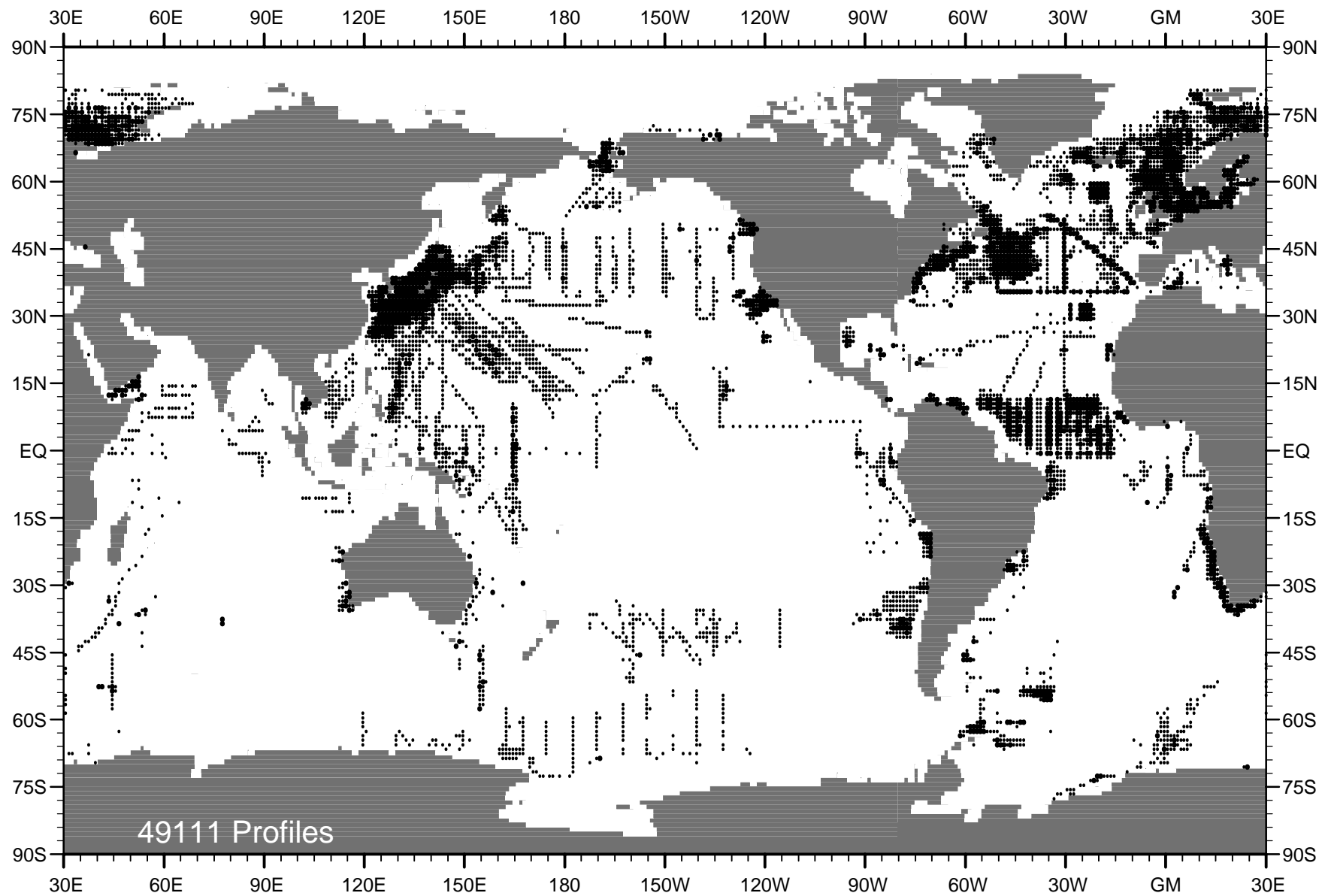


Fig. A87 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1986 .



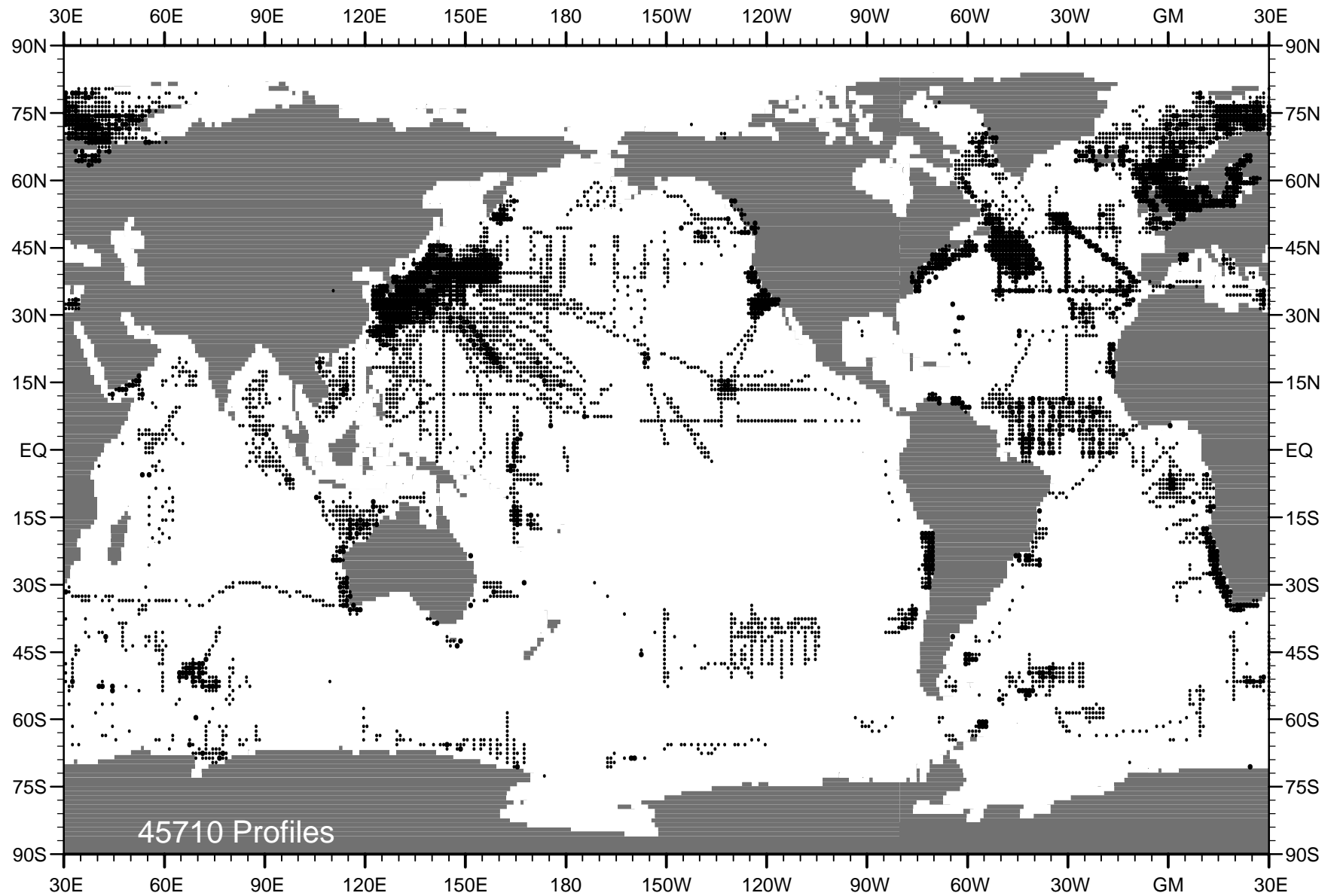


Fig. A88 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1987 .

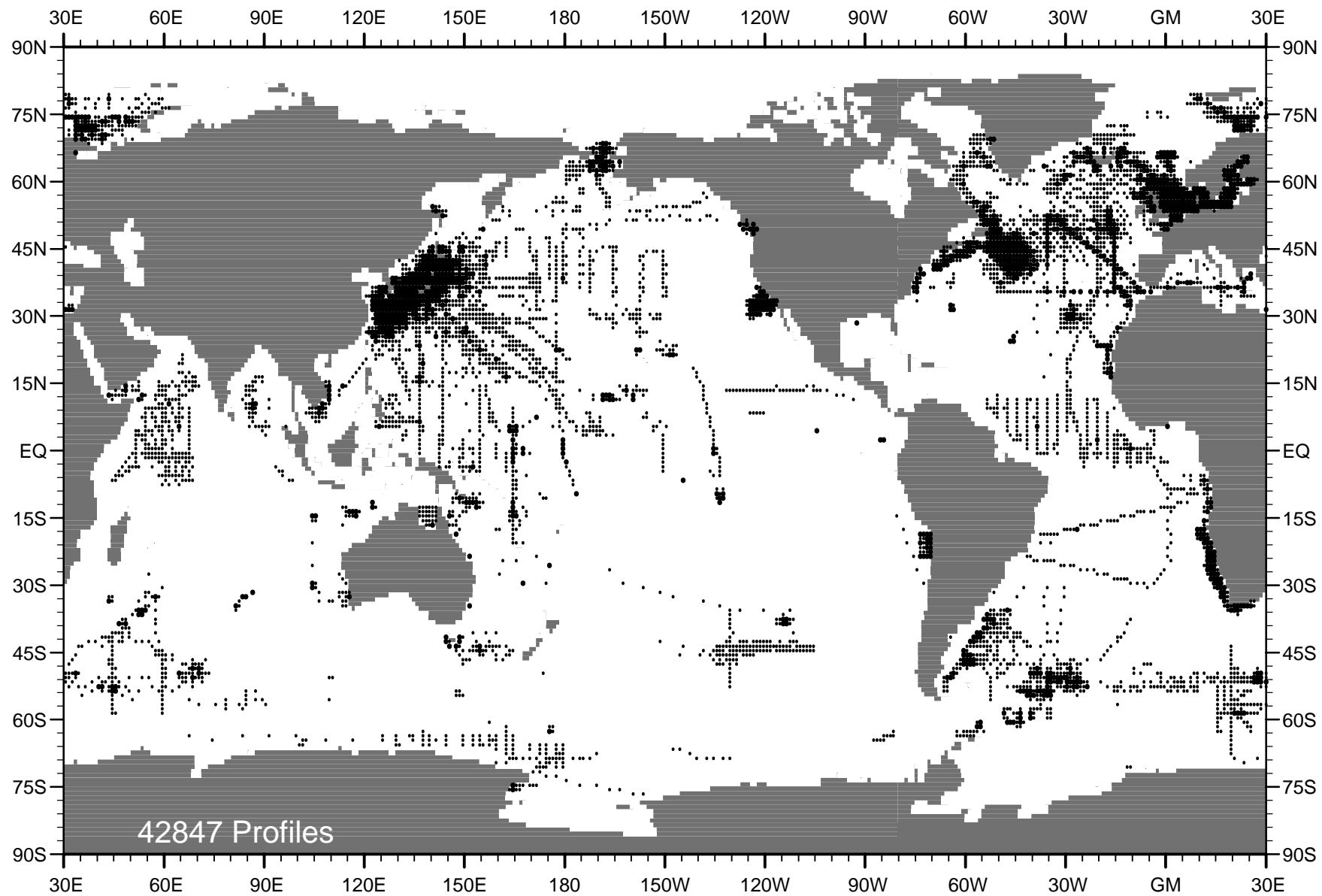


Fig. A89 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1988 .

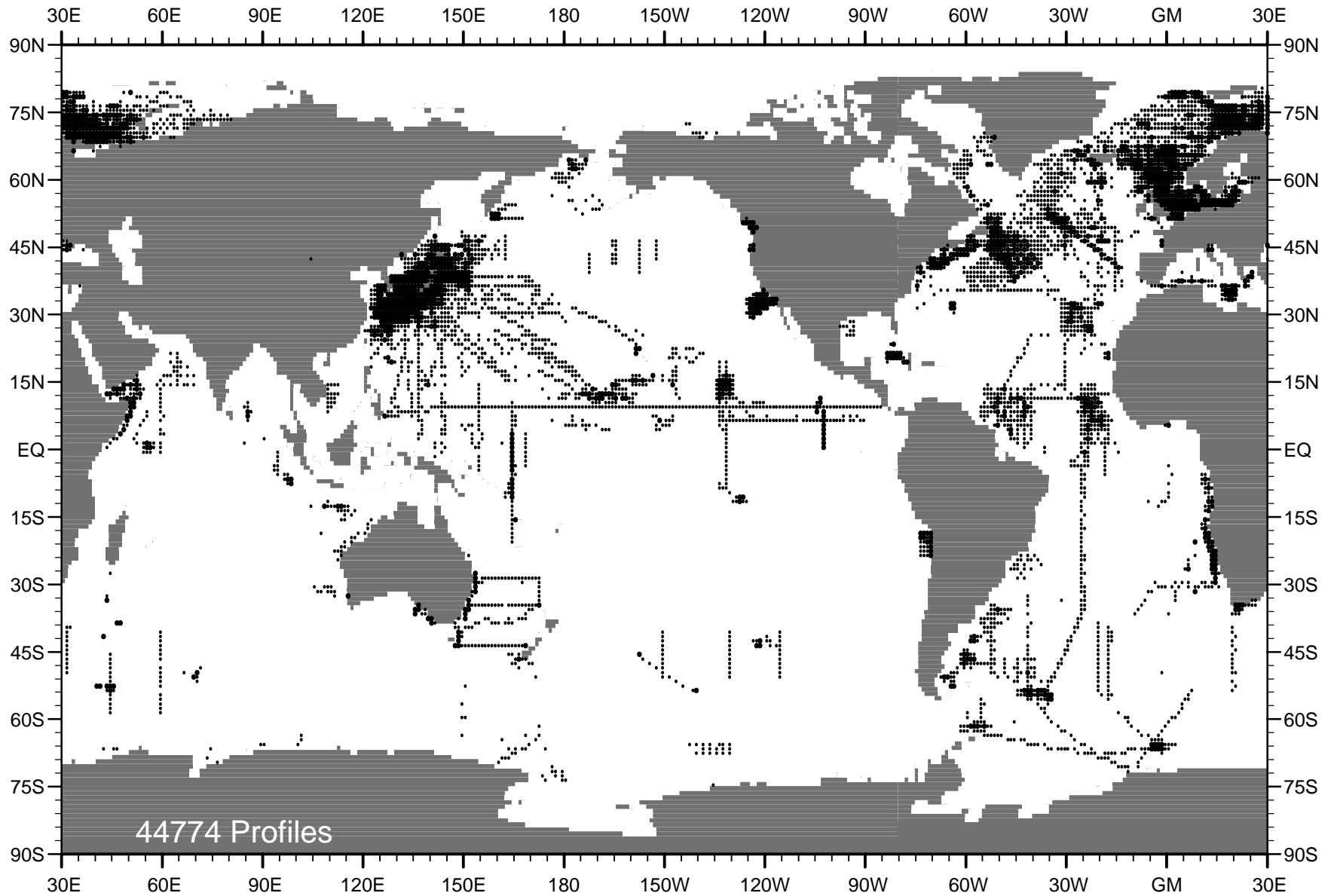


Fig. A90 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1989 .

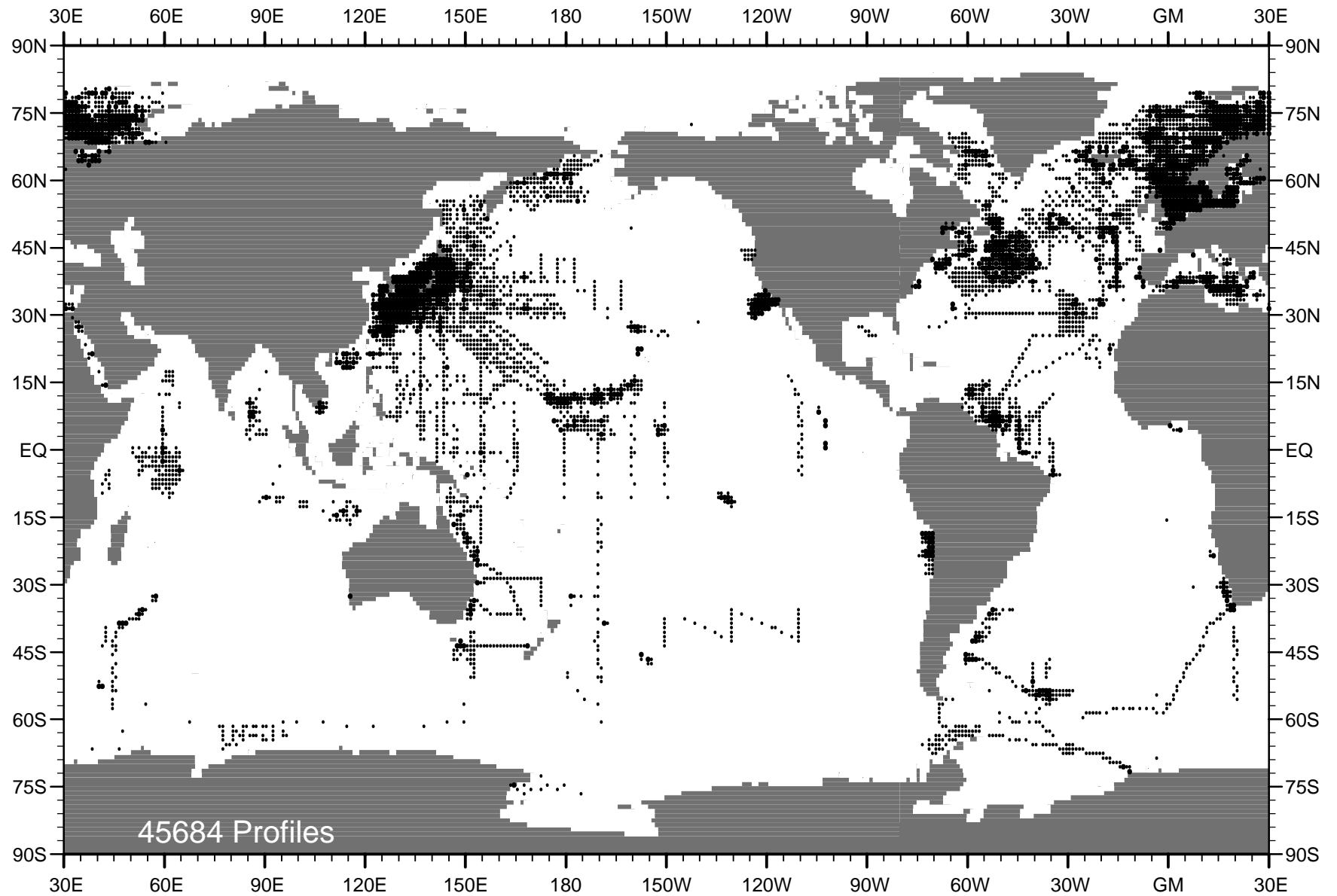


Fig. A91 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1990 .

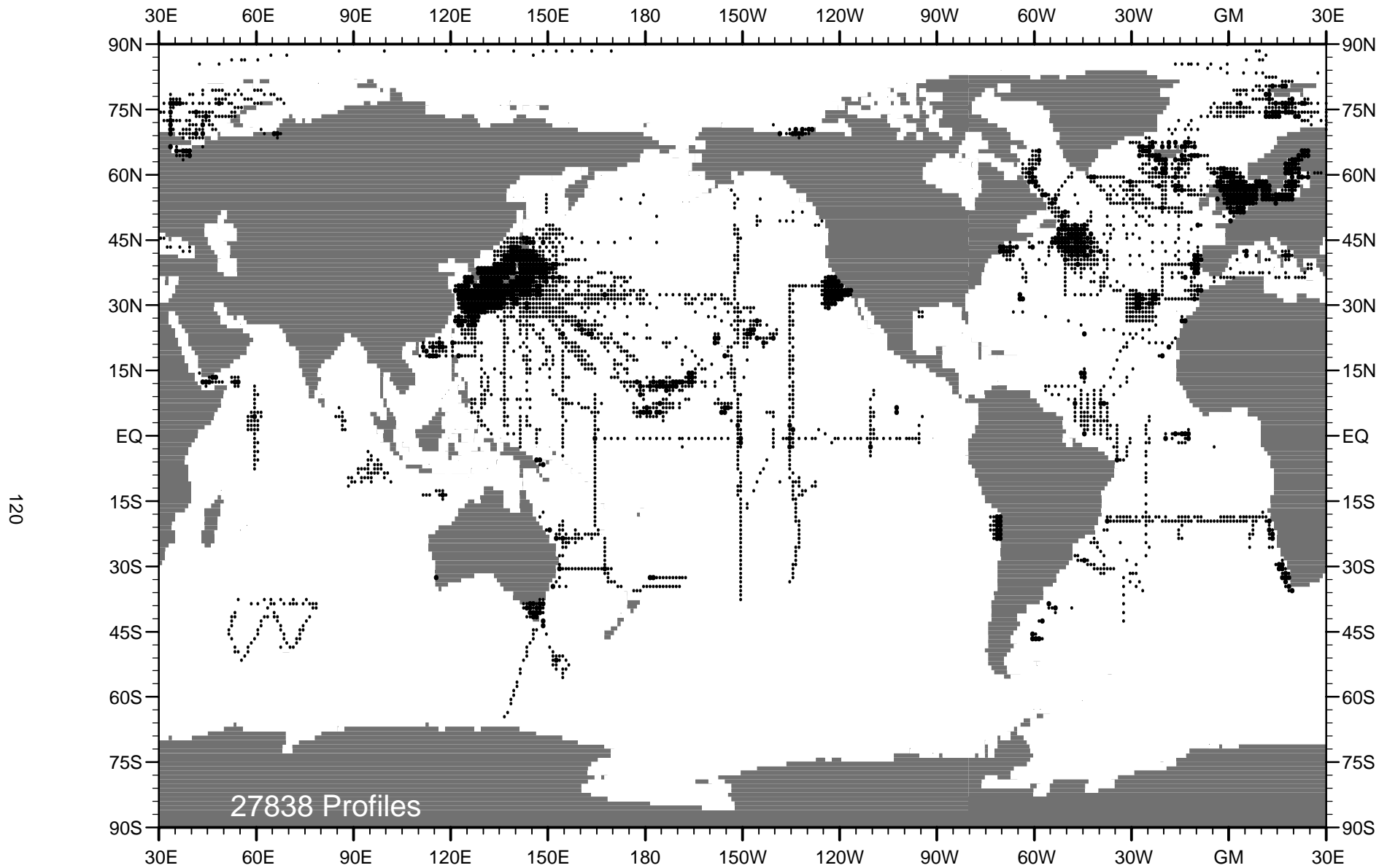


Fig. A92 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1991 .

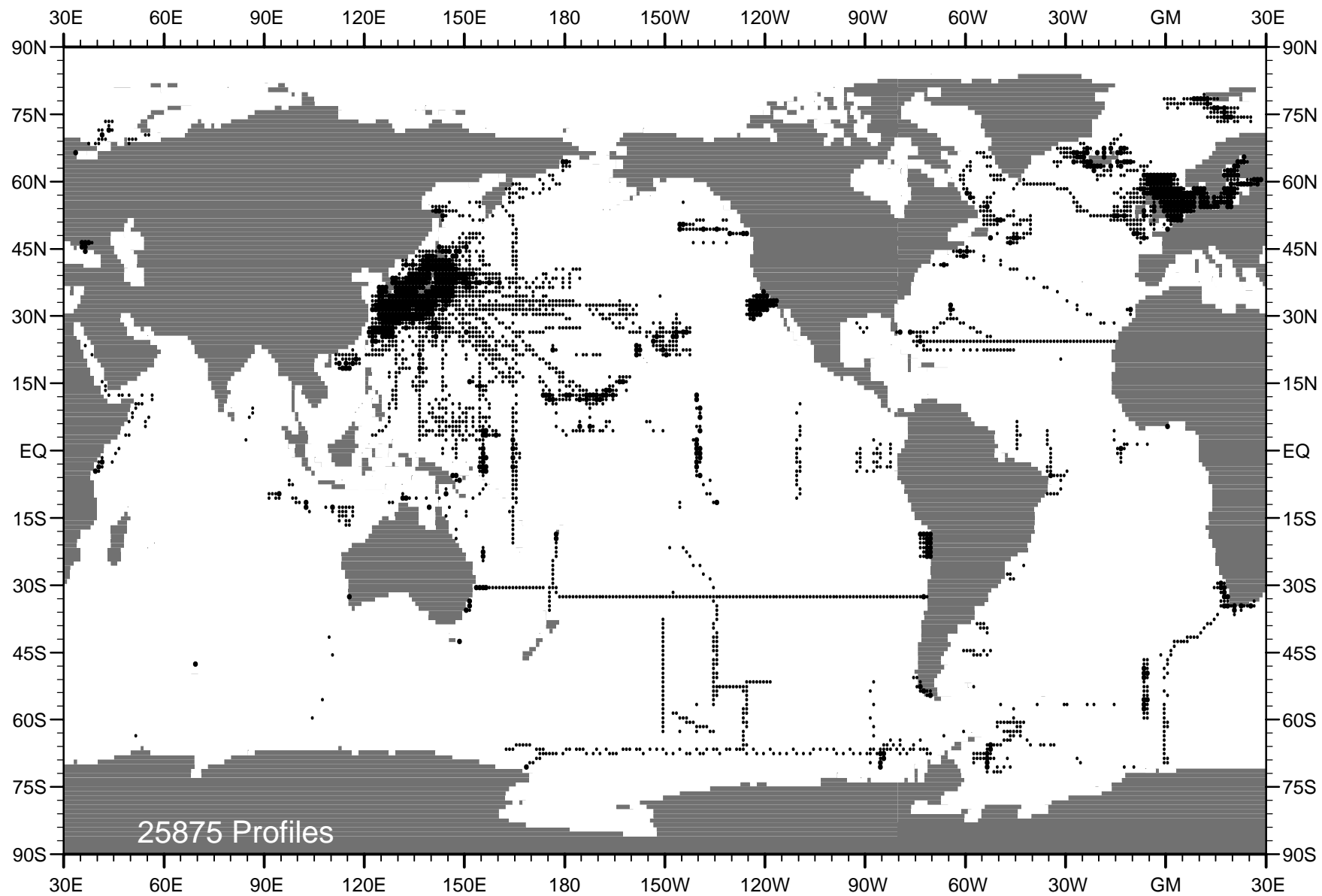


Fig. A93 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1992 .

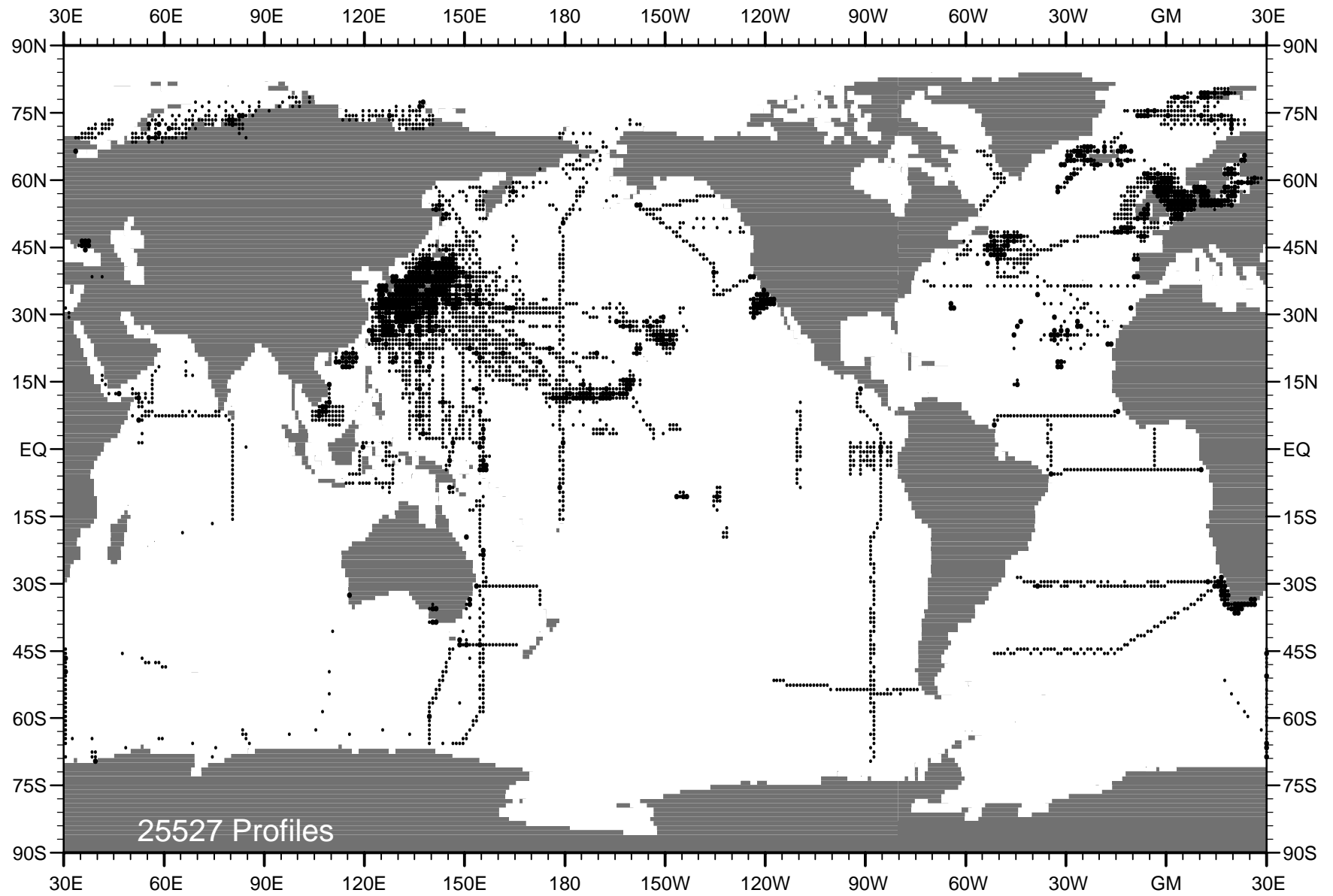


Fig. A94 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1993 .

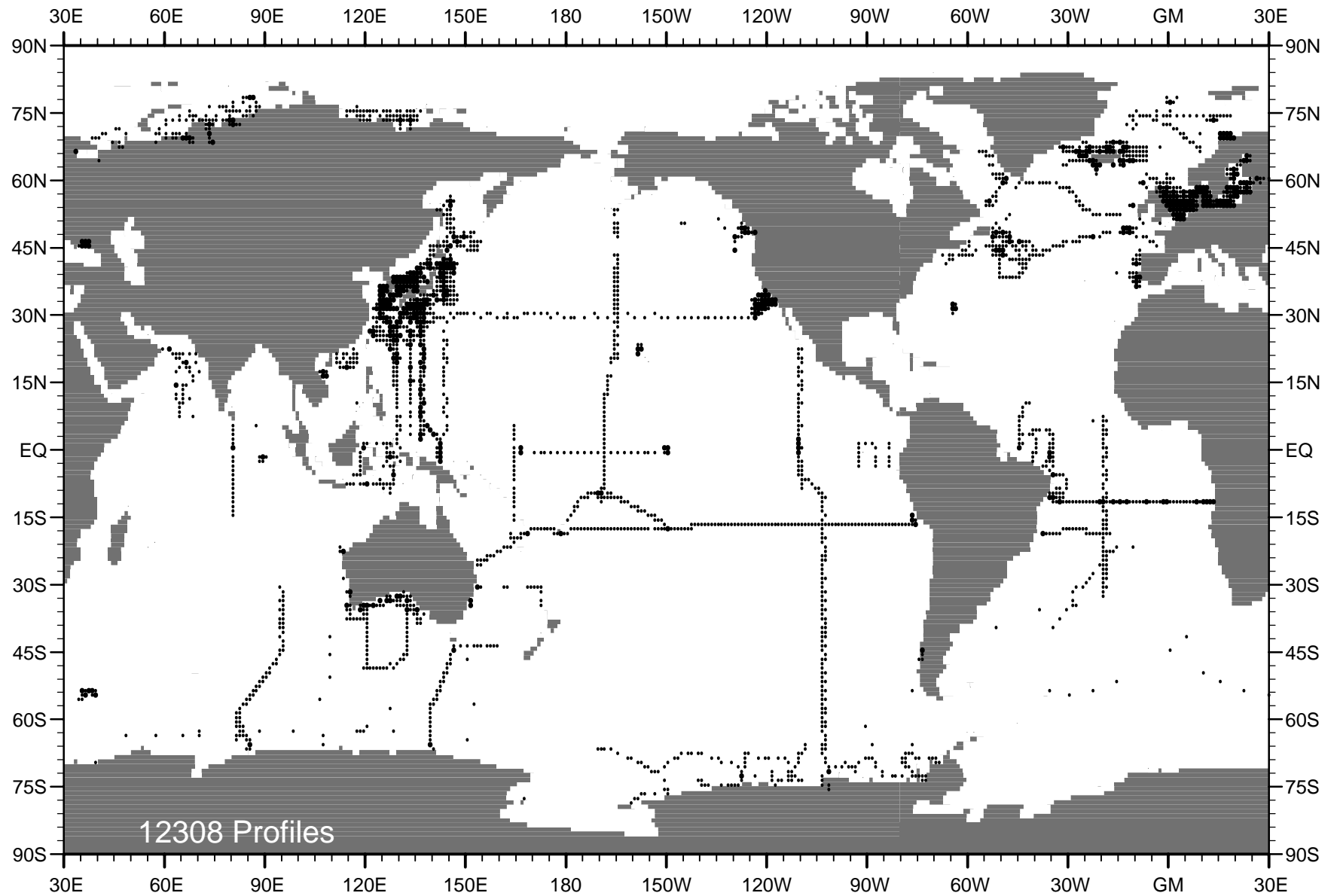


Fig. A95 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1994 .



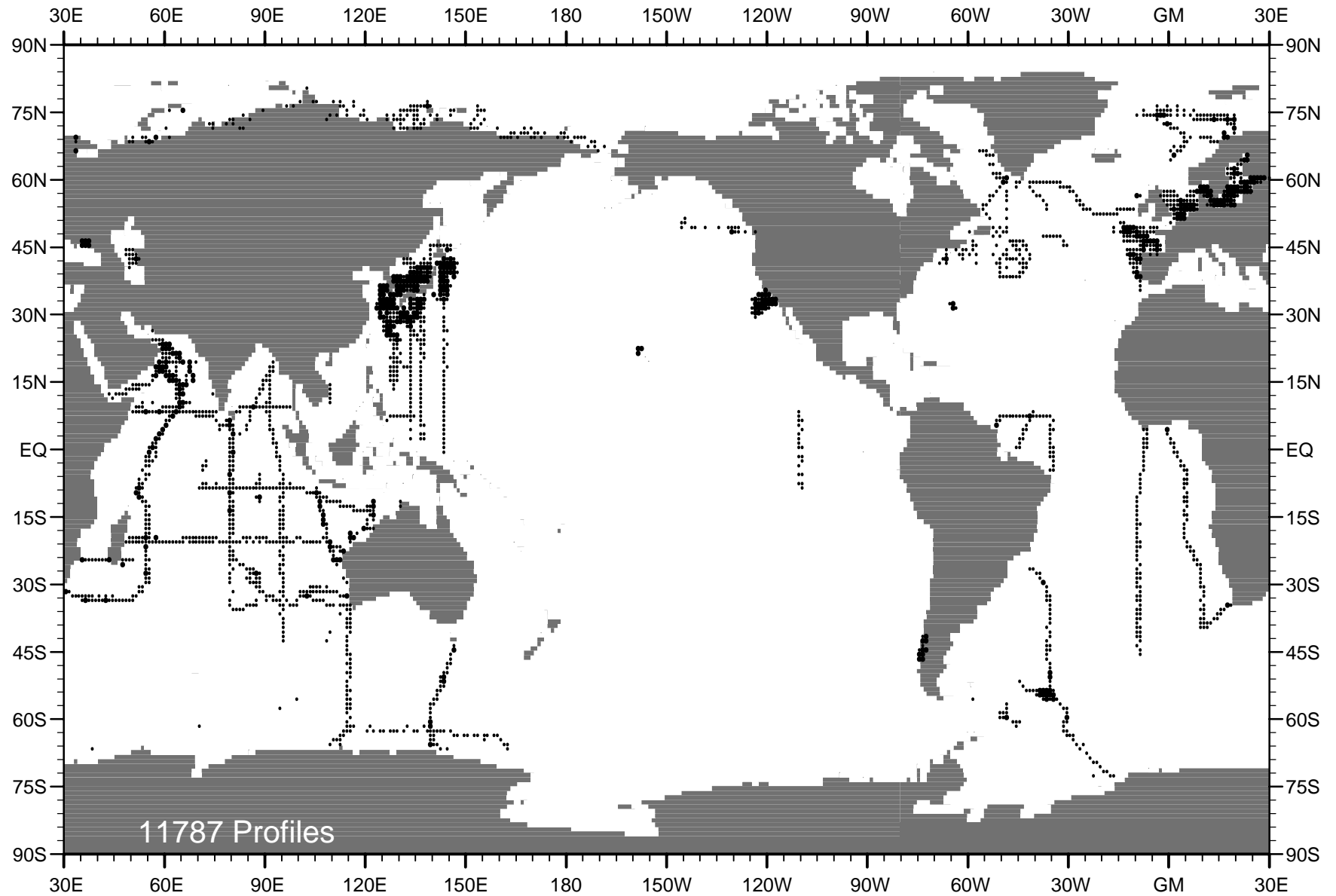


Fig. A96 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1995 .

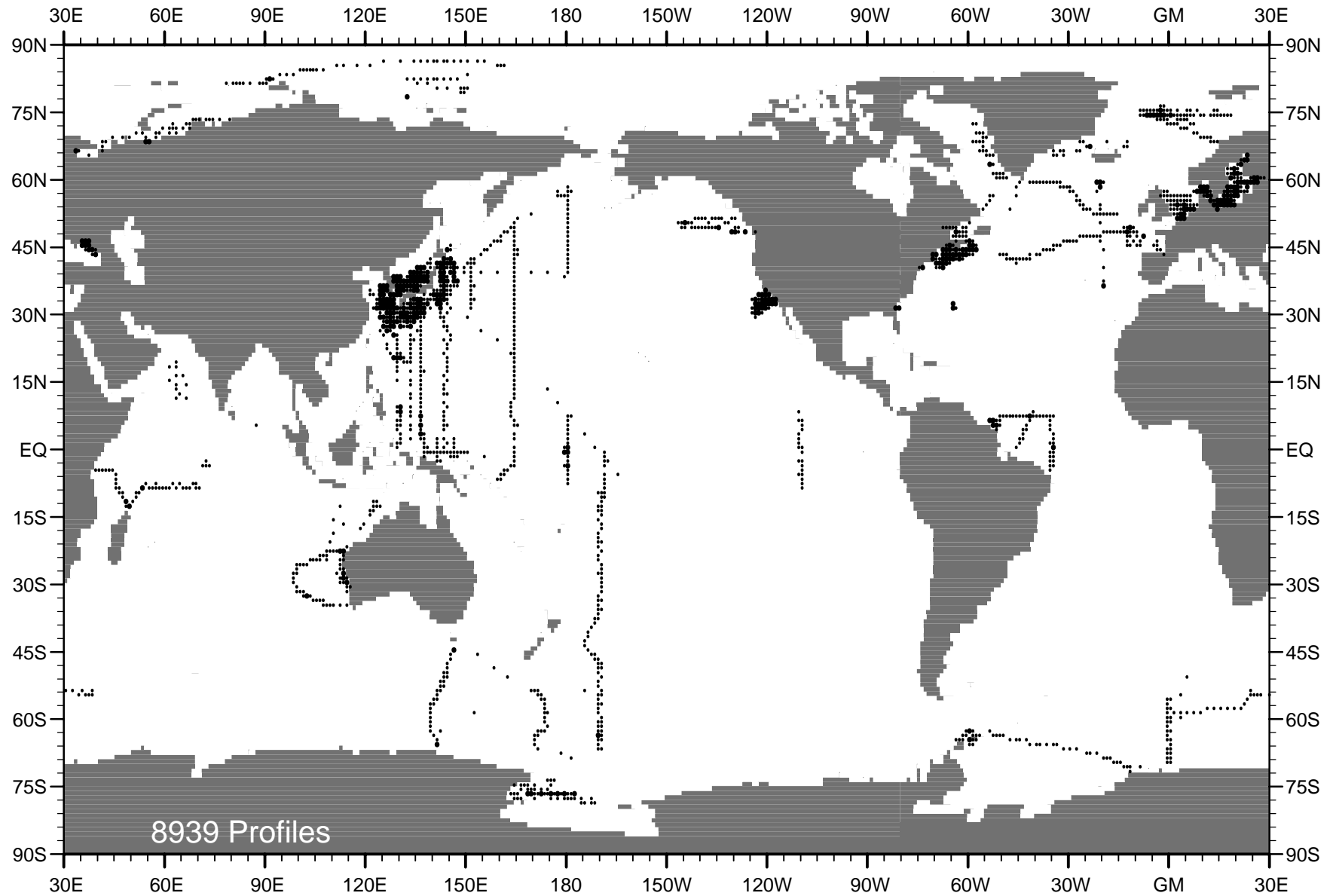


Fig. A97 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1996 .

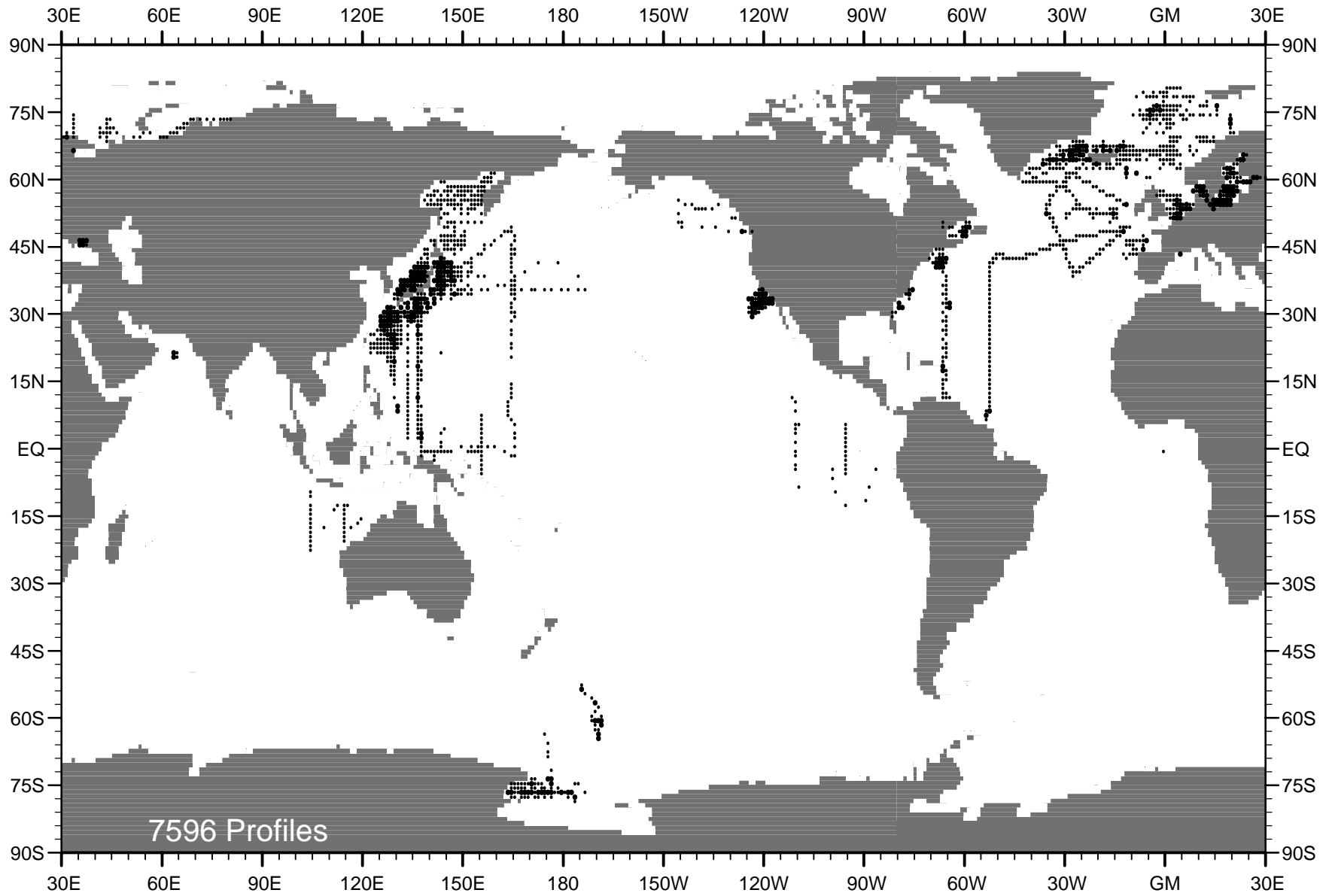


Fig. A98 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1997 .

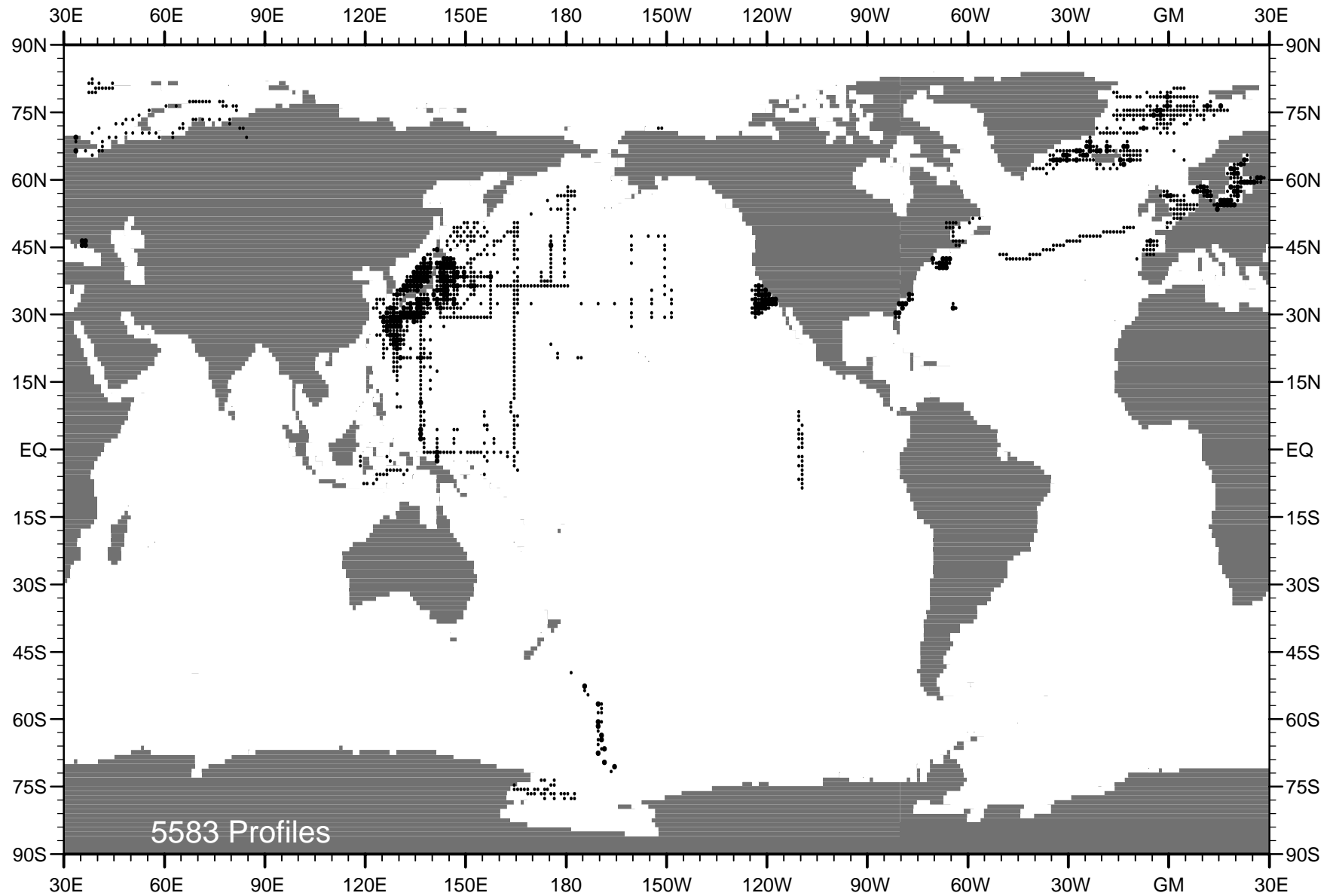


Fig. A99 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1998 .

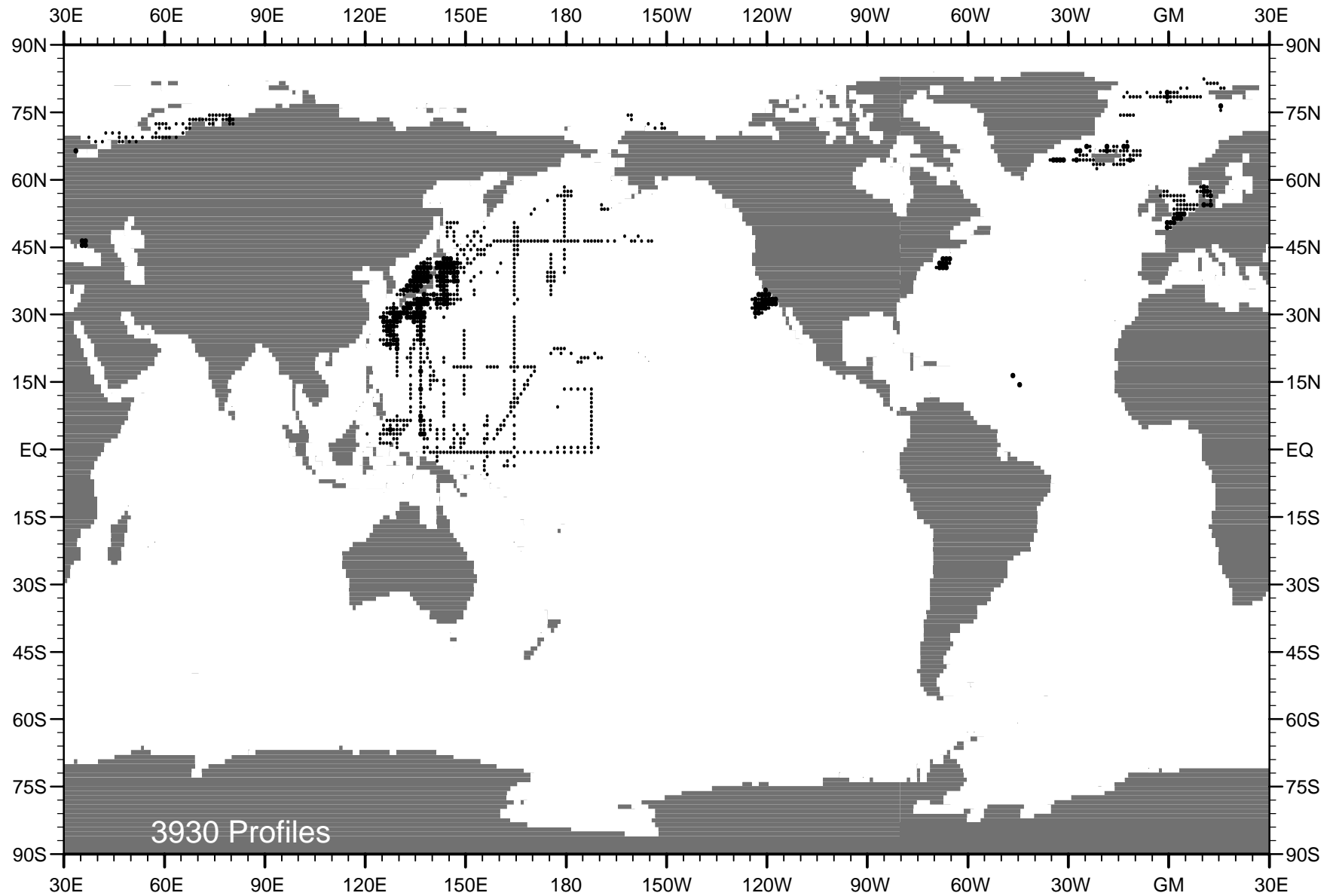


Fig. A100 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 1999 .

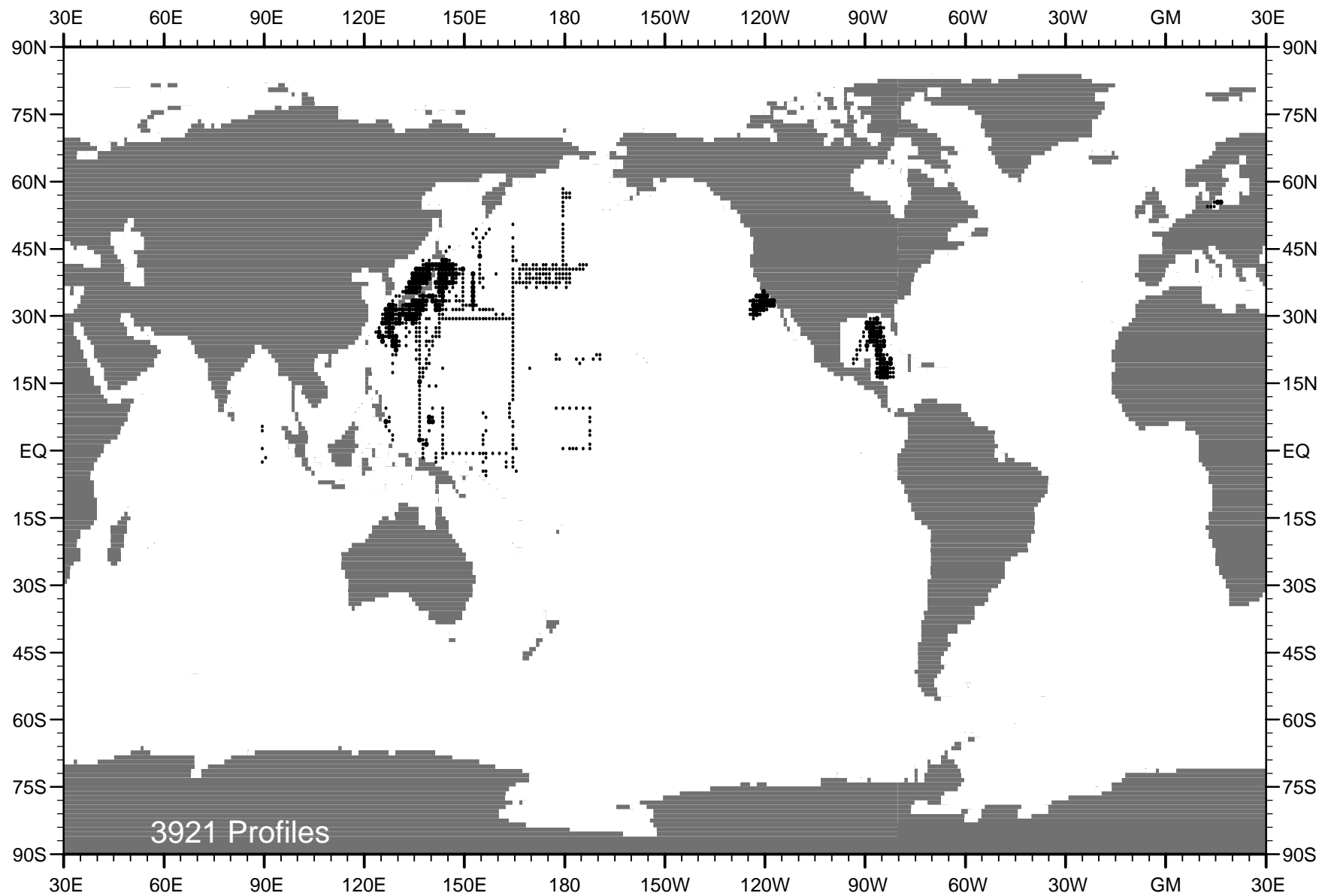


Fig. A101 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 2000 .

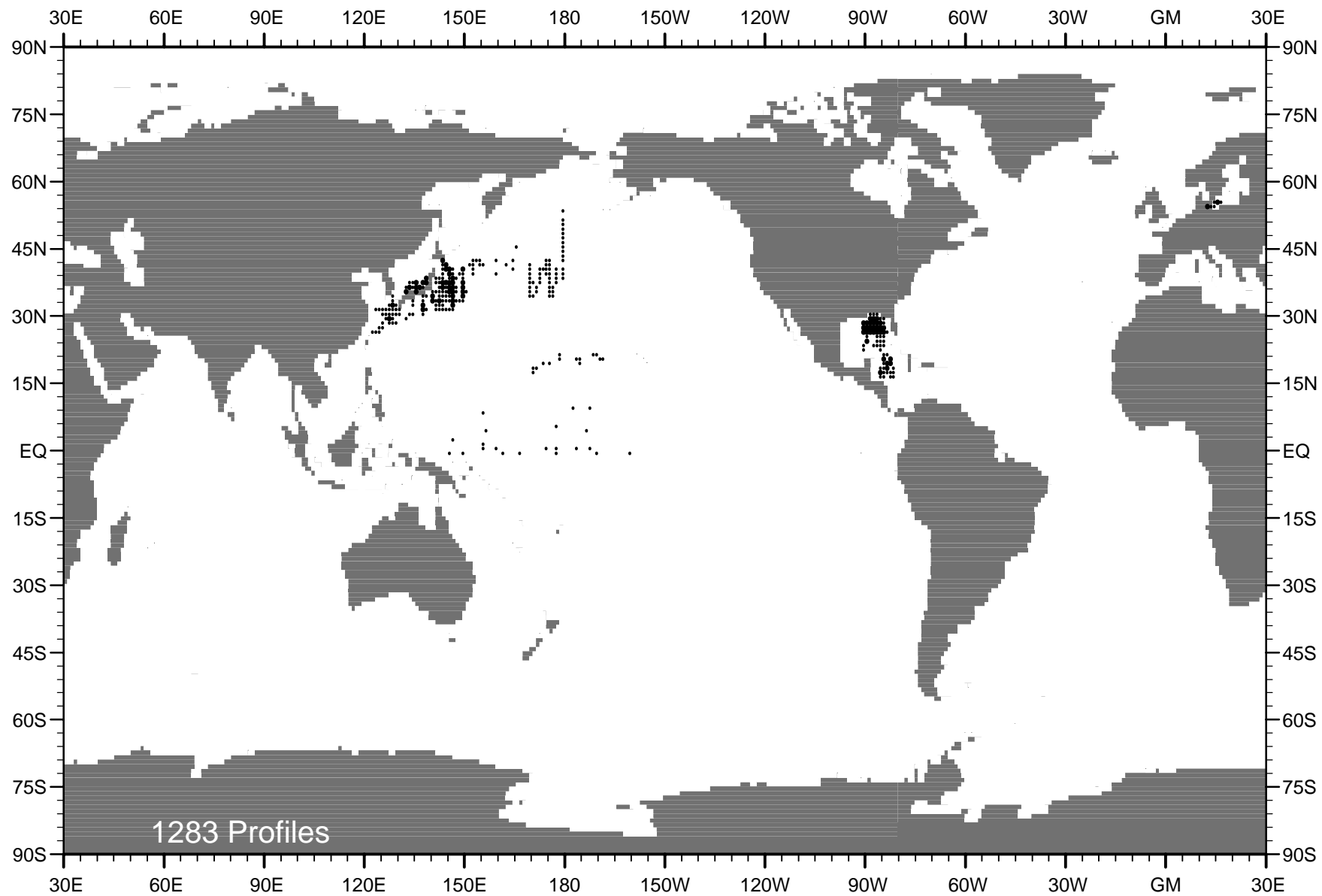


Fig. A102 Distribution of all Ocean Station Data (OSD) temperature profiles in WOD01 for year 2001 .

**5. APPENDIX B: DISTRIBUTIONS FOR INDIVIDUAL YEARS OF ALL OCEAN STATION DATA (OSD) SALINITY PROFILES IN WOD01**

This appendix contains yearly distributions of all OSD salinity profiles contained in WOD01. These maps provide some history of the observational progress of the field of oceanography. They also serve as indicators of whether or not a particular data set from a scientist or institution is part of the NODC/WDC-A archive. The exchange of information provided by the publication of such maps has provided us with valuable information about deficiencies in the database. The locations of all WOD01 OSD salinity profiles are plotted including stations that may be erroneously located over land. However, WOD01 contains some stations from various lakes so care should be exercised in the use of these stations and the determination as to whether they represent errors in locations.

For all figures in Appendix B, a small dot indicates a one-degree square containing from one to four stations and a large dot indicates five or more stations.



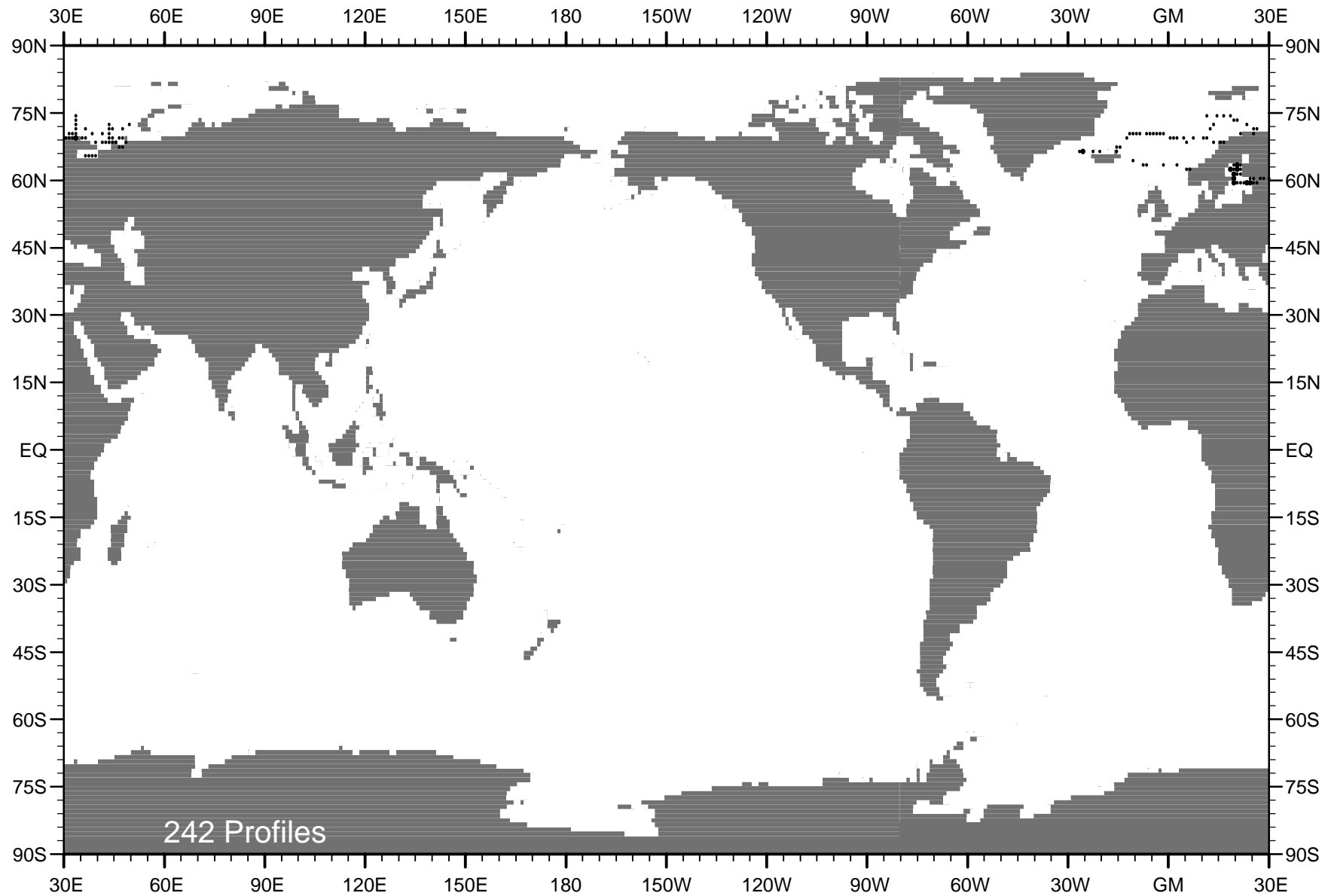


Fig. B1 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1900 .

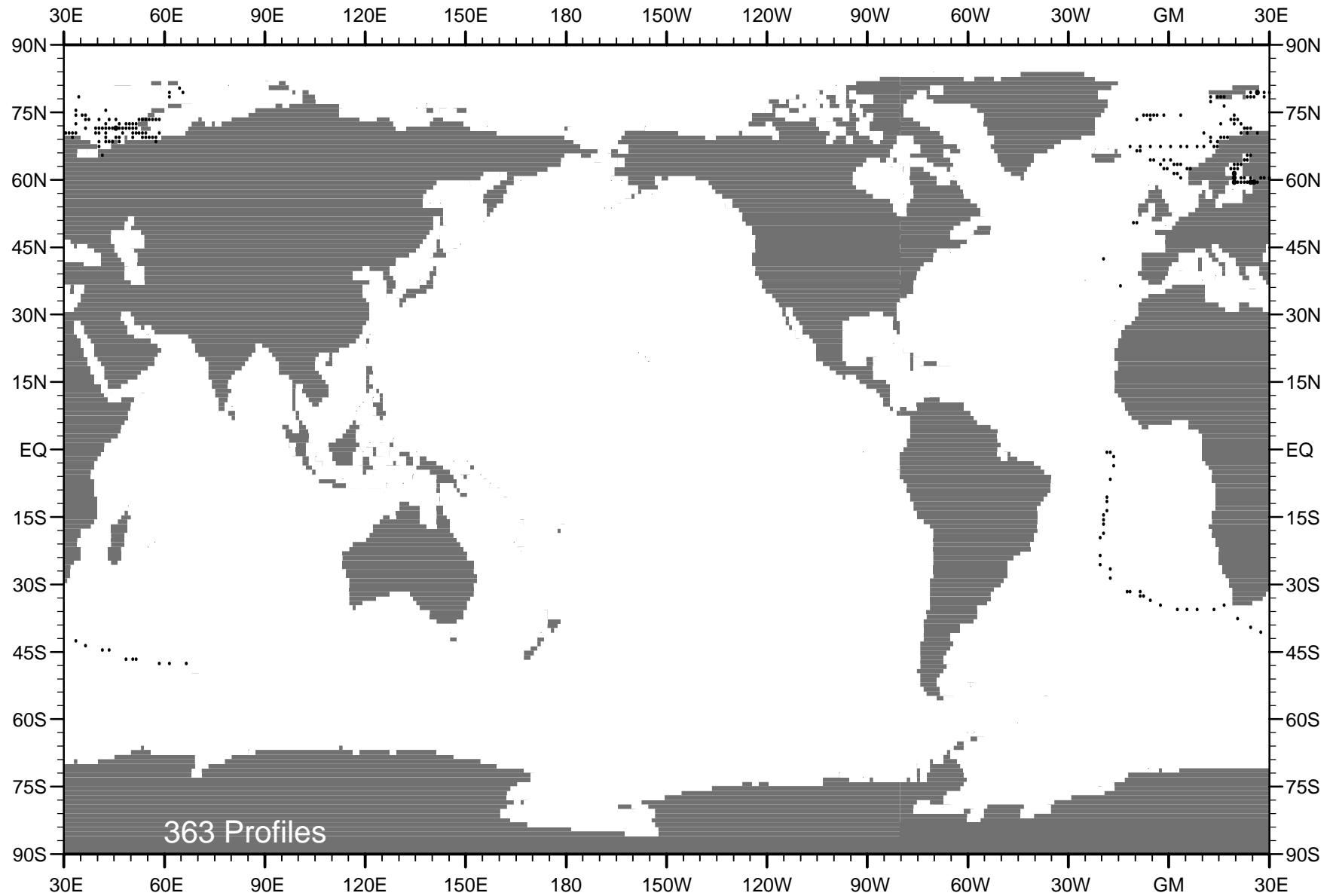


Fig. B2 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1901 .

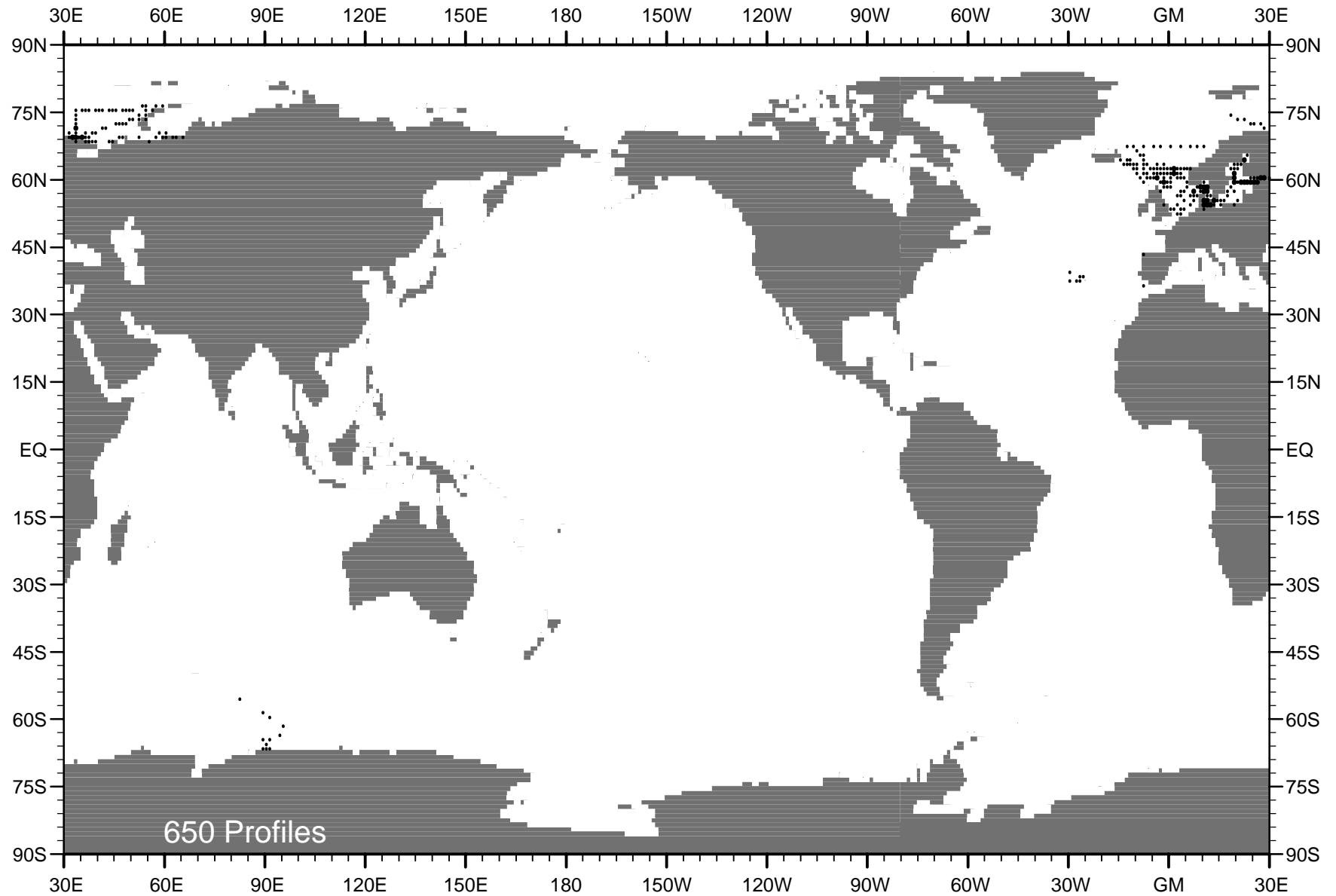


Fig. B3 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1902 .

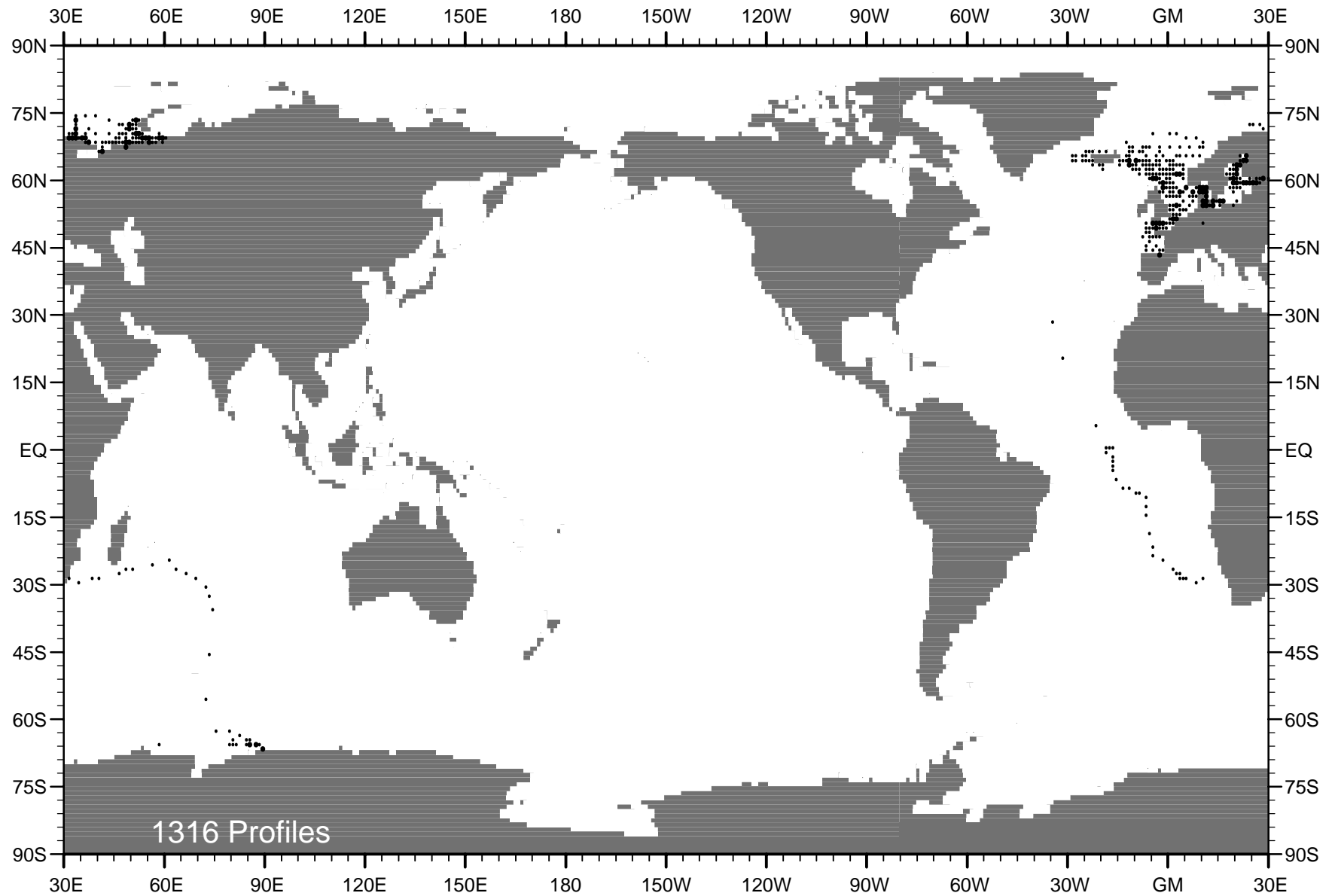


Fig. B4 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1903 .

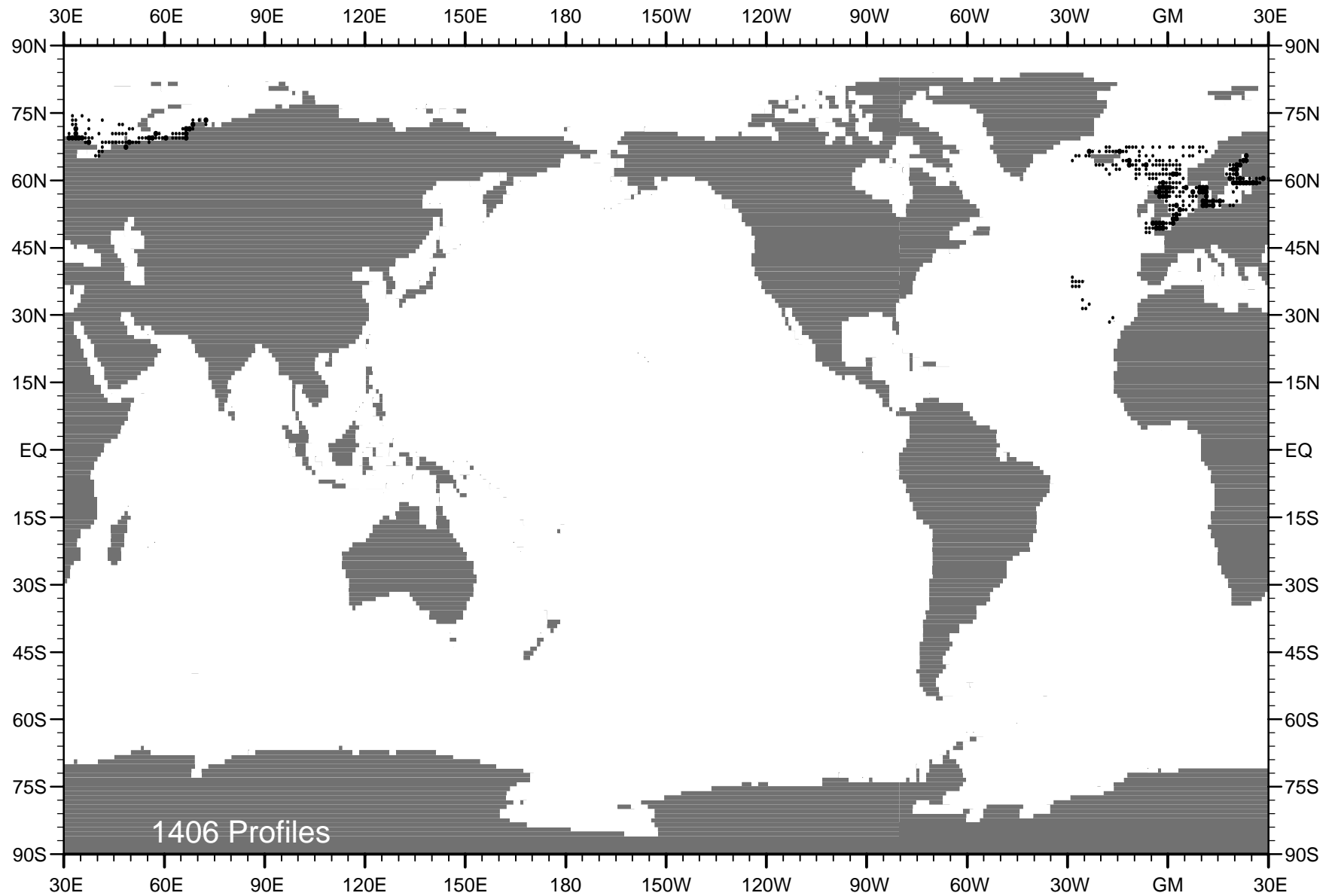


Fig. B5 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1904 .

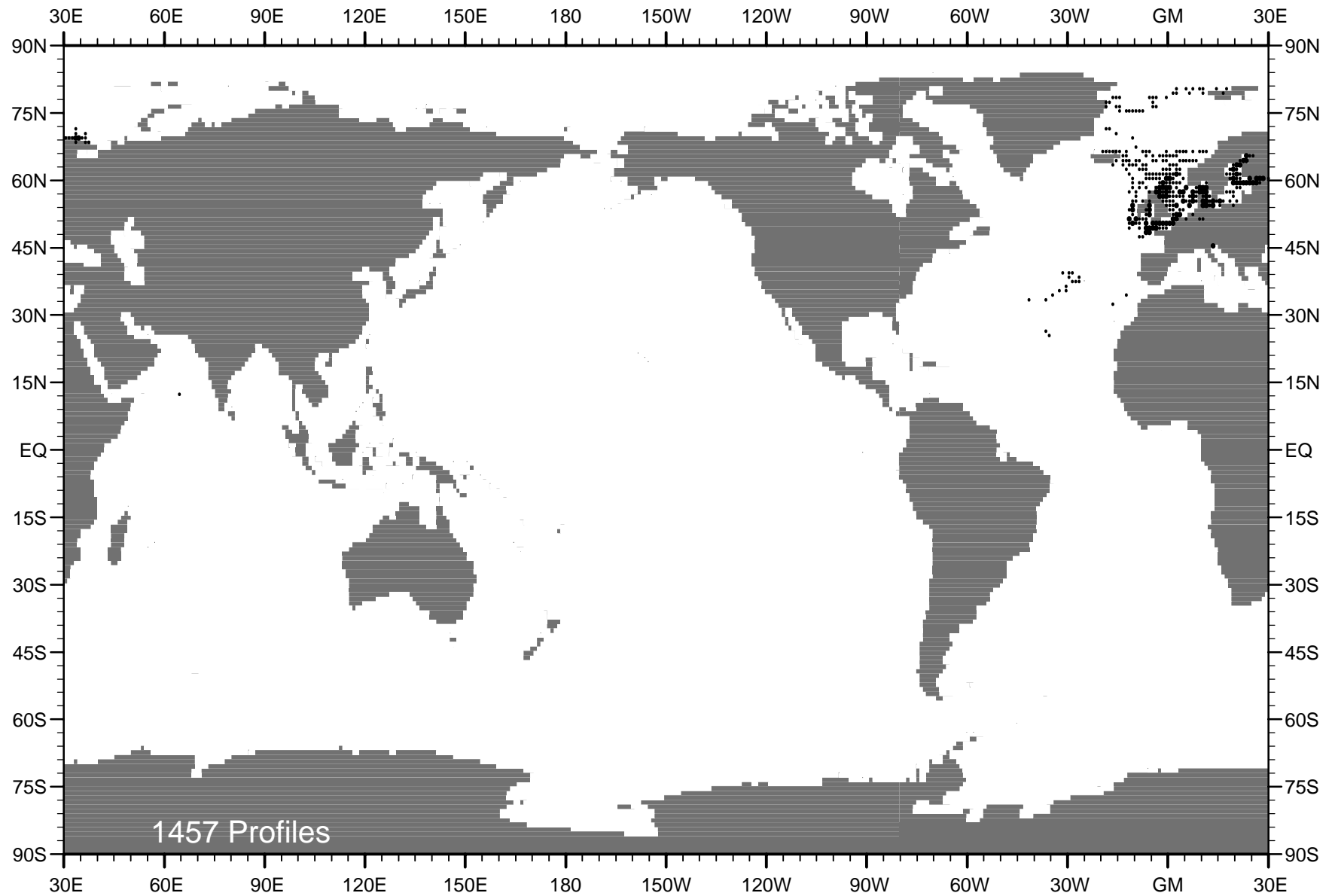


Fig. B6 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1905 .

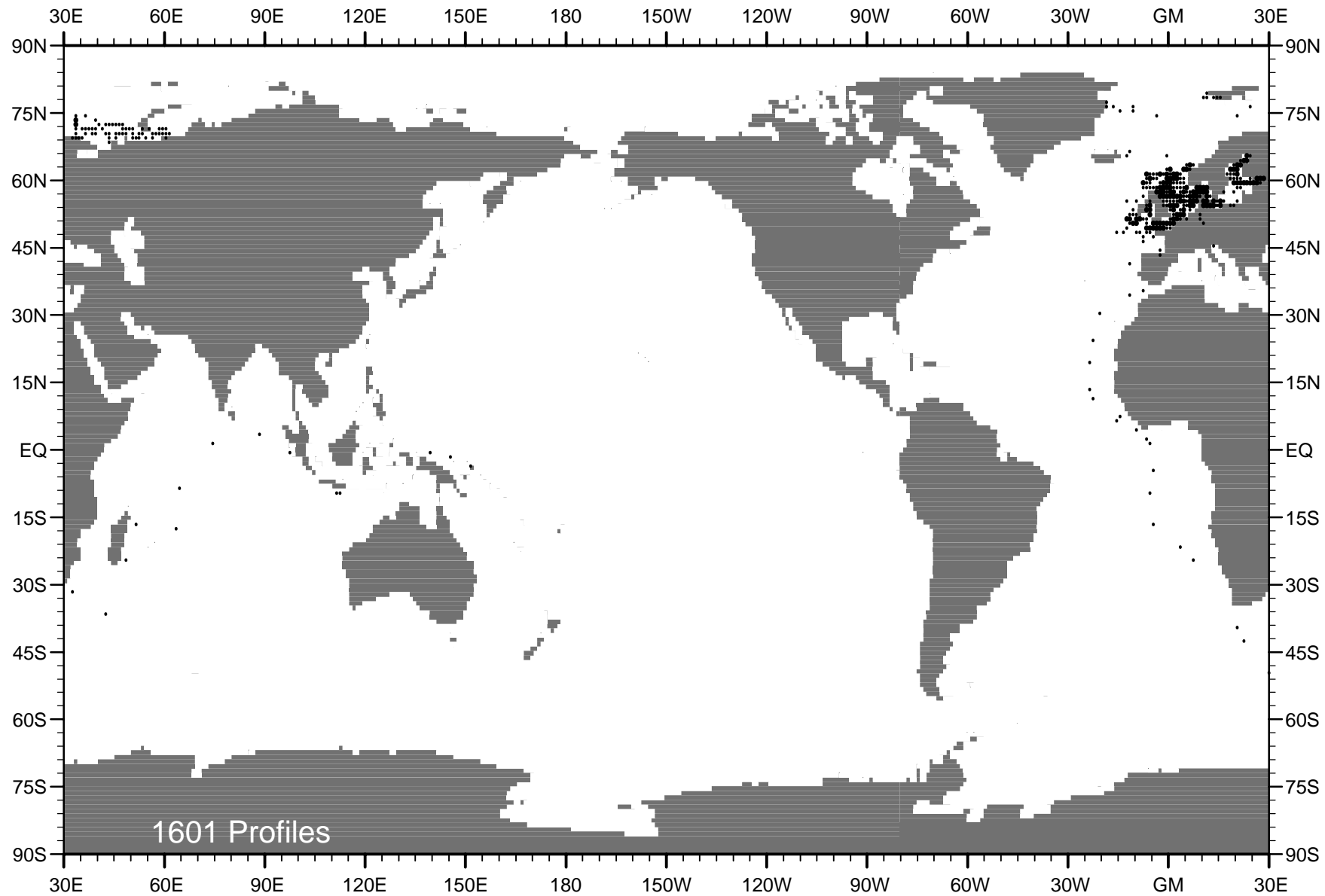


Fig. B7 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1906 .

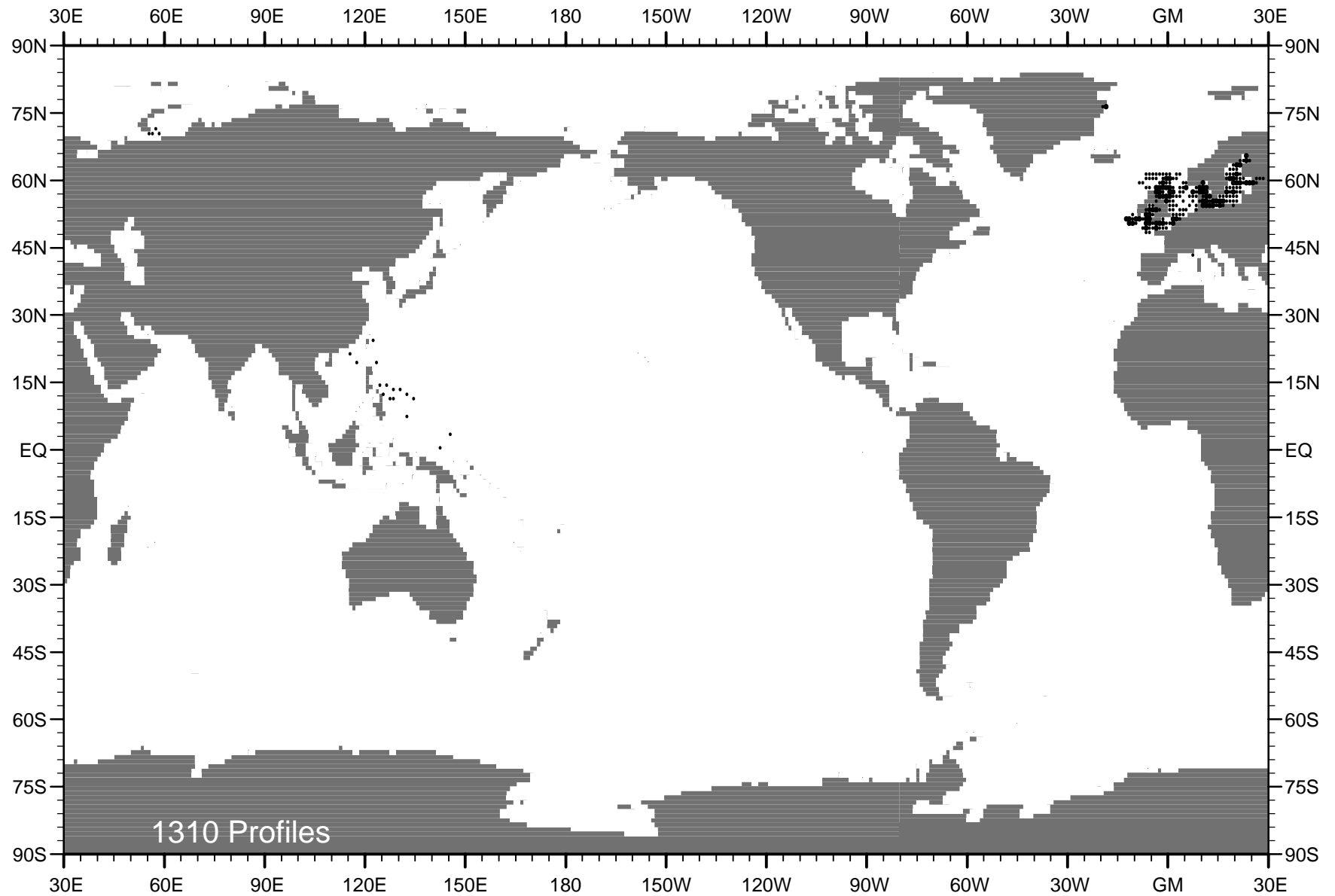


Fig. B8 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1907 .



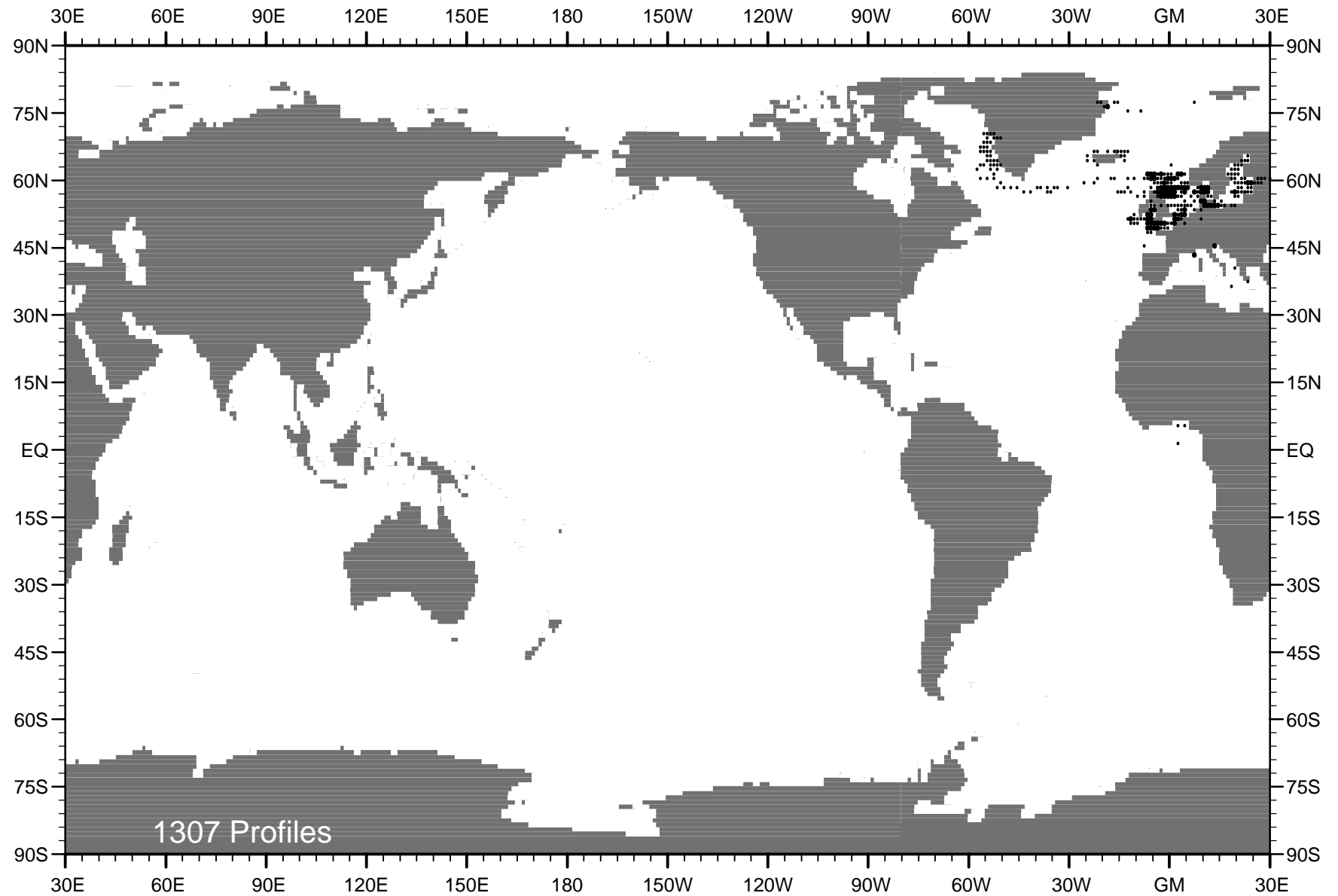


Fig. B9 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1908 .

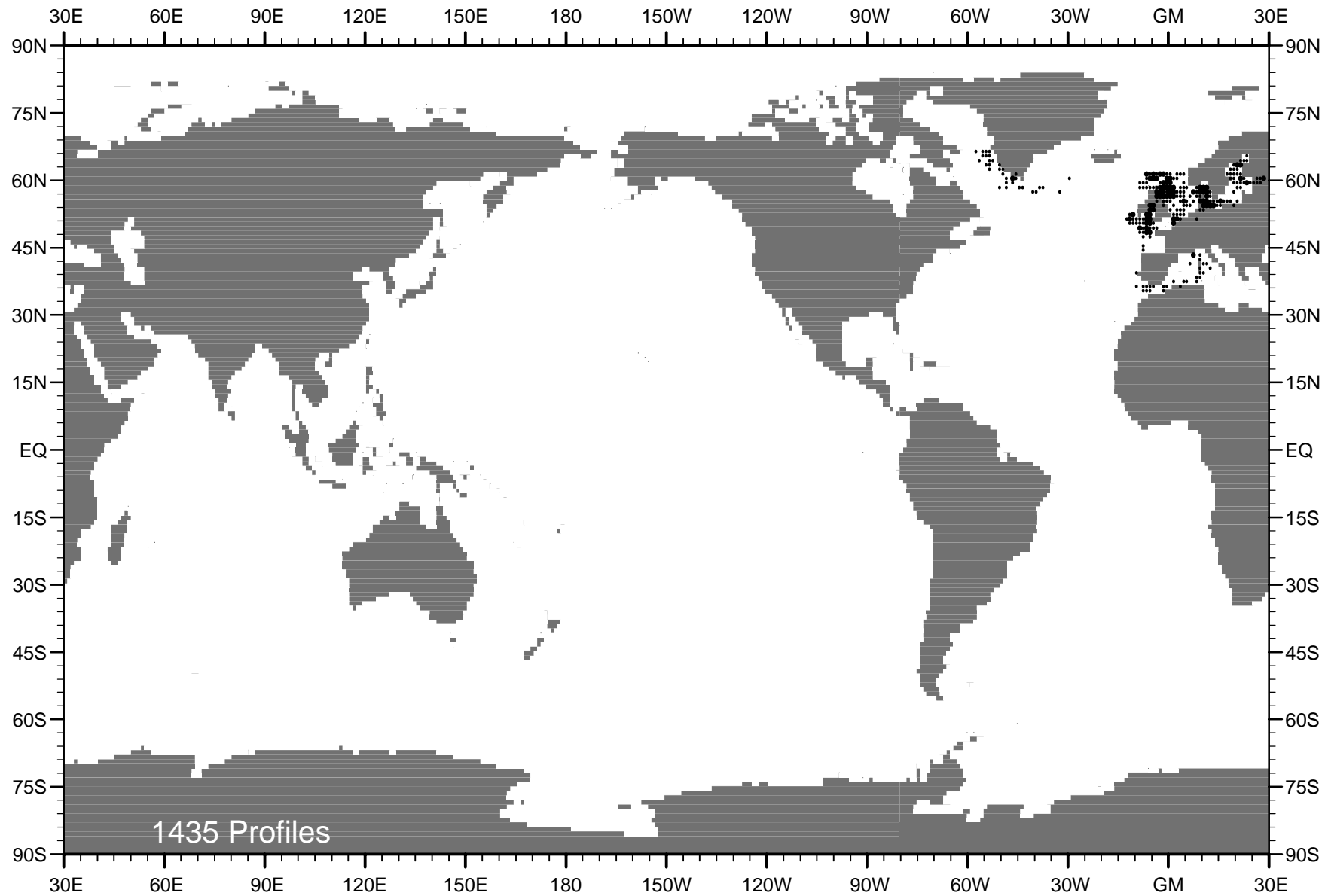


Fig. B10 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1909 .

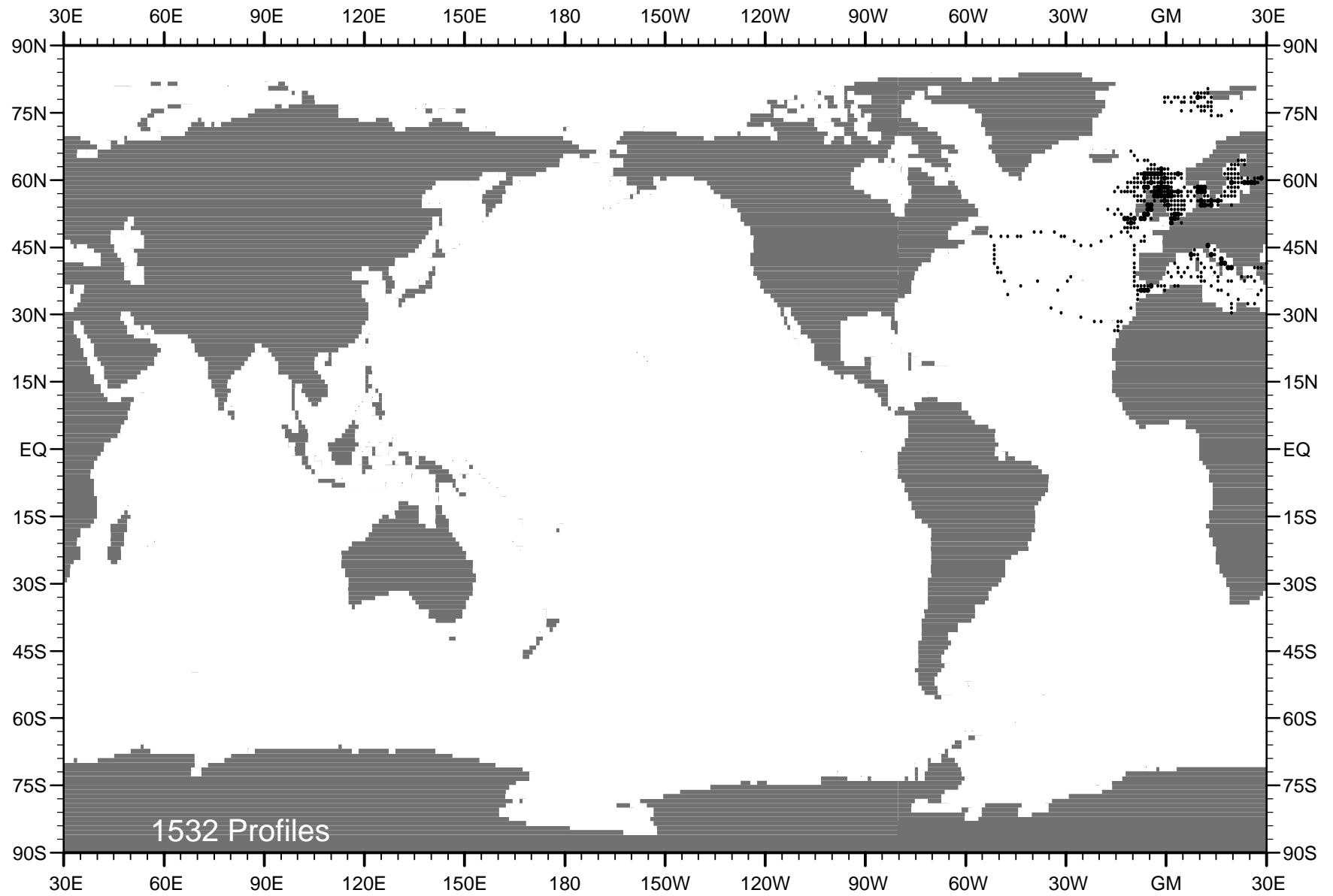


Fig. B11 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1910 .

