NDP-011

CDIC NUMERIC DATA COLLECTION

Global Paleoclimatic Data for 6000 yr B.P.

Information Resources Organization at Oak Ridge National Laboratory
MARTIN MARIETTA ENERGY SYSTEMS, INC.
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NDP-011

GLOBAL PALEOCLIMATIC DATA FOR 6000 yr B.P.

Contributed by
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August 1985

Prepared by
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Oak Ridge National Laboratory
Oak Ridge, Tennessee 37831-2008
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TABLE OF CONTENTS

Webb, Thompson III. 1985. A Global Paleoclimatic Data Base for 6000 yr B.P. TR018. DOE/EV/10097-6. U. S. Department of Energy, Washington, DC.

LIST OF TABLES

CDIC NUMERIC DATA PACKAGE
ABSTRACT

1. NUMERIC DATA PACKAGE NAME

Global Paleoclimatic Data for 6000 yr B.P.

2. CONTRIBUTOR

Thompson Webb III
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Brown University
Providence, Rhode Island 02912-1846

3. HISTORICAL BACKGROUND INFORMATION

Regional and global maps of paleoclimatic data show the magnitude and pattern of climatic variables at a sufficient number of grid points that useful comparison with the results of climate model simulations can be made. The CLIMAP research pioneered quantitative reconstructions of paleoclimate at a global scale for 18,000 yr B. P. The dataset of paleoclimatic data for 6000 yr B. P. has been assembled as the initial phase of a long-term project to map the global patterns of climate for the past 20,000 years and to test the climate model simulations for dates during this time period.

4. SOURCE AND SCOPE OF THE DATA

The dataset consists of pollen, lake level, and marine plankton data and where possible, includes quantitative values estimated from these data. The reasons for choosing these three types of data are: (a) they are quantitative and can be calibrated in climatic terms, and (b) they occur in networks of samples with good dating controls and broad geographic coverage. Pollen data record the broad scale vegetational patterns that are related to climate, while the lake level data record the relative water depth in lakes and therefore provide records of past moisture regimes and changes. The marine plankton data contain information about the geographic distribution of plankton, which also reflect climatic patterns.

5. APPLICATIONS OF THE DATA

The global paleoclimatic data for the 6000 yr B. P. period can be used for testing results from climate model simulations. This work is critical for understanding the effects of increasing atmospheric carbon dioxide concentrations on the climate. It has already been shown that the seasonal variation in solar radiation between the present and 6000 years B. P. can lead to systematic and significant changes in the climatic patterns that are simulated by the climate models (Kutzbach 1981; Kutzbach and Guetter 1984).

6. LIMITATIONS/RESTRICTIONS

The majority of the sites (622) contain pollen data, with lake level samples (119) and marine plankton (56) being less abundant. Coverage for the pollen data is densest in eastern North America, Europe, the western portion of the Soviet Union, and New Zealand. Sparse networks also exist in Alaska, South America, and the eastern portion of the Soviet Union. The coverage for sites with lake level data is densest in Africa, southwestern United States, and southern Australia. The lake level sites provide coverage in many of the terrestrial areas where the pollen sites are sparse. The areas containing the most marine plankton data are the North Atlantic Ocean and the northwestern Indian Ocean. A series of procedures for obtaining interpolated values for the pollen percentages have been described in Webb et al. (1983a,b). The data for 6000 yr B. P. are stored as pollen percentages, with the sum of all tree shrub and herb pollen being used in the calculations.

Radiocarbon dates provided the main information used to estimate the age of each pollen sample. Radiocarbon dates and dense tephras were used to assign ages to the sample depths in cores or in sedimentary exposures of the lake samples (Street and Grove 1979; Street-Perrott and Harrison (1985; Street-Perrott and Roberts 1983; Smith and Street-Perrott 1983). The plankton data were compiled from available radiocarbon-dated marine cores with high enough sedimentation rates and closely spaced samples to record Holocene climatic variations (Ruddiman and McIntyre 1981).

7. DESCRIPTION OF VARIABLES AND FORMATS

The dataset consists of 55 files. Appendix A of Webb (1985), which is included in this package as a critical document contains the master format file which defines the files and their organization. The total dataset is subdivided into nine groups of computer files by data type (pollen, lake level, or marine plankton), and for pollen and marine plankton data, by geographic regions. Each of the nine groups includes a FORMAT file that describes the format and contents of each of the other files, an INDEX file that contains in a tabular format, descriptive information about each site and its data, a DATA file that contains the data and available climatic estimates, a PUBINDEX file containing an index number for locating the bibliographic citations associated with each site, and a REFERENCE file that contains the bibliographic citations.

8. KEYWORDS

PALEOCLIMATIC DATA; HOLOCENE; POLLEN; MARINE PLANKTON; LAKES; GEOGRAPHIC DISTRIBUTION

9. REFERENCES

CLIMAP Project Members. 1976. The surface of the ice-age earth. Science 191:1131-1137.

Kutzbach, J. E. 1981. Monsoon climate of the early Holocene: climate experiment with the earth's orbital parameters for 9000 years ago. Science 214:59-61.

Kutzbach, J. E. and P. J. Guetter. 1984. Sensitivity of late-glacial and Holocene climates to the combined effects of orbital parameter changes and lower boundary condition changes: snapshot simulations with a general circulation model for 18,000, 9000, and 6000 years ago. Annals of Glaciology 5:85-87.

Ruddiman, W. F. and A. McIntyre. 1981. The North Atlantic Ocean during the last deglaciation. Paleogeography, Paleoclimatology, Paleoecology 35:145-214.

Smith, G. I. and F. A. Street-Perrott. 1983. Pluvial lakes of the western United States. IN S. C. Porter, ed. Late Quaternary Environments of the United States, Volume 1, The Late Pleistocene, pp. 190-212. University of Minnesota Press, Minneapolis.

Street, F. A. and A. T. Grove. 1979. Global maps of lake-level fluctuations since 30,000 B. P. Quaternary Research 10:83-118.

Street-Perrott, F. A. and N. Roberts. 1983. Fluctuations in closed-basin lakes as an indicator of past atmospheric circulation patterns. IN F. A. Street-Perrott, M. Beran, and R. A. S. Radcliffe, eds. Variations in the Global Water Budget, pp. 331-345. D. Reidel Publishing Co., Dordrecht.

Webb, T. III, E. J. Cushing, and H. E. Wright, Jr. 1983a. Holocene changes in the vegetation of the Midwest. IN H. E. Wright, Jr., ed. Late Quaternary Environments in the United States, Vol. 2, The Holocene, pp. 142-165. University of Minnesota Press, Minneapolis.

Webb, T. III, P. J. H. Richard, and R. J. Mott. 1983b. A mapped history of the Holocene vegetation in southern Quebec. Syllogeus 49:273-336.

10. CONTENTS OF THE DATA PACKAGE

The package contains 55 files of information written in EBCDIC onto magnetic tape as card images. The contents of each file is defined in the Data Description section.

The following pertinent literature is also included:

Webb, T. III. 1985. A Global Paleoclimatic Data Base for 6000 yr B.P. TR018, DOE/EV/10097-6, Carbon Dioxide Research Division, U. S. Department of Energy, Washington, DC.

11. HOW TO OBTAIN THE DATA

The documentation of NDP-011 contains a sample listing and description of the data files for the use of requestors who may not need the computerized data. Requests for computerized data should be accompanied by a reel of tape and special instructions for transmitting the data. Tape requests not accompanied by a reel of tape or instructions will be filled with a standard labeled, 6250 BPI, 9-track density tape with files formatted as listed in the tape contents section.

Requests should be addressed to:

Carbon Dioxide Information Center
Oak Ridge National Laboratory
Post Office Box X
Oak Ridge, Tennessee 37831-2008 USA
(615) 574-0390
FTS 624-0390

12. NUMERIC DATA PACKAGE PREPARED BY:

Carbon Dioxide Information Center
Oak Ridge National Laboratory
Post Office Box X
Oak Ridge, Tennessee 37831-2008

Technical Coordinator(s) - Julia A. Watts

Computer Coordinator(s) - Julia A. Watts

Package Coordinator(s) - Donna M. Stokes

13. DATE OF ABSTRACT

August 1985

MAGNETIC TAPE CONTENTS

Tape Information ________
Density ________ 9 Track

Package NDP-011
Date Packaged: 08-85
Most Recent Update:

File # and Description	Mode	Logical Records	DCB Parameters		
1. Tape information	EBCDIC		FB	8000	80
2. Retrieval program	EBCDIC		FB	8000	80
3. Master format	EBCDIC		FB	1320	132
4. Country codes	EBCDIC		FB	8000	80
5. State codes	EBCDIC		FB	8000	80
6. Dating methods	EBCDIC		FB	8000	80
7. Site type codes	EBCDIC		FB	8000	80
8. Data type codes	EBCDIC		FB	8000	80
9. Dating control	EBCDIC		FB	8000	80
10. Master index	EBCDIC		FB	1320	132
11. ENA format	EBCDIC		FB	1320	132
12. ENA index	EBCDIC		FB	1320	132
13. ENA data	EBCDIC		FB	1320	132
14. ENA pubindex	EBCDIC		FB	8000	80
15. ENA reference	EBCDIC		FB	8000	80
16. Alaska format	EBCDIC		FB	1320	132
17. Alaska index	EBCDIC		FB	1320	132
18. Alaska data	EBCDIC		FB	1320	132
19. Alaska pubindex	EBCDIC		FB	9000	90
20. Alaska reference	EBCDIC		FB	9000	90
21. Europe format	EBCDIC		FB	1320	132
22. Europe index	EBCDIC		FB	1320	132
23. Europe data	EBCDIC		FB	8000	80
24. Europe pubindex	EBCDIC		FB	8000	80
25. Europe reference	EBCDIC		FB	8000	80
26. USSR format	EBCDIC		FB	1320	132
27. USSR index	EBCDIC		FB	1320	132
28. USSR data	EBCDIC		FB	1320	132
29. USSR pubindex	EBCDIC		FB	8000	80
30. USSR reference	EBCDIC		FB	8000	80
31. Lake level format	EBCDIC		FB	1320	132
32. Lake level index	EBCDIC		FB	1320	132
33. Lake level data	EBCDIC		FB	8000	80
34. Lake level pubindex	EBCDIC		FB	8000	80
35. Lake level reference	EBCDIC		FB	9000	90
36. Atlantic format	EBCDIC		FB	1320	132
37. Atlantic index	EBCDIC		FB	1320	132
38. Atlantic data	EBCDIC		FB	8000	80
39. Atlantic pubindex	EBCDIC		FB	8000	80

MAGNETIC TAPE CONTENTS (continued)

File # and Description	Mode	DCB Parameters		
40. Atlantic reference	EBCDIC	FB	8000	80
41. Indian format	EBCDIC	FB	1320	132
42. Indian index	EBCDIC	FB	1320	132
43. Indian data	EBCDIC	FB	8000	80
44. Indian pubindex	EBCDIC	FB	8000	80
45. Indian reference	EBCDIC	FB	8000	80
46. S. America format	EBCDIC	FB	1320	132
47. S. America index	EBCDIC	FB	1320	132
48. S. America data	EBCDIC	FB	1320	132
49. S. America pubindex	EBCDIC	FB	9000	90
50. S. America reference	EBCDIC	FB	8000	80
51. New Zealand format	EBCDIC	FB	1320	132
52. New Zealand index	EBCDIC	FB	1320	132
53. New Zealand data	EBCDIC	FB	1320	132
54. New Zealand pubindex	EBCDIC	FB	8000	80
55. New Zealand reference	EBCDIC	FB	8000	80

MAGNETIC TAPE DESCRIPTIVE FILE

Dataset Title: Global Paleoclimatic Data for 6000 yr B.P.

Contributor: Thompson Webb III
Department of Geological Sciences
Brown University
Providence, Rhode Island

Scope of the Data: Pollen, lake level and marine plankton data on a regional and global scale are included in this dataset. Where possible, quantitative paleoclimatic values have been estimated from these data. The data can be used to test climate model simulations for past climates and the model simulations of the effects of increasing atmospheric carbon dioxide on the climate.

Data Format: The data are formatted as 54 files, as described in Table 1.

REFERENCE(S)

Webb, T. III. 1985. A Global Paleoclimatic Data Base for 6000 yr B. P. TR018, DOE/EV/10097-6. Carbon Dioxide Research Division, U. S. Department of Energy, Washington, DC.

FORTRAN IV DATA RETRIEVAL PROGRAM LISTING

```
      DIMENSION DATA(80)
C  INPUT REFERENCE NUMBER
      INP=5
C   OUTPUT REFERENCE NUMBER (DEFAULT=6, LINE PRINTER)
      IOUT=6
C  READ ALL 53 FILES OF DATA ON THE TAPE AND PRINT OUT
      DO 10 J=1,53
1     CONTINUE
      READ(INP,100,END=99) (DATA(I),I=1,80)
100   FORMAT(80A1)
      WRITE(IOUT,200) (DATA(I),I=1,80)
200   FORMAT(1H ,80A1)
      GO TO 1
C   READ OVER TAPE MARKS WITH DUMMY STATEMENT
99    READ(INP,110) DUMMY
      READ(INP,110) DUMMY
110   FORMAT (A4)
10    CONTINUE
       STOP
       END
```

TABLE 1. Contents of the 6000 yr. B.P. tape.

Label 1: MASTER.FORMAT

This file contains a description of the layout of the 6K data tape. The tape includes documenation as well as data files.

The tape contains pollen, lake level, and marine plankton data from 6000 yr. B.P. and was prepared by T. Webb and R. Arigo at Brown University, Spring, 1984.

The data appears in files subdivided by region and data type. Pollen data are in the subdivisions: ENA (Eastern North America), ALASKA (Northwest Canada and Alaska), EUROPE, USSR, and SAMERICA (South America), and NEWZEAL (New Zealand). The subdivision LAKELEVL (Lake Level) contains a global set of data on lake levels (i.e. the scaled height of water levels in lakes). The subdivisions ATLANTIC (Atlantic Ocean) and INDIAN (Indian Ocean) contain planktonic foraminifera data from these oceans, and data from isolated cores in the Pacific and Southern Oceans are also included in the subdivision ATLANTIC. Within each region, files with the filetype of FORMAT (e.g. ENA.FORMAT) contain documentation pertaining to the data files for that particular region.

Label 2: COUNTRY.CODES

This file contains a list of country names along with its associated index number. The country codes appear in all *.INDEX files (where * is MASTER, ENA, ALASKA, EUROPE, USSR, LAKELEVL, ATLANTIC, INDIAN, SAMERICA, or NEWZEAL).

Field Name	Beginning Column	Ending Column	Field Description
Country code	3	4	
Country name	7	30	

Label 3: STATE.CODES

This file contains a list of state names, Canadian provinces, and U.S. territories along with their postal abbreviations. The state codes appear in all *.INDEX files.

Field Name	Beginning Column	Ending Column	Field Description
Postal abbreviation	2	3	
State name	7	35	

Label 4: DATING.METHODS

This file contains a list of dating methods used along with its associated index number. Some dating methods are a combination of 2 or more dating methods previously listed. The combinations are listed by dating method number. This code appears for each site in all *.INDEX files.

Field Name	Beginning Column	Ending Column	Field Description
Dating method number	1	2	
Dating method	5	55	

TABLE 1. (continued)

Label 5: SITETYPE.CODES

This file contains a list of site type codes along with a description of the code. The sitetype code character is left justified in its field. This code is used in describing the sites in all *.INDEX files.

Field Name	Beginning Column	Ending Column	Field Description
Site type code	1	2	
Site type	6	30	

Label 6: DATATYPE.CODES

This file contains a list of data type codes along with a description of the code. The data type codes appear in all *.INDEX files.

Field Name	Beginning Column	Ending Column	Field Description
Data type code	1	2	
Data type	6	30	

Label 7: DATING.CONTROL

This file contains a list of codes (1 to 7) that rank the degree of dating control for the data at a selected date, e.g. 6000 yr. B.P. These codes appear in all *.INDEX files.

Field Name	Beginning Column	Ending Column	Field Description
Dating control code	1	1	
Dating control	5	50	

Label 8: MASTER.INDEX

This file contains information about each site in each subdivision of the global data set. There is one line of information per site.