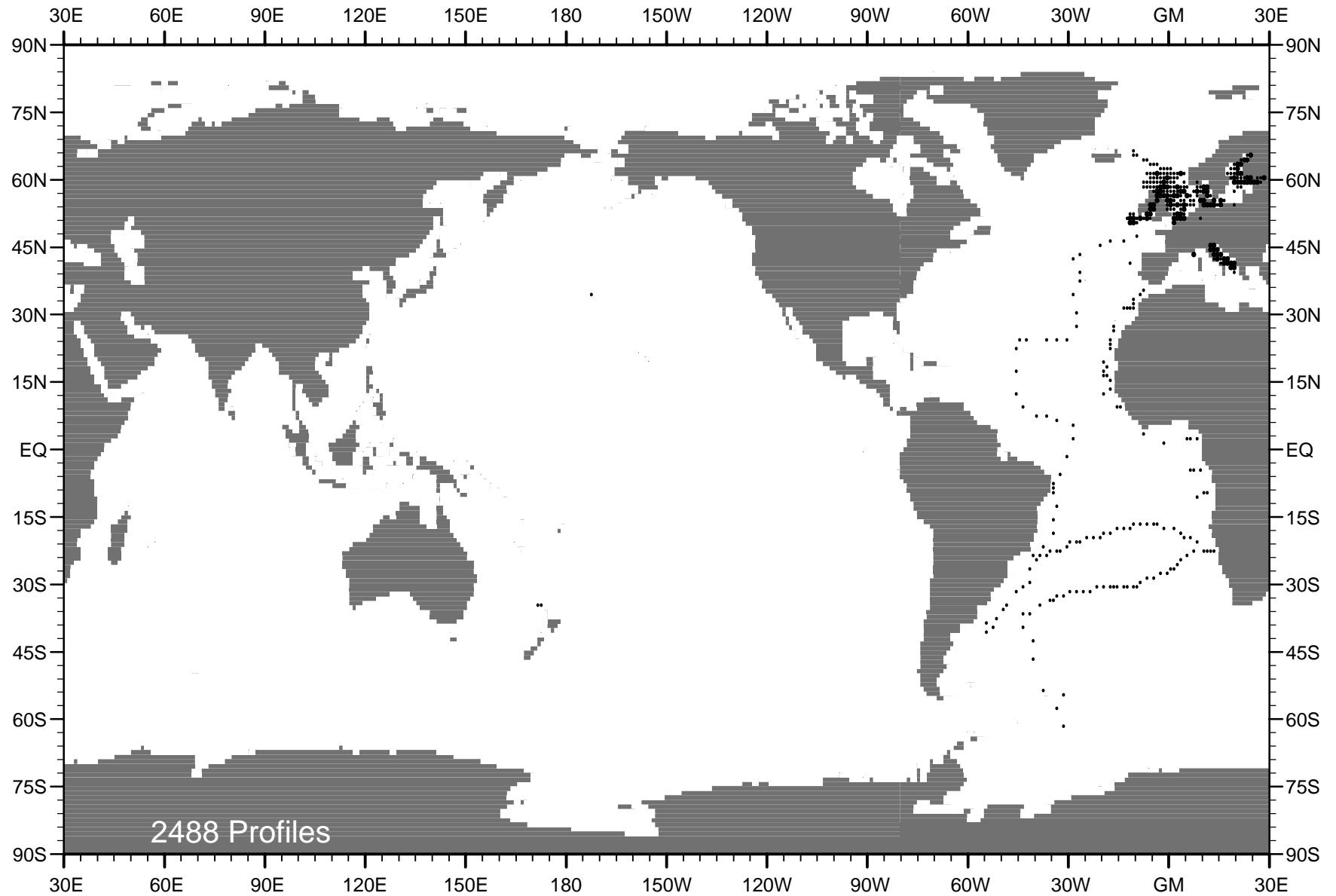


Fig. B12 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1911 .

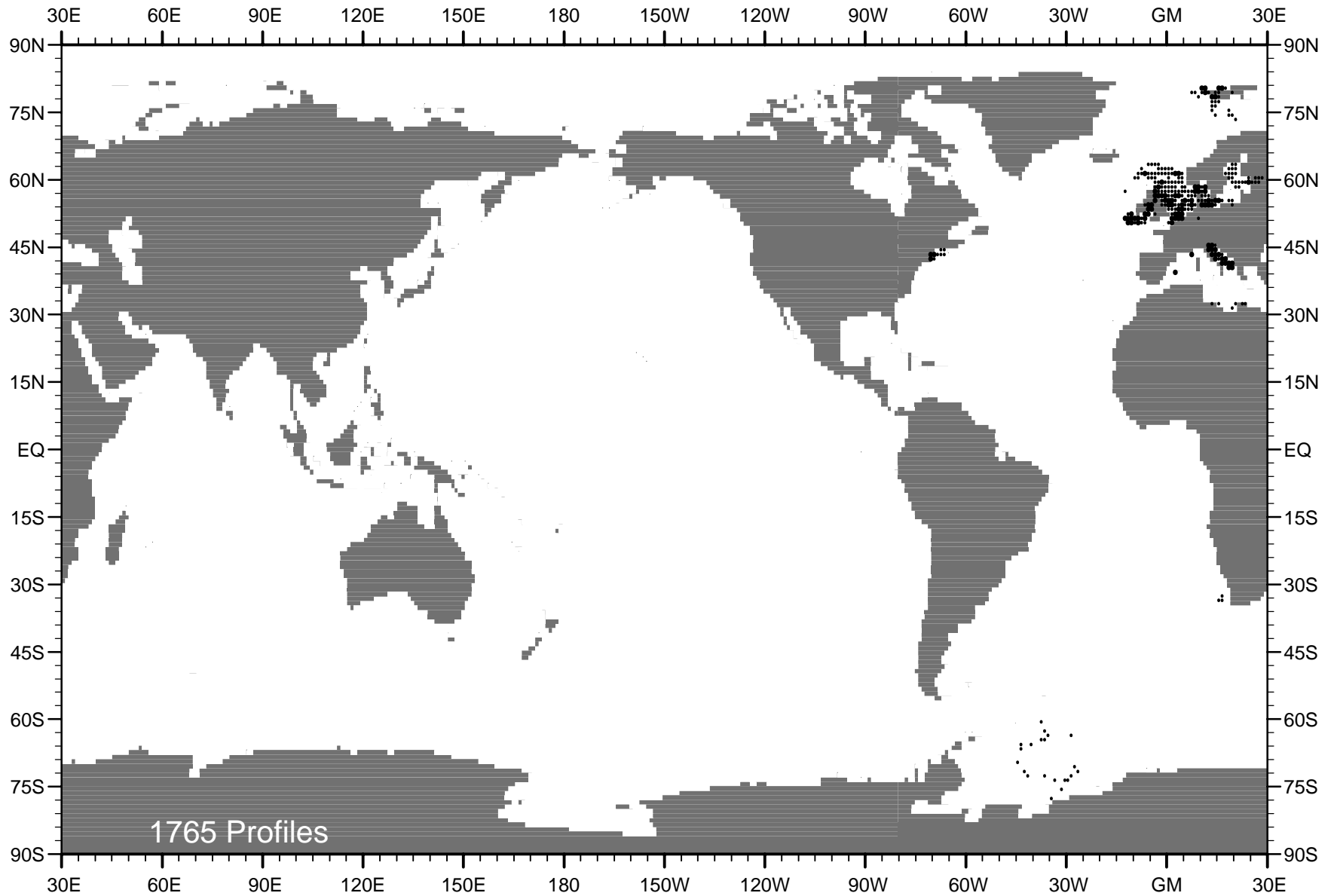


Fig. B13 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1912 .

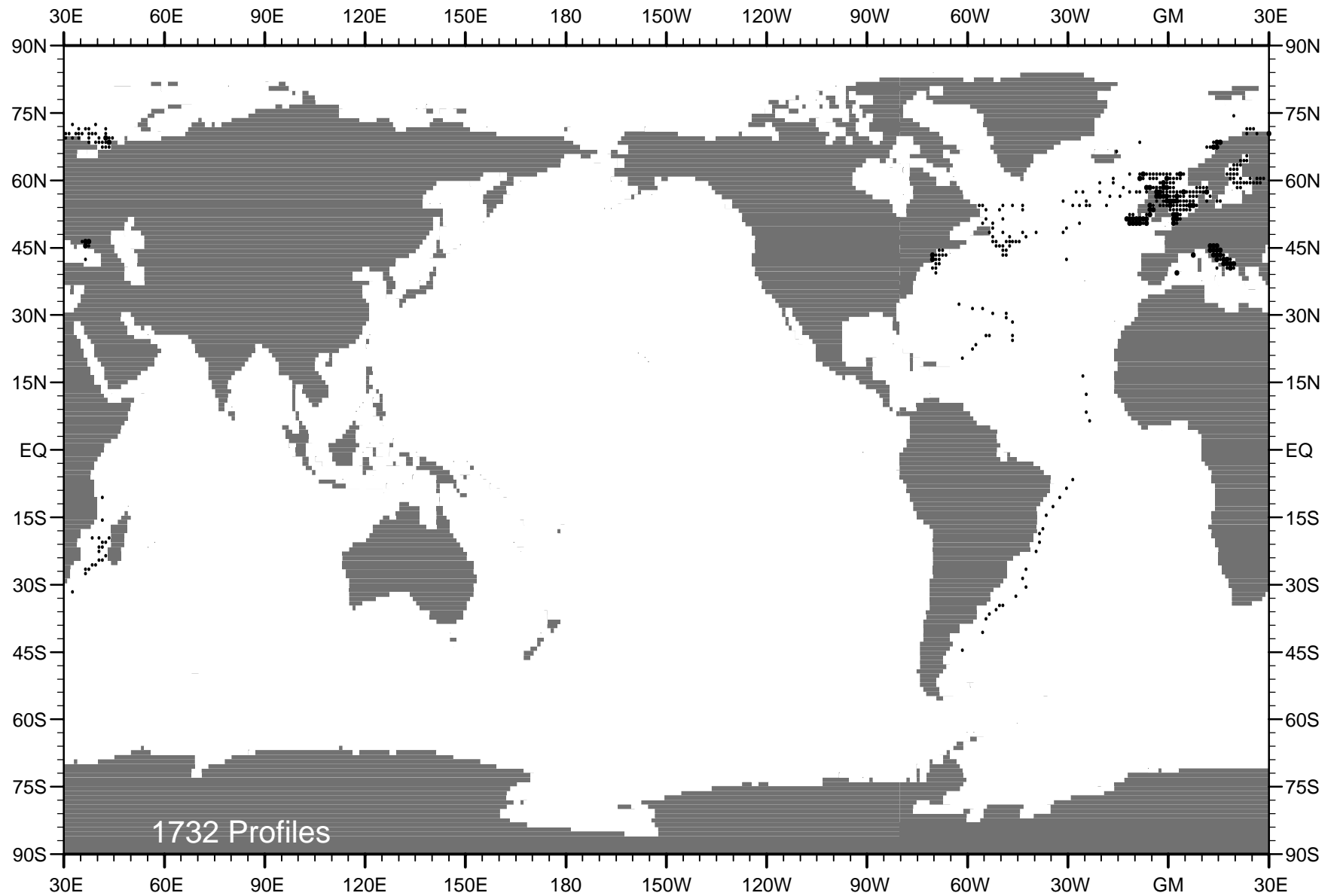


Fig. B14 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1913 .

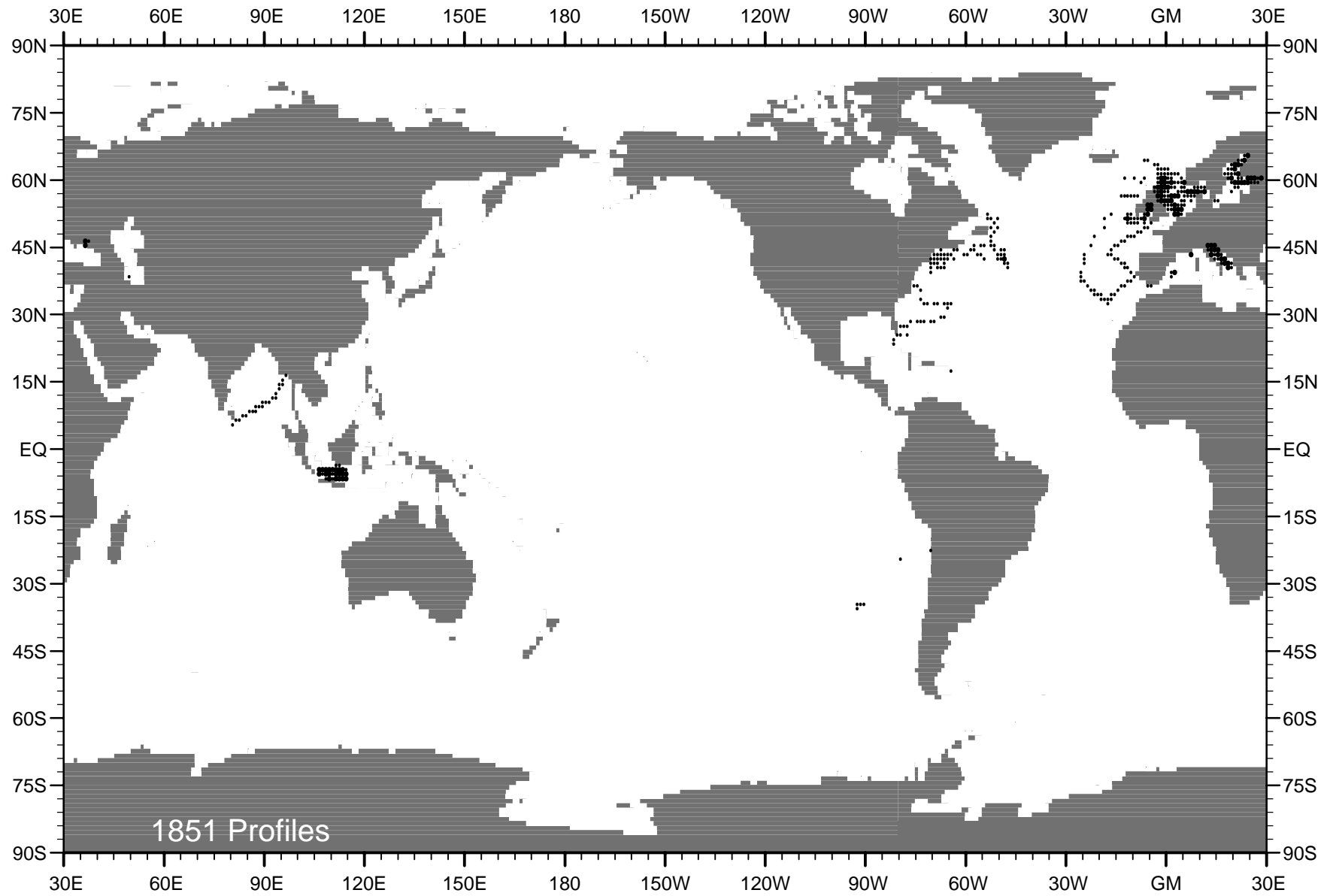


Fig. B15 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1914 .

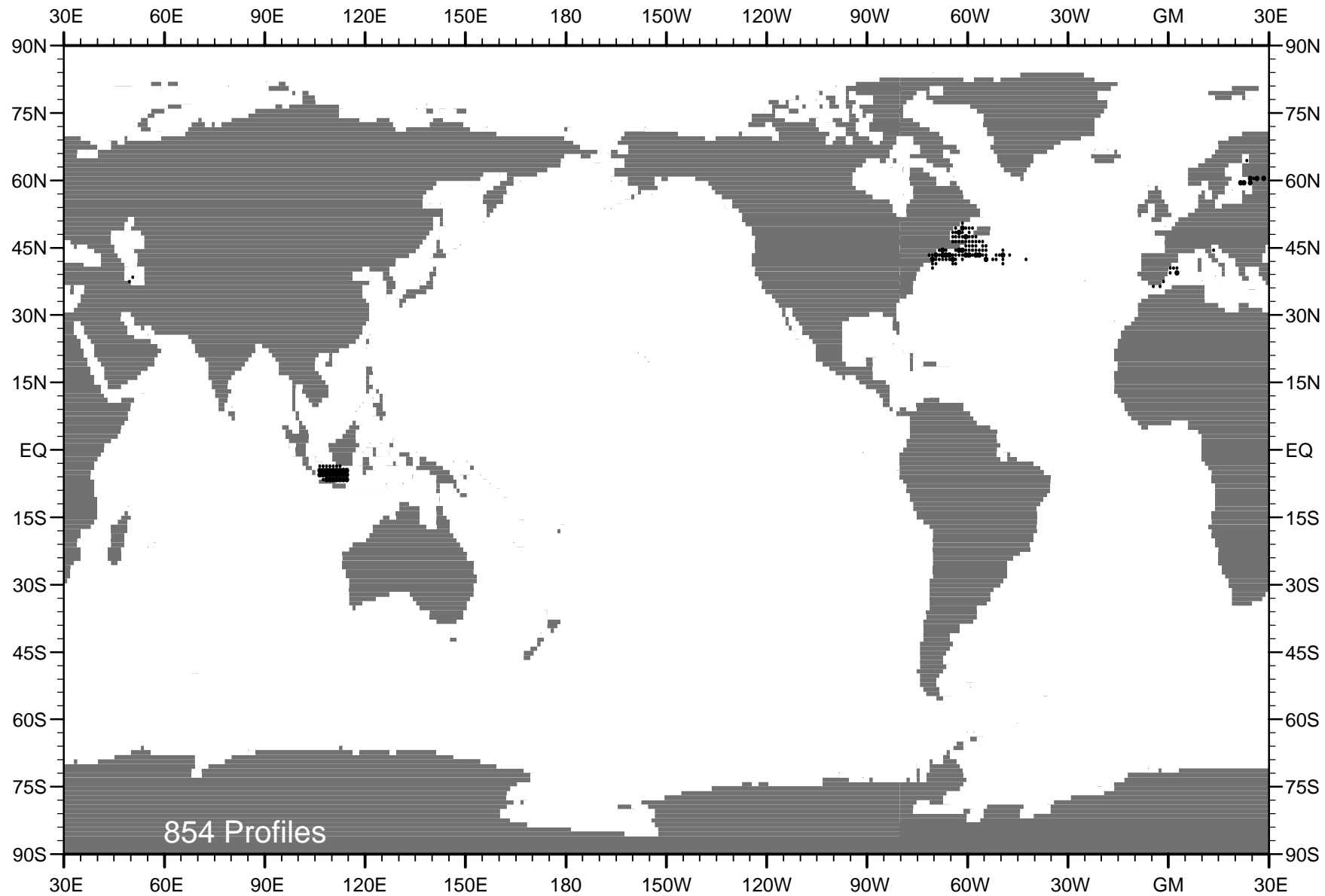


Fig. B16 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1915 .



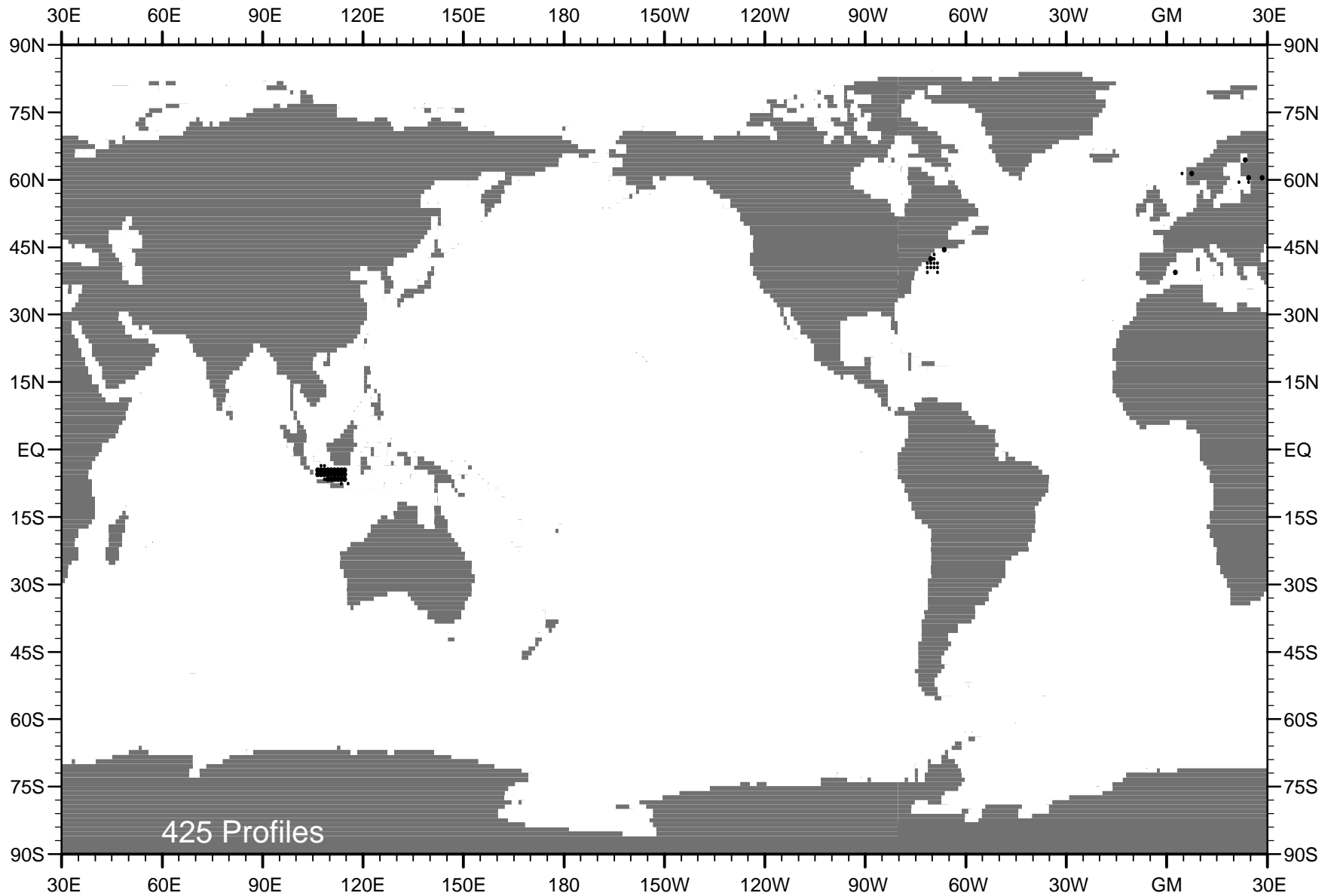


Fig. B17 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1916 .

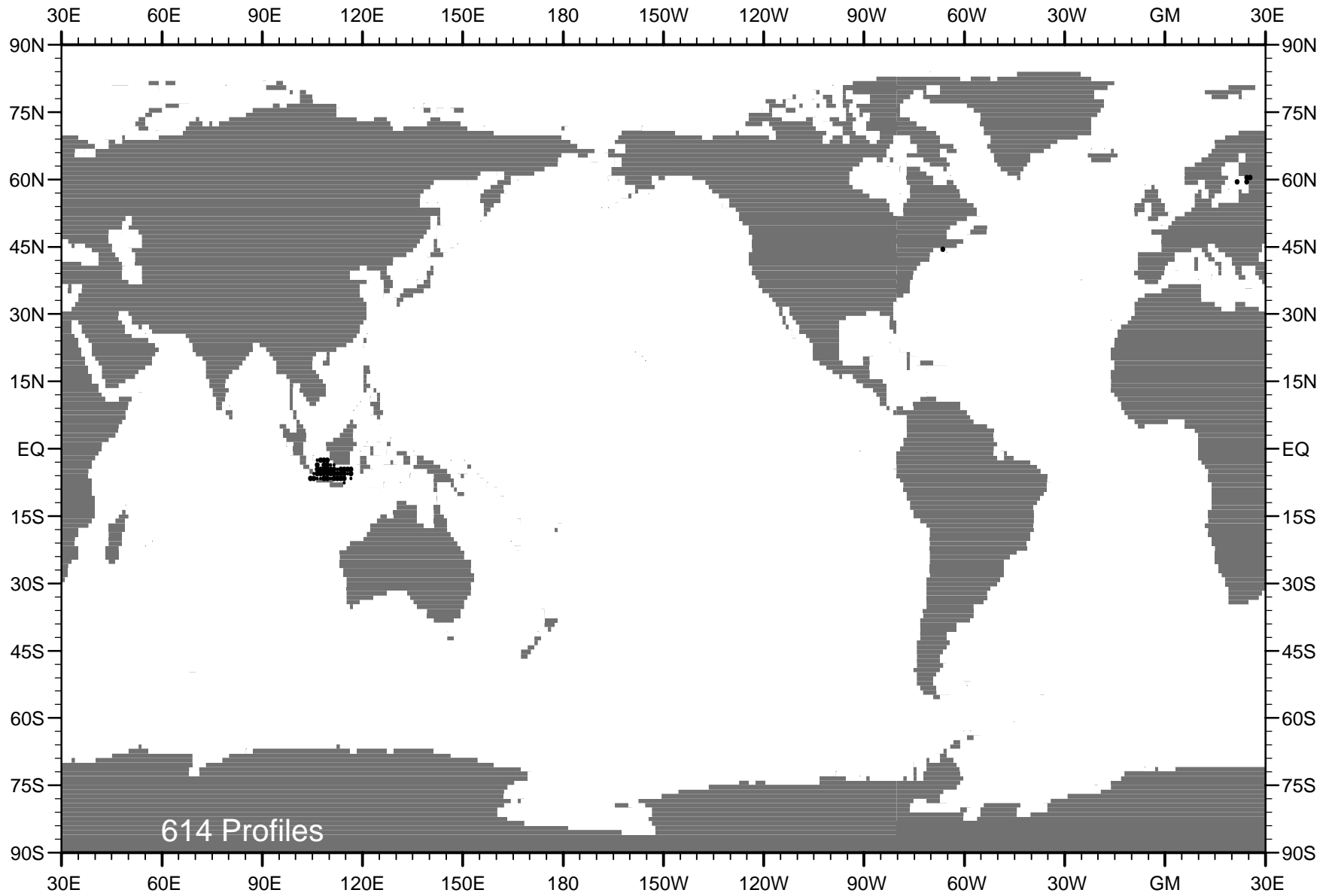


Fig. B18 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1917 .

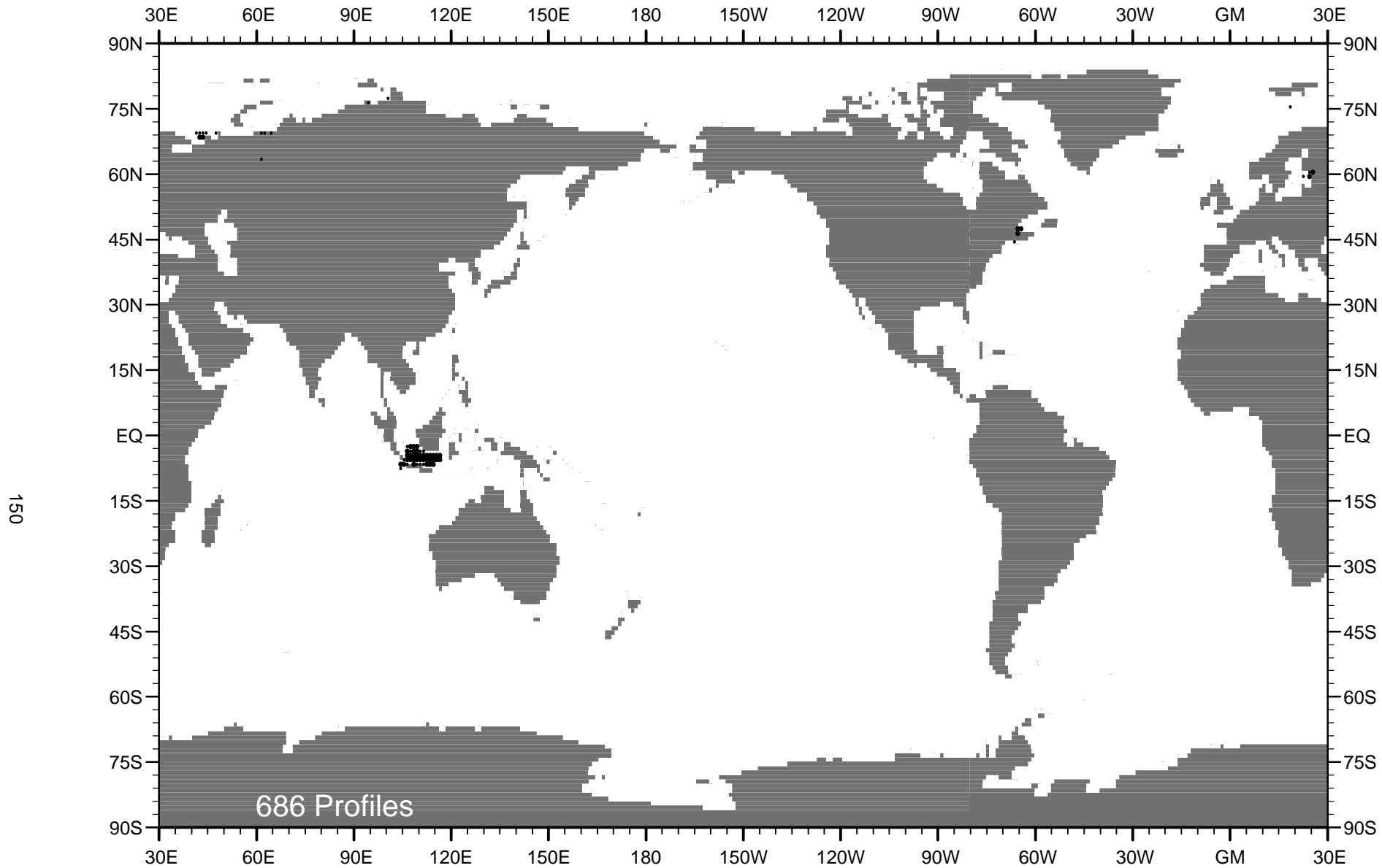


Fig. B19 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1918 .

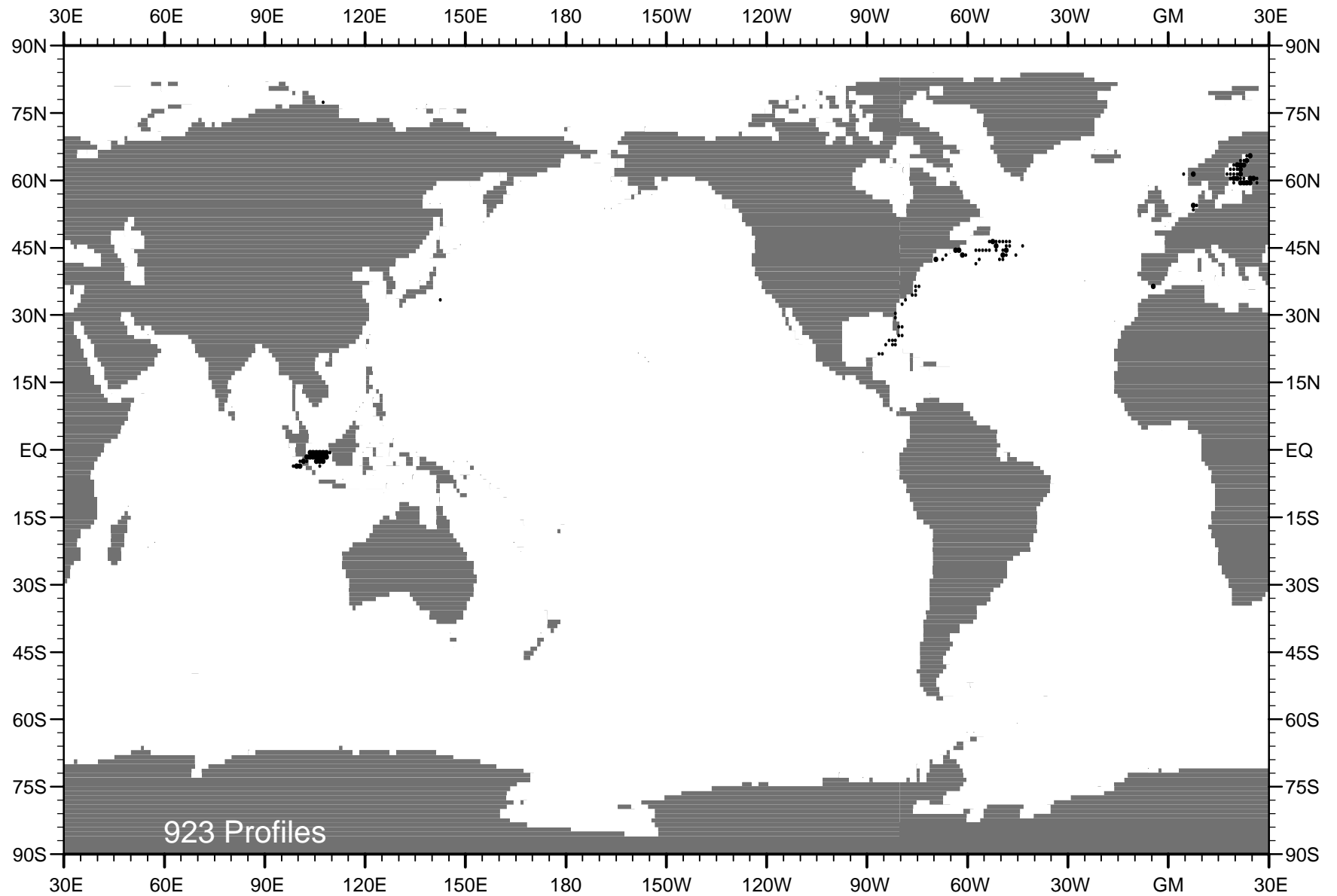


Fig. B20 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1919 .

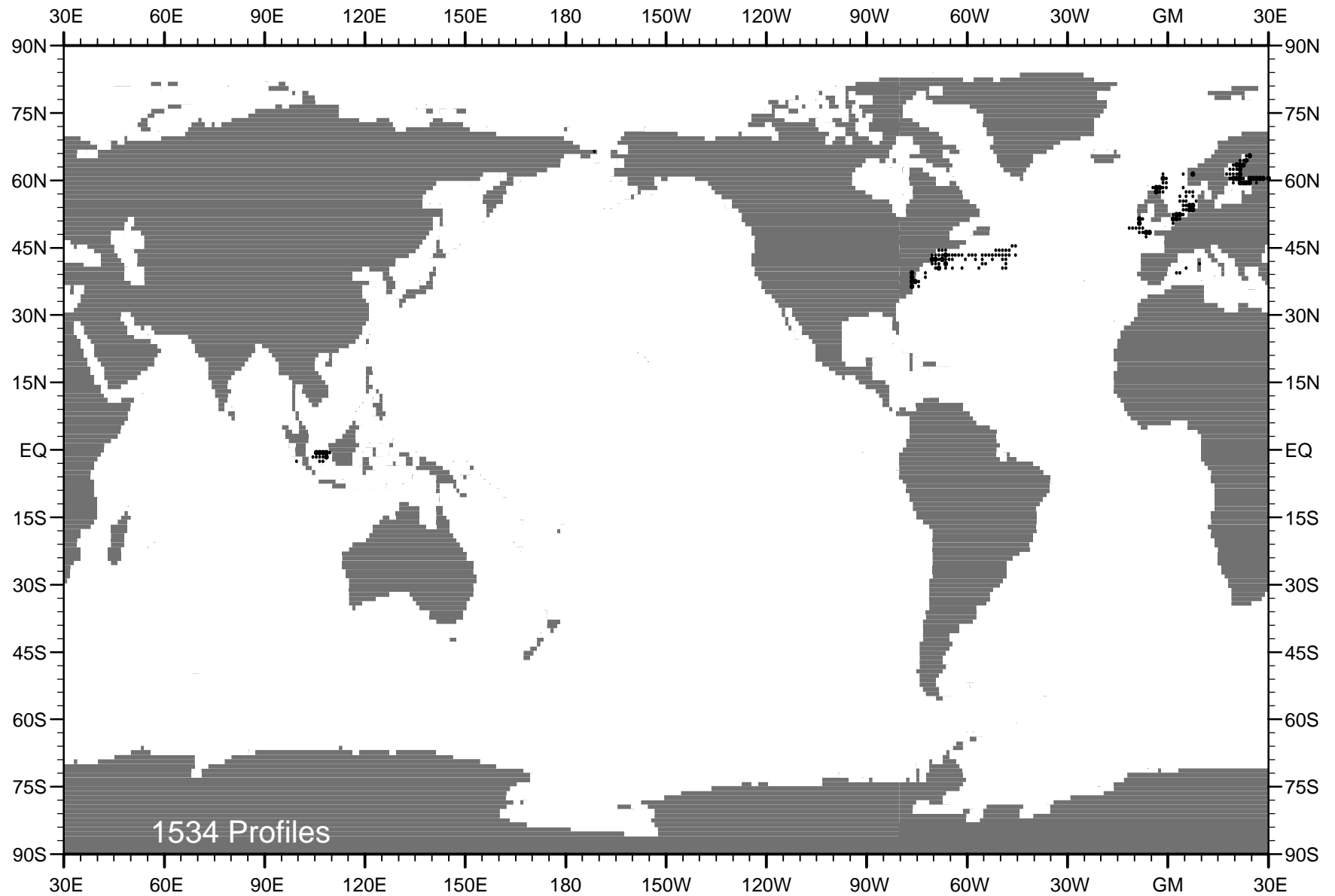


Fig. B21 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1920 .

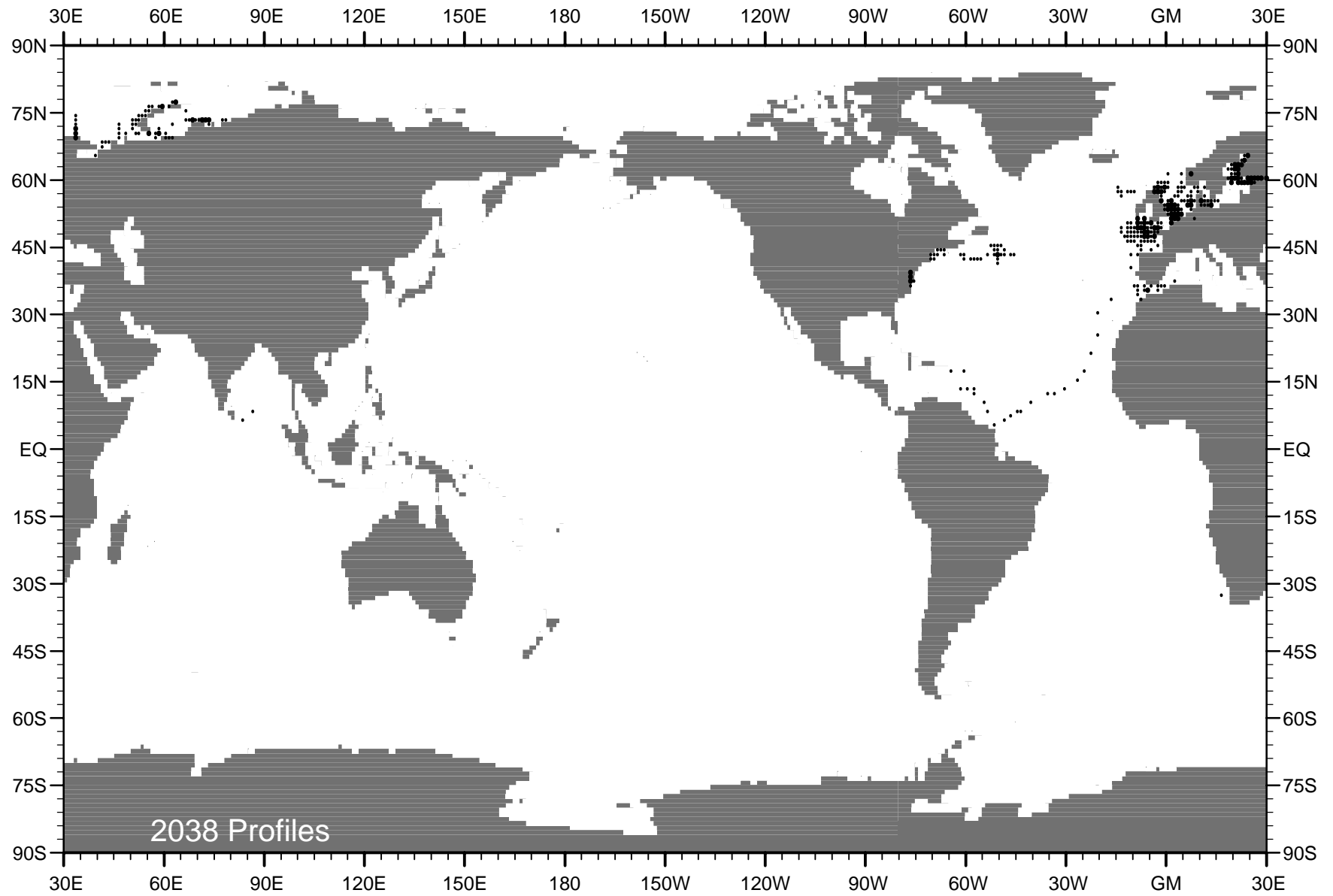


Fig. B22 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1921 .

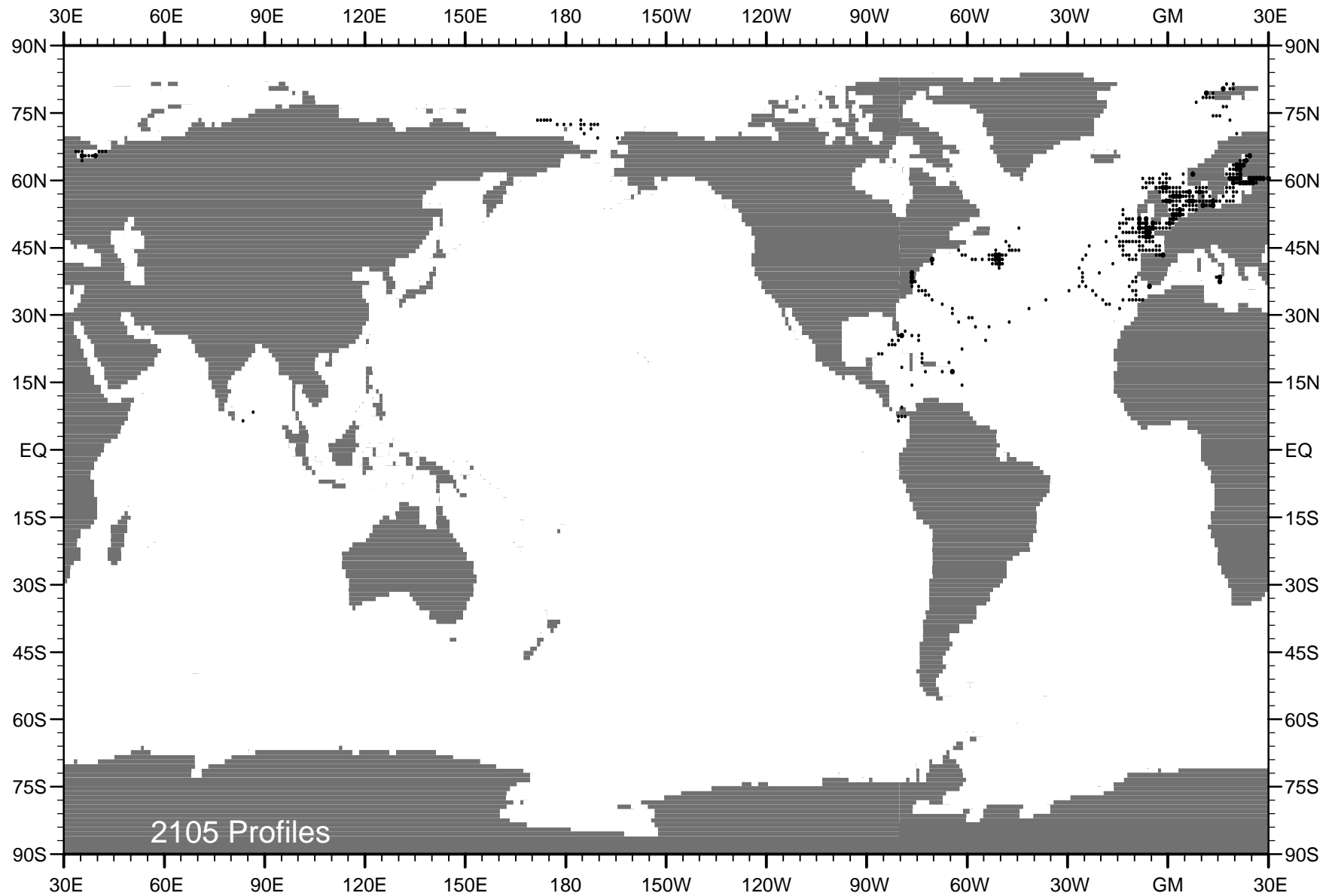


Fig. B23 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1922 .

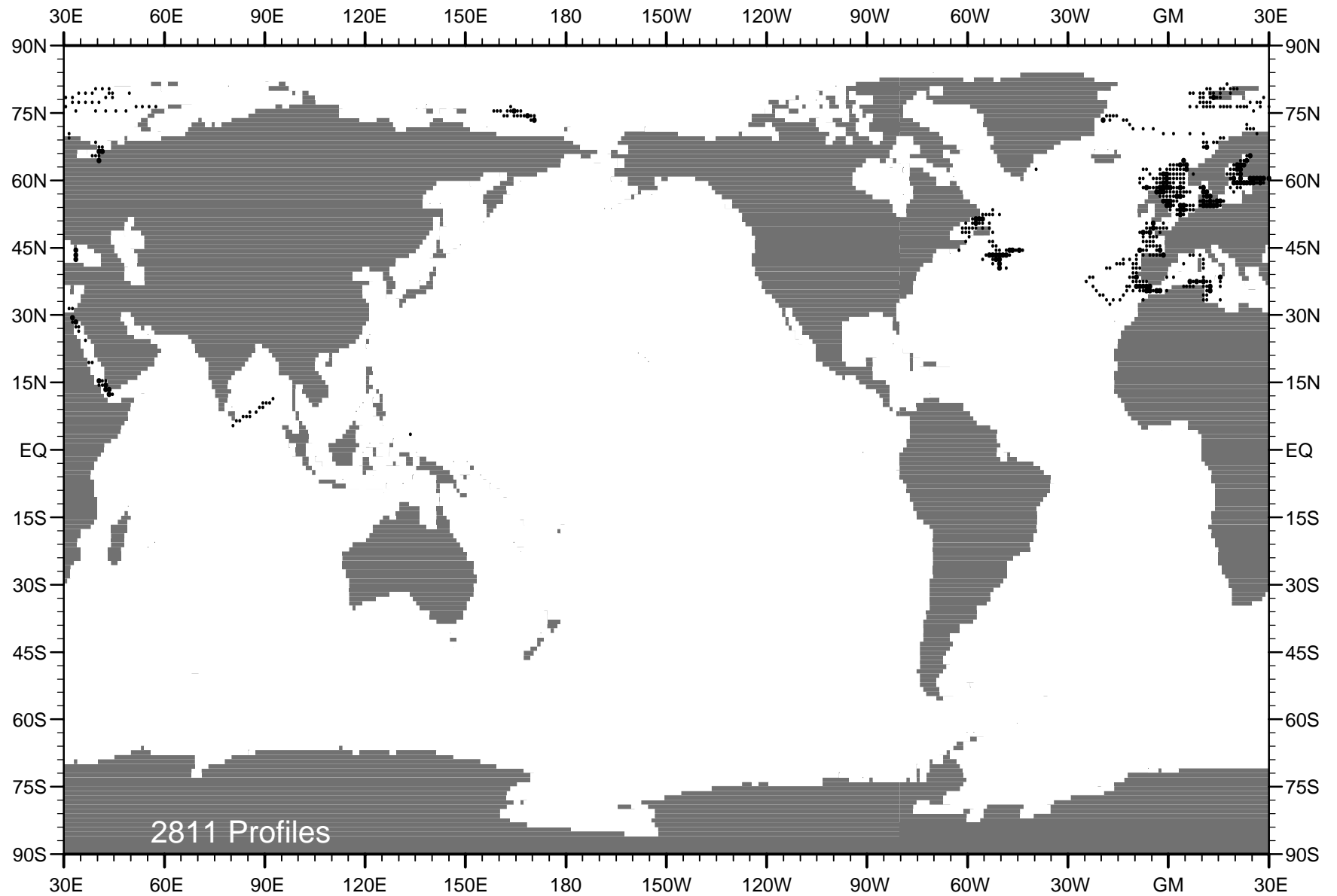


Fig. B24 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1923 .



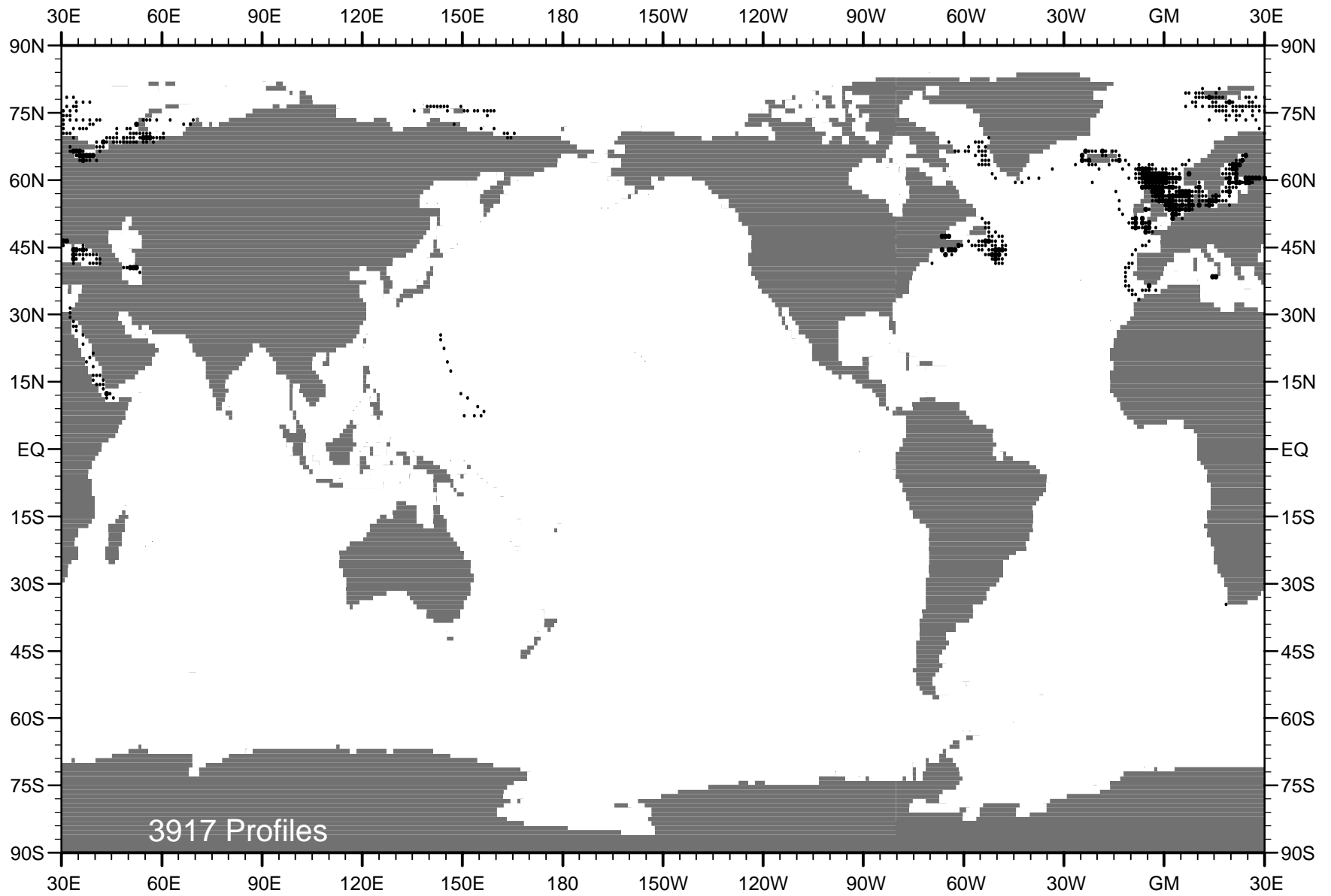


Fig. B25 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1924 .

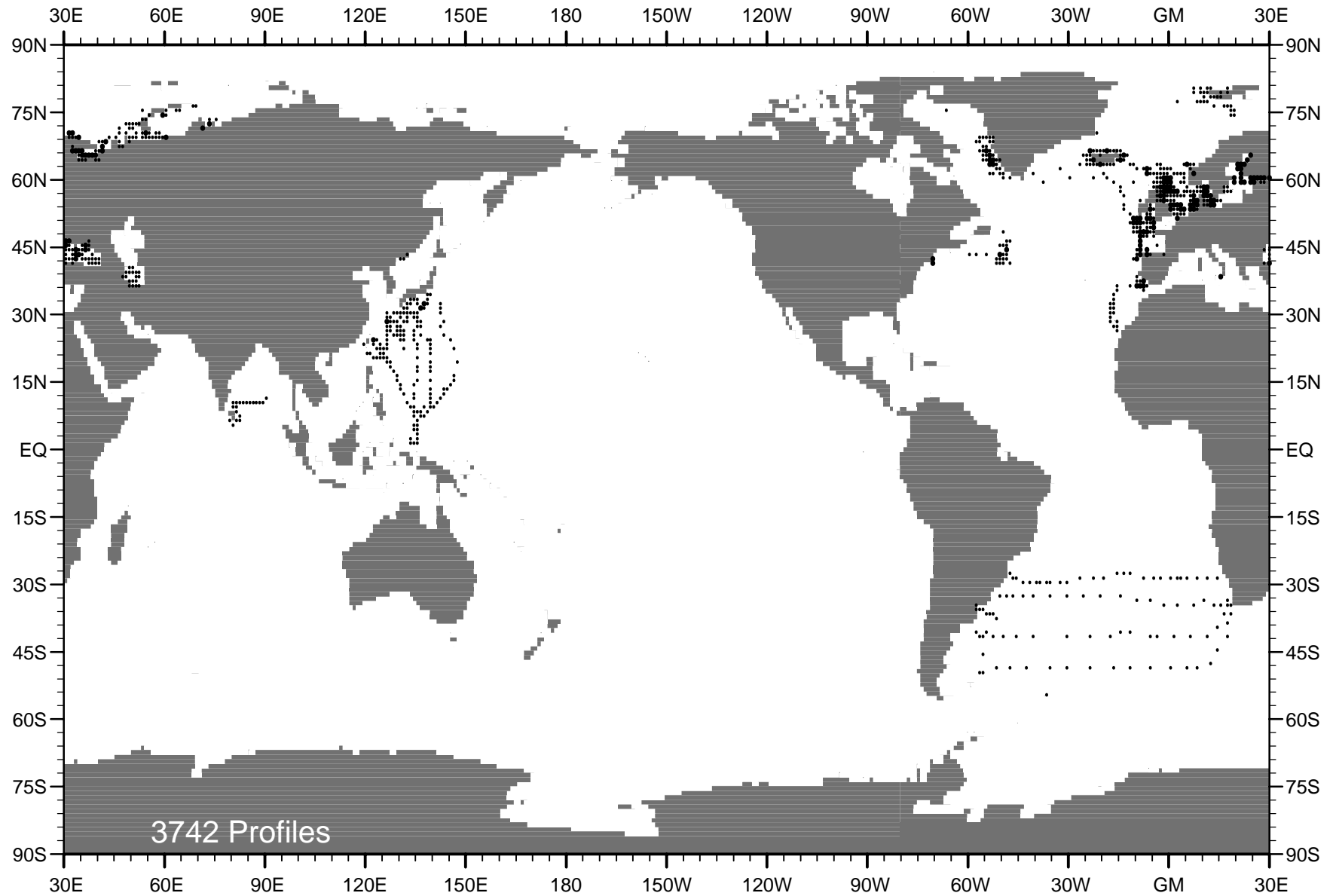


Fig. B26 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1925 .

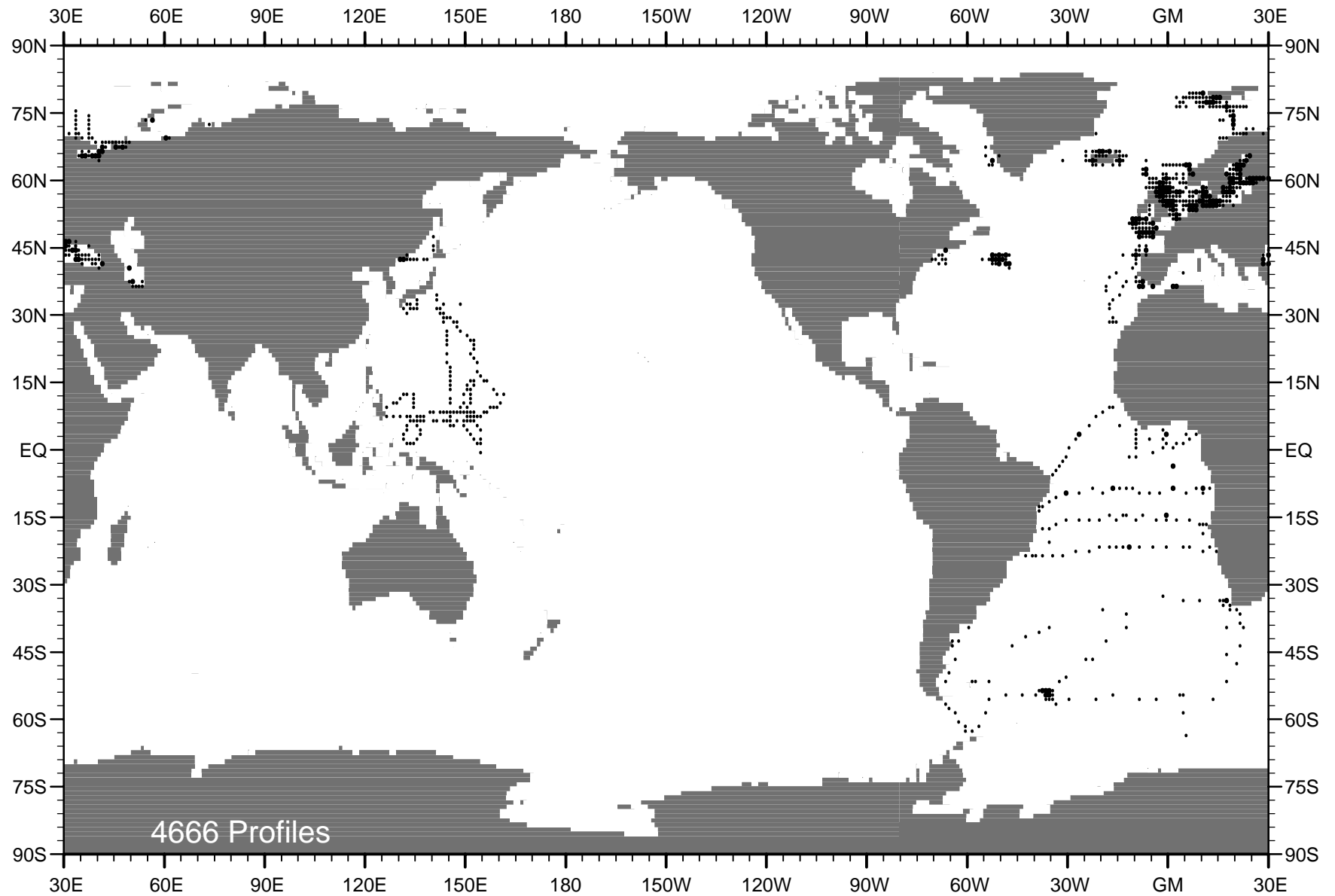


Fig. B27 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1926 .

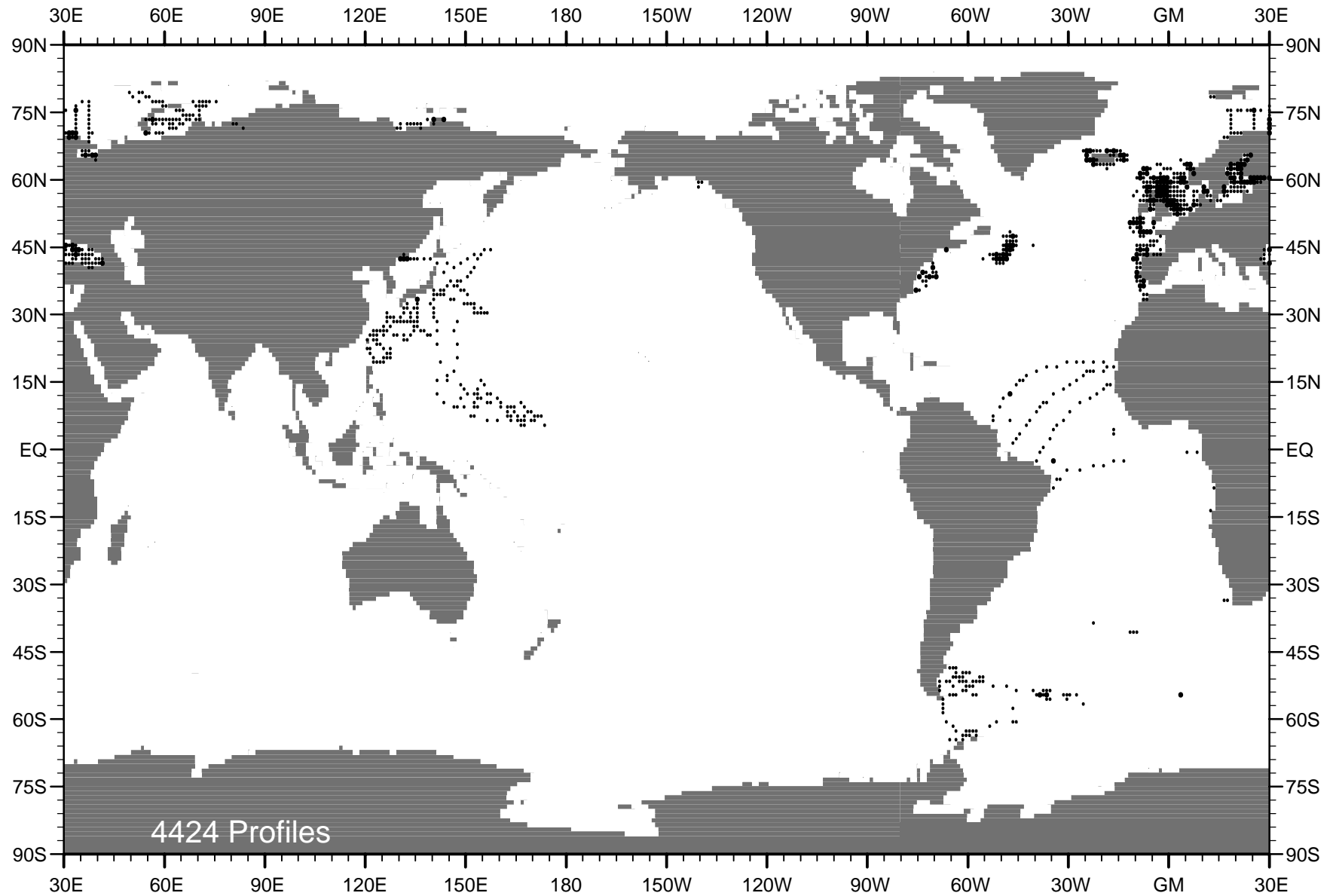


Fig. B28 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1927 .

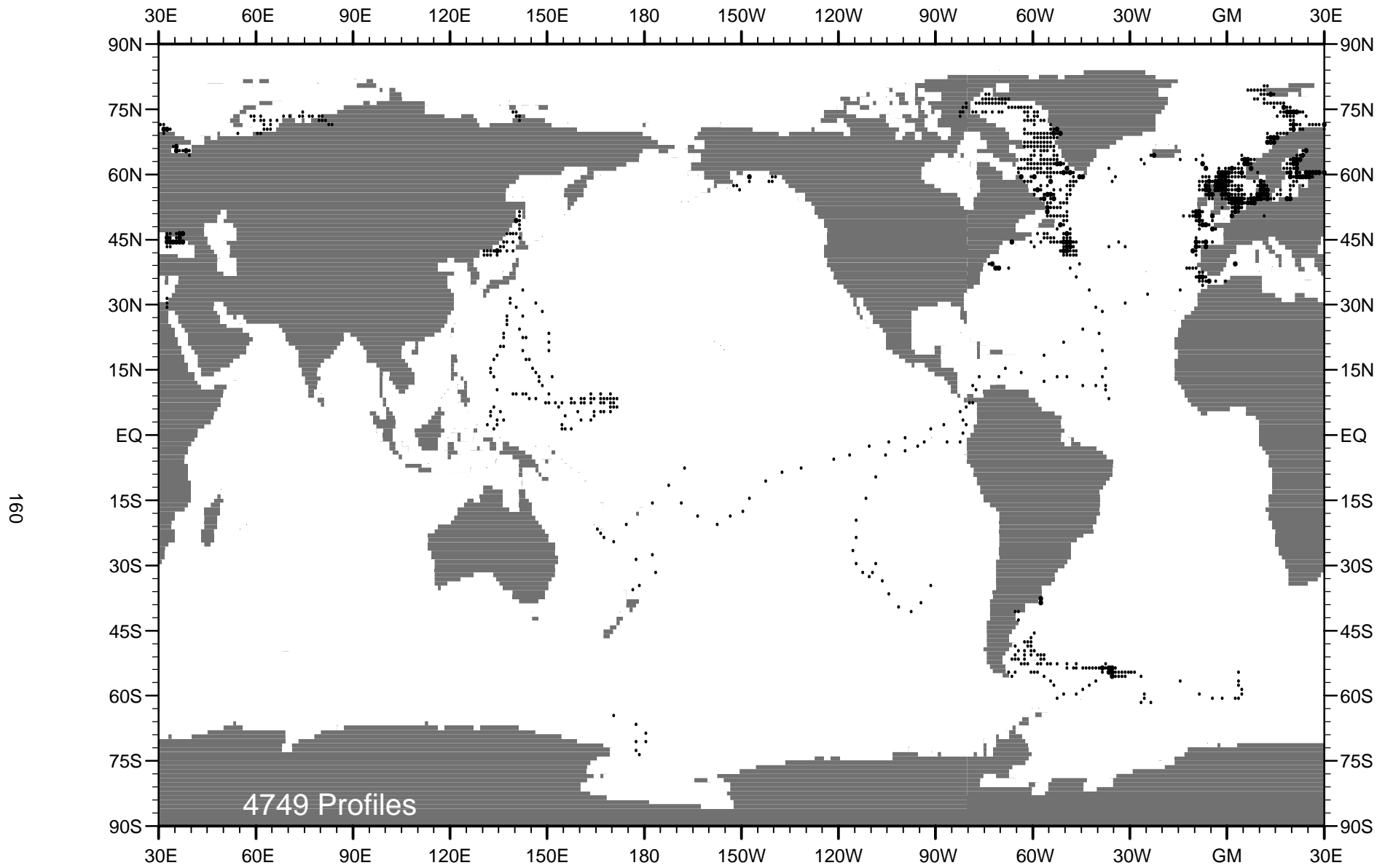


Fig. B29 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1928 .

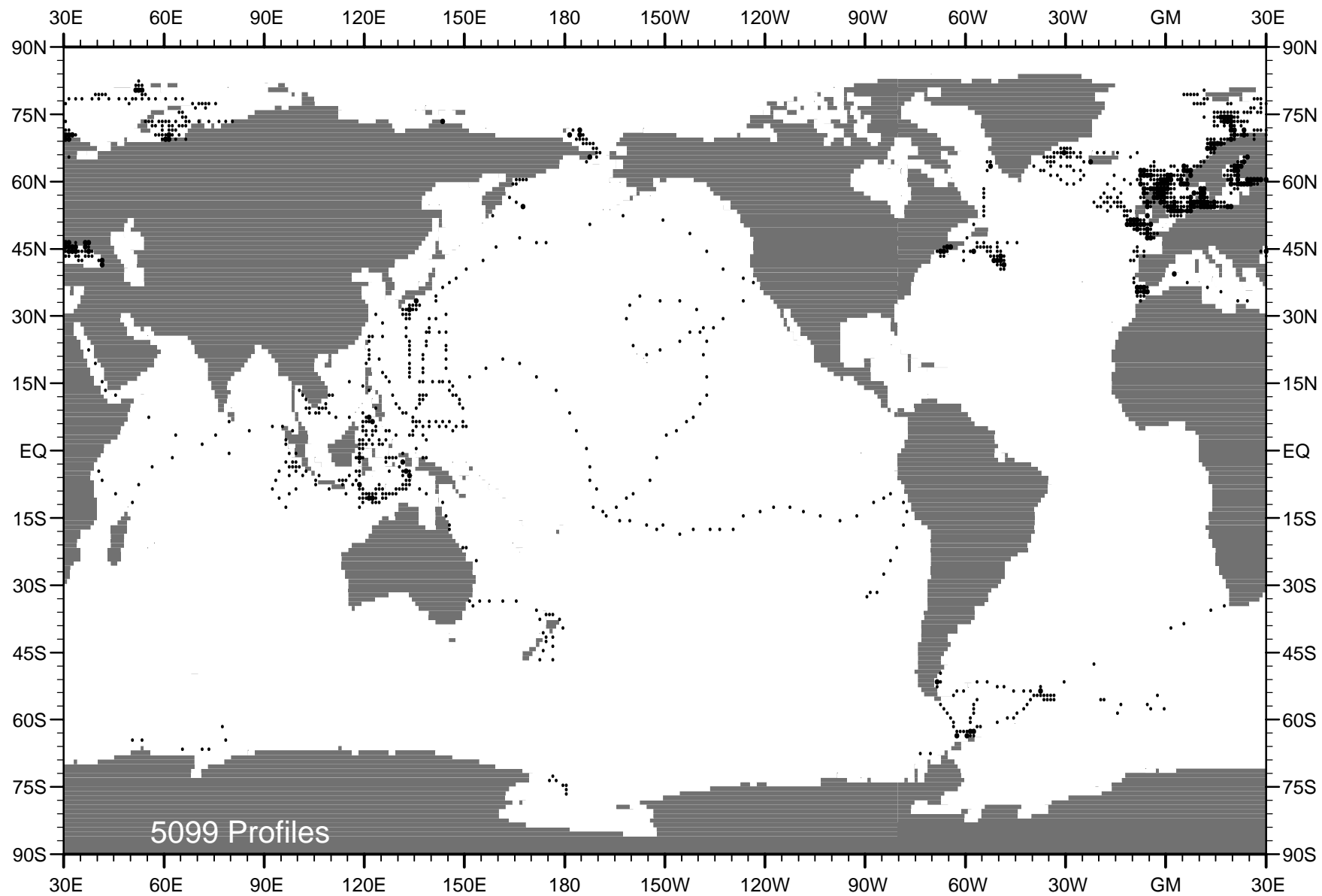


Fig. B30 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1929 .

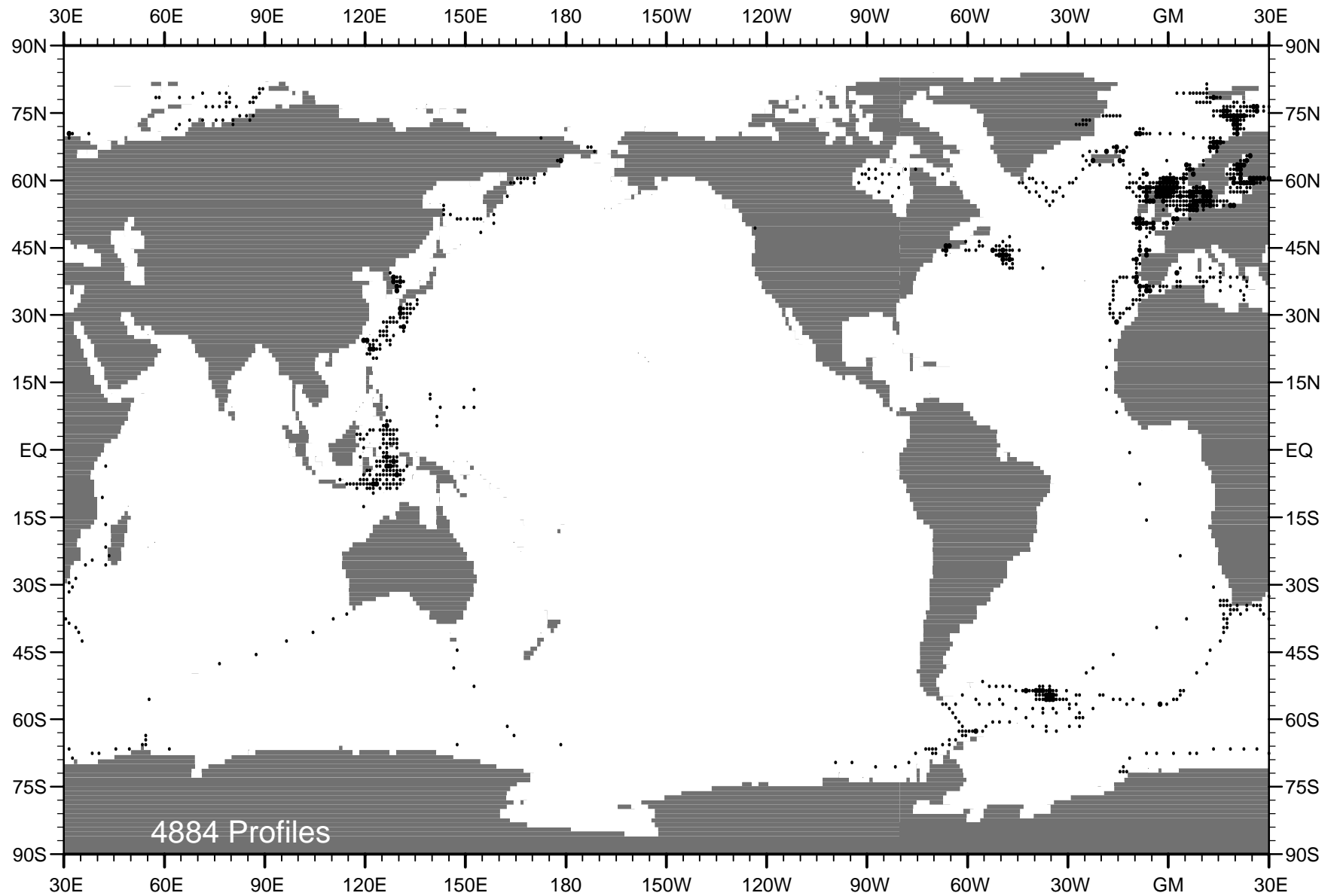


Fig. B31 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1930 .

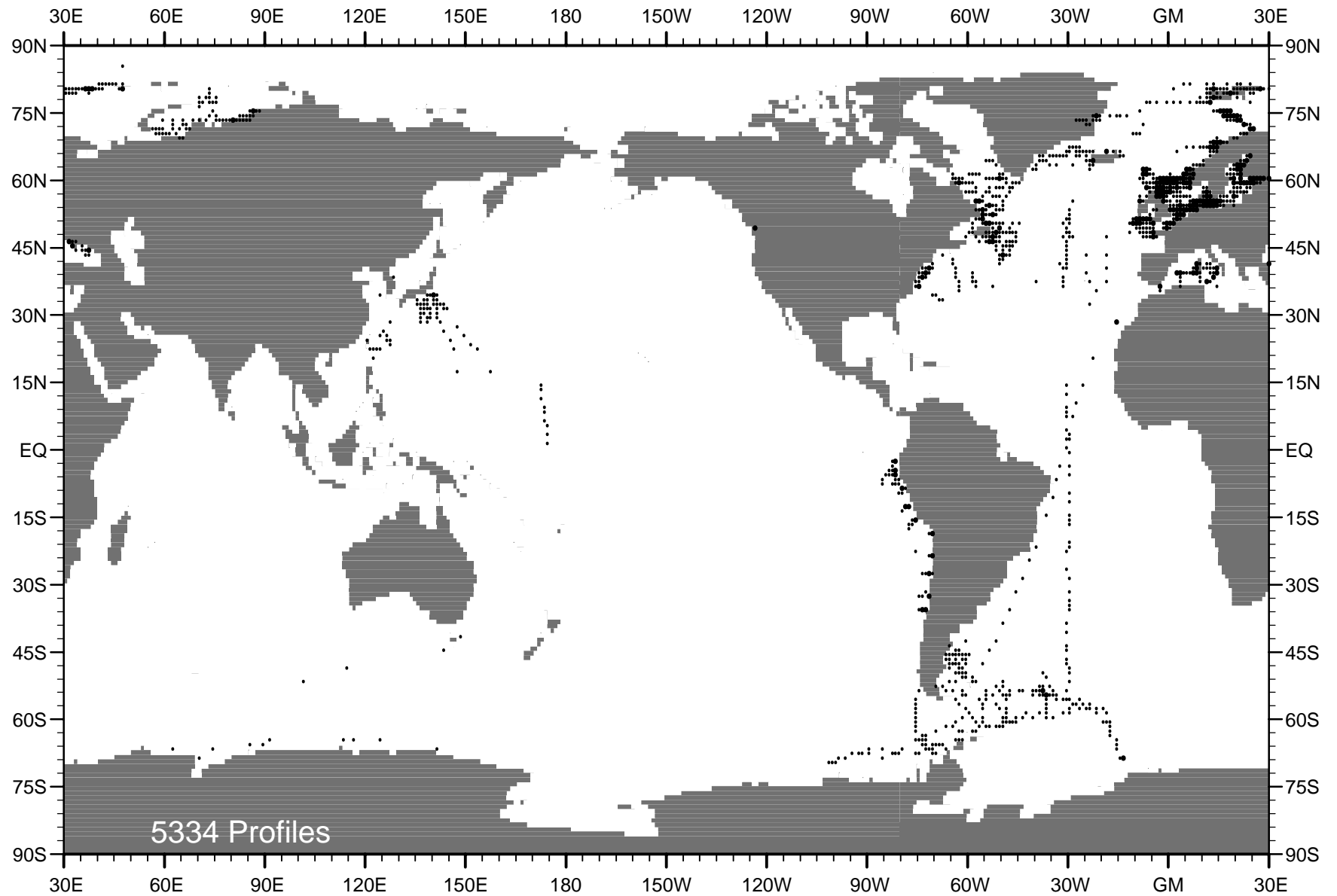


Fig. B32 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1931 .



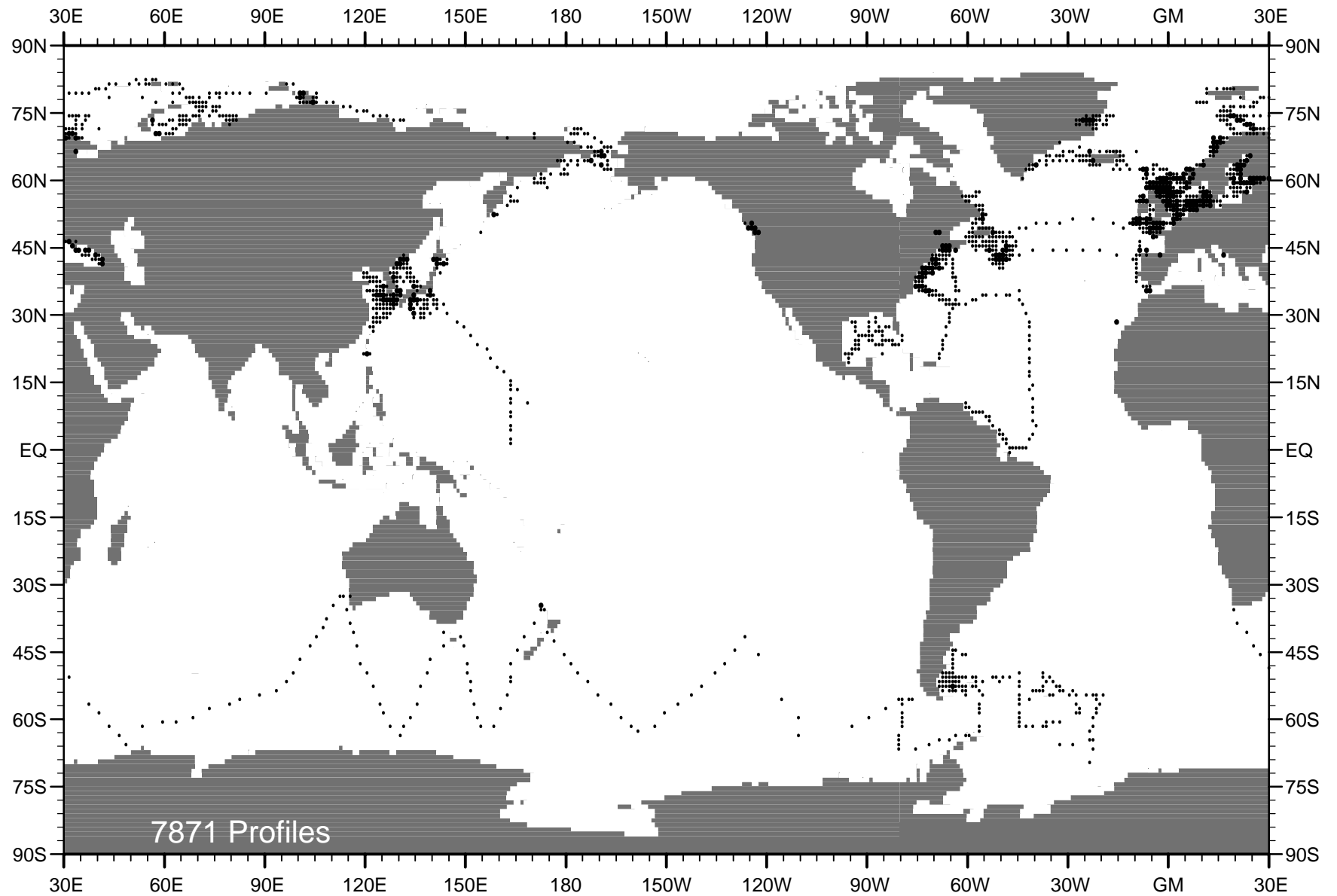


Fig. B33 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1932 .

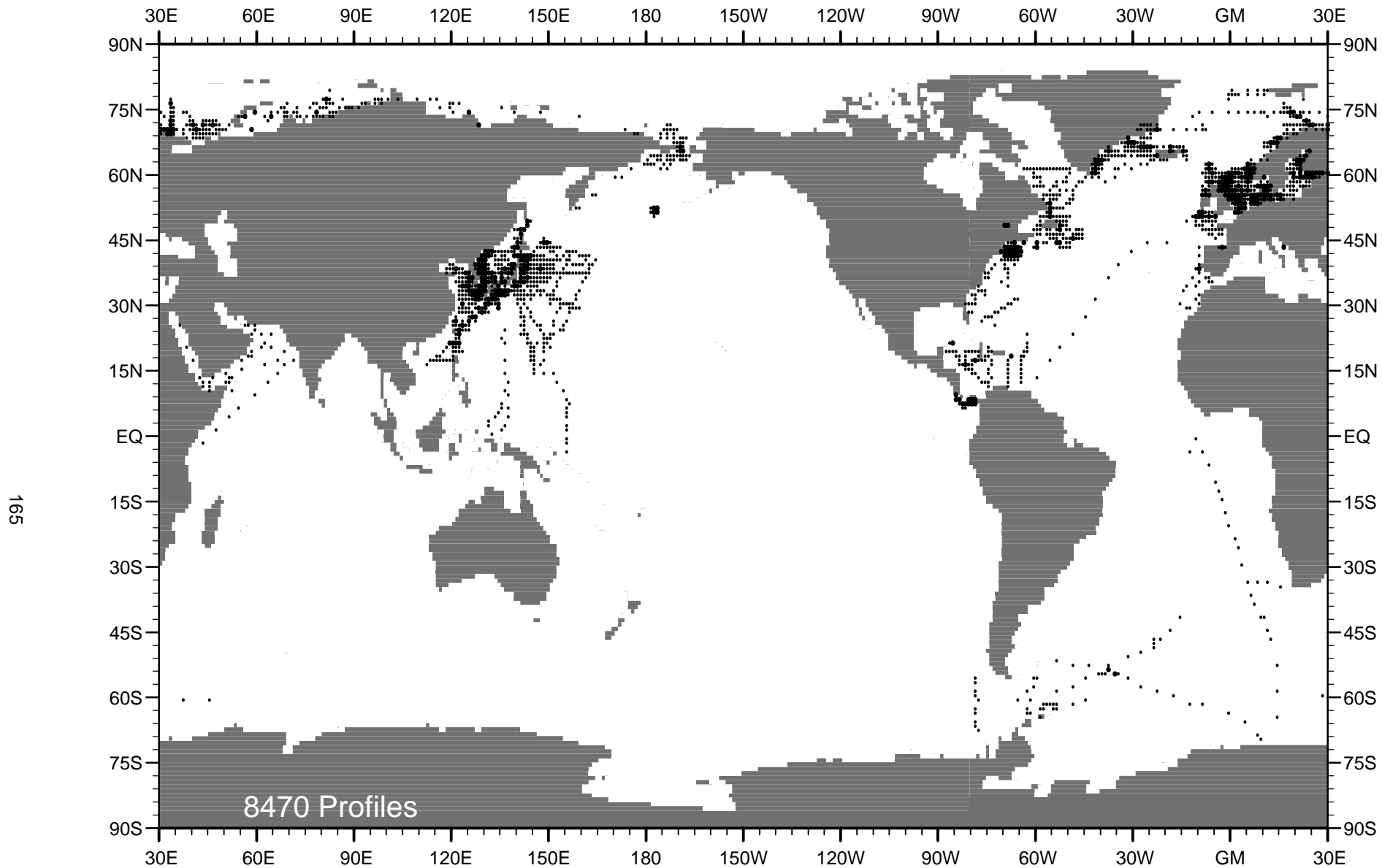


Fig. B34 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1933 .

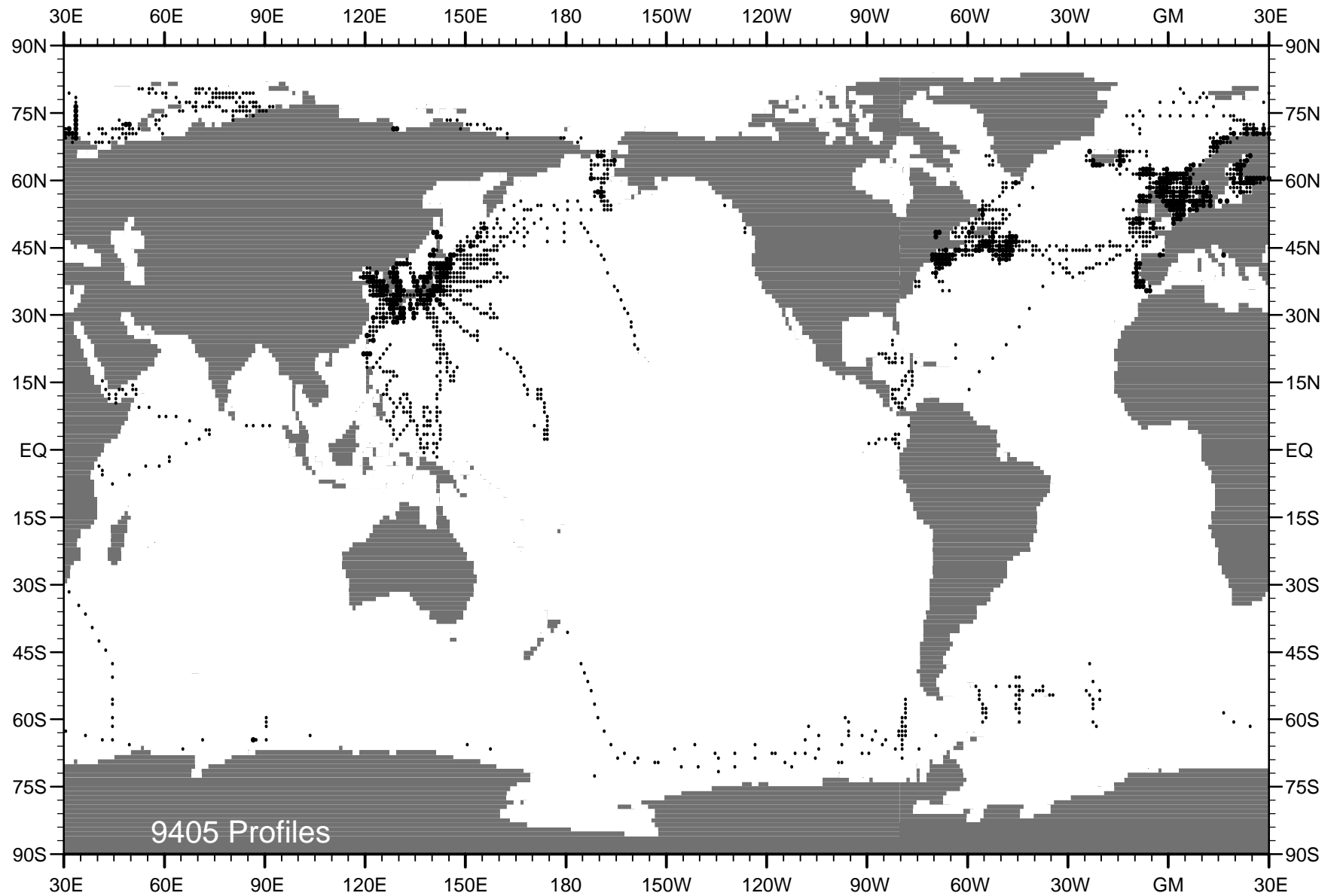


Fig. B35 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1934 .

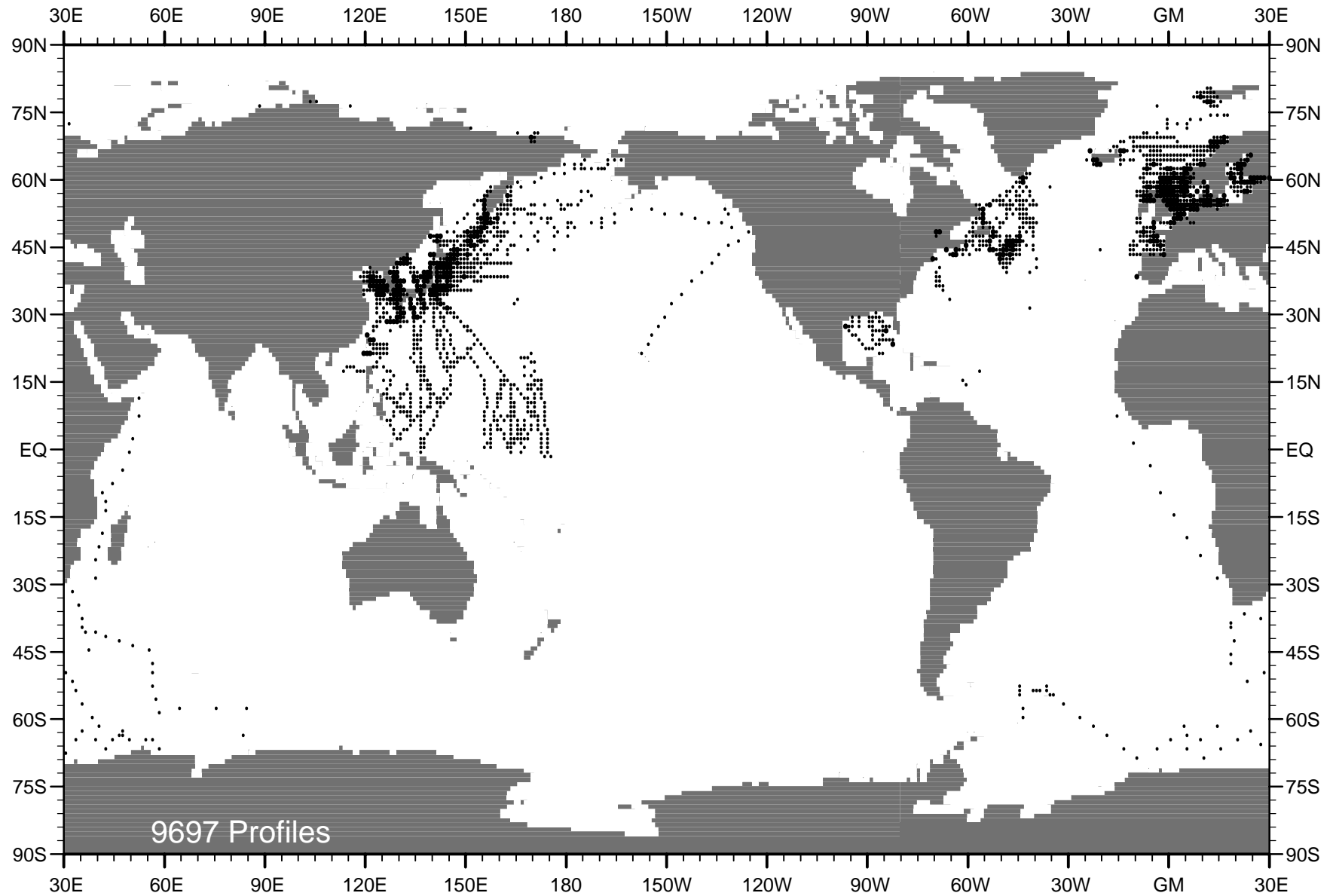


Fig. B36 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1935 .

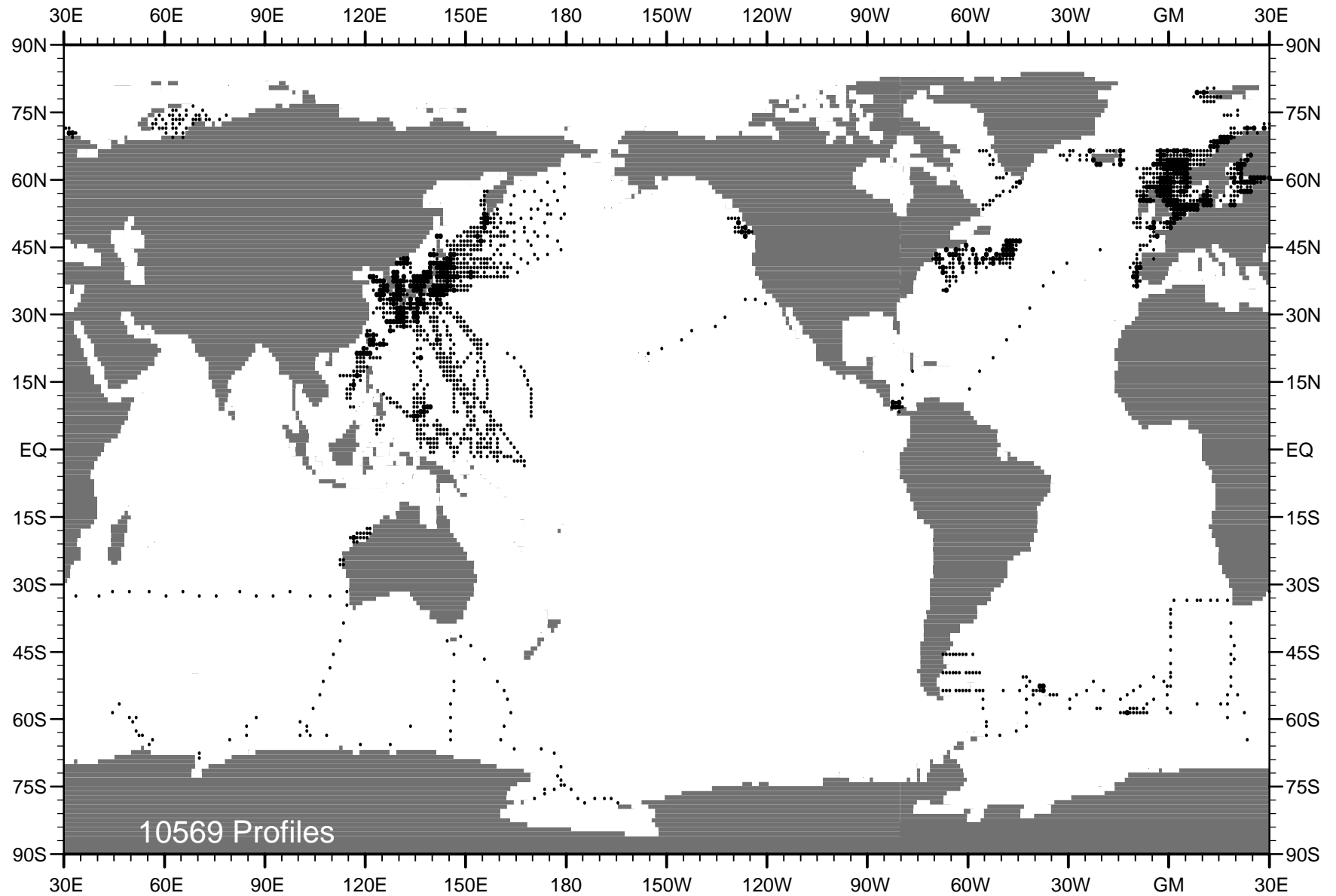


Fig. B37 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1936 .

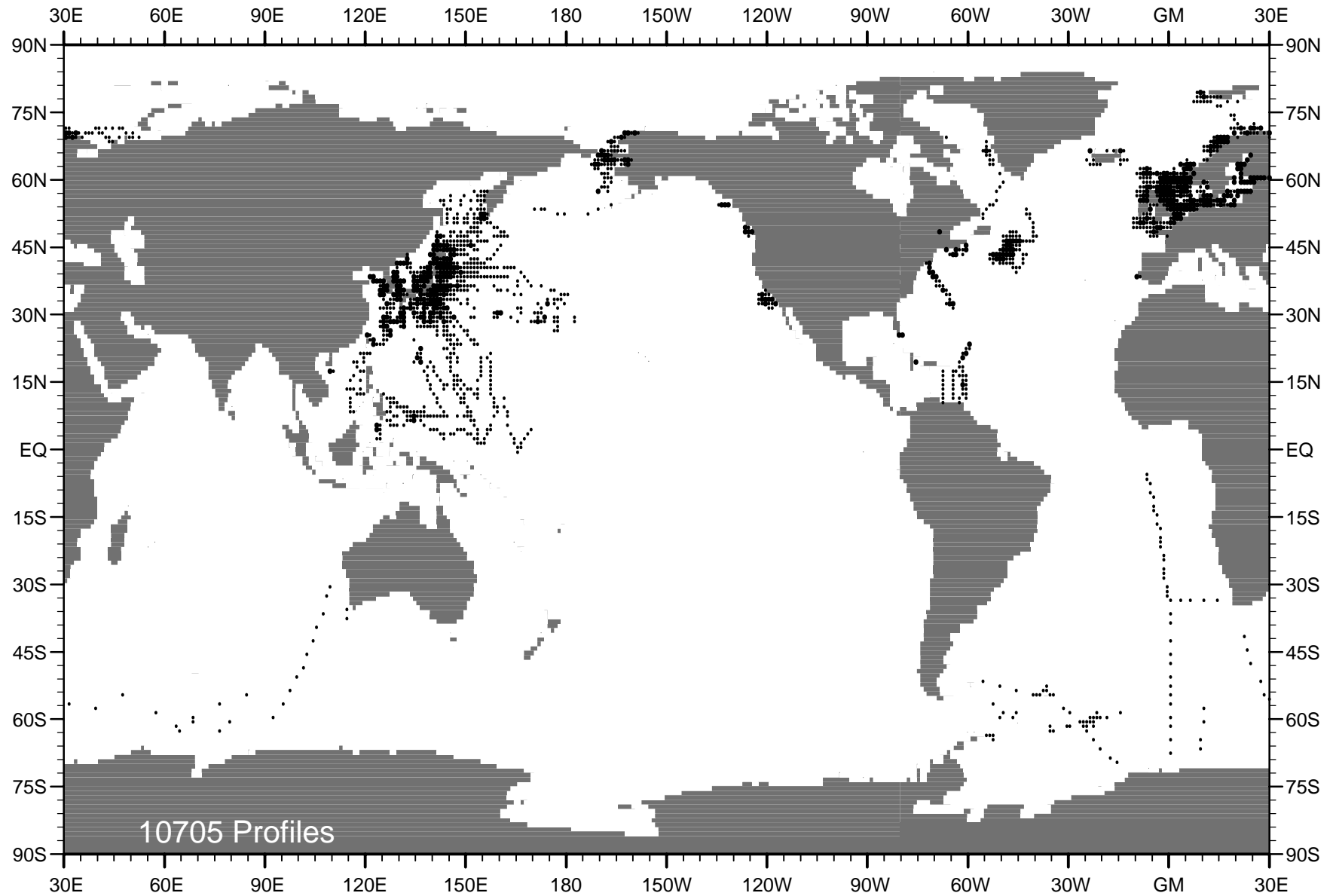


Fig. B38 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1937 .