Field Name	Beginning Column	Ending Column	Field Description
TAPE ID number	2	6	
Dataset ID number	10	12	
Site name	15	44	
Latitude in degrees	47	48	
Latitude in minutes	50	51	
Latitude character	53	53	N=North, S=South
Latitude in decimal	55	60	
Longitude in degrees	63	65	
Longitude in minutes	67	68	
Longitude character	70	70	W=West, E=East
Longitude in decimal	72	78	
Elevation in meters	81	86	
Postal code	89	90	Refer to Label 3: STATE.CODES
Country code	93	94	Refer to Label 2: COUNTRY.CODES
Sitetype code	97	98	Refer to Label 5: SITETYPE.CODES
Type of data	101	102	Refer to Label 6: DATATYPE.CODES
Publication number	105	109	Refer to *.PUBINDEX files
Number of C-14 dates	112	115	
Dating control code	120	121	Refer to Label 7: DATING.CONTROL
Dating method code	124	125	Refer to Label 4: DATING.METHODS

TABLE 1. (continued)

Label 9: ENA.FORMAT

Describes the information and its format in each of the other ENA files.

Label 10: ENA.INDEX

Provides descriptive information about each site in ENA and its data.

Label 11: ENA.DATA6K

Contains the pollen data and available climatic estimates from each site in ENA for 6000 yr. B.P. Data compiled by T. Webb and P.J. Bartlein.

Label 12: ENA.PUBINDEX

Lists the index number for each publication along with the author and date.

Label 13: ENA.REFERENC

Lists the reference number along with the full bibliographic references.

Label 14: ALASKA.FORMAT

Describes the information and its format in each of the other ALASKA files.

Label 15: ALASKA.INDEX

Provides descriptive information about each site in ALASKA and its data.

Label 16: ALASKA.DATA6K

Contains pollen data from each site in ALASKA for 6000 yr. B.P. Data suppled by P.M. Anderson.

Label 17: ALASKA.PUBINDEX

Lists the index number for each publication along with the author and date.

Label 18: ALASKA.REFERENC

Lists the reference number along with full bibliographic references for the data.

Label 19: EUROPE.FORMAT

Describes the information and its format in each of the other EUROPE files.

Label 20: EUROPE.INDEX

Provides descriptive information about each site in EUROPE and its data.

Label 21: EUROPE.DATA6K

Contains pollen data and available temperature estimates from each site in EUROPE for 6000 yr. B.P. Data supplied by B. Huntley and I.C. Prentice.

TABLE 1. (continued)

Label 22: EUROPE.PUBINDEX

Lists the index number for each publication and an abbreviated reference.

Label 23: EUROPE.REFERENC

See Label 22: EUROPE.PUBINDEX for abbreviated references.

Label 24: USSR.FORMAT

Describes the information and its format in each of the other USSR files.

Label 25: USSR.INDEX

Provides descriptive information about each site in the USSR and its data.

Label 26: USSR.DATA6K

Contains pollen data from each site in the USSR for 6000 yr. B.P. Data supplied by G.M. Peterson.

Label 27: USSR.PUBINDEX

Lists the index number for each publication along with the autnor and date.

Label 28: USSR.REFERENC

Lists the reference number along with the full bibliographic references for the data.

Label 29: LAKELEVL.FORMAT

Describes the information and its format in each of the other LAKELEVL files.

Label 30: LAKELEVL.INDEX

Provides descriptive information about each LAKELEVL site and its data.

Label 31: LAKELEVL.DATA6K

Contains information about the relative water level (high, intermediate, low) at each site for 6000 yr. B.P. Data supplied by F.A. Street-Perrott, S. Harrison, and N. Roberts.

Label 32: LAKELEVL.PUBINDEX

Lists the index number for each publication along with its associated reference numbers.

Label 33: LAKELEVL.REFERENC

Lists the reference number for each reference along with the author(s), date and full reference for the data.

TABLE 1. (continued)

Label 34: ATLANTIC.FORMAT

Describes the information and its format in each of the other ATLANTIC files.

Label 35: ATLANTIC.INDEX

Provides descriptive information about each site in the ATLANTIC Ocean and its data.

Label 36: ATLANTIC.DATA6K

Contains foraminifera data and sea-surface temperature estimates for 6000 yr. B.P. Data supplied by W.F. Ruddiman and J. Morley.

Label 37: ATLANTIC.PUBINDEX

Lists the index number for each publication along with its associated reference numbers.

Label 38: ATLANTIC.REFERENC

Lists the reference number along with the full bibliographic references for the data.

Label 39: INDIAN.FORMAT

Describes the information and its format in each of the other INDIAN files.

Label 40: INDIAN.INDEX

Provides descriptive information about each site in the INDIAN Ocean and its data.

Label 41: INDIAN.DATA6K

Contains foraminifera data and sea-surface temperature estimates for 6000 yr. B.P. Data supplied by W.L. Prell and R. Marvil.

Label 42: INDIAN.PUBINDEX

Lists the index number for each publication along with its associated reference numbers.

Label 43: INDIAN.REFERENC

Lists the reference number along with the full bibliographic references for the data.

Label 44: SAMERICA.FORMAT

Describes the information and its format in each of the other SAMERICA files.

Label 45: SAMERICA.INDEX

Provides descriptive information about each site in SAMERICA and its data.

Label 46: SAMERICA.DATA6K

Contains pollen data from each site in SAMERICA for 6000 yr. B.P. Data supplied by V. Markgraf.

Label 47: SAMERICA.PUBINDEX

Lists the index number for each publication along with the reference

TABLE 1. (concluded)

numbers, author(s), and date for SAMERICA.

Label 48: SAMERICA.REFERENC

Lists the reference number along with the full bibliographic references for the data.

Label 49: NEWZEAL.FORMAT

Describes the information and its format in each of the other NEWZEAL files.

Label 50: NEWZEAL.INDEX

Provides descriptive information about each site in NEWZEAL and its data.

Label 51: NEWZEAL.DATA6K

Contains pollen data from each site in NEWZEAL for 6000 yr. B.P. Data supplied by M.S. McGlone.

Label 52: NEWZEAL.PUBINDEX

Lists the index number for each publication along with the reference numbers, author(s), and date for the data.

Label 53: NEWZEAL.REFERENC

Lists the reference number along with the full bibliographic references for NEWZEAL.

	FORMAT	INDEX	DATA6K	PUBINDEX	REFERENC
ENA	Label 9	Label 10	Label 11	Label 12	Label 13
ALASKA	Label 14	Label 15	Label 16	Label 17	Label 18
EUROPE	Label 19	Label 20	Label 21	Label 22	Label 23
USSR	Label 24	Label 25	Label 26	Label 27	Label 28
LAKELEVL	Label 29	Label 30	Label 31	Label 32	Label 33
ATLANTIC	Label 34	Label 35	Label 36	Label 37	Label 38
INDIAN	Label 39	Label 40	Label 41	Label 42	Label 43
SAMERICA	Label 44	Label 45	Label 46	Label 47	Label 48
NEWZEAL	Label 49	Label 50	Label 51	Label 52	Label 53

TABLE 2. An example of the master index files on the 6000 yr. B.P. tape.

1	1	Albion	45	40	N	45.67	71	19	W	-71.32	320	PQ	37	L	PO	200	4	1	1
2	2	Alderdale	46	3	N	46.05	79	12	W	-79.20	240	ON	37	B	PO	42	1	1	1
3	3	Alexander Lake	53	20	N	53.33	60	35	W	-60.58	143	LB	37	L	PO	178	3	1	1
4	4	Alexis Lake	52	31	N	52.52	57	2	W	-57.03	200	LB	37	L	PO	182	4	2	1
5	5	Alfies Lake	47	53	N	47.88	84	52	W	-84.87	288	ON	37	L	PO	205	3	4	1
6	6	Aliuk Pond	54	35	N	54.58	57	22	W	-57.37	25	LB	37	L	PO	178	2	2	1
7	7	Allenberg	42	15	N	42.25	78	52	W	-78.87	494	NY	36	B	PO	103	0	7	10
8	8	Anderson Pond	36	2	N	36.03	85	30	W	-85.50	305	TN	36	L	PO	280	10	2	1
9	9	Attawapisket	53	0	N	53.00	85	10	W	-85.17	100	ON	37	B	PO	42	1	4	1
10	10	Baie St. Paul -- Ange	47	28	N	47.47	70	41	W	-70.68	640	PQ	37	L	PO	230	7	1	1
11	11	Ballycroy Bog	43	57	N	43.95	79	52	W	-79.87	297	ON	37	B	PO	160	2	4	1
12	12	Base de Plein Air de St.Foy	46	47	N	46.78	71	20	W	-71.33	16	PQ	37	B	PO	183	2	5	1
13	13	Basswood Road Lake	45	15	N	45.25	67	20	W	-67.33	106	NB	37	L	PO	192	3	1	1
14	14	Belmont Bog	42	15	N	42.25	77	55	W	-77.92	497	NY	36	B	PO	125	6	4	1
15	15	Bereziuk	54	3	N	54.05	76	7	W	-76.12	205	PQ	37	L	PO	201	3	1	1
16	16	Berry Pond	42	30	N	42.50	73	19	W	-73.32	600	MA	36	L	PO	222	16	2	1
17	17	Big Pond	39	46	N	39.77	78	33	W	-78.55	634	PA	36	L	PO	219	1	5	1
18	18	Blackington Lake	47	54	N	47.90	84	52	W	-84.87	261	ON	37	L	PO	206	2	4	1
19	19	Bog D	47	11	N	47.18	95	10	W	-95.17	457	MN	36	L	PO	11	4	3	1
20	20	Boundary	45	34	N	45.57	70	41	W	-70.68	603	ME	36	L	PO	193	5	3	1
21	21	Boundary Lake	55	15	N	55.25	67	24	W	-67.40	525	PQ	37	L	PO	314	6	1	1
22	22	Brandreth Lake	43	55	N	43.92	74	41	W	-74.68	583	NY	36	B	PO	197	5	1	1
23	23	Brown's Lake Bog	40	41	N	40.68	82	3	W	-82.05	290	OH	36	B	PO	158	11	2	1
24	24	Bugbee Bog	44	22	N	44.37	72	9	W	-72.15	398	VT	36	B	PO	190	4	2	1
25	25	BL-Tombigbee	33	33	N	33.55	88	28	W	-88.47	49	AL	36	L	PO	136	5	3	1
26	26	Cahaba Pond	33	34	N	33.57	86	31	W	-86.52	204	AL	36	L	PO	281	13	2	1
27	27	Camp 11 Lake	46	40	N	46.67	88	1	W	-88.02	549	MI	36	L	PO	24	11	1	1
28	28	Charles Lake	44	44	N	44.73	81	1	W	-81.02	219	ON	37	L	PO	26	1	4	1
29	29	Chatsworth Bog	40	40	N	40.67	88	20	W	-88.33	219	IL	36	B	PO	181	8	1	1
30	30	Chippewa Bog	43	7	N	43.12	83	15	W	-83.25	262	MI	36	B	PO	284	4	2	1
31	31	Chism-I	54	48	N	54.80	76	9	W	-76.15	340	PQ	37	L	PO	201	1	6	1
32	32	Chism-II	53	5	N	53.08	76	19	W	-76.32	273	PQ	37	L	PO	201	1	4	1
33	33	Clear Lake	41	39	N	41.65	86	32	W	-86.53	244	IN	36	L	PO	285	5	3	1
34	34	Cookstown Bog	44	13	N	44.22	79	37	W	-79.62	234	ON	37	B	PO	160	1	5	1
35	35	Cranberry Glades	38	12	N	38.20	80	17	W	-80.28	1029	WV	36	B	PO	219	3	1	1
36	36	Crawford Bog	43	28	N	43.47	79	57	W	-79.95	279	ON	37	B	PO	299	0	7	10
37	37	Crider's Pond	39	58	N	39.97	77	33	W	-77.55	290	PA	36	L	PO	219	4	5	1
38	38	Crystal Lake	43	15	N	43.25	84	55	W	-84.92	260	MI	36	L	PO	226	2	7	1
39	39	Crystal Lake	41	33	N	41.55	80	22	W	-80.37	313	PA	36	L	PO	88	1	4	1
40	40	Cycloid Lake	55	16	N	55.27	105	16	W	-105.27	369	SK	37	L	PO	306	2	1	1
41	41	Daumont Lake	54	52	N	54.87	69	24	W	-69.40	600	PQ	37	L	PO	213	4	3	1
42	42	Deer Lake Bog	44	2	N	44.03	71	50	W	-71.83	1325	NH	36	B	PO	318	6	2	1
43	43	Demont Lake	43	29	N	43.48	85	0	W	-85.00	248	MI	36	L	PO	180	5	2	1
44	44	Devils Lake	48	5	N	48.08	99	55	W	-99.92	448	ND	36	L	PO	299	1	2	1
45	45	Diana Island	60	59	N	60.98	69	57	W	-69.95	110	PQ	37	L	PO	200	3	1	1
46	46	Dismal Swamp (core no. 1)	36	23	N	36.38	76	30	W	-76.50	6	VA	36	B	PO	152	2	3	1
47	47	Disterhaft Farm Bog	43	55	N	43.92	89	10	W	-89.17	329	WI	36	B	PO	289	6	2	1
48	48	Dosquet	46	27	N	46.45	71	30	W	-71.50	140	PQ	37	B	PO	200	1	4	1
49	49	Dufresne	45	51	N	45.85	70	21	W	-70.35	650	PQ	37	L	PO	193	6	2	1
50	50	Eagle Lake	53	14	N	53.23	58	33	W	-58.55	400	LB	37	L	PO	288	5	1	1
51	51	Eagle Lake Bog	44	10	N	44.17	71	40	W	-71.67	1275	NH	36	B	PO	318	3	2	1
52	52	East Baltic Bog	46	26	N	46.43	62	7	W	-62.12	45	PE	37	B	PO	161	3	1	1
53	53	Edward Lake	44	22	N	44.37	80	15	W	-80.25	518	ON	37	L	PO	186	3	1	1
54	54	Farnham Bog	45	17	N	45.28	72	59	W	-72.98	55	PQ	37	B	PO	320	4	1	1
55	55	Found Lake	45	48	N	45.80	78	38	W	-78.63	488	ON	37	L	PO	186	7	1	1

TABLE 2. (continued)