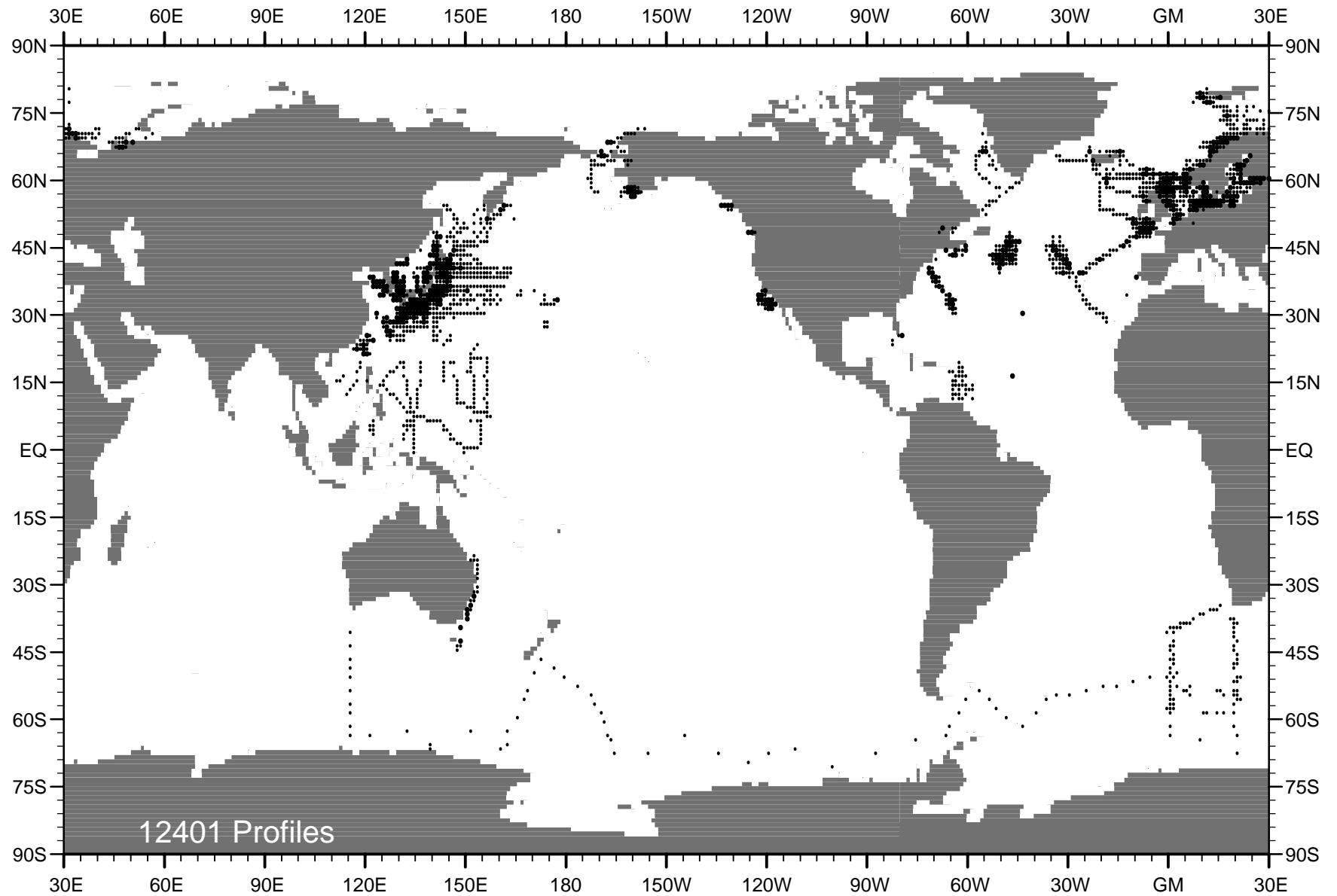


Fig. B39 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1938 .

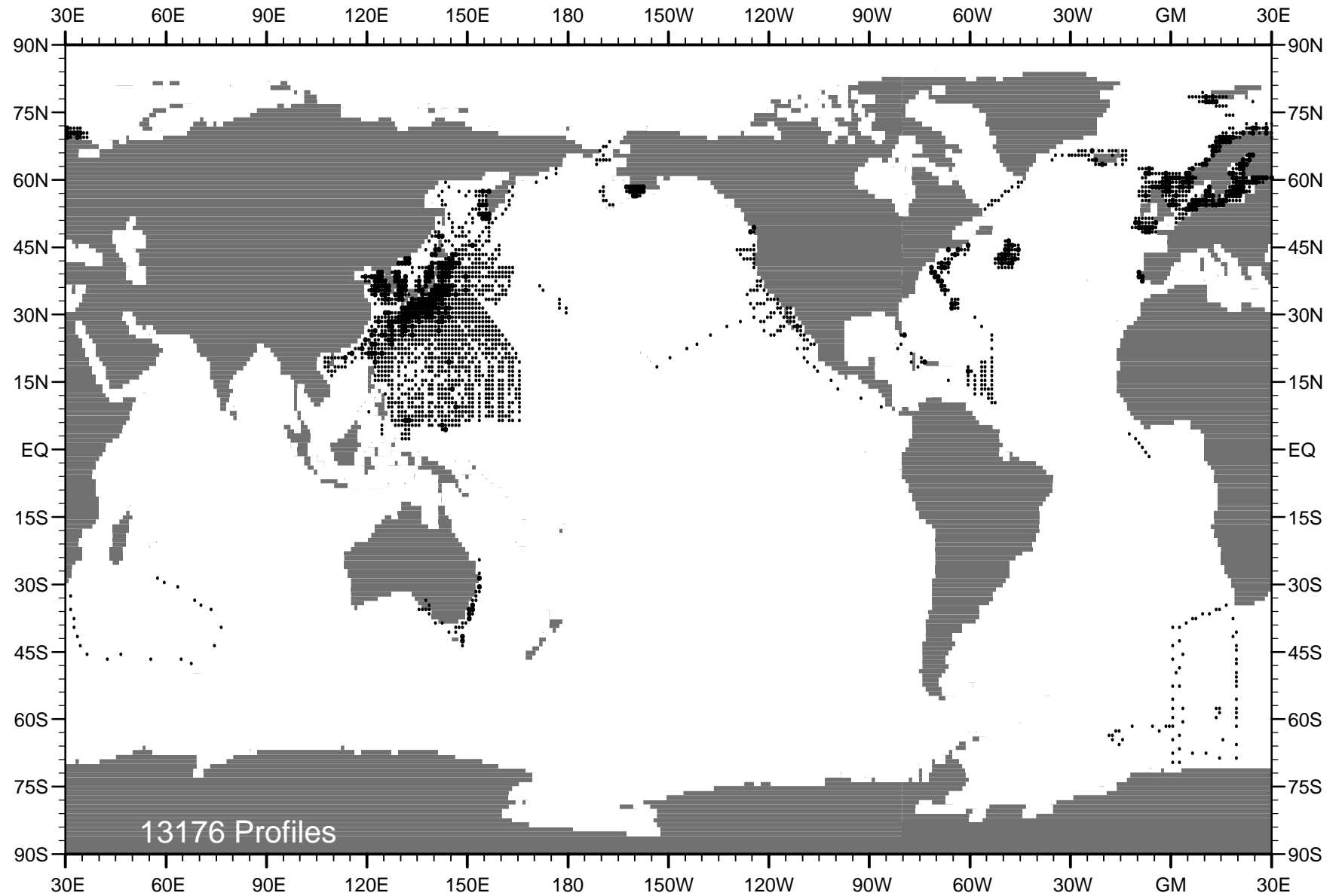


Fig. B40 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1939 .



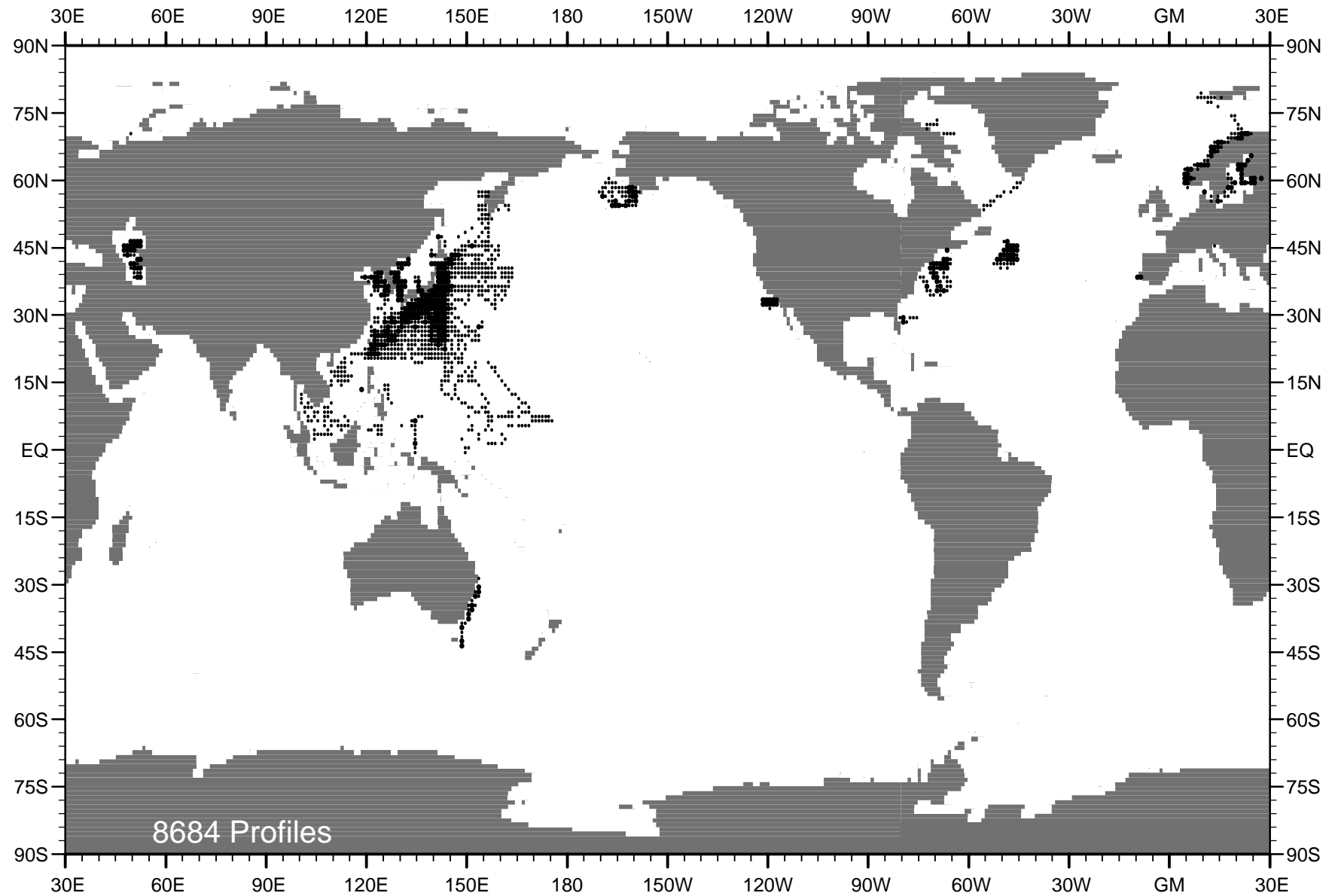


Fig. B41 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1940 .

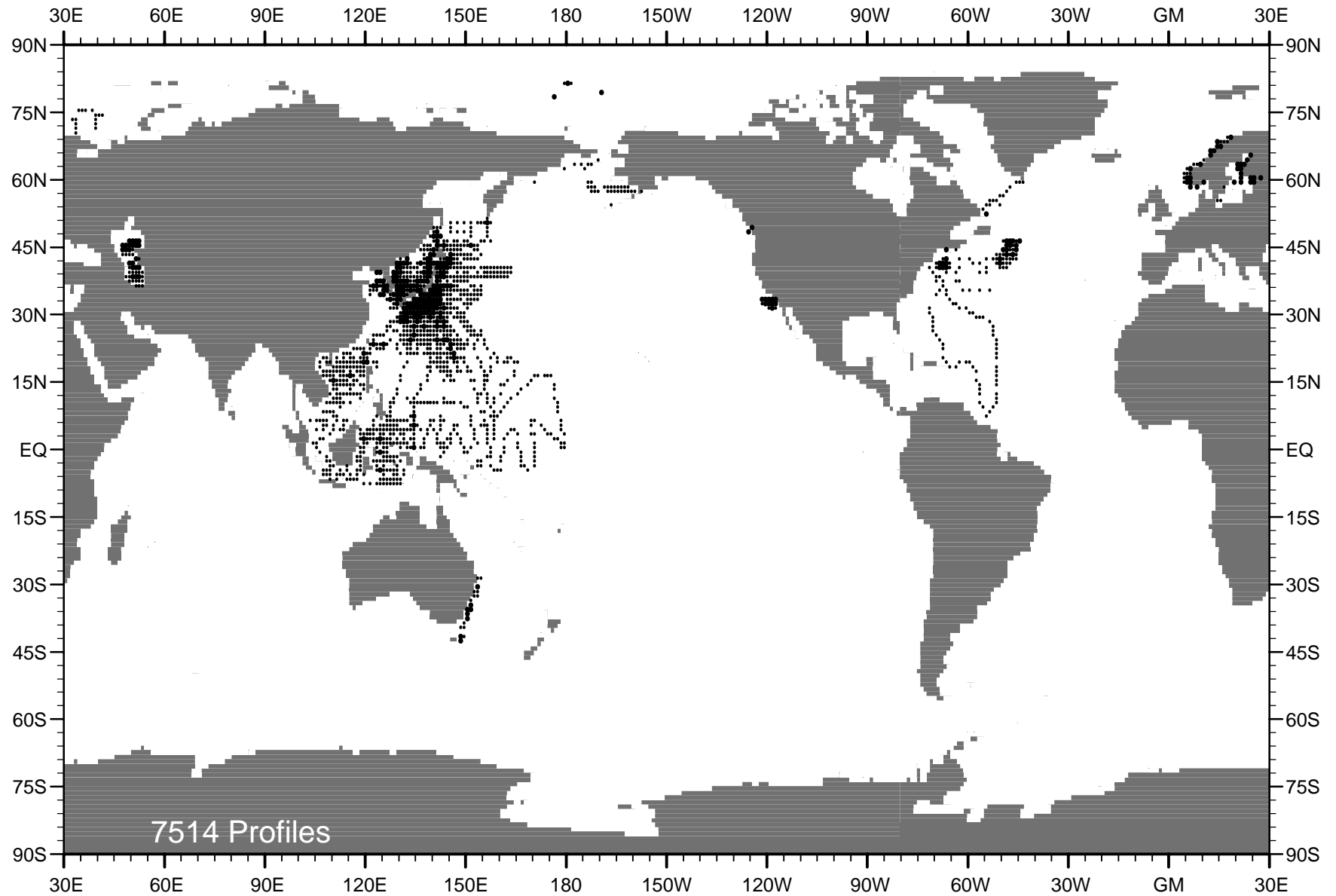


Fig. B42 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1941 .

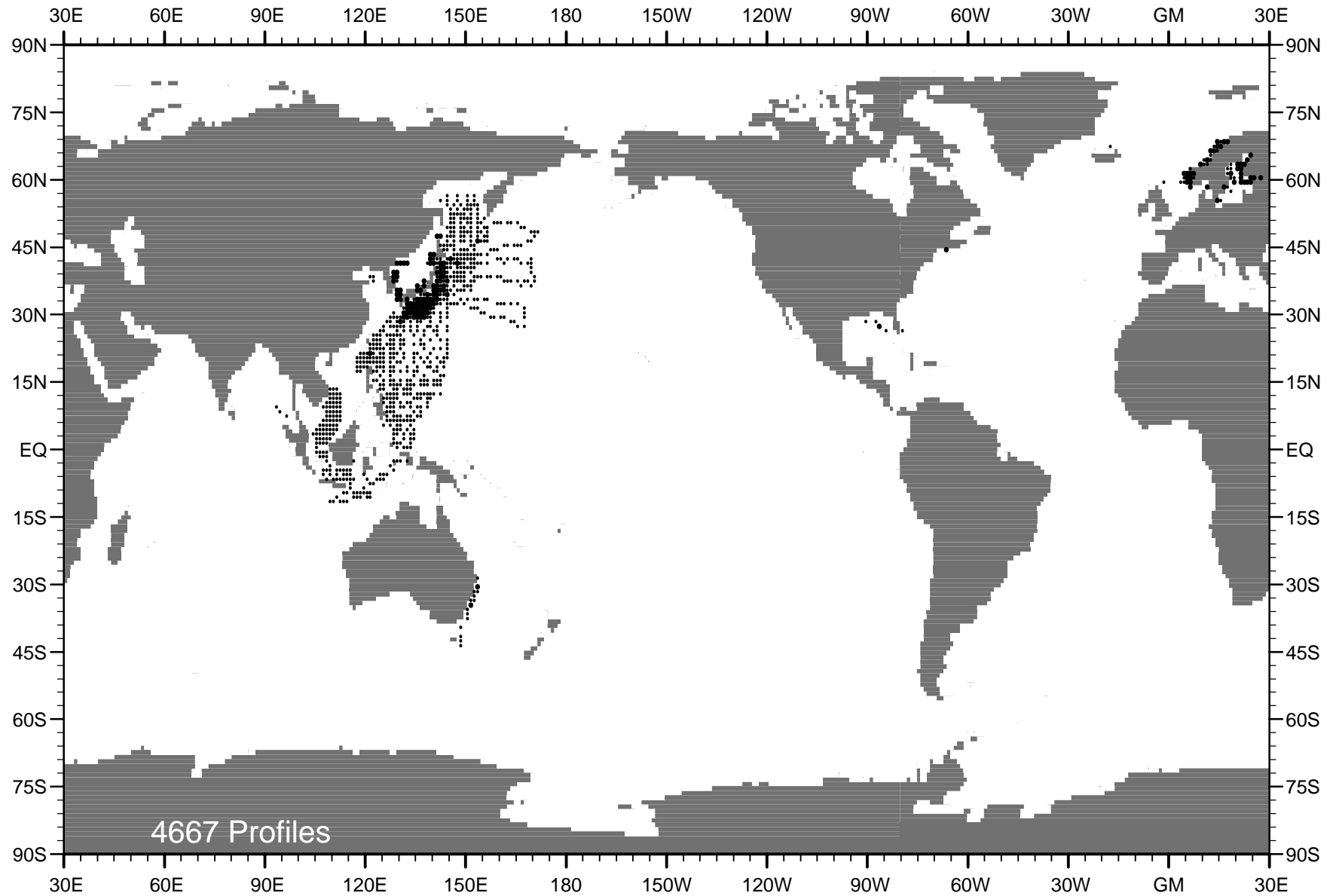


Fig. B43 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1942 .

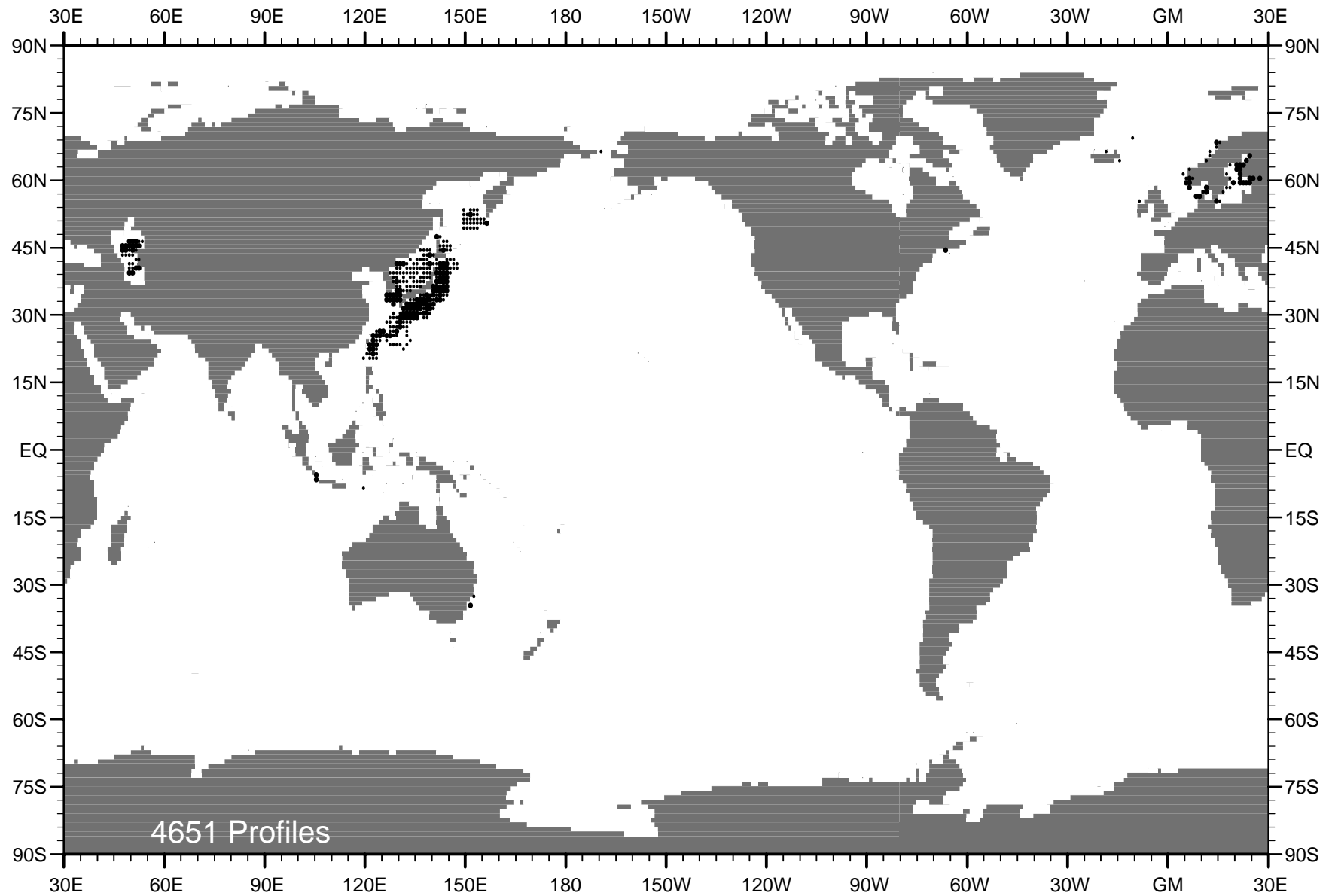


Fig. B44 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1943 .

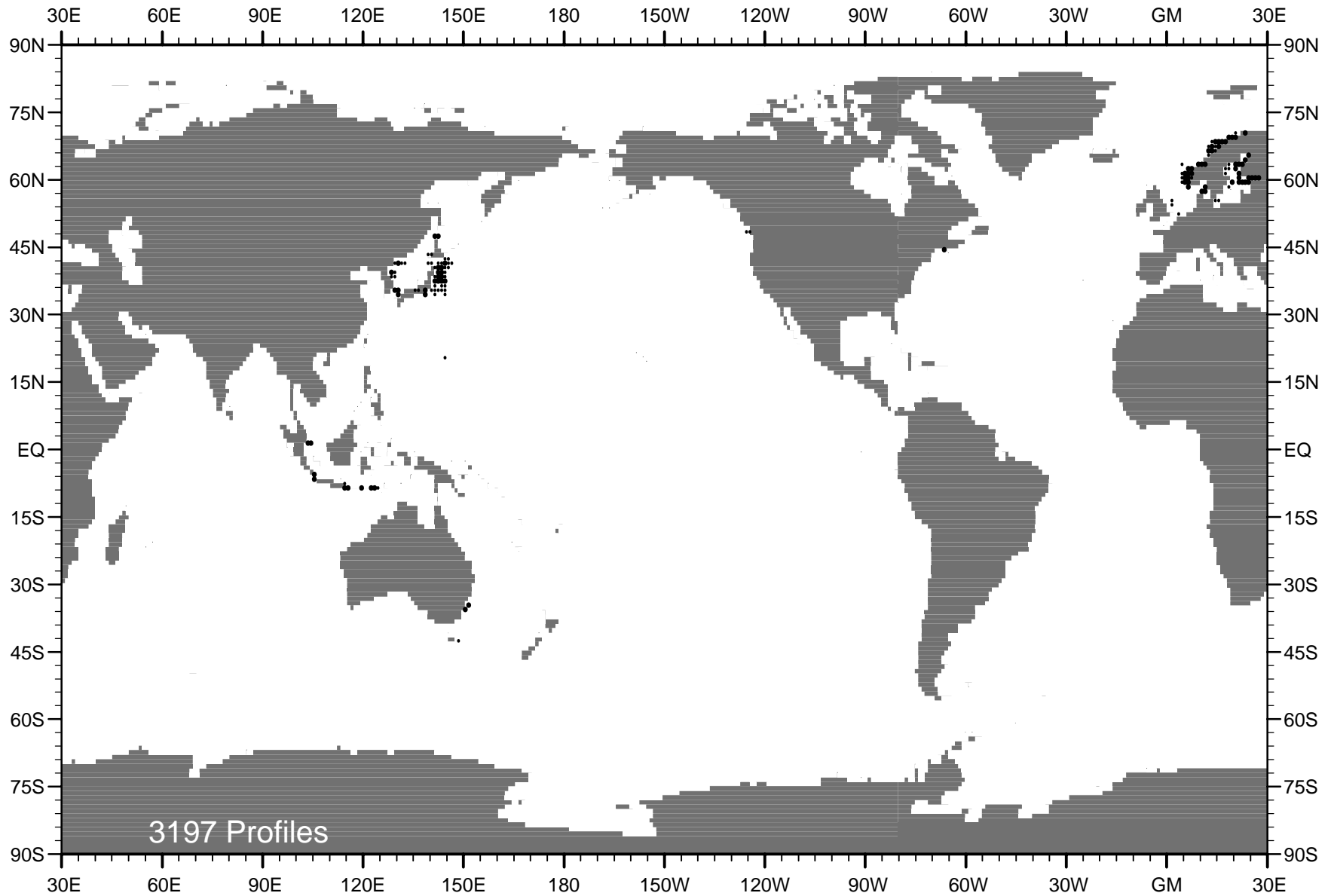


Fig. B45 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1944 .

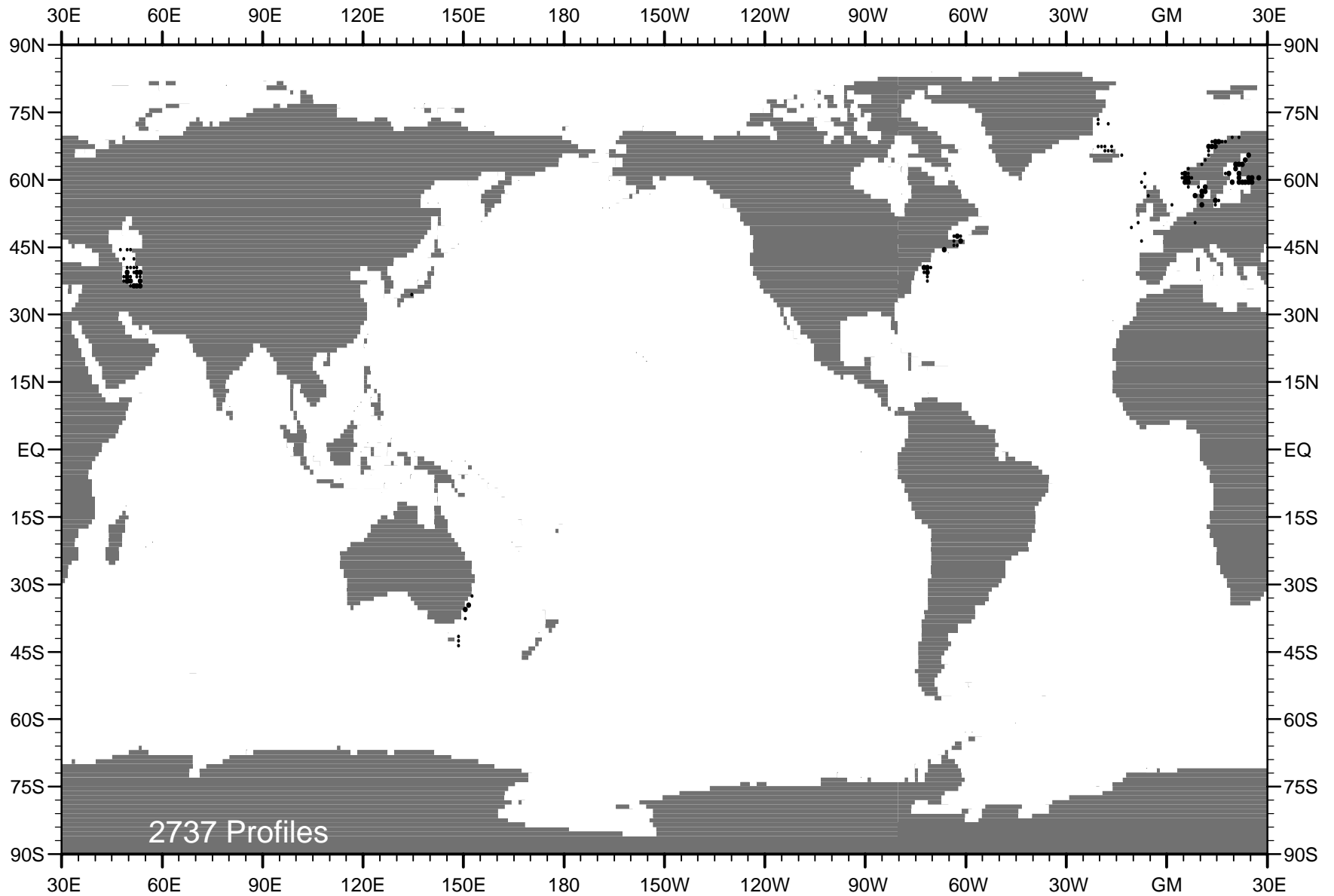


Fig. B46 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1945 .

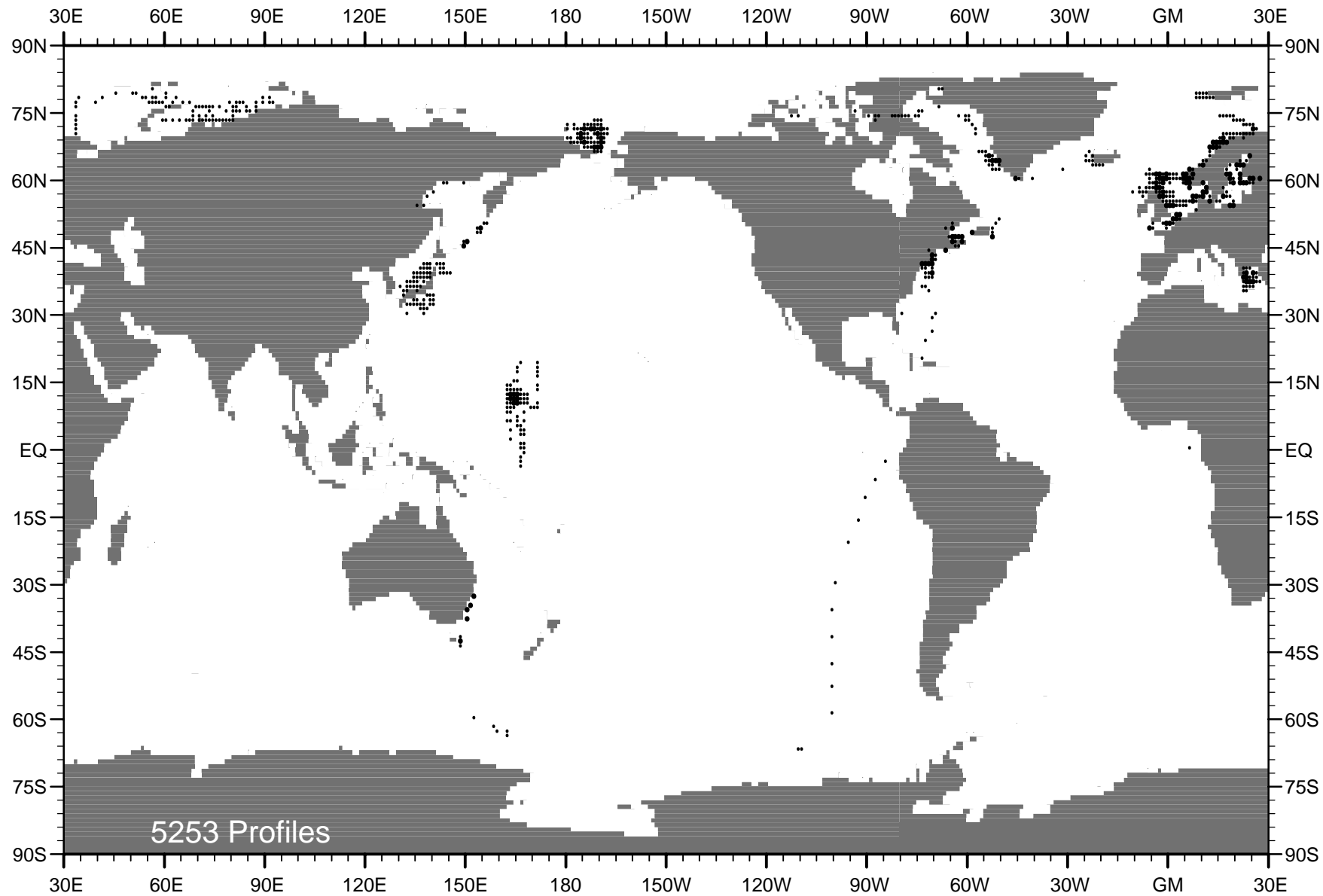


Fig. B47 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1946 .

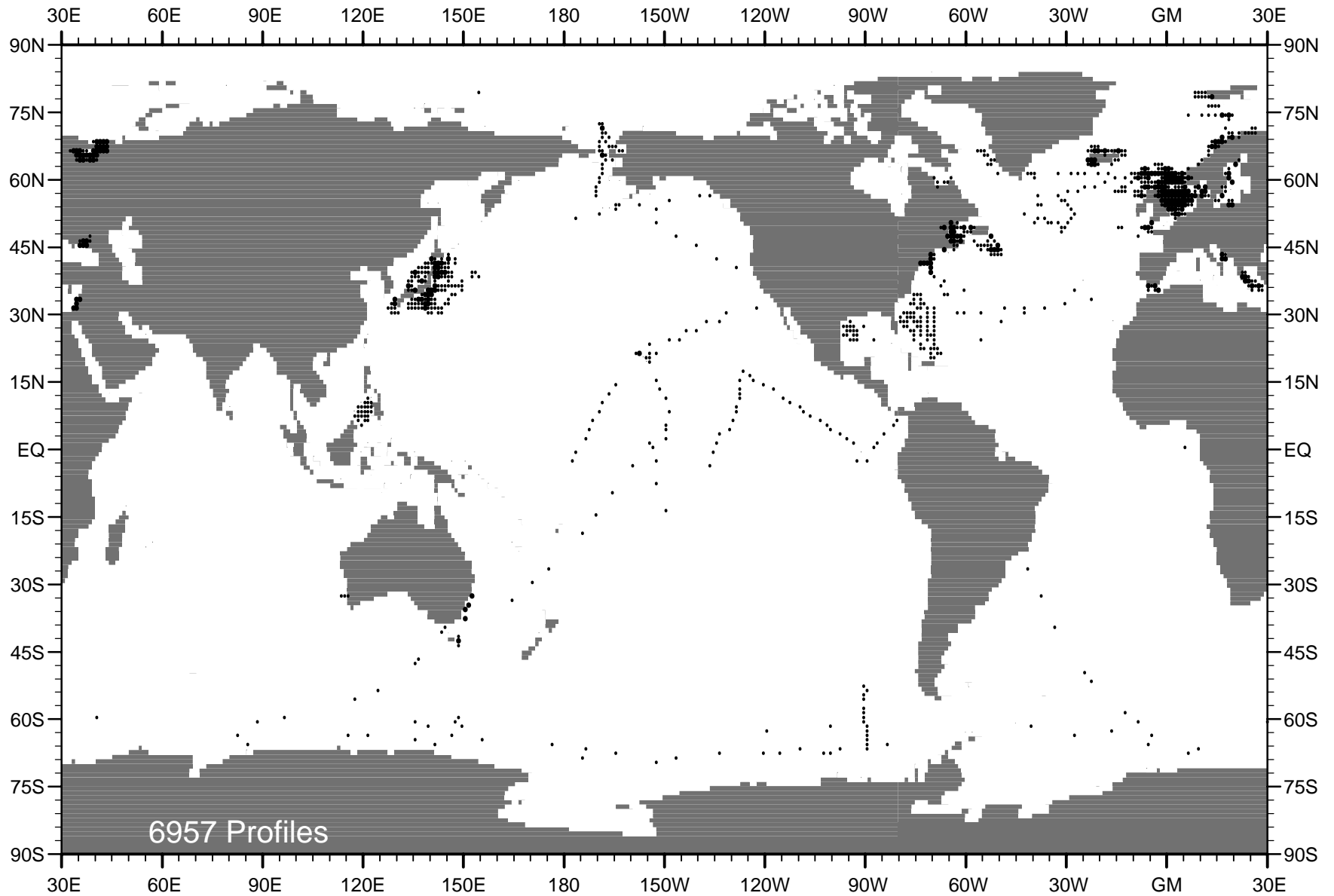


Fig. B48 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1947 .



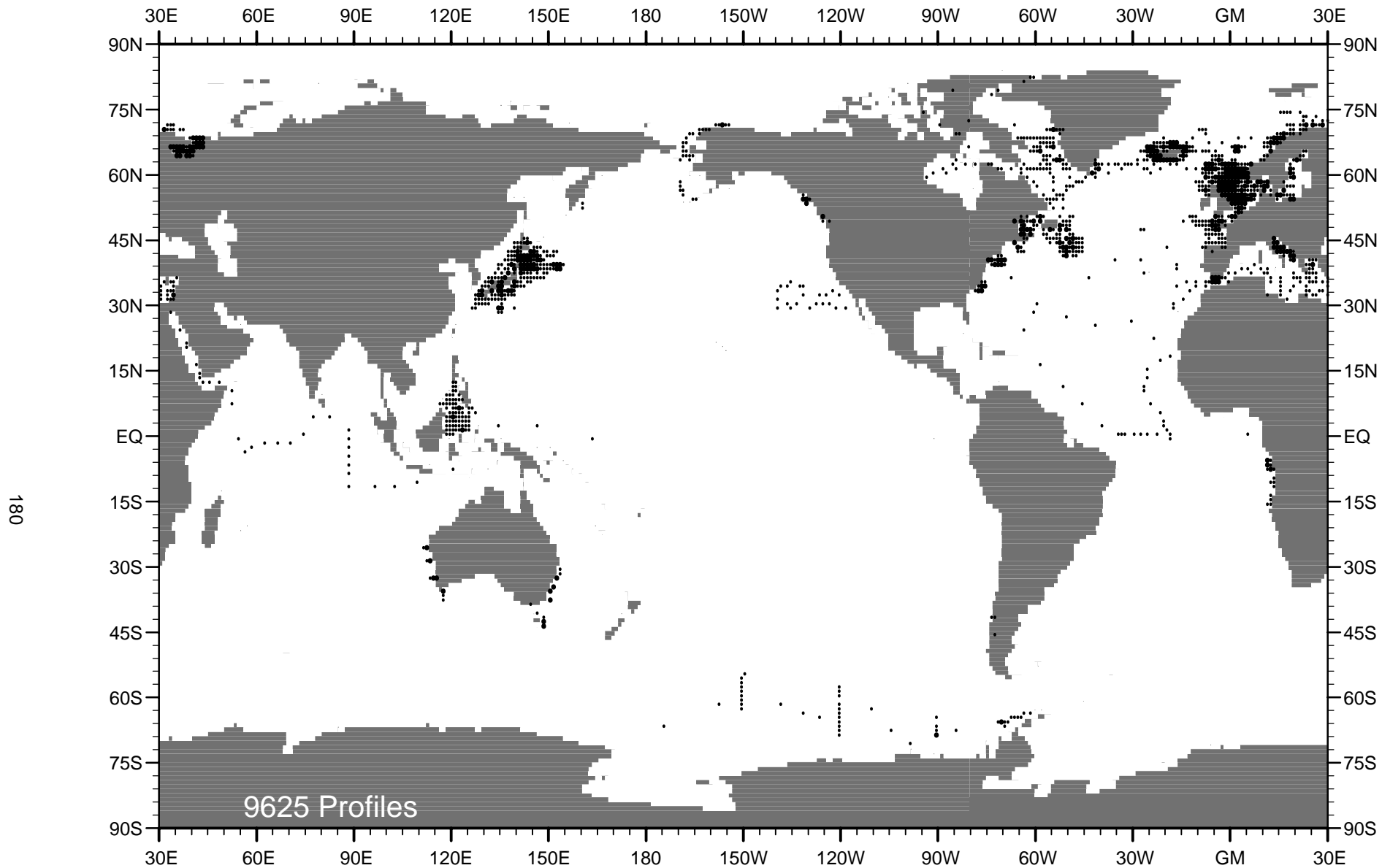


Fig. B49 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1948 .

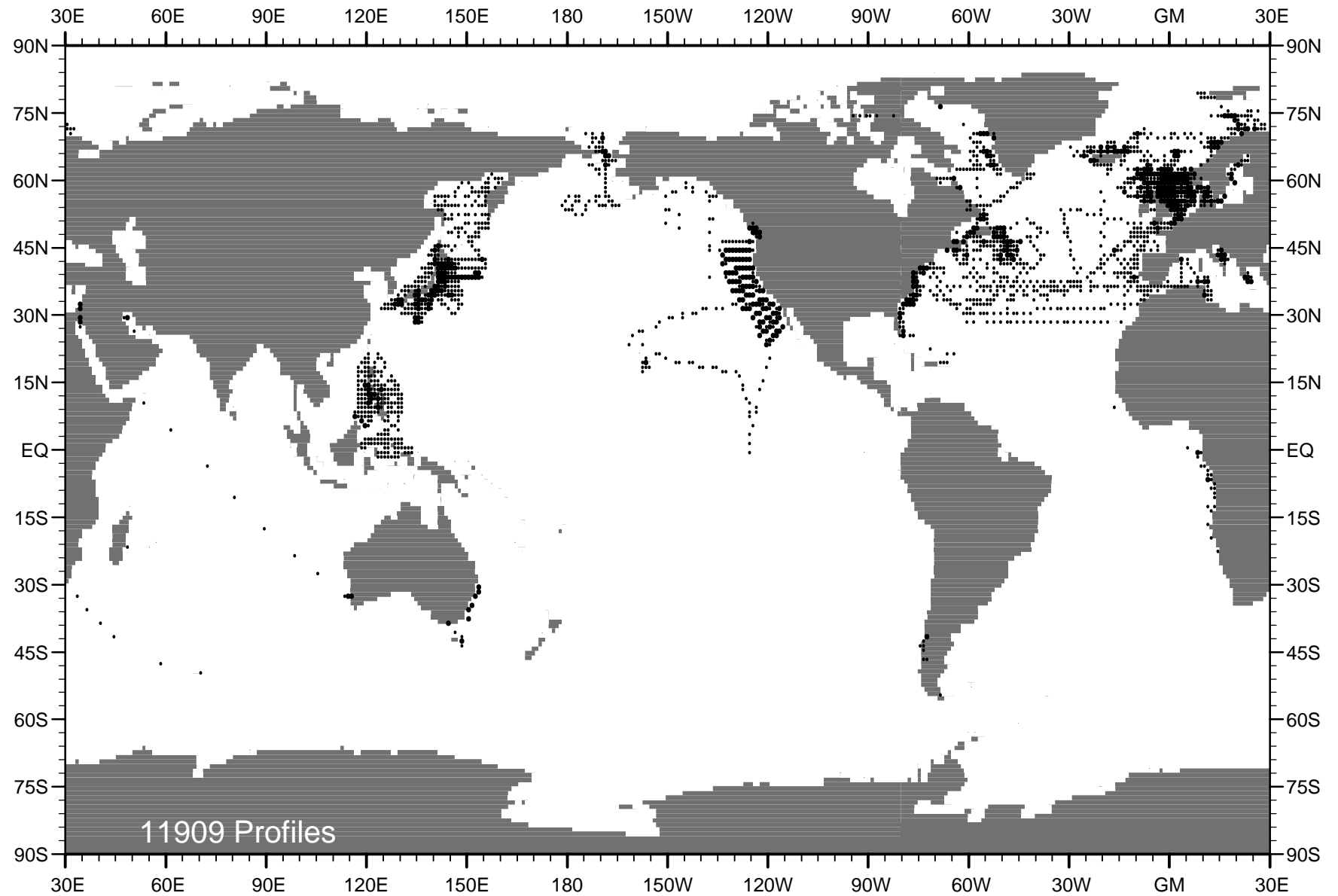


Fig. B50 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1949 .

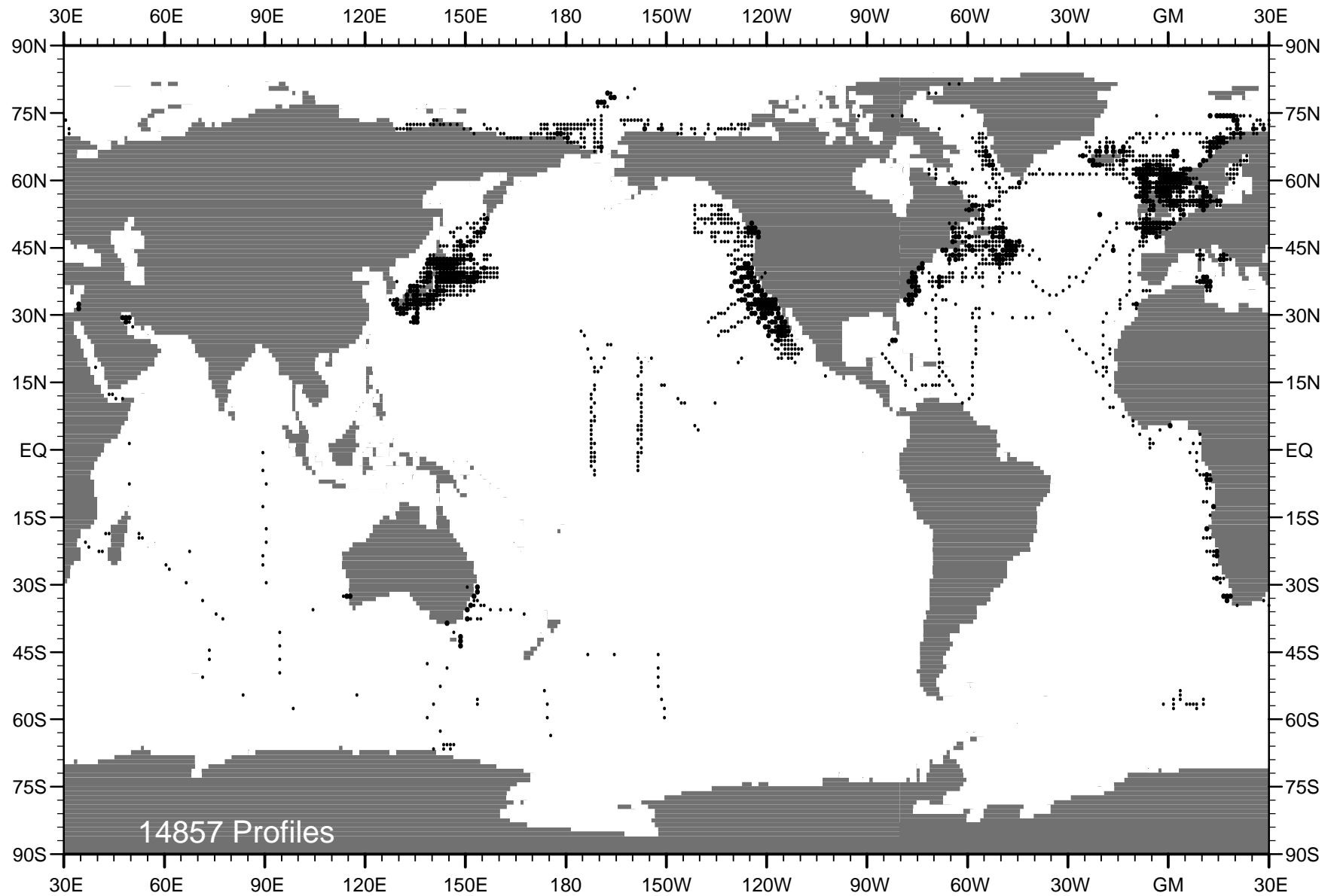


Fig. B51 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1950 .

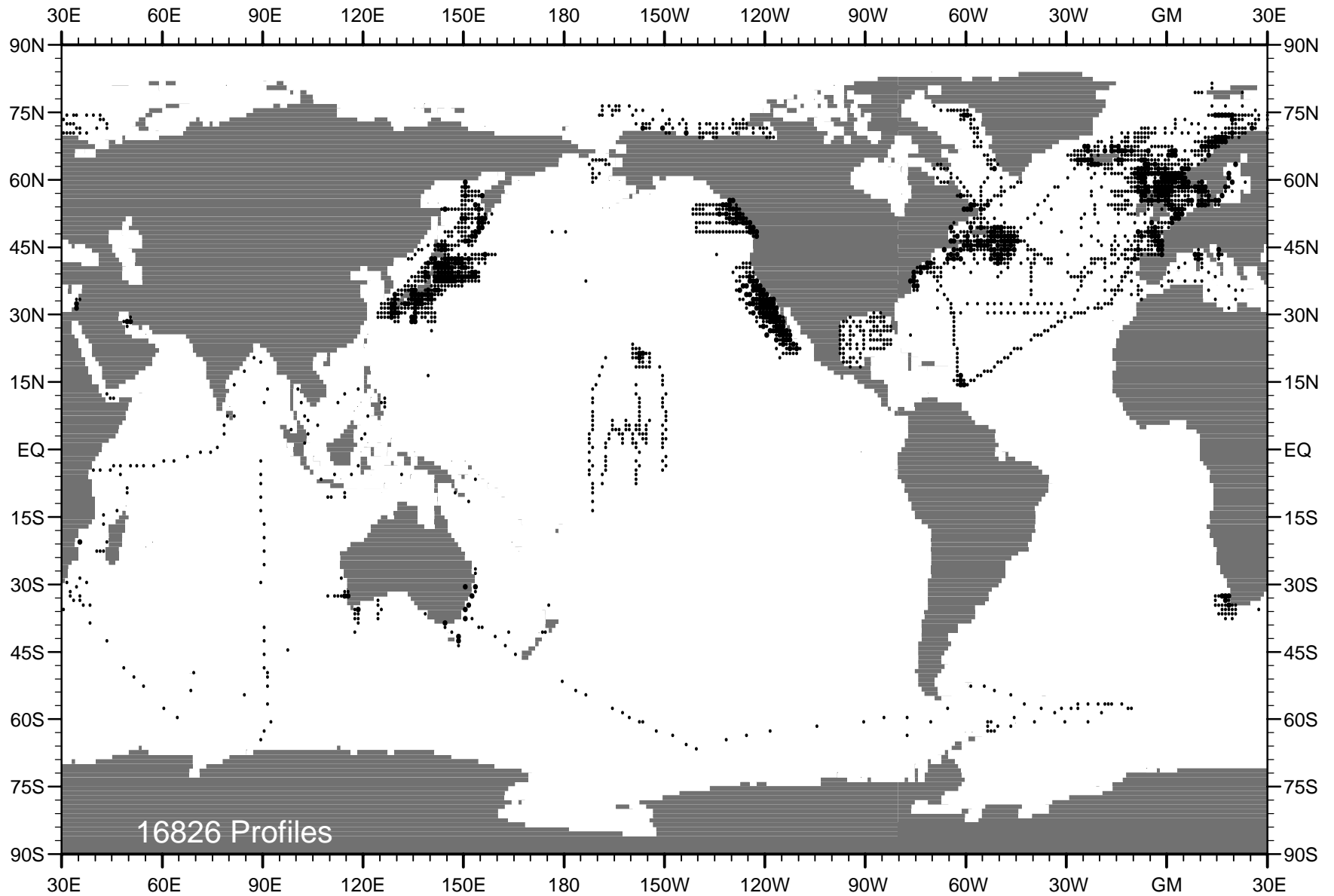


Fig. B52 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1951 .

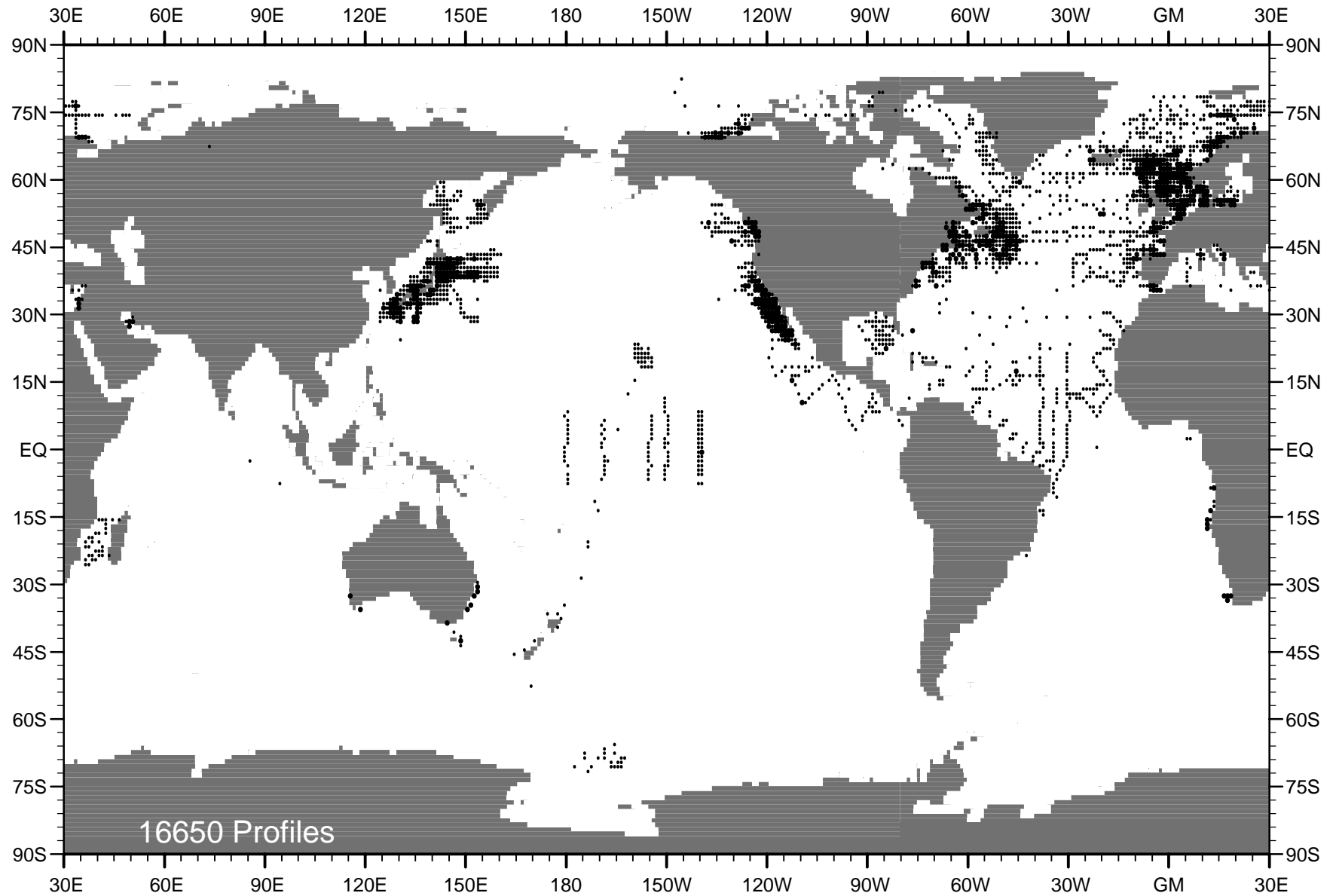


Fig. B53 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1952 .

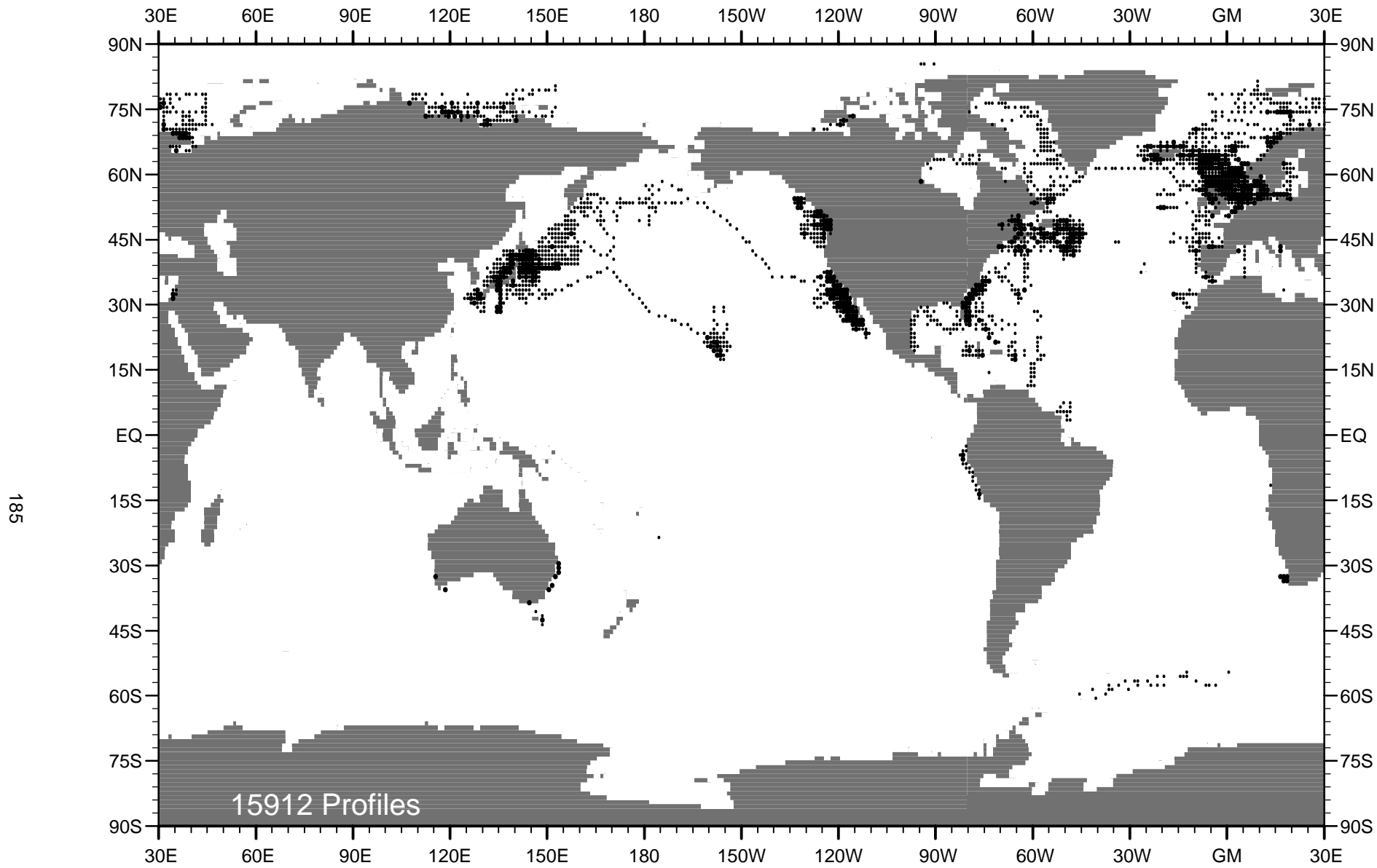


Fig. B54 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1953 .

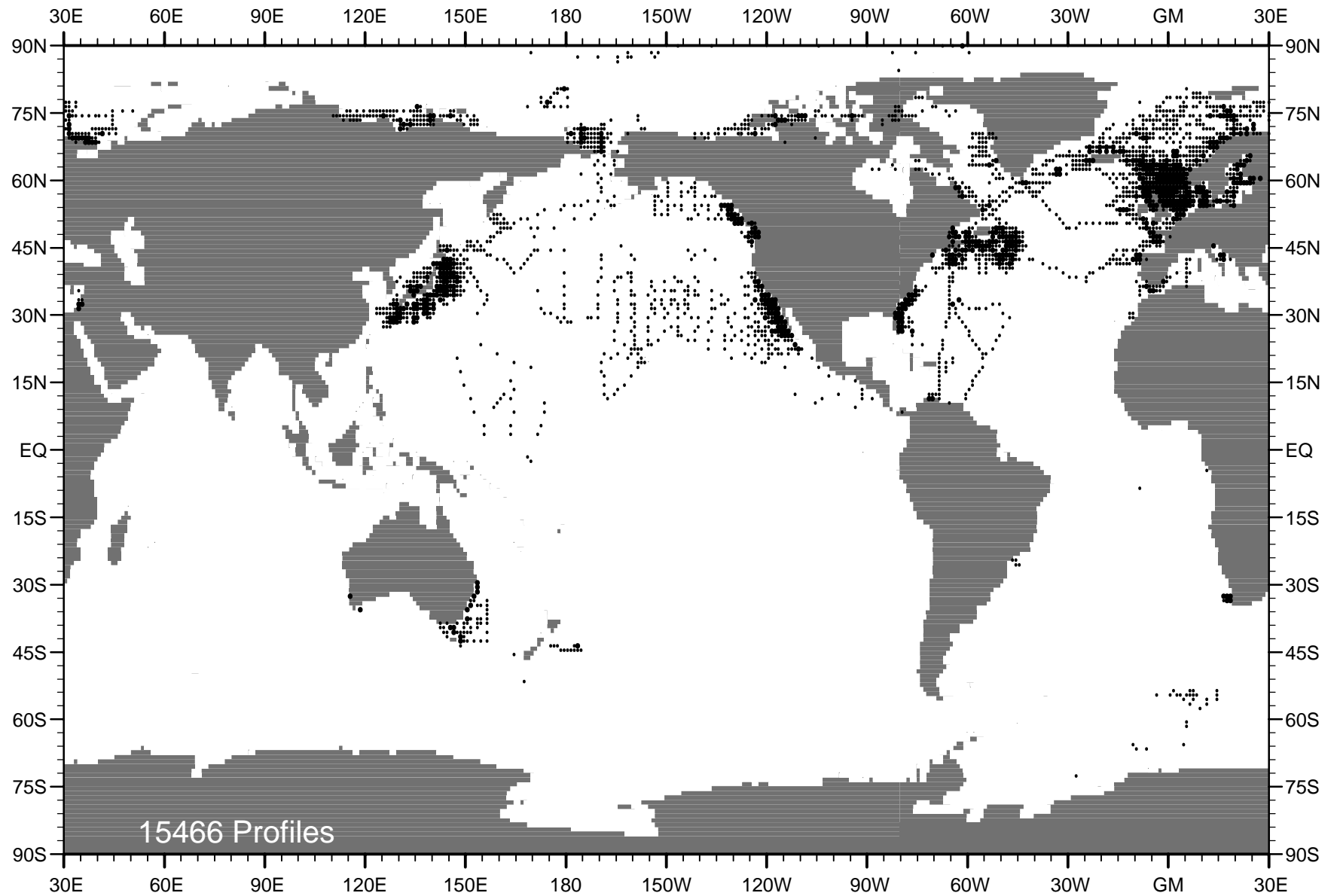


Fig. B55 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1954 .

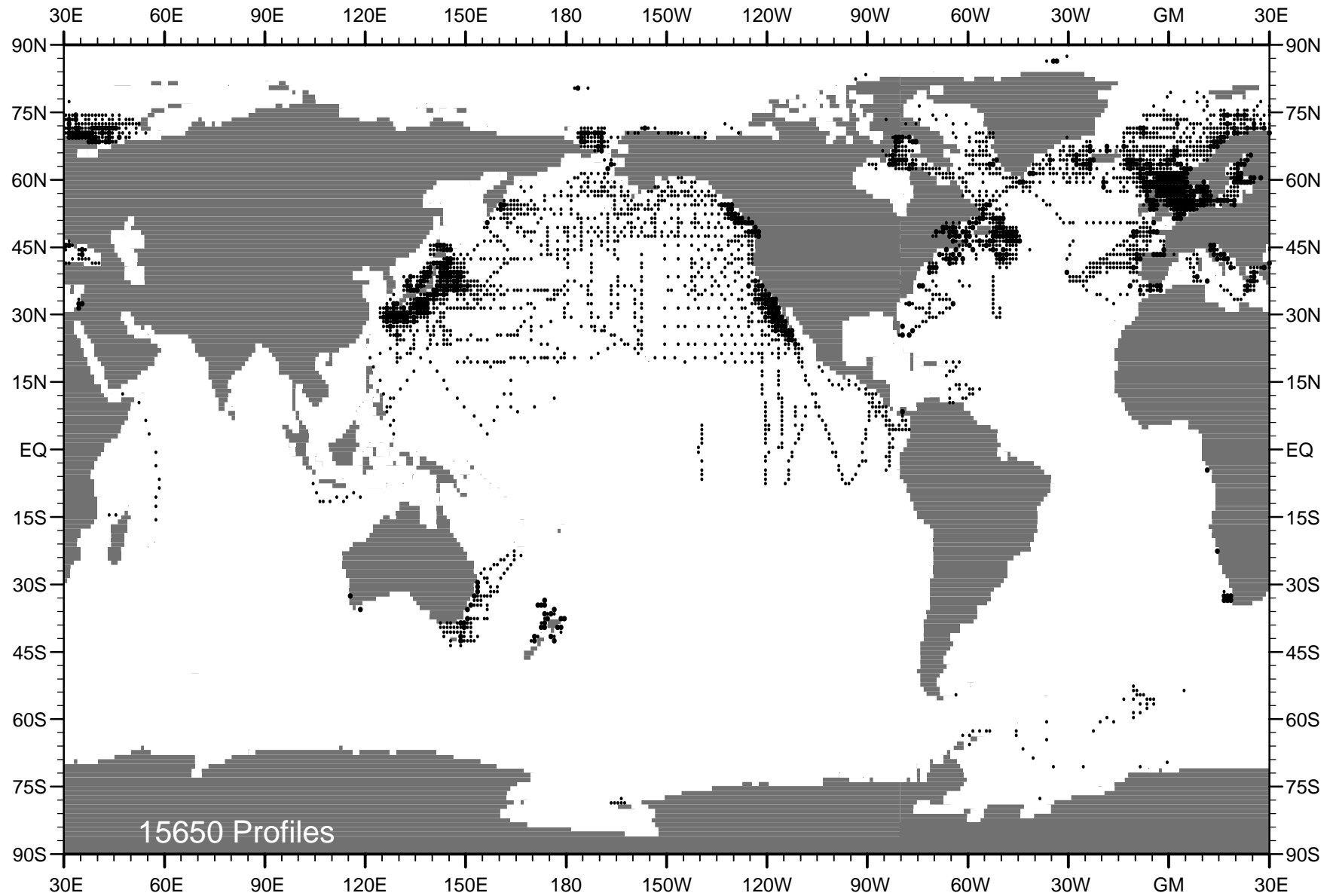


Fig. B56 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1955 .



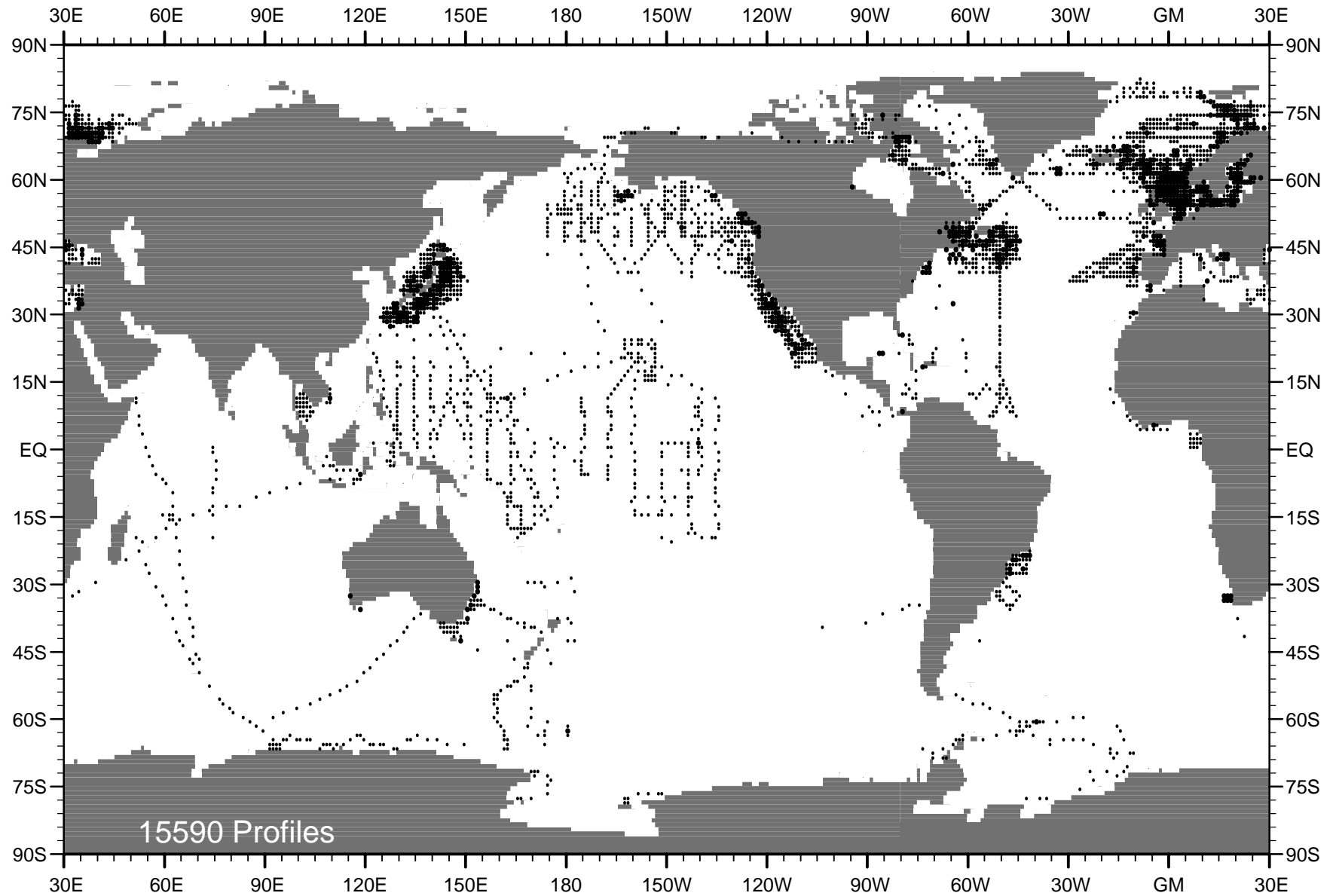


Fig. B57 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1956 .

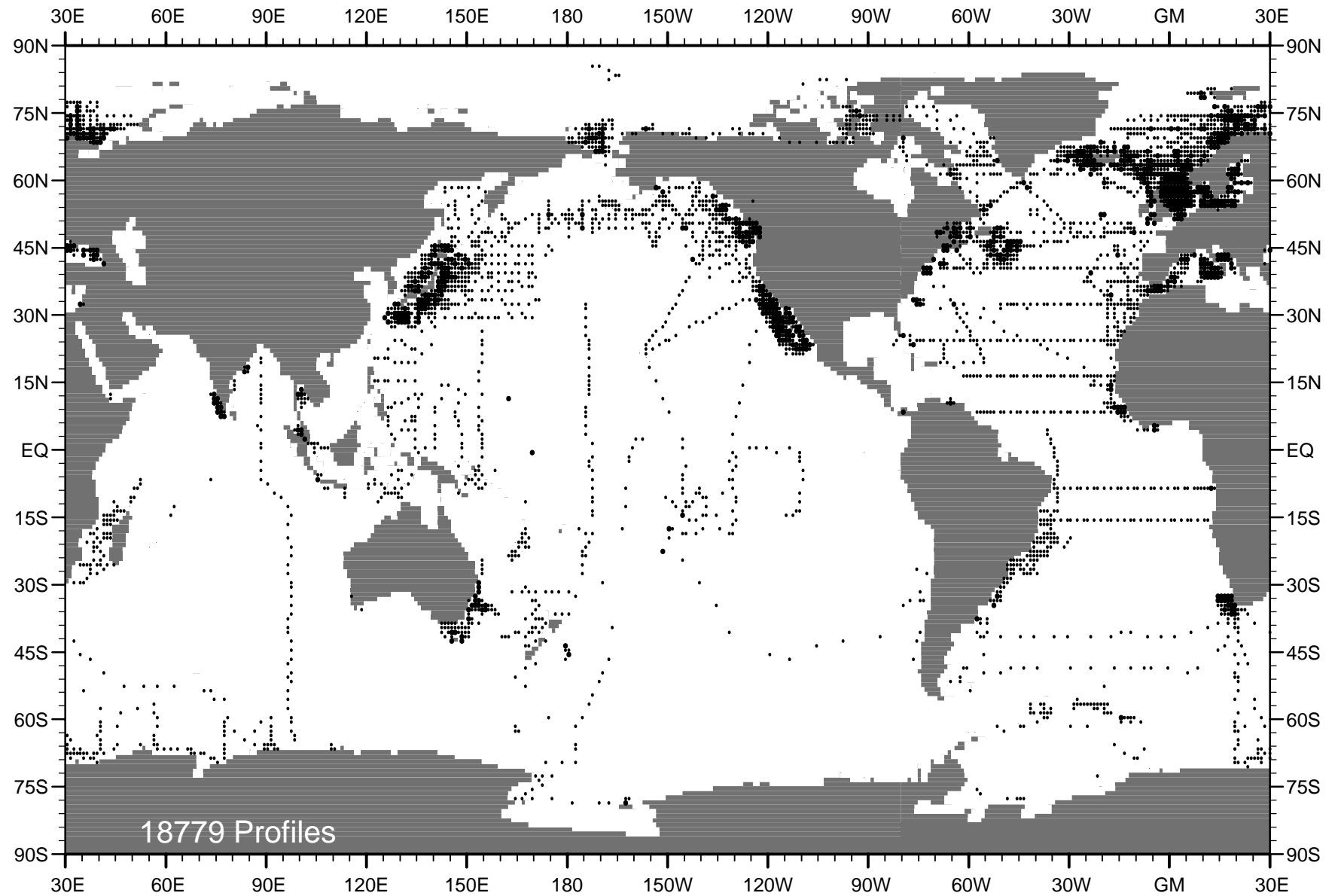


Fig. B58 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1957 .

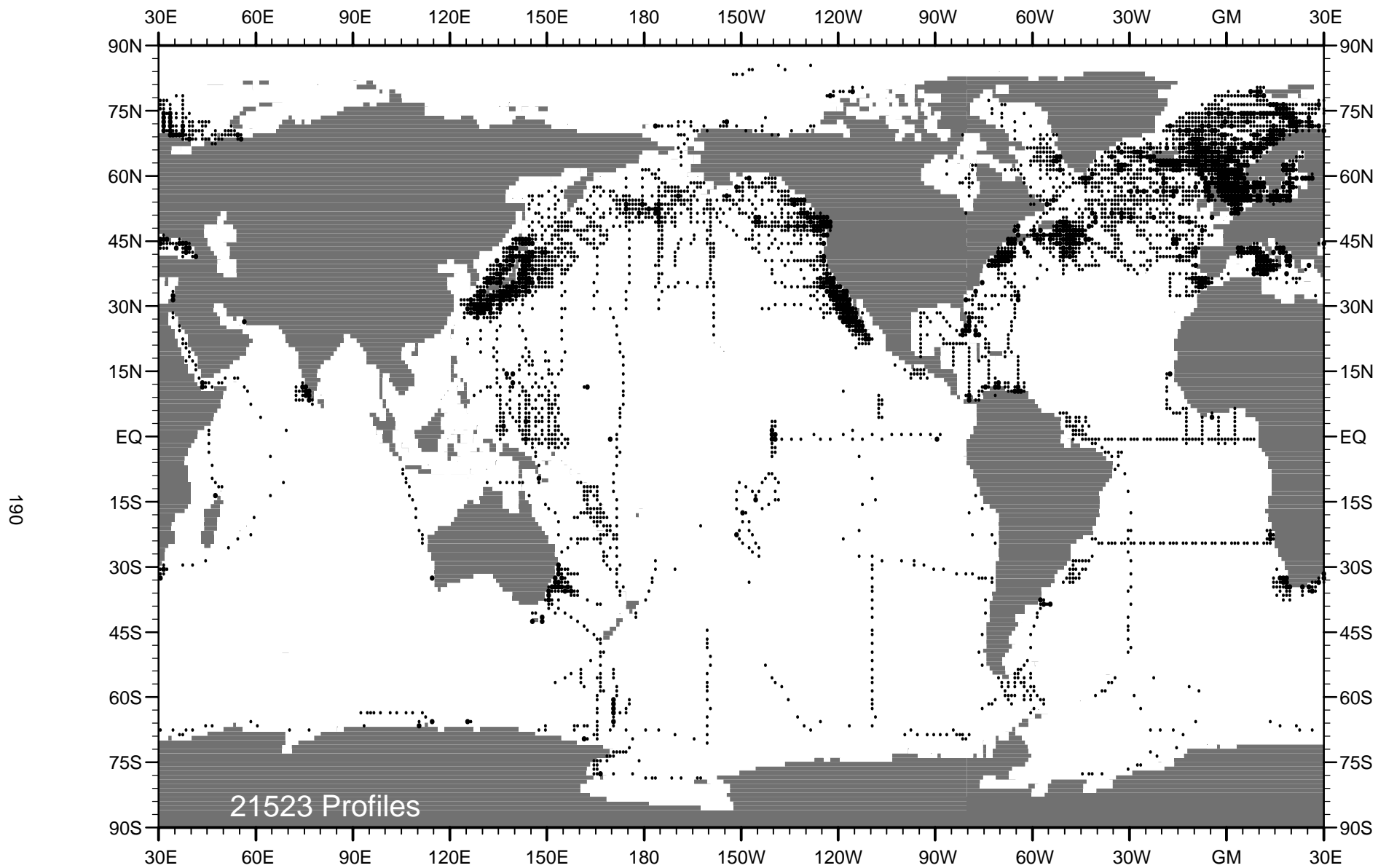


Fig. B59 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1958 .

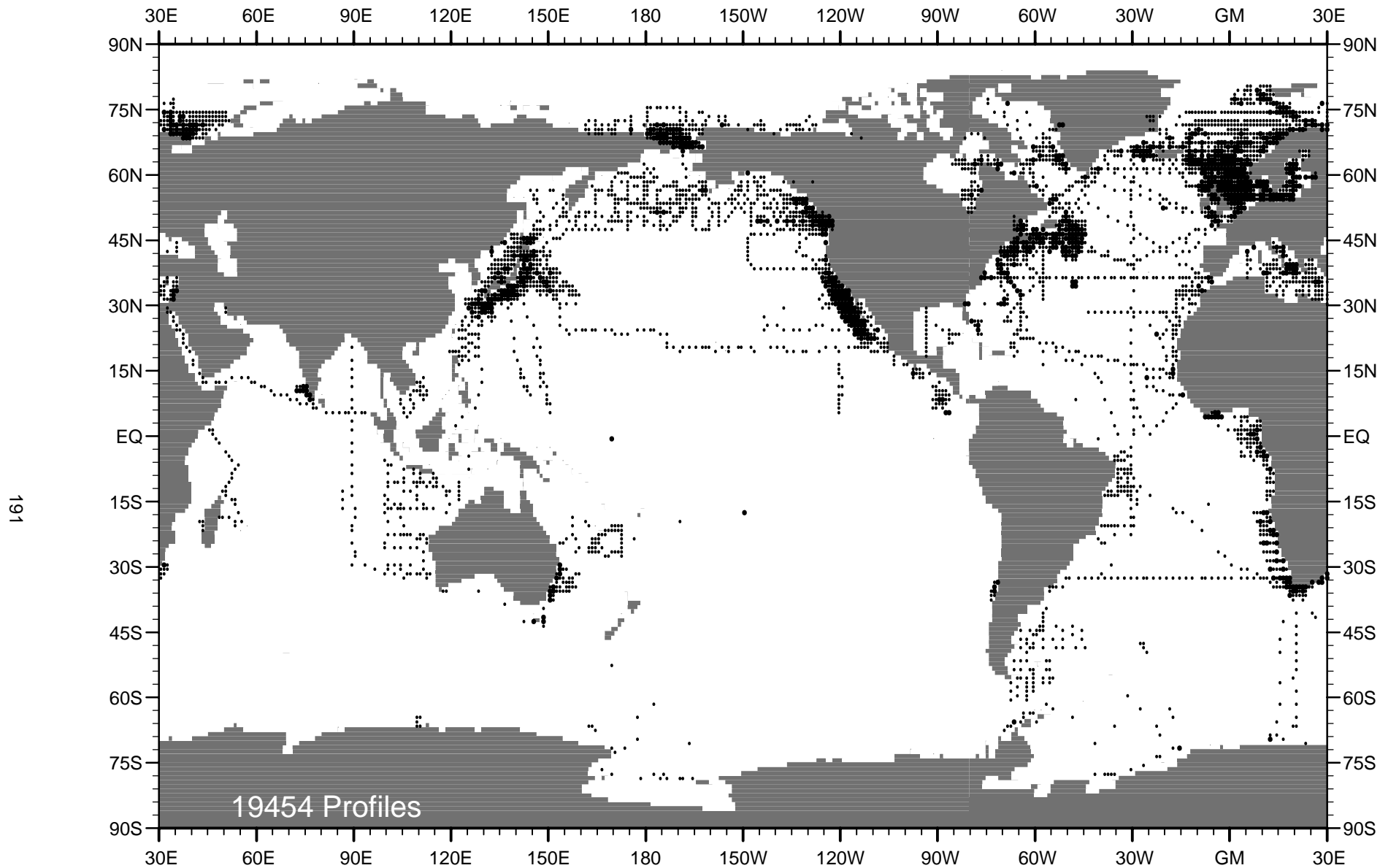


Fig. B60 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1959 .

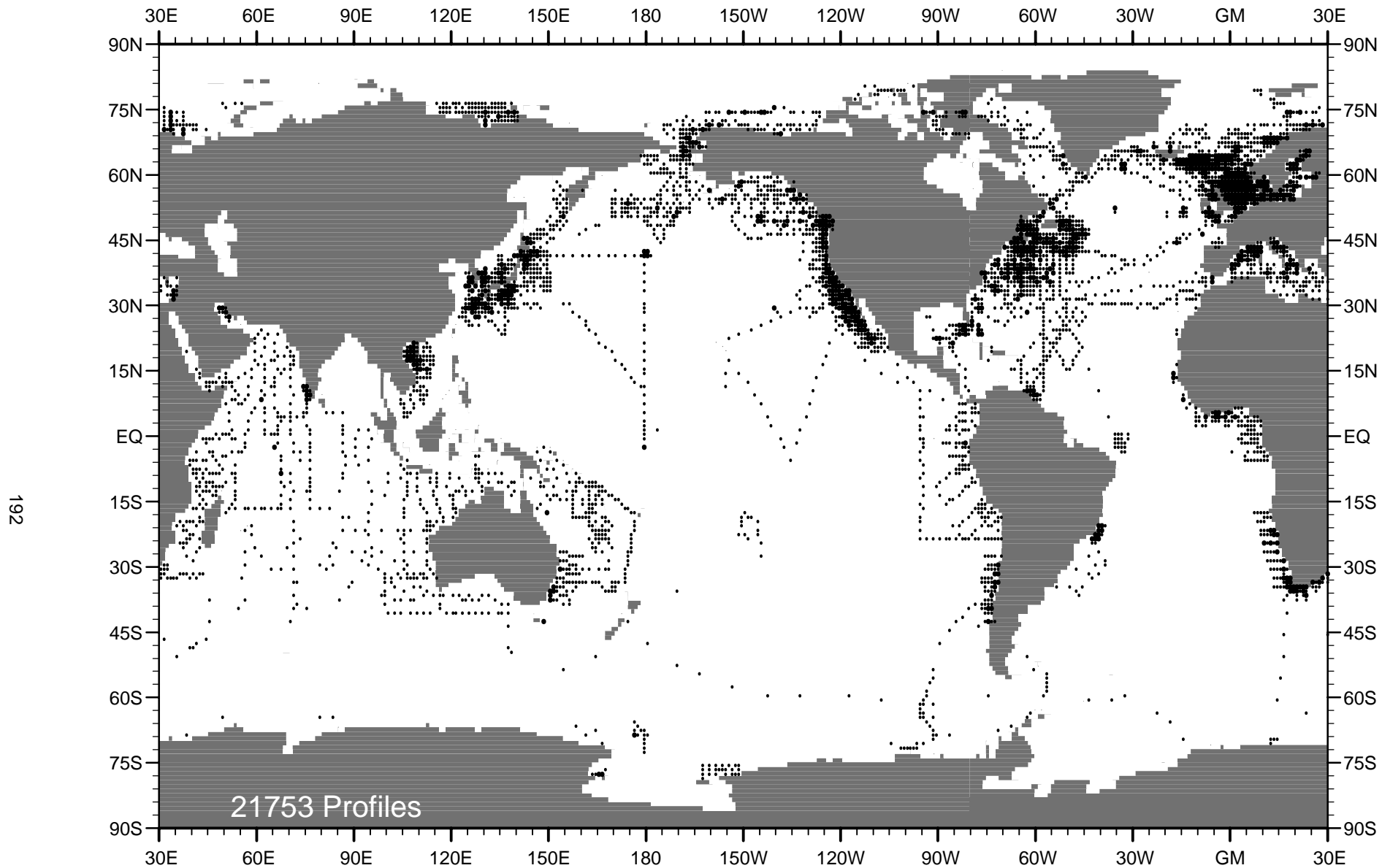


Fig. B61 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1960 .

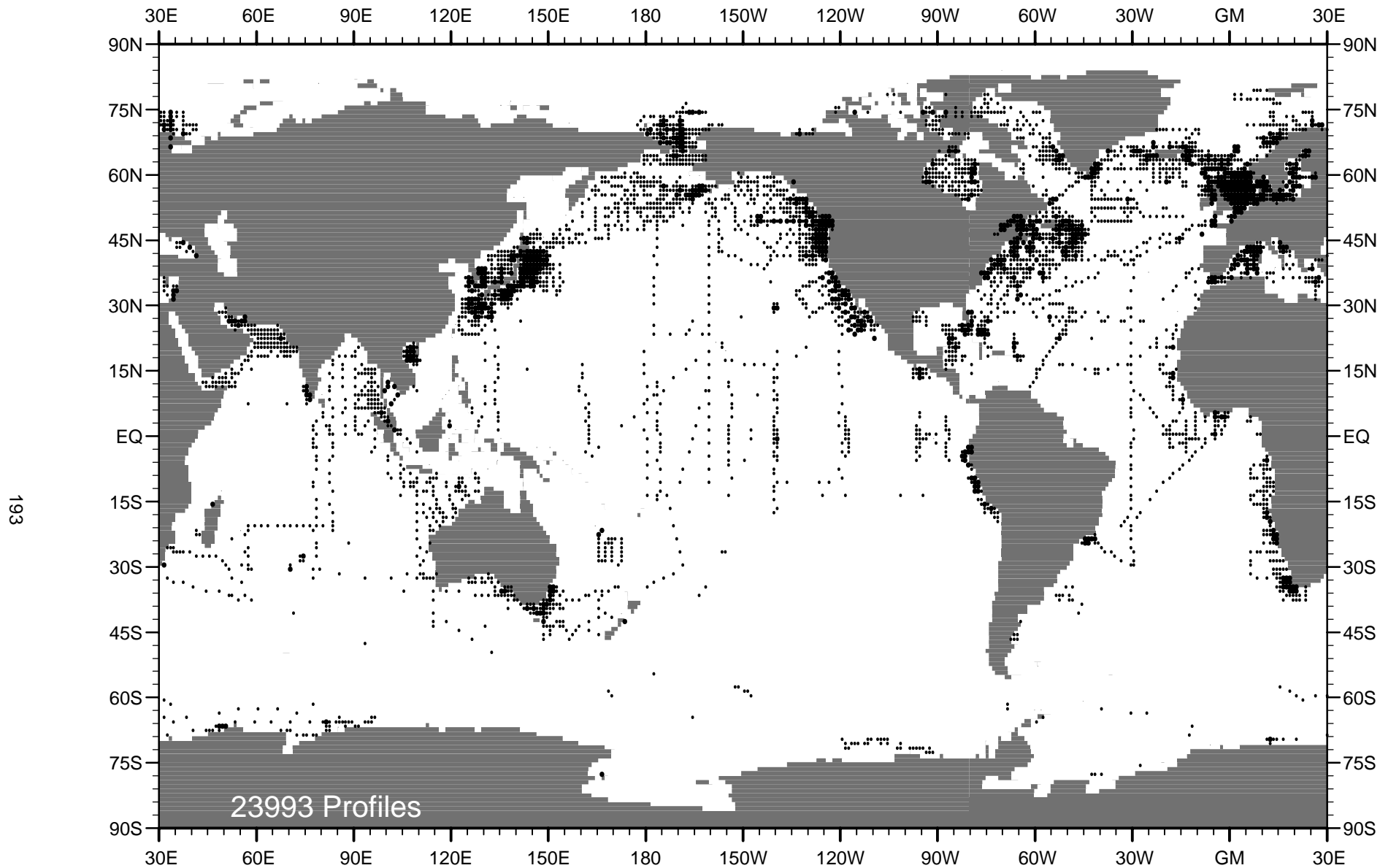


Fig. B62 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1961 .

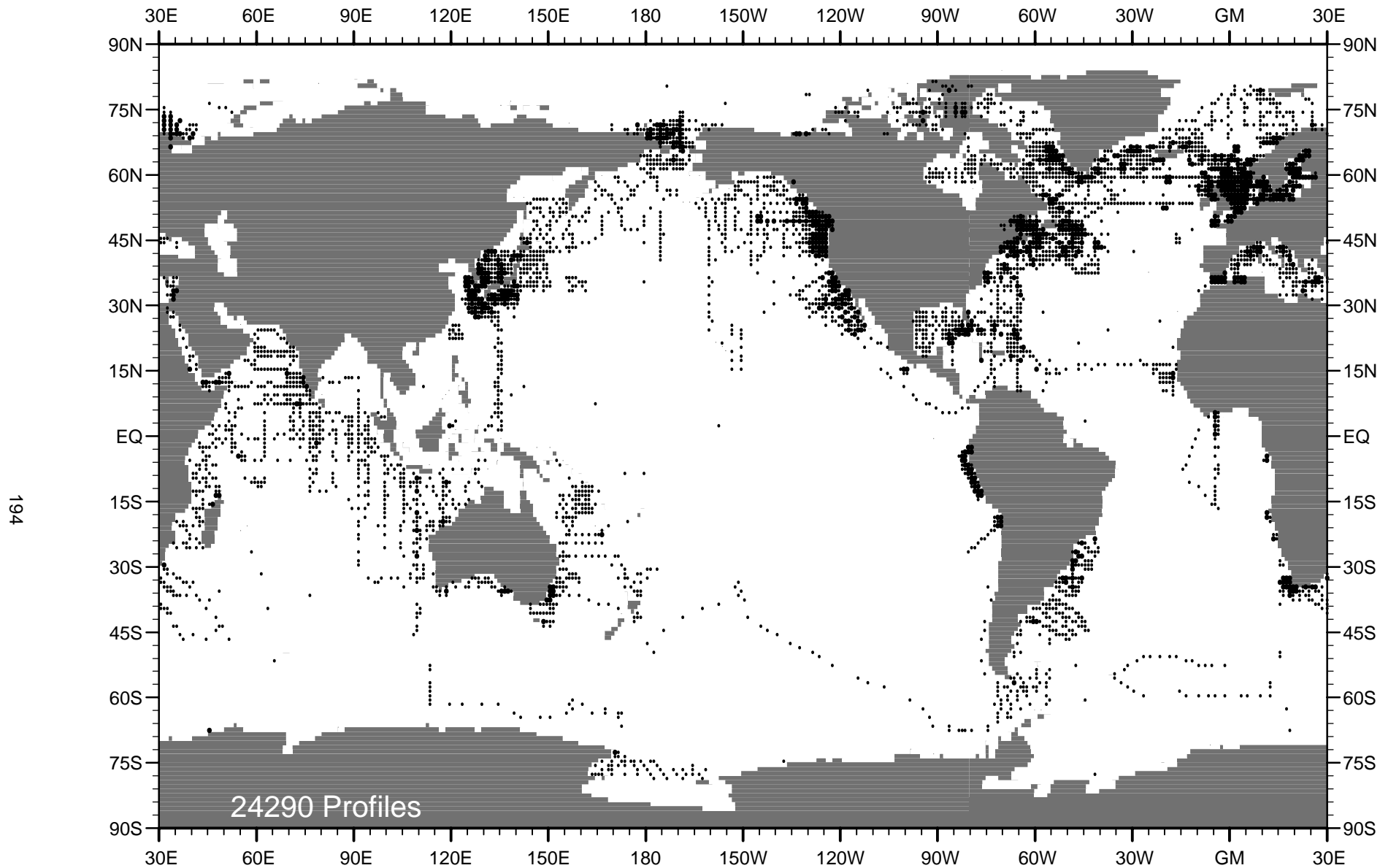


Fig. B63 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1962 .

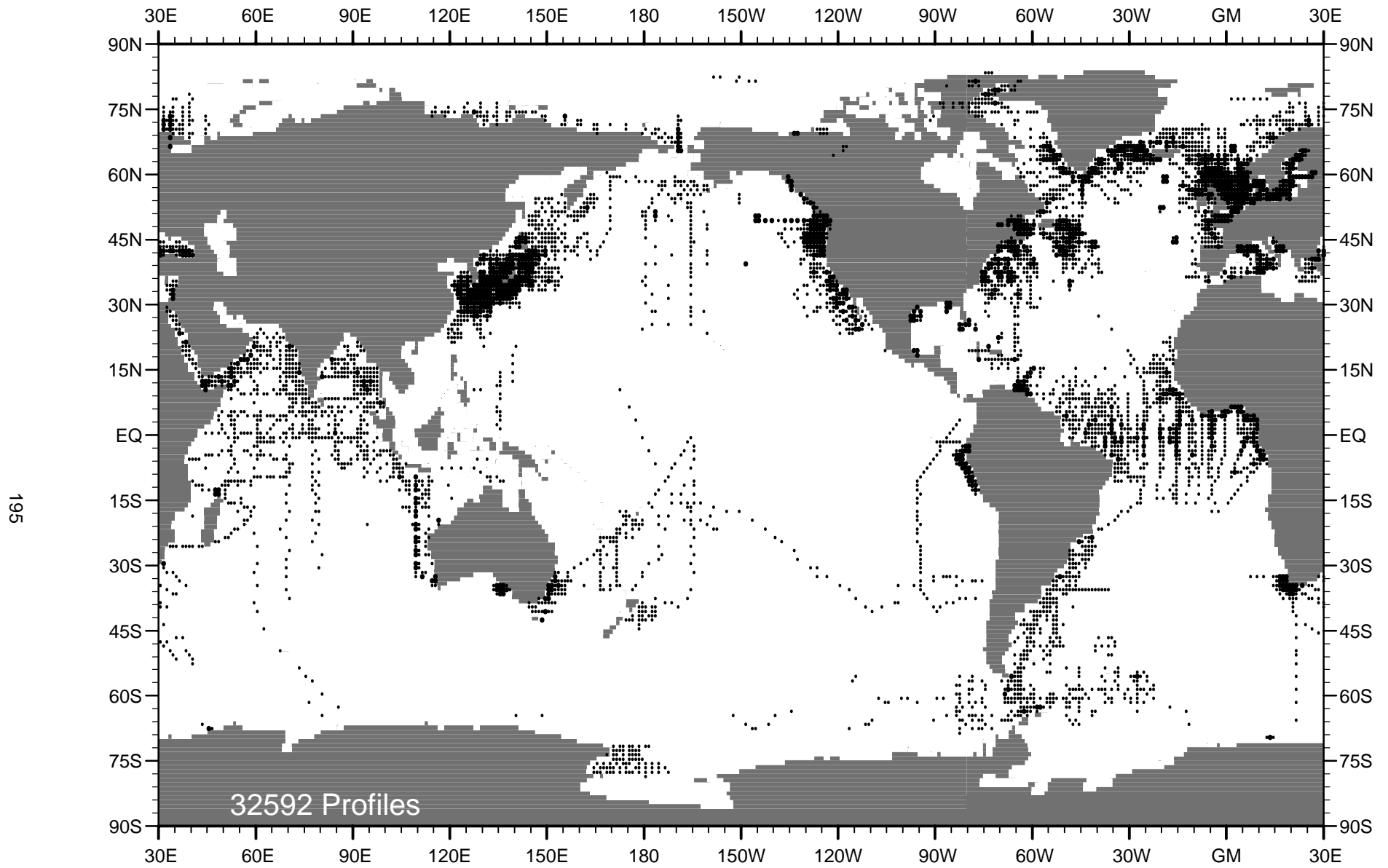


Fig. B64 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1963 .



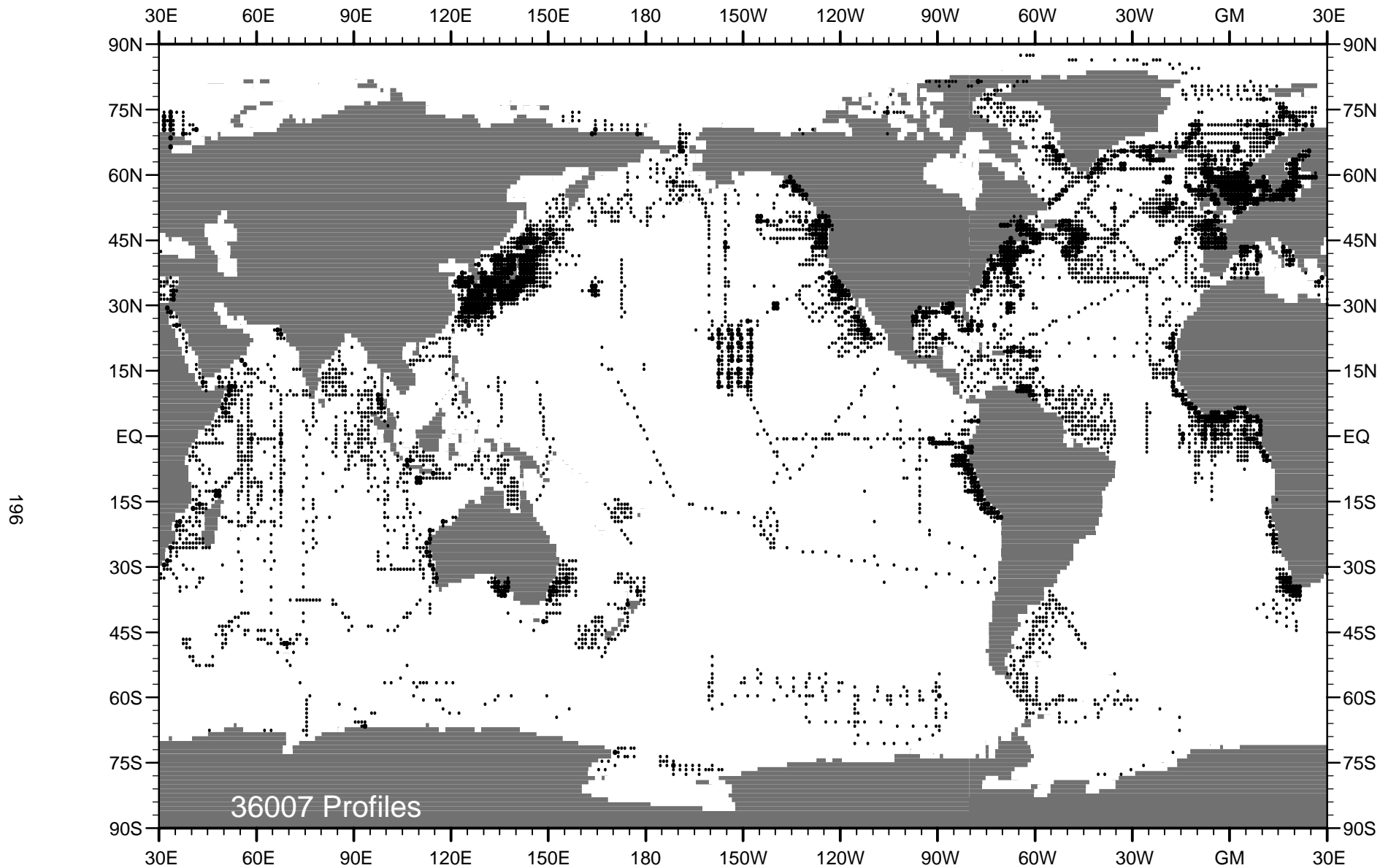


Fig. B65 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1964 .

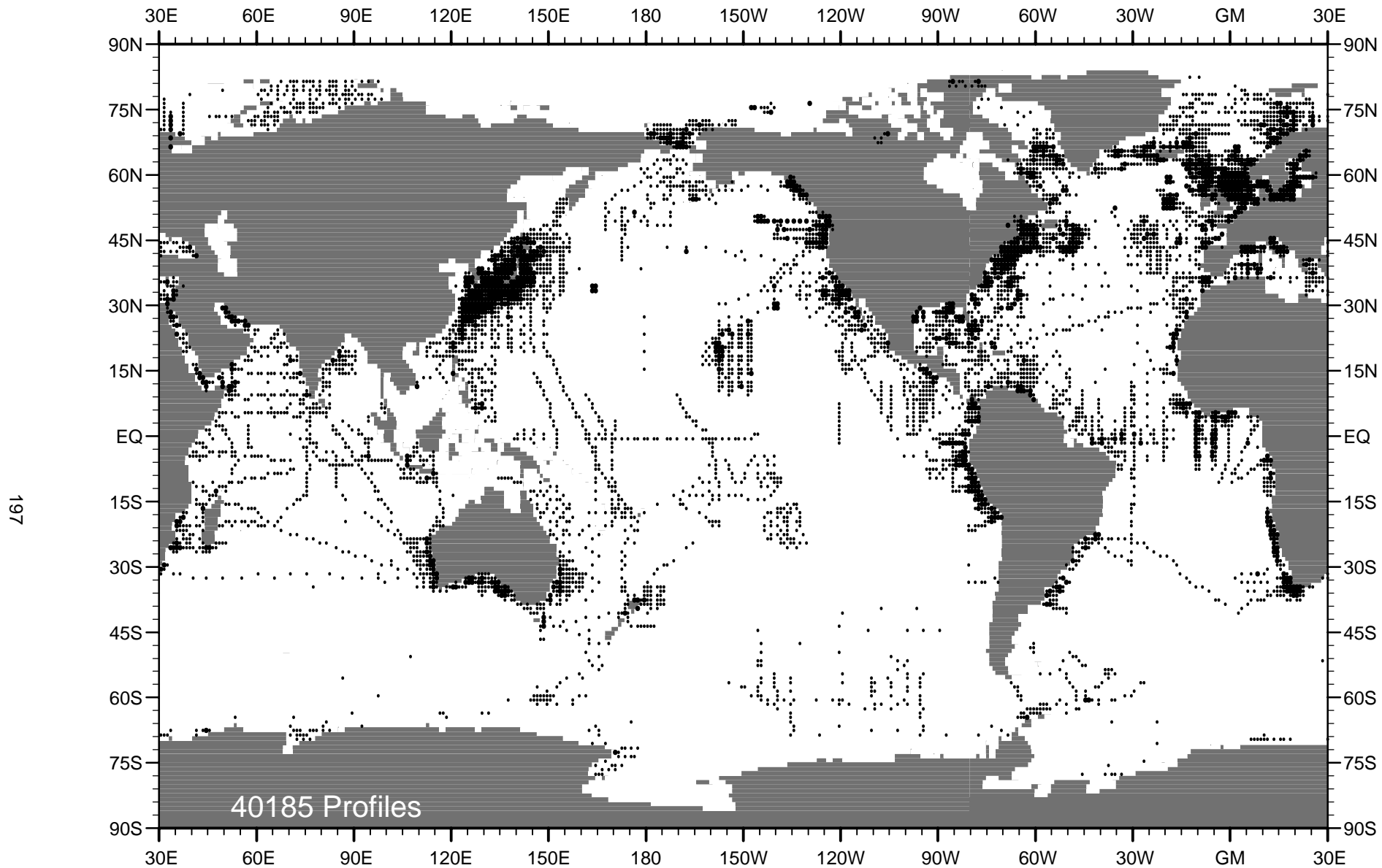


Fig. B66 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1965 .

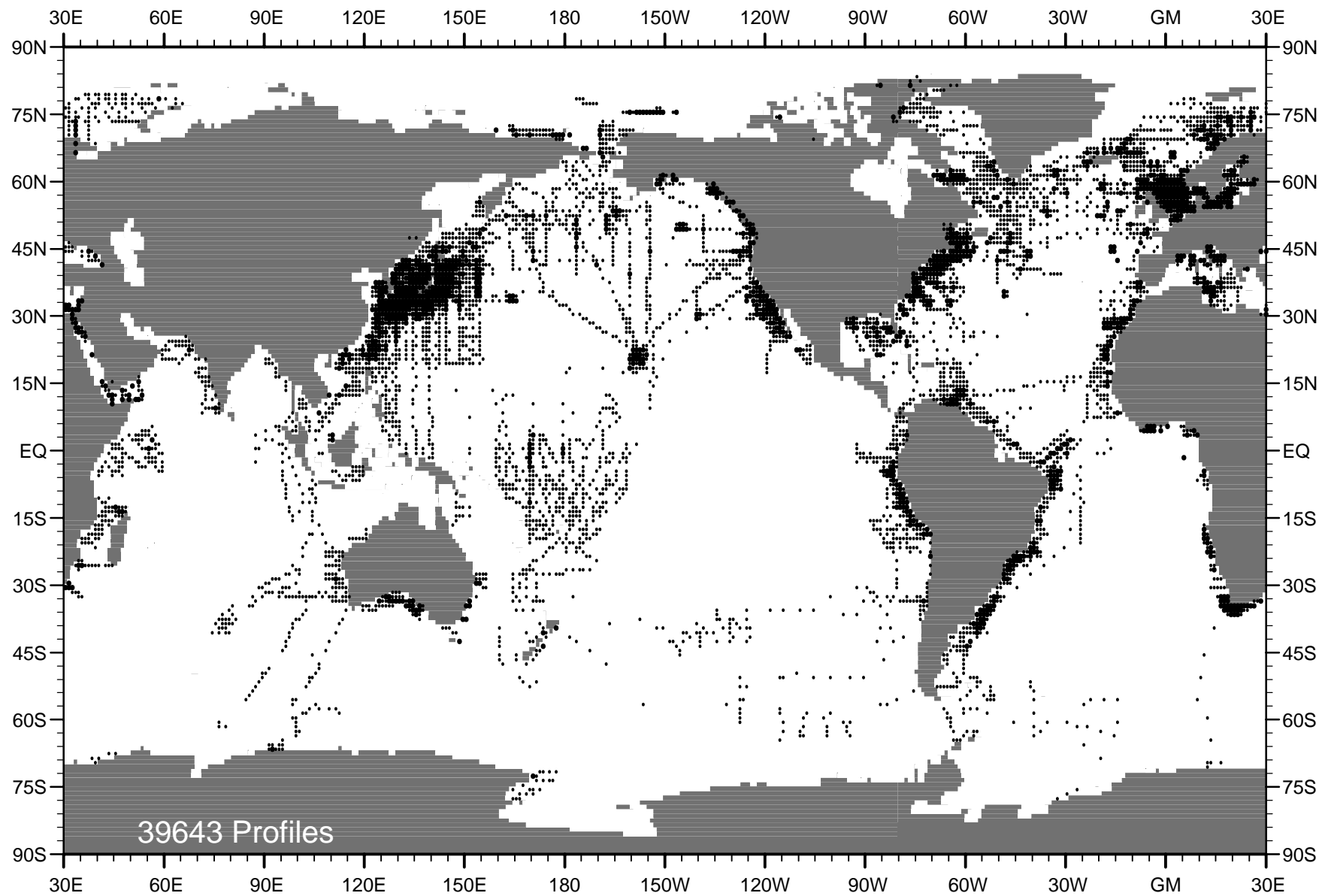


Fig. B67 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1966 .

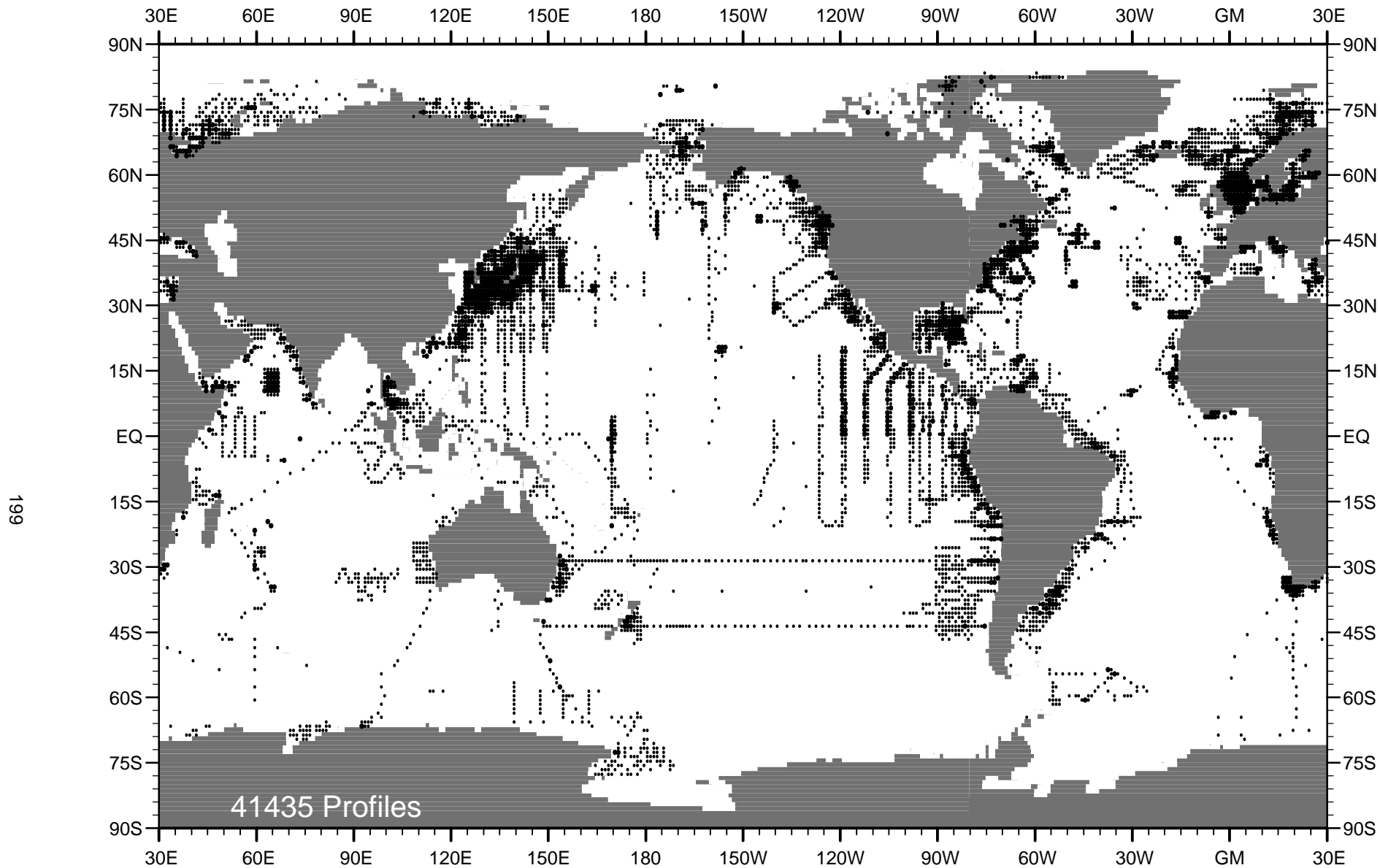


Fig. B68 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1967 .

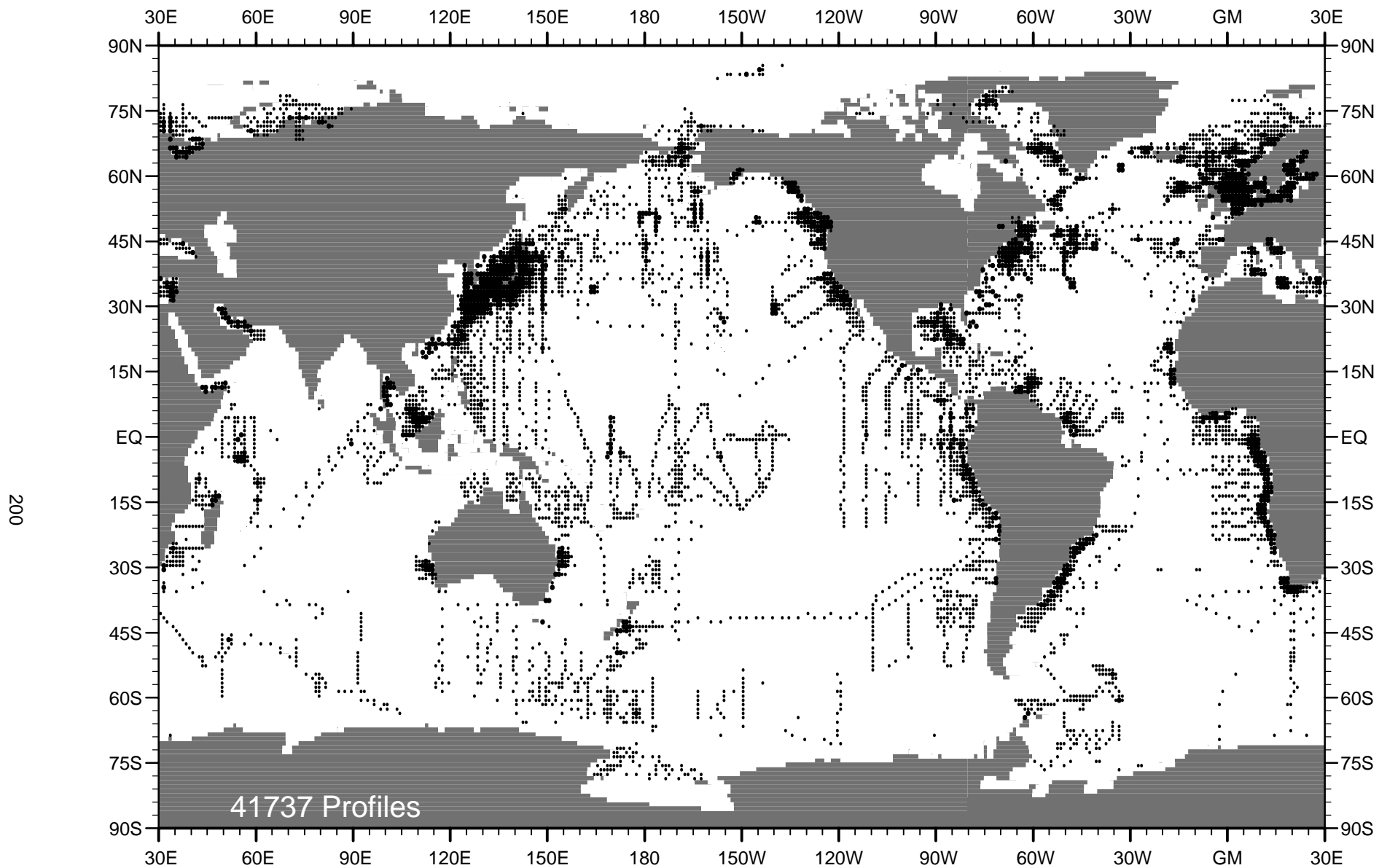


Fig. B69 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1968 .

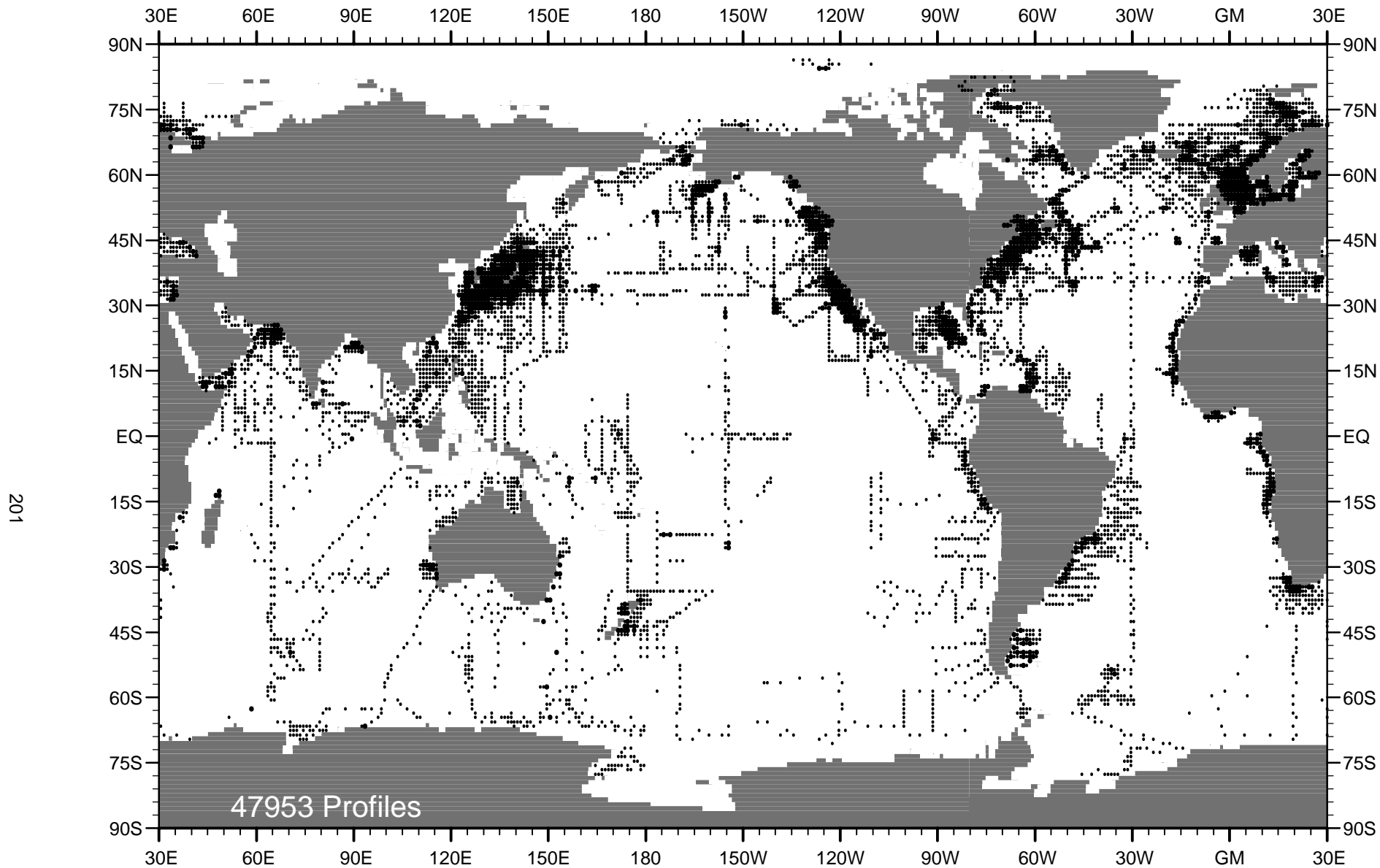


Fig. B70 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1969 .

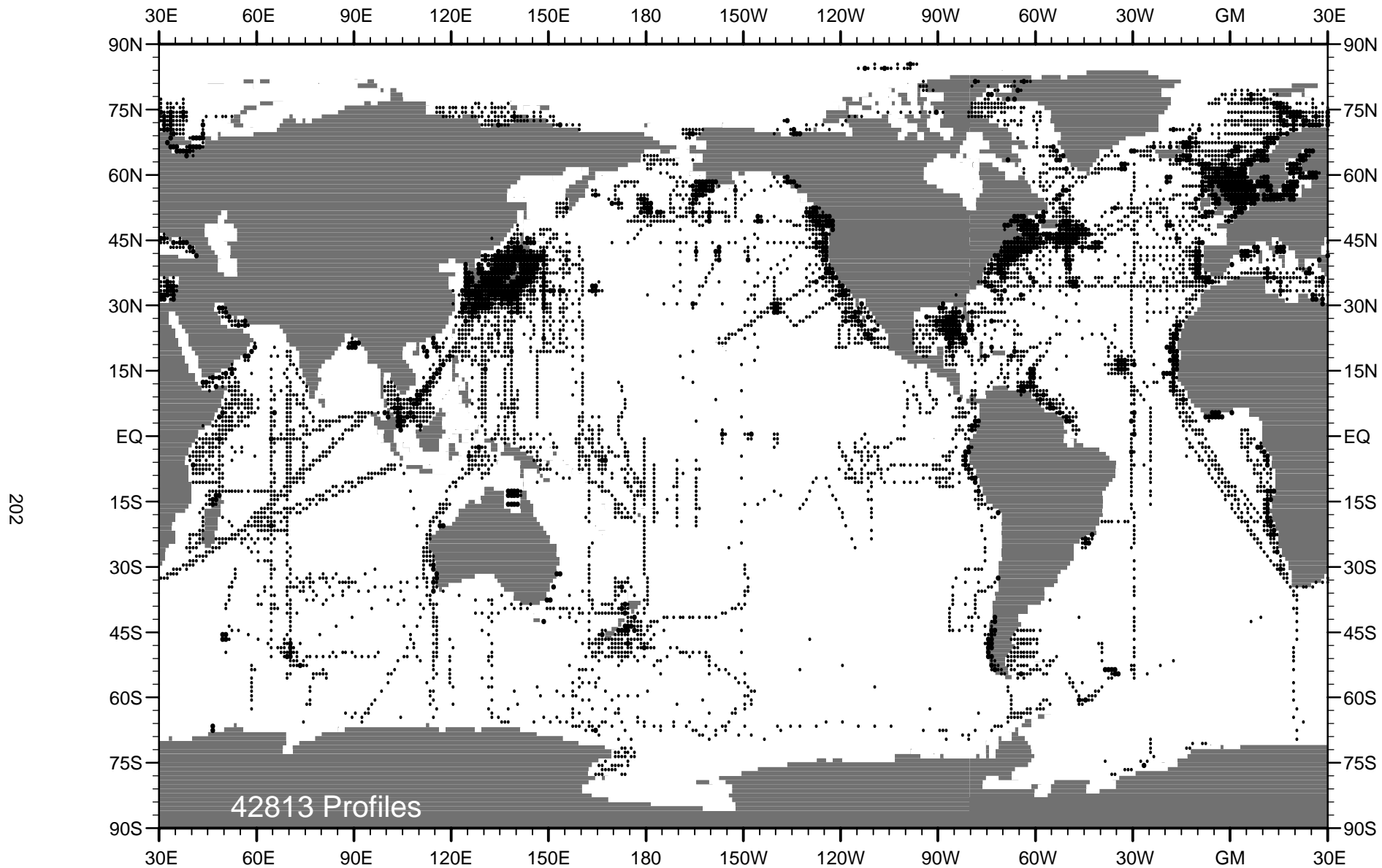


Fig. B71 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1970 .

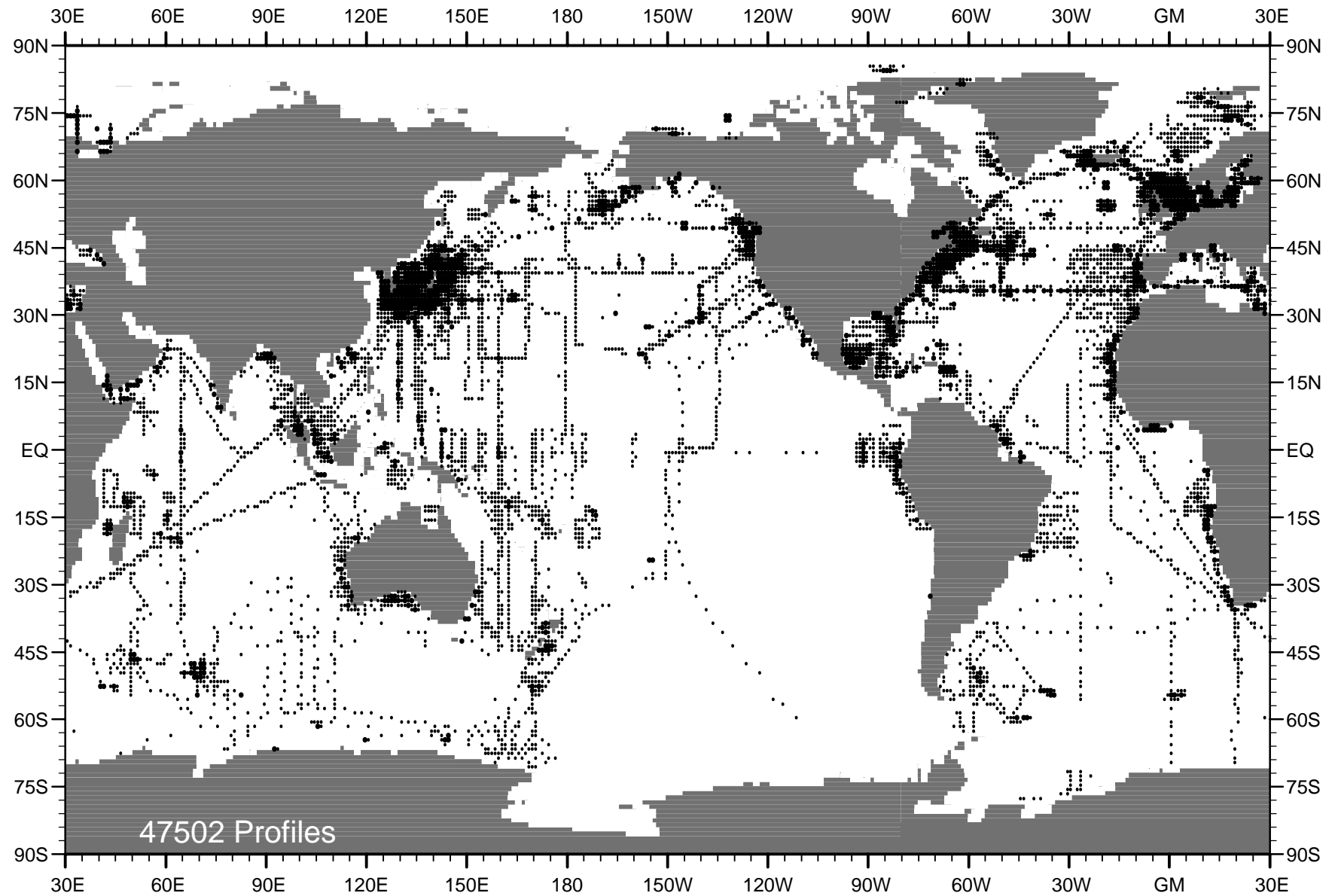


Fig. B72 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1971 .



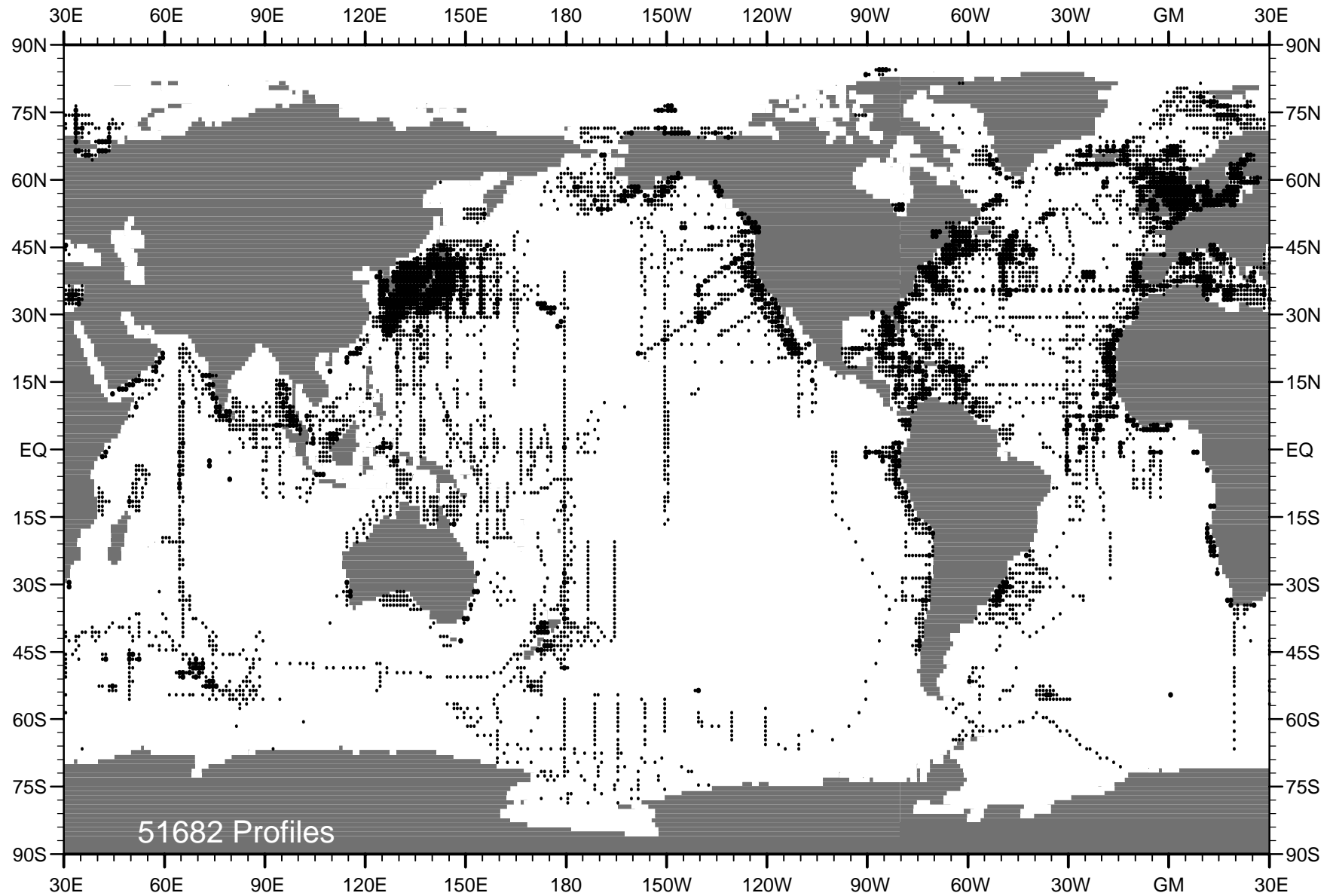


Fig. B73 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1972 .

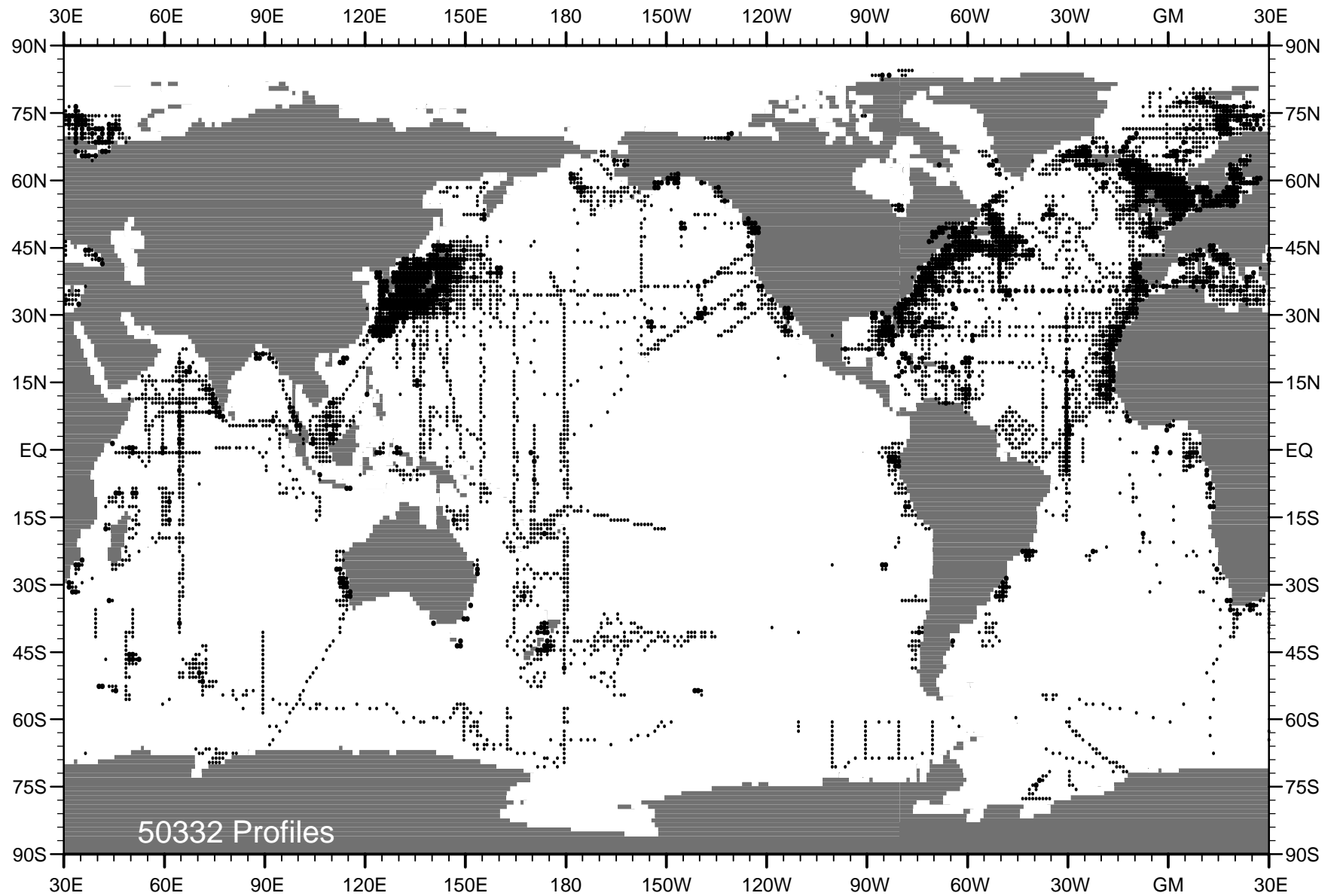


Fig. B74 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1973 .

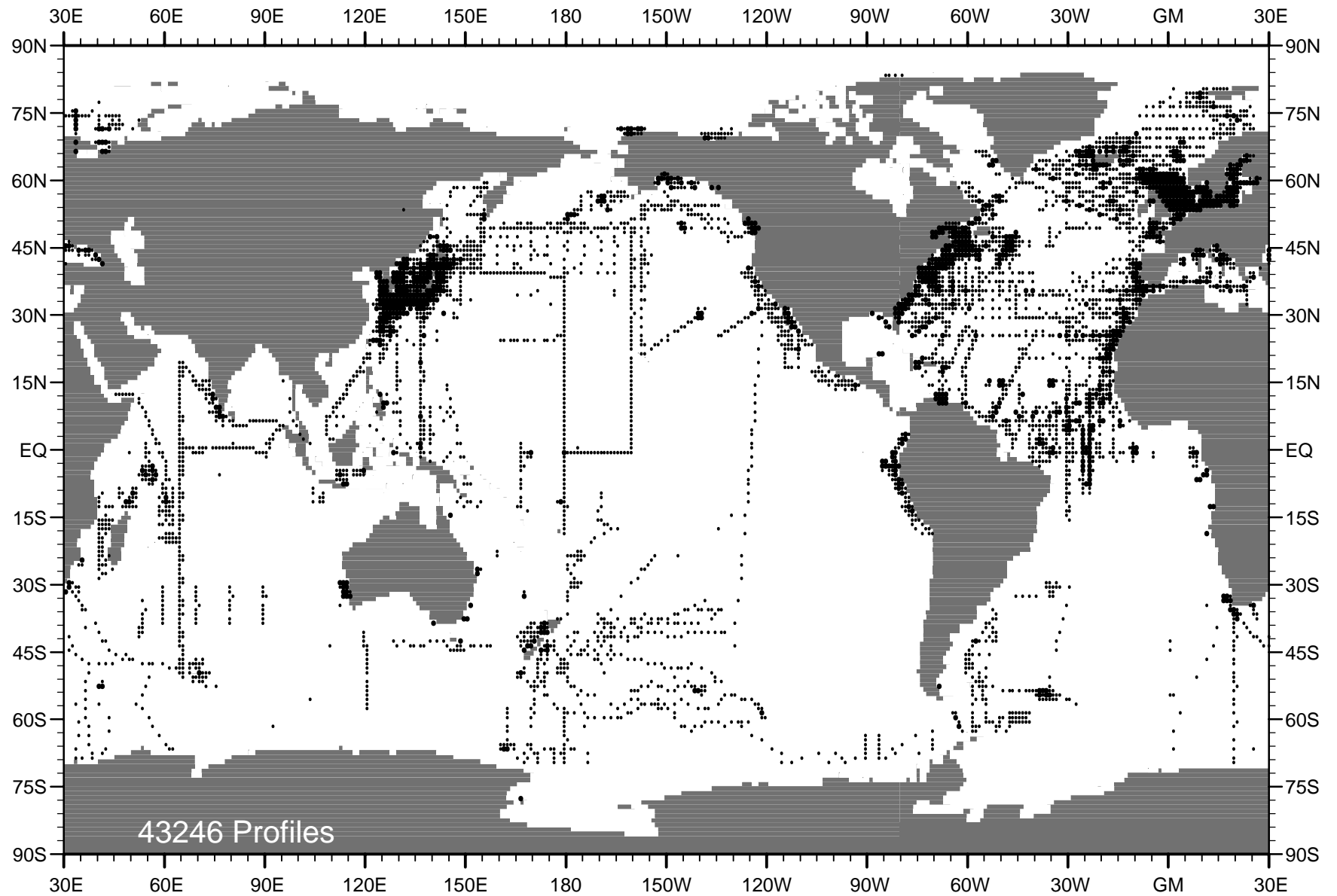


Fig. B75 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1974 .

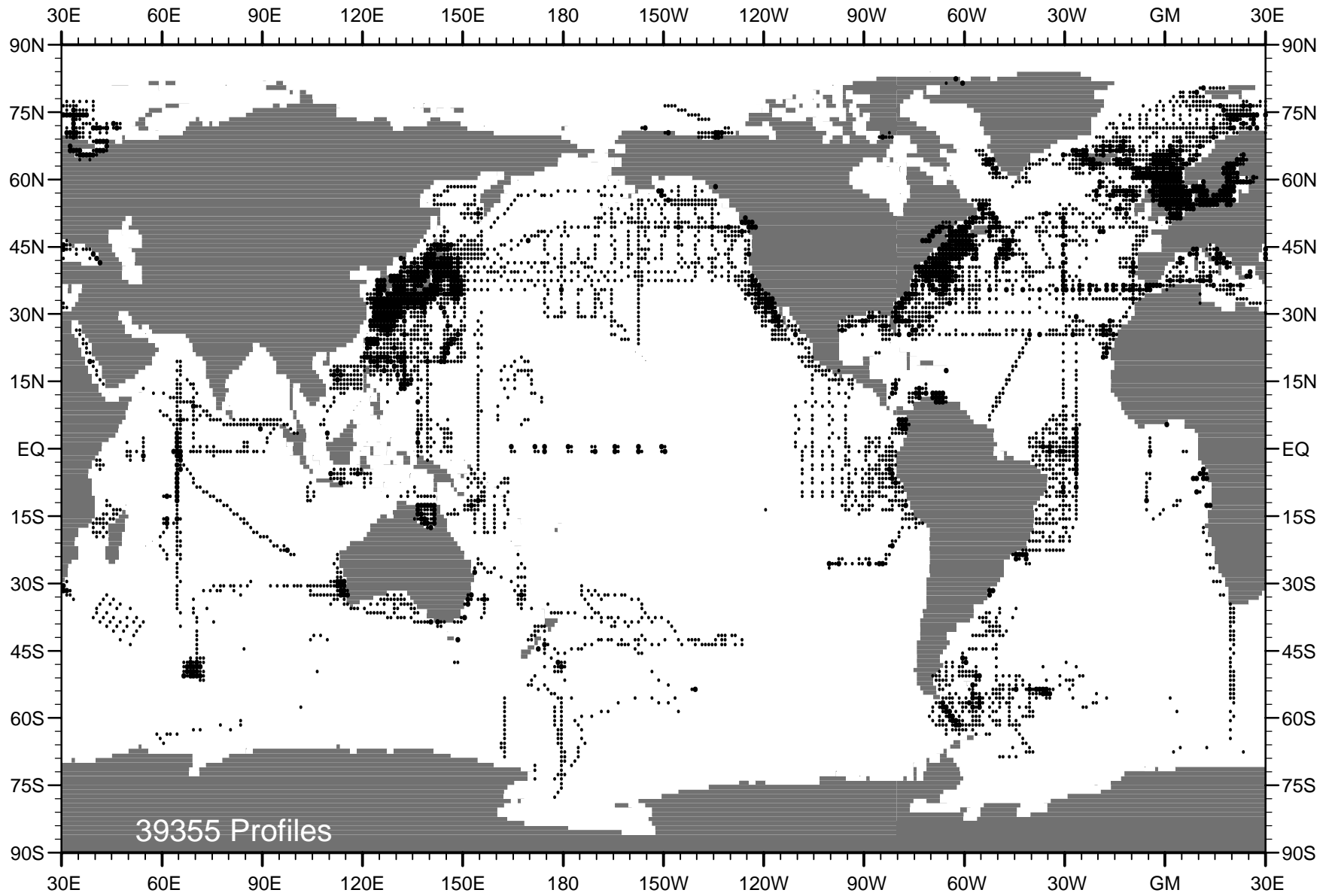


Fig. B76 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1975 .

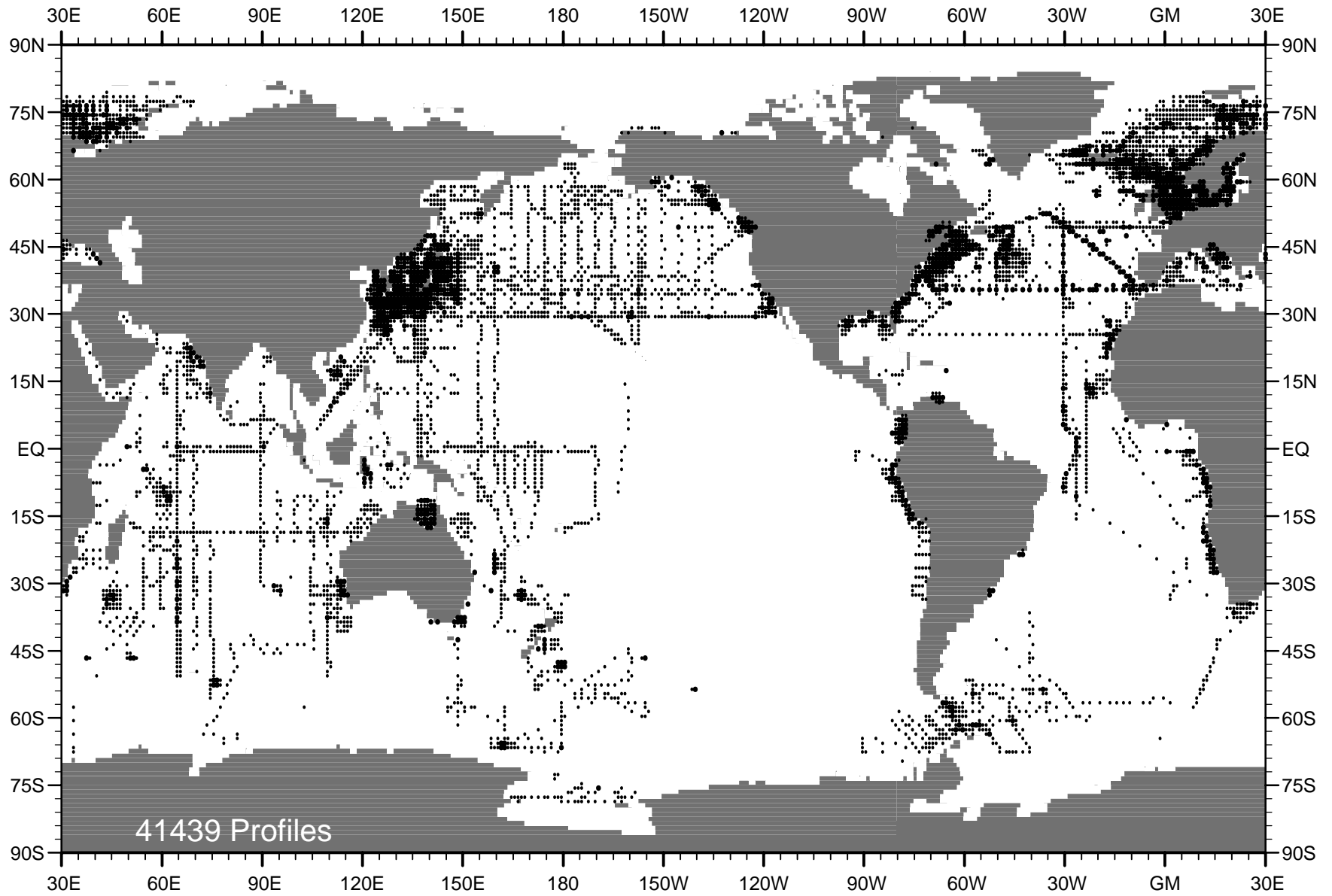


Fig. B77 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1976 .

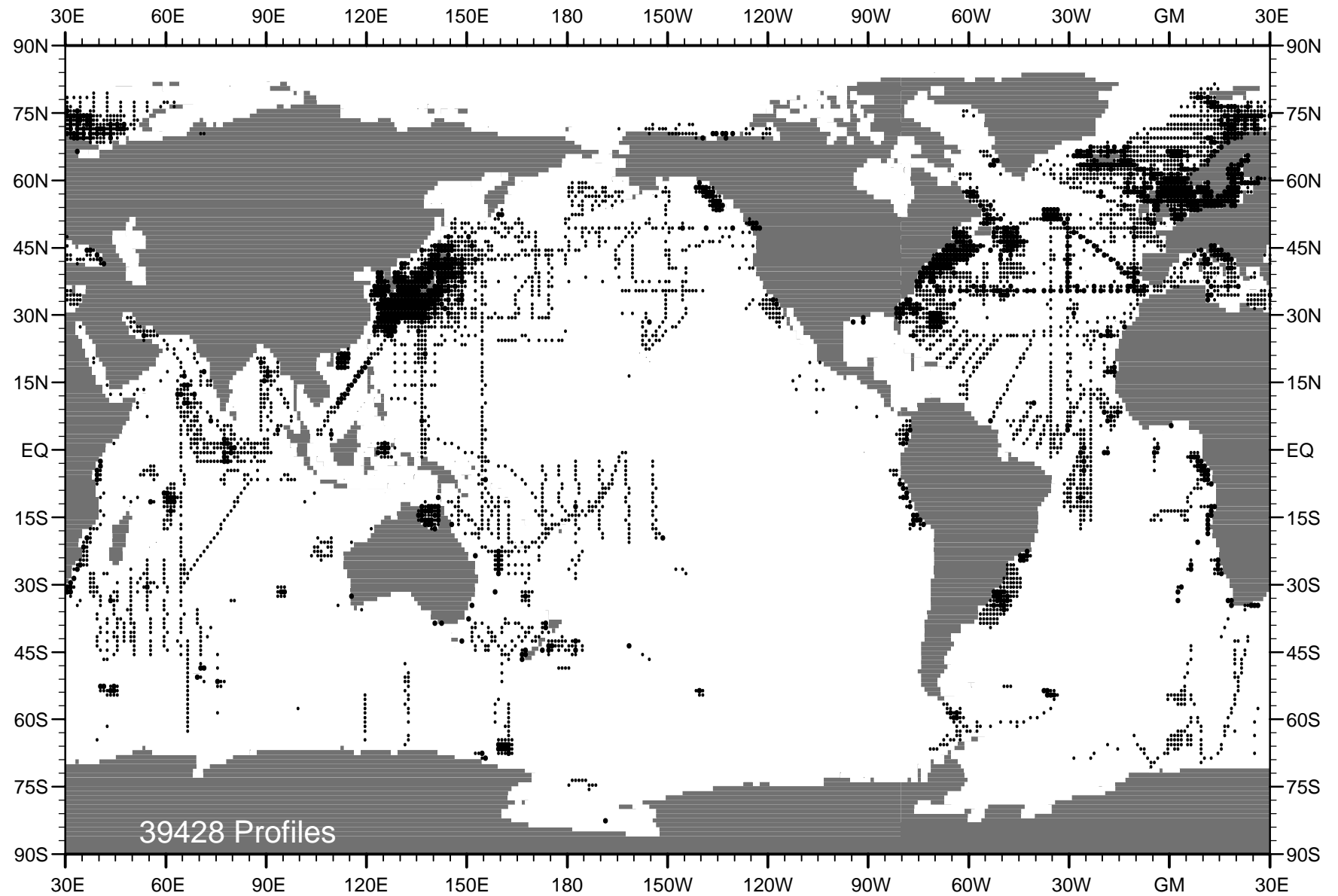


Fig. B78 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1977 .

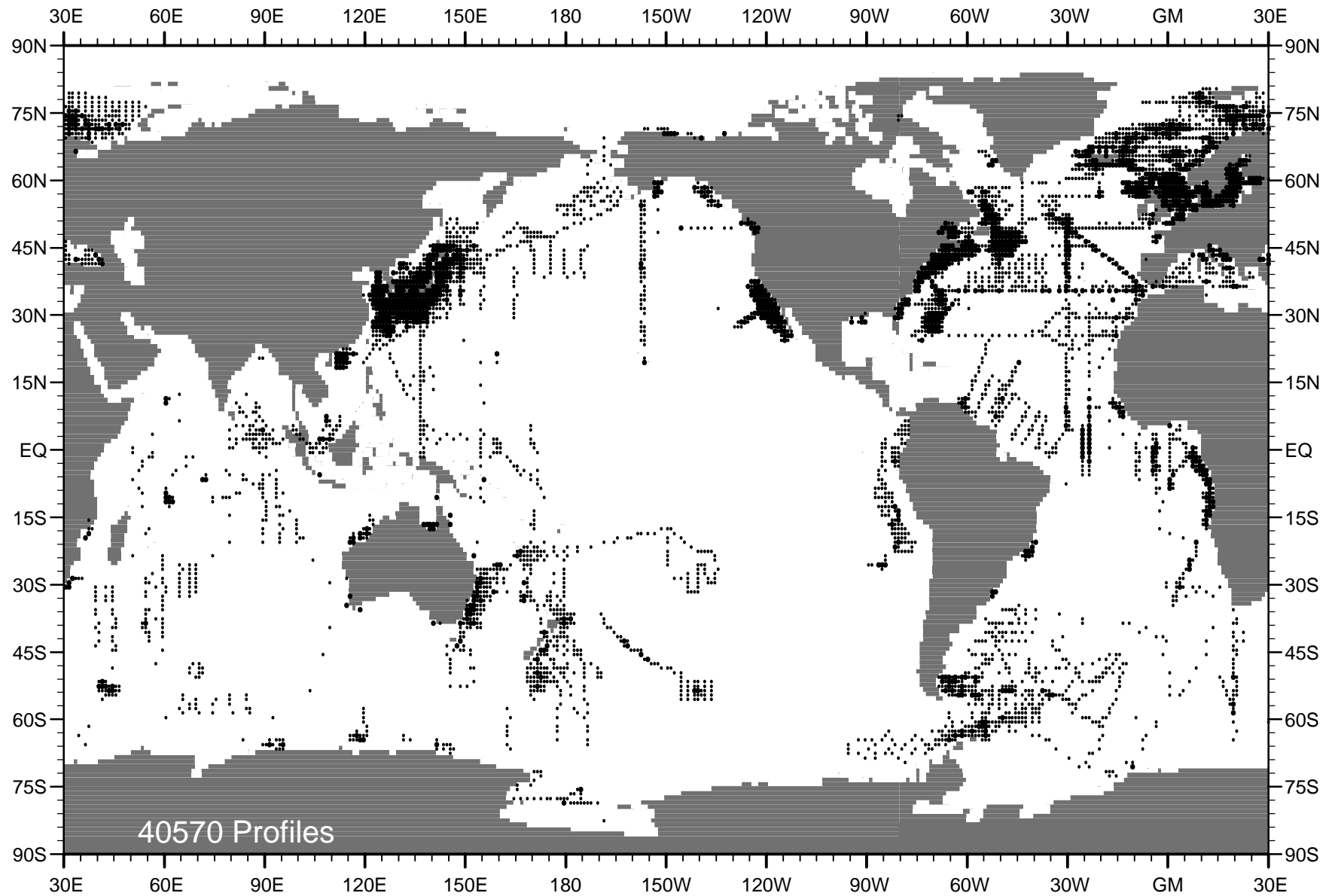


Fig. B79 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1978 .

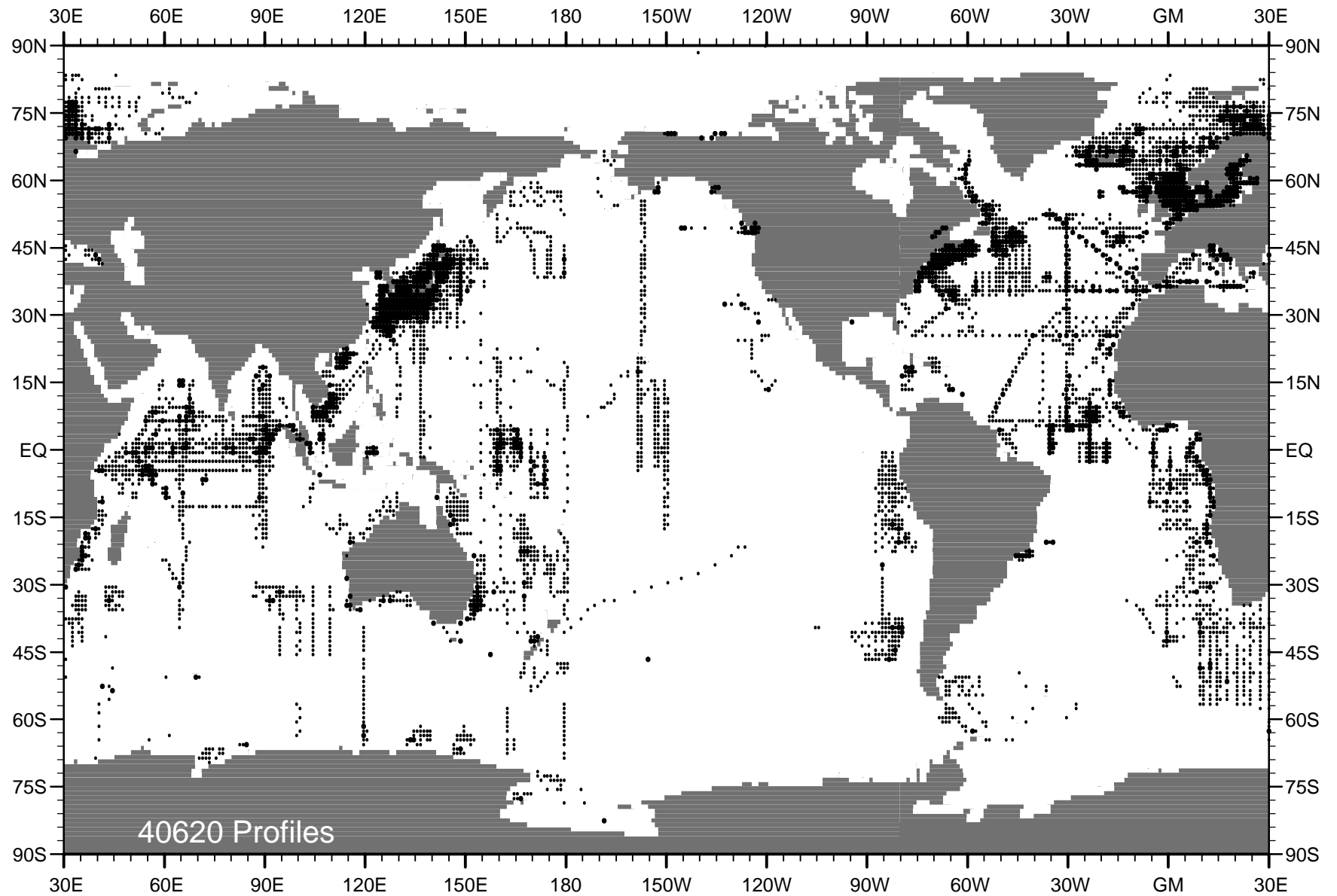


Fig. B80 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1979 .



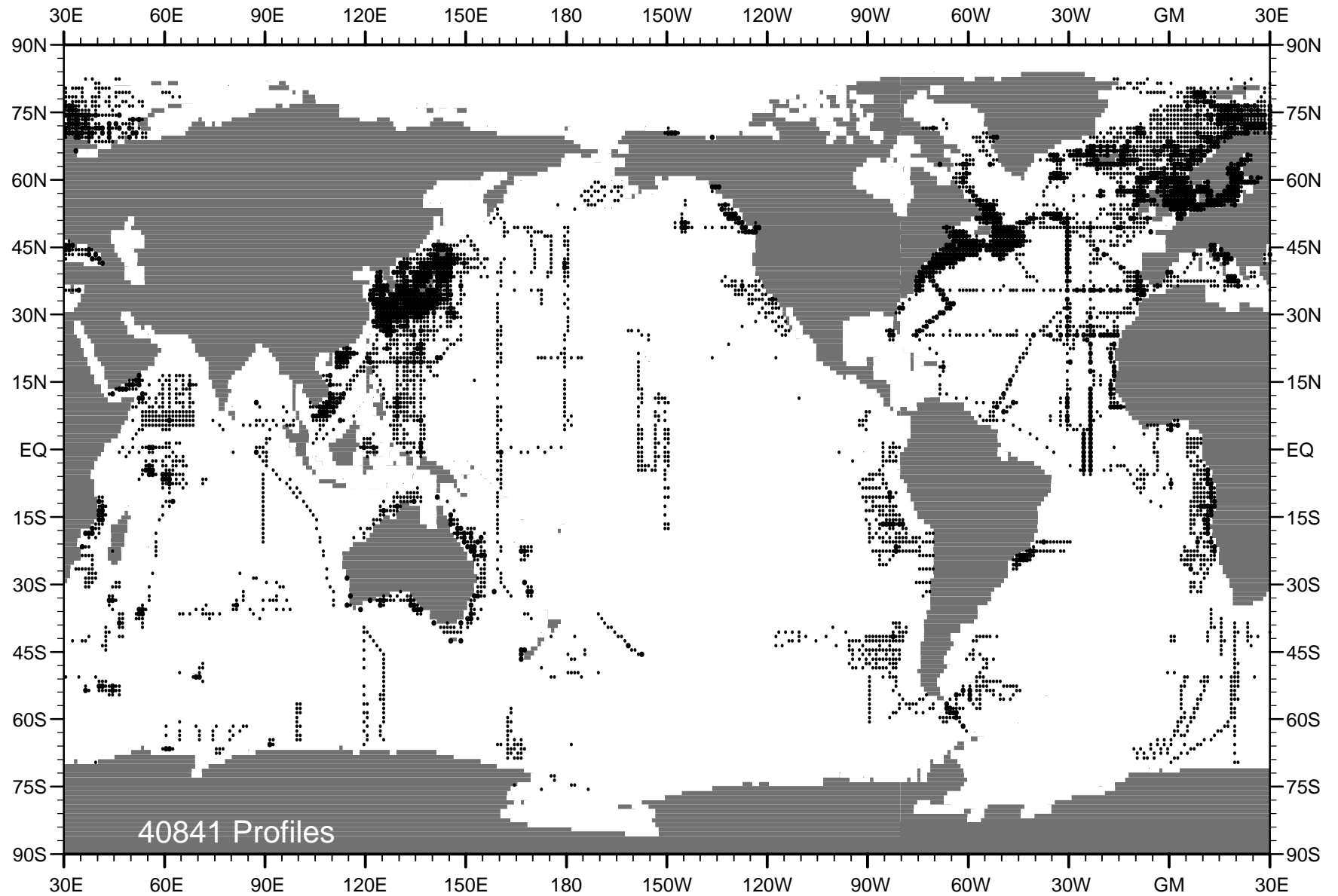


Fig. B81 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1980 .

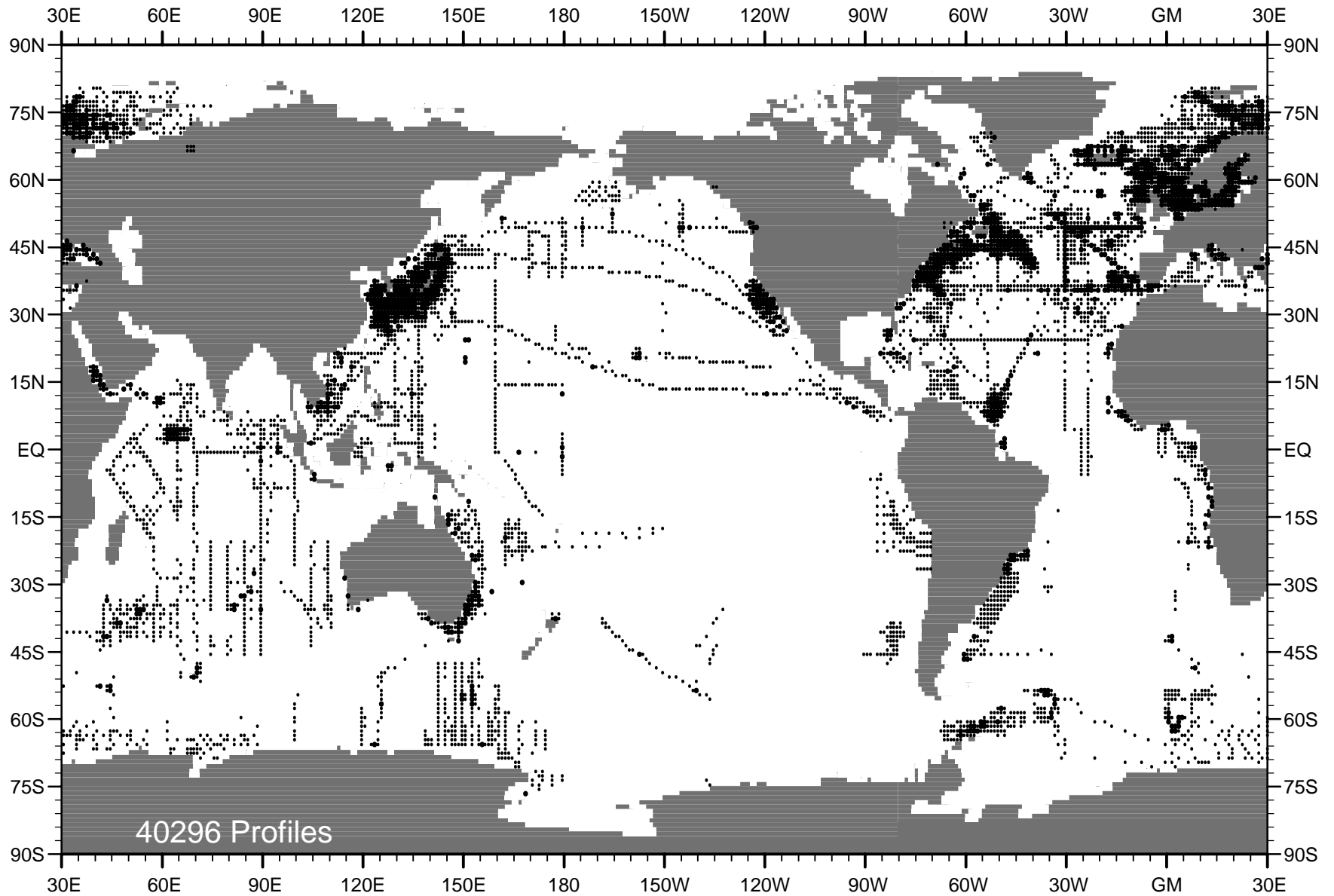


Fig. B82 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1981 .

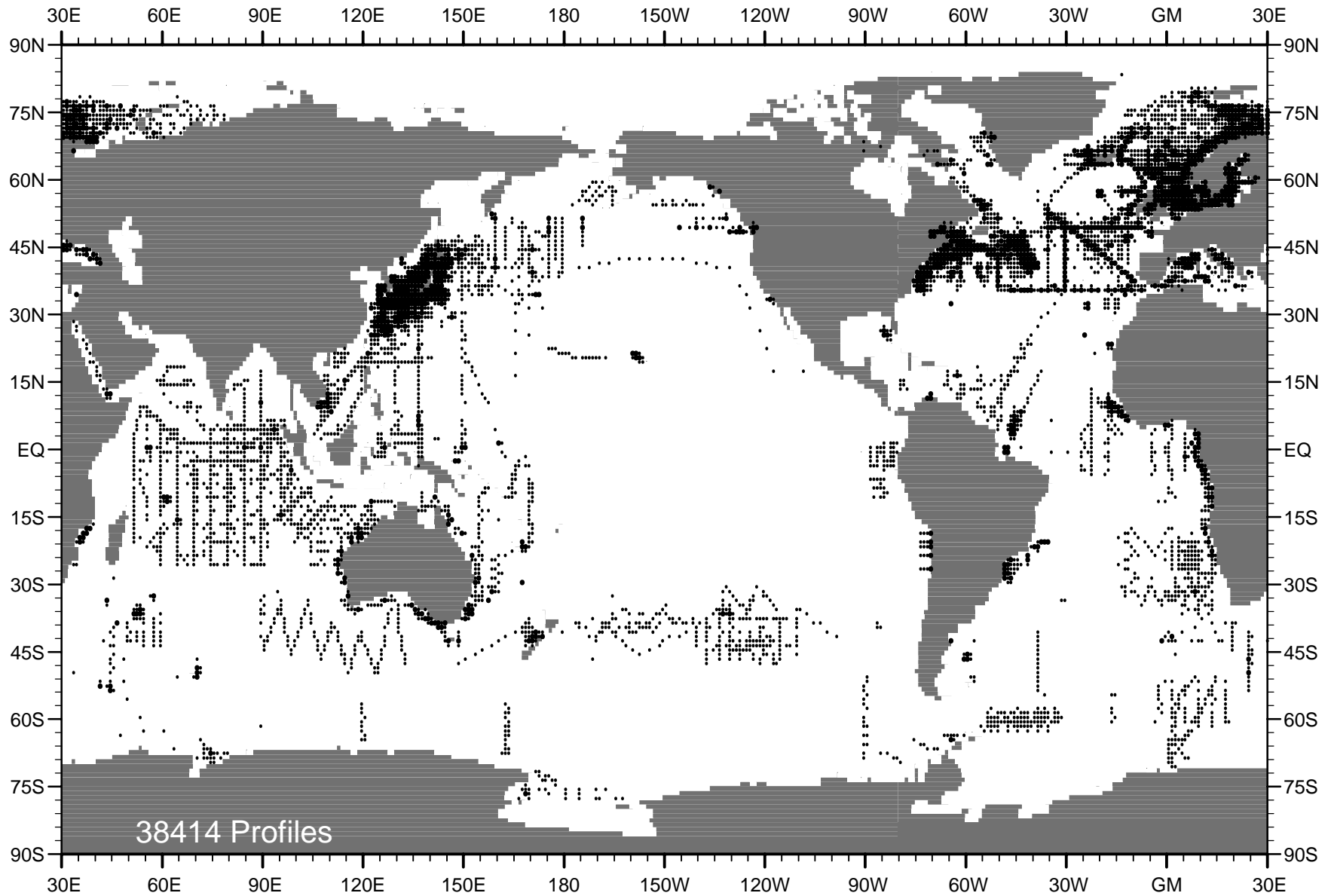


Fig. B83 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1982 .

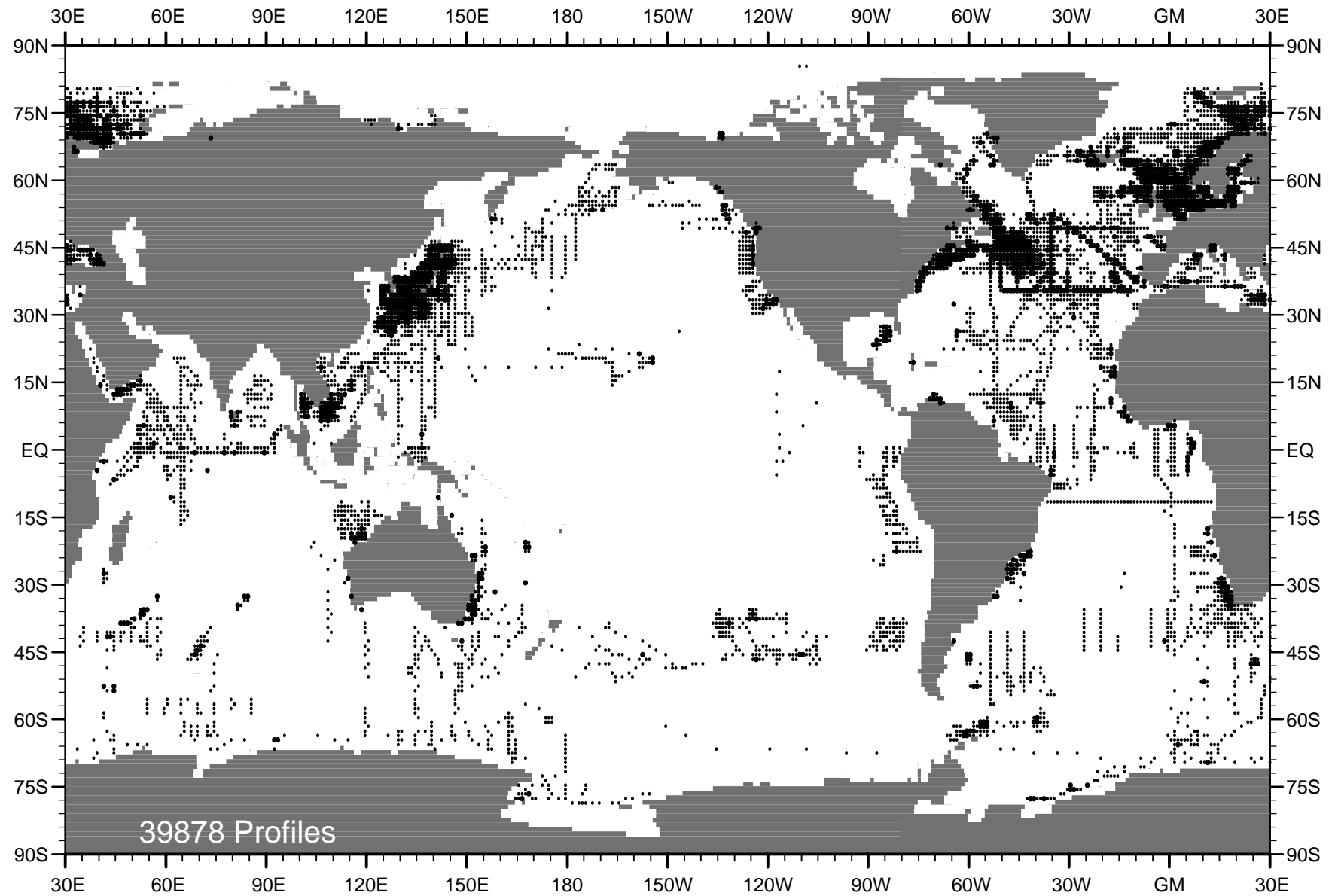


Fig. B84 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1983 .

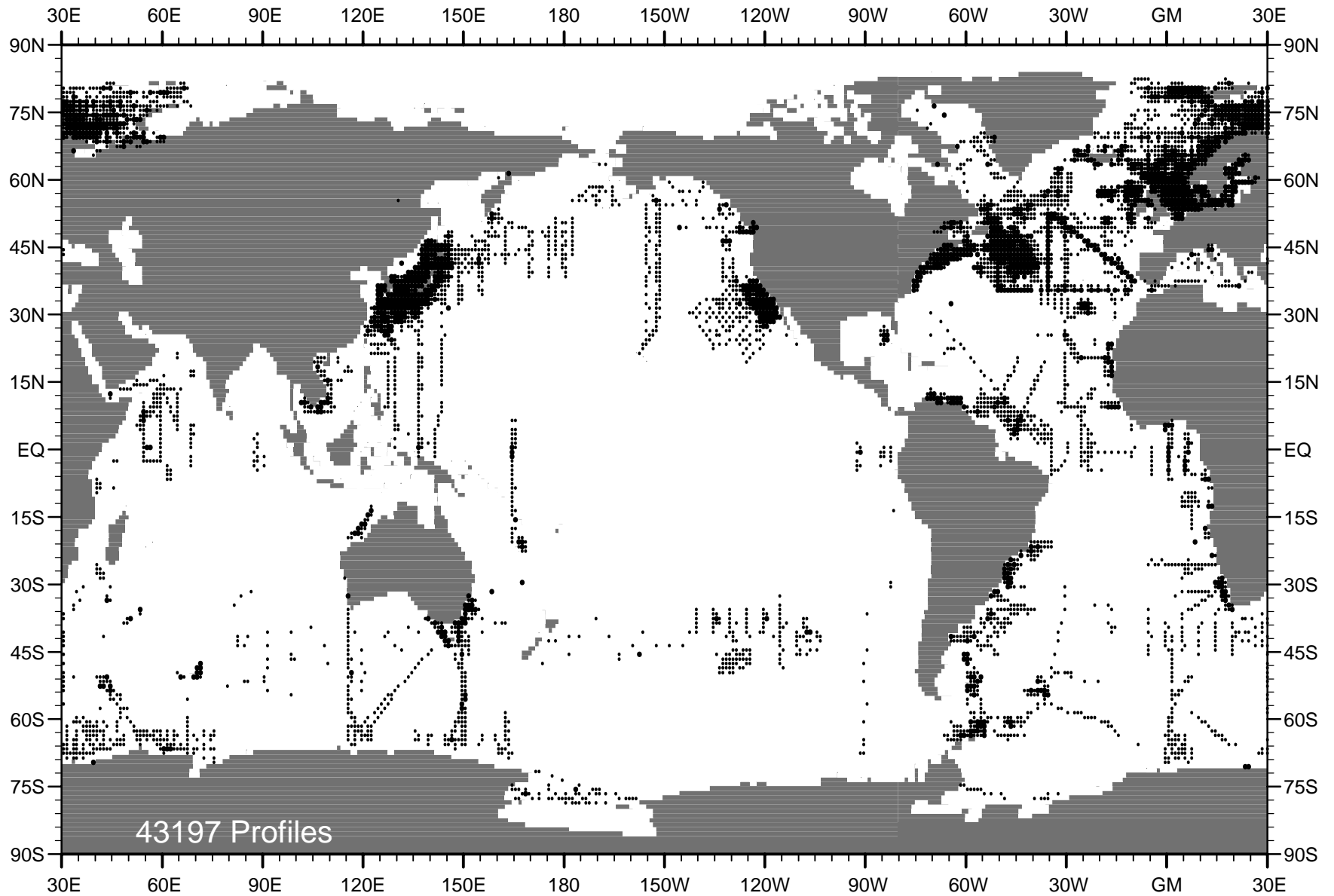


Fig. B85 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1984 .

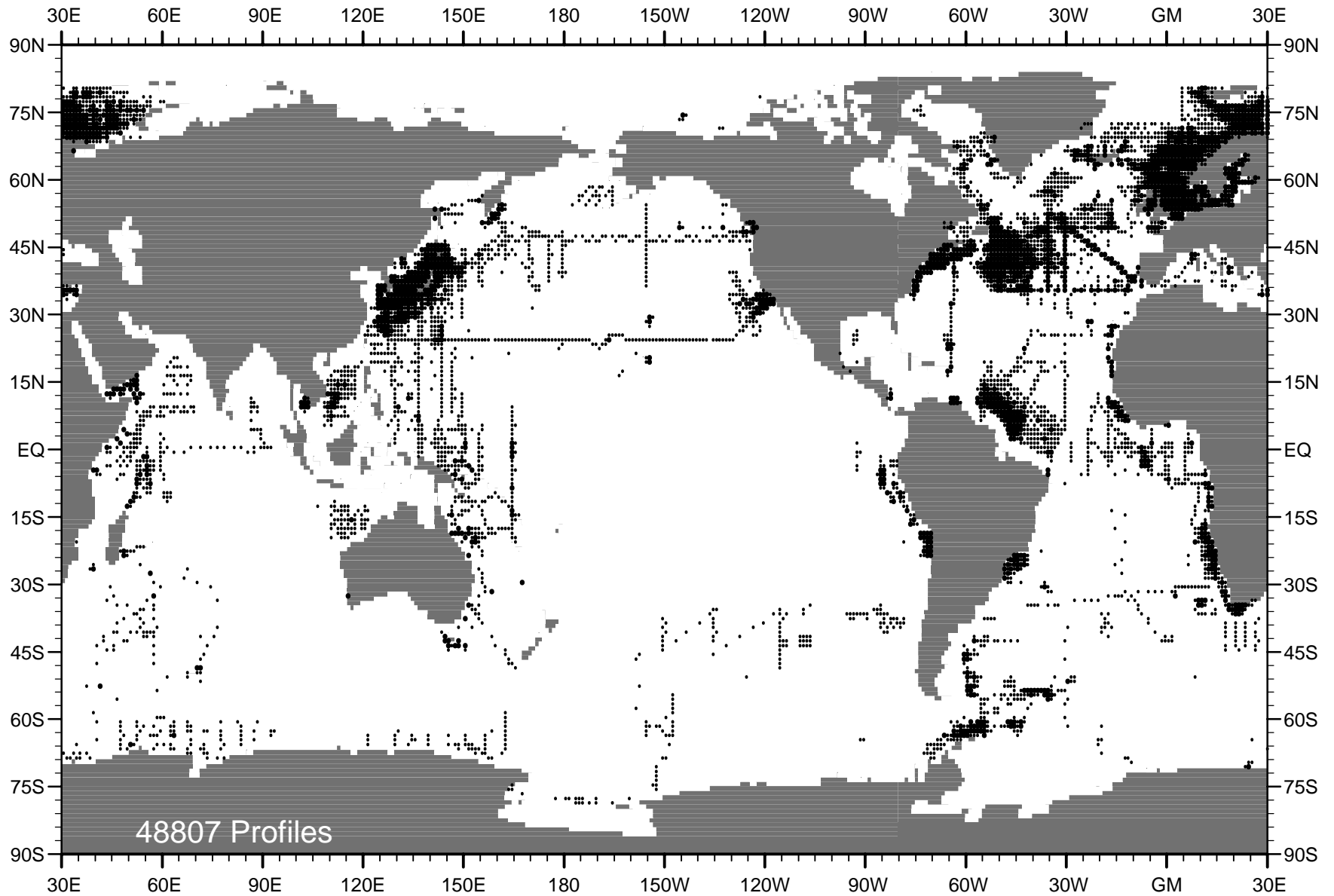


Fig. B86 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1985 .

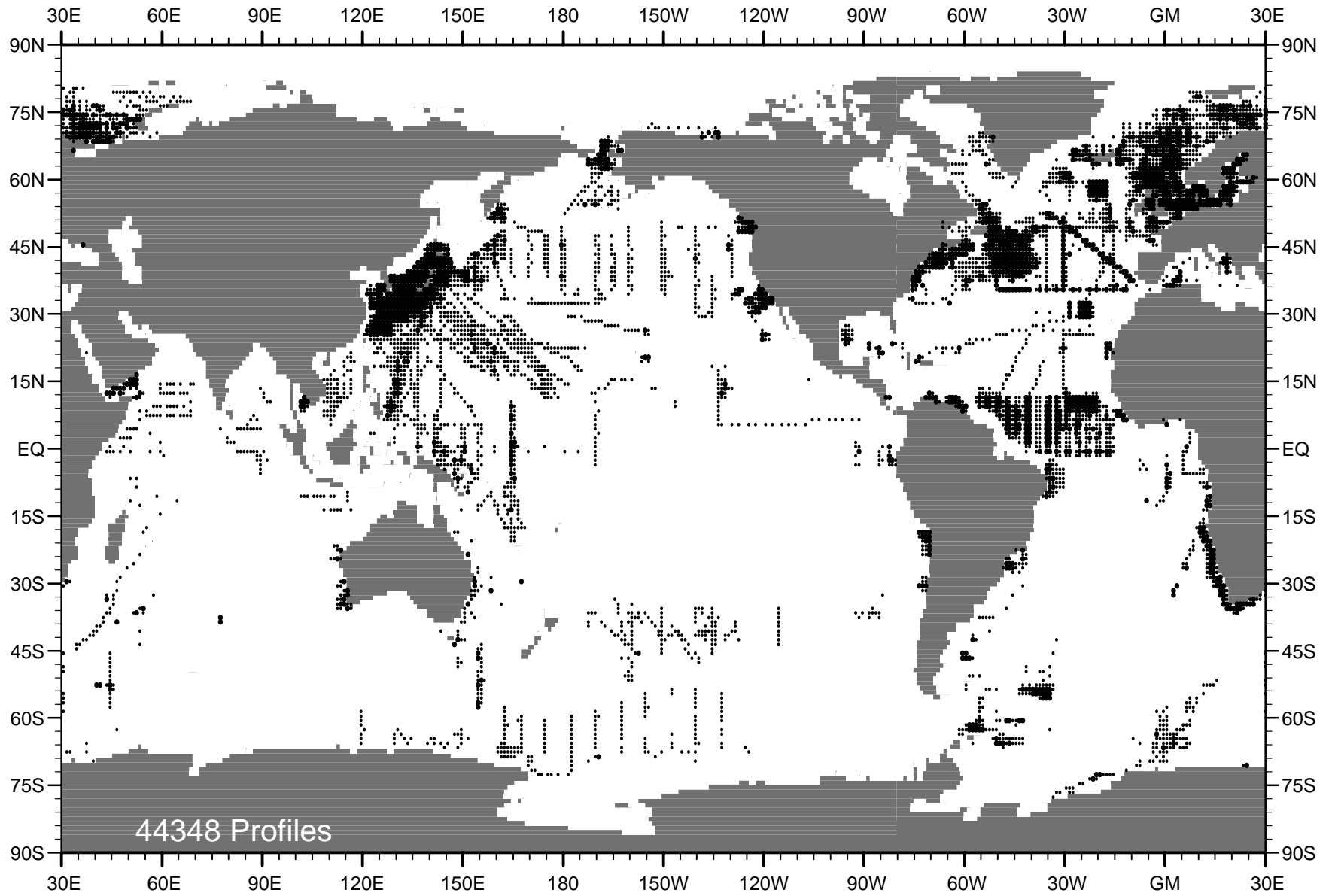


Fig. B87 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1986 .

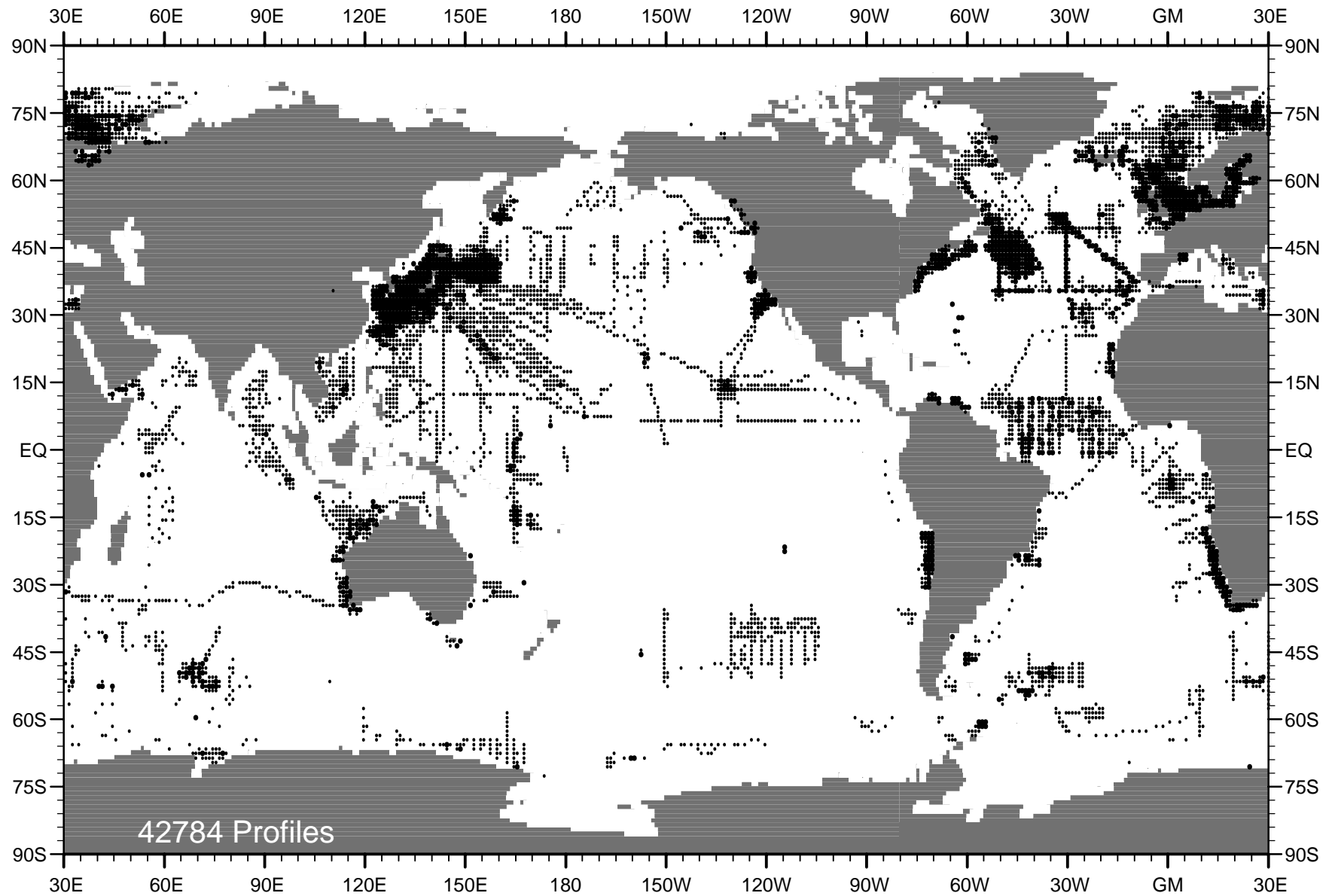


Fig. B88 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1987 .



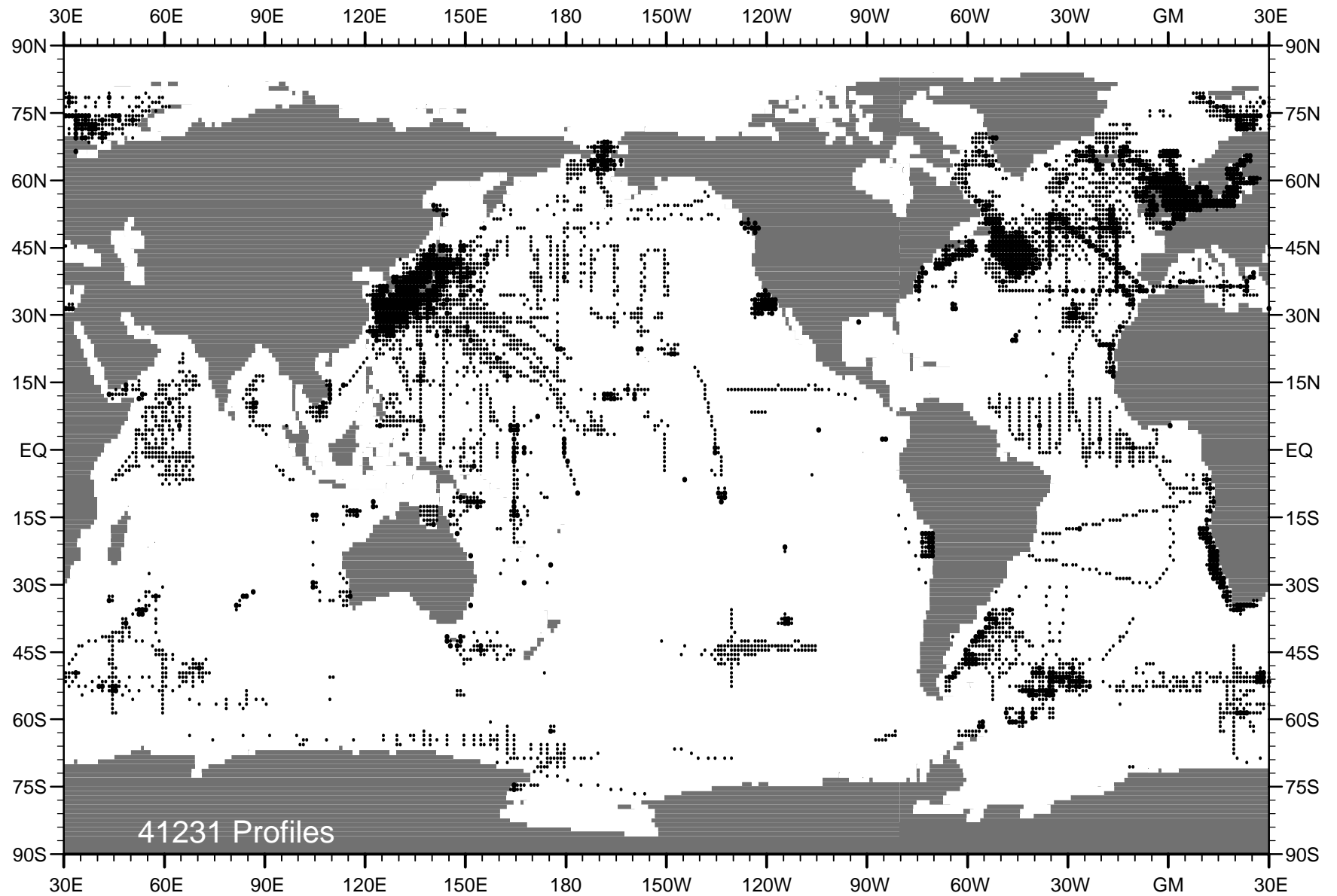


Fig. B89 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1988 .

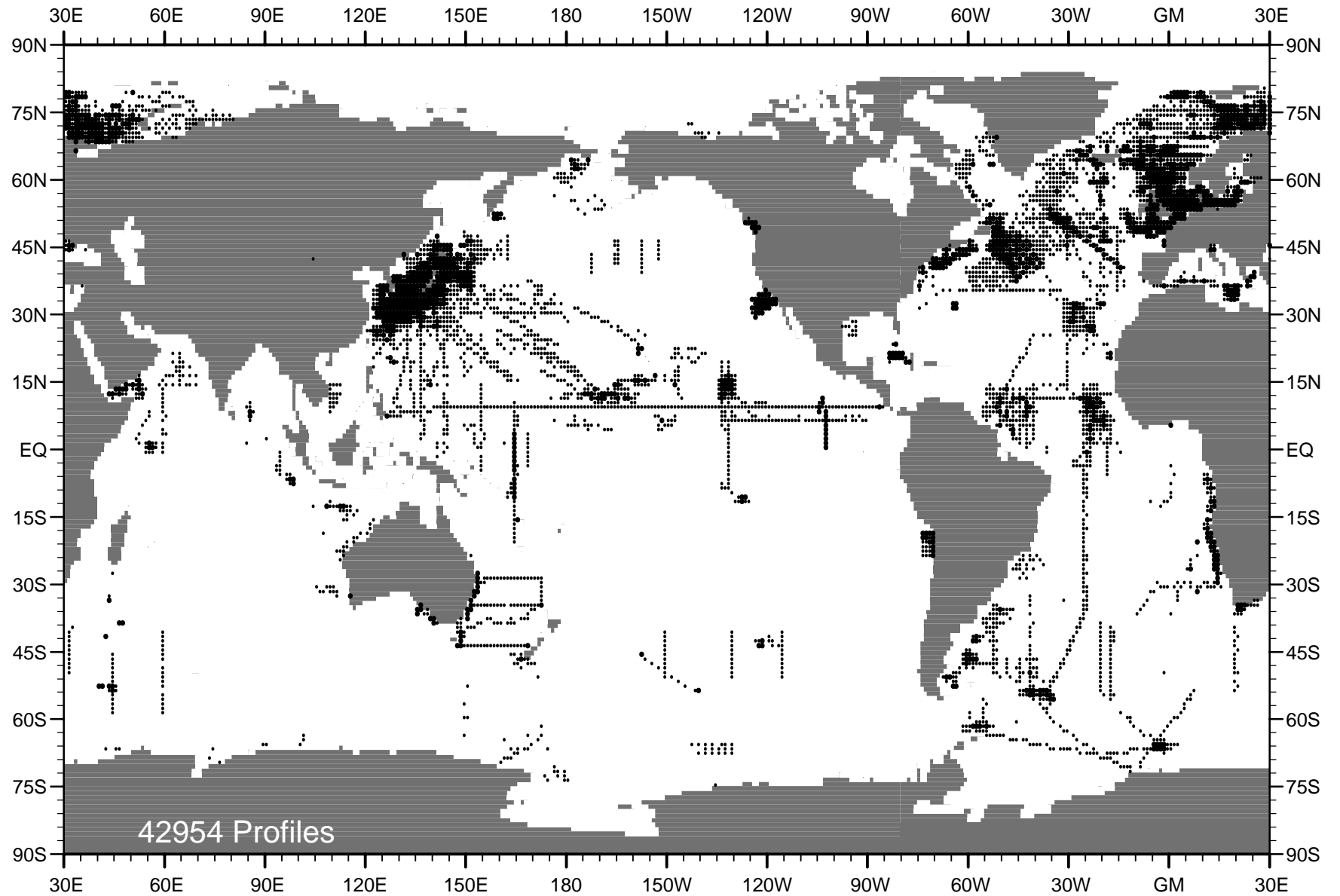


Fig. B90 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1989 .

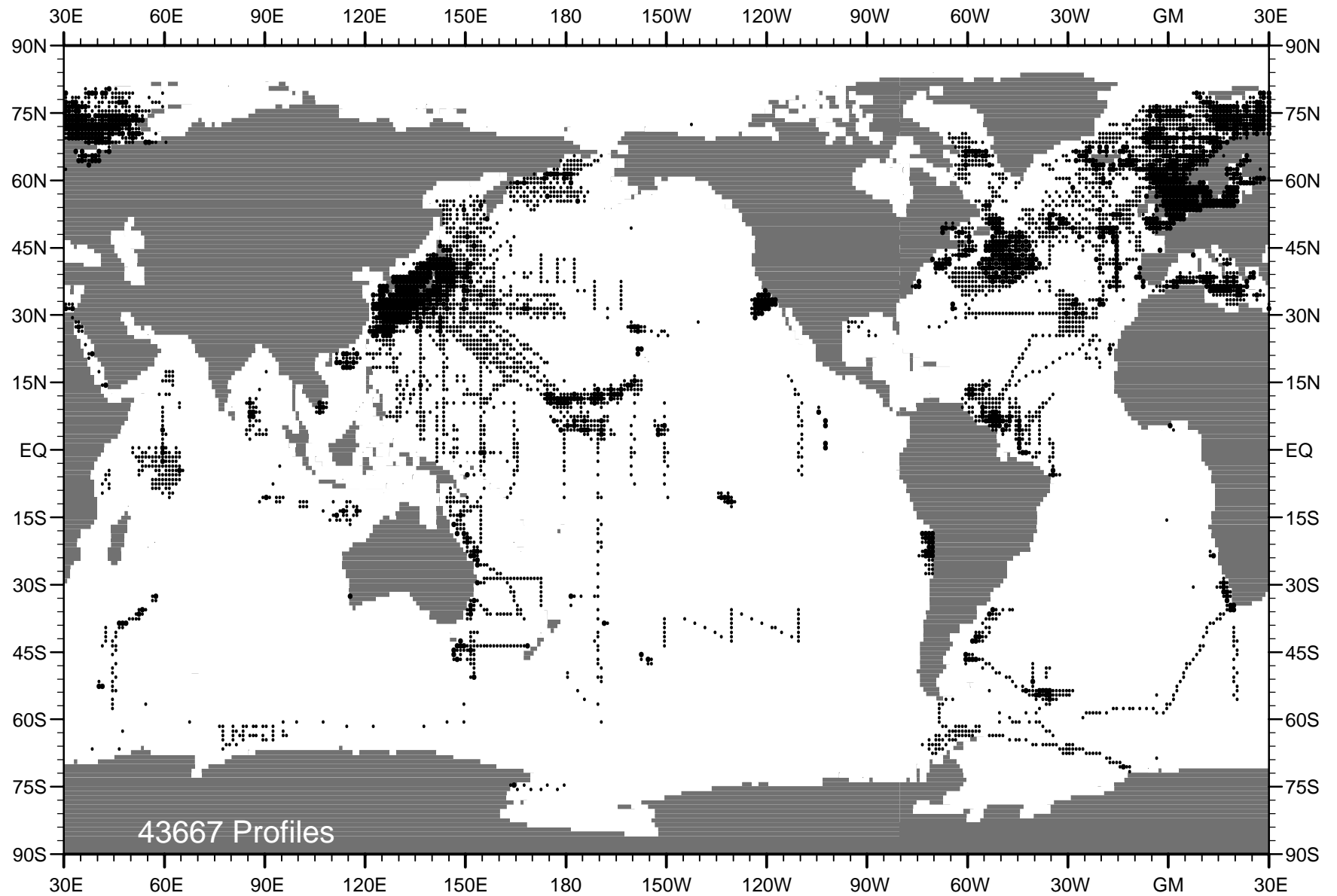


Fig. B91 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1990 .

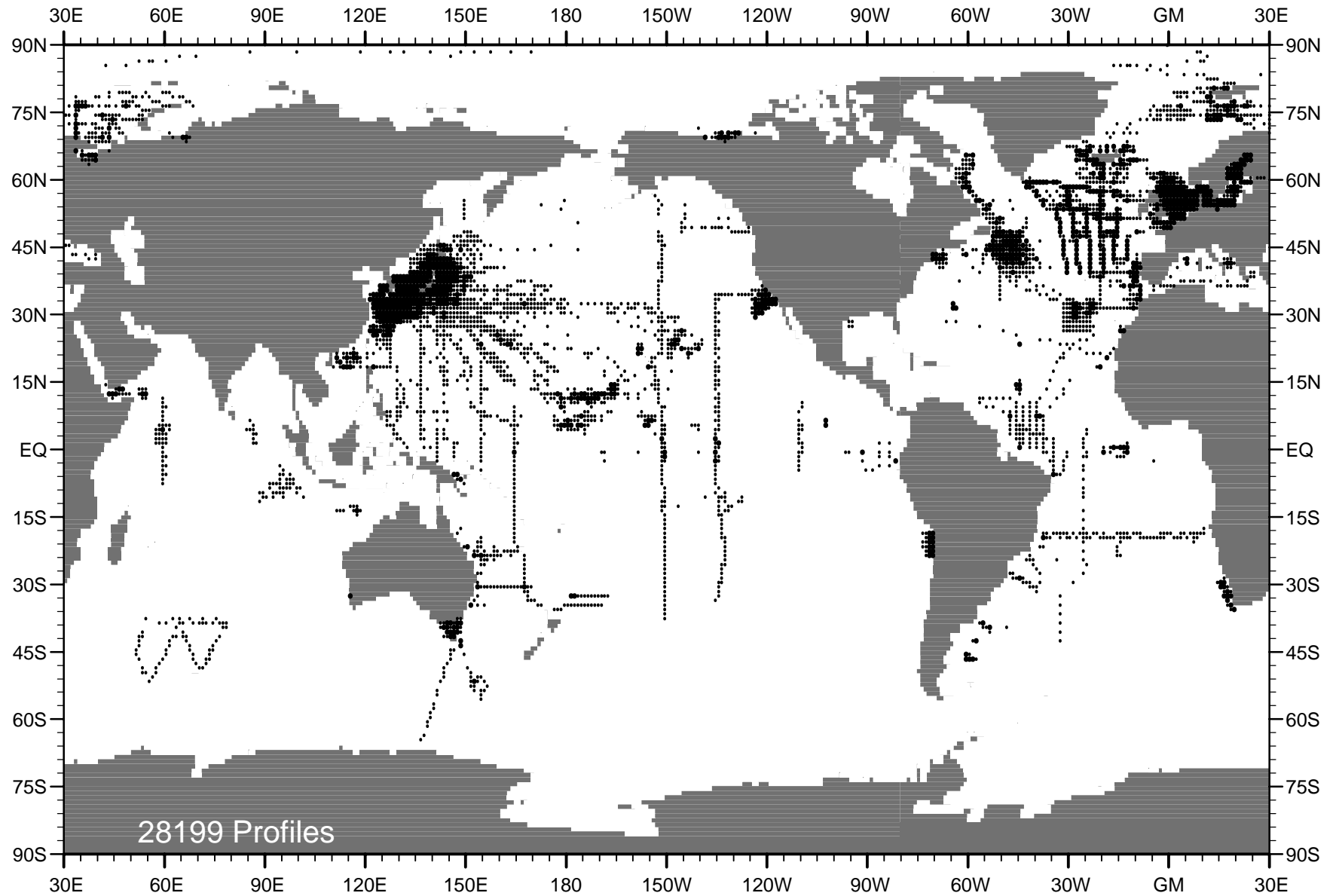


Fig. B92 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1991 .