56	56	Frains Lake	42	20	N	42.33	83	38	W	-83.63	271	MI	36	L	PO	272	9	1	1
57	57	Gabriel	46	16	N	46.27	73	28	W	-73.47	250	PQ	37	L	PO	200	5	2	1
58	58	Gea-l-- St. Hippolyte	45	59	N	45.98	73	59	W	-73.98	365	PQ	37	L	PO	202	1	5	1
59	59	Glenboro Lake	49	26	N	49.43	99	17	W	-99.28	450	MB	37	L	PO	273	5	6	1
60	60	Goshen Springs	31	43	N	31.72	86	8	W	-86.13	105	AL	36	L	PO	134	4	2	1
61	61	Grand Rapids	53	0	N	53.00	98	15	W	-98.25	350	MB	37	L	PO	274	3	1	1
62	62	Green Lake	44	53	N	44.88	85	7	W	-85.12	305	MI	36	L	PO	317	3	4	1
63	63	Grieff Kettle Bog	43	25	N	43.42	80	11	W	-80.18	268	ON	37	B	PO	42	1	4	1
64	64	Hack Pond	37	59	N	37.98	79	0	W	-79.00	451	VA	36	L	PO	55	2	4	1
65	65	Harrowsmith	44	25	N	44.42	76	42	W	-76.70	145	ON	37	B	PO	42	1	5	1
66	66	Hawley Bog Pond	42	34	N	42.57	72	53	W	-72.88	549	MA	36	L	PO	198	5	1	1
67	67	Hayes Lake	49	35	N	49.58	93	45	W	-93.75	391	ON	37	L	PO	297	3	1	1
68	68	Heart Lake	44	11	N	44.18	73	58	W	-73.97	664	NY	36	L	PO	227	8	1	1
69	69	Helmetta Bog	40	23	N	40.38	74	26	W	-74.43	15	NJ	36	B	PO	219	1	4	1
70	70	Horseshoe Lake	45	27	N	45.45	93	3	W	-93.05	331	MN	36	L	PO	307	12	1	1
71	71	Houghton Bog	42	32	N	42.53	78	40	W	-78.67	428	NY	36	L	PO	103	1	5	1
72	72	Hudson Lake	41	40	N	41.67	86	32	W	-86.53	239	IN	36	L	PO	285	6	3	1
73	73	Iglutalik Lake	66	8	N	66.13	66	5	W	-66.08	90	BF	37	L	PO	168	5	1	1
74	74	Jacobson Lake	46	25	N	46.42	92	43	W	-92.72	324	MN	36	L	PO	220	4	2	1
75	75	Jock Lake	48	41	N	48.68	86	27	W	-86.45	290	ON	37	L	PO	206	9	1	1
76	76	Joncas Bog	47	16	N	47.27	71	10	W	-71.17	747	PQ	37	B	PO	200	2	1	1
77	77	Joncas Lake	47	15	N	47.25	71	10	W	-71.17	780	PQ	37	L	PO	202	1	4	1
78	78	Kanaaupscow	54	1	N	54.02	76	38	W	-76.63	200	PQ	37	L	PO	201	1	4	1
79	79	Kenogami	48	22	N	48.37	71	34	W	-71.57	166	PQ	37	B	PO	200	2	1	1
80	80	Kincardine Bog	44	9	N	44.15	81	39	W	-81.65	198	ON	37	B	PO	160	4	4	1
81	81	Kinsman Pond	44	8	N	44.13	71	44	W	-71.73	1140	NH	36	L	PO	318	3	4	1
82	82	Kirchner Marsh	44	50	N	44.83	93	7	W	-93.12	254	MN	36	M	PO	278	6	1	1
83	83	Kogaluk Plateau Lake	56	4	N	56.07	63	45	W	-63.75	530	LB	37	L	PO	208	5	2	1
84	84	Kotiranta	46	43	N	46.72	92	37	W	-92.62	386	MN	36	L	PO	220	3	5	1
85	85	Lac des Atocas	45	32	N	45.53	73	18	W	-73.30	120	PQ	37	L	PO	294	4	1	1
86	86	Lac Bouleaux	45	33	N	45.55	73	19	W	-73.32	126	PQ	37	L	PO	229	2	6	1
87	87	Lac Castor	46	36	N	46.60	72	59	W	-72.98	220	PQ	37	L	PO	202	6	1	1
88	88	Lac Colin	46	43	N	46.72	70	18	W	-70.30	658	PQ	37	L	PO	193	8	1	1
89	89	Lac Delorme II	54	25	N	54.42	69	55	W	-69.92	538	PQ	37	L	PO	213	4	1	1
90	90	Lac Hamard	54	48	N	54.80	67	30	W	-67.50	564	PQ	37	L	PO	314	4	1	1
91	91	Lac Louis	47	17	N	47.28	79	7	W	-79.12	300	PQ	37	L	PO	101	3	1	1
92	92	Lac Martini	47	28	N	47.47	72	45	W	-72.75	242	PQ	37	L	PO	202	4	2	1
93	93	Lac Martyne	56	47	N	56.78	64	50	W	-64.83	365	PQ	37	L	PO	299	3	1	1
94	94	Lac Mimi	47	30	N	47.50	70	22	W	-70.37	411	PQ	37	L	PO	200	6	4	1
95	95	Lac Romer	45	58	N	45.97	73	20	W	-73.33	20	PQ	37	L	PO	166	4	1	1
96	96	Lac Tania	45	46	N	45.77	74	18	W	-74.30	305	PQ	37	L	PO	202	6	2	1
97	97	Lac a la Tortue	45	32	N	45.53	73	19	W	-73.32	137	PQ	37	L	PO	294	4	2	1
98	98	Lac Yelle	48	30	N	48.50	79	38	W	-79.63	355	PQ	37	L	PO	202	3	2	1
99	99	Lake Annie	27	12	N	27.20	81	21	W	-81.35	37	FL	36	L	PO	137	8	4	1
100	100	Lake of the Clouds	48	9	N	48.15	91	7	W	-91.12	453	MN	36	L	PO	304	30	1	1
101	101	Lake of the Clouds	44	16	N	44.27	71	19	W	-71.32	1542	NH	36	L	PO	318	5	4	1
102	102	Lake E	50	43	N	50.72	99	39	W	-99.65	724	MB	37	L	PO	275	8	1	1
103	103	Lake Louise	30	43	N	30.72	83	15	W	-83.25	61	GA	36	L	PO	99	3	4	1
104	104	Lake Mary	46	15	N	46.25	89	54	W	-89.90	488	WI	36	L	PO	22	3	3	1
105	105	Lake Rogerine	41	30	N	41.50	74	20	W	-74.33	137	NJ	36	L	PO	322	2	5	1
106	106	Lake West Okoboji	43	22	N	43.37	95	11	W	-95.18	415	IA	36	L	PO	216	10	1	1
107	107	Lanoraie, St. Henri Bog	45	59	N	45.98	73	18	W	-73.30	18	PQ	37	B	PO	166	6	1	1
108	108	Lantern Hill Pond	41	27	N	41.45	71	57	W	-71.95	36	CT	38	L	PO	191	5	1	1
109	109	"LD" Lake	50	8	N	50.13	67	7	W	-67.12	122	PQ	37	L	PO	196	2	2	1
110	110	Lima Bog	42	48	N	42.80	88	5	W	-88.08	238	WI	36	B	PO	316	8	2	1

TABLE 2. (continued)

111	111	Little Bass Lake	47	17	N	47.28	93	36	W	-93.60	391	MN	36	L	PO	277	5	1	1
112	112	Little Lake	45	9	N	45.15	66	43	W	-66.72	64	NB	37	L	PO	192	4	1	1
113	113	Lost Lake	46	43	N	46.72	87	58	W	-87.97	500	MI	36	L	PO	24	9	7	1
114	114	Lynn Lake	56	50	N	56.83	101	3	W	-101.05	340	MB	37	B	PO	323	6	1	1
115	115	Maclaughlin Pond	46	23	N	46.38	62	47	W	-62.78	24	PE	37	L	PO	361	5	2	1
116	116	Malbaie	47	36	N	47.60	70	58	W	-70.97	800	PQ	37	B	PO	200	2	3	1
117	117	Maplehurst	43	13	N	43.22	80	39	W	-80.65	300	ON	37	L	PO	194	6	2	1
118	118	Marcotte	47	4	N	47.07	71	25	W	-71.42	503	PQ	37	L	PO	230	5	1	1
119	119	Martin Pond	47	11	N	47.18	94	56	W	-94.93	429	MN	36	L	PO	11	0	7	10
120	120	Mauricie	46	47	N	46.78	72	50	W	-72.83	270	PQ	37	L	PO	200	5	2	1
121	121	Mer Bleue	45	24	N	45.40	75	30	W	-75.50	69	ON	37	B	PO	311	1	4	1
122	122	Mingo Pond	35	9	N	35.15	86	12	W	-86.20	300	TN	36	L	PO	280	0	7	10
123	123	Monhegan Island Meadow	43	46	N	43.77	69	18	W	-69.30	3	ME	36	B	PO	165	17	1	1
124	124	Mont Shefford	45	21	N	45.35	72	35	W	-72.58	282	PQ	37	B	PO	200	10	1	1
125	125	Mont Valin	48	36	N	48.60	70	50	W	-70.83	891	PQ	37	L	PO	202	4	1	1
126	126	Montagnais	47	54	N	47.90	71	10	W	-71.17	800	PQ	37	B	PO	200	4	4	1
127	127	Moulton Pond	44	37	N	44.62	68	38	W	-68.63	143	ME	36	L	PO	169	16	1	1
128	128	Muscotah Marsh	39	32	N	39.53	95	31	W	-95.52	320	KS	36	M	PO	2	4	2	1
129	129	Myrtle Lake	47	59	N	47.98	93	23	W	-93.38	393	MN	36	L	PO	177	5	1	1
130	130	Nain Pond	56	32	N	56.53	61	49	W	-61.82	80	LB	37	L	PO	208	8	2	1
131	131	Napaktok Lake	57	55	N	57.92	62	34	W	-62.57	143	LB	37	L	PO	293	5	2	1
132	132	Nelson Pond	46	24	N	46.40	92	41	W	-92.68	335	MN	36	L	PO	176	2	1	1
133	133	North Bay	46	27	N	46.45	79	28	W	-79.47	369	ON	37	B	PO	42	1	4	1
134	134	North Pond	42	39	N	42.65	73	3	W	-73.05	586	MA	36	L	PO	224	13	1	1
135	135	Nunkets Pond	41	58	N	41.97	71	3	W	-71.05	18	MA	36	L	PO	300	4	2	1
136	136	Old Field	37	7	N	37.12	89	50	W	-89.83	98	MO	36	B	PO	286	4	1	1
137	137	Palsa Lake	58	28	N	58.47	65	10	W	-65.17	143	PQ	37	L	PO	293	6	1	1
138	138	Pamet Cranberry Bog	42	0	N	42.00	70	2	W	-70.03	3	MA	36	B	PO	198	3	2	1
139	139	Panther Run Pond	40	48	N	40.80	77	25	W	-77.42	634	PA	36	L	PO	219	2	4	1
140	140	Paradise Lake	53	3	N	53.05	57	45	W	-57.75	180	LB	37	L	PO	288	3	1	1
141	141	Patricia Bay Lake	70	28	N	70.47	68	30	W	-68.50	11	BF	37	L	PO	319	1	1	1
142	142	Perch Lake	46	2	N	46.03	77	22	W	-77.37	160	ON	37	L	PO	299	1	4	1
143	143	Pickerel Lake	45	30	N	45.50	97	20	W	-97.33	395	SD	36	L	PO	221	3	2	1
144	144	Pink Lake	45	28	N	45.47	75	49	W	-75.82	162	PQ	37	L	PO	307	3	2	1
145	145	Poland Spring Pond	44	2	N	44.03	70	21	W	-70.35	94	ME	36	L	PO	315	11	1	1
146	146	Pond Mills Pond	42	55	N	42.92	81	15	W	-81.25	274	ON	37	L	PO	186	1	4	1
147	147	Portage	47	12	N	47.20	94	9	W	-94.15	396	MN	36	L	PO	299	3	2	1
148	148	Portage Bog	46	40	N	46.67	64	6	W	-64.10	8	PE	37	B	PO	161	3	3	1
149	149	Potts Mountain Pond	37	36	N	37.60	80	8	W	-80.13	840	VA	36	L	PO	219	2	4	1
150	150	Pretty Lake	41	35	N	41.58	85	15	W	-85.25	294	IN	36	L	PO	225	16	1	1
151	151	Princeville	46	8	N	46.13	71	56	W	-71.93	135	PQ	37	L	PO	200	0	7	10
152	152	Protection Bog	42	37	N	42.62	78	28	W	-78.47	430	NY	36	B	PO	103	3	2	1
153	153	Pyramid Hills Lake	57	38	N	57.63	65	10	W	-65.17	381	LB	37	L	PO	208	7	1	1
154	154	Qivituq Cliffs Peat	68	2	N	68.03	65	4	W	-65.07	20	BF	37	B	PO	319	2	1	1
155	155	Quicksand	34	19	N	34.32	84	52	W	-84.87	285	GA	36	L	PO	82	2	6	1
156	156	Ramsay Lake	45	36	N	45.60	76	6	W	-76.10	200	PQ	37	L	PO	307	5	2	1
157	157	Riley Lake	54	19	N	54.32	84	33	W	-84.55	142	ON	37	L	PO	296	2	2	1
158	158	Rockyhock Bay	36	10	N	36.17	76	41	W	-76.68	6	NC	36	B	PO	153	13	4	1
159	159	Rogers Lake	41	22	N	41.37	72	7	W	-72.12	91	CT	36	L	PO	170	53	2	1
160	160	Rossburg Bog	46	35	N	46.58	93	36	W	-93.60	372	MN	36	B	PO	220	4	2	1
161	161	Round Lake	41	14	N	41.23	86	38	W	-86.63	216	IN	36	L	PO	26	5	5	1
162	162	Rutz Lake	44	52	N	44.87	93	52	W	-93.87	314	MN	36	L	PO	218	8	1	1
163	163	Ryerse Lake	46	7	N	46.12	85	10	W	-85.17	259	MI	36	L	PO	298	6	1	1
164	164	Sam	46	39	N	46.65	72	58	W	-72.97	240	PQ	37	L	PO	202	6	2	1
165	165	Sav-I -- Ste. Agathe	46	3	N	46.05	74	28	W	-74.47	454	PQ	37	L	PO	204	3	3	1

TABLE 2. (continued)

166	166	Sav-II -- Lac aux Quenoilles	46 10 N	46.17	74 23 W	-74.38	403	PQ	37	L	PO	204	3	4	1
167	167	Second Lake	44 50 N	44.83	79 59 W	-79.98	196	ON	37	L	PO	299	1	7	1
168	168	Shady Valley Peat	36 31 N	36.52	81 56 W	-81.93	383	TN	36	B	PO	145	1	4	1
169	169	Shaw's Bog	45 1 N	45.02	64 11 W	-64.18	30	NS	37	B	PO	174	4	1	1
170	170	Shouldice Lake	45 9 N	45.15	81 25 W	-81.42	177	ON	37	L	PO	299	2	4	1
171	171	Silver Lake	44 33 N	44.55	63 38 W	-63.63	69	NS	37	L	PO	37	3	1	1
172	172	Silver Lake	40 26 N	40.43	83 40 W	-83.67	341	OH	36	L	PO	54	15	1	1
173	173	Sinkhole Pond	43 58 N	43.97	70 21 W	-70.35	95	ME	36	L	PO	315	12	1	1
174	174	St. Benjamin	46 17 N	46.28	70 36 W	-70.60	330	PQ	37	L	PO	200	1	4	1
175	175	St. Calixte	45 57 N	45.95	73 52 W	-73.87	261	PQ	37	L	PO	202	4	2	1
176	176	St. Francois de Sales	48 17 N	48.28	72 8 W	-72.13	358	PQ	37	L	PO	202	4	2	1
177	177	St. Germain	45 56 N	45.93	74 22 W	-74.37	473	PQ	37	L	PO	204	5	3	1
178	178	St. Jean, Ile d'Orleans	46 56 N	46.93	70 56 W	-70.93	68	PQ	37	B	PO	200	3	1	1
179	179	St. John's Island Pond	53 57 N	53.95	58 55 W	-58.92	137	LB	37	L	PO	178	2	1	1
180	180	St. Raymond	46 53 N	46.88	71 48 W	-71.80	160	PQ	37	B	PO	200	2	2	1
181	181	Stewart's Dark Lake	45 18 N	45.30	91 27 W	-91.45	335	WI	36	L	PO	199	6	1	1
182	182	Stotzel-Leis Site	40 13 N	40.22	84 41 W	-84.68	320	OH	36	B	PO	207	11	1	1
183	183	Szabo Pond	40 24 N	40.40	74 29 W	-74.48	29	NJ	36	L	PO	219	3	4	1
184	184	Tannersville Bog	41 2 N	41.03	75 16 W	-75.27	277	PA	36	B	PO	219	5	2	1
185	185	Terhell Pond	47 12 N	47.20	95 47 W	-95.78	442	MN	36	L	PO	11	1	7	1
186	186	Petit Lac Terrien	46 35 N	46.58	70 37 W	-70.62	404	PQ	37	L	PO	193	1	6	1
187	187	Thompson	47 12 N	47.20	96 5 W	-96.08	370	MN	36	L	PO	11	0	7	10
188	188	Titicut Swamp-I	41 57 N	41.95	71 2 W	-71.03	18	MA	36	B	PO	321	3	1	1
189	189	Tonawa Lake	44 51 N	44.85	77 10 W	-77.17	305	ON	37	L	PO	299	2	2	1
190	190	Torrens Bog	40 21 N	40.35	82 28 W	-82.47	302	OH	36	B	PO	157	13	1	1
191	191	Tunturi Lake	55 1 N	55.02	67 30 W	-67.50	610	PQ	37	L	PO	314	3	1	1
192	192	Ublik Lake	57 23 N	57.38	62 3 W	-62.05	122	LB	37	L	PO	208	4	1	1
193	193	Unknown Lake	45 37 N	45.62	70 38 W	-70.63	489	ME	36	L	PO	193	4	7	1
194	194	Upper South Branch Pond	46 5 N	46.08	68 54 W	-68.90	300	ME	36	L	PO	162	7	2	1
195	195	Upper Wallface Pond	44 9 N	44.15	74 3 W	-74.05	945	NY	36	L	PO	227	6	2	1
196	196	Val St. Gilles Bog	49 1 N	49.02	79 5 W	-79.08	290	PQ	37	B	PO	33	2	1	1
197	197	Van Nostrand Lake	44 0 N	44.00	79 23 W	-79.38	297	ON	37	L	PO	189	2	3	1
198	198	Vestaburg	43 25 N	43.42	84 53 W	-84.88	255	MI	36	L	PO	91	4	2	1
199	199	Victoria Road Bog	44 37 N	44.62	78 57 W	-78.95	274	ON	37	B	PO	42	1	4	1
200	200	Volo Bog	42 21 N	42.35	88 11 W	-88.18	229	IL	36	B	PO	181	6	1	1
201	201	Weber Lake	47 28 N	47.47	91 40 W	-91.67	567	MN	36	L	PO	13	4	4	1
202	202	Blue Mound	43 5 N	43.08	89 52 W	-89.87	335	WI	36	B	PO	112	4	1	1
203	203	White Pond	34 10 N	34.17	80 46 W	-80.77	90	SC	36	L	PO	133	3	4	1
204	204	Whitney's Gulch	51 31 N	51.52	57 18 W	-57.30	98	LB	37	L	PO	288	5	2	1
205	205	Willow River Pond	46 20 N	46.33	92 47 W	-92.78	314	MN	36	L	PO	176	2	1	1
206	206	Wintergreen Lake	42 24 N	42.40	85 23 W	-85.38	283	MI	36	L	PO	163	8	2	1
207	207	Woden Bog	43 14 N	43.23	93 55 W	-93.92	381	IA	36	B	PO	295	6	1	1
208	208	Wolverine Lake	46 25 N	46.42	85 39 W	-85.65	259	MI	36	L	PO	298	5	1	1
209	209	Wood Lake	45 20 N	45.33	90 5 W	-90.08	464	WI	36	L	PO	175	6	1	1
210	210	Yamaska	45 28 N	45.47	72 52 W	-72.87	265	PQ	37	L	PO	202	7	1	1
211	211	Yellow Dog Lake	46 45 N	46.75	87 57 W	-87.95	445	MI	36	L	PO	24	9	1	1
2002	2	Adak Island	51 54 N	51.90	176 38 W	-176.63	60	AK	36	PT	PO	2030	0	1	10
2003	3	Antifreeze Pond	62 21 N	62.35	140 50 W	-140.83	610	YT	37	L	PO	2039	4	2	1
2005	5	Birch Lake	64 19 N	64.32	146 40 W	-146.67	275	AK	36	L	PO	2001	6	2	1
2007	7	Brooks River	58 43 N	58.72	156 0 W	-156.00	10	AK	36	PT	PO	2028	2	5	1
2009	9	Chandler Lake	68 15 N	68.25	152 42 W	-152.70	950	AK	36	L	PO	2033	0	7	10
2010	10	Chapman	64 52 N	64.87	138 19 W	-138.32		YT	37	PT	PO	2048	3	4	1
2011	11	Death Valley Lake	67 10 N	67.17	151 25 W	-151.42	300	AK	36	L	PO	2033	0	7	10
2013	13	Eight Lake	68 8 N	68.13	152 50 W	-152.83	900	AK	36	L	PO	2033	0	7	10
2015	15	Epiguruk I	67 5 N	67.10	158 10 W	-150.28	91	AK	36	CO	PO	2062	2	3	1