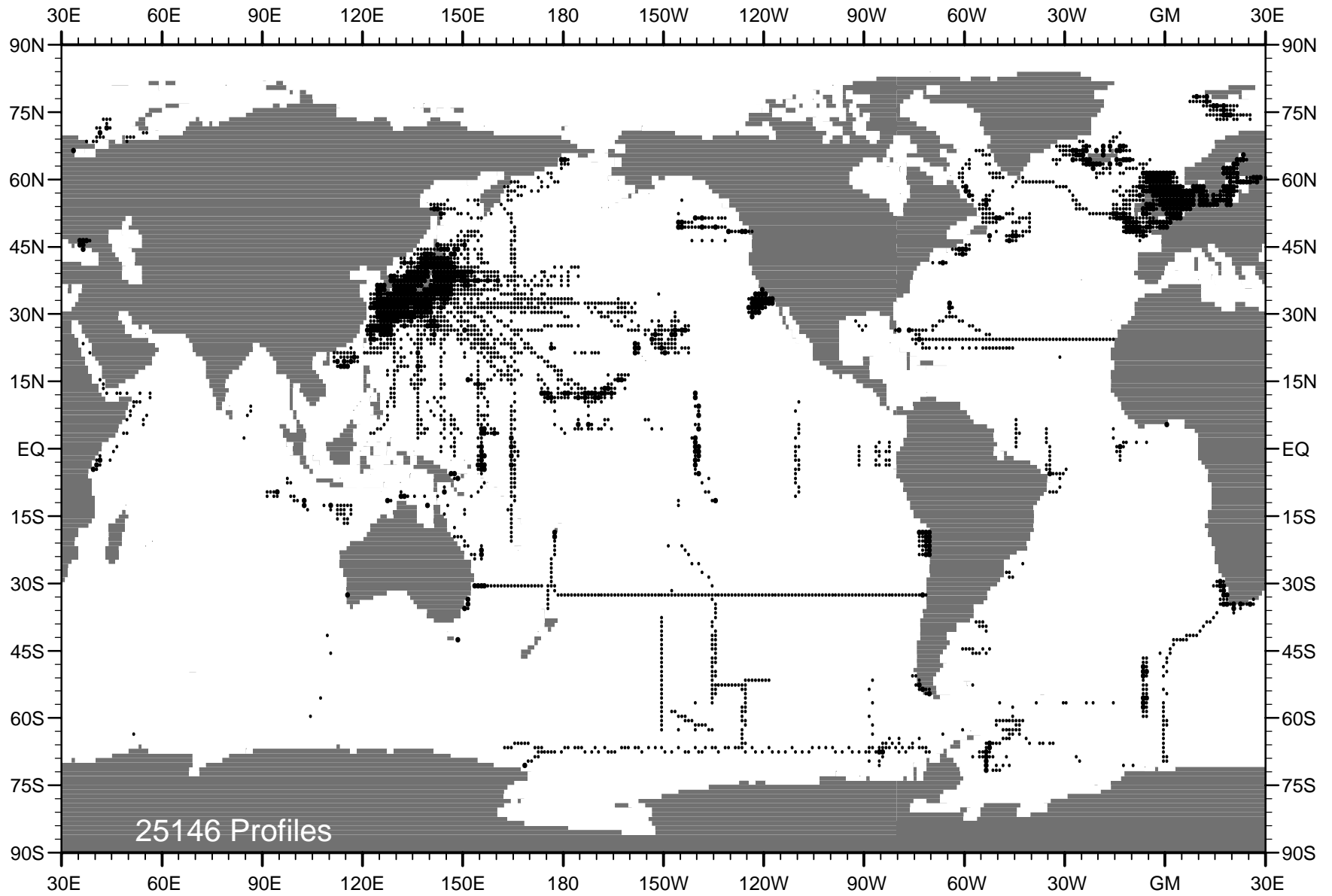


Fig. B93 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1992 .

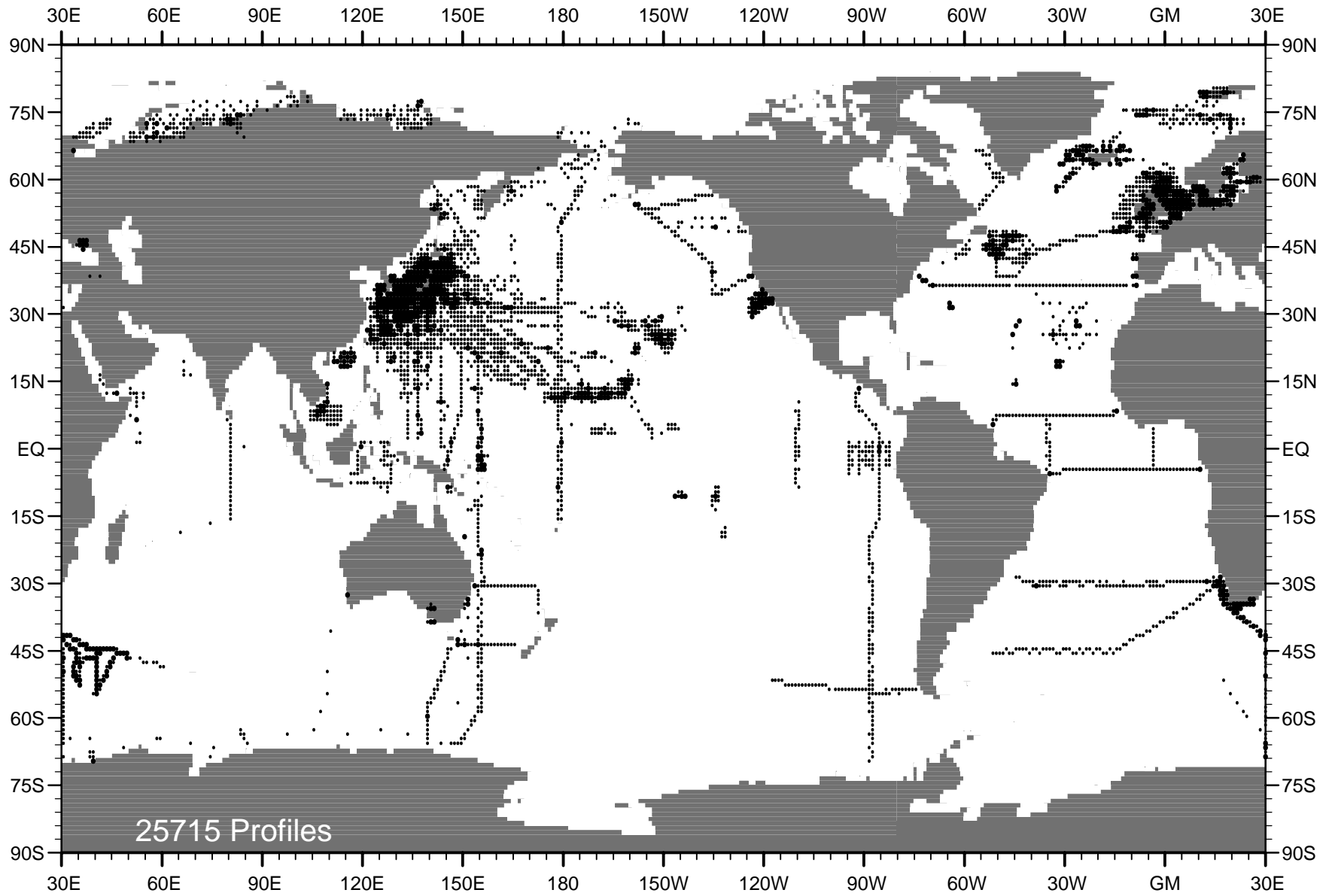


Fig. B94 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1993 .

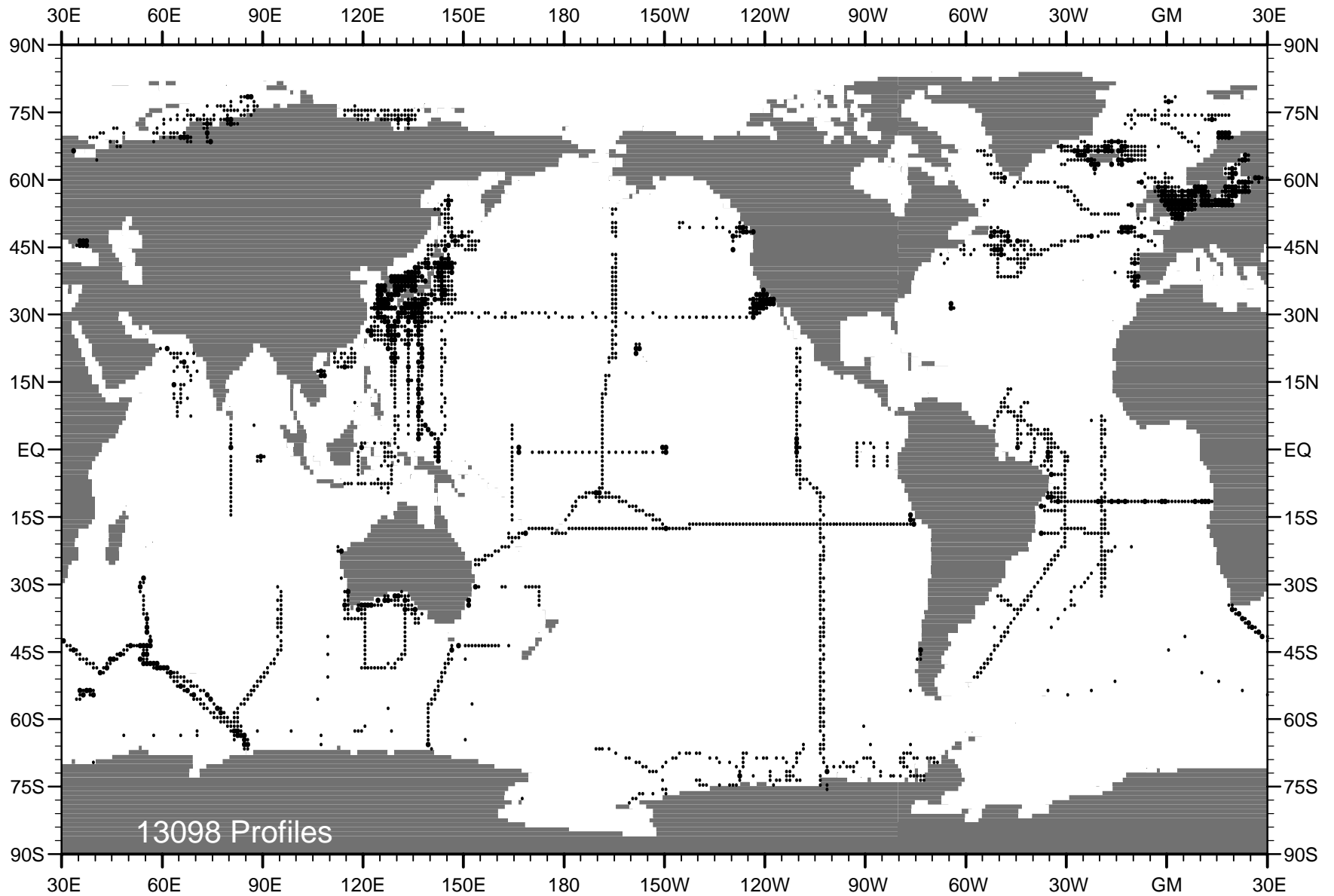


Fig. B95 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1994 .

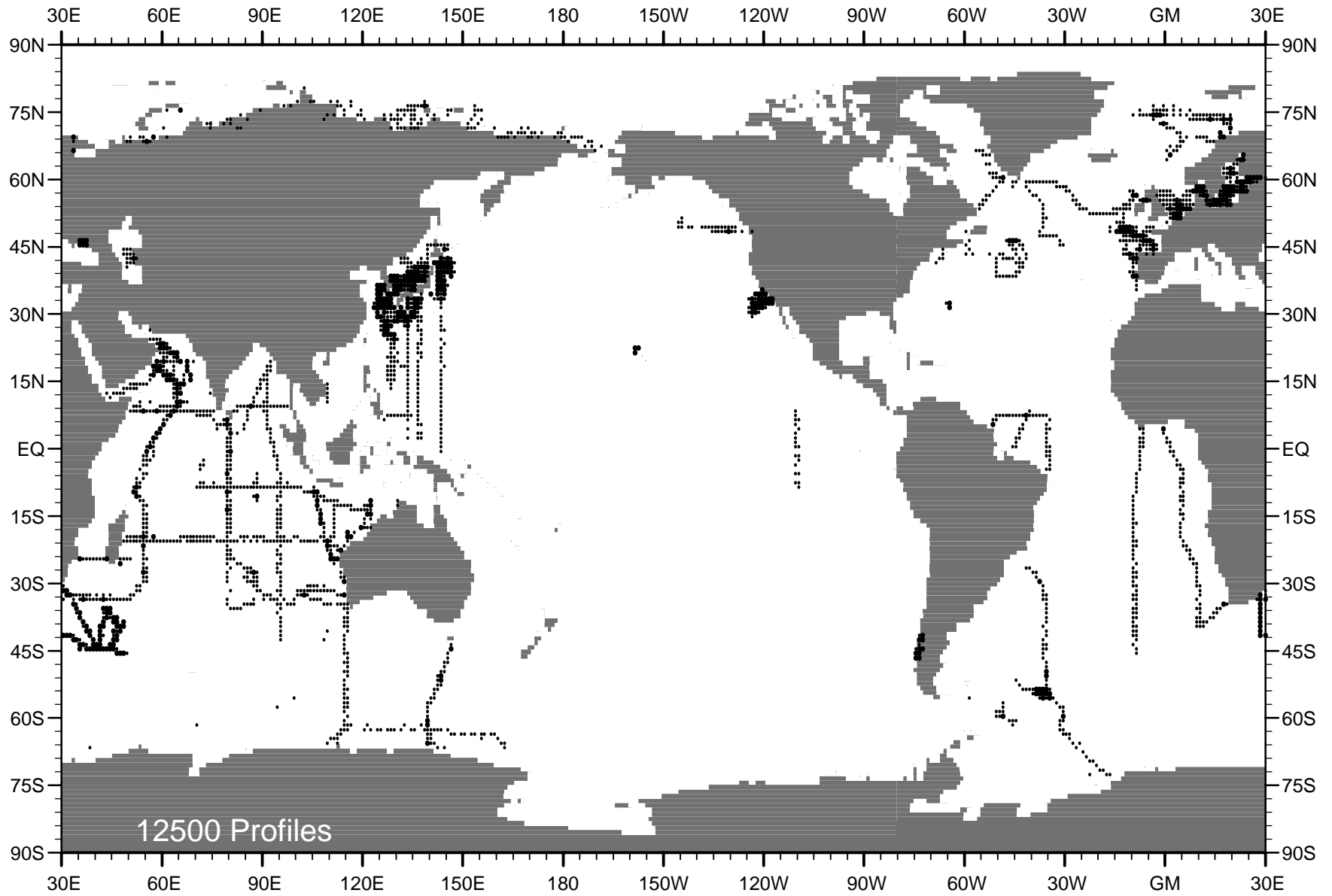


Fig. B96 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1995 .



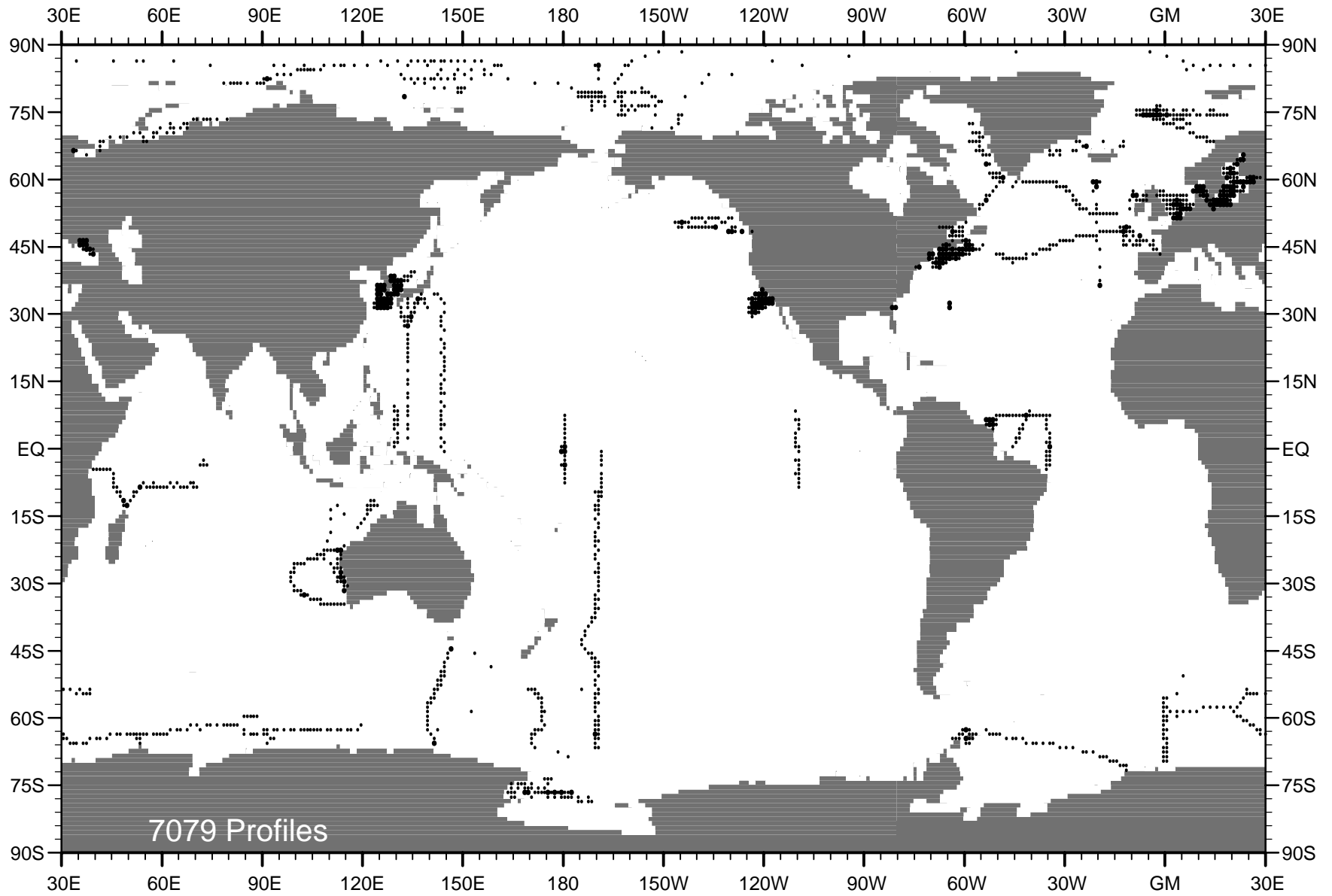


Fig. B97 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1996 .

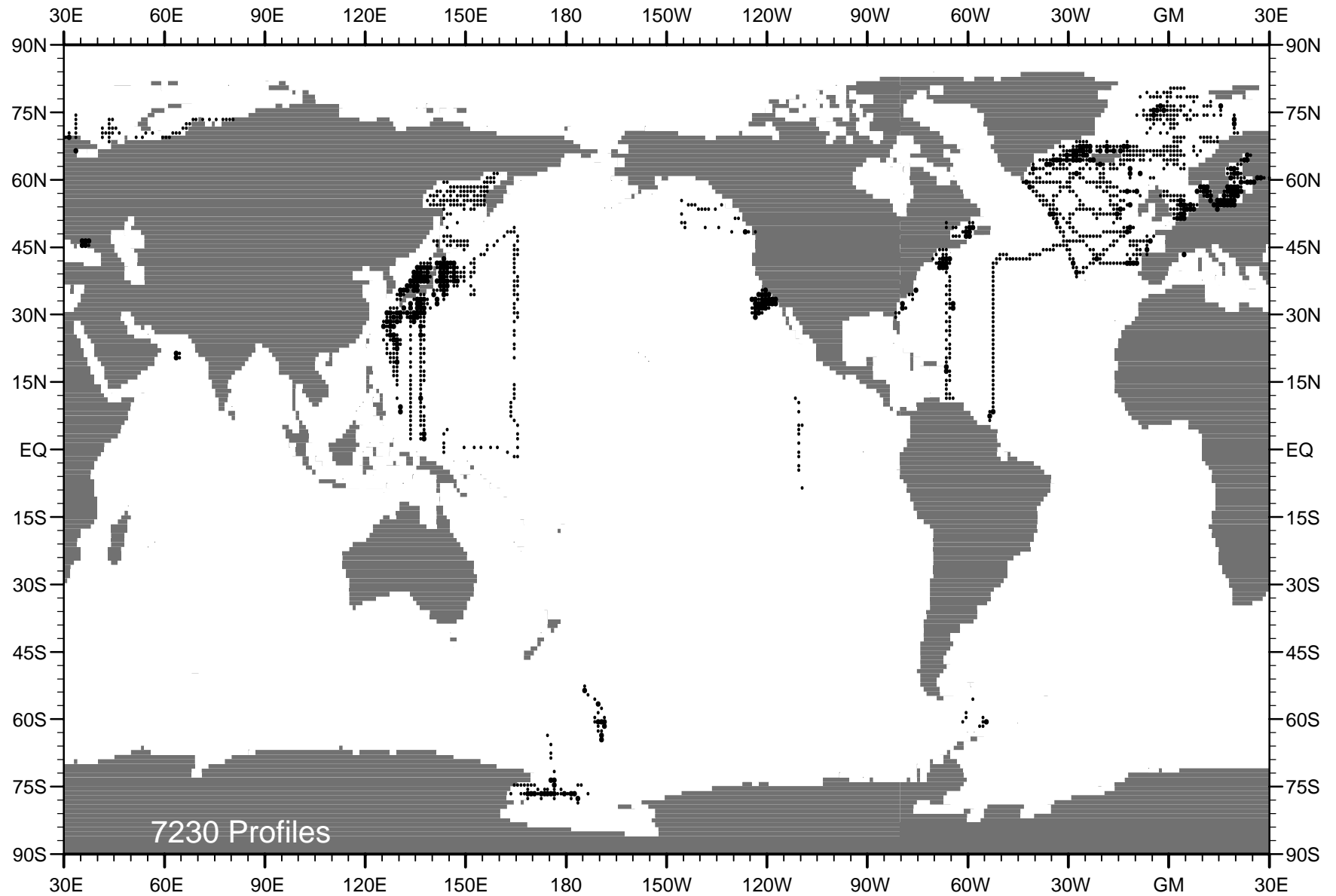


Fig. B98 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1997 .

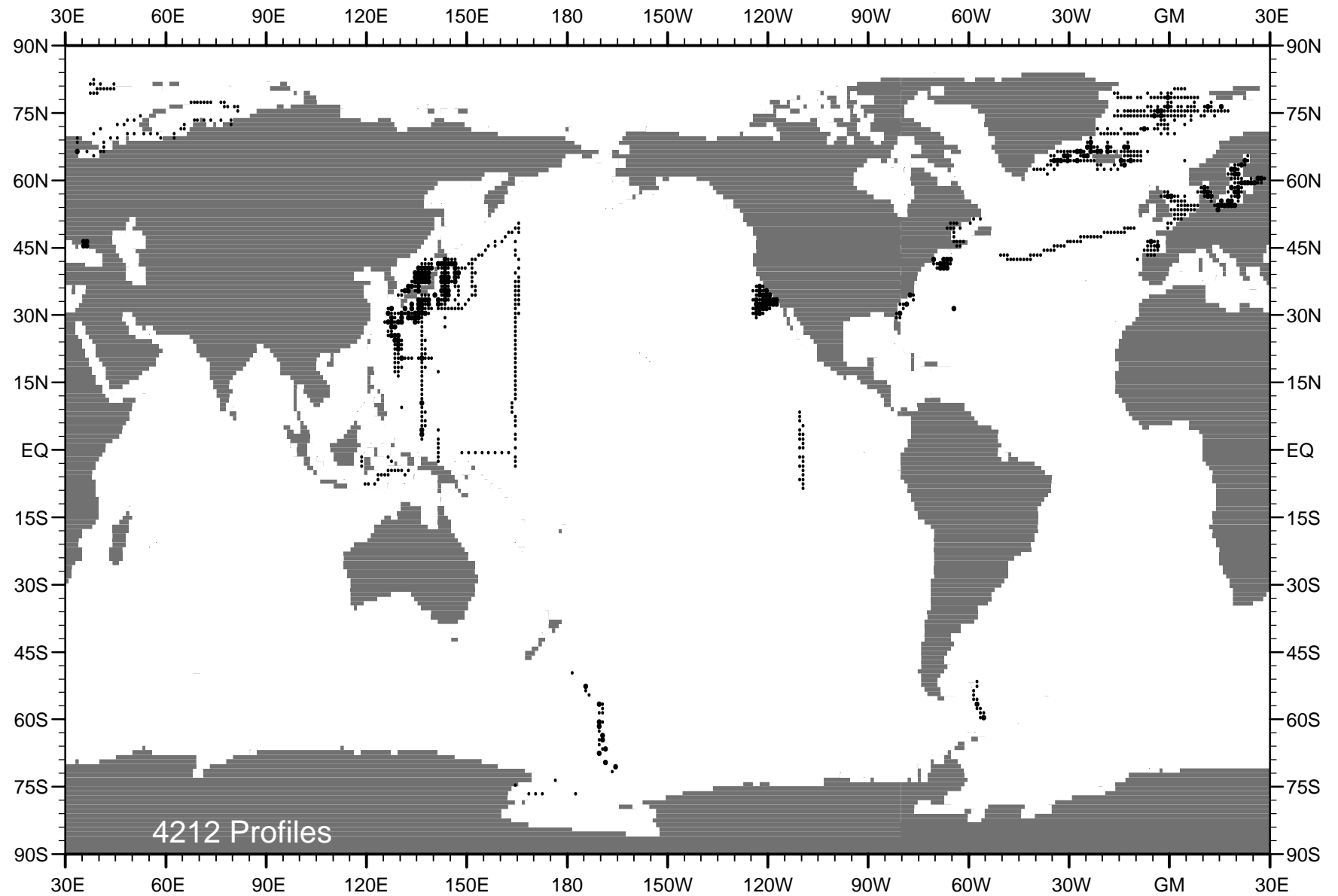


Fig. B99 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1998 .

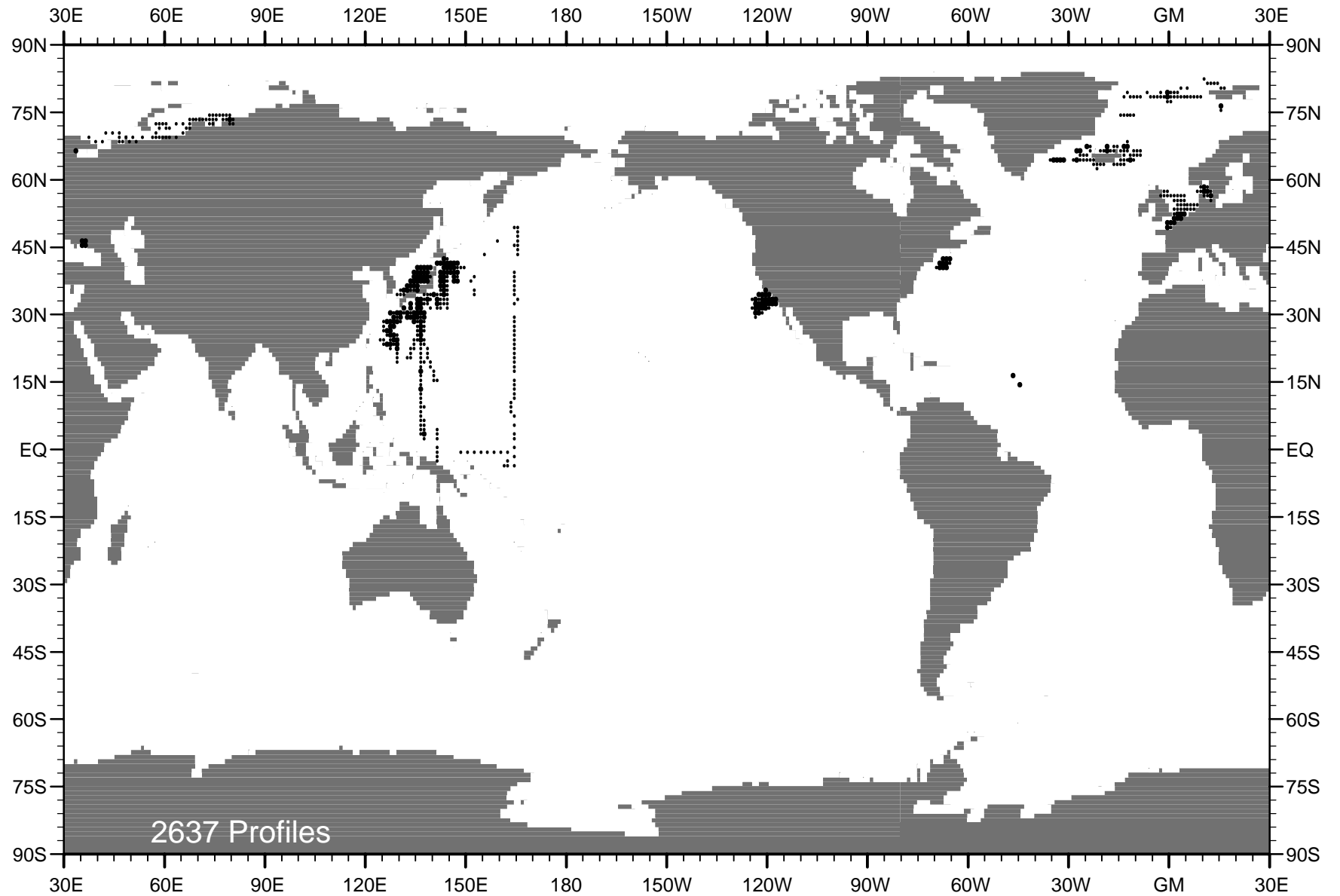


Fig. B100 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 1999 .

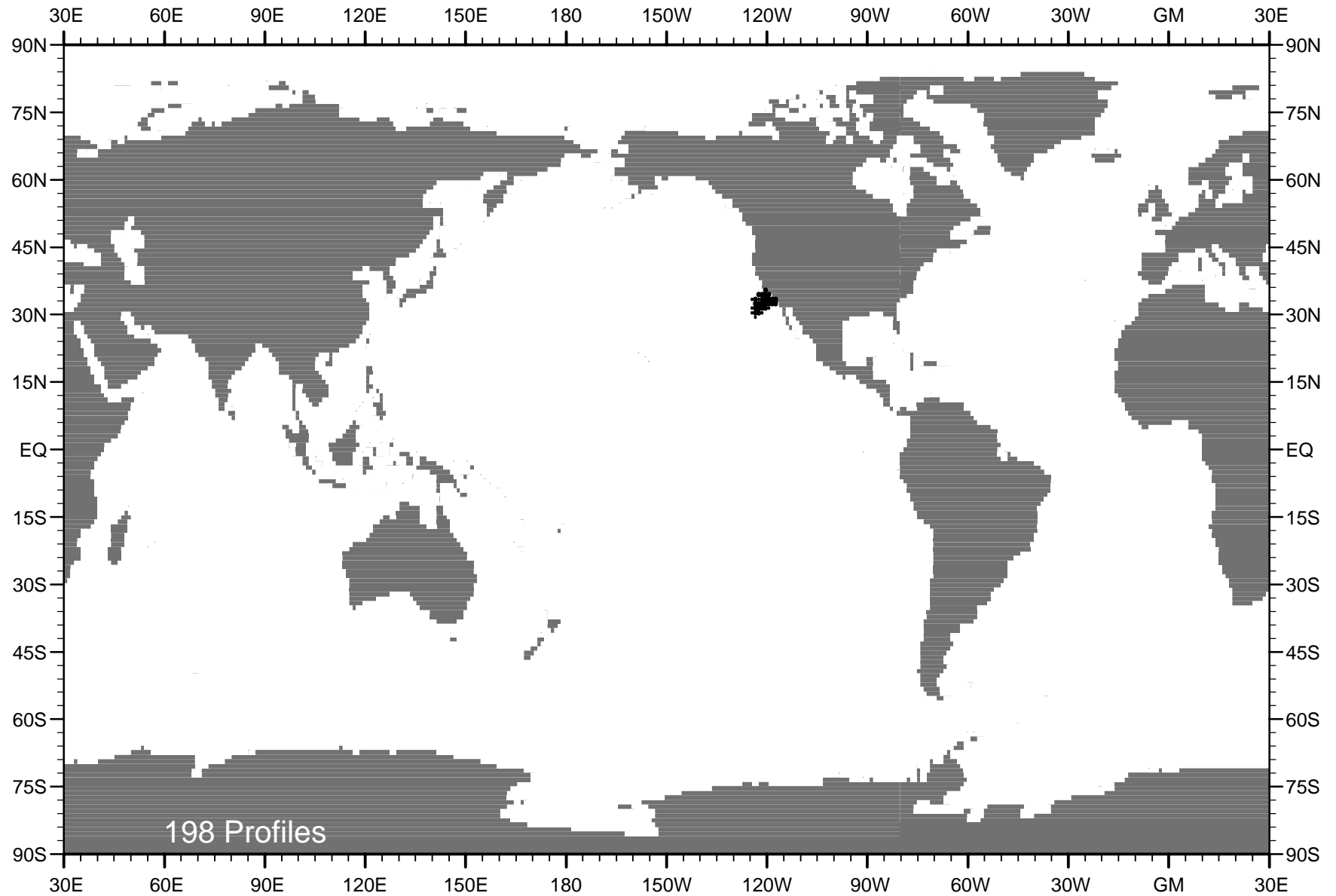


Fig. B101 Distribution of all Ocean Station Data (OSD) salinity profiles in WOD01 for year 2000 .

**5. APPENDIX C: DISTRIBUTIONS FOR INDIVIDUAL YEARS OF ALL OCEAN STATION DATA (OSD) OXYGEN PROFILES IN WOD01**

This appendix contains yearly distributions of all OSD oxygen profiles contained in WOD01. These maps provide some history of the observational progress of the field of oceanography. They also serve as indicators of whether or not a particular data set from a scientist or institution is part of the NODC/WDC-A archive. The exchange of information provided by the publication of such maps has provided us with valuable information about deficiencies in the database. The locations of all WOD01 OSD oxygen profiles are plotted including stations that may be erroneously located over land. However, WOD01 contains some stations from various lakes so care should be exercised in the use of these stations and the determination as to whether they represent errors in locations.

For all figures in Appendix C, a small dot indicates a one-degree square containing from one to four stations and a large dot indicates five or more stations.

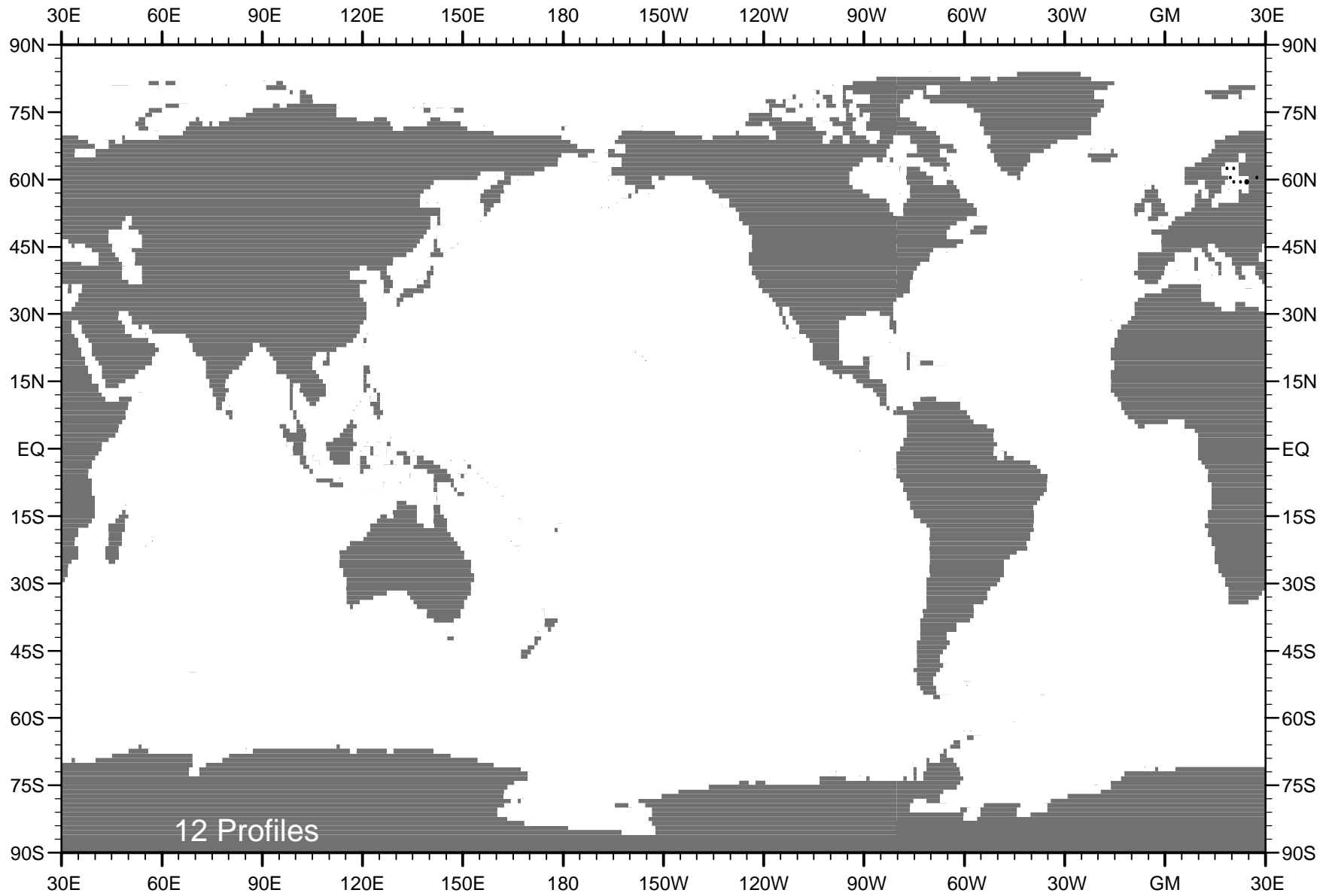


Fig. C1 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1900 .

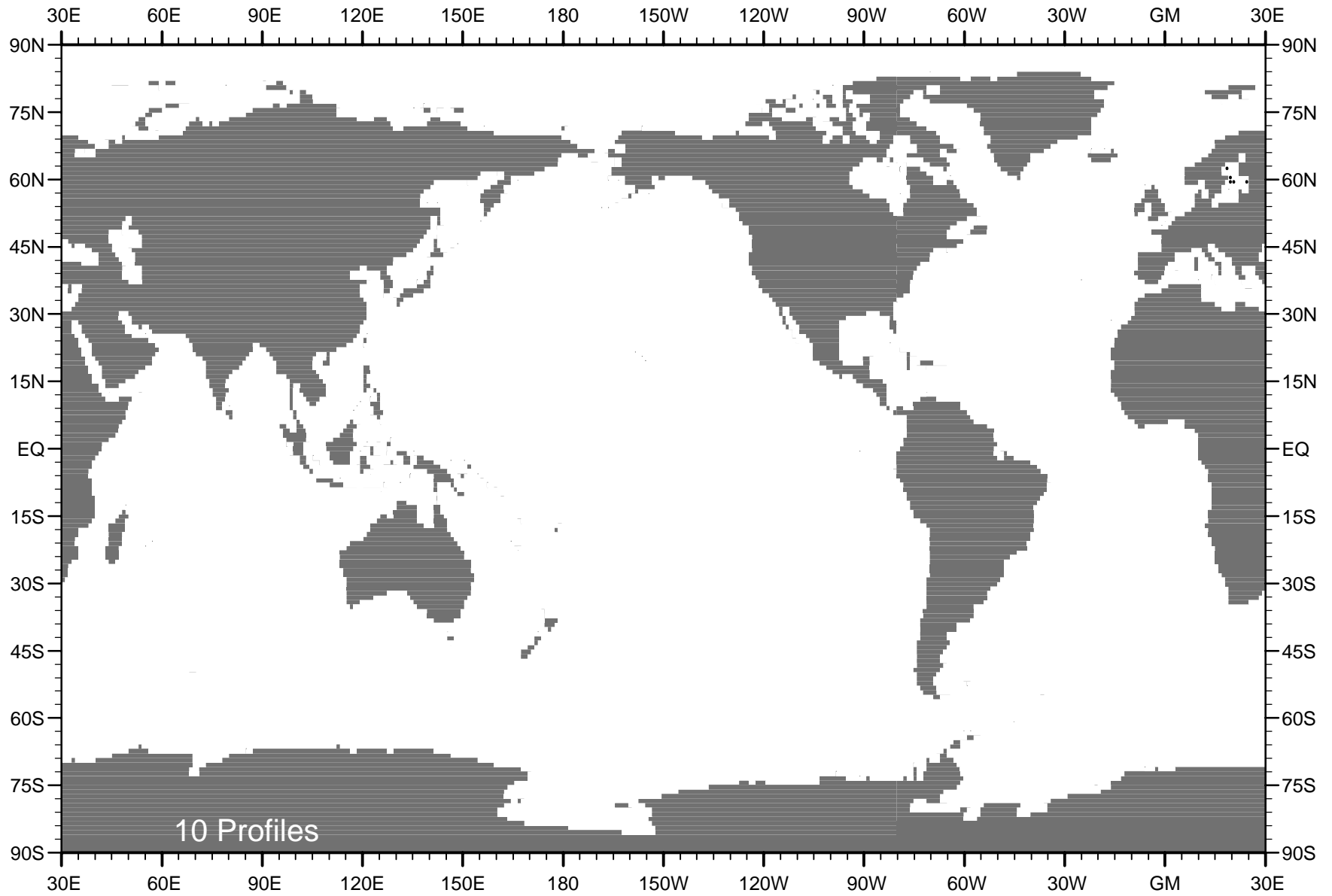


Fig. C2 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1901 .



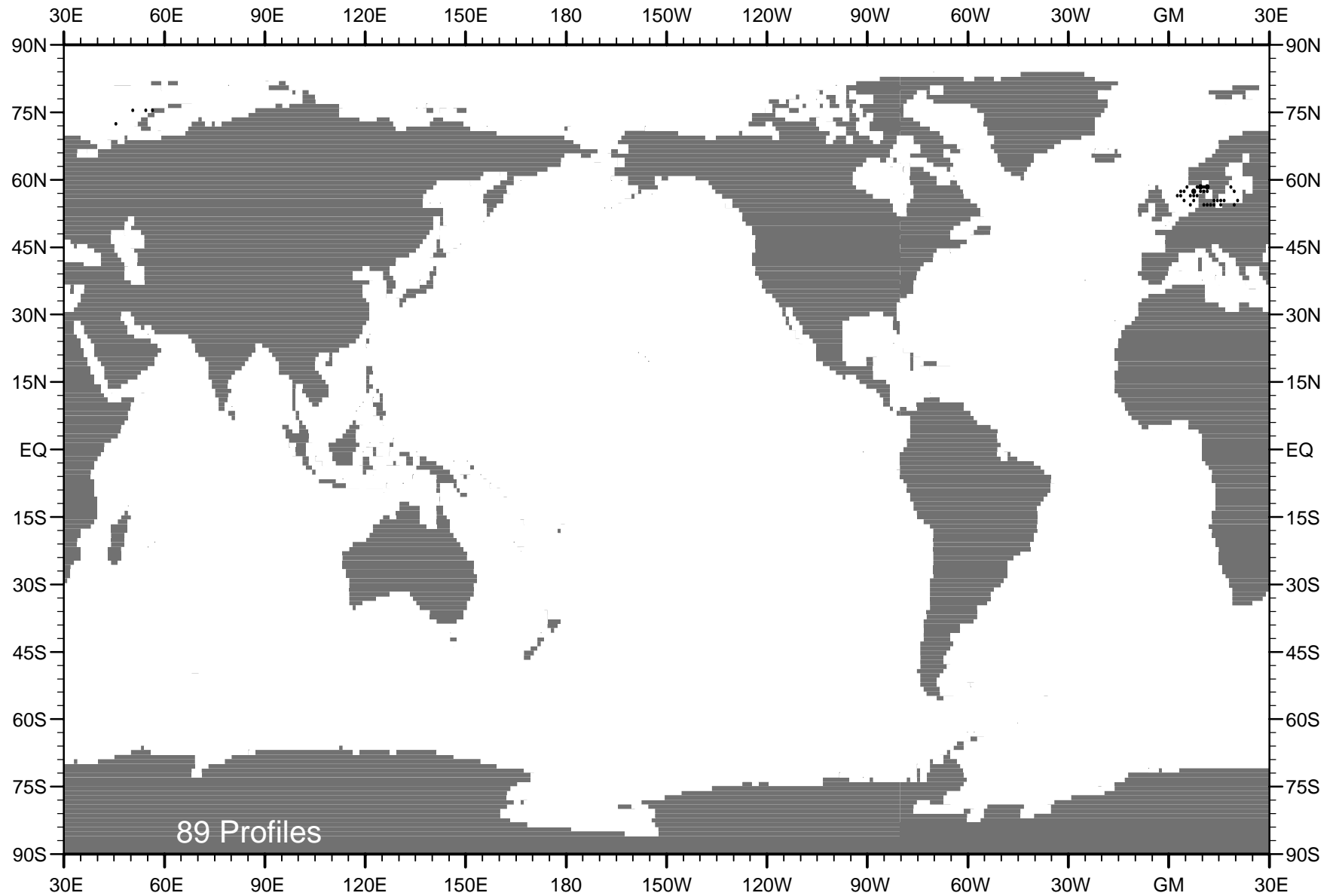


Fig. C3 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1902 .

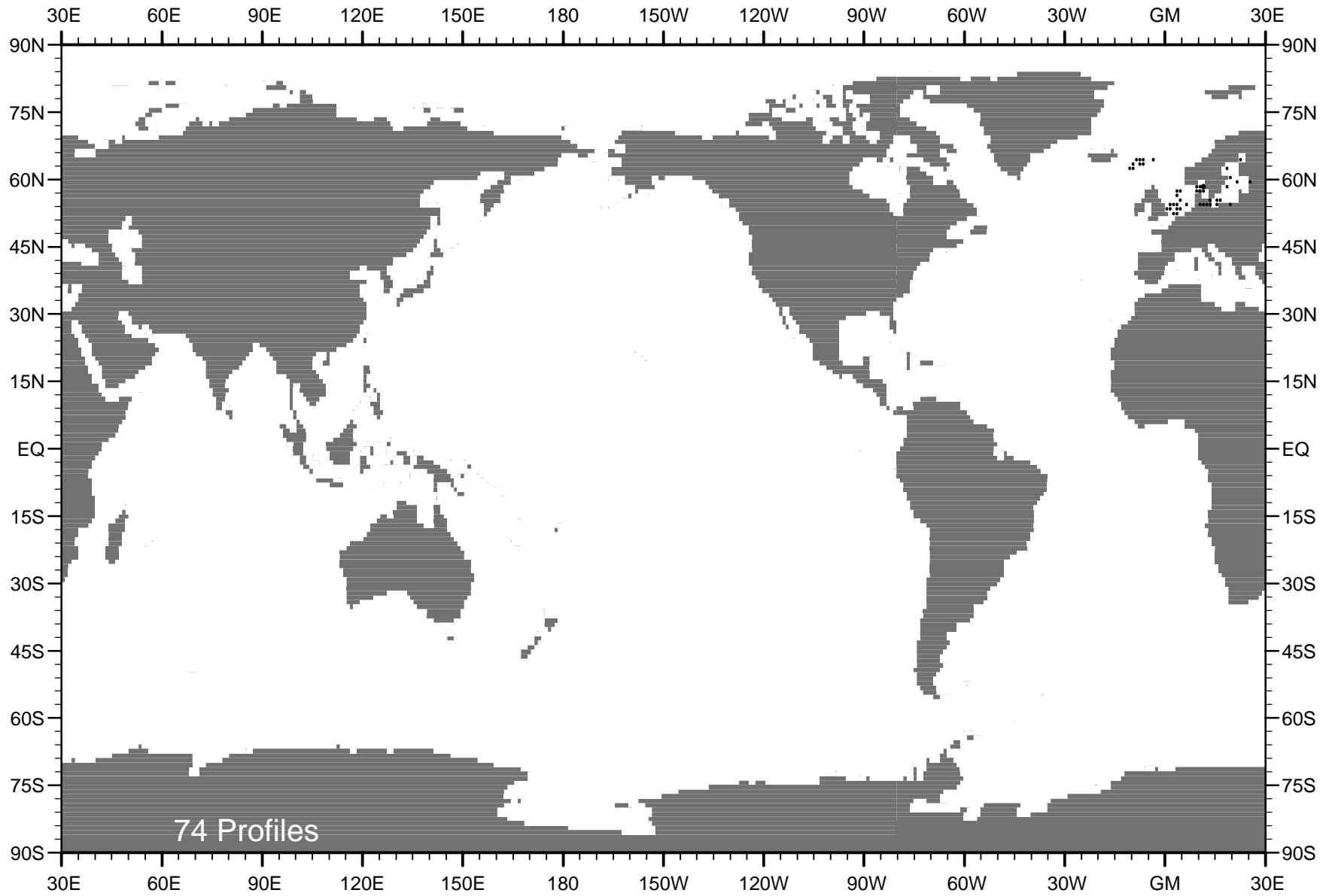


Fig. C4 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1903 .

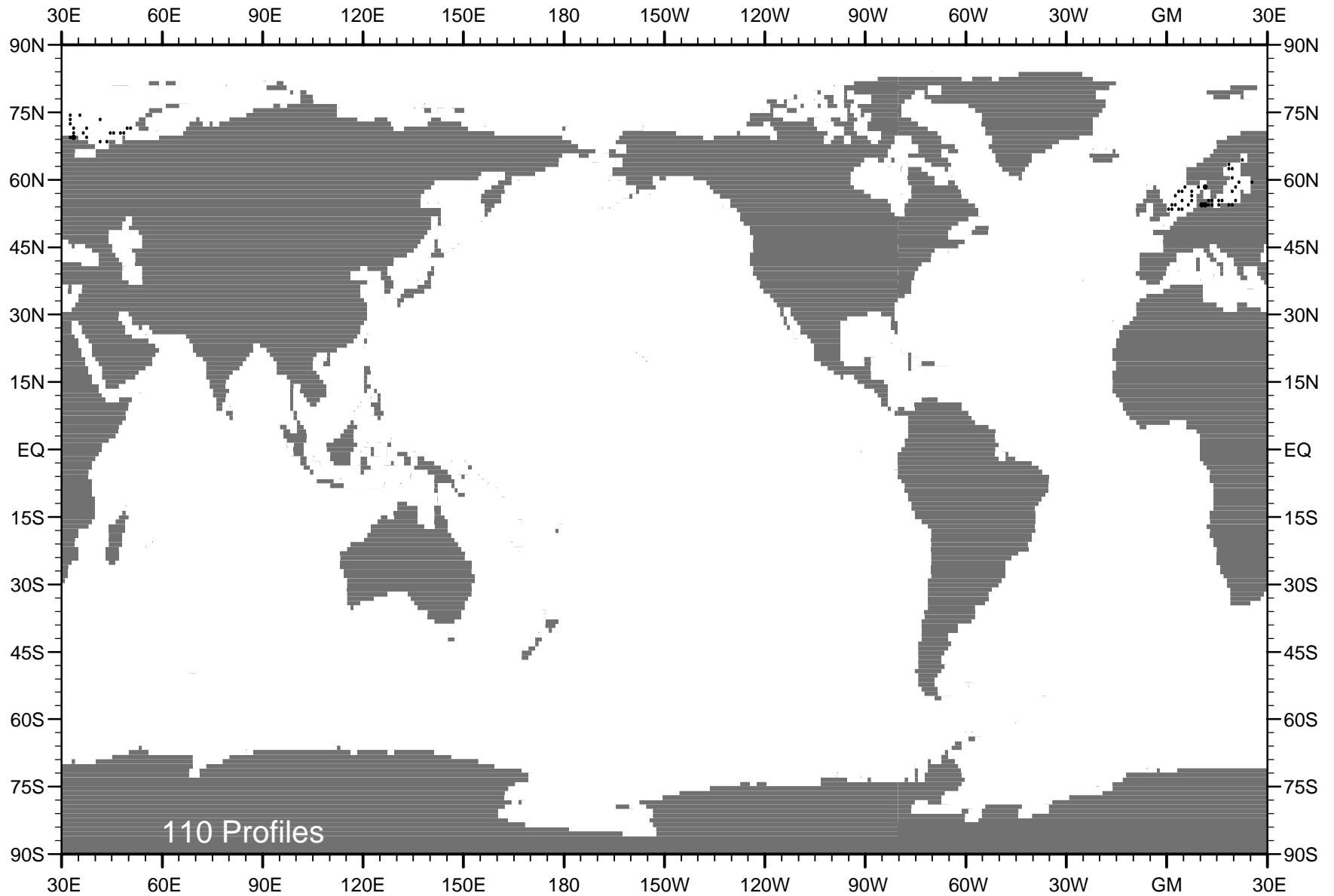


Fig. C5 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1904 .

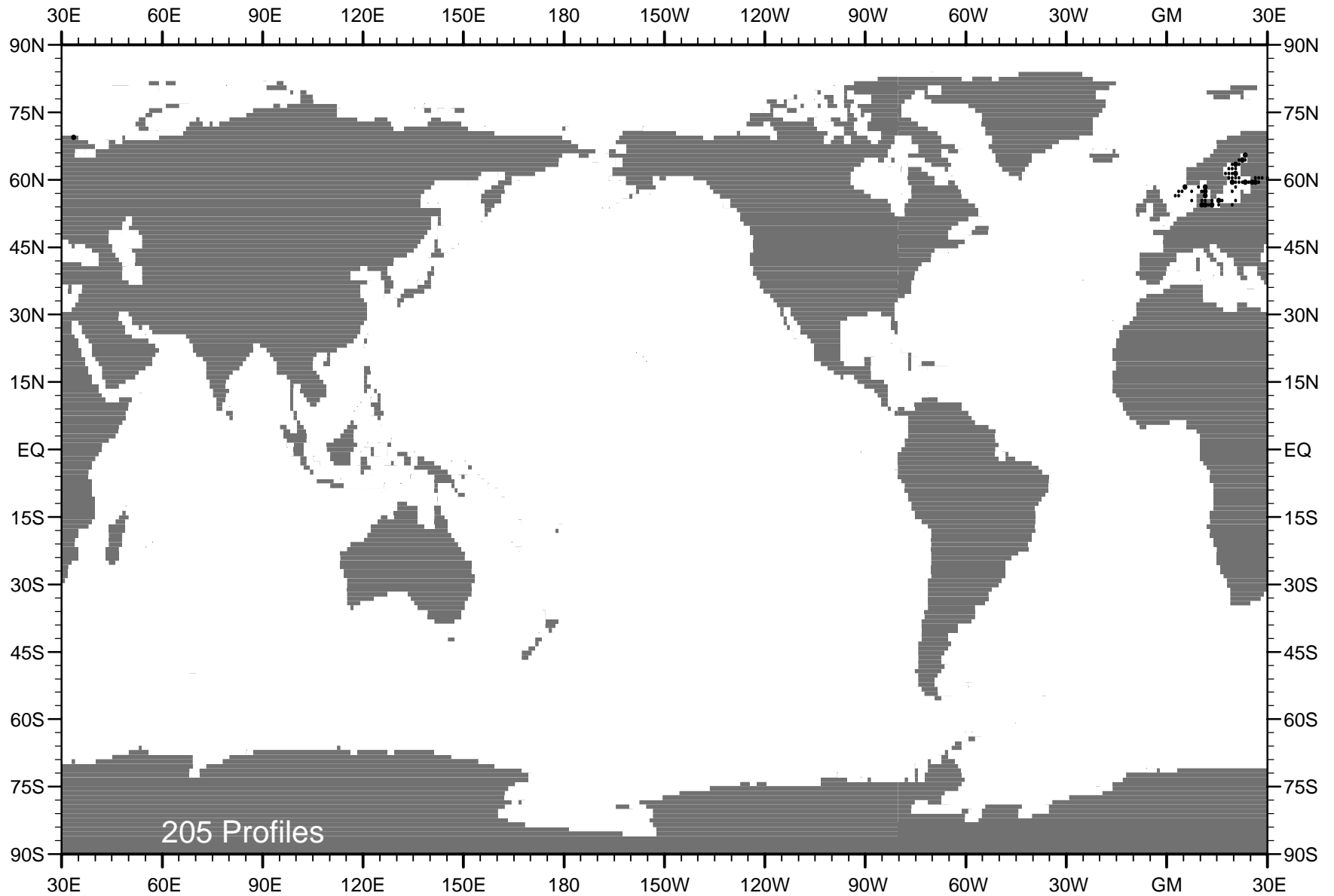


Fig. C6 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1905 .

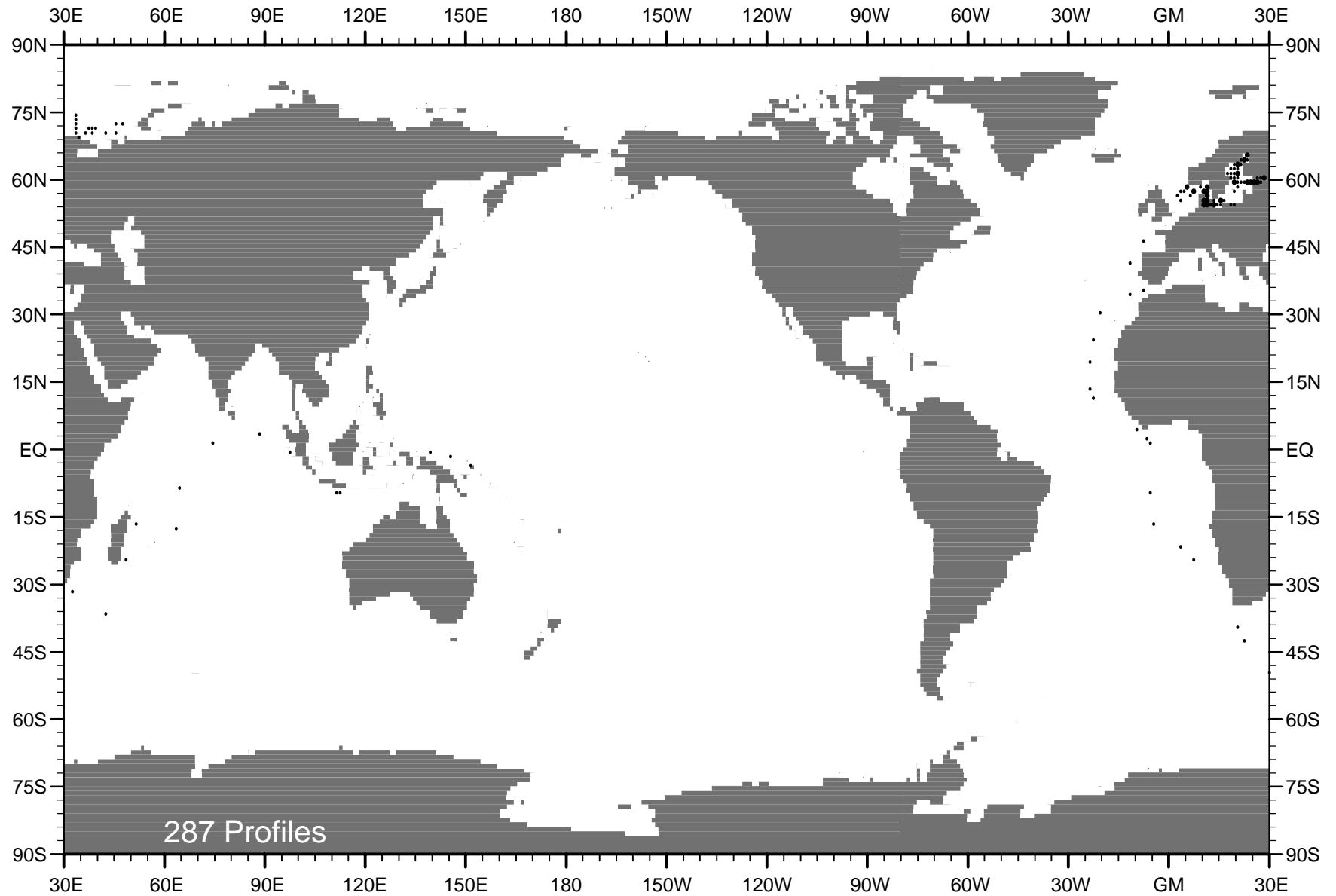


Fig. C7 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1906 .

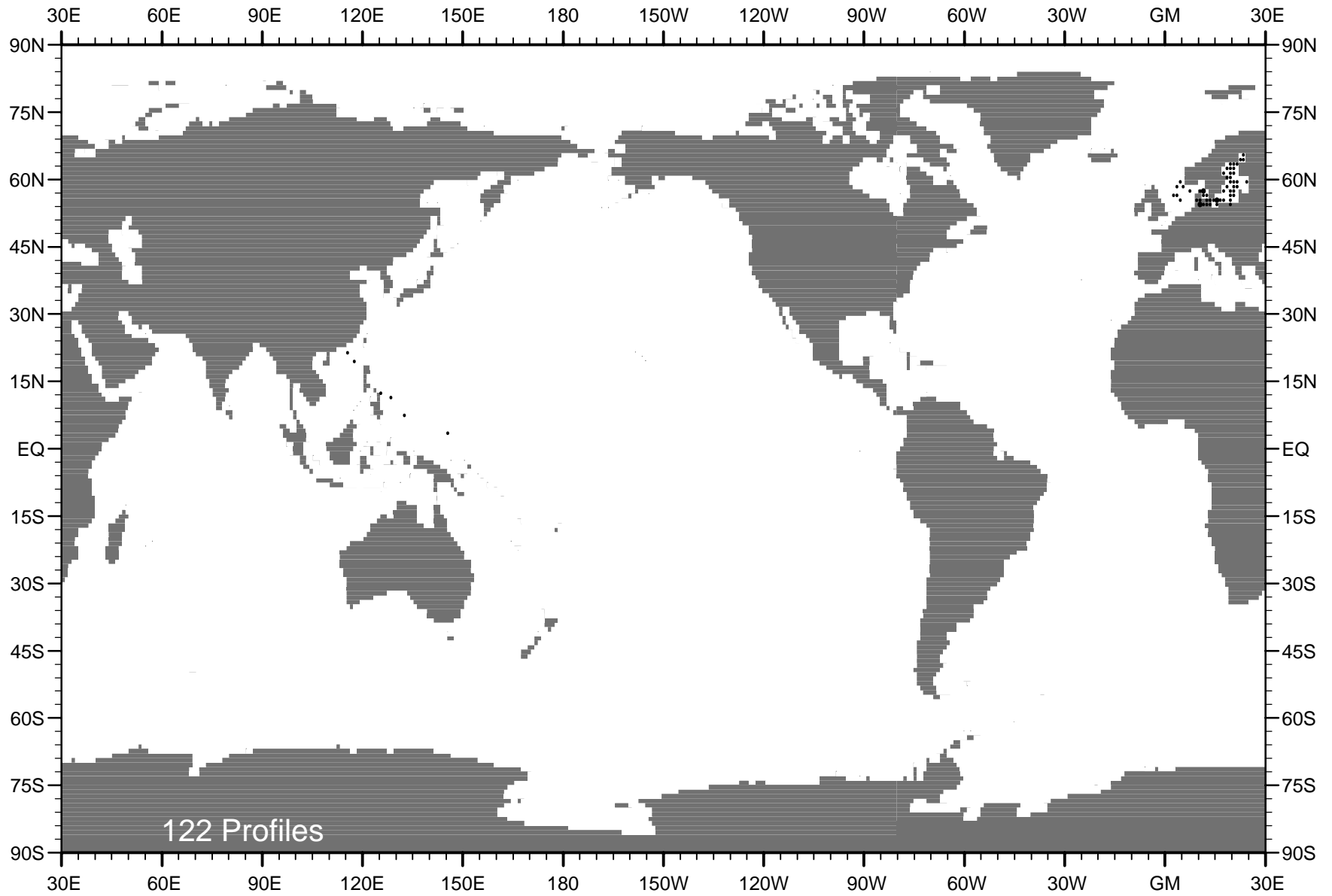


Fig. C8 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1907 .

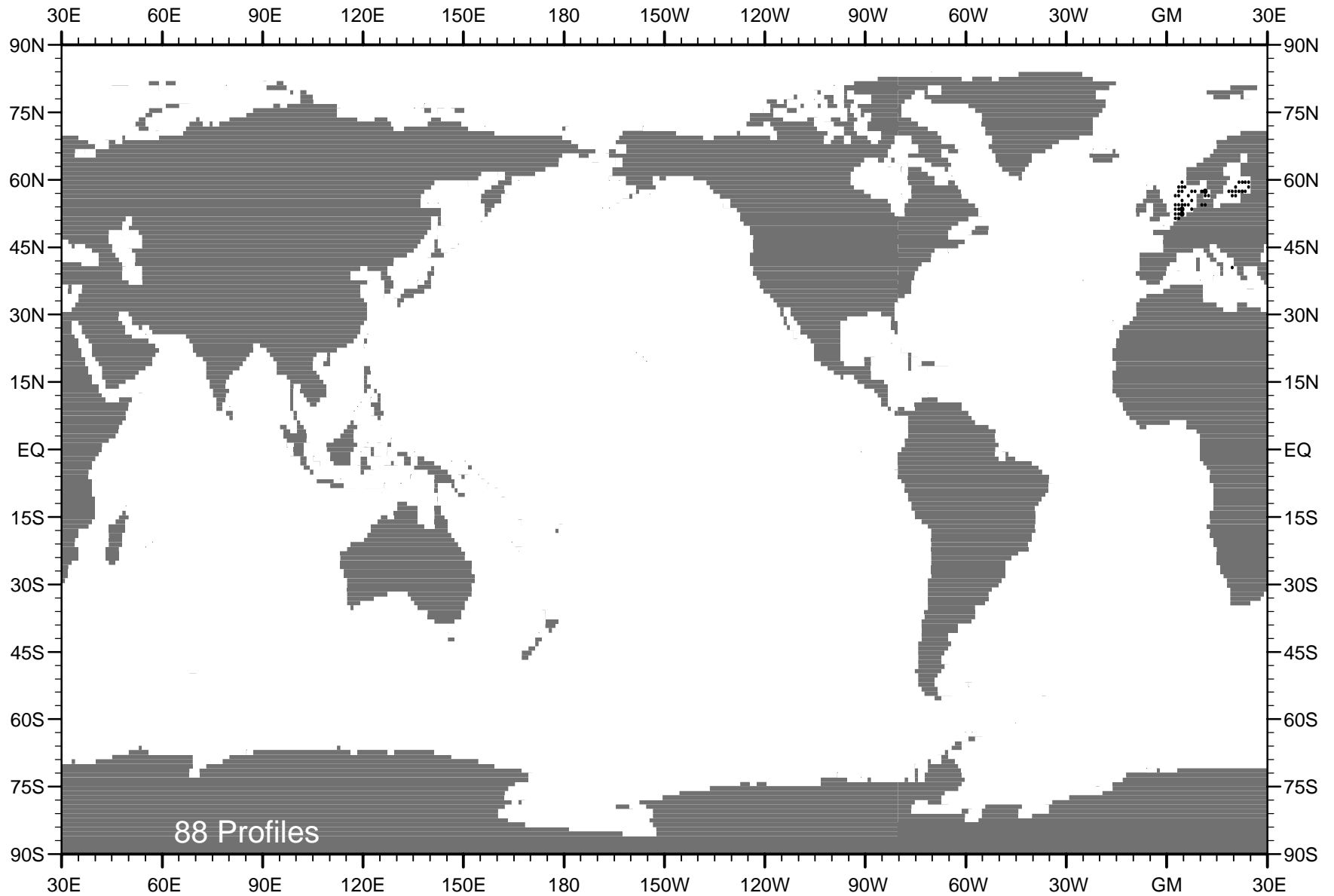


Fig. C9 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1908 .

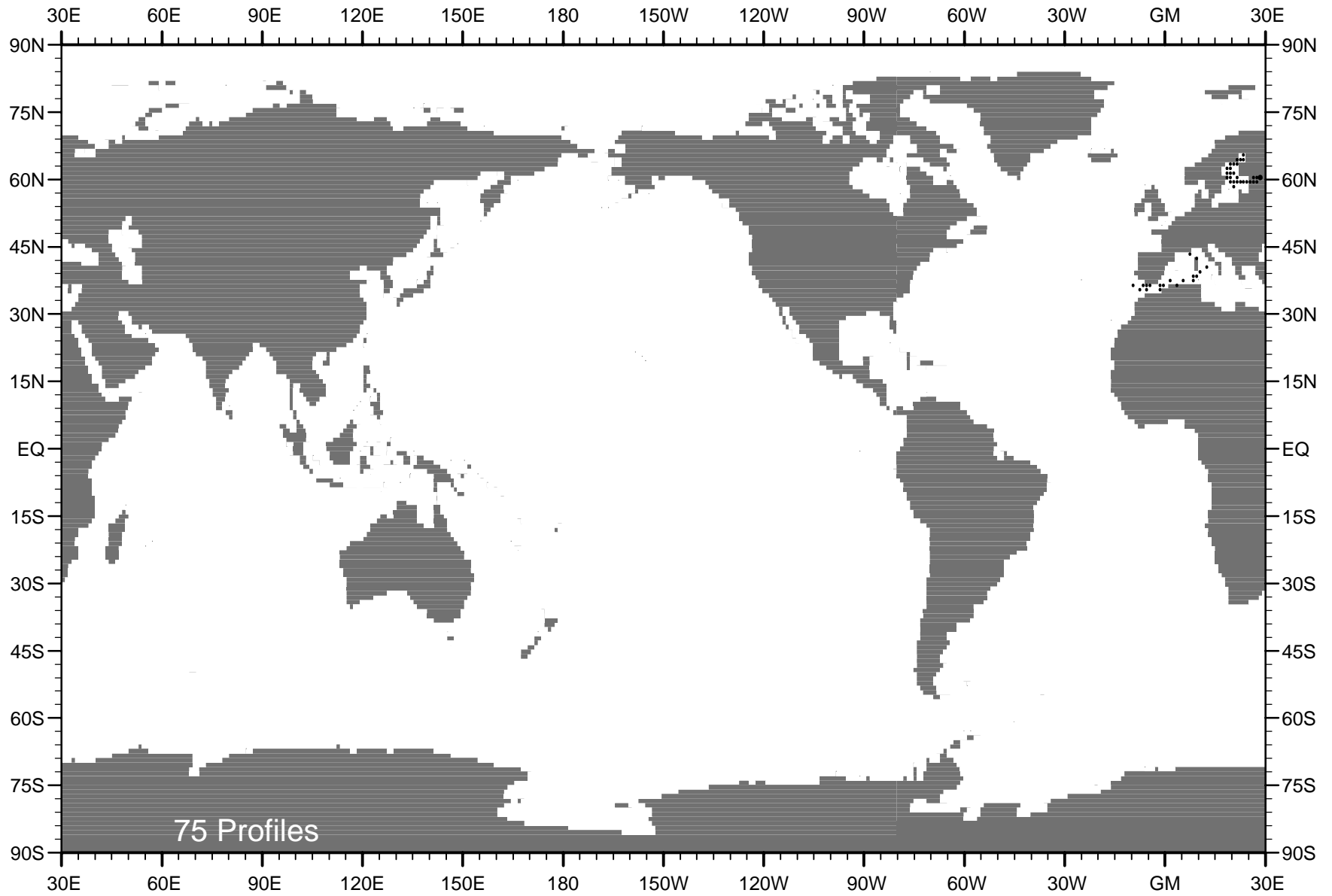


Fig. C10 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1909 .



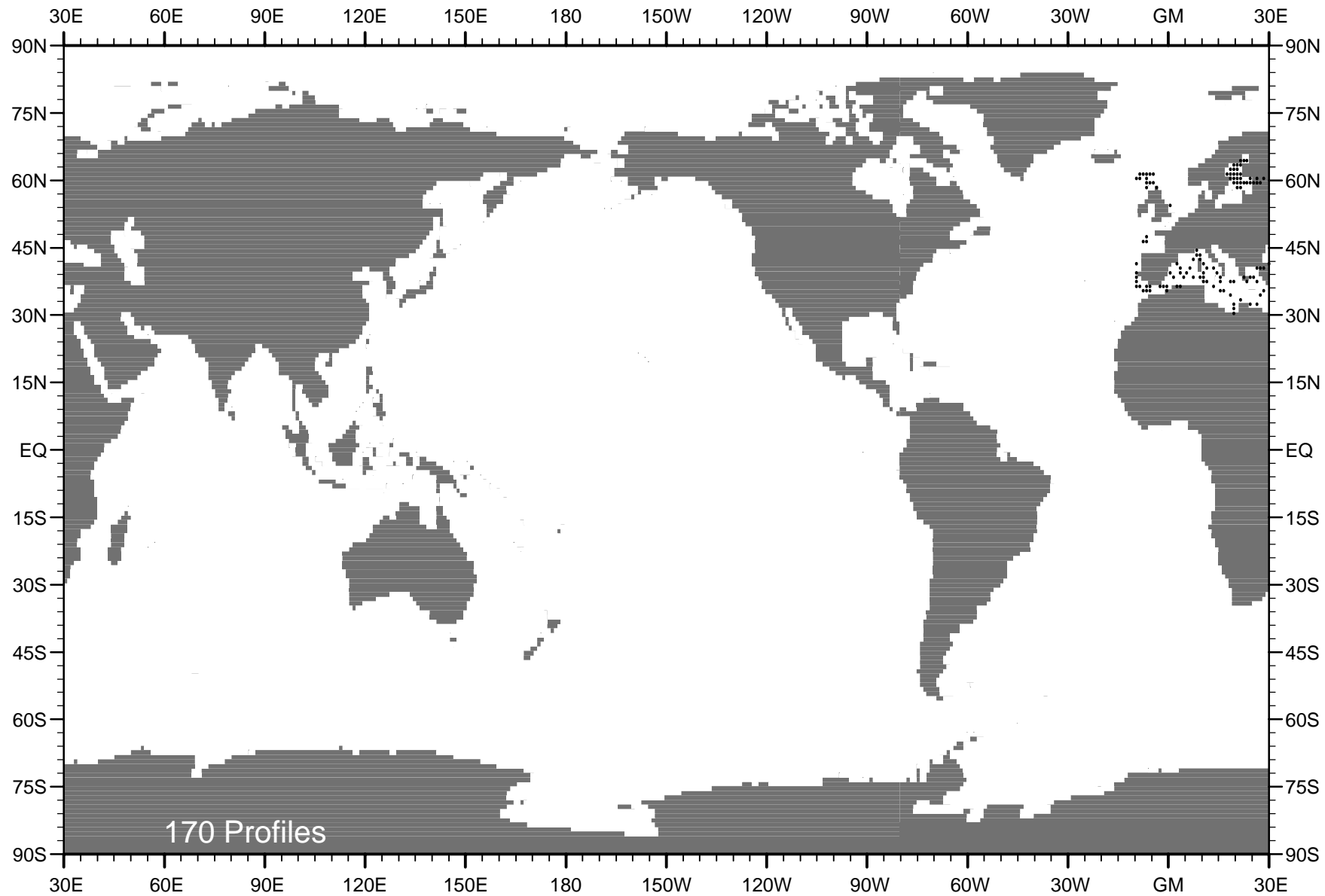


Fig. C11 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1910 .

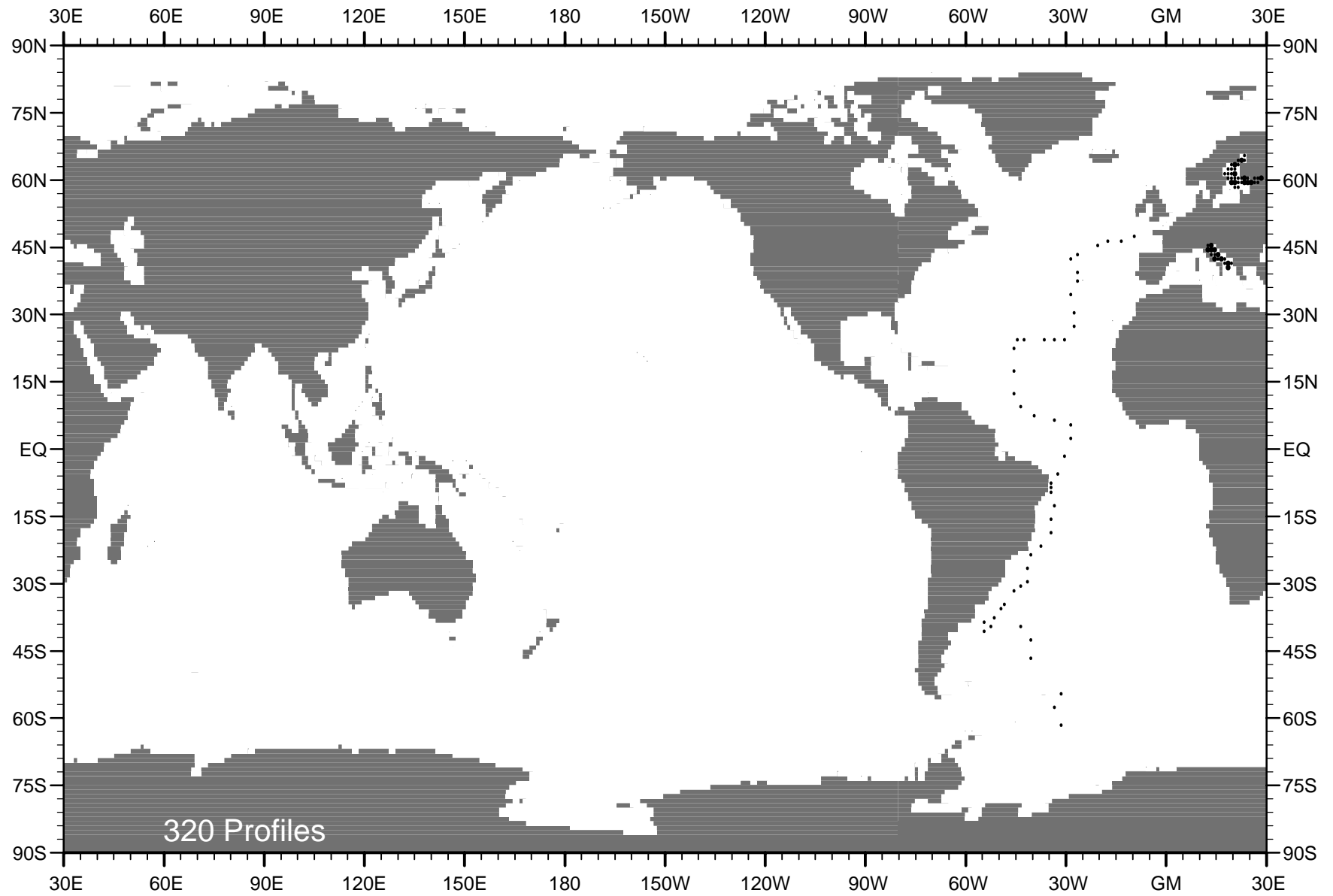


Fig. C12 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1911 .

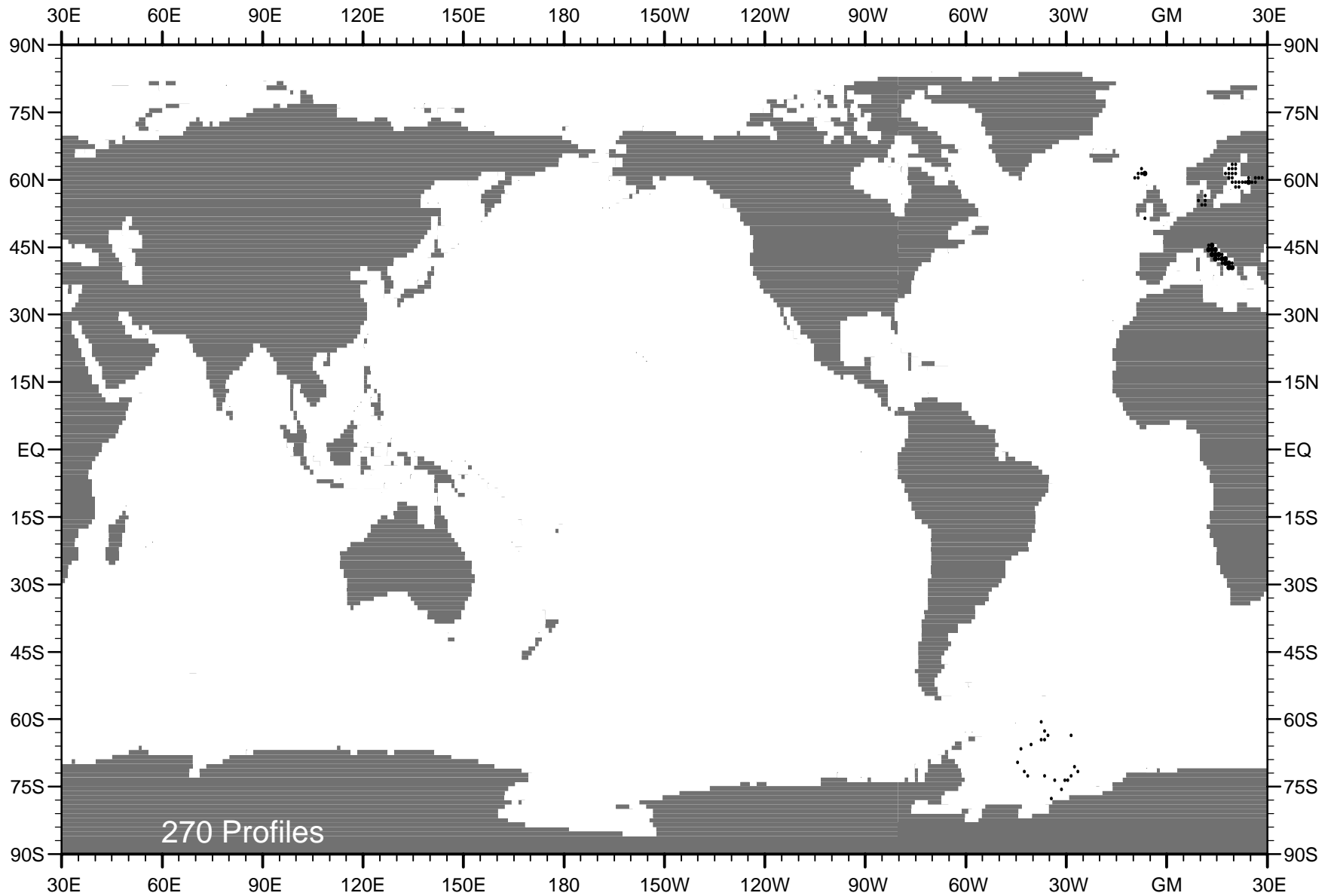


Fig. C13 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1912 .

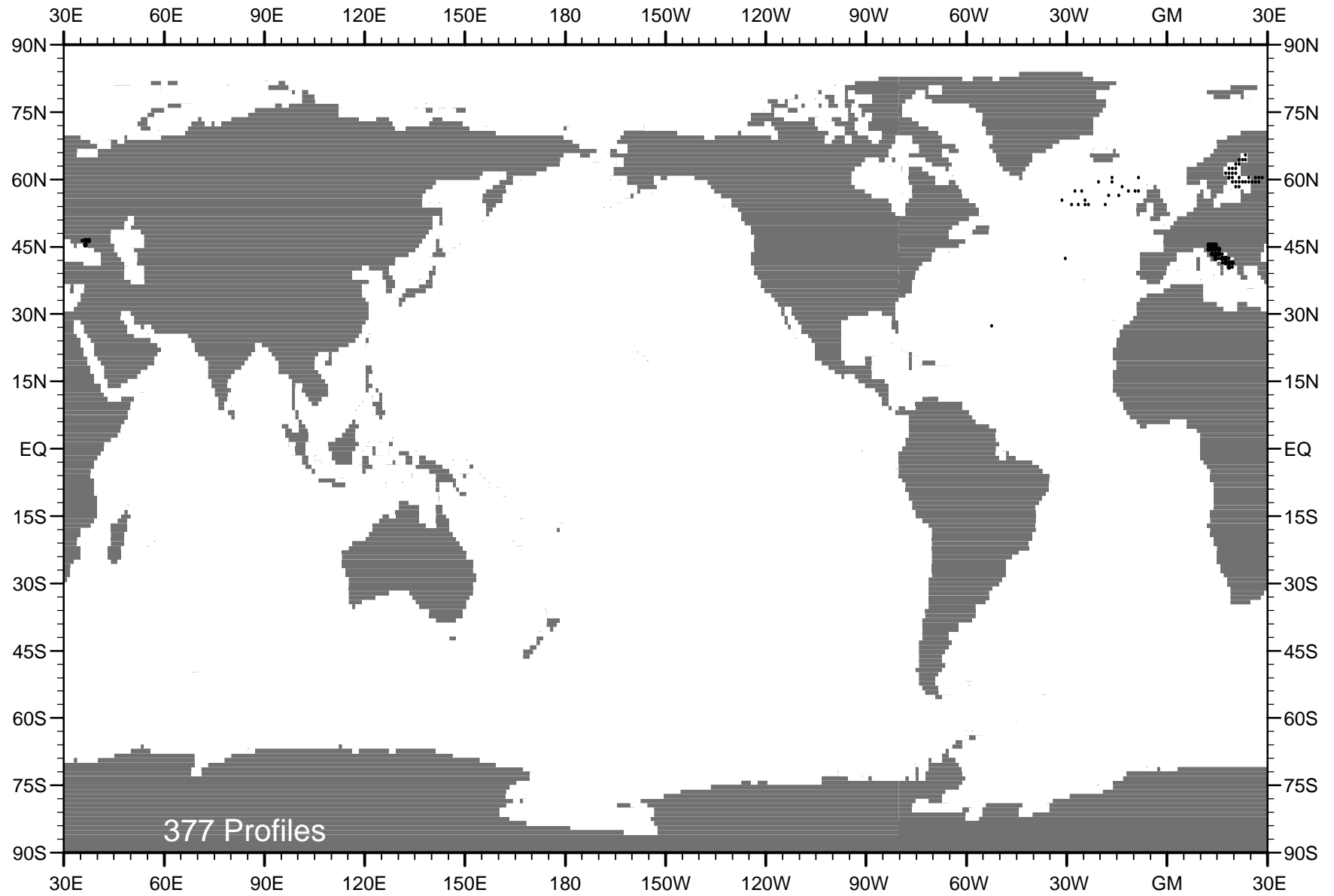


Fig. C14 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1913 .

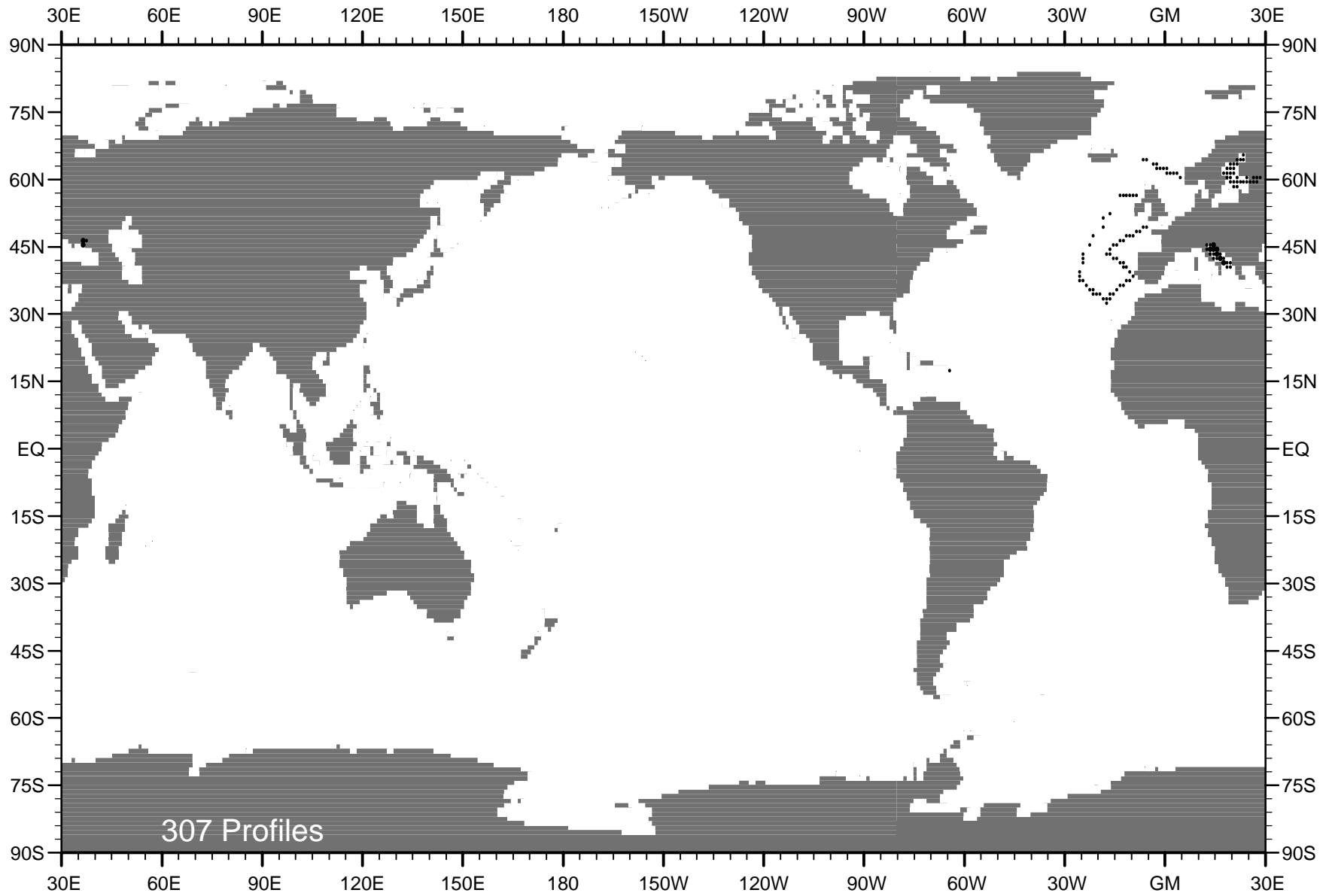


Fig. C15 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1914 .

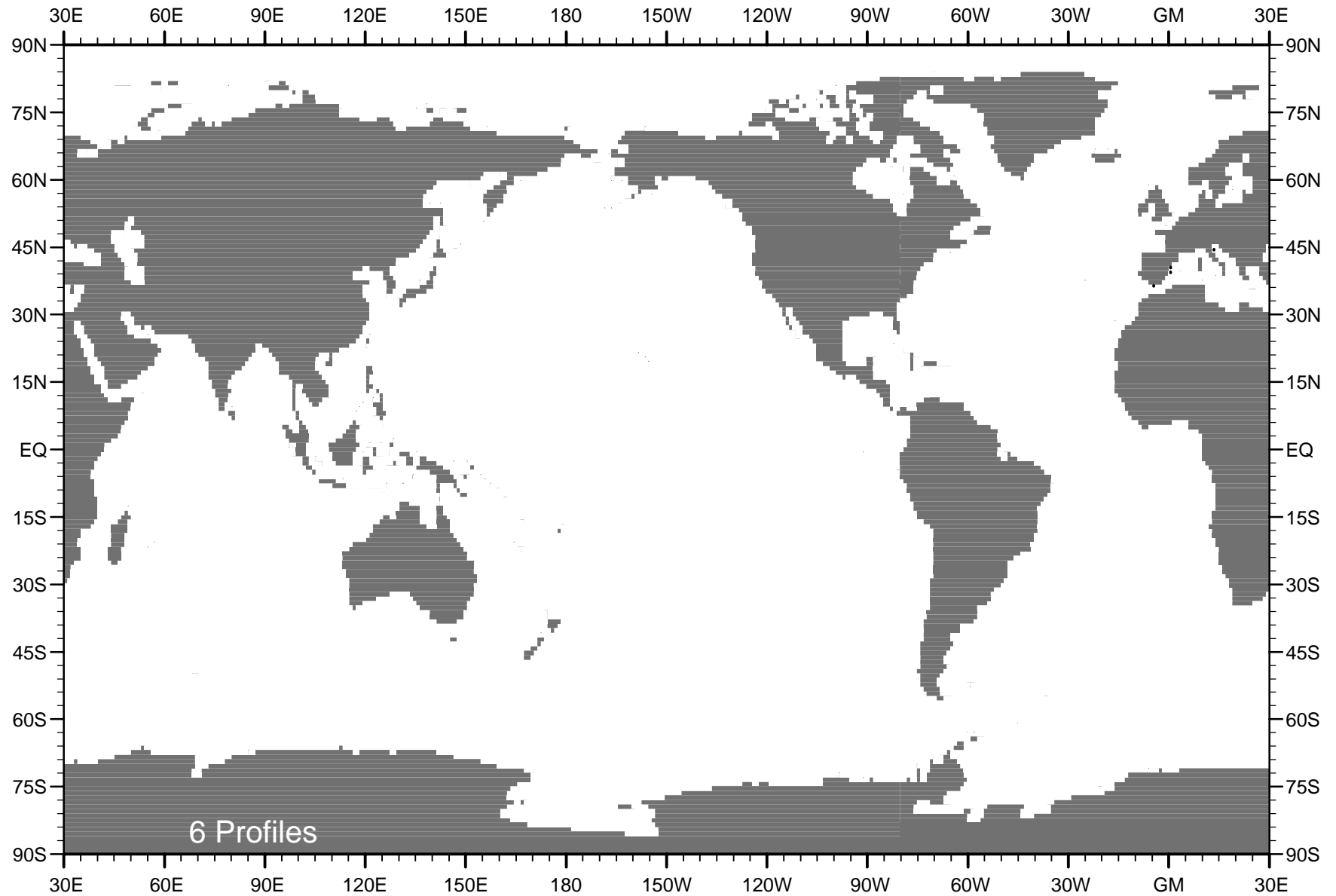


Fig. C16 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1915 .

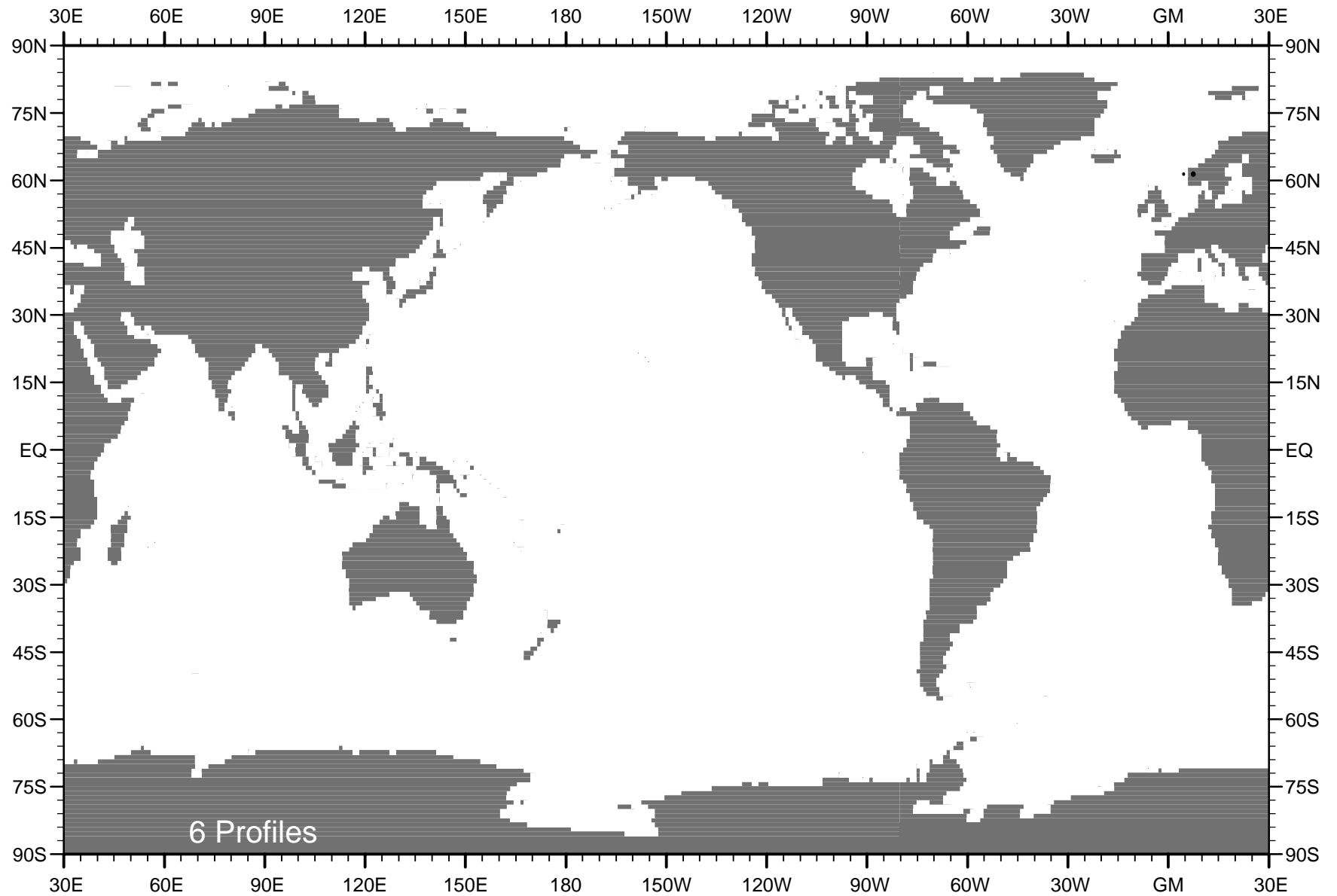


Fig. C17 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1916 .

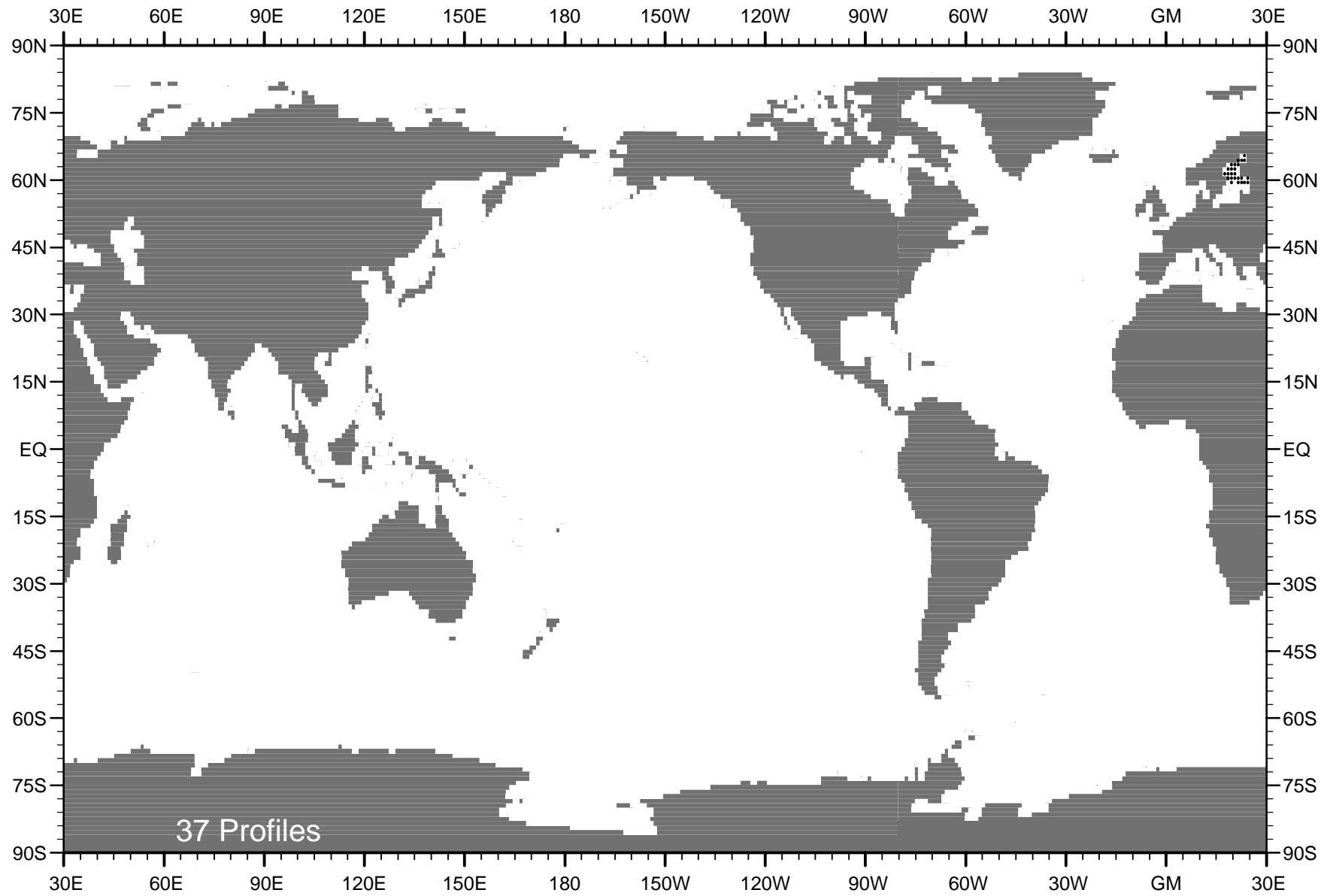


Fig. C18 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1919 .



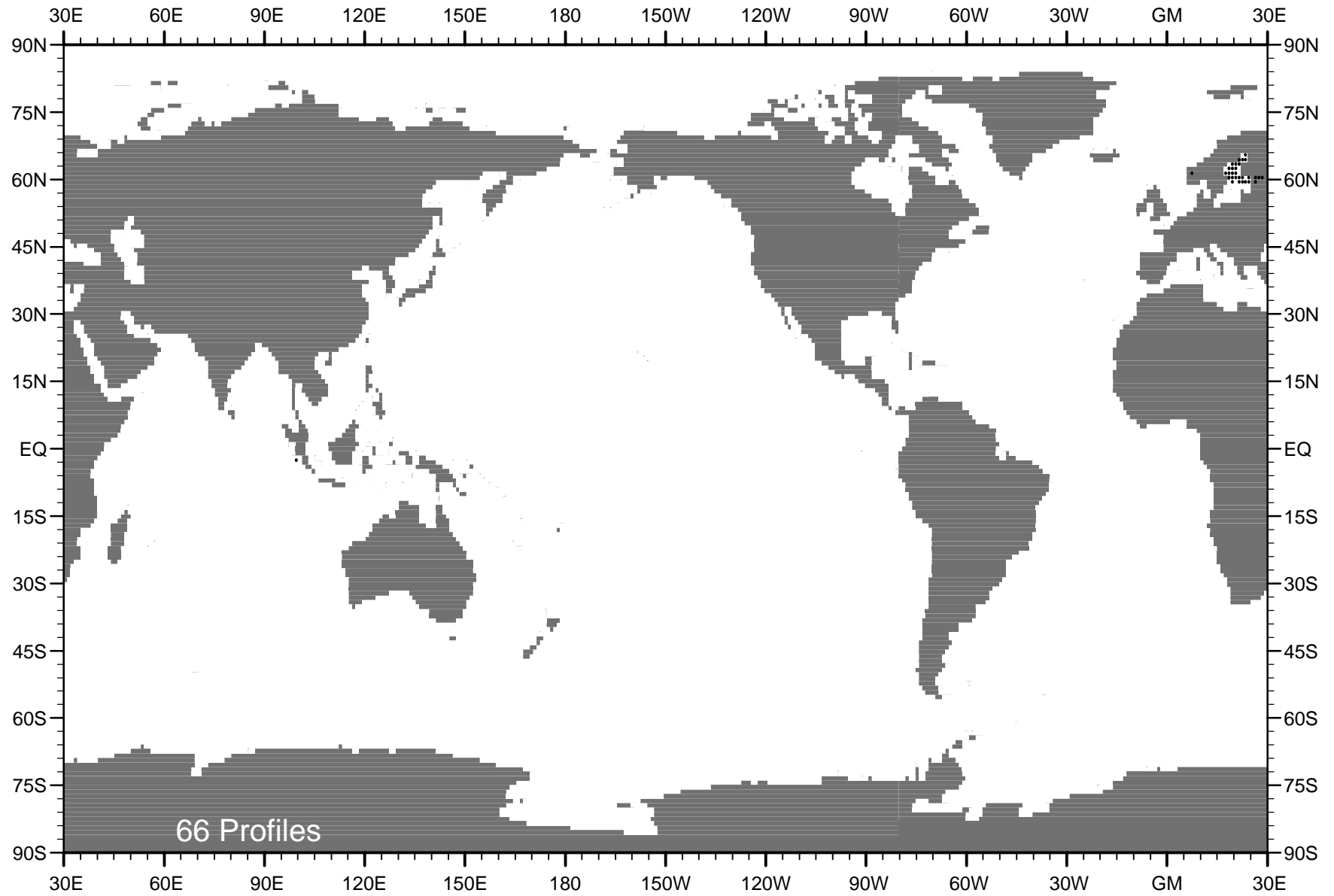


Fig. C19 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1920 .

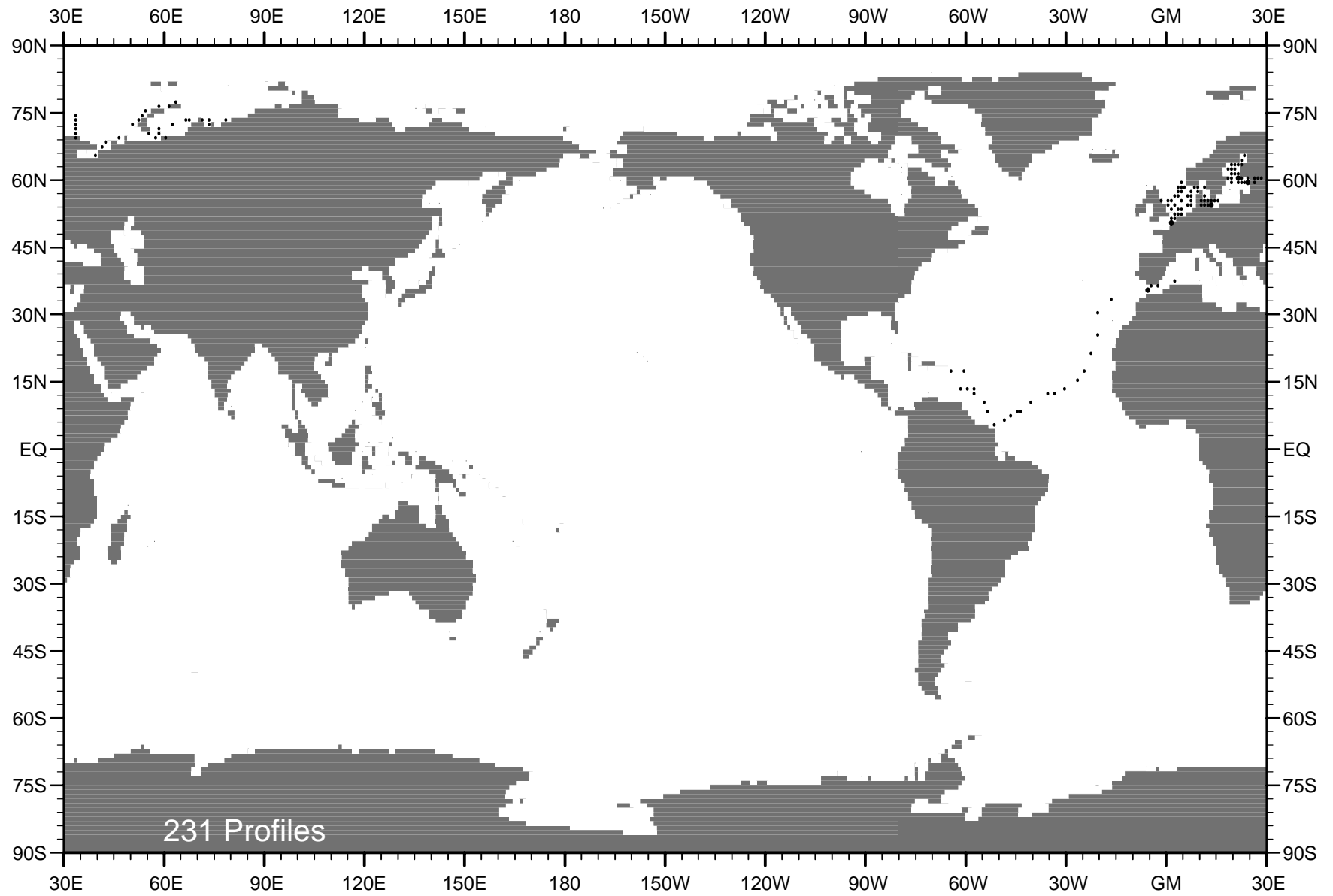


Fig. C20 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1921 .

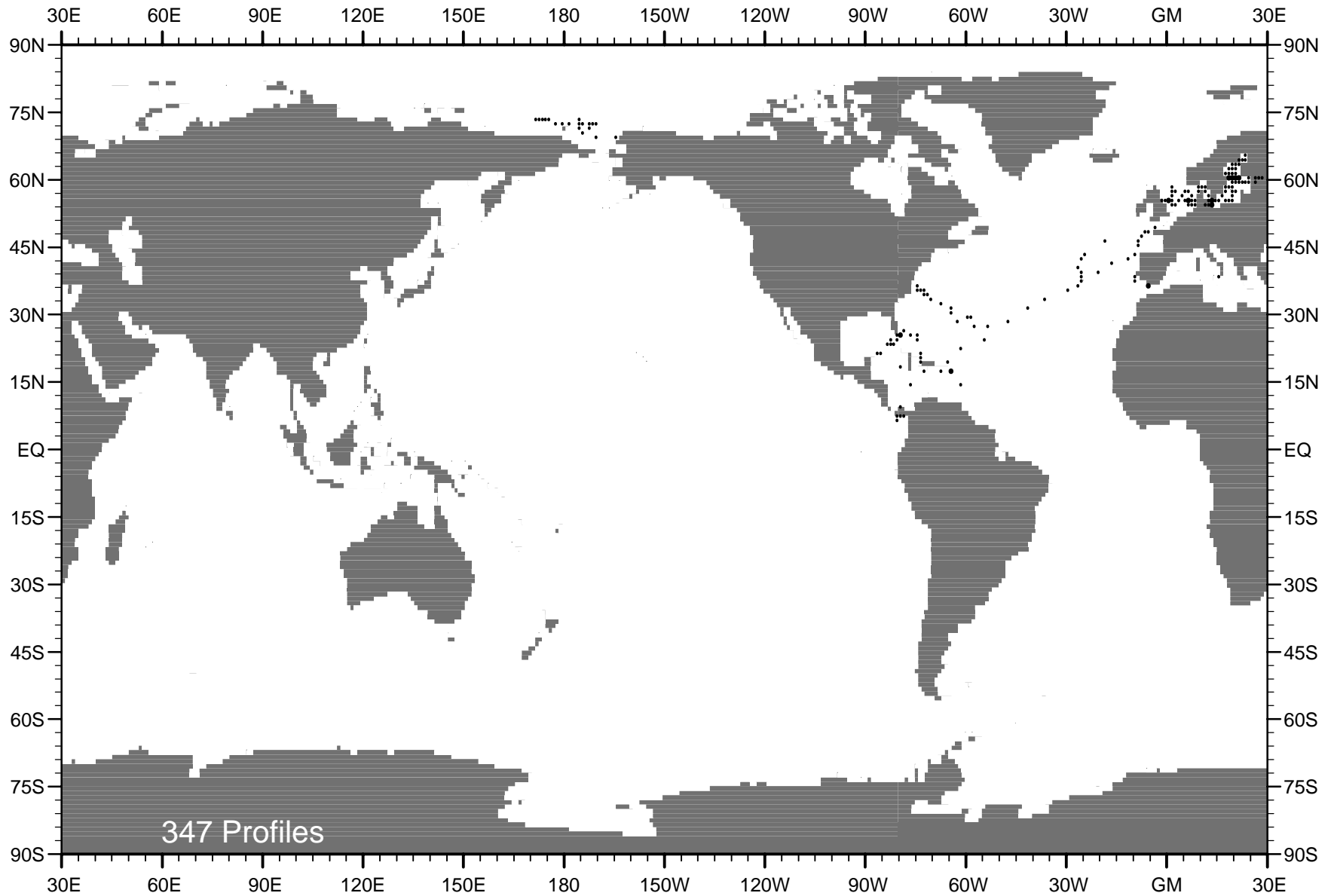


Fig. C21 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1922 .

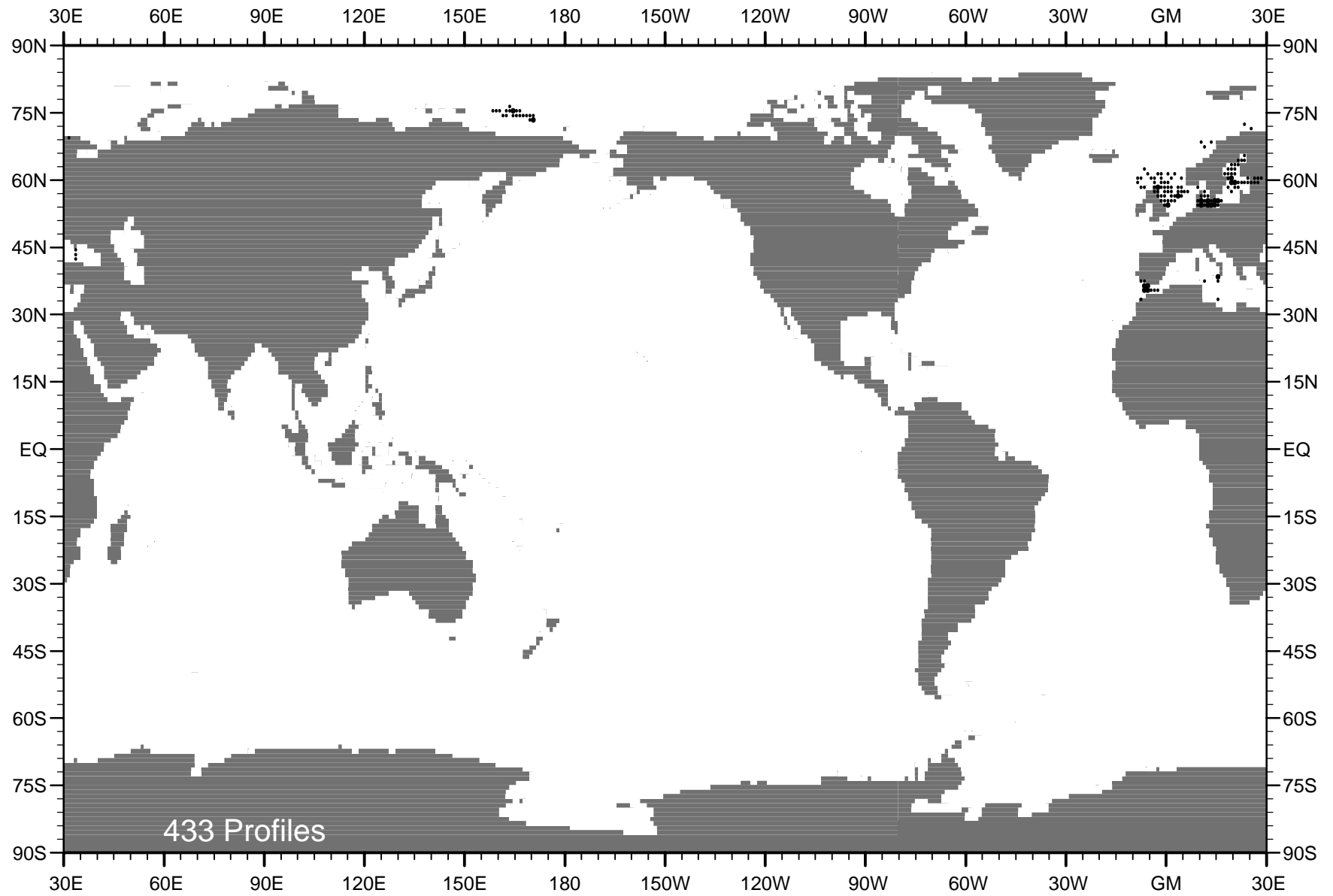


Fig. C22 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1923 .

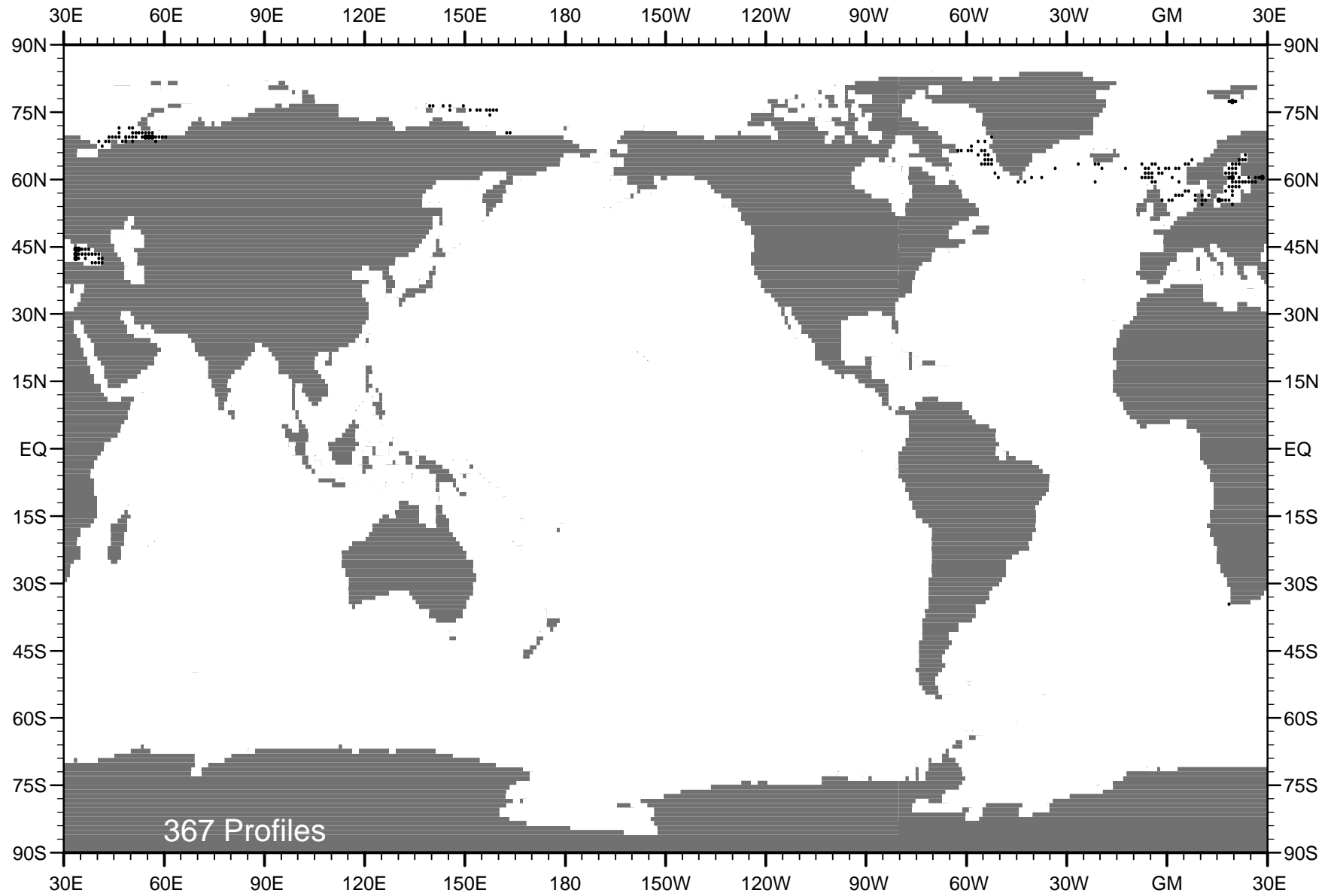


Fig. C23 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1924 .

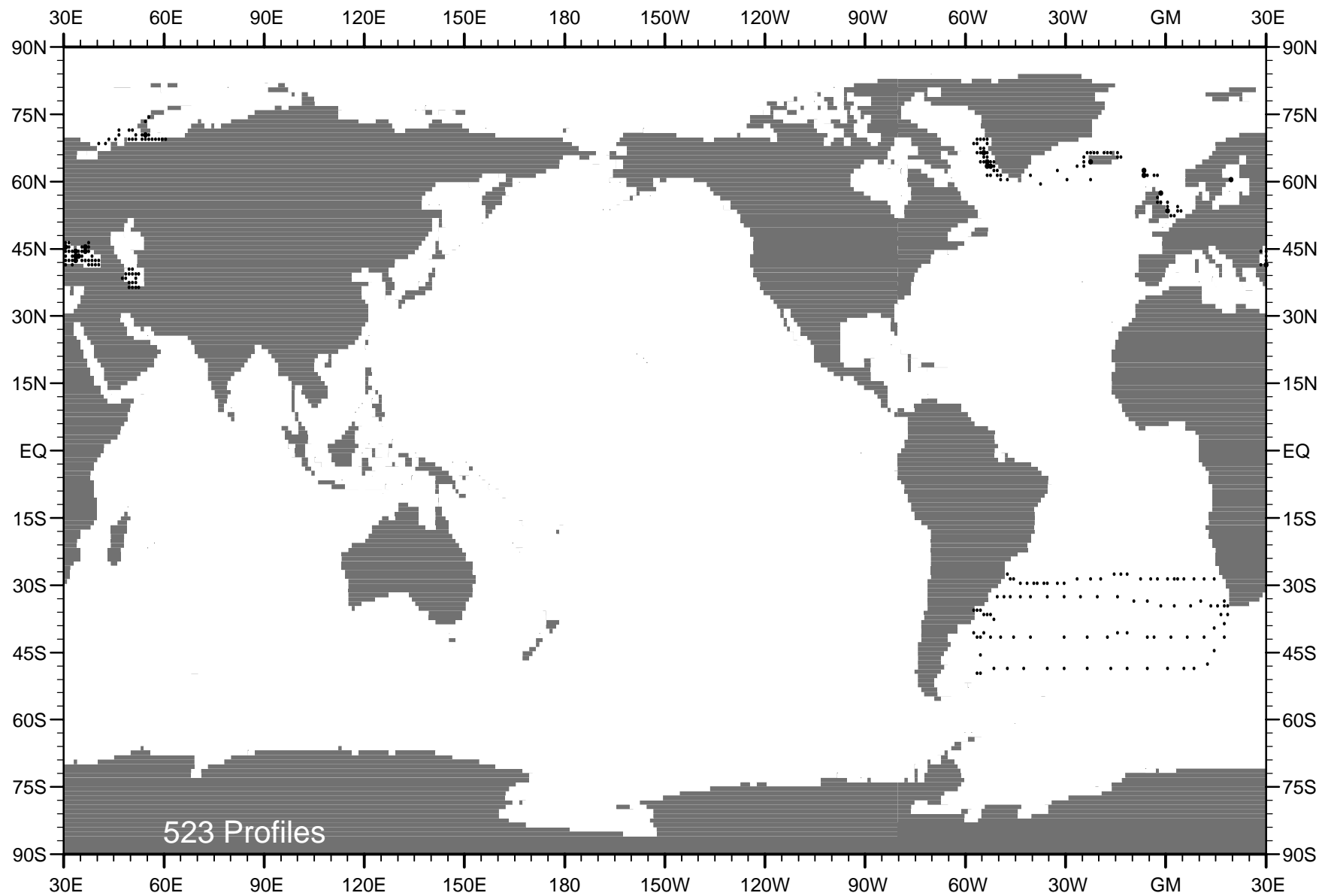


Fig. C24 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1925 .

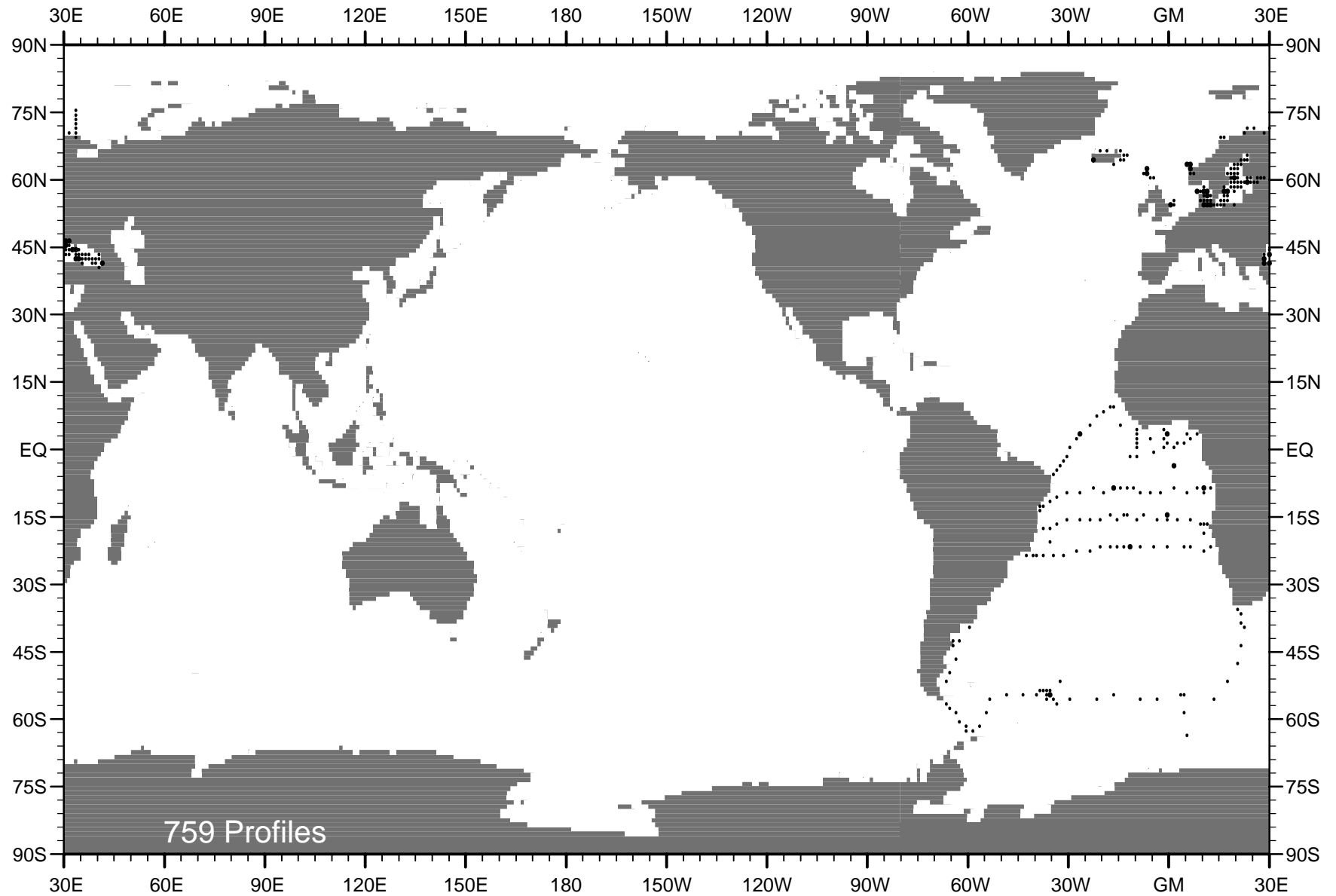


Fig. C25 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1926 .

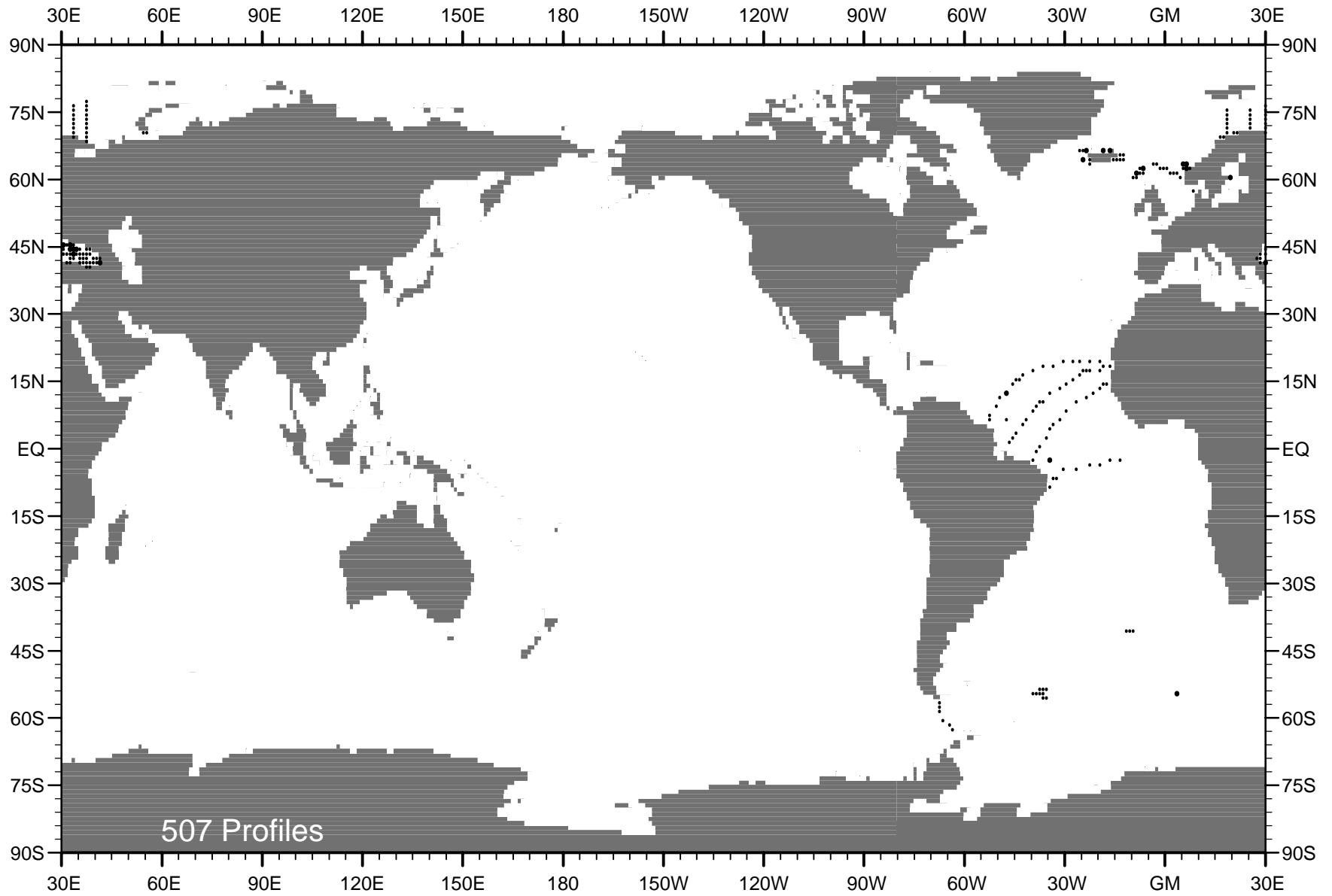


Fig. C26 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1927 .



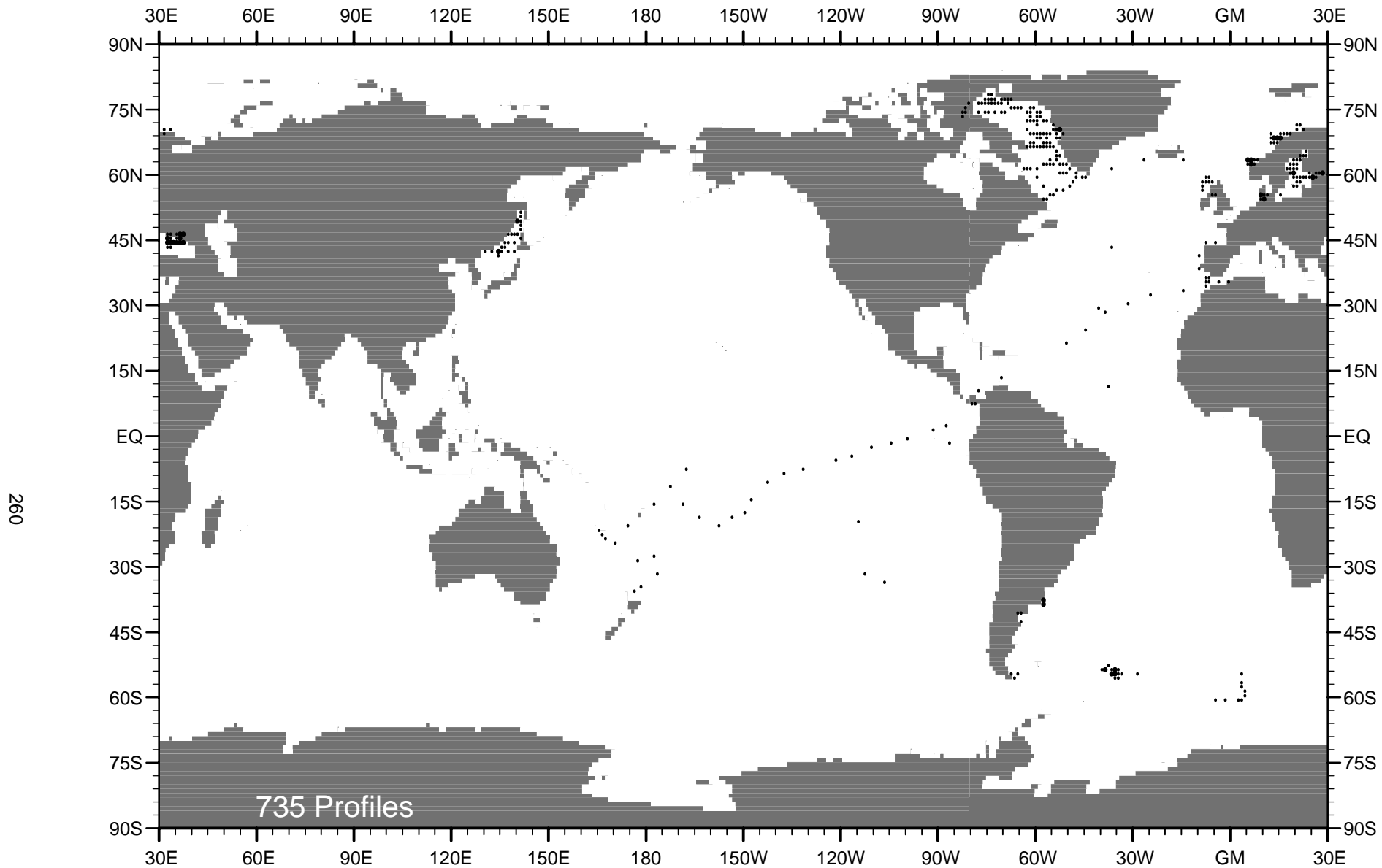


Fig. C27 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1928 .

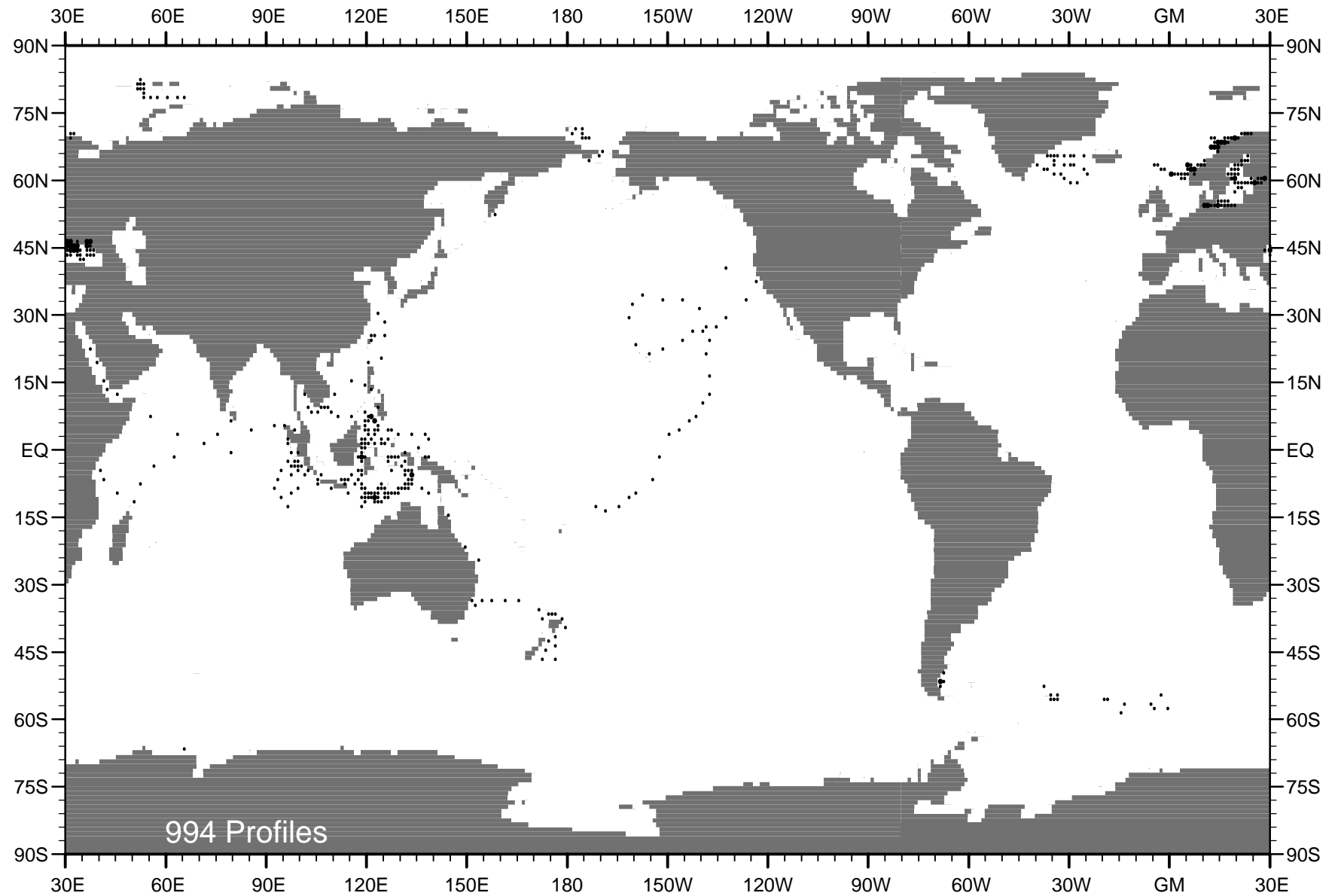


Fig. C28 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1929 .

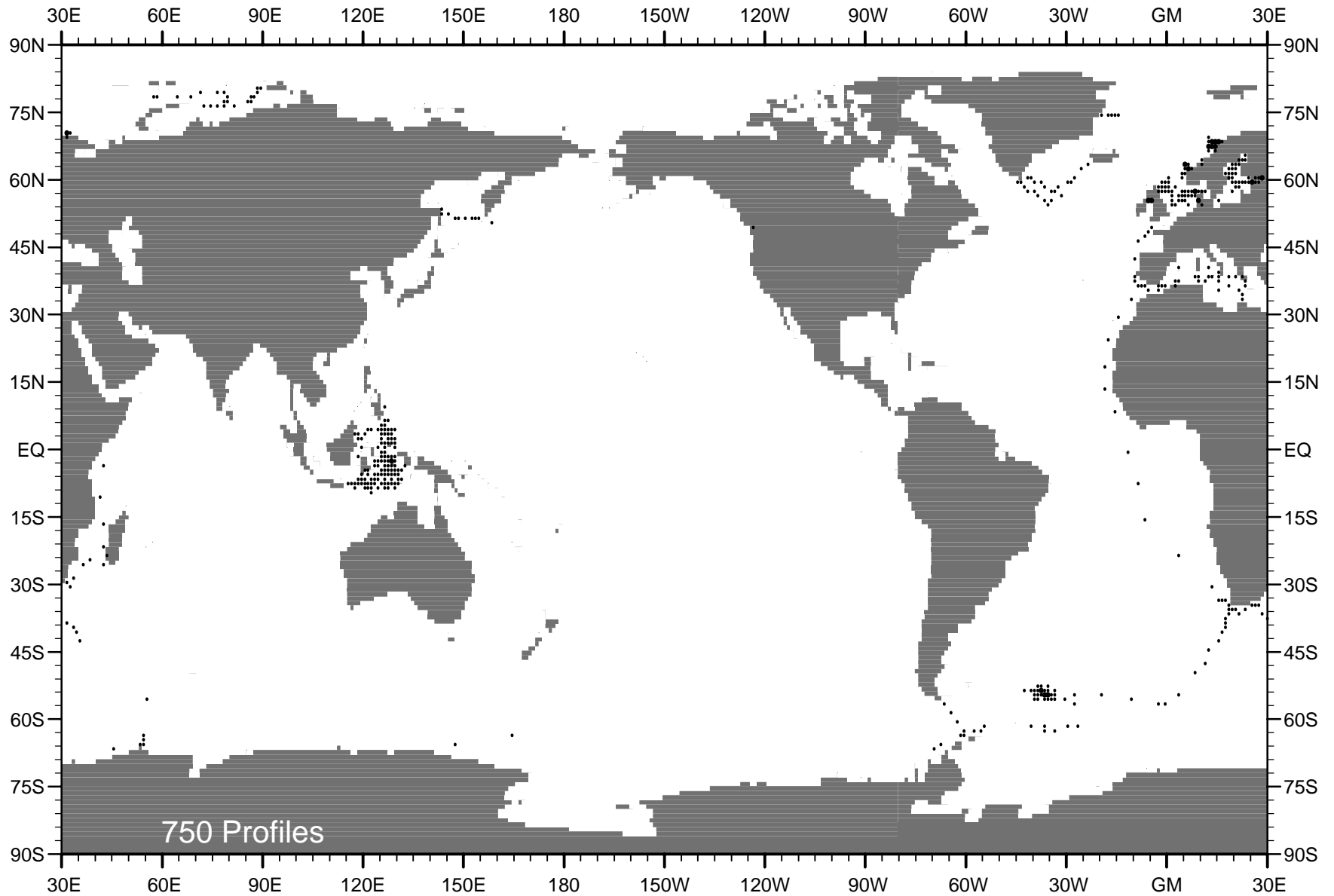


Fig. C29 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1930 .

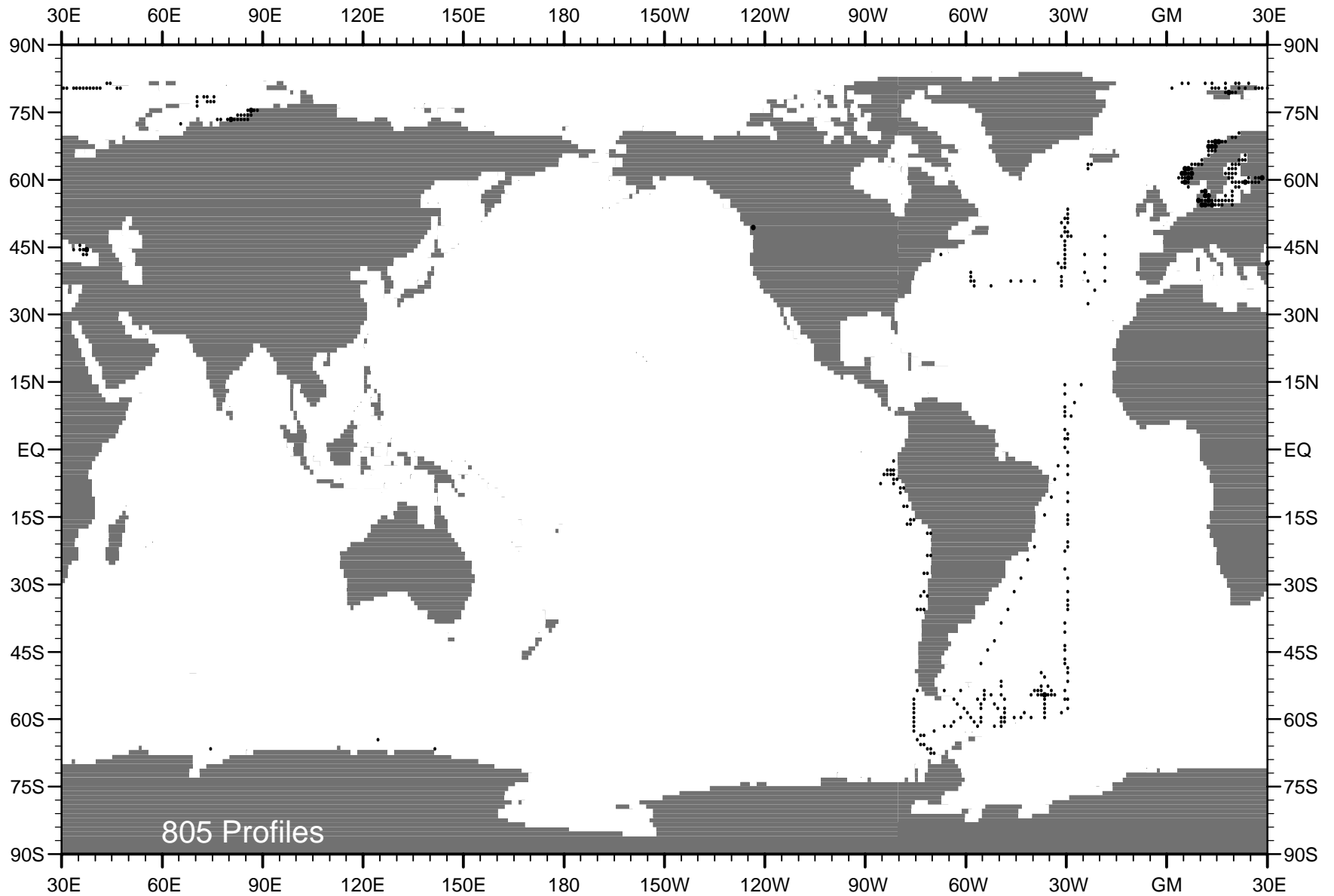


Fig. C30 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1931 .

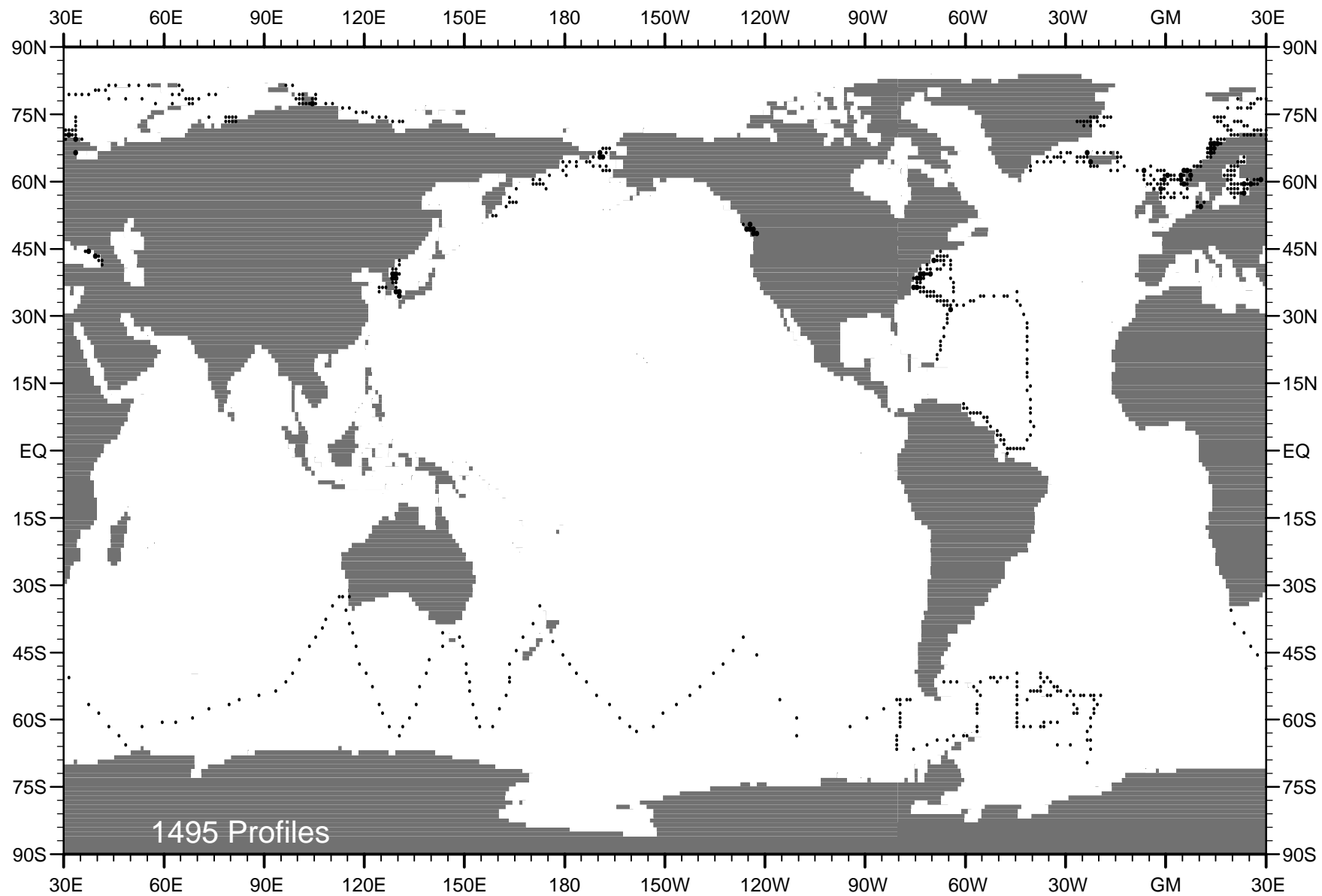


Fig. C31 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1932 .

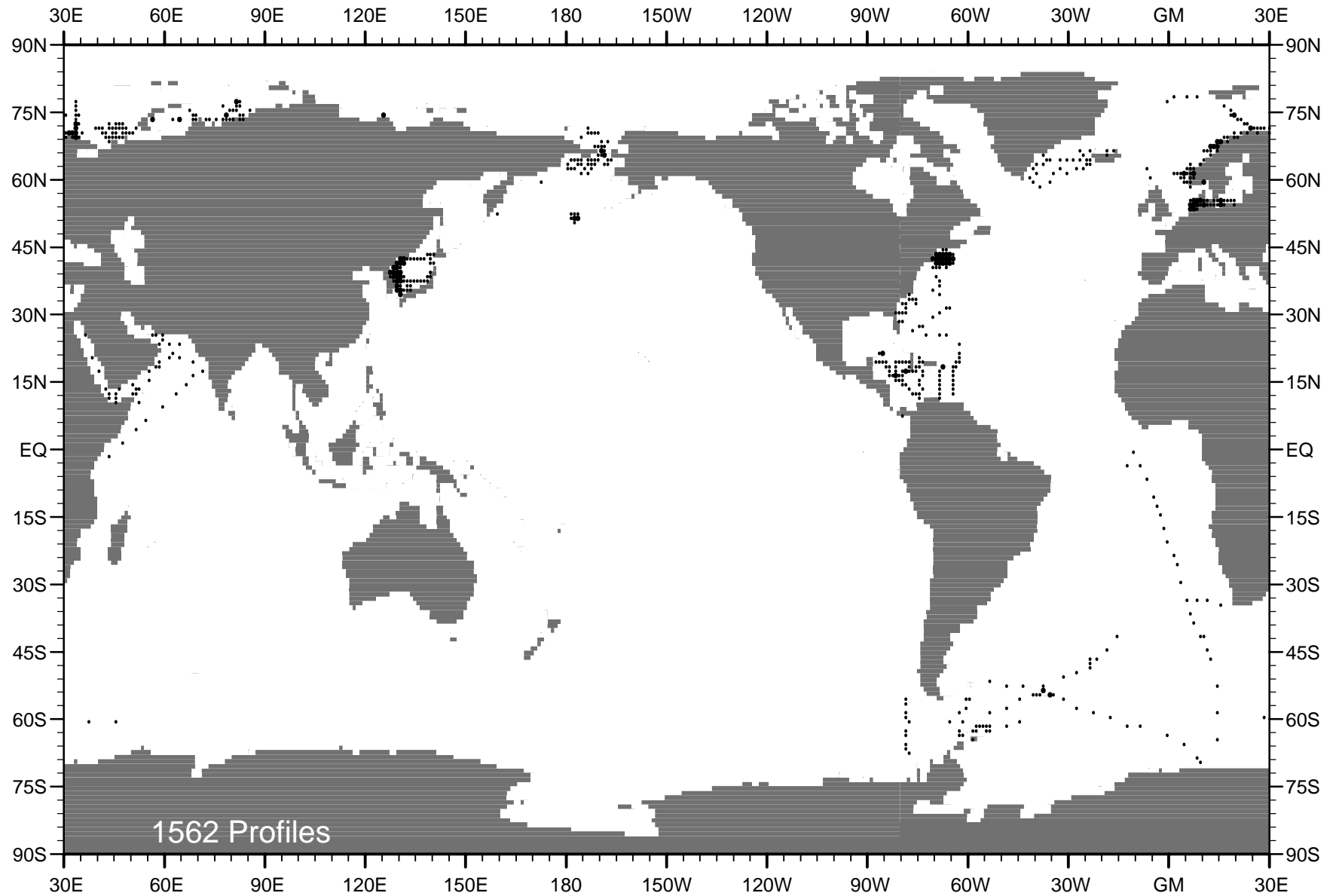


Fig. C32 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1933 .

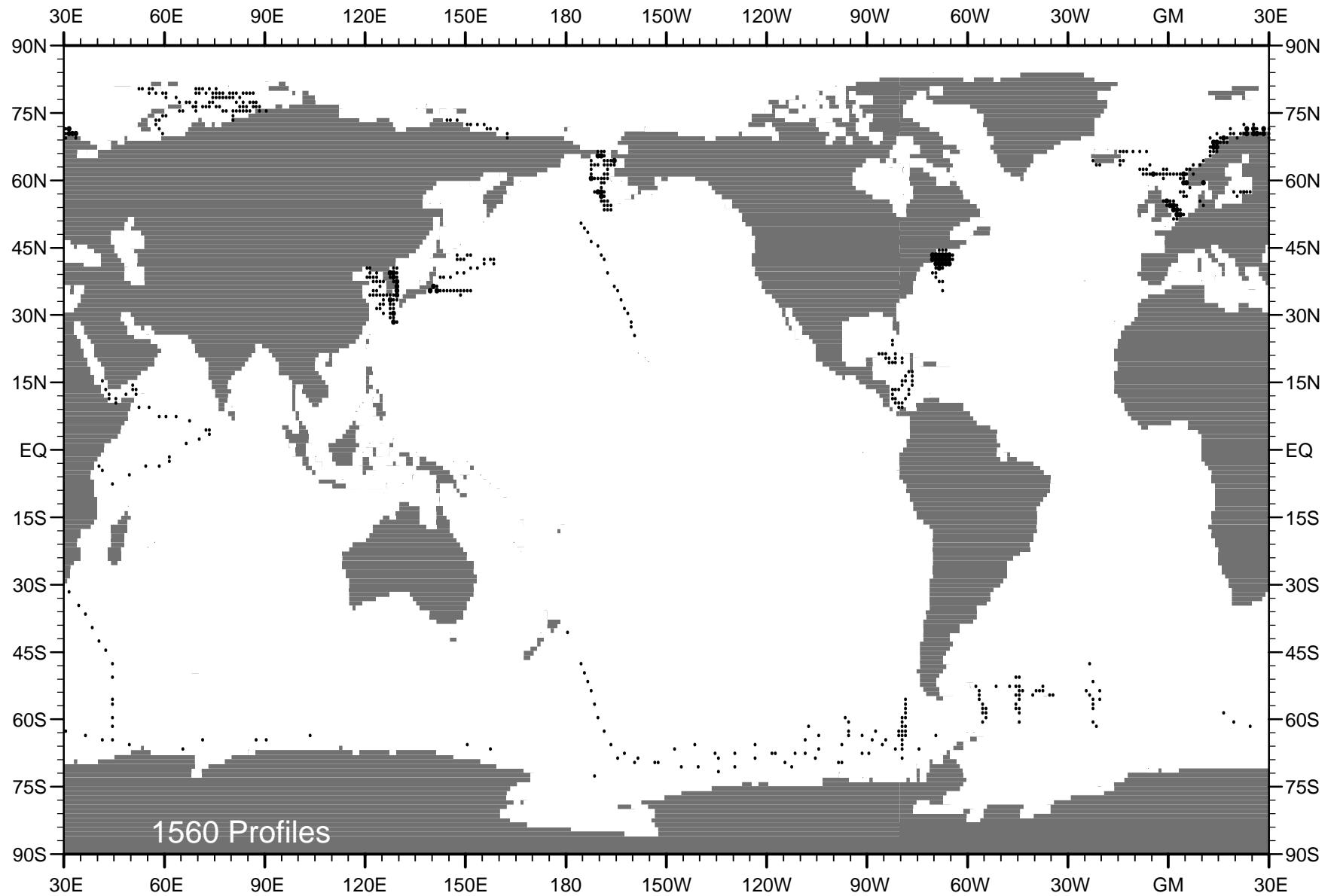


Fig. C33 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1934 .

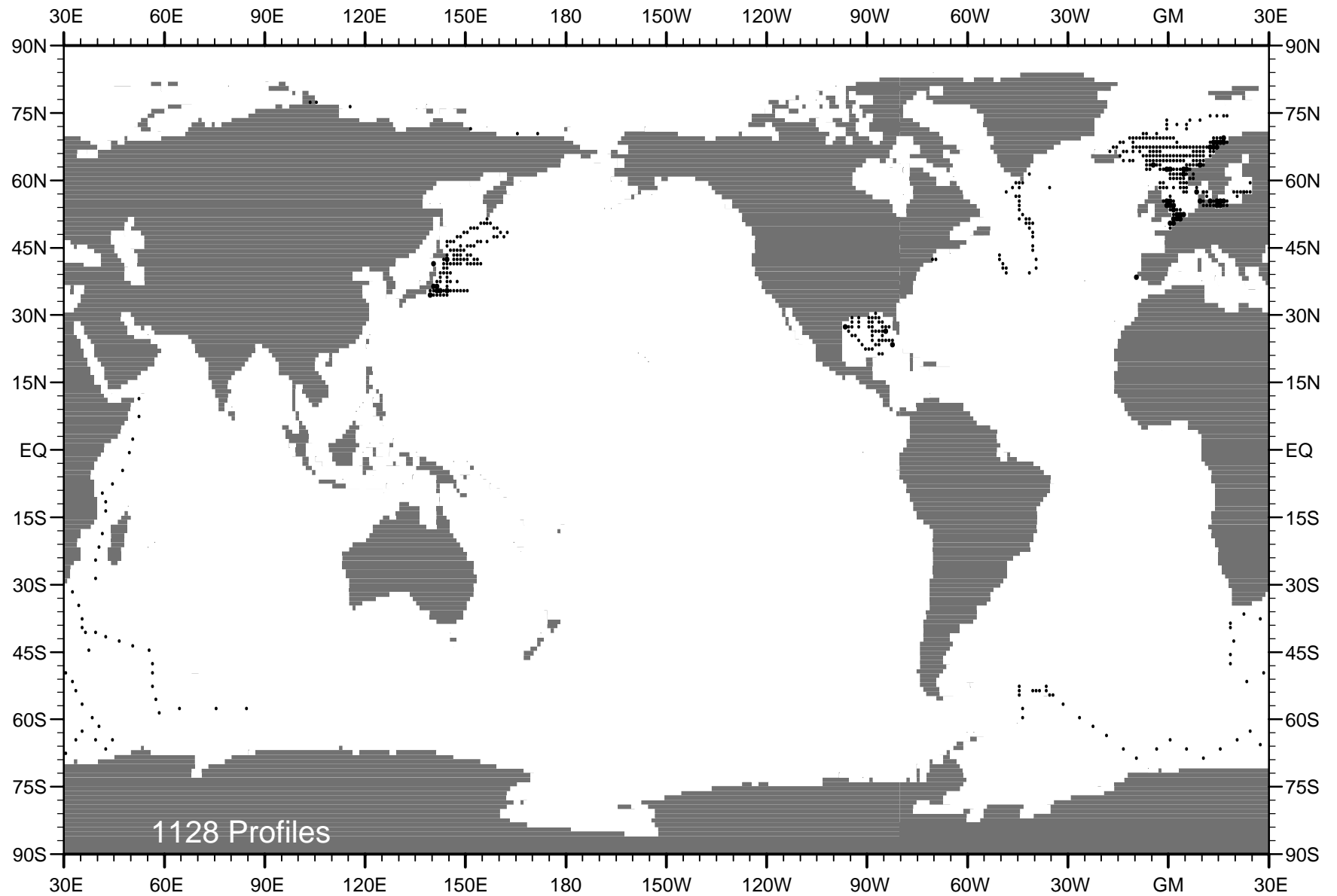


Fig. C34 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1935 .



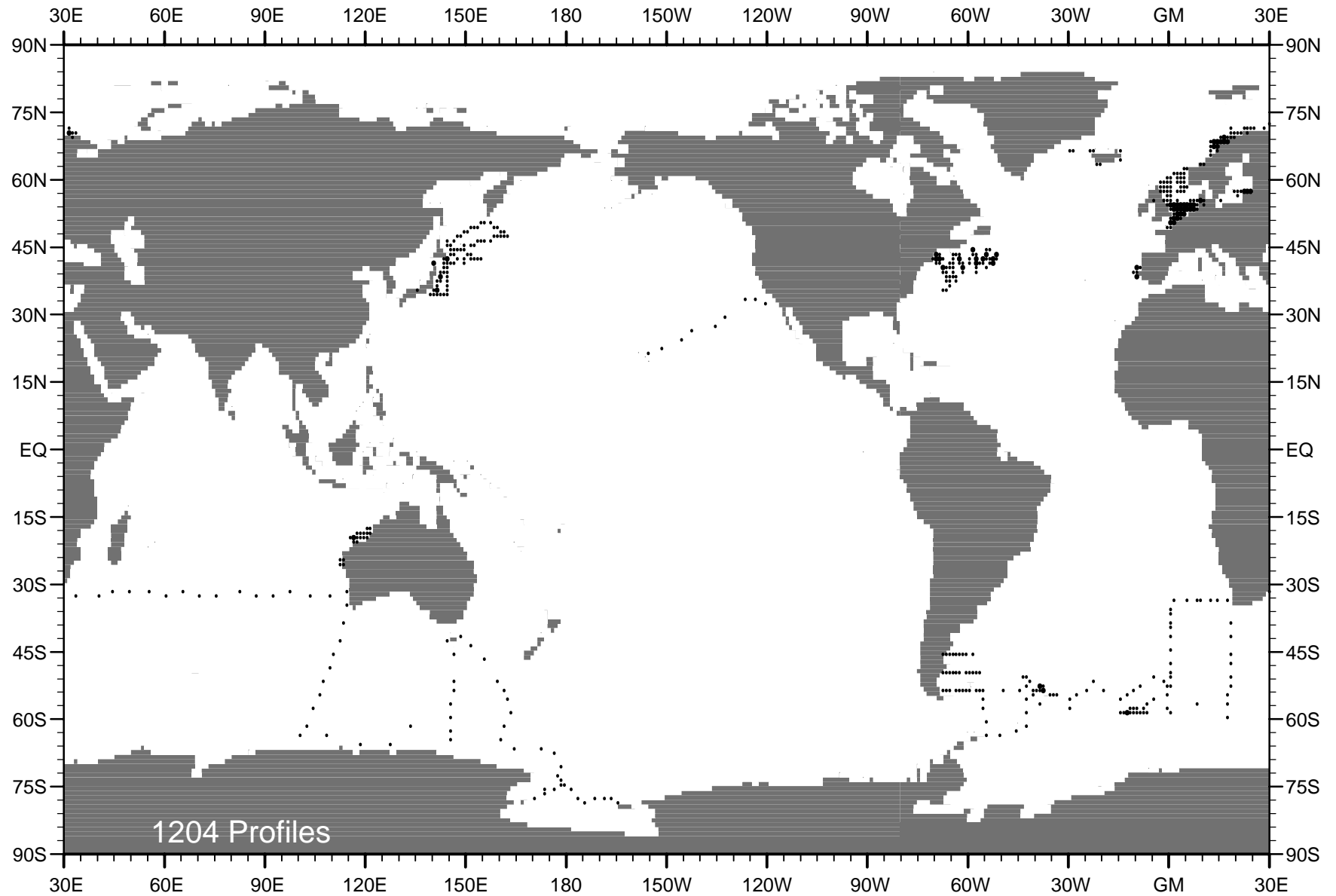


Fig. C35 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1936 .

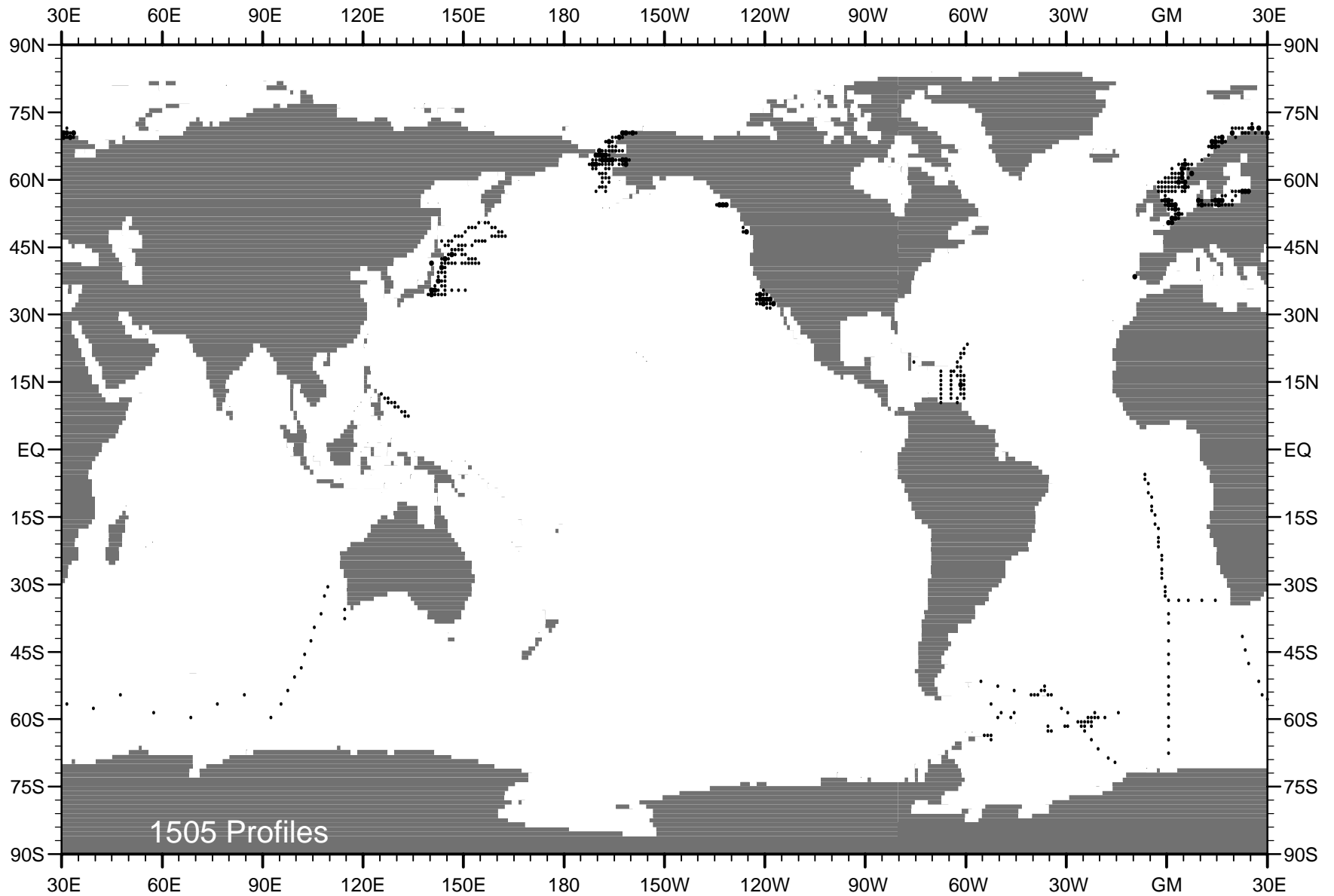


Fig. C36 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1937 .

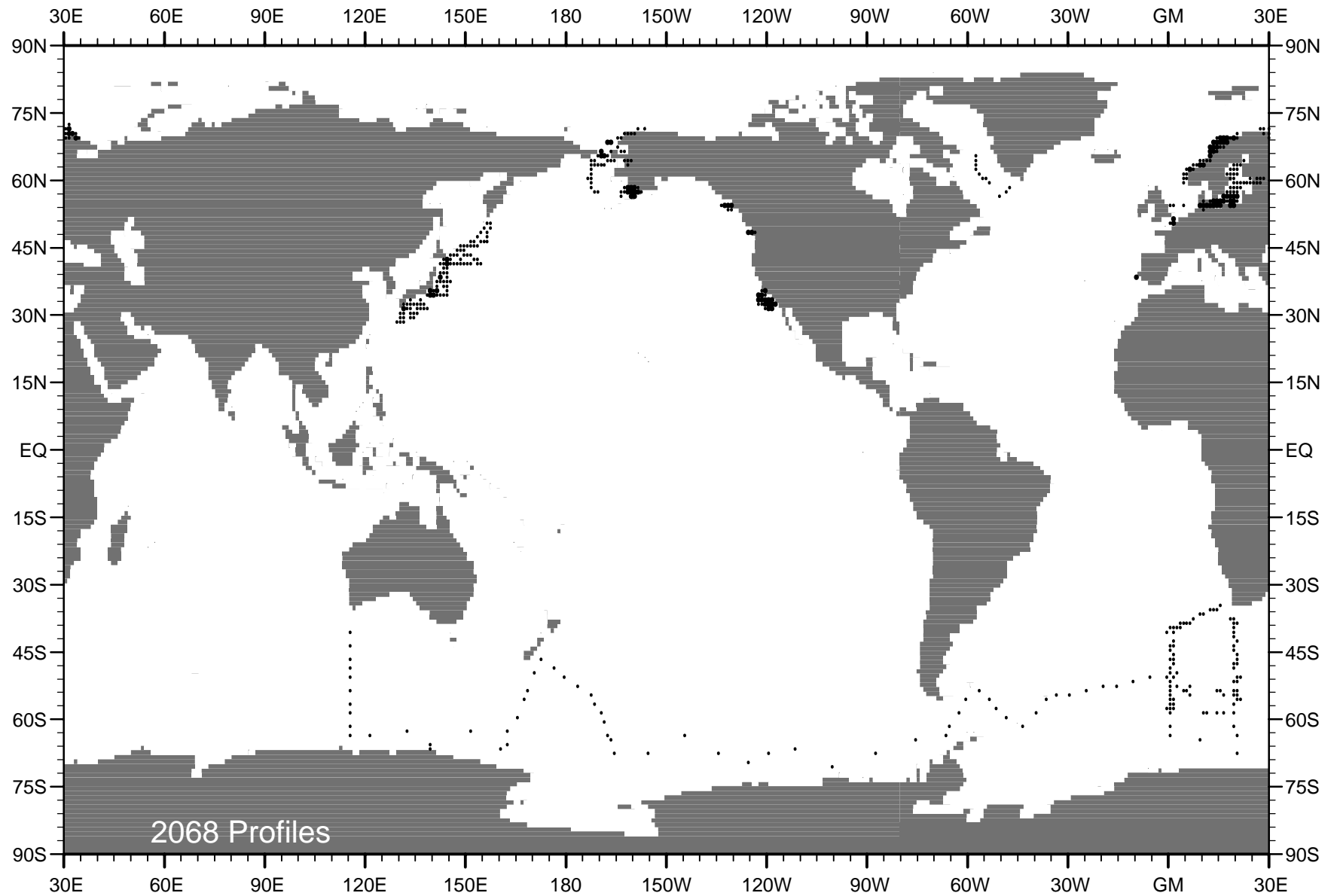


Fig. C37 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1938 .

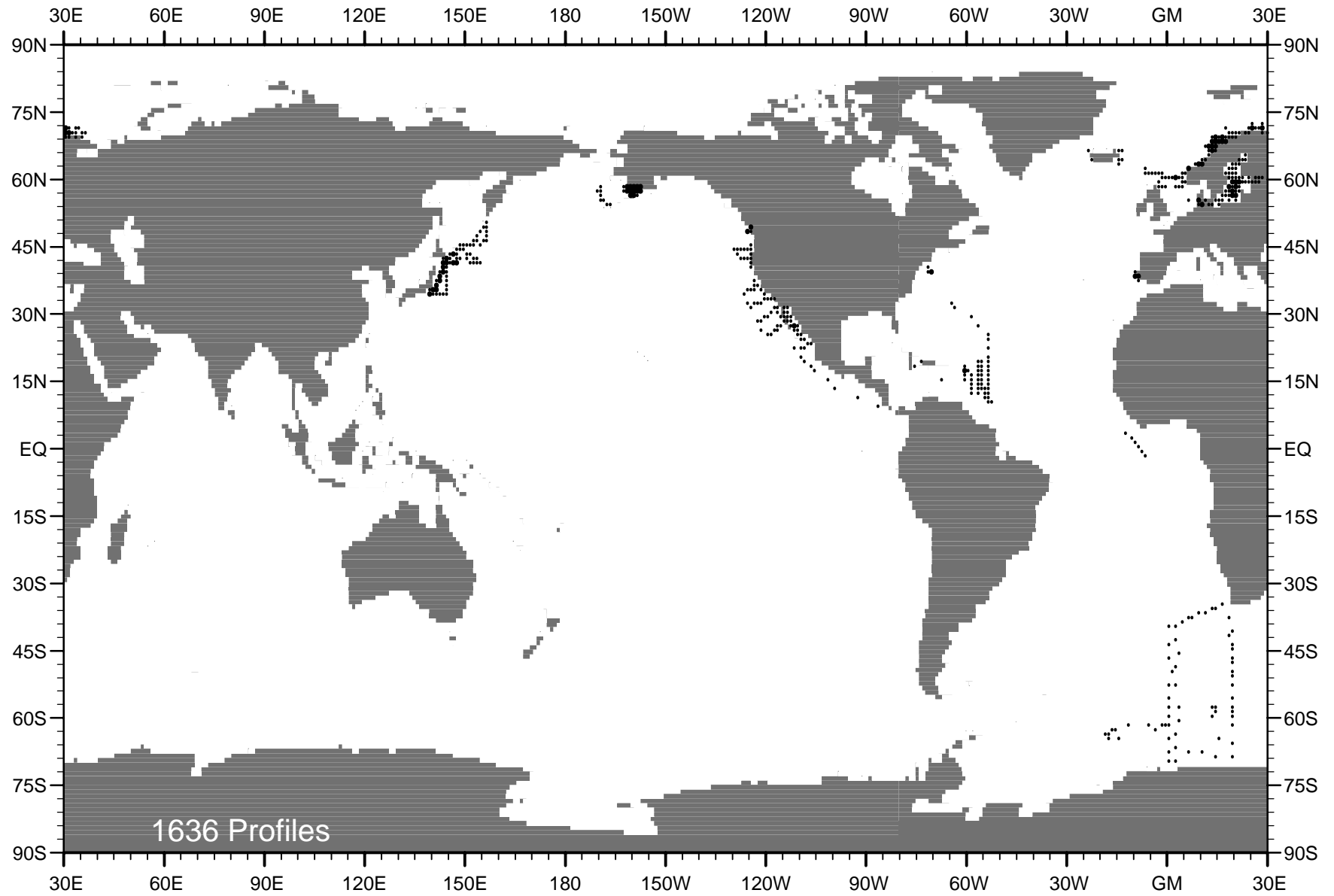


Fig. C38 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1939 .

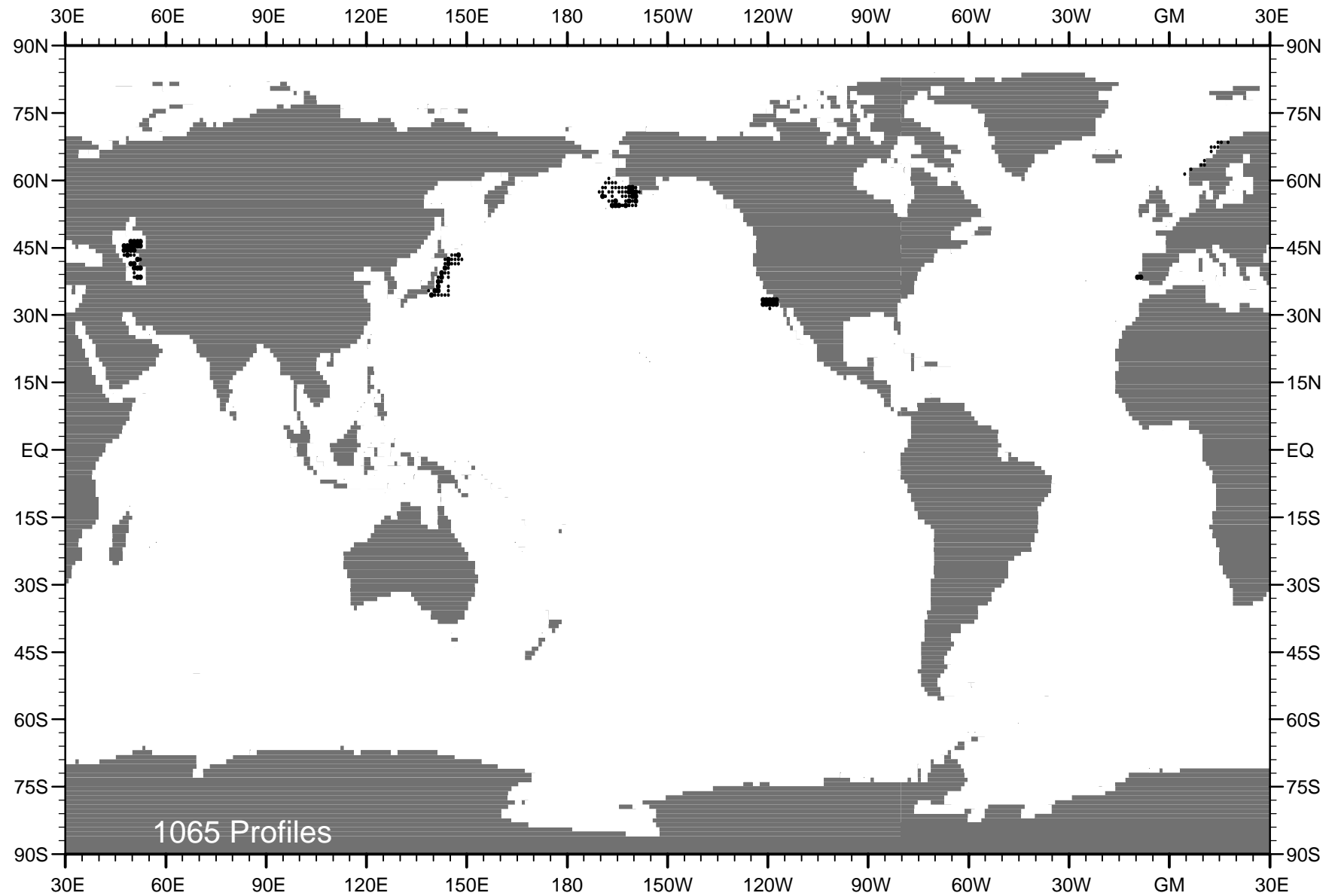


Fig. C39 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1940 .

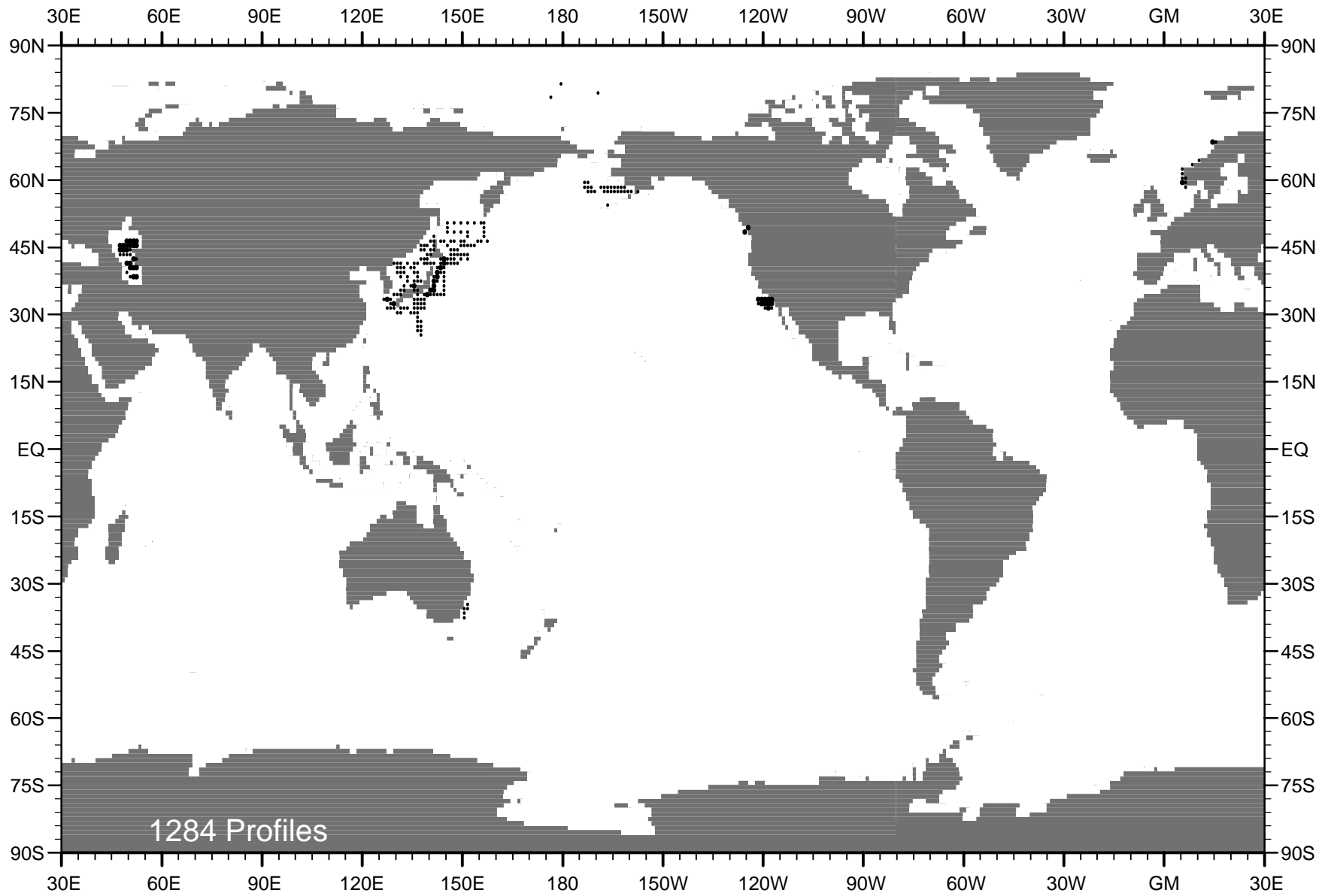


Fig. C40 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1941 .

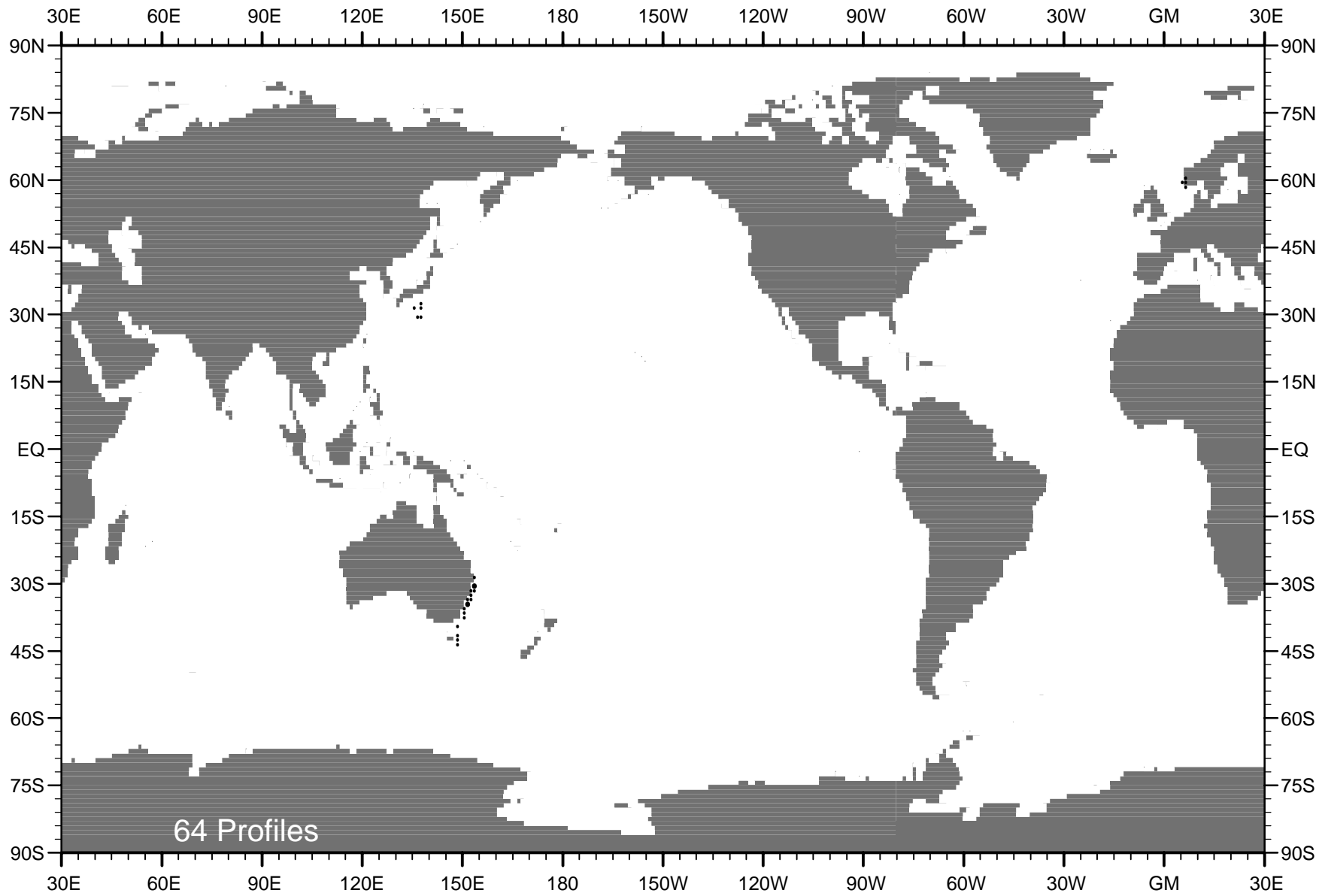


Fig. C41 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1942 .

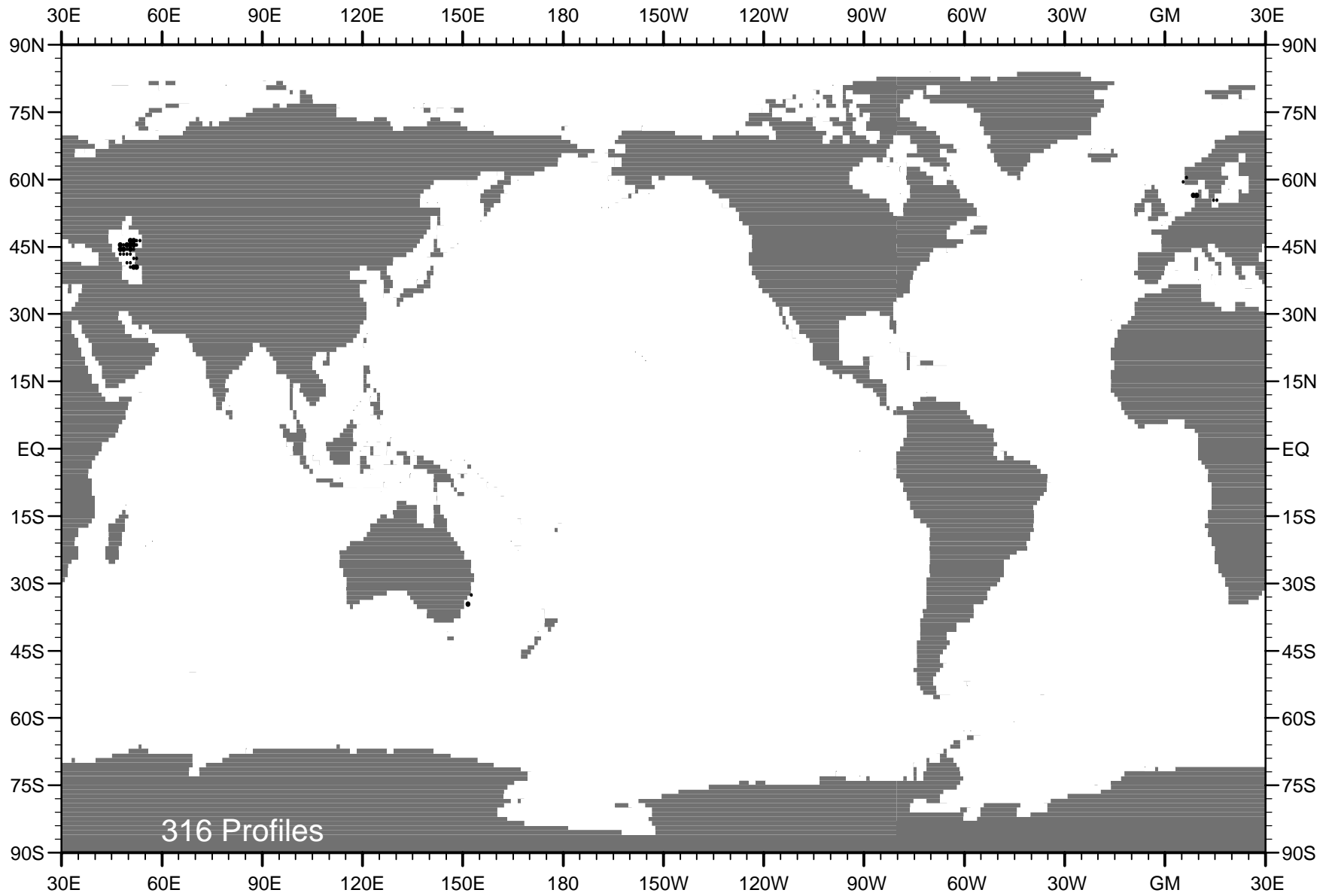


Fig. C42 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1943 .



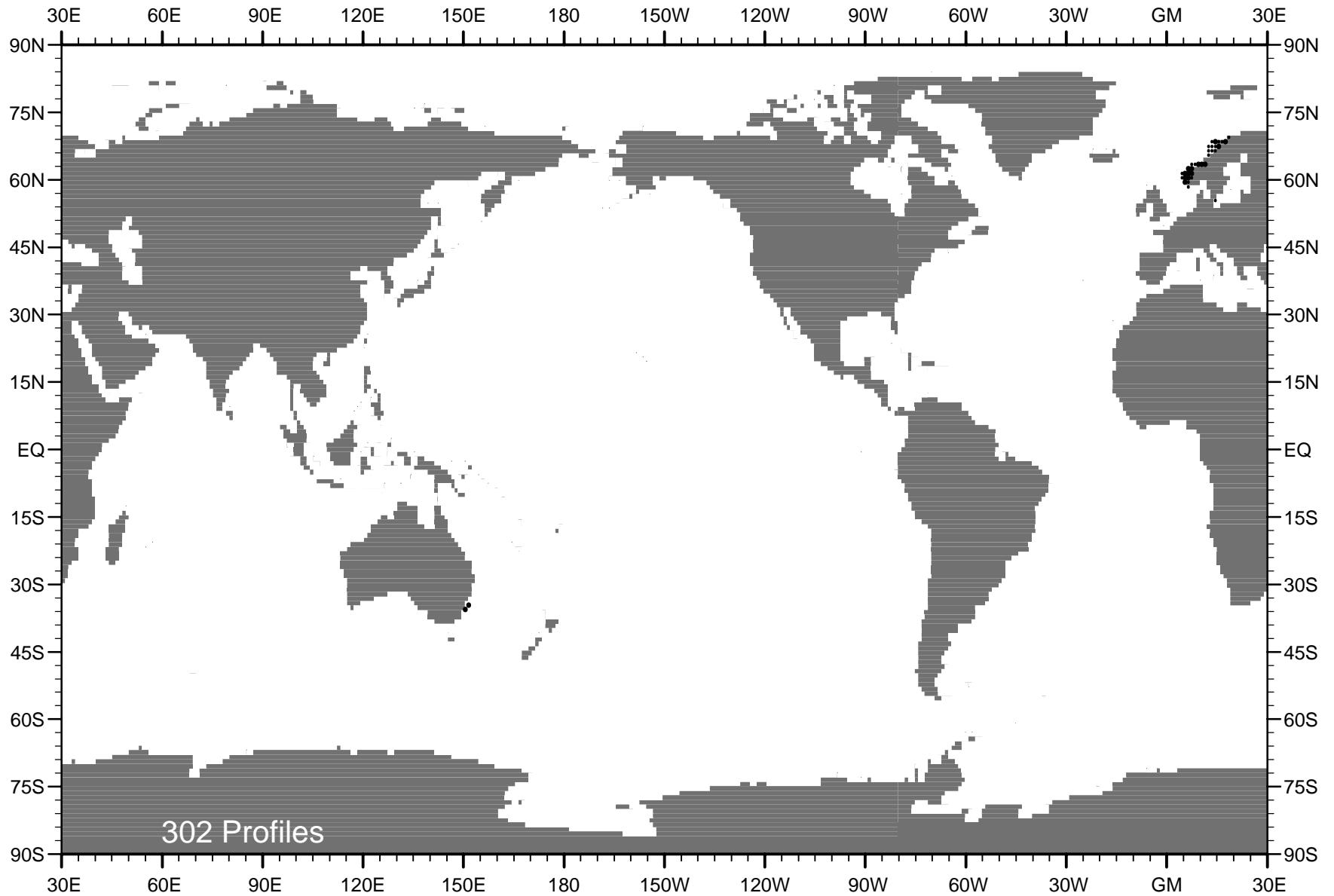


Fig. C43 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1944 .

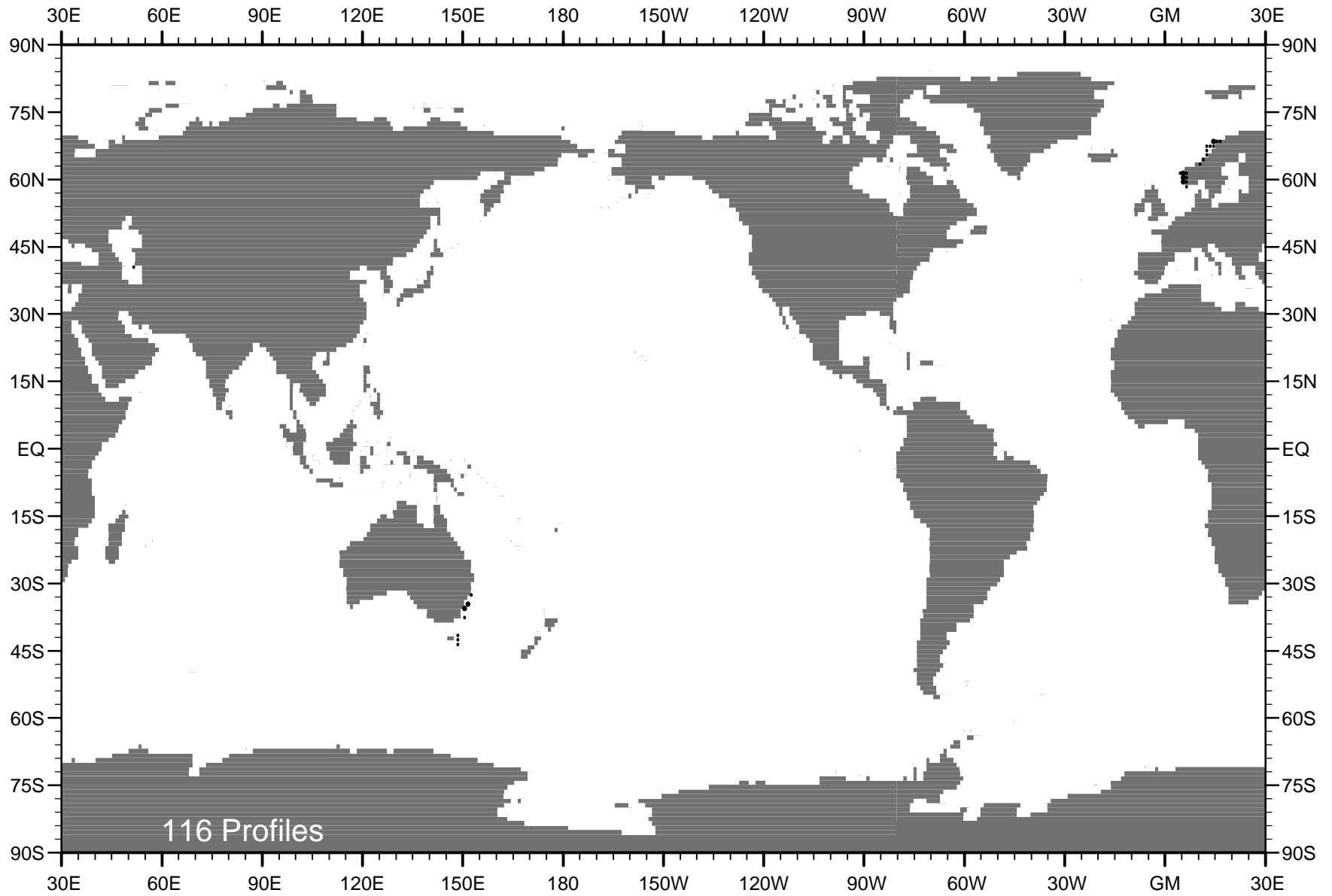


Fig. C44 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1945 .

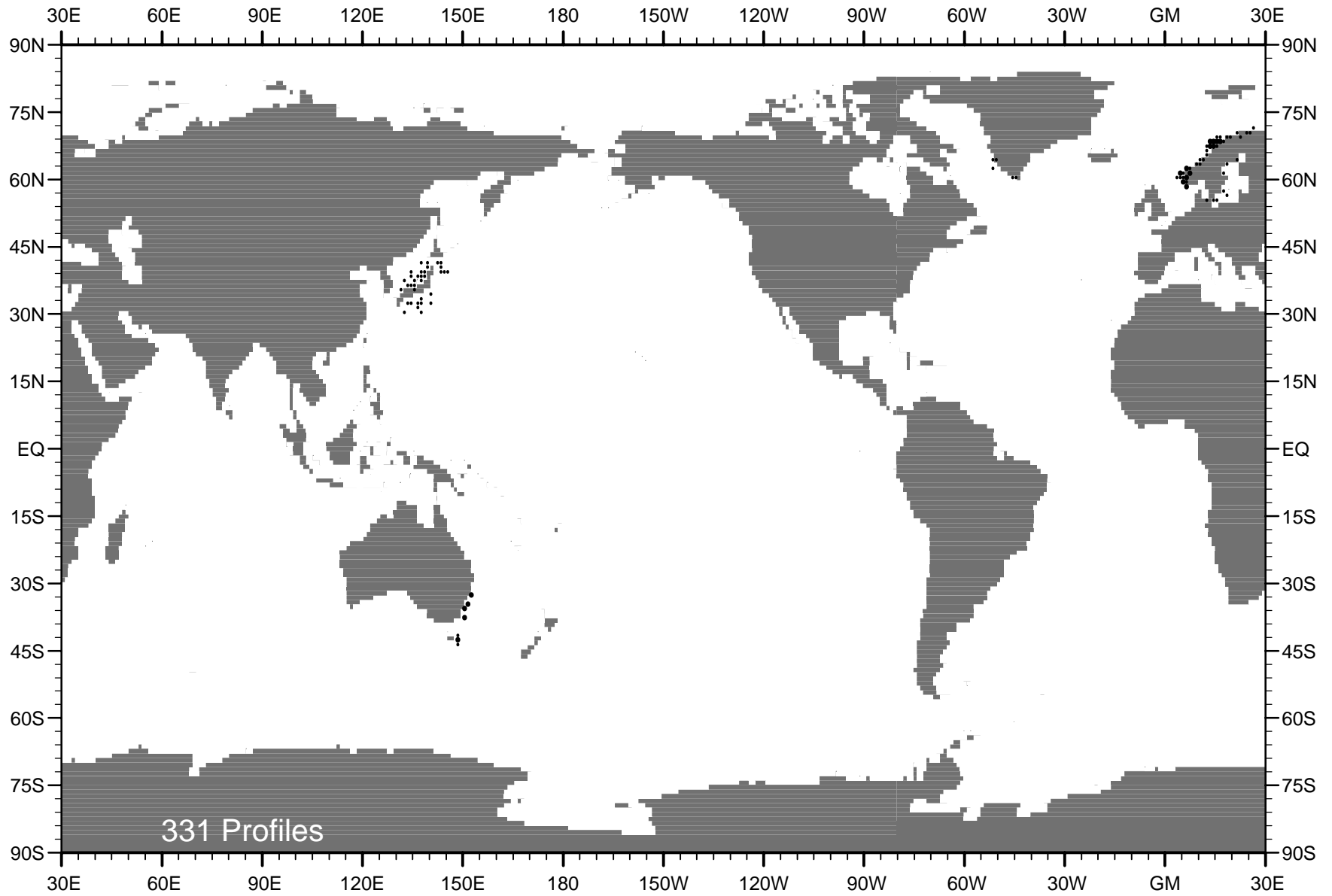


Fig. C45 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1946 .