TABLE 2. (continued)

2018	18	Flora Lake	63 30 N	63.50	170 30 W	-170.50	15	AK	36	L	PO	2018	1	4	1
2020	20	George Lake	63 47 N	63.78	144 35 W	-144.58	389	AK	36	L	PO	2002	5	3	1
2021	21	Gill Lake	65 26 N	65.43	139 42 W	-139.70	122	YT	37	PT	PO	2048	1	6	1
2024	24	Hanging Lake 2	68 23 N	68.38	138 23 W	-138.38	500	YT	37	L	PO	2054	14	1	1
2034	34	Kaiyak Lake	68 7 N	68.12	161 25 W	-161.42	190	AK	36	L	PO	2008	6	2	1
2043	43	Lake M	68 8 N	68.13	133 38 W	-133.63	105	NT	37	L	PO	2042	5	2	1
2044	44	Lateral Pond	66 0 N	66.00	136 0 W	-136.00	500	YT	37	L	PO	2054	5	4	1
2047	47	Nome	64 30 N	64.50	165 25 W	-165.42	4	AK	36	PT	PO	2031	2	7	1
2049	49	Old Crow Flats	68 0 N	68.00	140 0 W	-140.00	381	YT	37	CO	PO	2032	4	4	1
2063	63	Squirrel Lake	67 6 N	67.10	160 23 W	-160.38	91	AK	36	L	PO	2008	5	7	1
2064	64	Puyuk Lake (St. Michael)(	63 30 N	63.48	162 12 W	-162.03	25	AK	36	L	PO	2001	2	4	1
2067	67	Tuktoyaktuk 5	69 3 N	69.05	133 27 W	-133.45	60	NK	37	L	PO	2061	5	2	1
2068	68	Tungak Lake (Ingakslugwat)	61 23 N	61.38	164 1 W	-164.02	60	AK	36	L	PO	2001	4	2	1
2073	73	Umiat	69 24 N	69.40	152 6 W	-152.10	107	AK	36	CO	PO	2034	3	1	1
2075	75	Whitefish Lake	66 4 N	66.07	165 3 W	-165.05	12	AK	36	L	PO	2046	3	1	1
3001	1	Tregaron Bog	52 13 N	52.22	3 55 W	-3.92	165	.	5	T	PO	3096	18	1	1
3003	3	Nant Ffrancon	53 11 N	53.18	4 3 W	-4.05	198	.	5	L	PO	3096	20	1	1
3004	4	Din Moss	55 35 N	55.58	2 20 W	-2.33	170	.	28	T	PO	3096	18	1	1
3005	5	Red Moss	53 37 N	53.62	2 33 W	-2.55	107	.	8	T	PO	3097	16	1	1
3006	6	Scaleby Moss	54 58 N	54.97	2 54 W	-2.90	30	.	8	T	PO	3401	19	1	1
3007	7	Loch Maree	57 41 N	57.68	5 29 W	-5.48	10	.	28	L	PO	3174	6	1	1
3008	8	Abernethy Forest	57 14 N	57.23	3 43 W	-3.72	221	.	28	T	PO	3175	7	1	1
3009	9	By Loch Assynt	58 10 N	58.17	5 3 W	-5.05	70	.	28	T	PO	3176	9	1	1
3011	11	Loch Dungeon	55 8 N	55.13	4 19 W	-4.32	305	.	28	L	PO	3177	0	3	10
3012	12	Hockham Mere	52 30 N	52.50	0 50 E	0.83		.	8	O	PO	3128	0	3	10
3013	13	Lake Trummen	56 52 N	56.87	14 50 E	14.83	161	.	31	L	PO	3129	30	1	1
3014	14	Loch Cill An Aonghais	55 47 N	55.78	5 32 W	-5.53	30	.	28	O	PO	3366	8	1	1
3015	15	Lake Striern	58 5 N	58.08	15 47 E	15.78	87	.	31	L	PO	3141	15	1	1
3016	16	Farskesjon	56 10 N	56.17	15 52 E	15.87	14	.	31	L	PO	3037	0	3	10
3017	17	Vuolep Njakajaure	68 20 N	68.33	18 45 E	18.75	408	.	31	L	PO	3300	5	1	1
3019	19	Ranviken Bay	56 16 N	56.27	14 18 E	14.30	81	.	31	L	PO	3130	25	1	1
3022	22	Edanger	63 3 N	63.05	18 17 E	18.28	95	.	31	T	PO	3329	4	1	1
3023	23	Halla	63 52 N	63.87	17 12 E	17.20	288	.	31	T	PO	3329	6	1	1
3024	24	Agerods Mosse	55 50 N	55.83	13 25 E	13.42	58	.	31	T	PO	3372	33	1	1
3027	27	Gladvattnet	56 47 N	56.78	16 36 E	16.60	<50	.	31	T	PO	3269	0	3	10
3029	29	Bracke	62 44 N	62.73	15 30 E	15.50	475	.	31	T	PO	3290	0	4	10
3031	31	Smorsjoarna	58 33 N	58.55	11 52 E	11.87	141	.	31	T	PO	3291	0	3	10
3032	32	Kroppsjon	58 22 N	58.37	13 30 E	13.50	<200	.	31	L	PO	3292	0	3	10
3033	33	Mossbymossen	59 8 N	59.13	15 9 E	15.15	54	.	31	T	PO	3362	0	4	10
3034	34	Kelottijanka	68 34 N	68.57	22 0 E	22.00	360	.	11	T	PO	3282	5	1	1
3035	35	Domsvatnet	70 19 N	70.32	31 2 E	31.03	120	.	25	L	PO	3147	5	1	1
3036	36	Parvavuoma	67 35 N	67.58	25 0 E	25.00	178	.	11	T	PO	3077	0	3	10
3037	37	Kaakkurilampi	67 3 N	67.05	28 56 E	28.93	180	.	11	T	PO	3327	3	1	1
3038	38	Maanselansuo	65 38 N	65.63	29 37 E	29.62	257	.	11	T	PO	3411	0	3	10
3039	39	Bruvatnet	70 11 N	70.18	28 25 E	28.42	119	.	25	L	PO	3148	5	1	1
3040	40	Suovalampi	69 35 N	69.58	28 50 E	28.83	104	.	11	L	PO	3148	5	1	1
3041	41	Akuvaara	69 8 N	69.13	27 41 E	27.68	170	.	11	L	PO	3148	5	1	1
3042	42	Sompiojarvi	68 5 N	68.08	27 30 E	27.50	242	.	11	L	PO	3298	0	3	10
3043	43	Kapusta	66 20 N	66.33	24 20 E	24.33	105	.	11	T	PO	3093	0	3	10
3044	44	Lake Flarken	58 36 N	58.60	13 43 E	13.72	<100	.	31	L	PO	3115	13	1	1
3045	45	Petronneva	62 55 N	62.92	27 0 E	27.00	105	.	11	T	PO	3250	0	3	10
3046	46	Kytopellonsuo	61 59 N	61.98	26 0 E	26.00	84	.	11	T	PO	3338	1	1	1
3047	47	Piitsonsuo	62 50 N	62.83	30 54 E	30.90	147	.	11	T	PO	3251	2	3	1
3048	48	Lake Sarkkilanjarvi	61 45 N	61.75	23 6 E	23.10	87	.	11	L	PO	3326	4	1	1
3049	49	Lake Vakojarvi	60 20 N	60.33	24 36 E	24.60	82	.	11	L	PO	3190	7	1	1