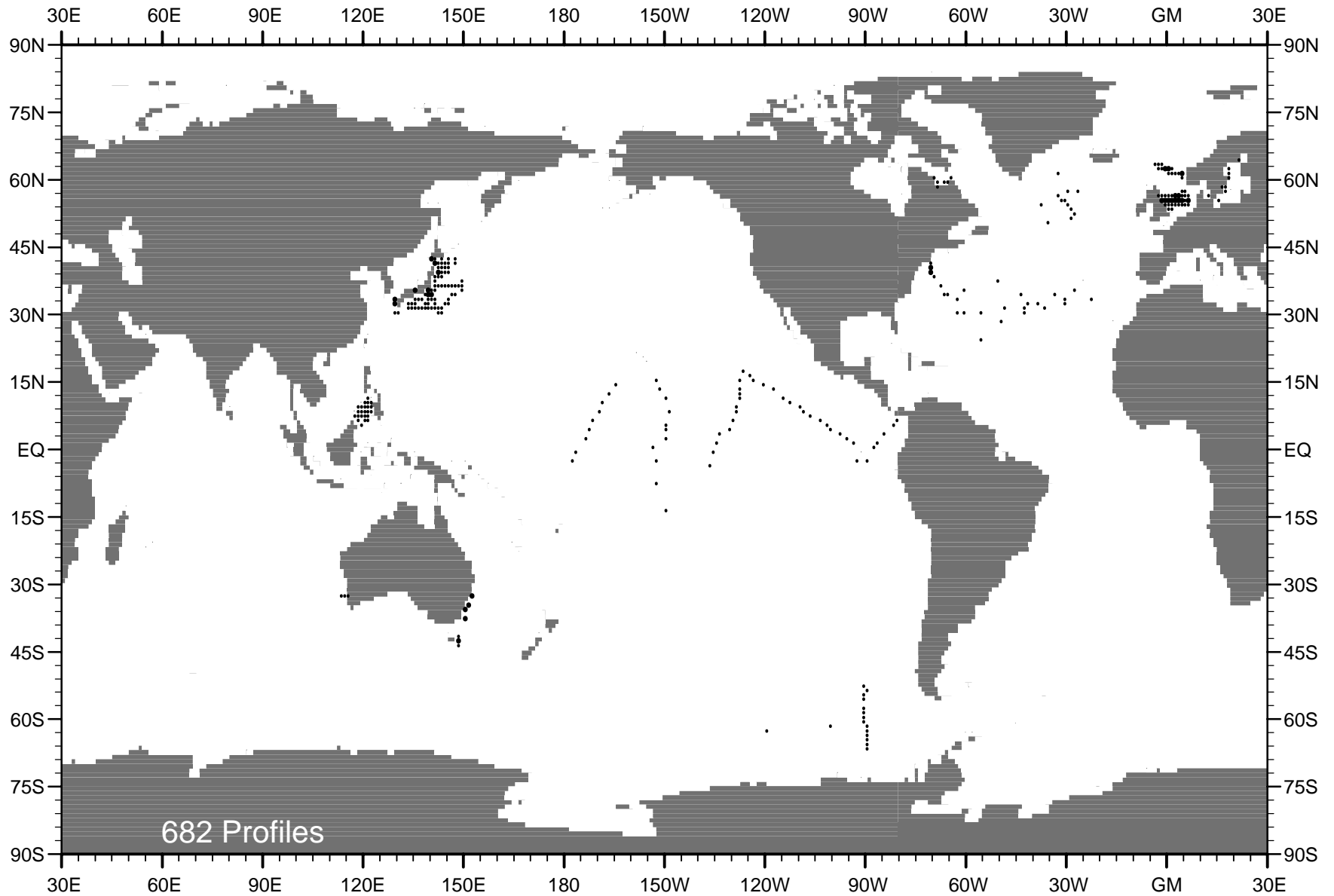


Fig. C46 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1947 .

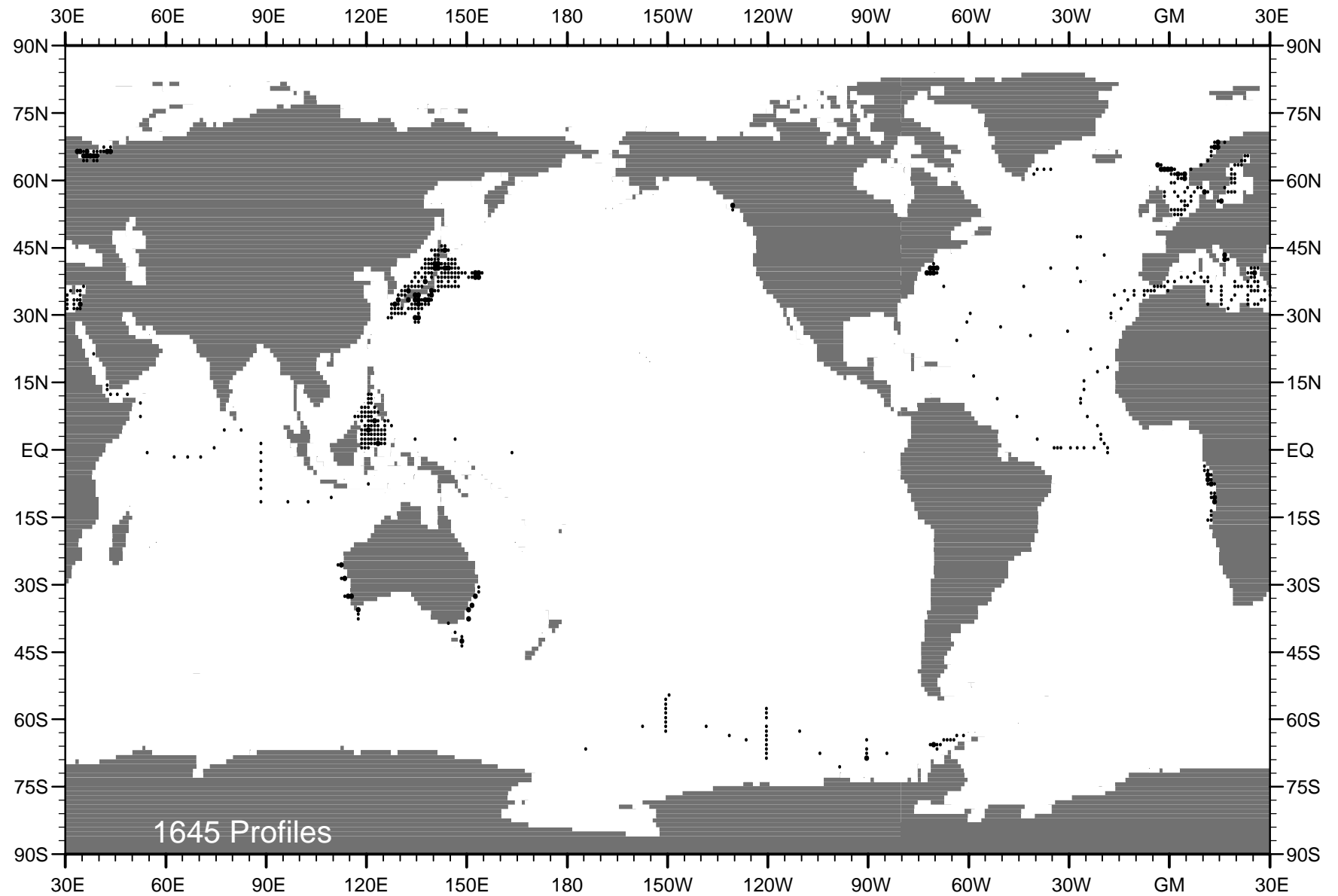


Fig. C47 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1948 .

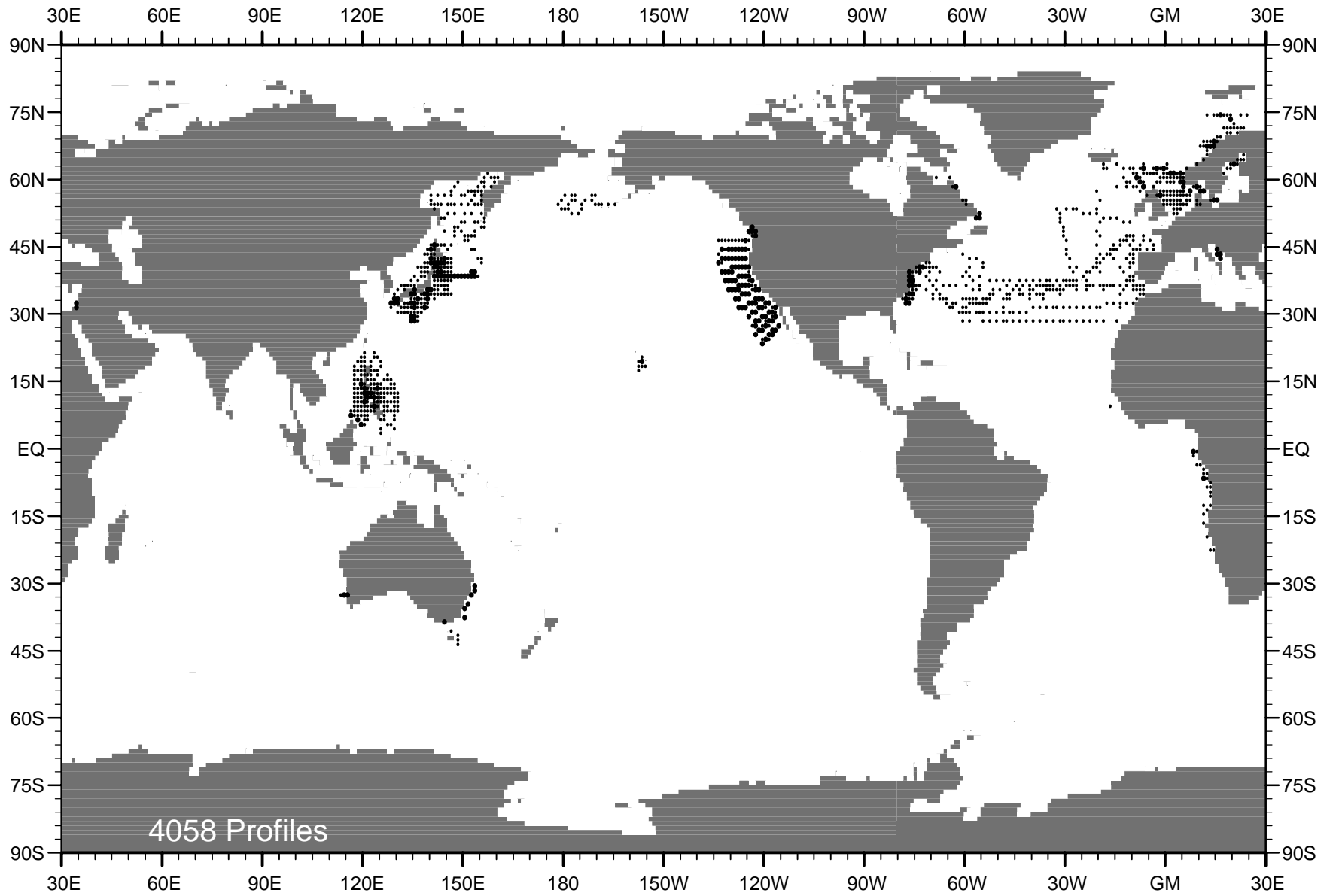


Fig. C48 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1949 .

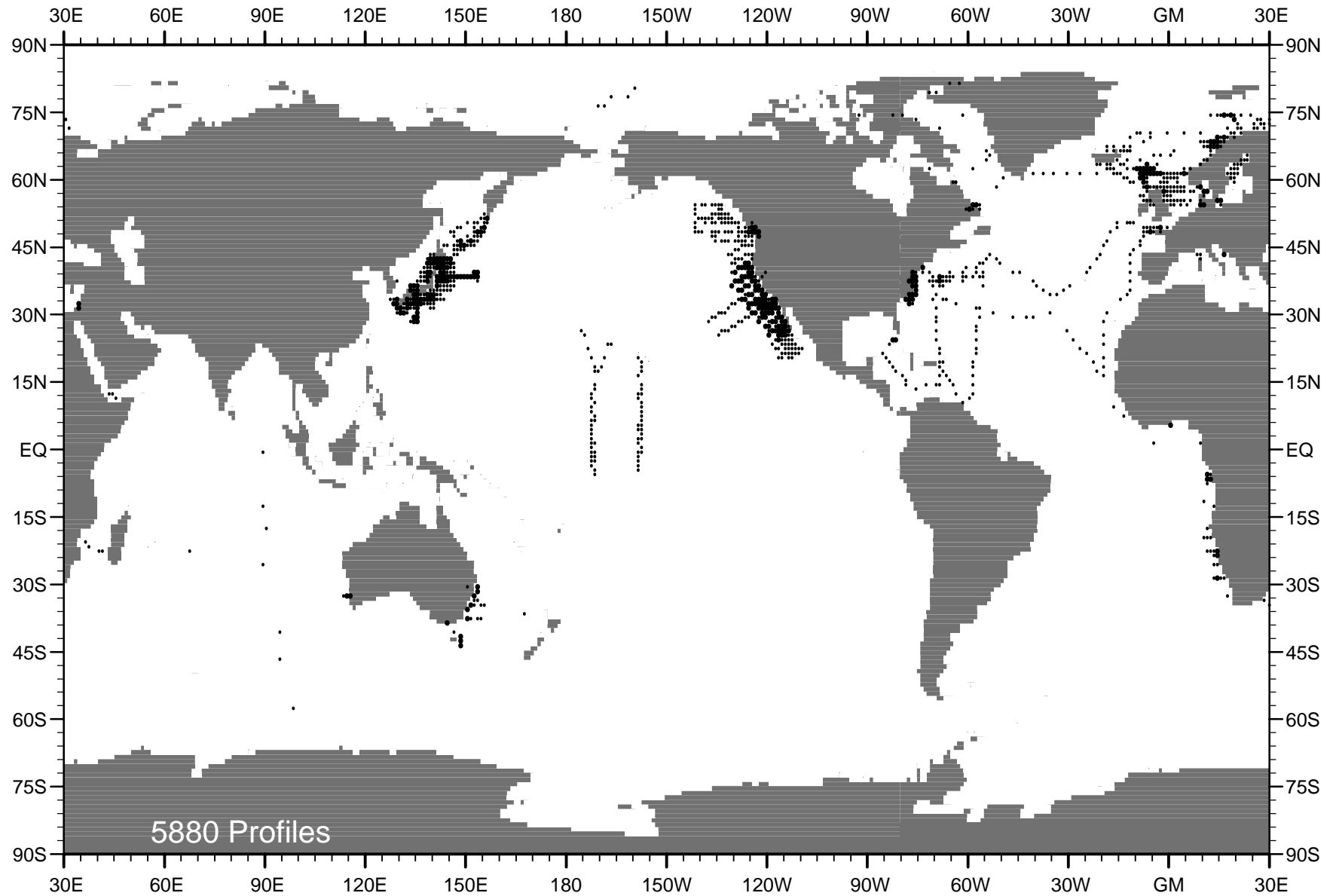


Fig. C49 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1950 .

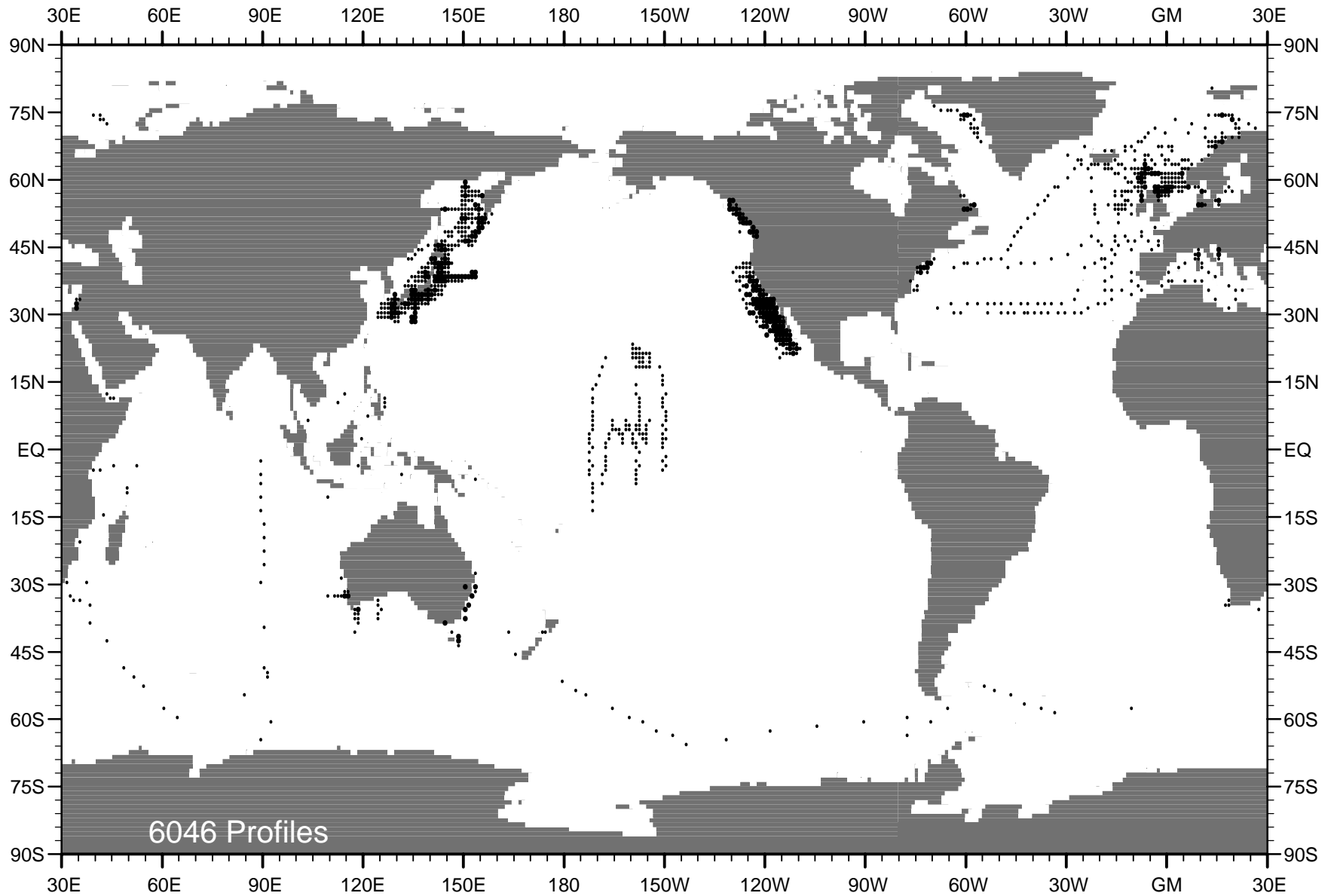


Fig. C50 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1951 .



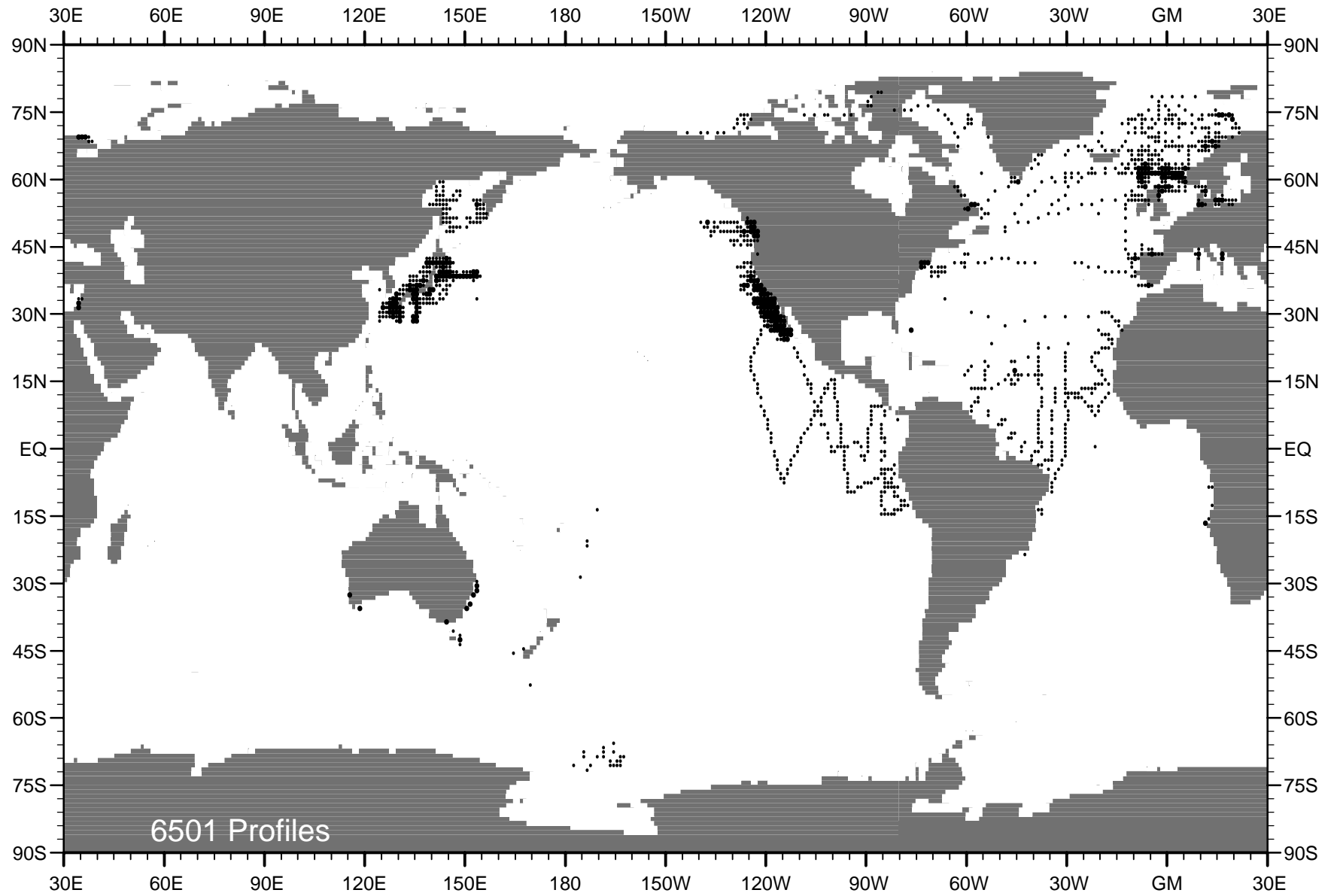


Fig. C51 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1952 .

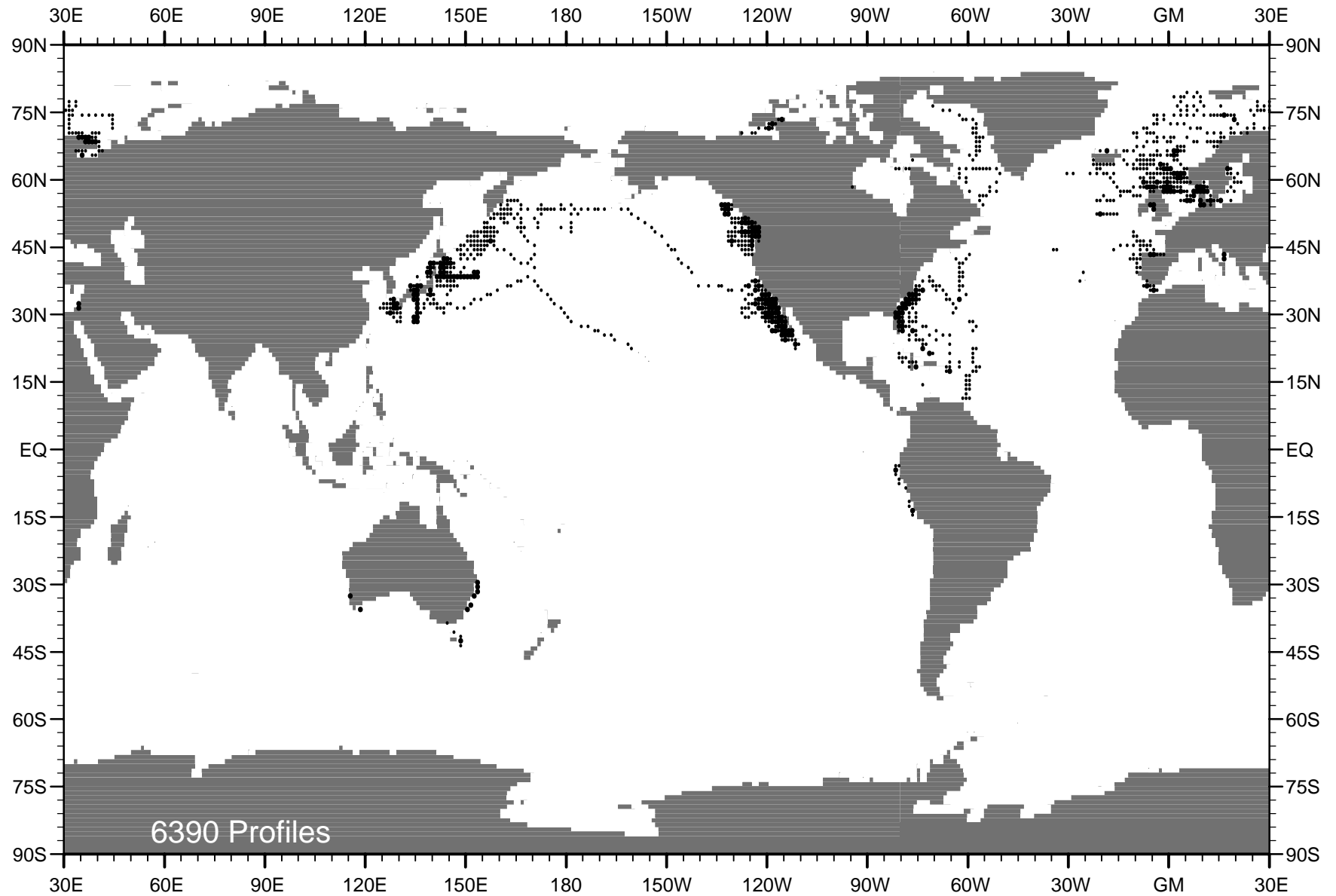


Fig. C52 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1953 .

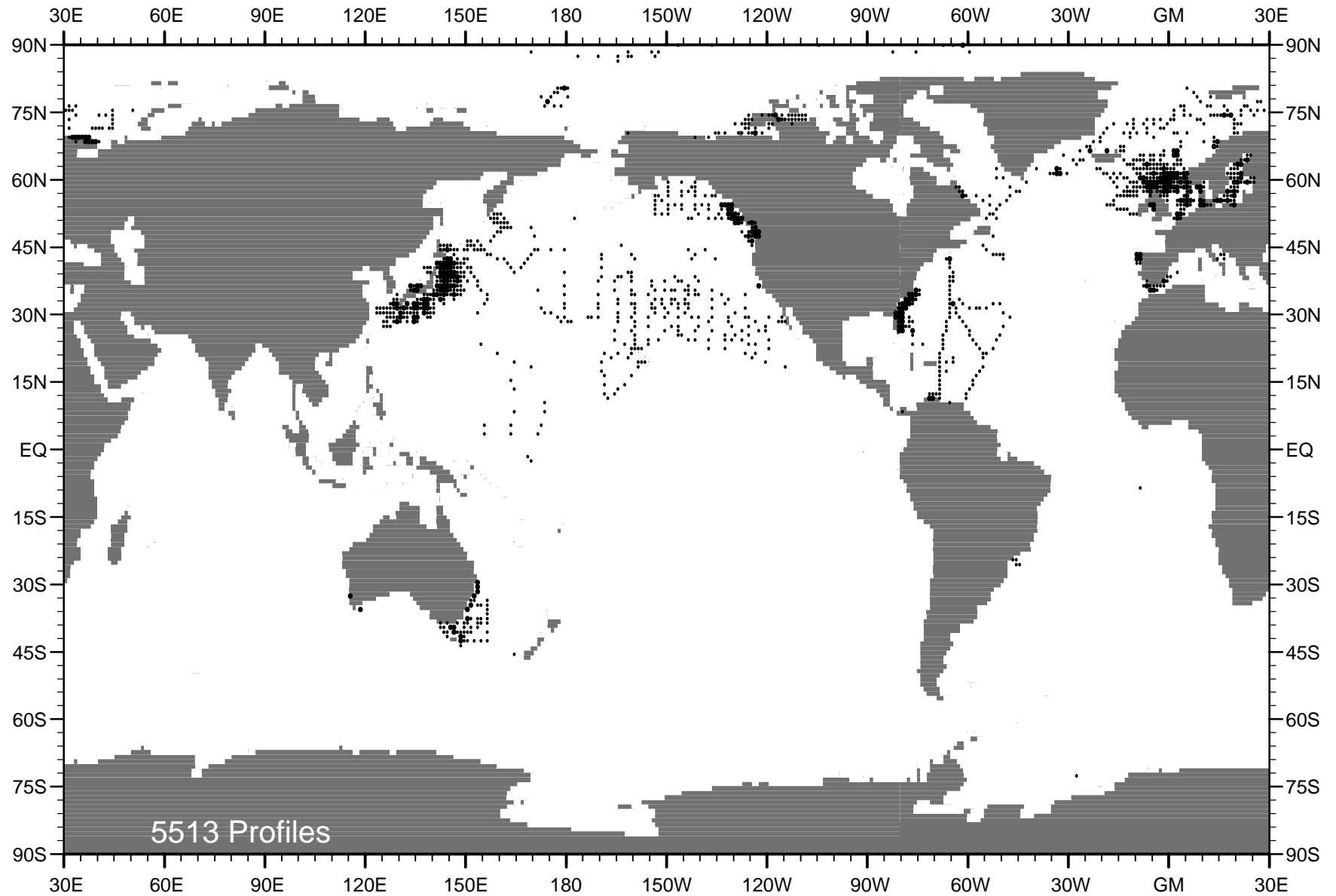


Fig. C53 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1954 .

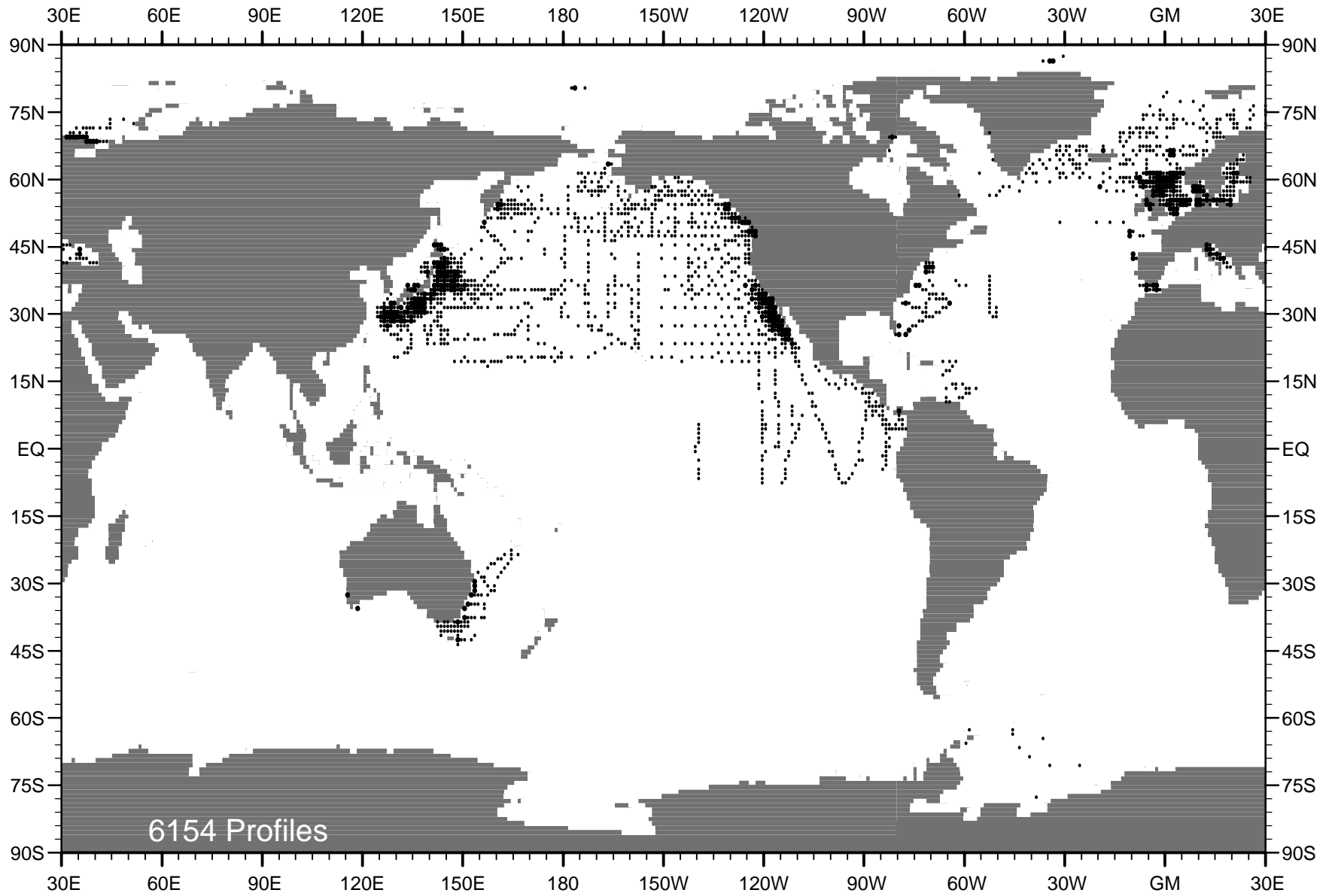


Fig. C54 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1955 .

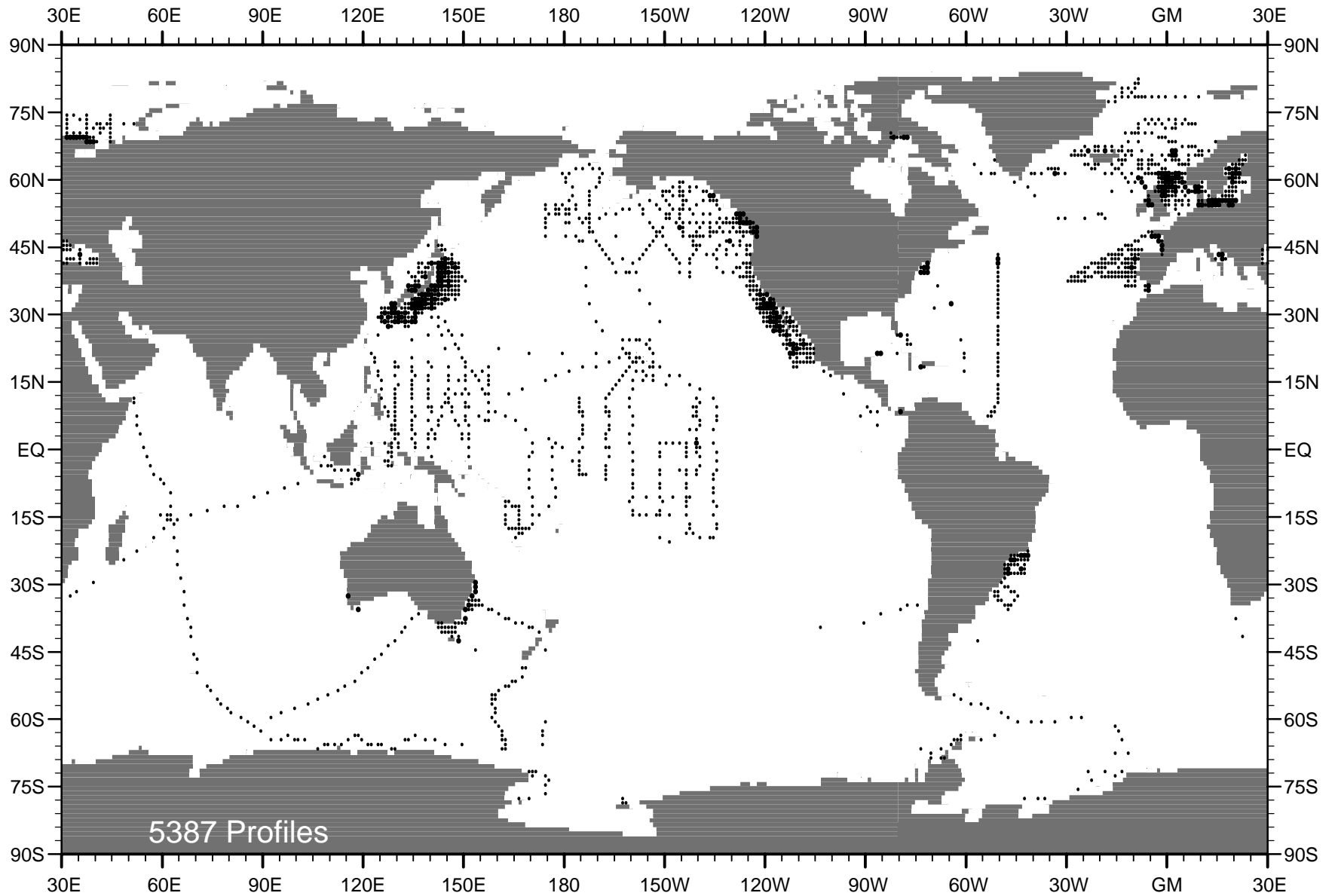


Fig. C55 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1956 .

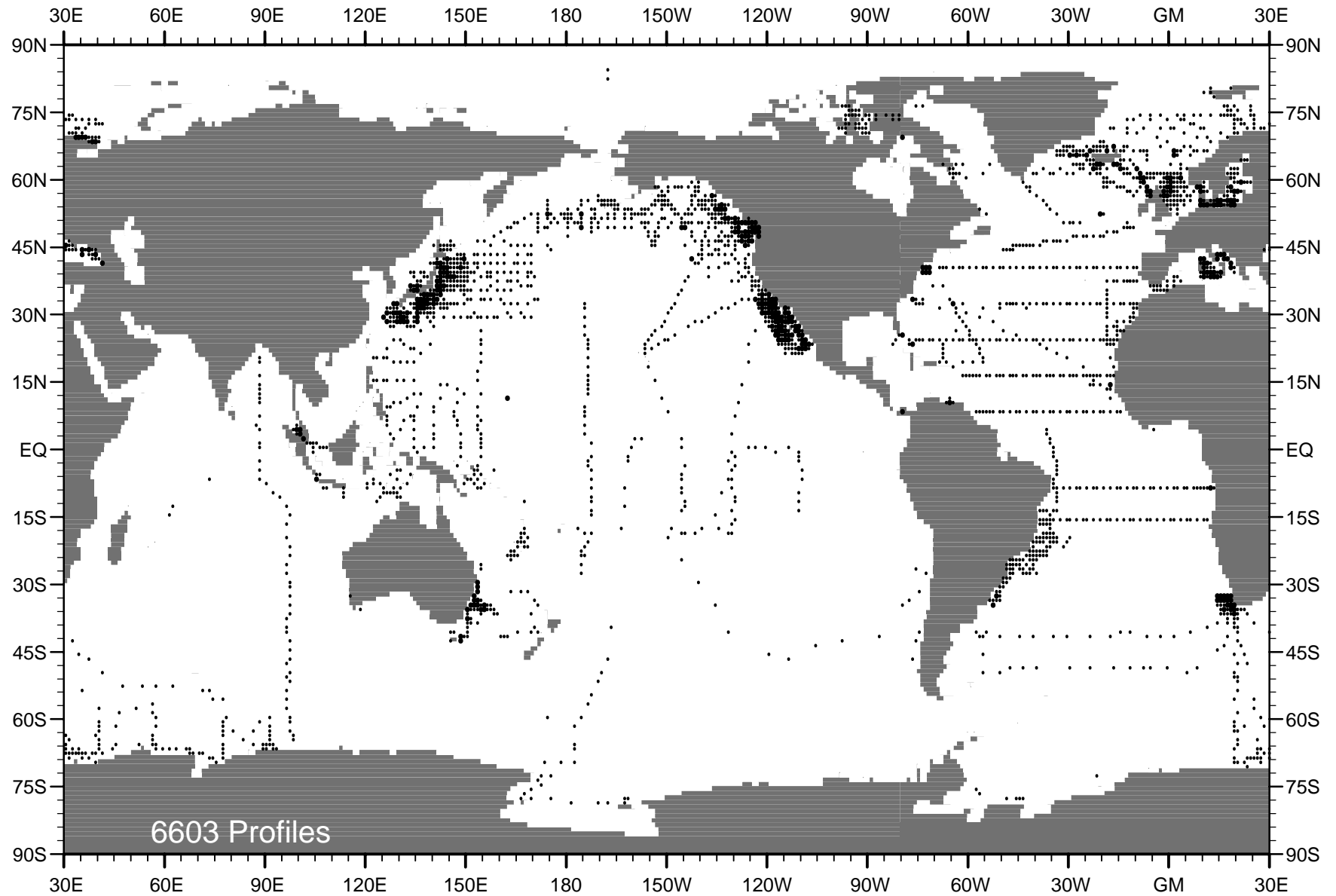


Fig. C56 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1957 .

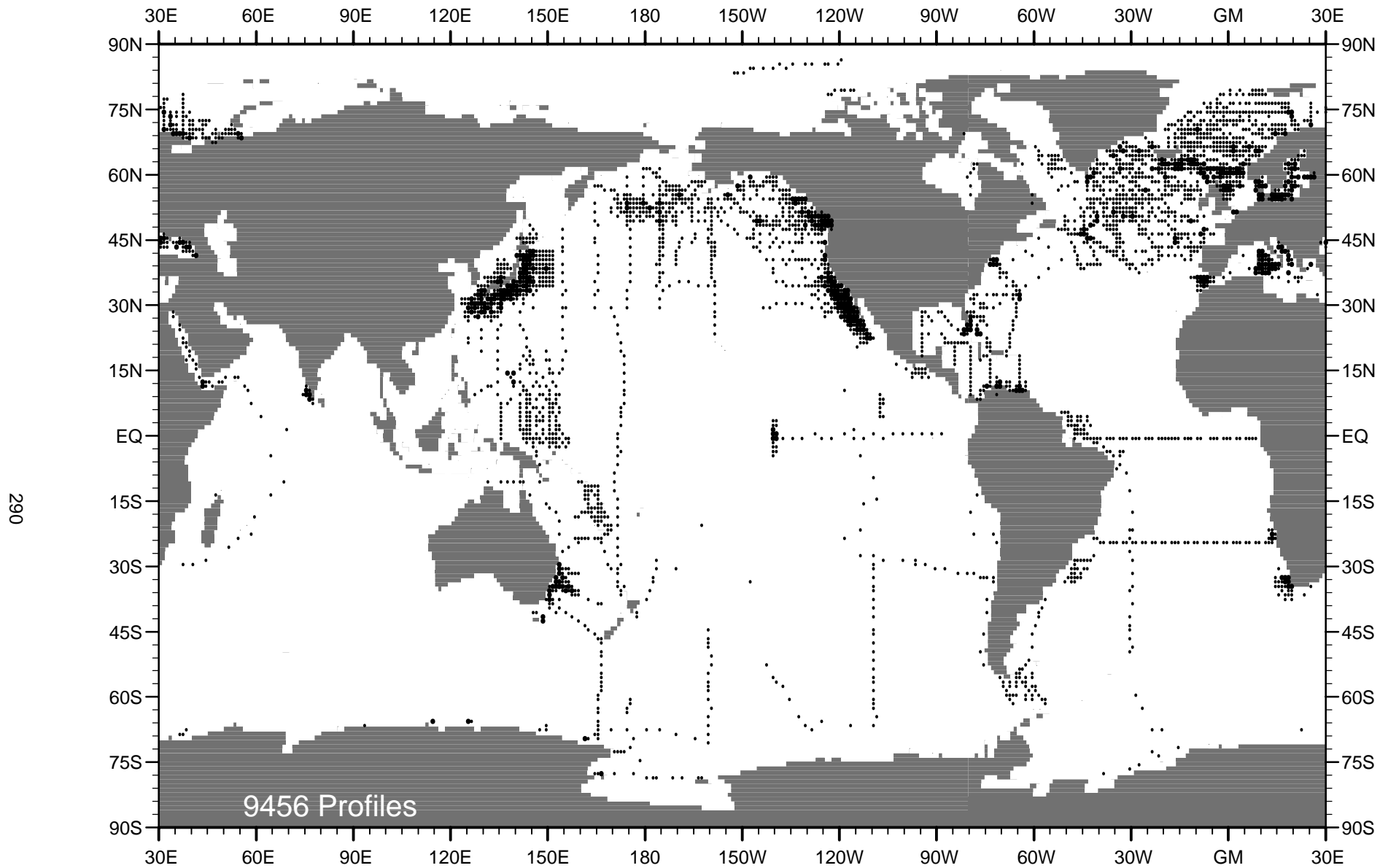


Fig. C57 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1958 .

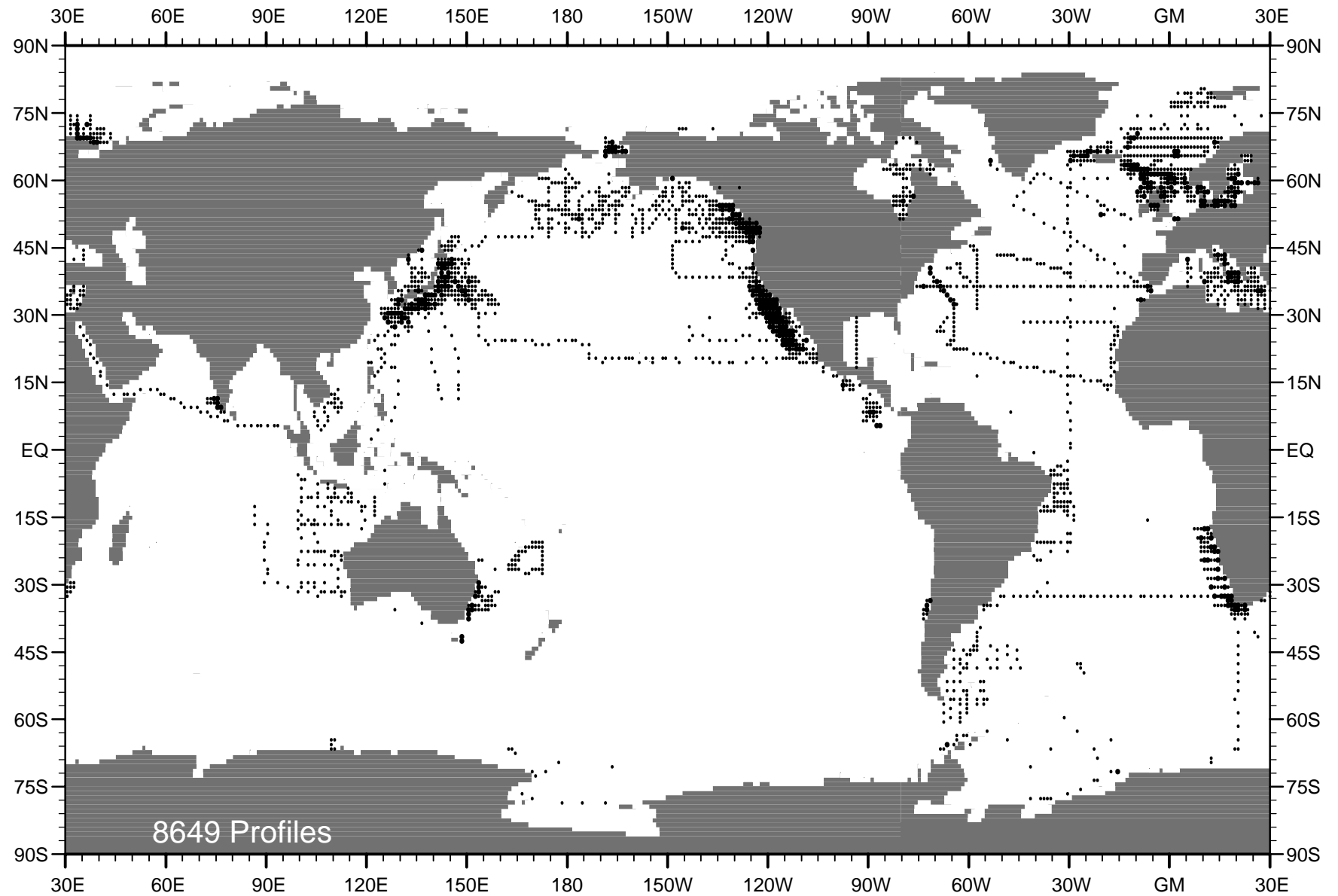


Fig. C58 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1959 .



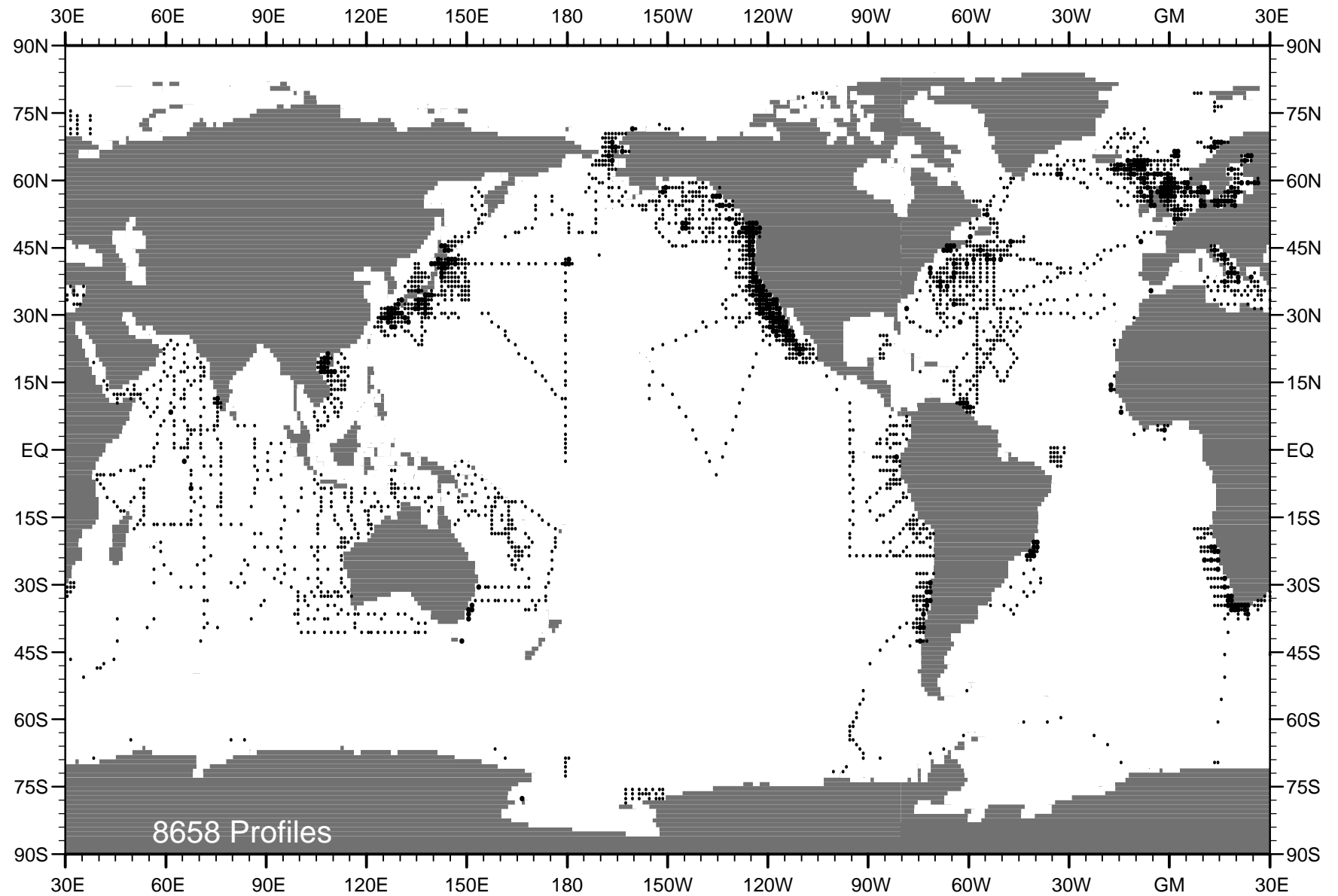


Fig. C59 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1960 .

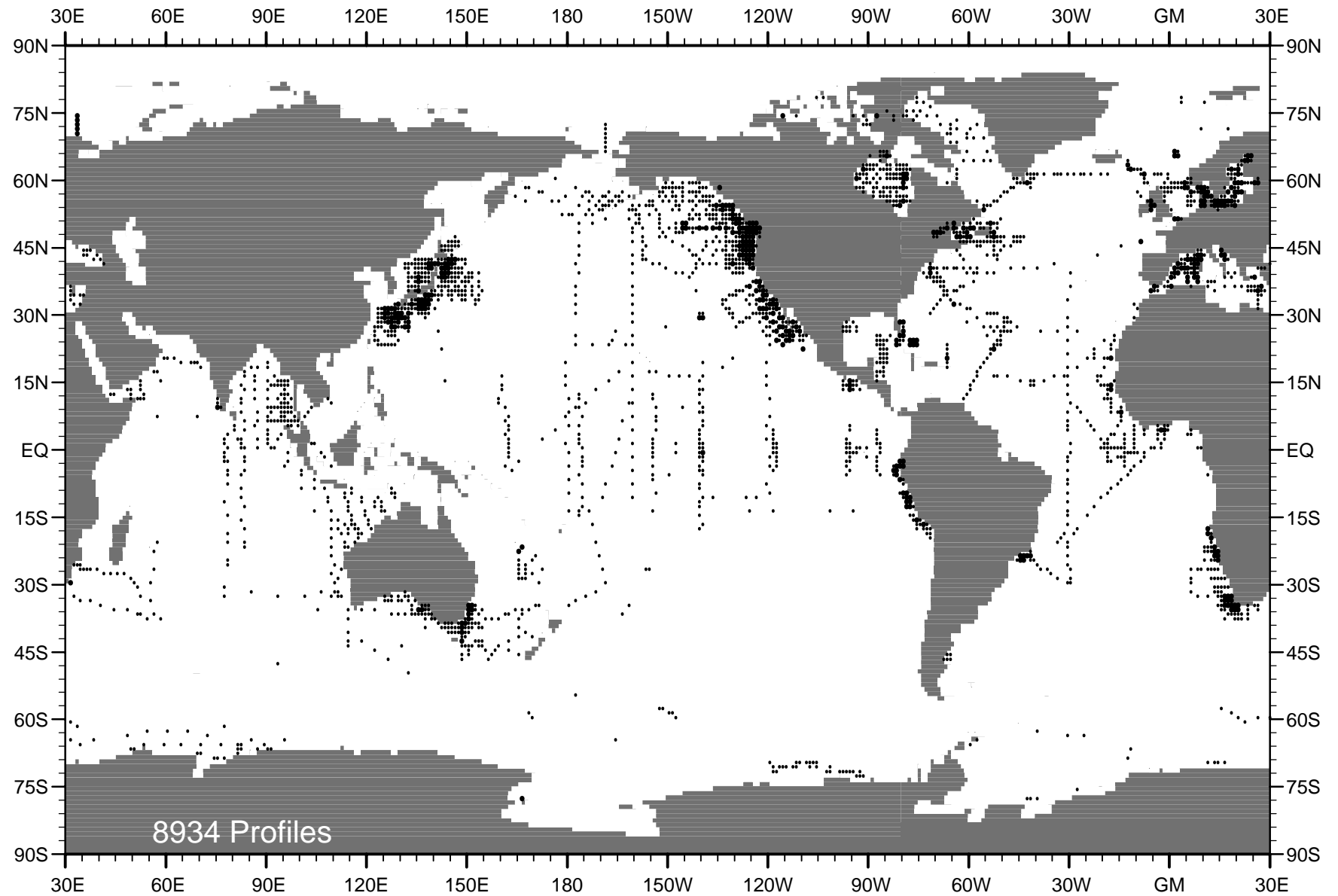


Fig. C60 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1961 .

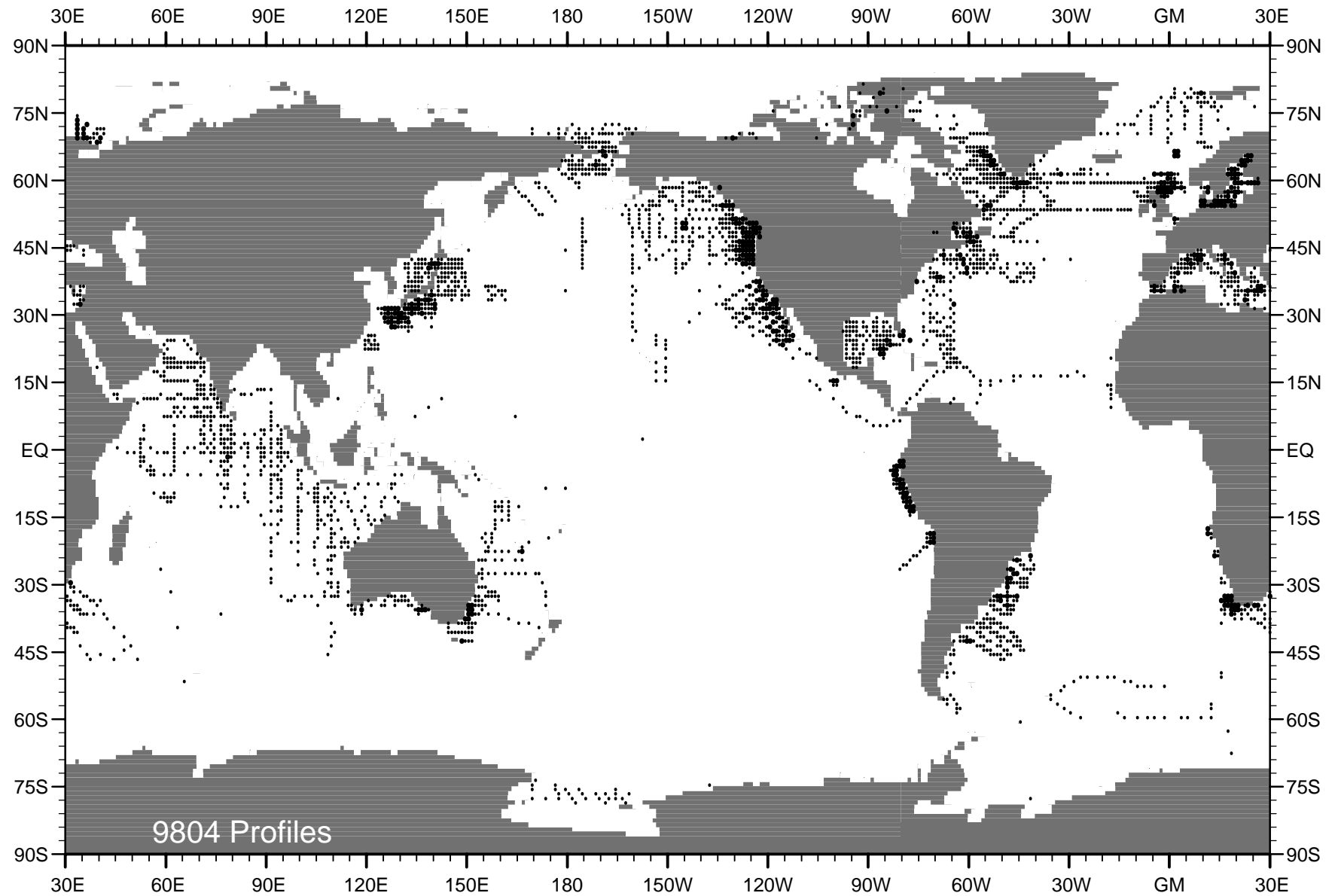


Fig. C61 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1962 .

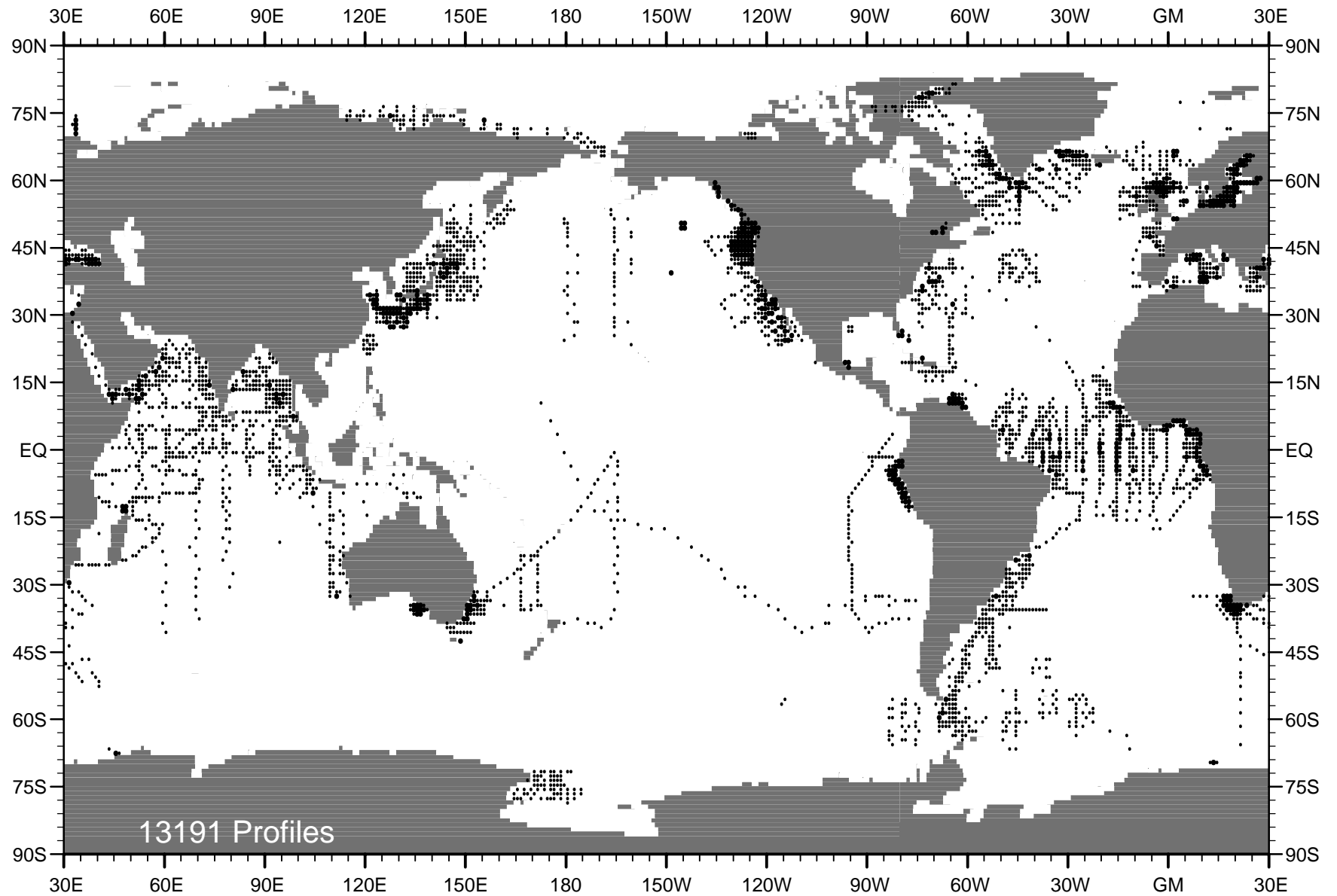


Fig. C62 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1963 .

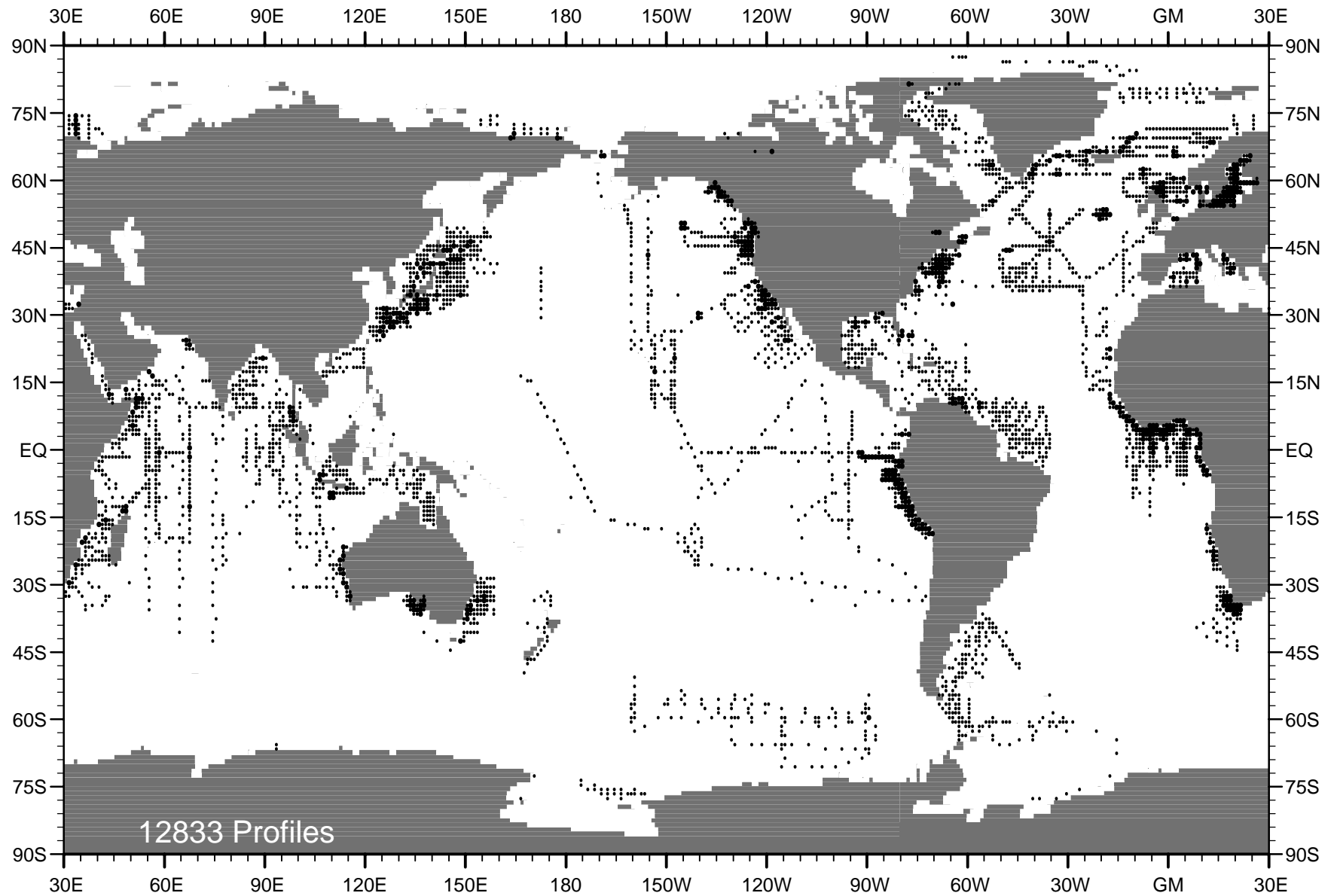


Fig. C63 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1964 .

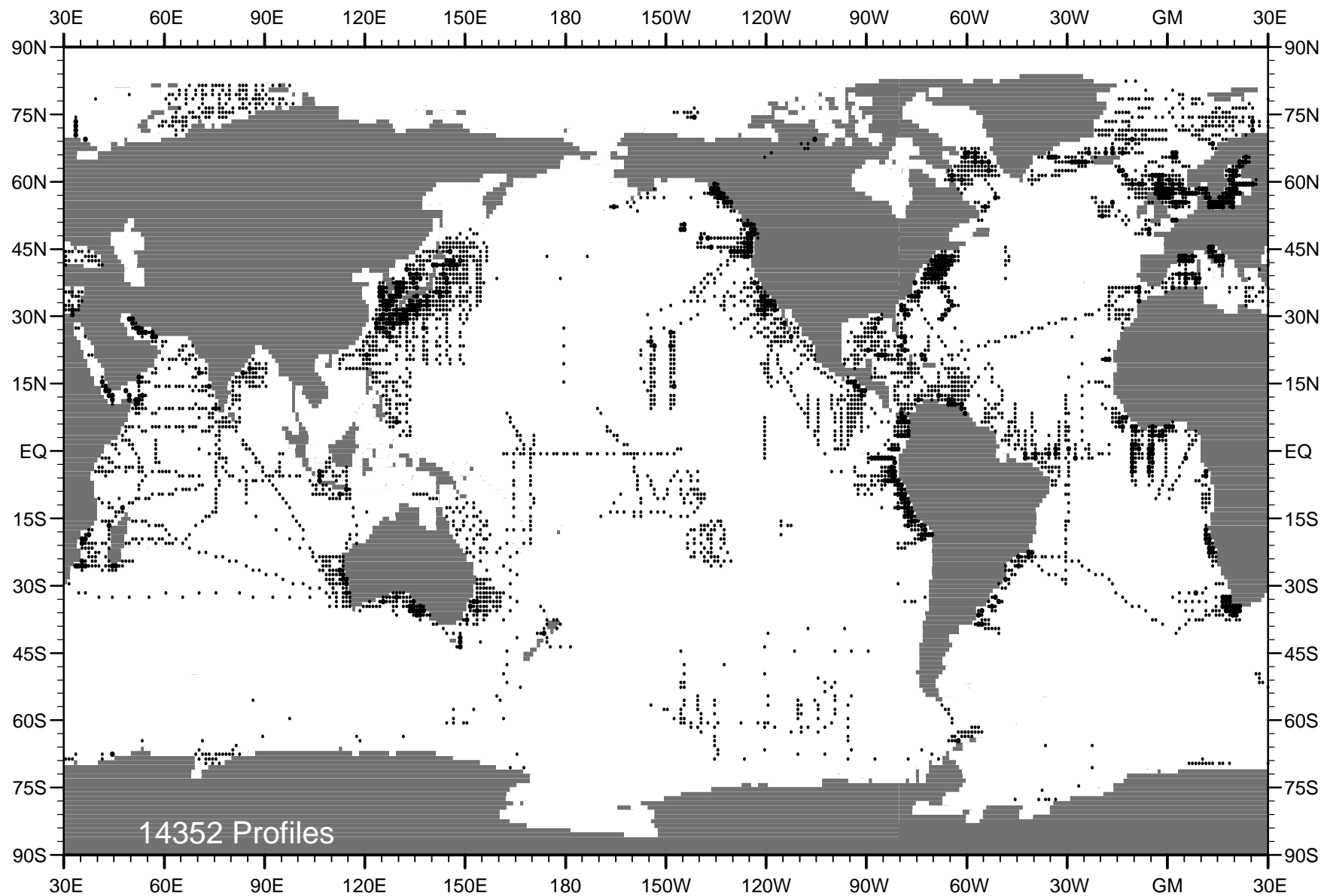


Fig. C64 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1965 .

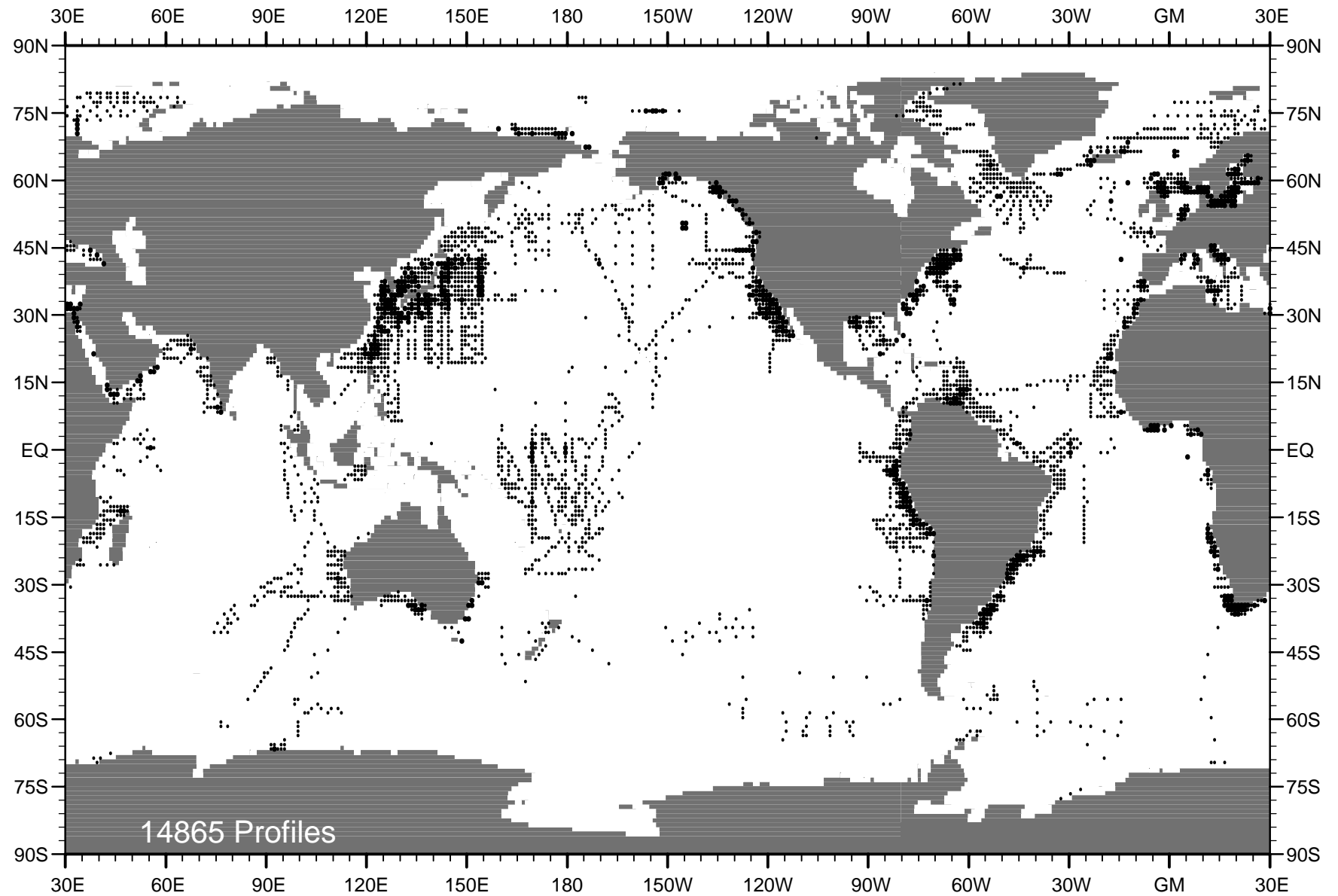


Fig. C65 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1966 .

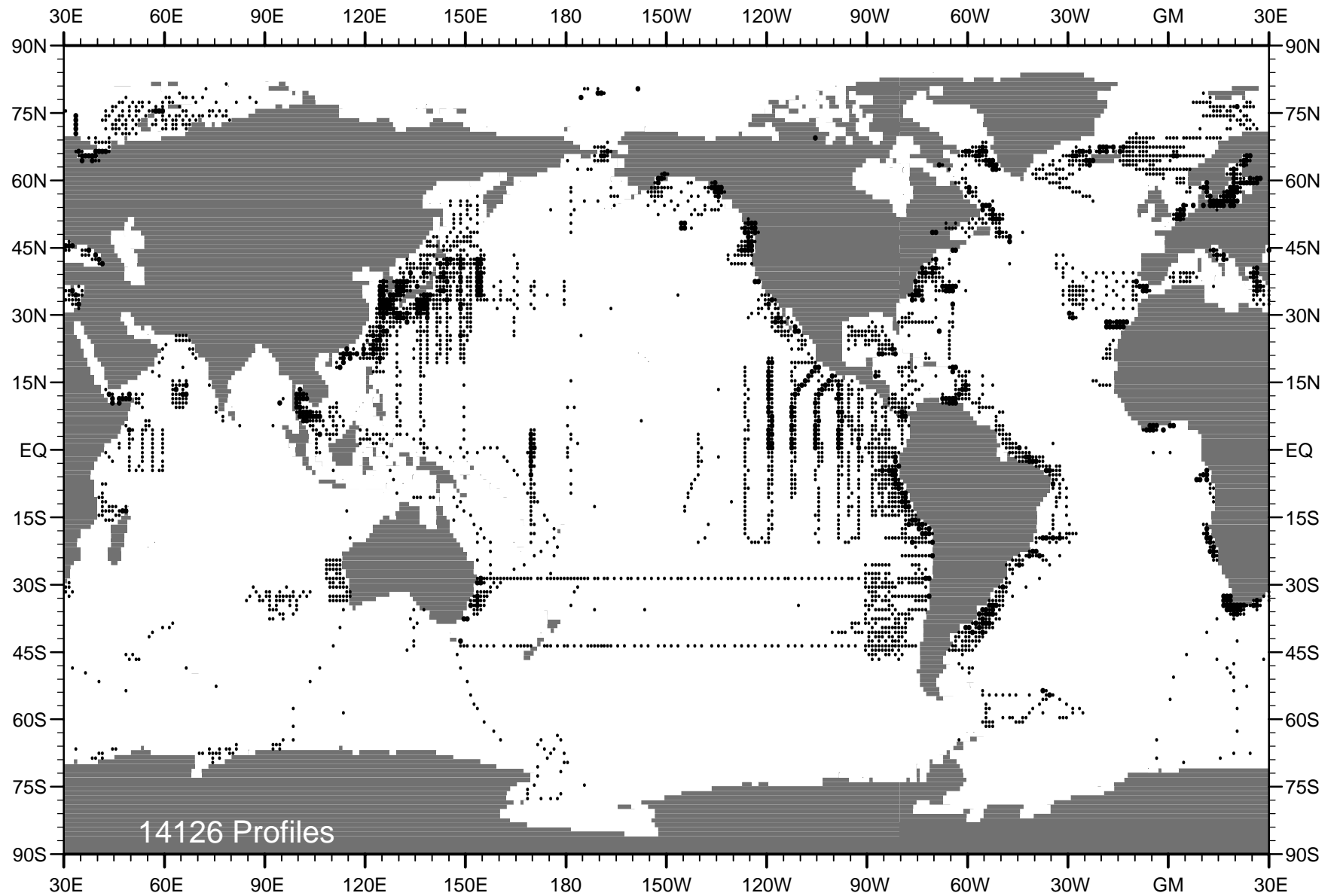


Fig. C66 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1967 .



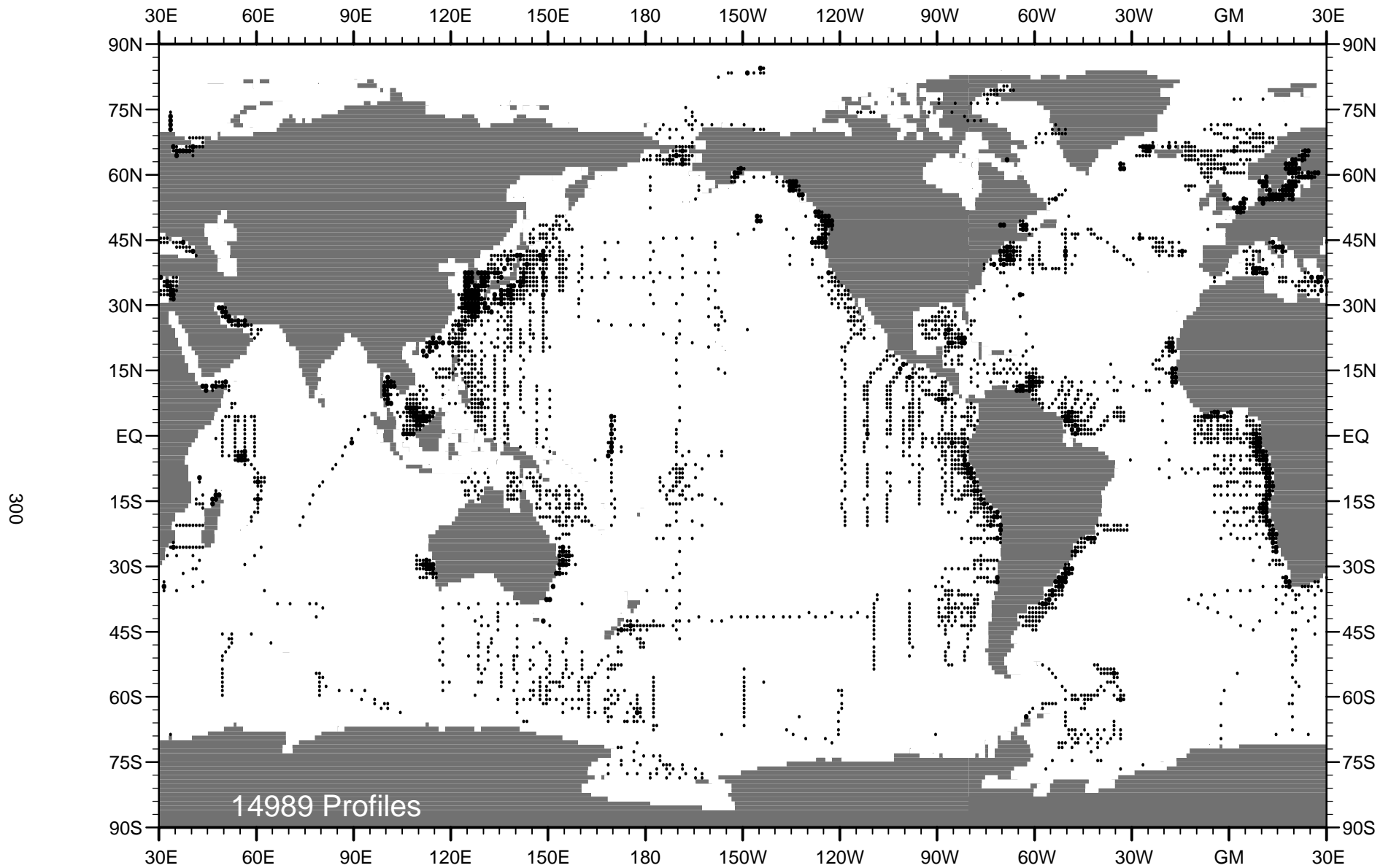


Fig. C67 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1968 .

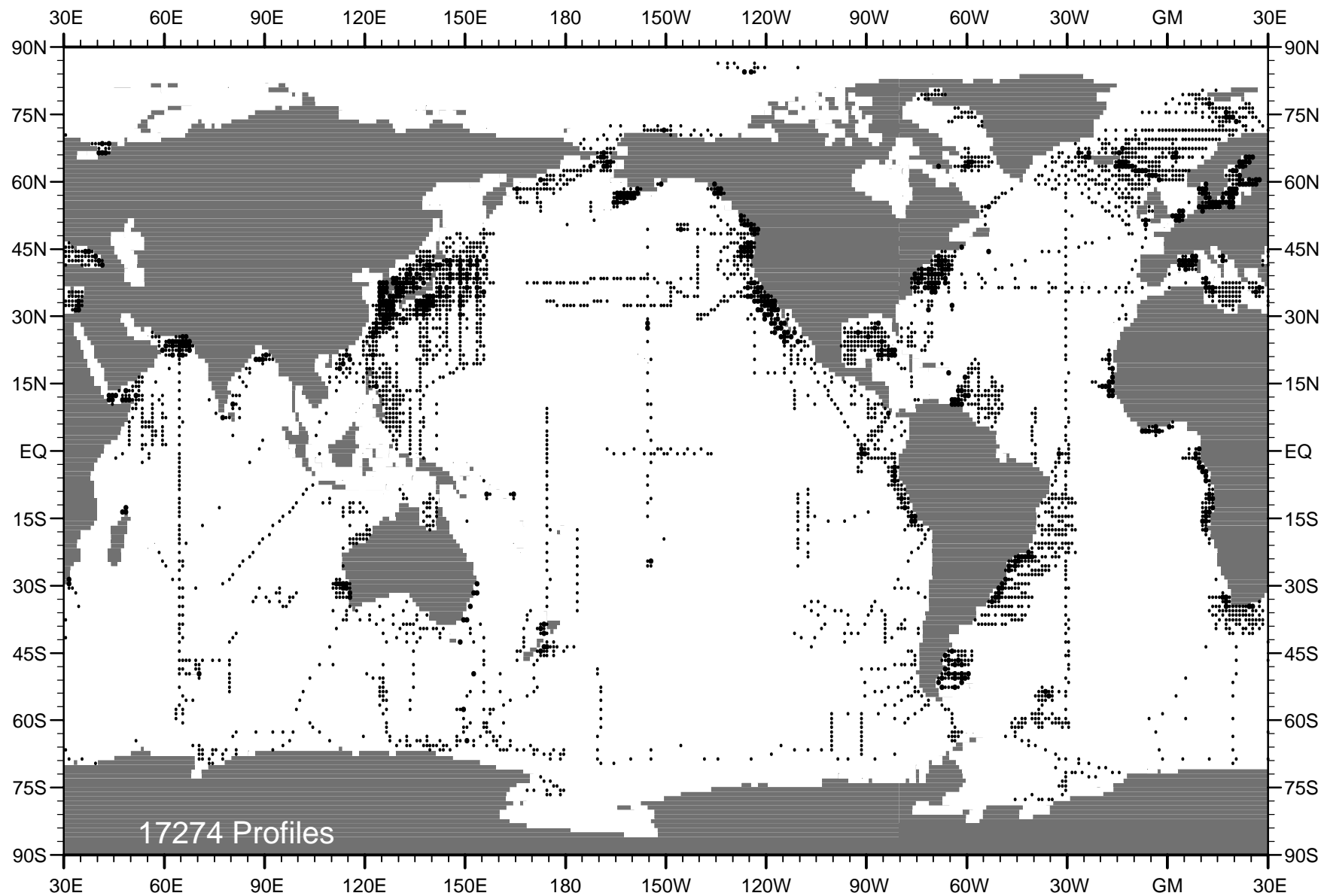


Fig. C68 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1969 .

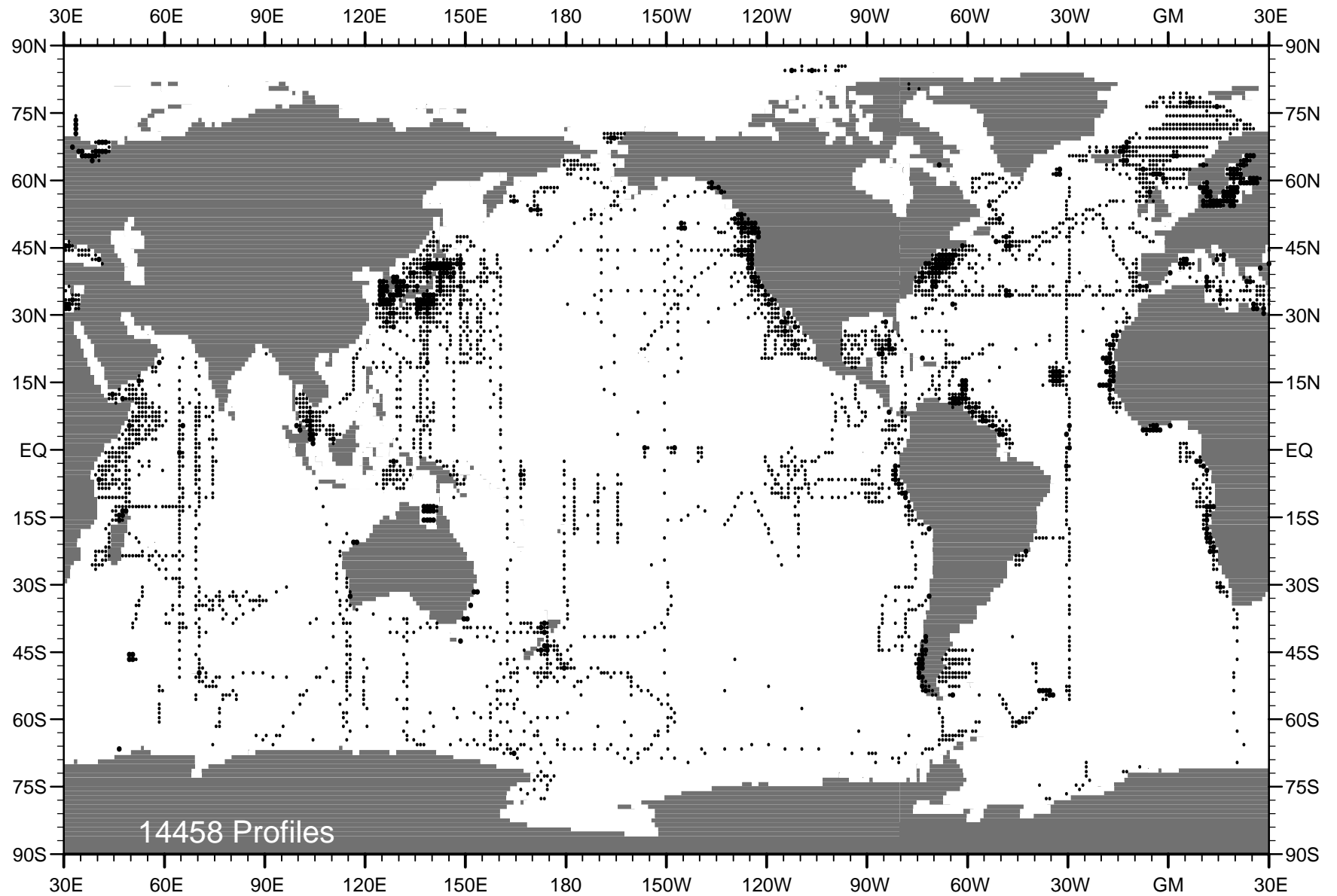


Fig. C69 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1970 .

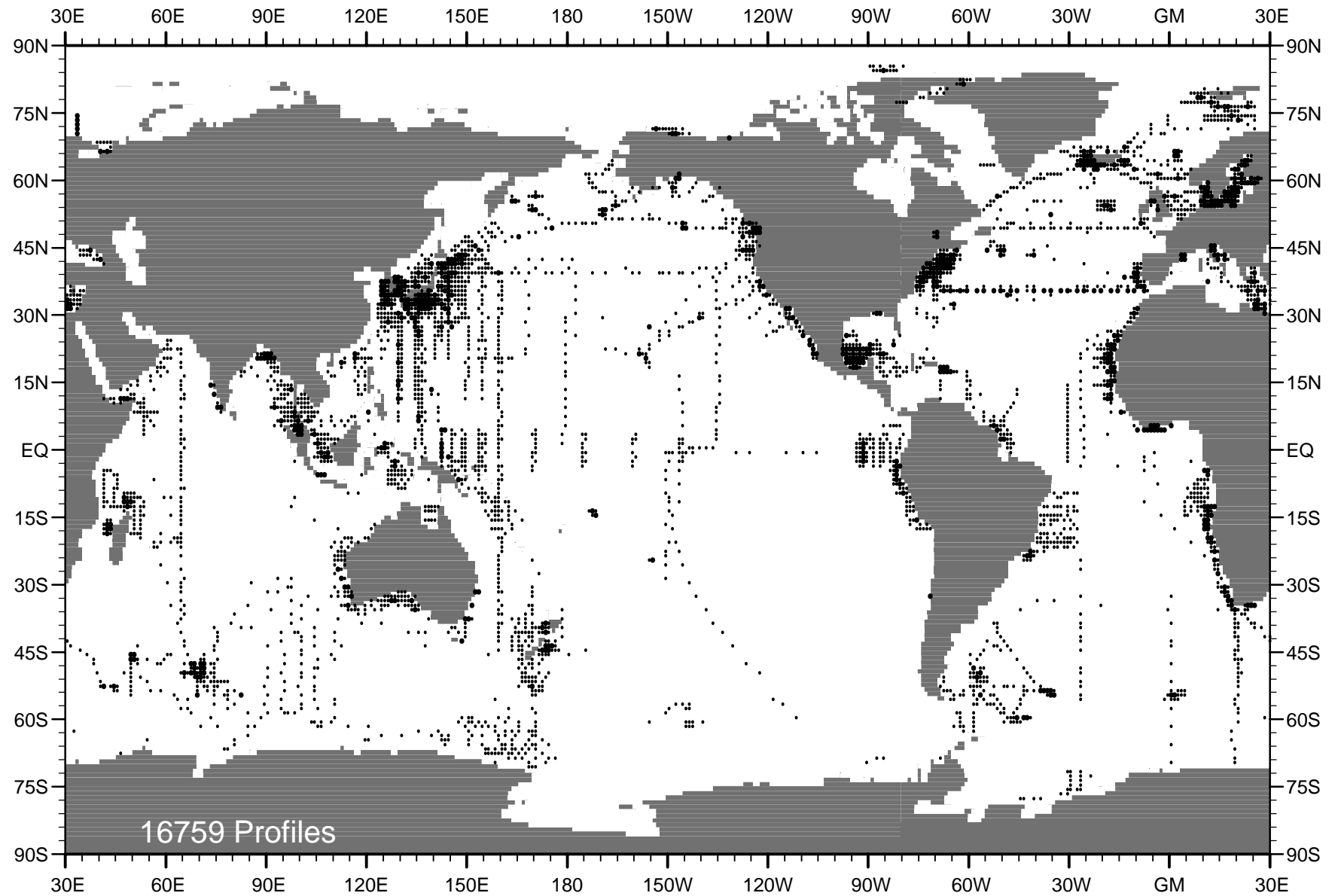


Fig. C70 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1971 .

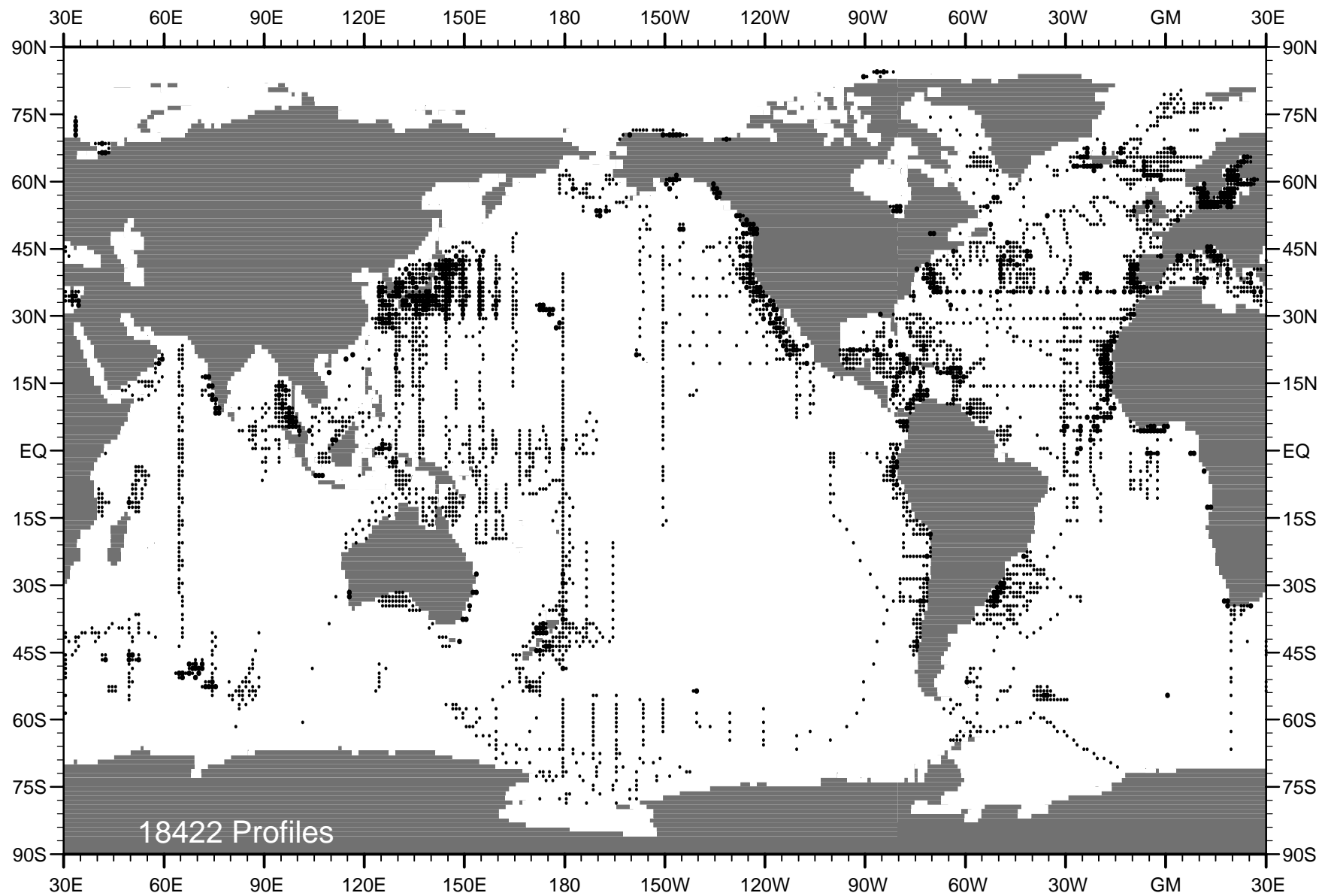


Fig. C71 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1972 .

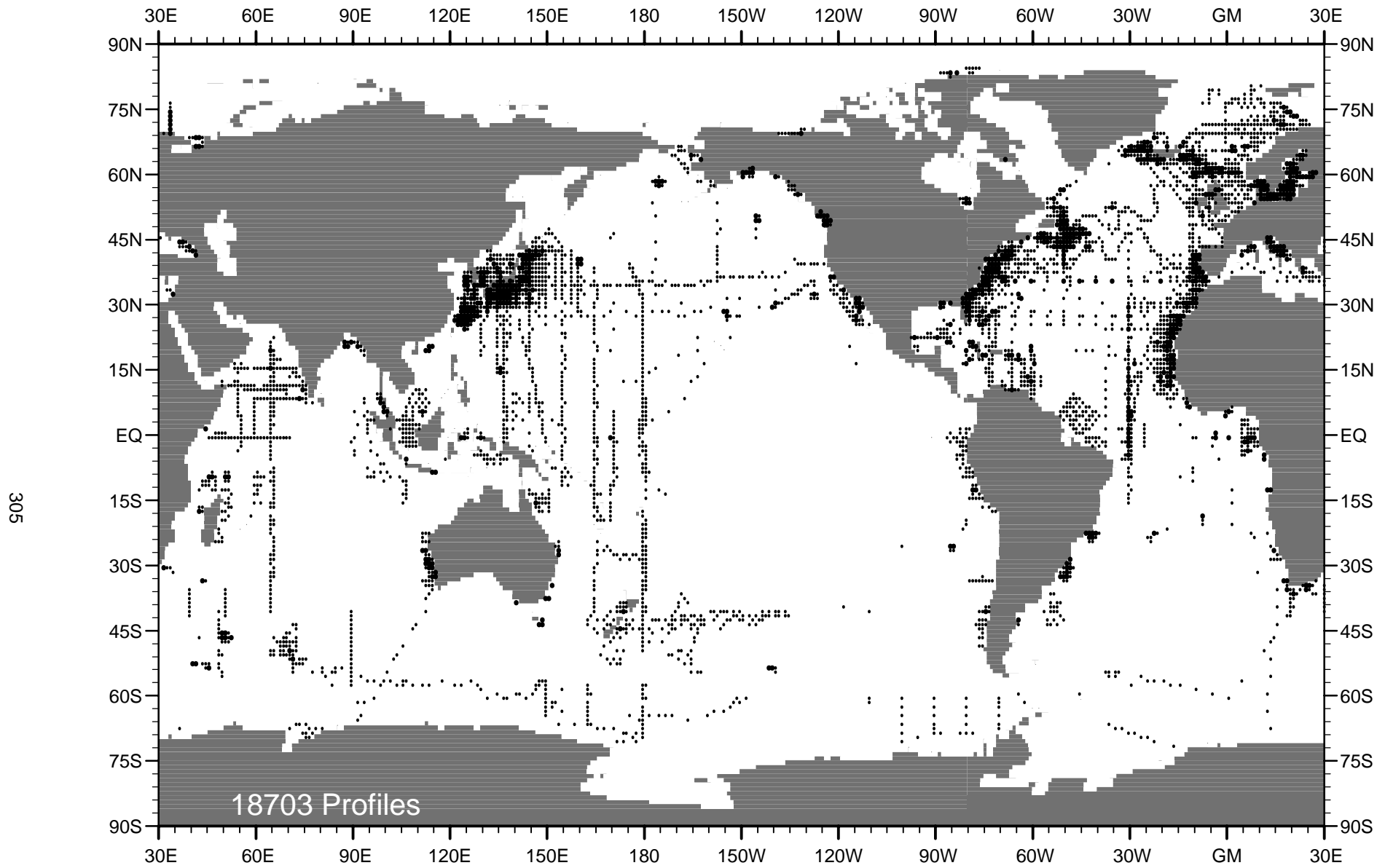


Fig. C72 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1973 .

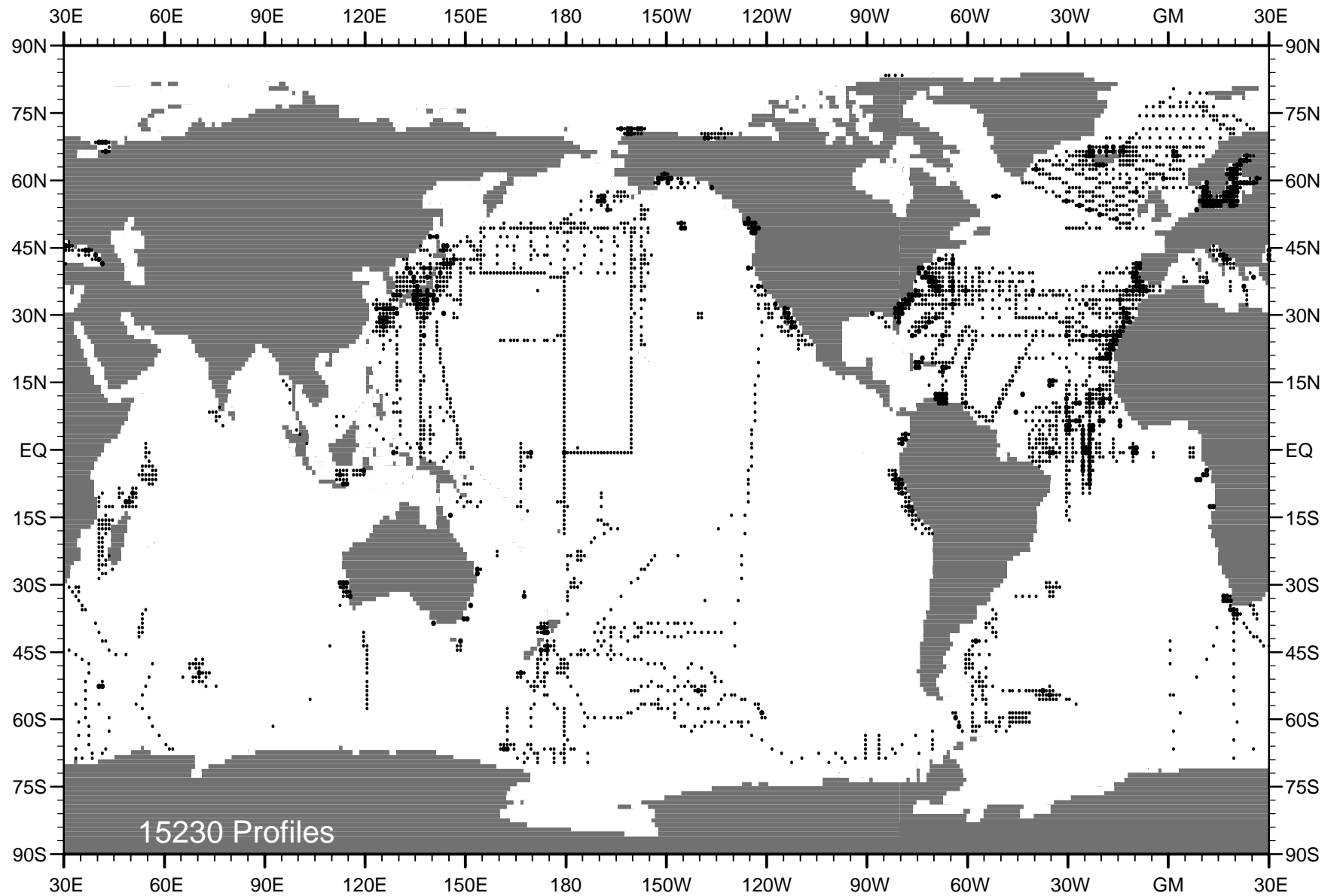


Fig. C73 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1974 .

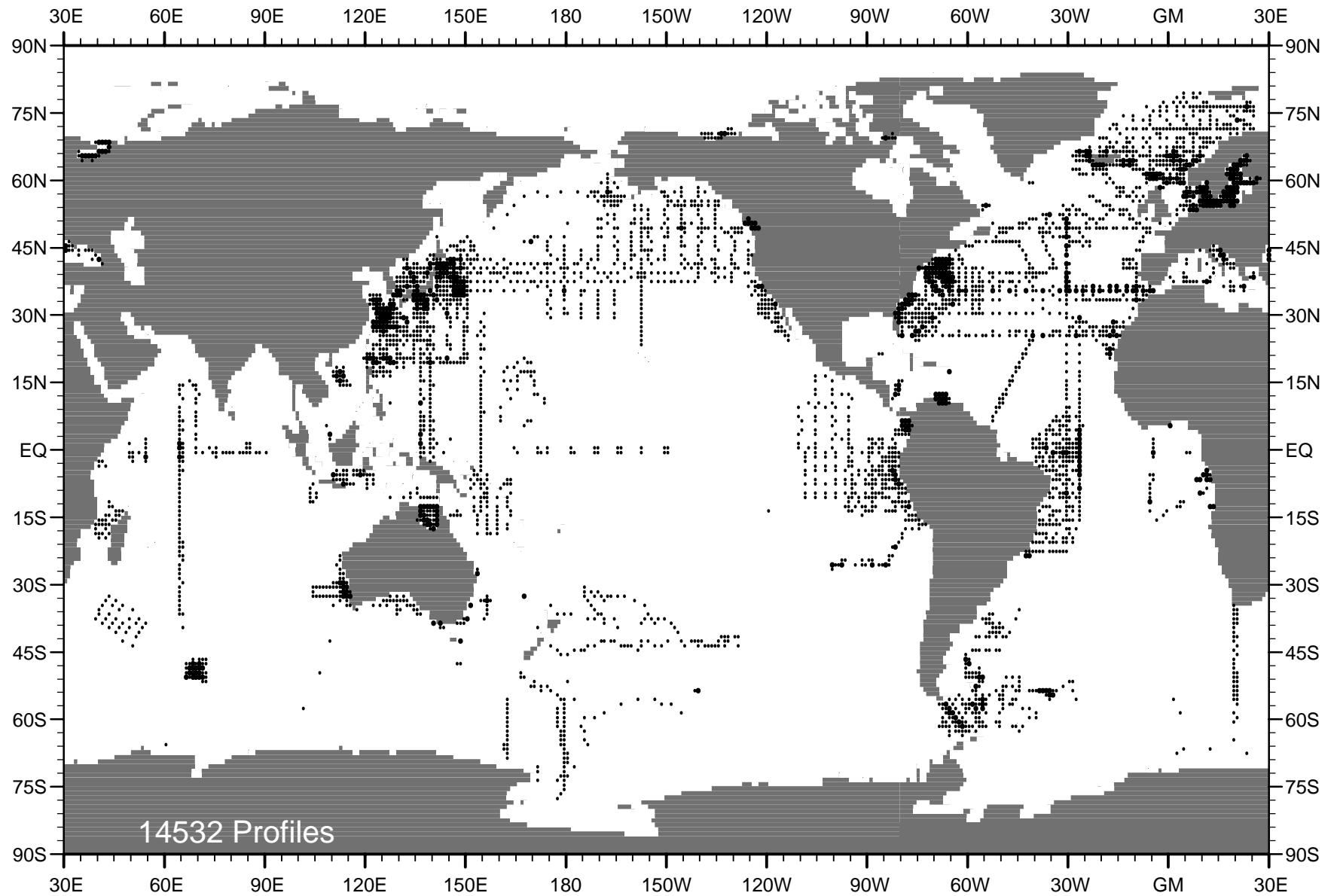


Fig. C74 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1975 .



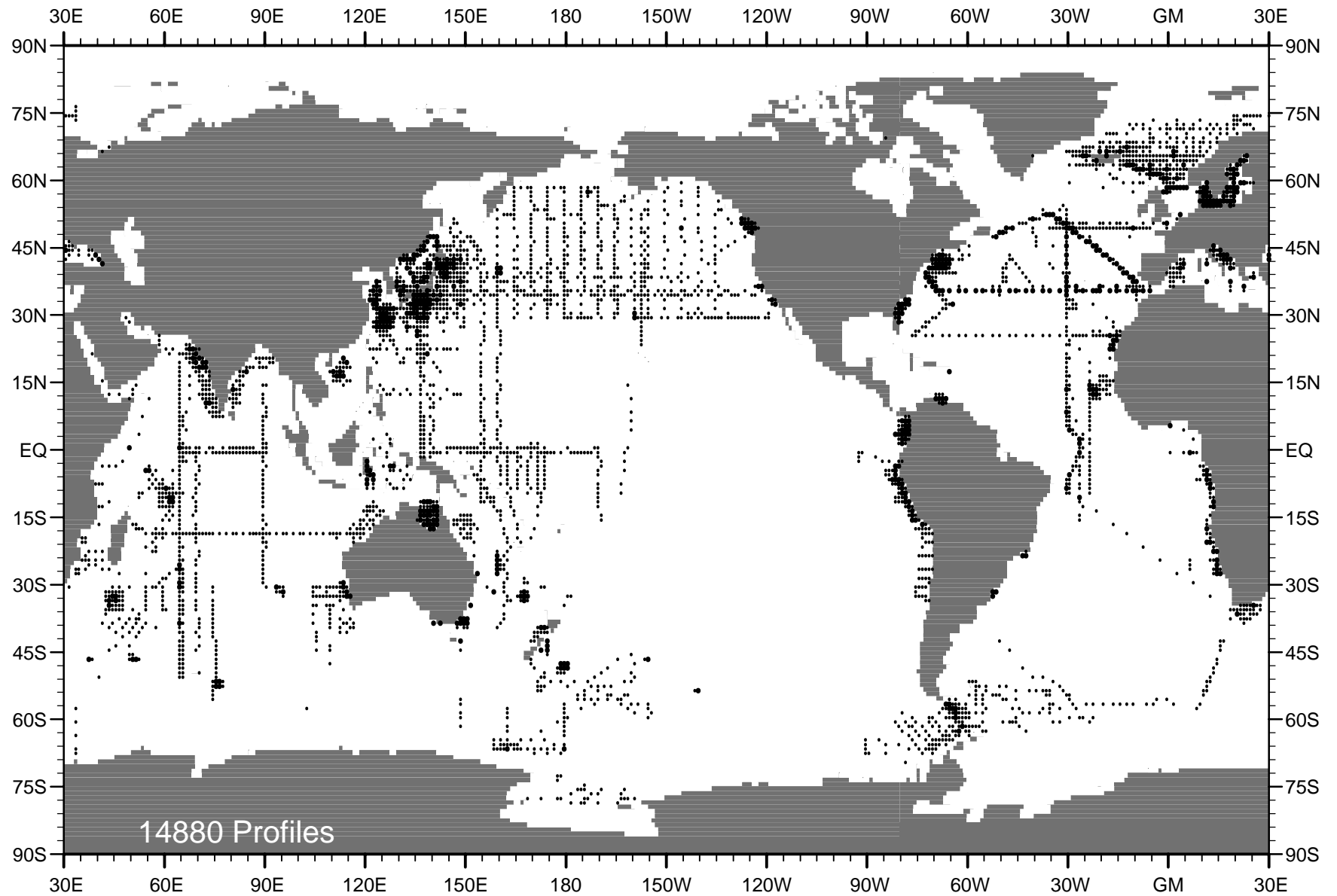


Fig. C75 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1976 .

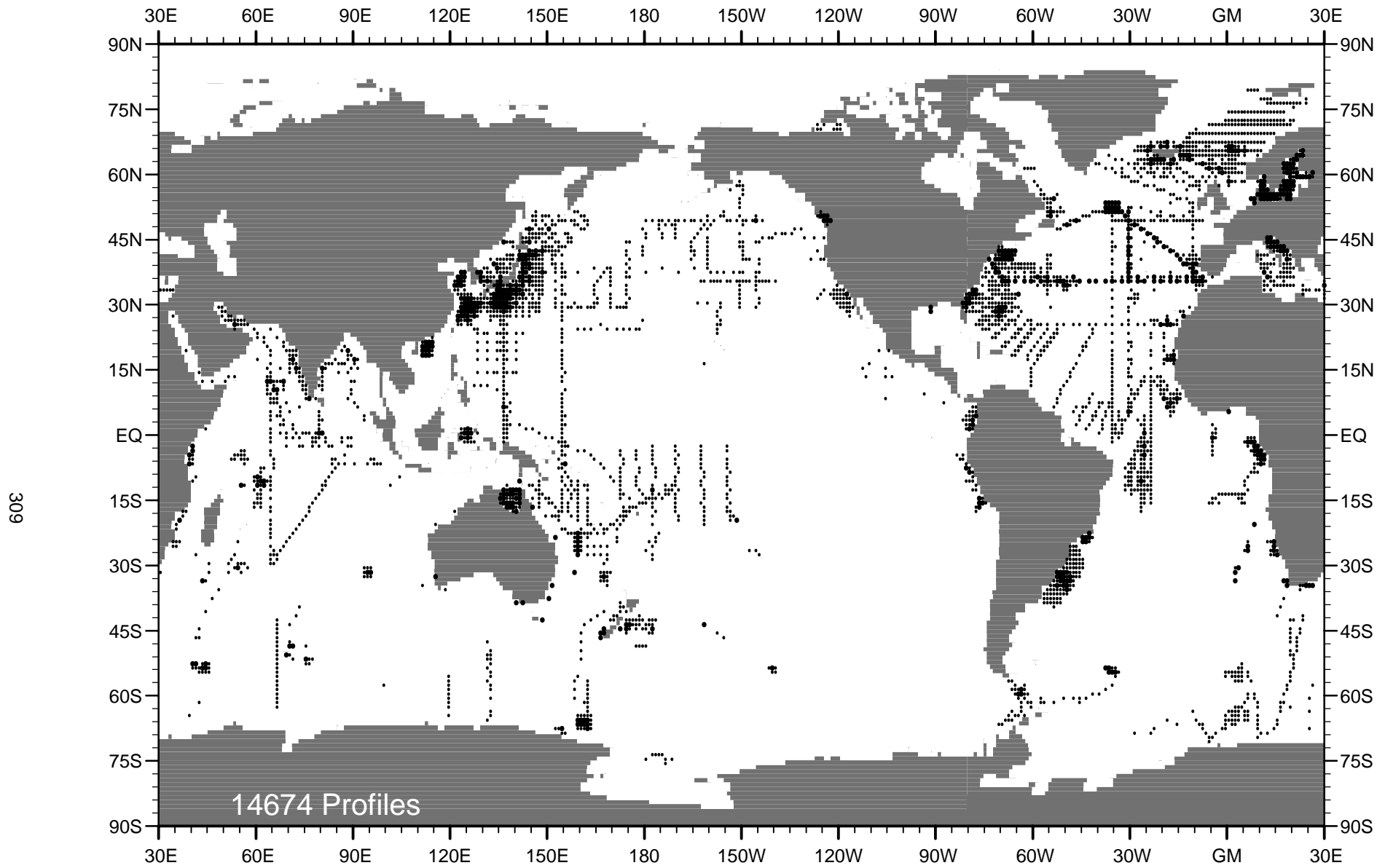


Fig. C76 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1977 .

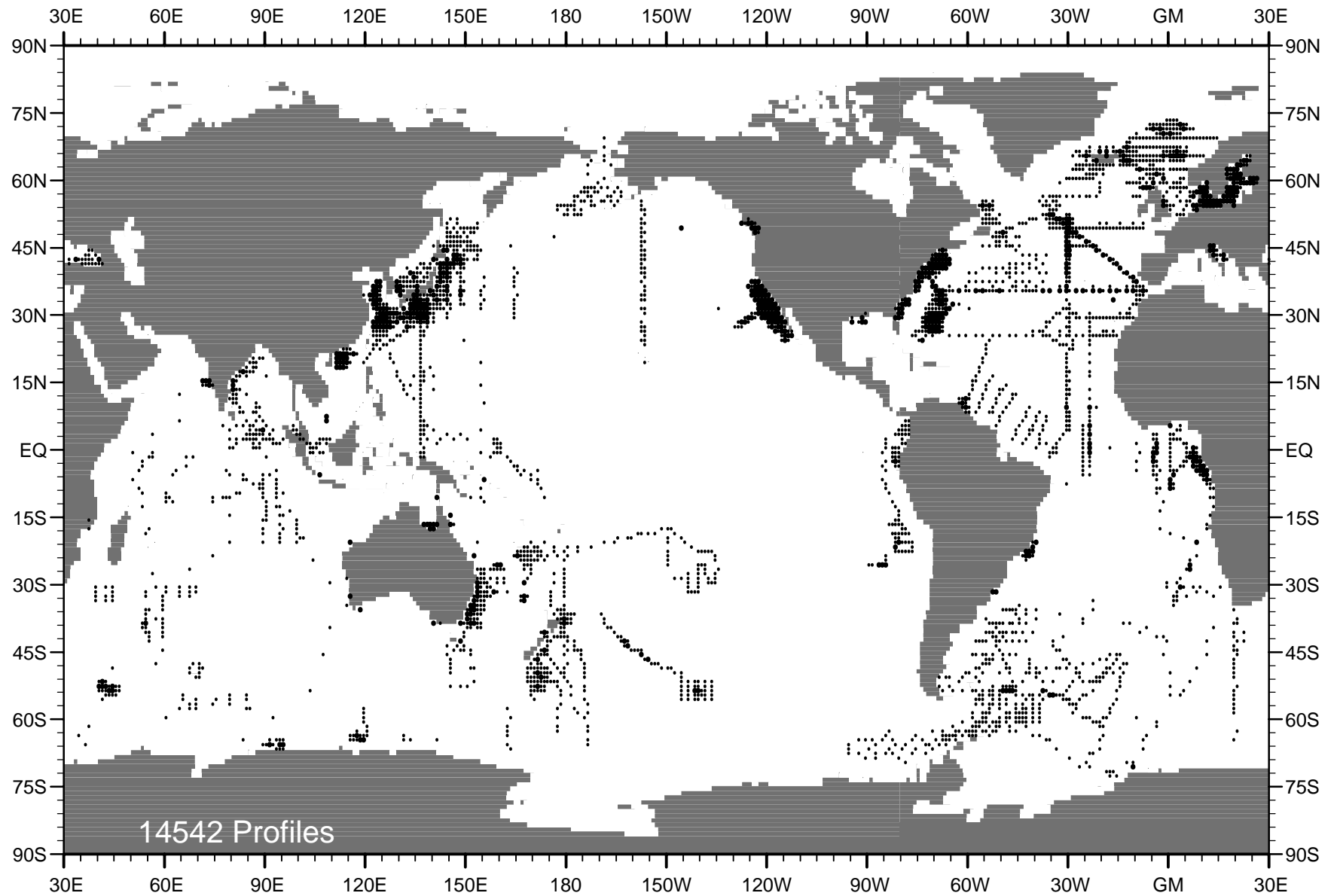


Fig. C77 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1978 .

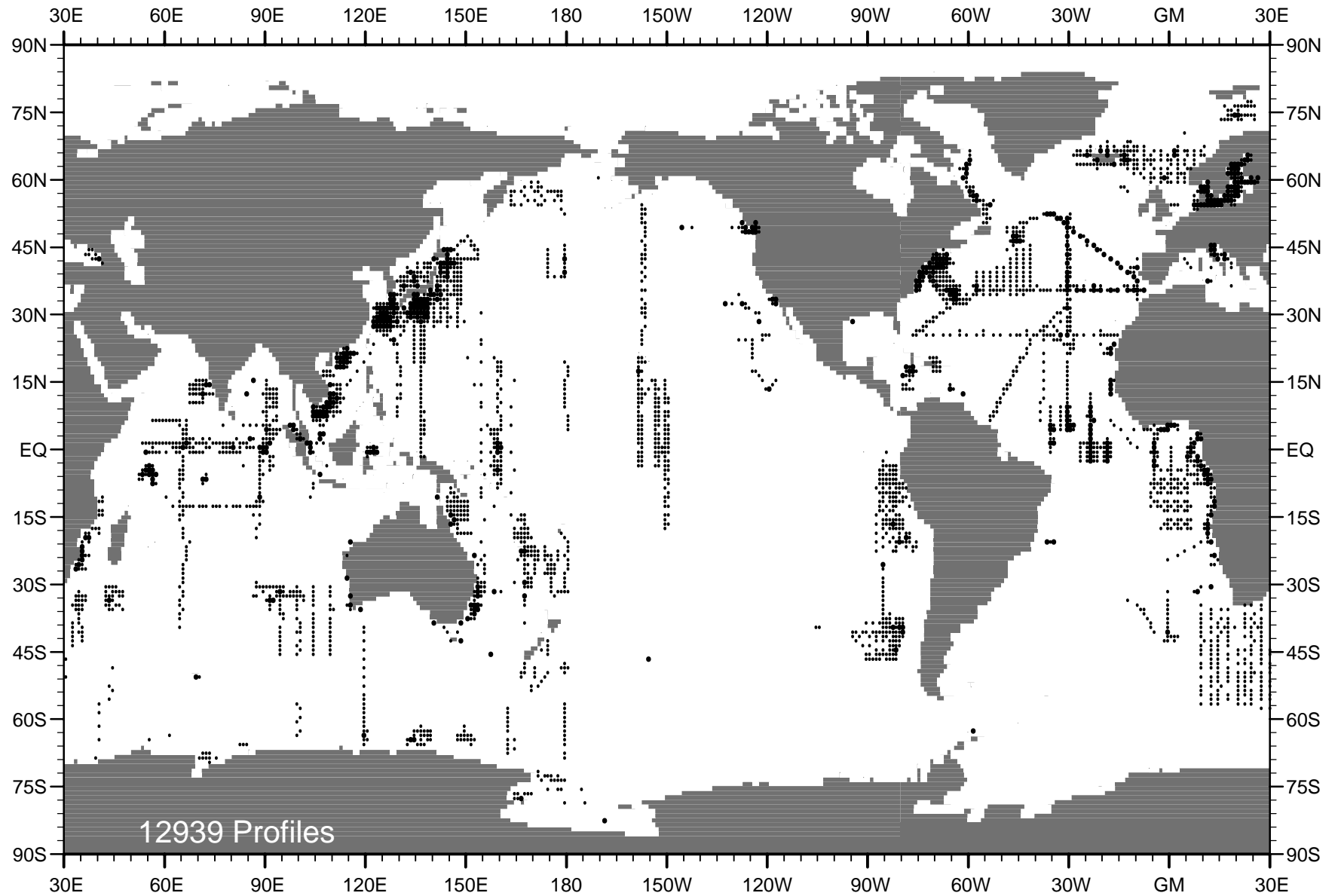


Fig. C78 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1979 .

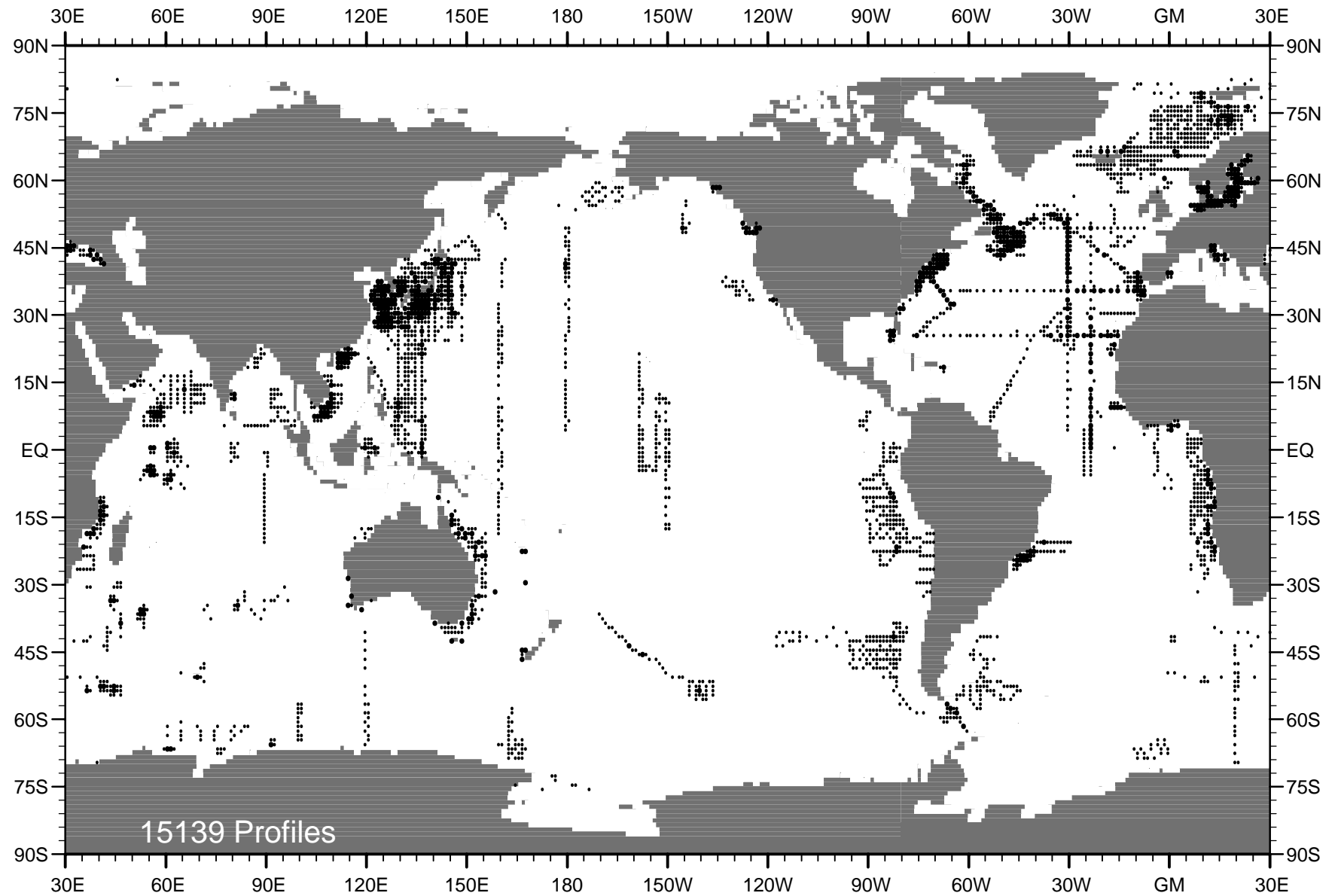


Fig. C79 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1980 .

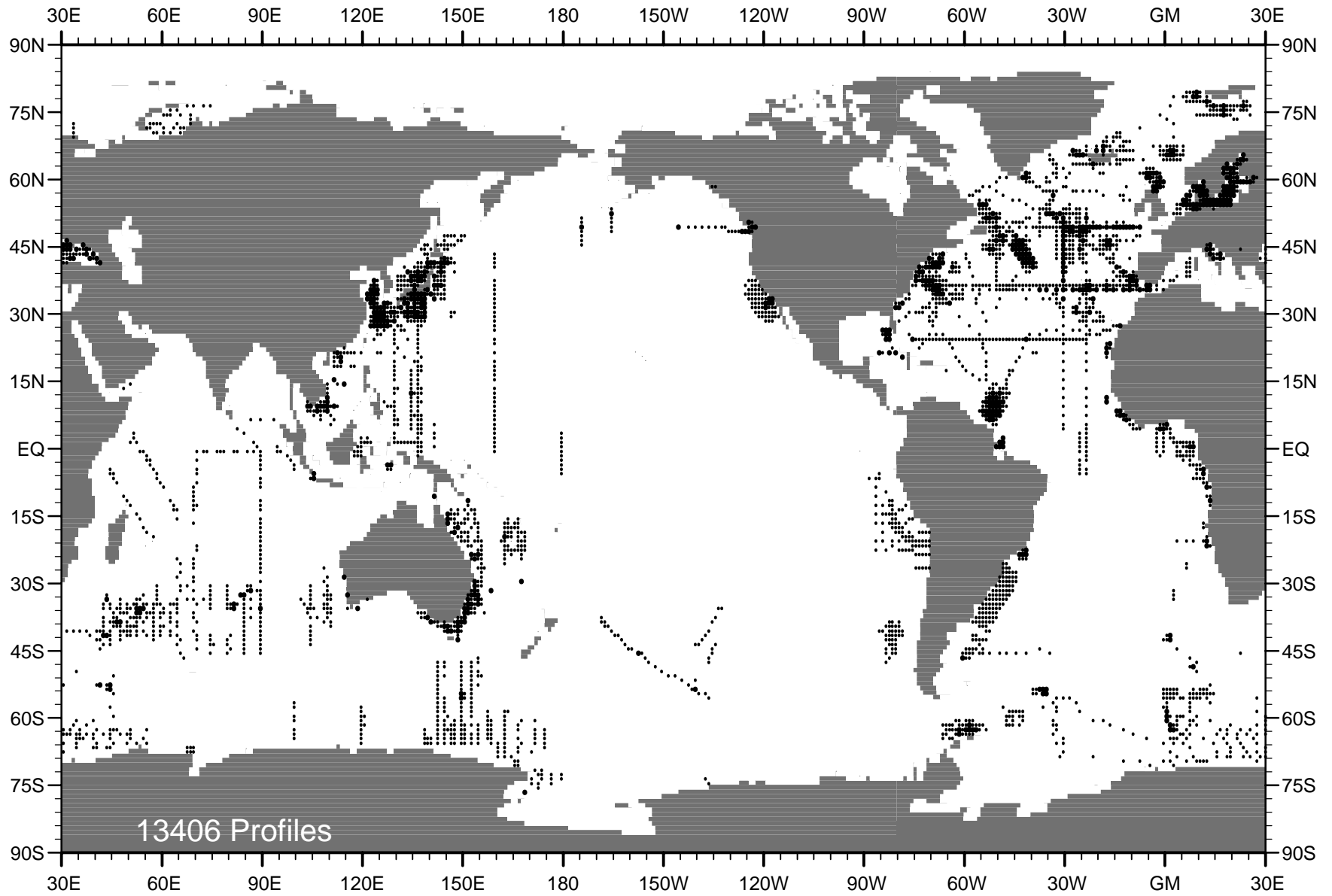


Fig. C80 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1981 .

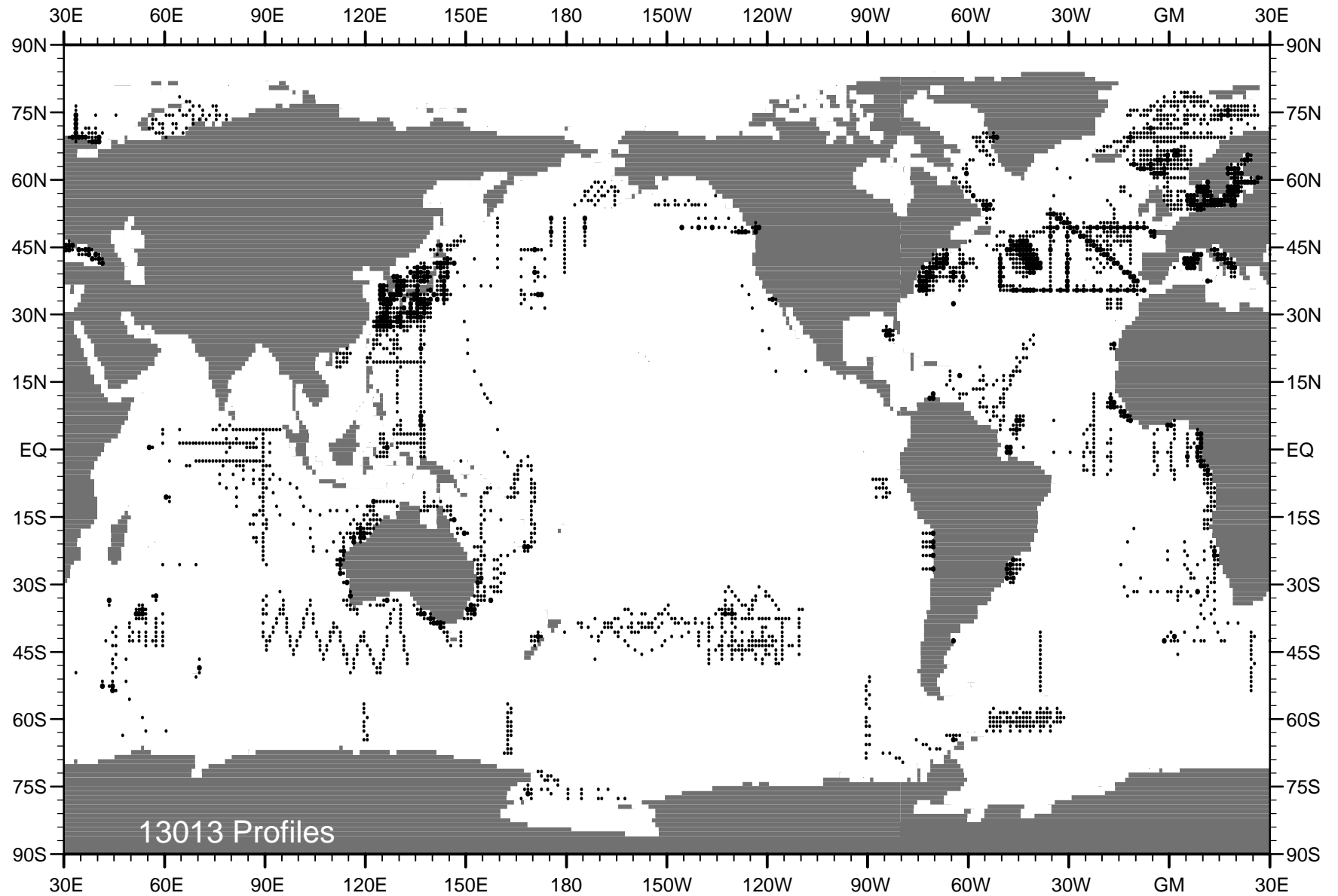


Fig. C81 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1982 .

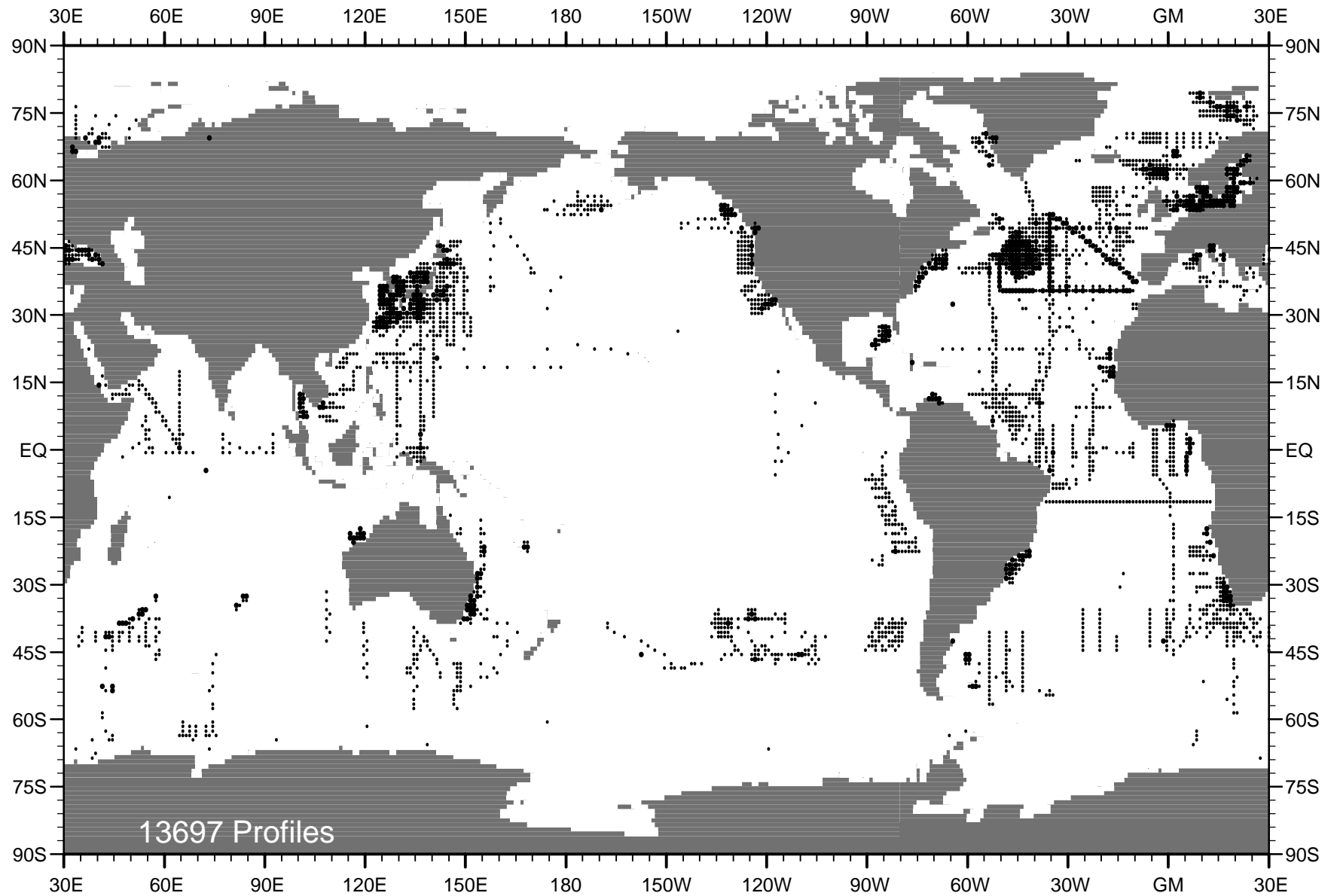


Fig. C82 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1983 .



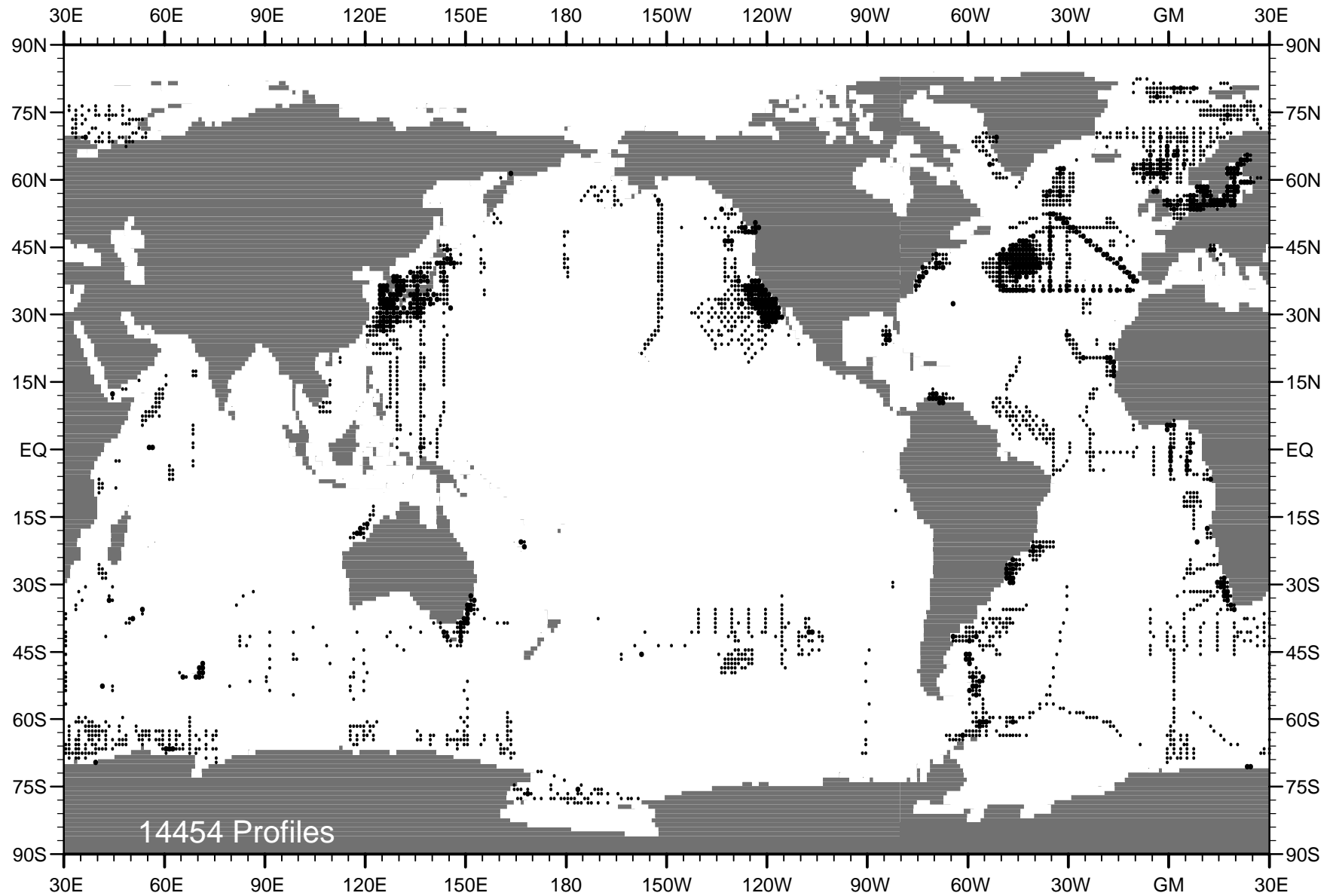


Fig. C83 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1984 .

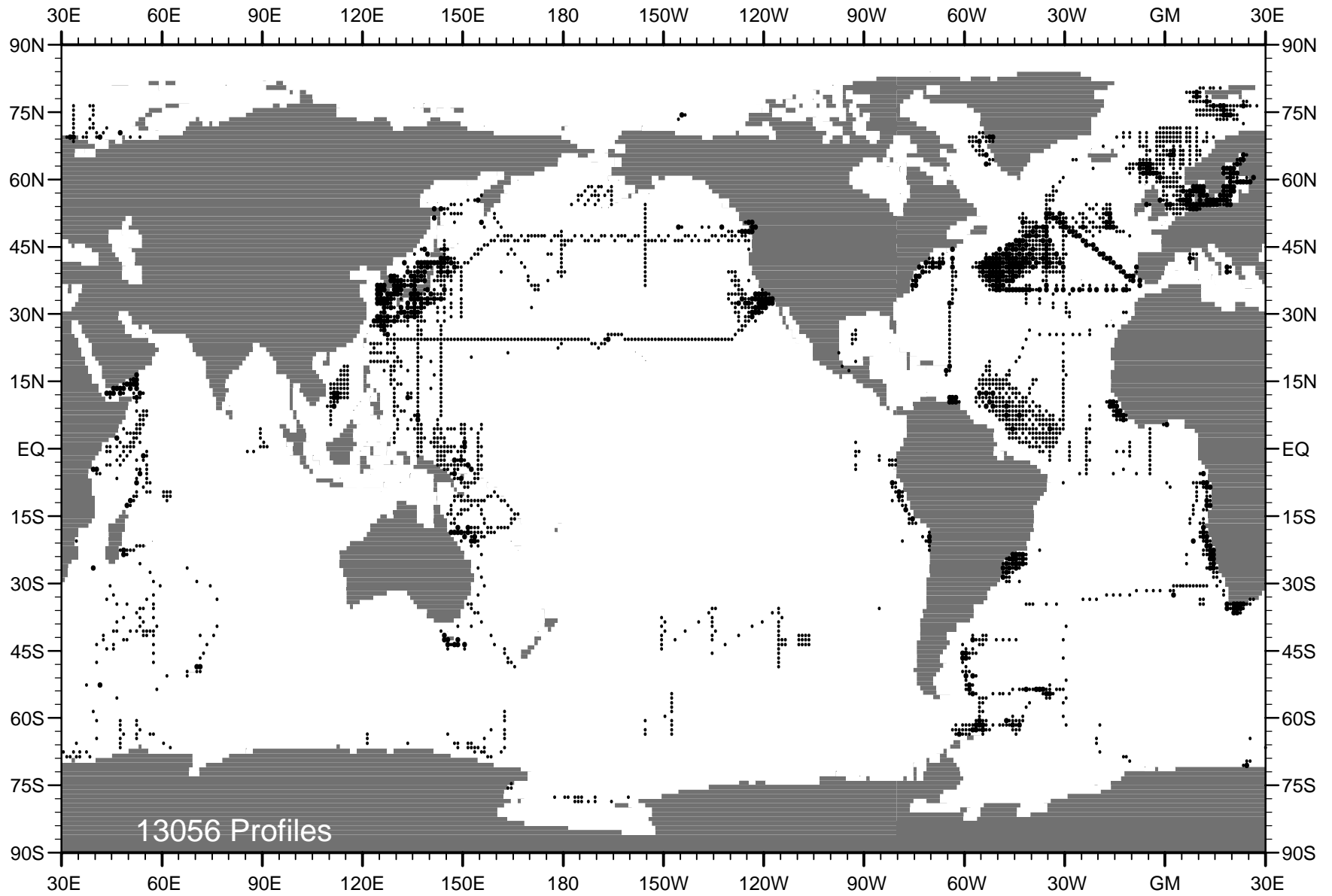


Fig. C84 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1985 .

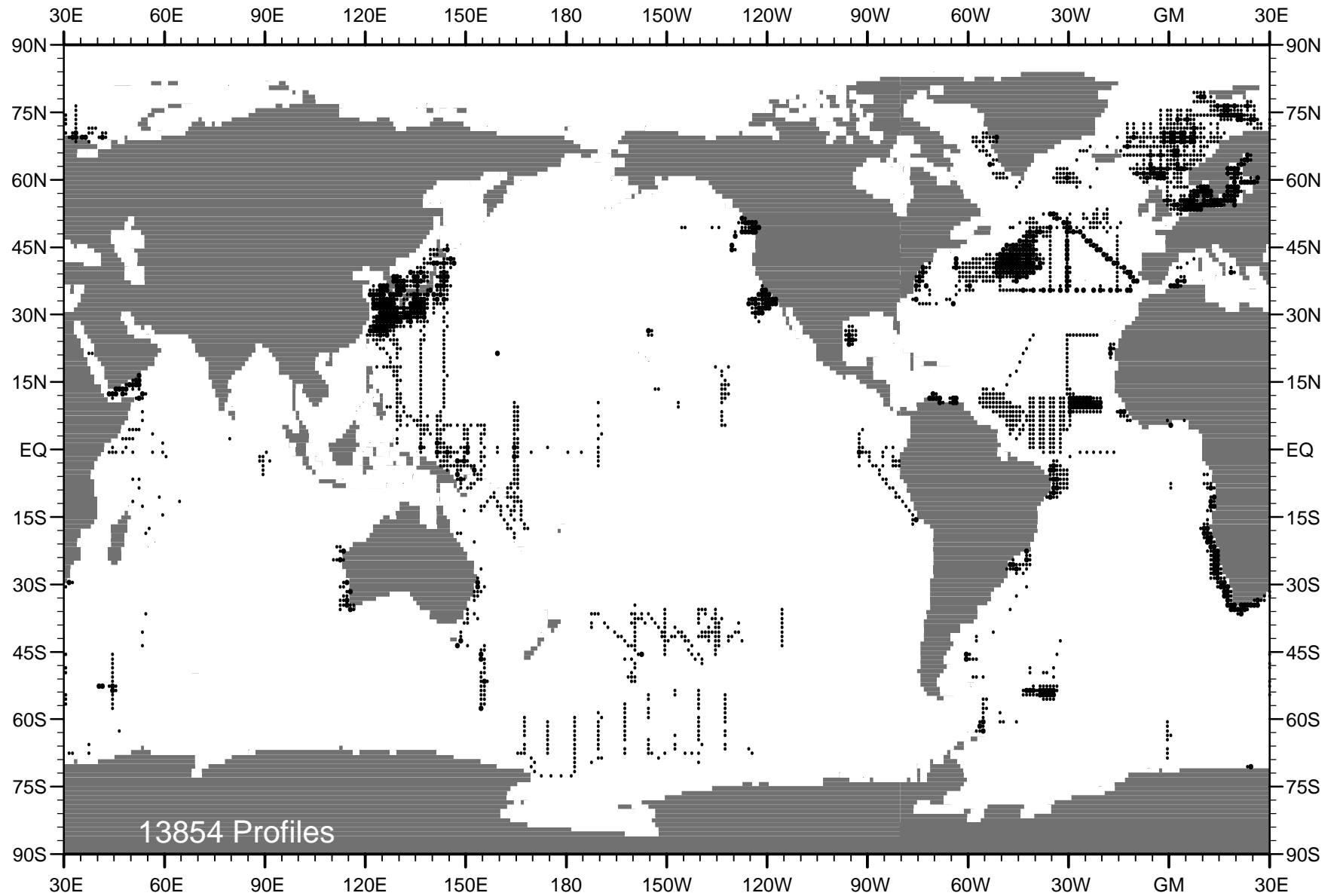


Fig. C85 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1986 .

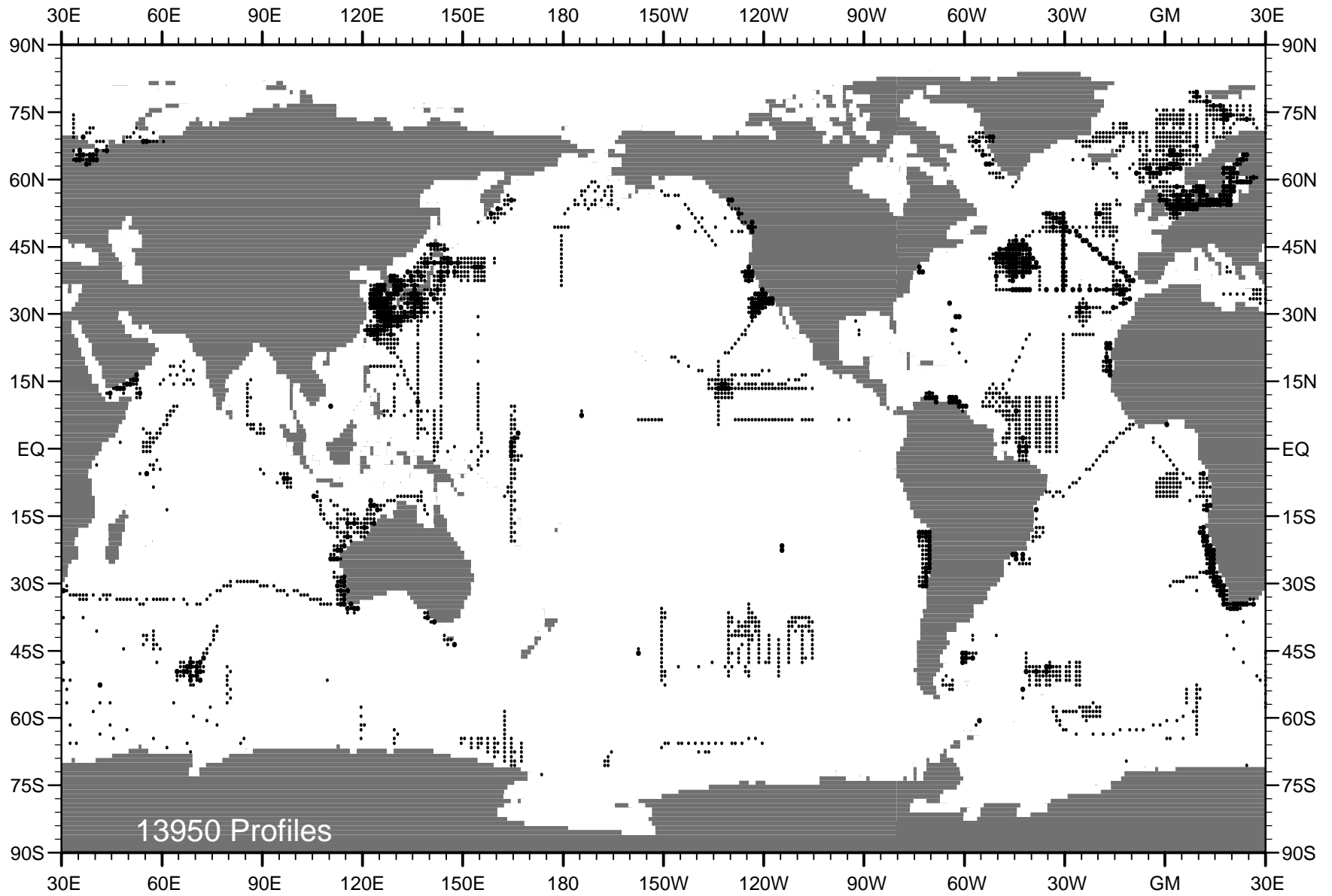


Fig. C86 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1987 .

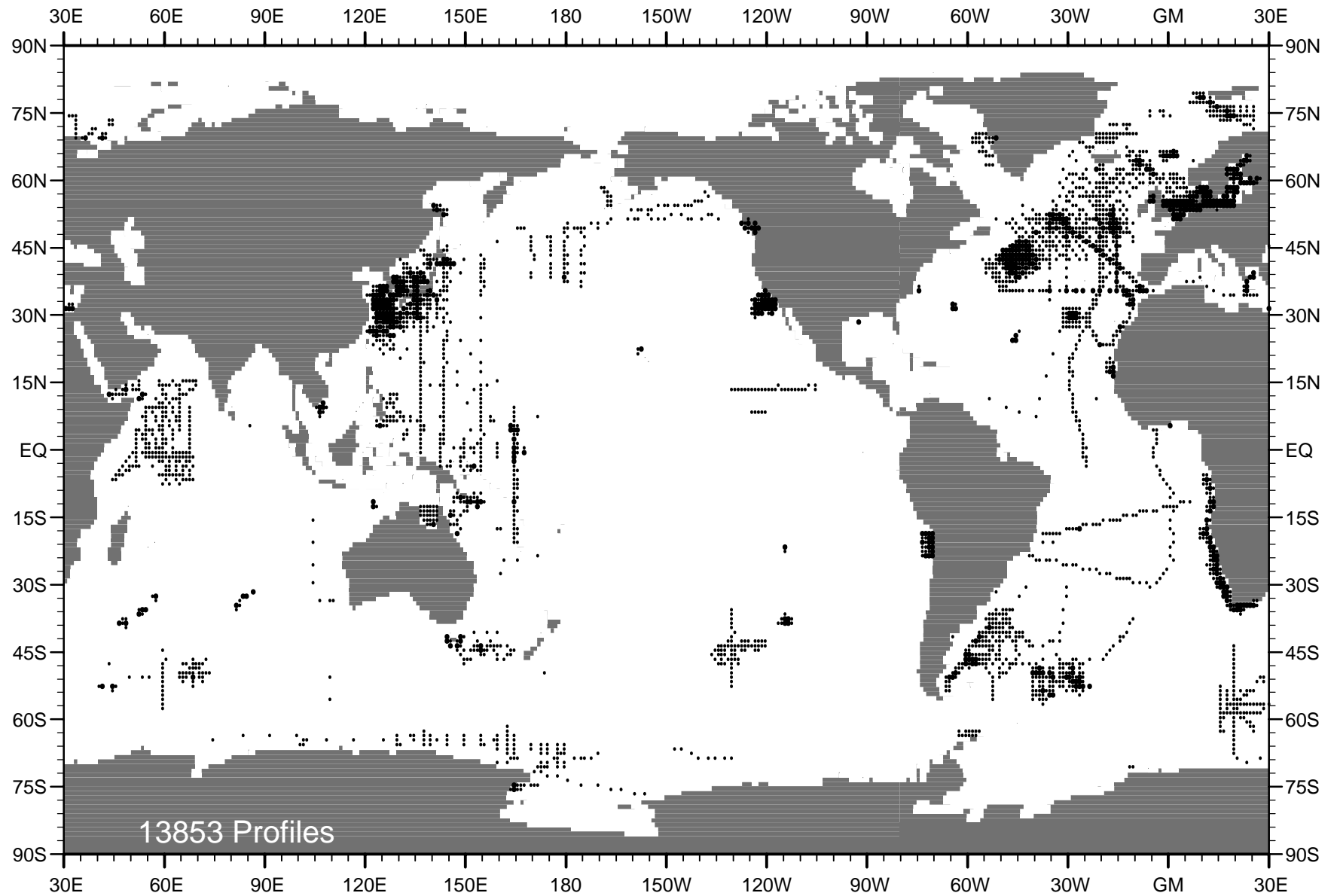


Fig. C87 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1988 .

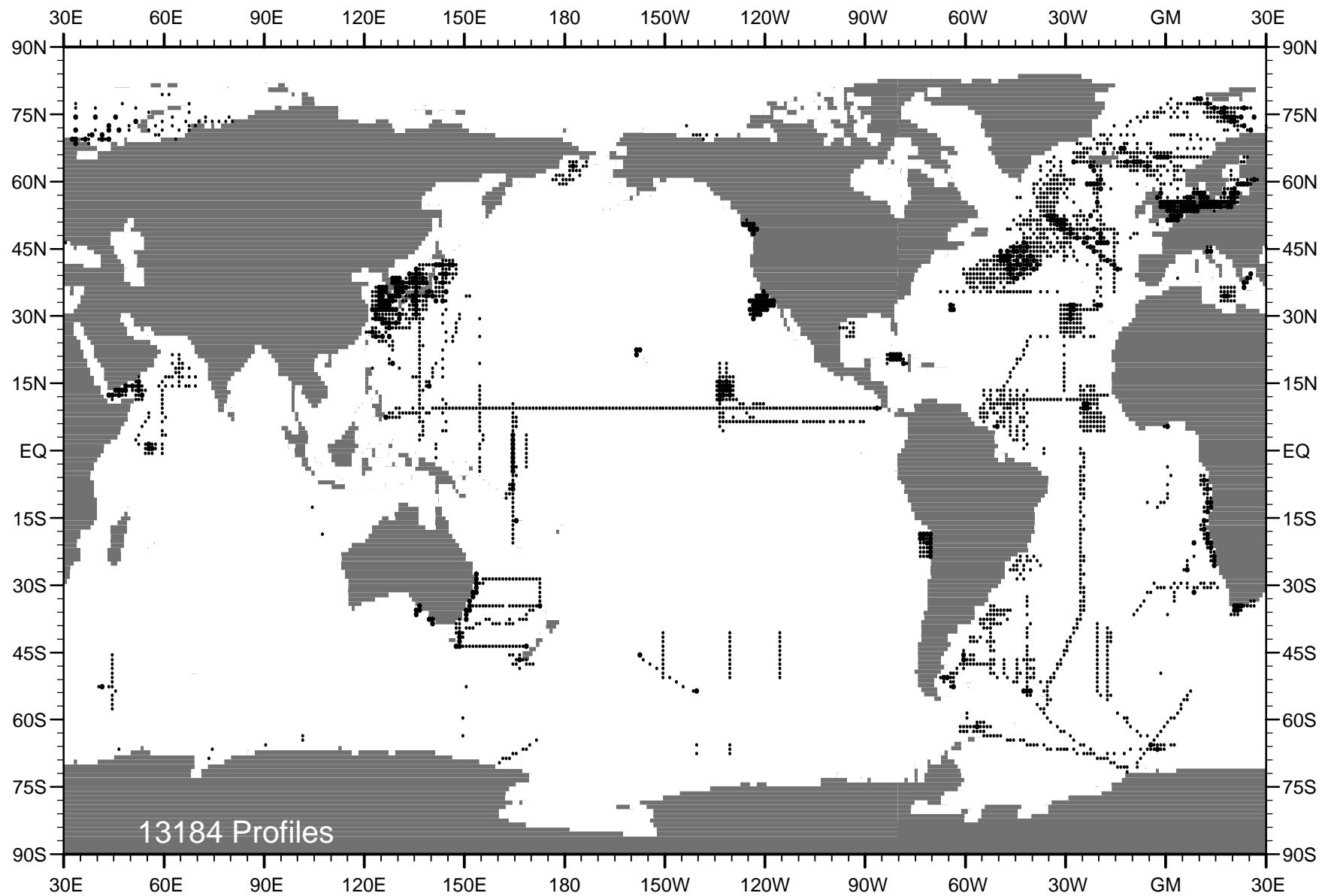


Fig. C88 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1989 .

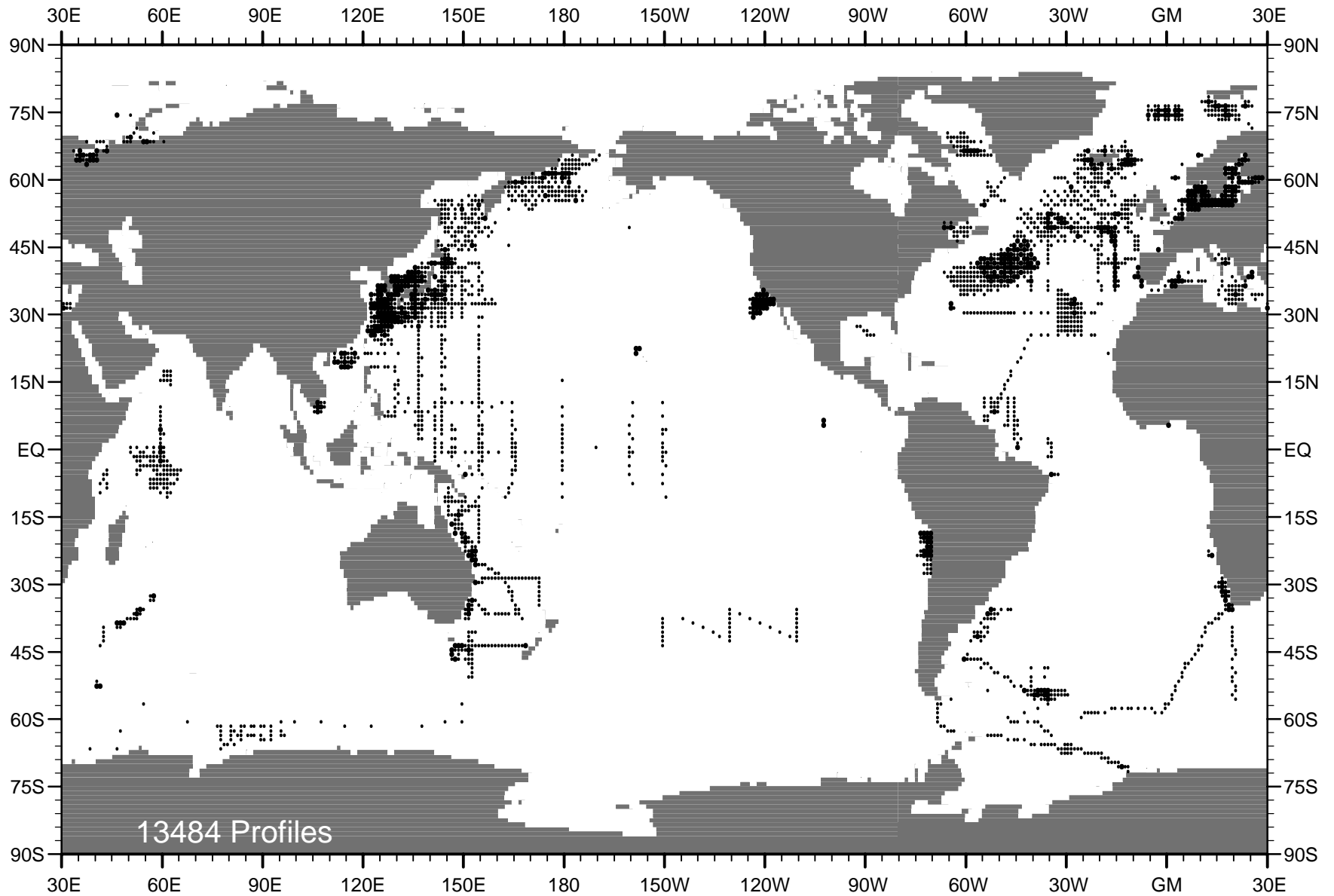


Fig. C89 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1990 .

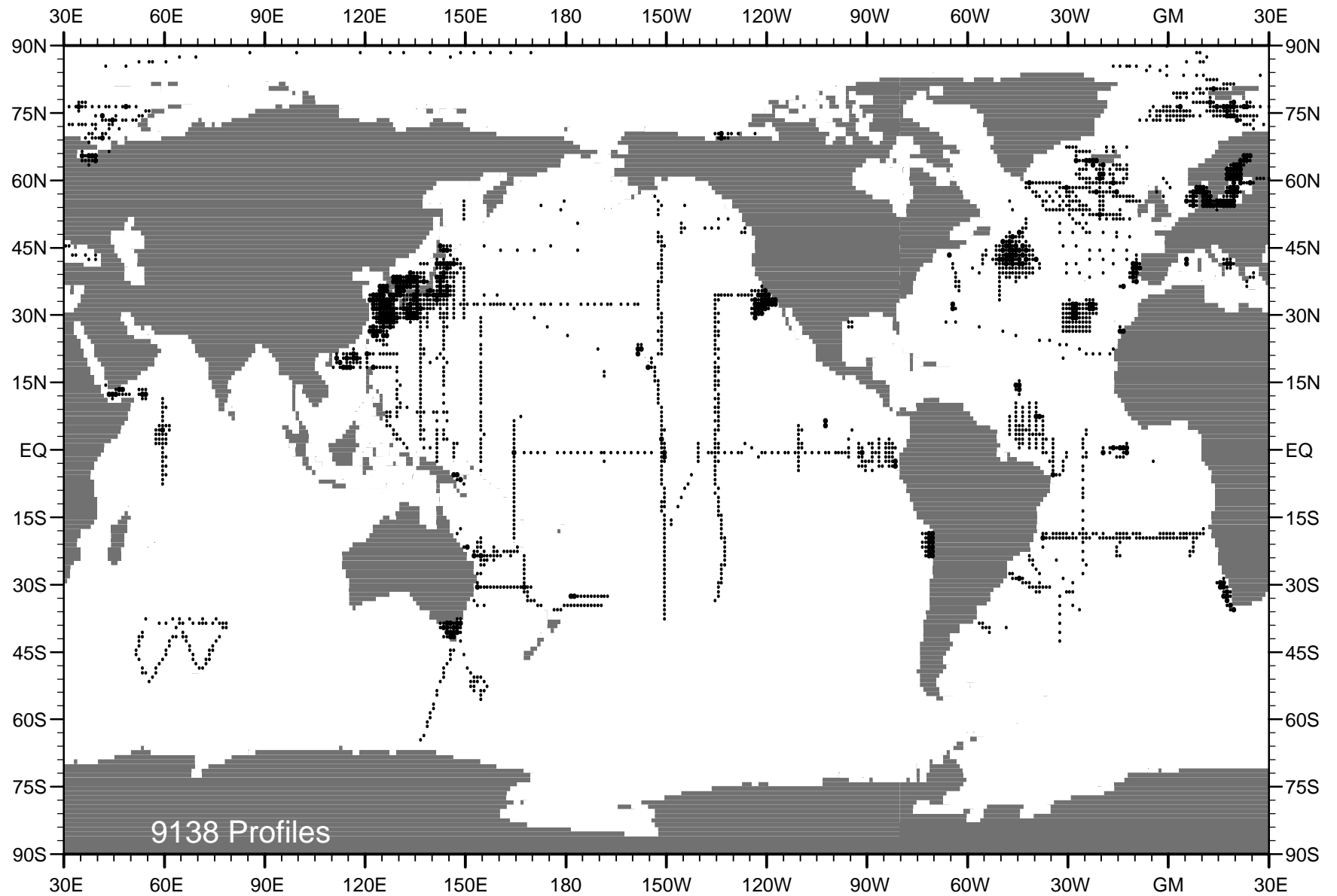


Fig. C90 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1991 .



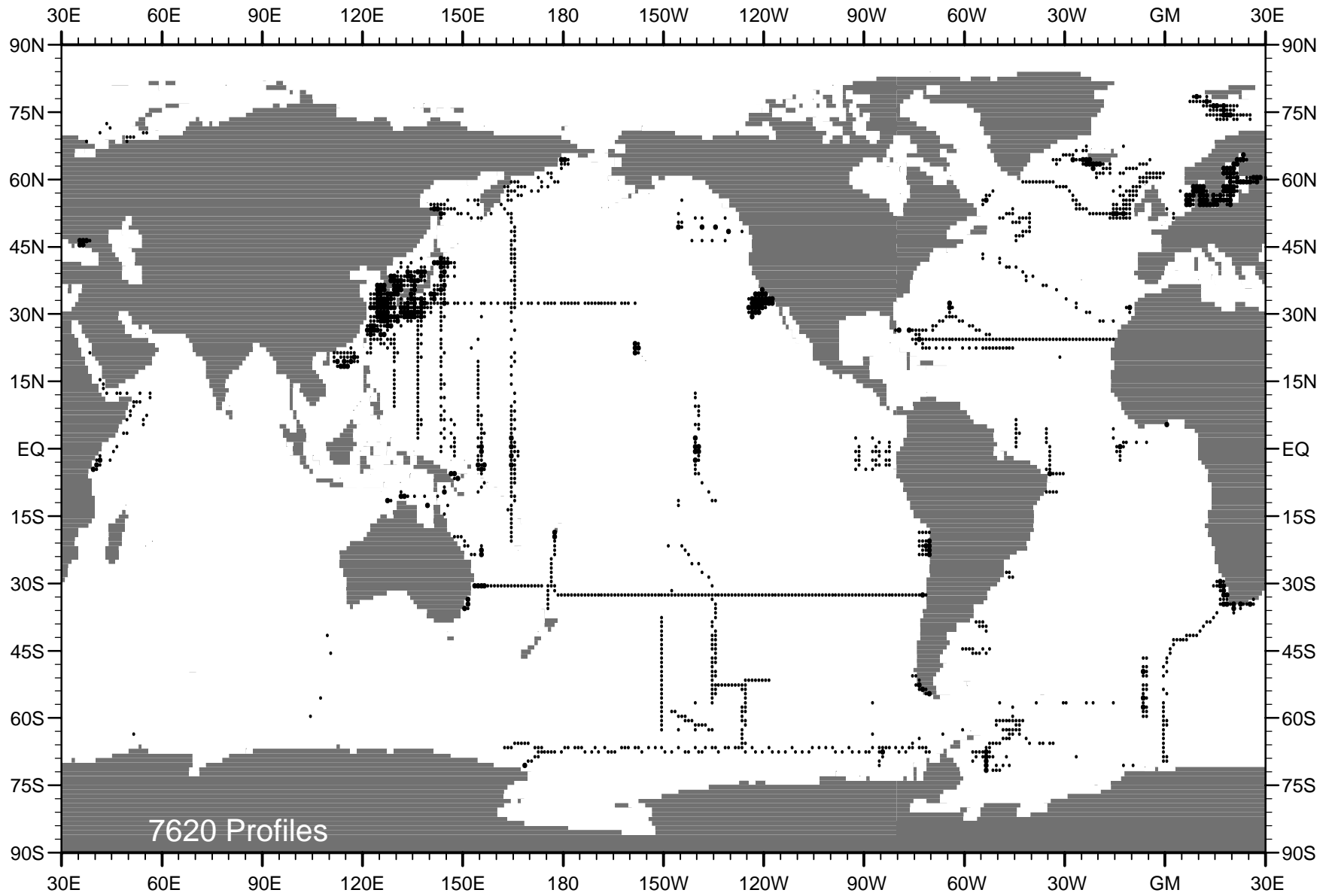


Fig. C91 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1992 .

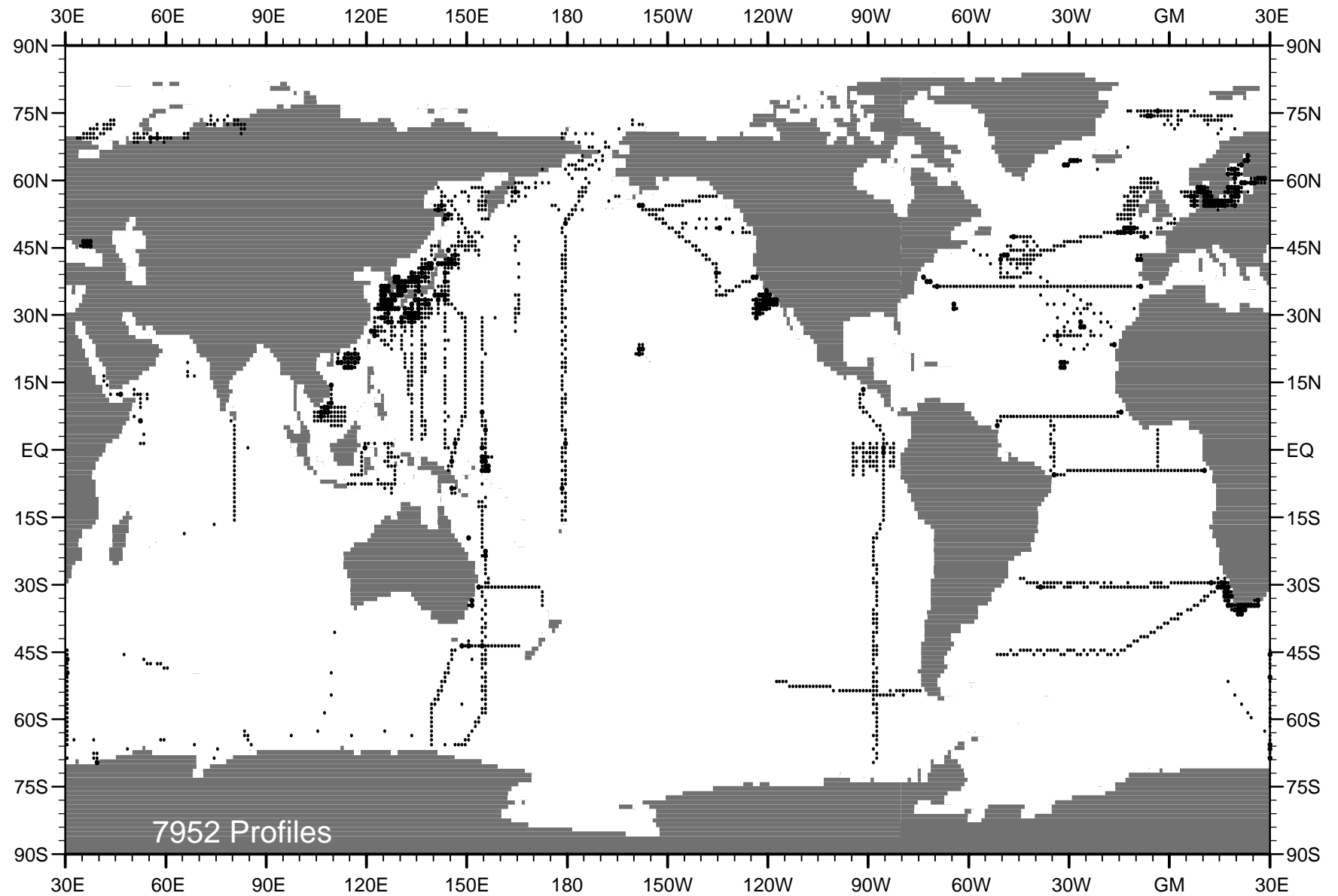


Fig. C92 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1993 .

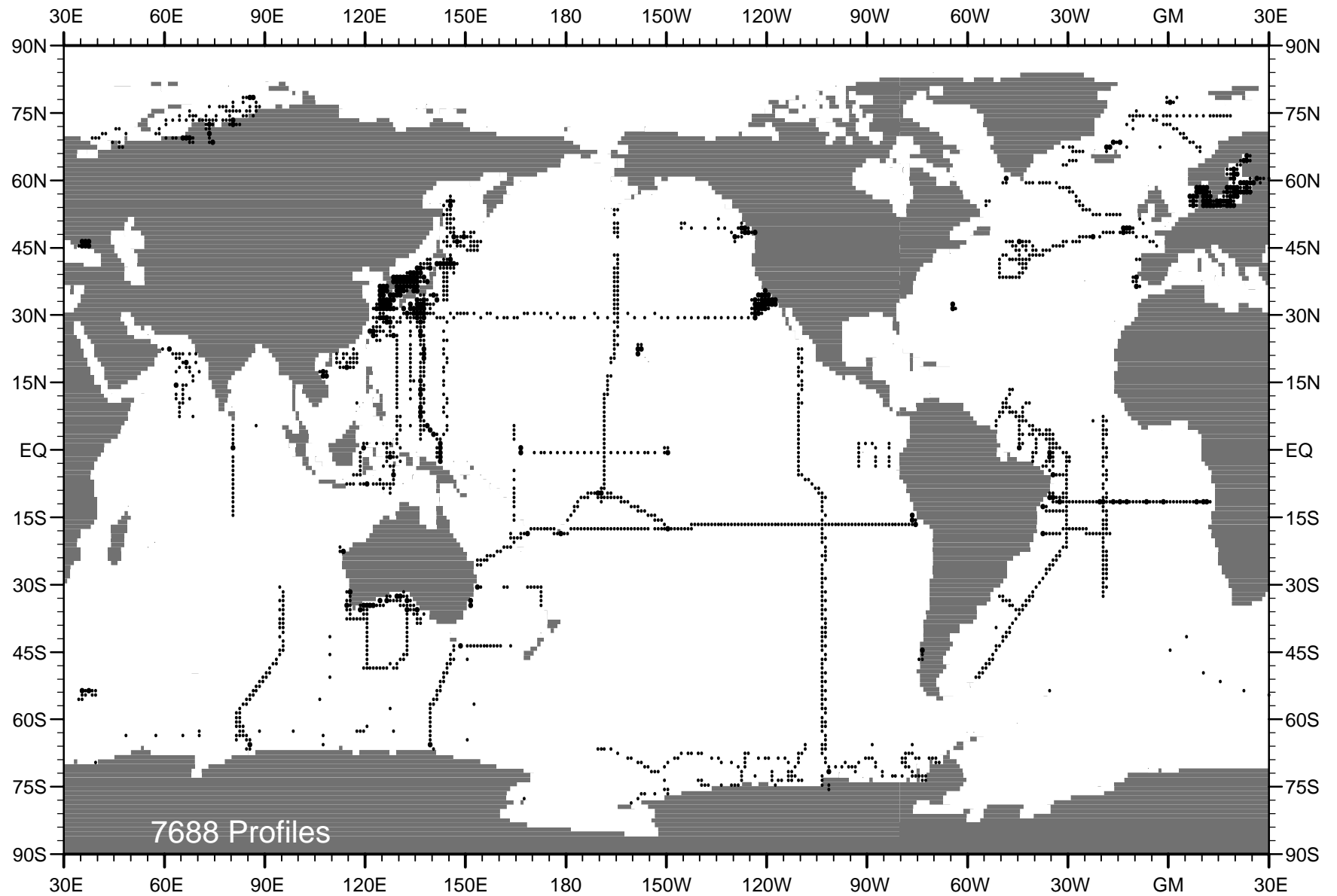


Fig. C93 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1994 .

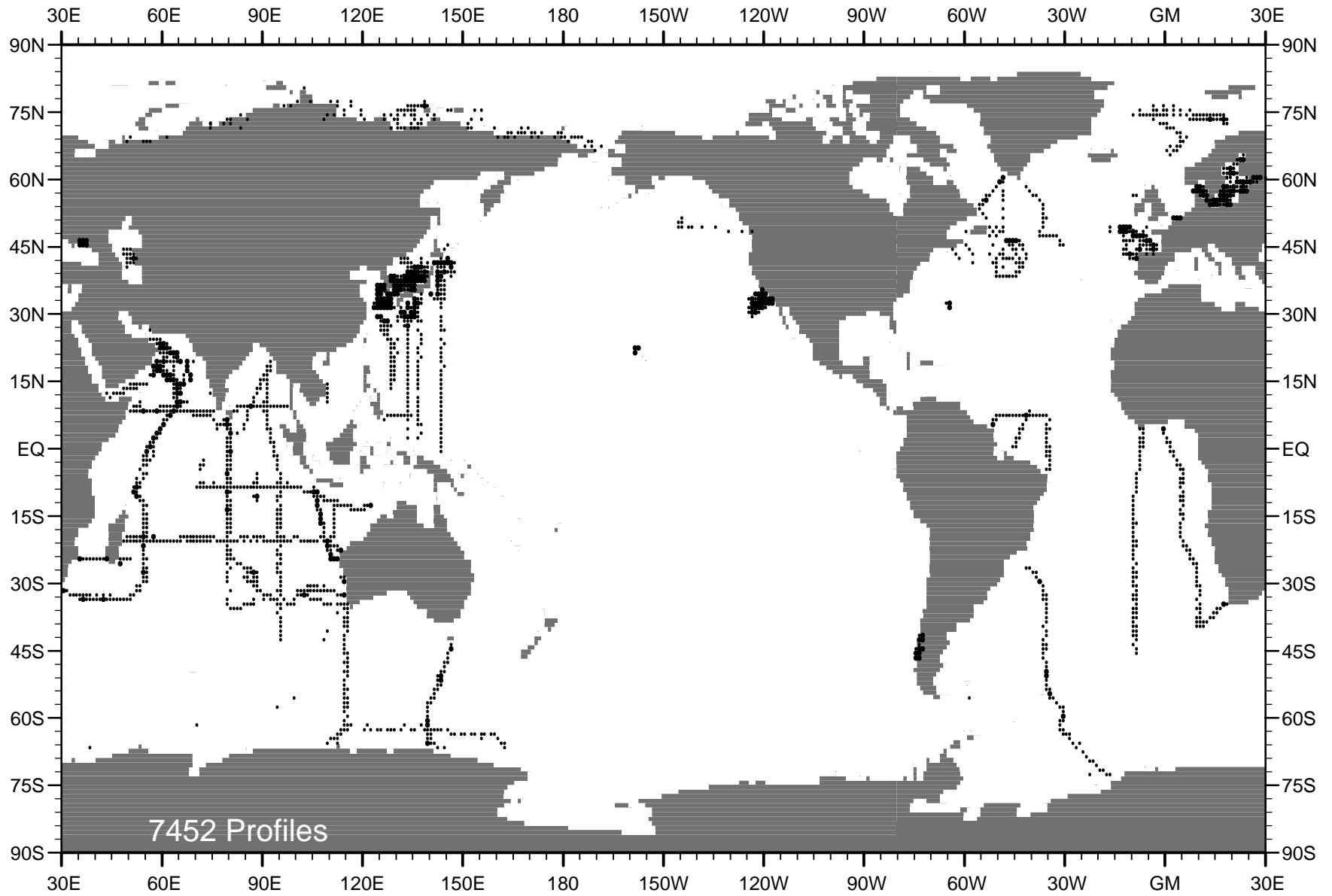


Fig. C94 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1995 .

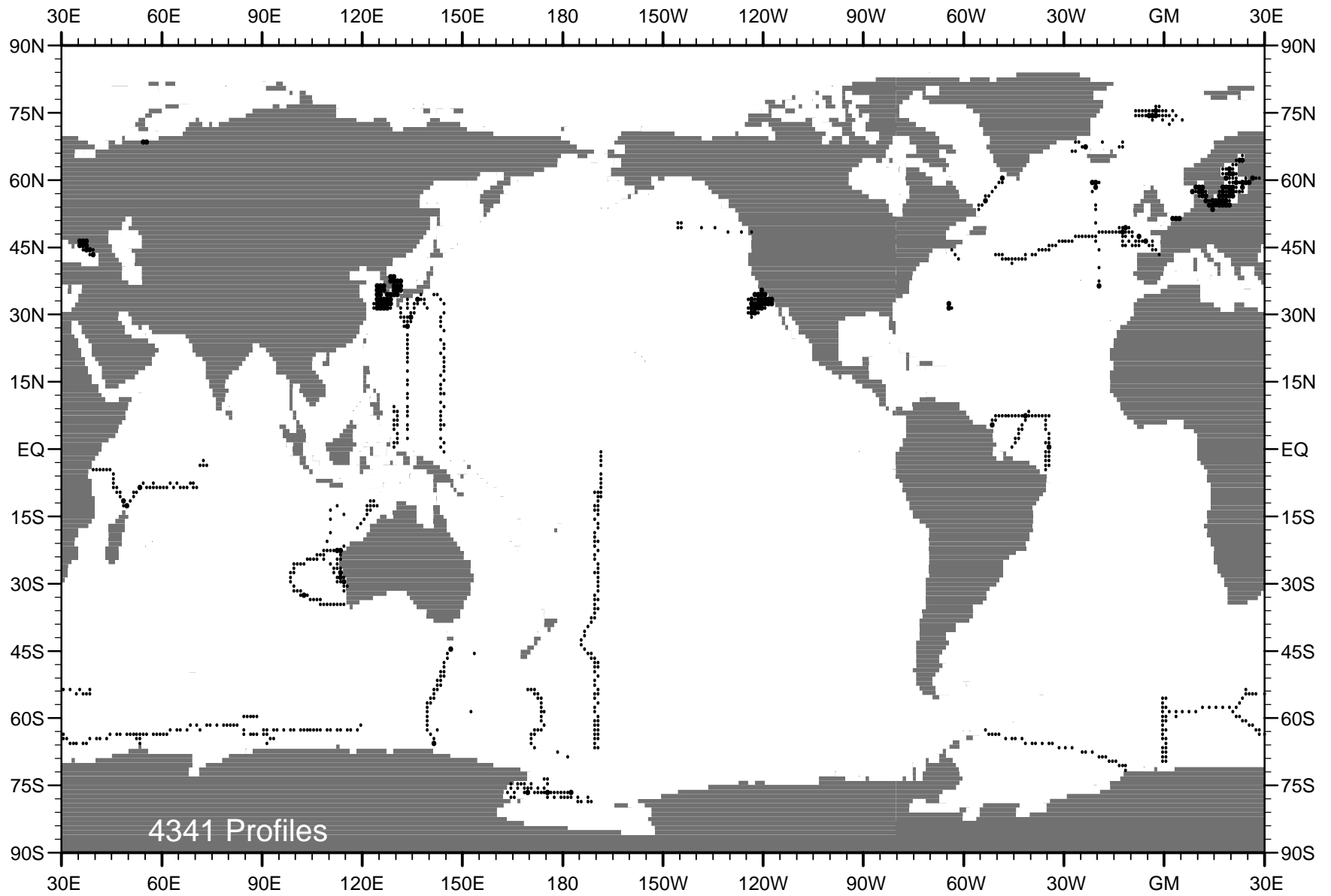


Fig. C95 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1996 .

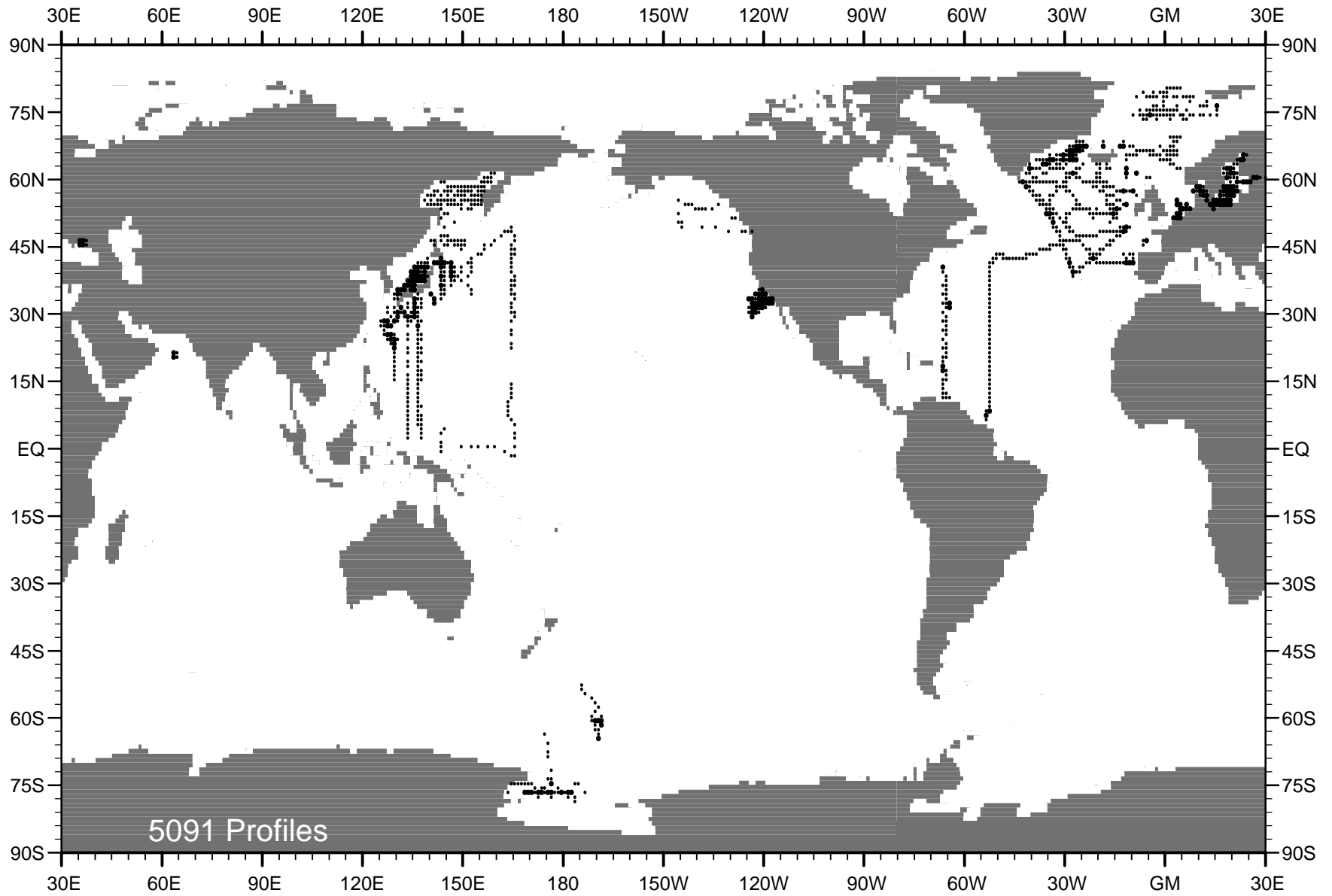


Fig. C96 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1997 .

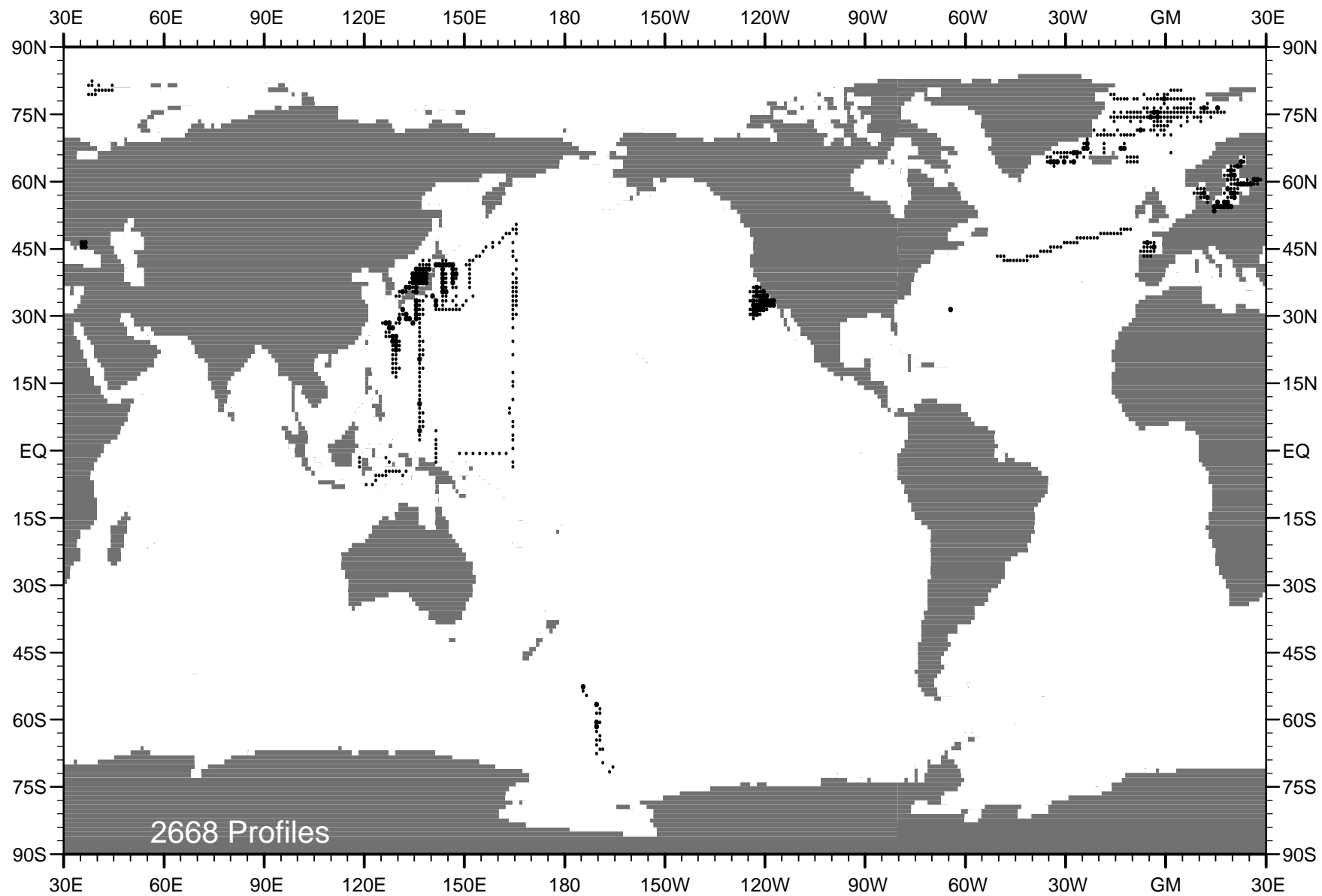


Fig. C97 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1998 .

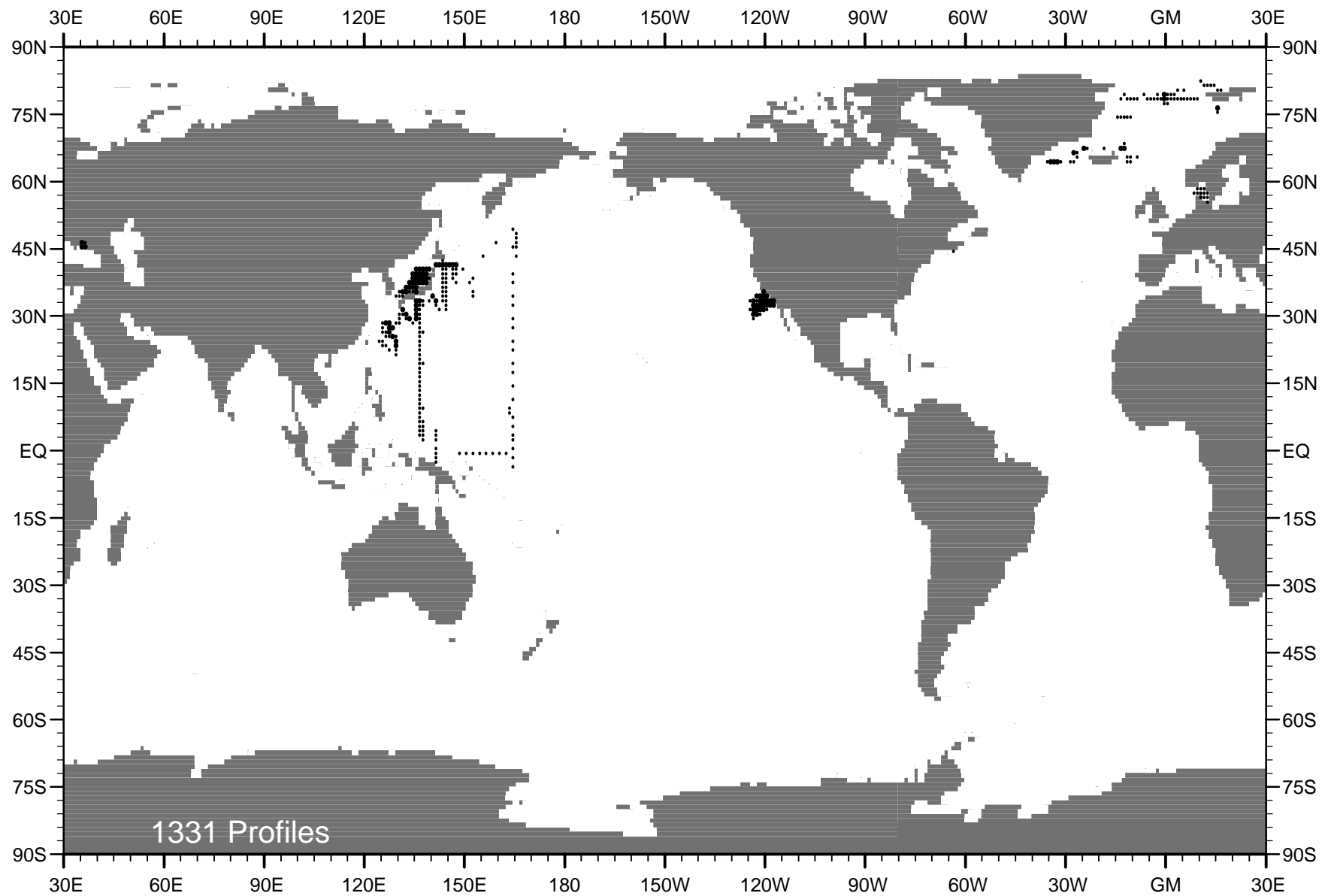


Fig. C98 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 1999 .



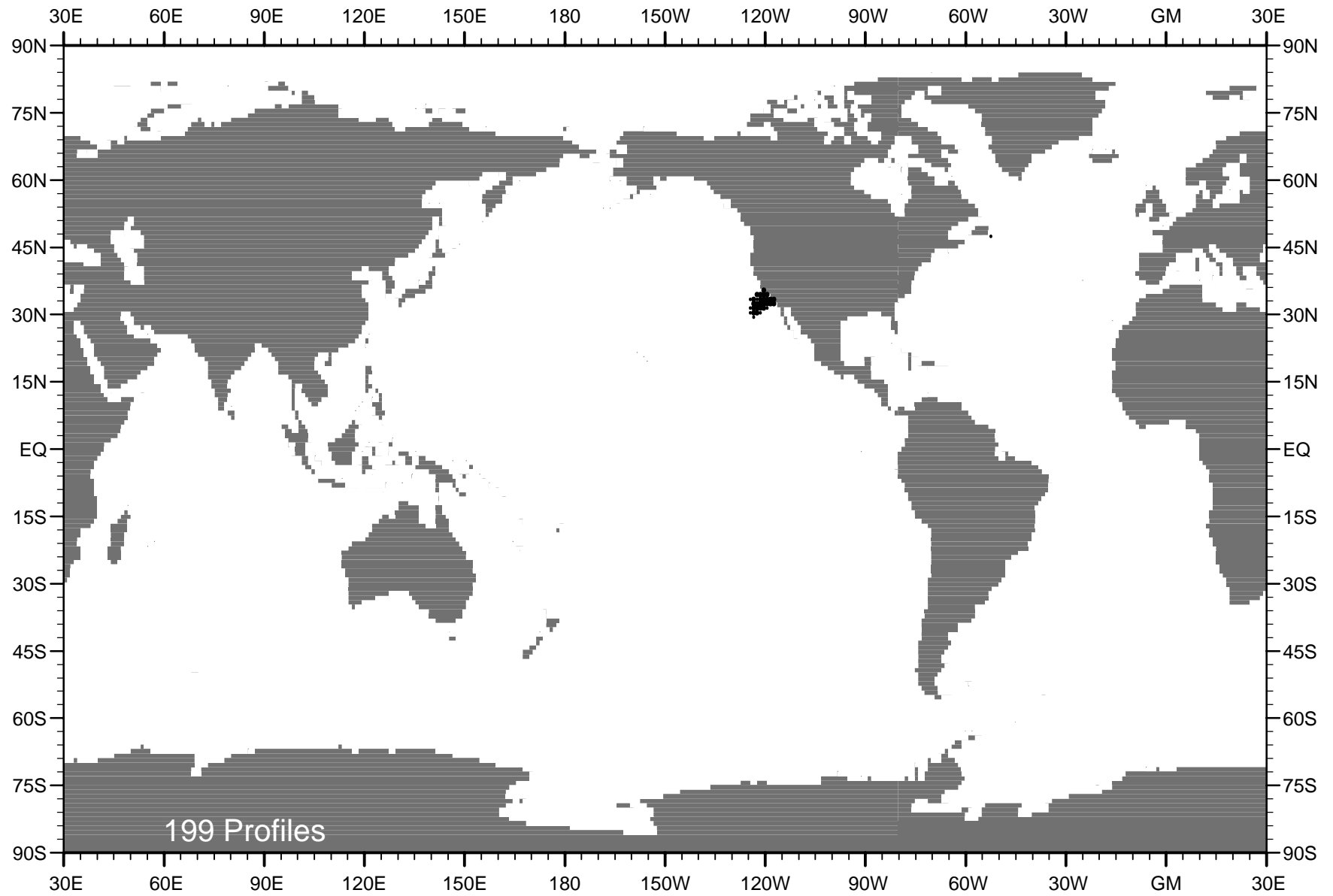


Fig. C99 Distribution of all Ocean Station Data (OSD) oxygen profiles in WOD01 for year 2000 .