TABLE 2. (continued)

3050	50	Lovojarvi	61	5	N	61.08	25	2	E	25.03	108	.	11	L	PO	3322	5	1	1
3051	51	Varrassuo	60	59	N	60.98	25	28	E	25.47	143	.	11	T	PO	3191	6	1	1
3052	52	Sippurilampi	61	44	N	61.73	29	42	E	29.70	120	.	11	L	PO	3335	0	3	10
3053	53	Joutenlampi	64	0	N	64.00	30	15	E	30.25	239	.	11	L	PO	3149	1	1	1
3054	54	Polttimosuo	61	5	N	61.08	28	20	E	28.33	72	.	11	T	PO	3385	0	3	10
3055	55	Langa Getsjon	58	40	N	58.67	16	2	E	16.03	120	.	31	L	PO	3295	5	1	1
3057	57	Lohvanjarvi	63	47	N	63.78	26	12	E	26.20	155	.	11	L	PO	3302	0	3	10
3058	58	Ulila	58	24	N	58.40	26	45	E	26.75	<100	.	9	T	PO	3184	13	1	1
3059	59	Kalina	59	19	N	59.32	27	0	E	27.00	<100	.	9	T	PO	3185	12	1	1
3062	62	Trullvatnet	80	11	N	80.18	19	30	E	19.50	1	.	30	L	PO	3150	5	2	1
3063	63	Stroen	79	49	N	79.82	15	48	E	15.80	14	.	30	L	PO	3150	2	2	1
3064	64	Skinkevatna	74	29	N	74.48	18	55	E	18.92	19	.	30	L	PO	3150	3	2	1
3065	65	Murraster	60	15	N	60.25	1	29	W	-1.48	15	.	28	T	PO	3222	4	2	1
3066	66	Hoydalar	62	0	N	62.00	6	47	W	-6.78	14	.	10	T	PO	3222	3	1	1
3067	67	Ytri Baegisa	65	41	N	65.68	18	24	W	-18.40	<200	.	17	T	PO	3056	3	3	1
3068	68	Hafratjorn	65	35	N	65.58	20	4	W	-20.07	97	.	17	L	PO	3410	2	3	1
3069	69	Lomatjorn	64	15	N	64.25	20	27	W	-20.45	100	.	17	L	PO	3410	0	3	10
3071	71	Klovinmyren	62	5	N	62.08	7	14	W	-7.23	50	.	10	T	PO	3052	5	1	1
3073	73	Vaharu	59	13	N	59.22	25	0	E	25.00	<100	.	9	T	PO	3002	10	1	1
3074	74	Brotrask	57	19	N	57.32	18	27	E	18.45	40	.	31	L	PO	3187	0	3	10
3075	75	Little Loch Roag	58	7	N	58.12	6	53	W	-6.88	30	.	28	T	PO	3033	6	1	1
3076	76	Loch Of Winless	58	28	N	58.47	3	12	W	-3.20	9	.	28	O	PO	3366	10	1	1
3077	77	Blelham Tarn	54	23	N	54.38	2	58	W	-2.97	42	.	8	L	PO	3405	5	1	1
3078	78	Neasham Fen	54	29	N	54.48	1	29	W	-1.48	46	.	8	T	PO	3057	11	1	1
3079	79	Holme Fen	52	29	N	52.48	0	14	W	-0.23	1	.	8	T	PO	3140	4	2	1
3082	82	Hawks Tor	50	32	N	50.53	4	36	W	-4.60	229	.	8	T	PO	3010	11	3	1
3083	83	Dozmary Pool	50	32	N	50.53	4	32	W	-4.53	265	.	8	T	PO	3010	5	2	1
3084	84	Crosemere	52	52	N	52.87	2	51	W	-2.85	87	.	8	L	PO	3323	11	1	1
3085	85	Craig-Y-Llyn	51	43	N	51.72	3	34	W	-3.57	468	.	5	T	PO	3136	0	3	10
3087	87	Lewes II	50	52	N	50.87	0	0	0	0.00	3	.	8	L	PO	3023	2	2	1
3088	88	Wareham	50	42	N	50.70	2	6	W	-2.10	4	.	8	T	PO	3351	0	4	10
3091	91	Forramyrene	63	35	N	63.58	11	30	E	11.50	450	.	25	T	PO	3381	10	1	1
3093	93	Kristiansundsmyren	63	3	N	63.05	7	51	E	7.85	<100	.	25	T	PO	3053	4	1	1
3096	96	Flotmyr	59	59	N	59.98	10	35	E	10.58	192	.	25	T	PO	3376	2	1	1
3097	97	Ustetind	60	29	N	60.48	8	5	E	8.08	1310	.	25	T	PO	3062	2	1	1
3099	99	Longstjorn	60	48	N	60.80	5	1	E	5.02	<100	.	25	L	PO	3321	3	3	1
3101	101	Leroy	60	14	N	60.23	5	12	E	5.20	12	.	25	T	PO	3242	0	3	10
3103	103	Tveitavatn	59	46	N	59.77	5	30	E	5.50	38	.	25	L	PO	3377	1	3	1
3106	106	Fluetjonn	58	9	N	58.15	8	3	E	8.05	70	.	25	T	PO	3377	0	4	10
3108	108	Lille Kryssjern	59	15	N	59.25	11	16	E	11.27	142	.	25	L	PO	3018	0	3	10
3109	109	Tvengemyren	61	7	N	61.12	9	1	E	9.02	900	.	25	T	PO	3142	5	1	1
3110	110	Tinglev	54	57	N	54.95	9	15	E	9.25	<50	.	7	L	PO	3016	0	3	10
3111	111	Brondum Bog	56	37	N	56.62	9	43	E	9.72	<50	.	7	T	PO	3256	0	3	10
3113	113	Graessoen	55	7	N	55.12	14	56	E	14.93	100	.	7	T	PO	3383	0	3	10
3114	114	Stevningen	55	9	N	55.15	10	27	E	10.45	57	.	7	T	PO	3373	0	3	10
3115	115	Lake Even	55	8	N	55.13	12	1	E	12.02	0.2	.	7	L	PO	3384	0	3	10
3117	117	Lake Endletvatn	69	14	N	69.23	16	5	E	16.08	35	.	25	T	PO	3232	14	3	1
3119	119	Emmen	52	47	N	52.78	6	55	E	6.92	<50	.	24	T	PO	3396	9	1	1
3120	120	Leiffenderven	50	59	N	50.98	5	59	E	5.98	<100	.	15	T	PO	3045	0	3	10
3121	121	Weerjix Valley	51	34	N	51.57	4	44	E	4.73	3	.	24	T	PO	3317	0	3	10
3122	122	Pratz	49	48	N	49.80	5	56	E	5.93	190	.	23	T	PO	3318	2	1	1
3123	123	Grosser Segeberger See	53	56	N	53.93	10	19	E	10.32	29	.	15	L	PO	3111	38	1	1
3124	124	Suderlugum	54	52	N	54.87	8	55	E	8.92	<100	.	15	T	PO	3253	7	1	1
3125	125	Melbecker Moor	53	10	N	53.17	10	24	E	10.40	<100	.	15	T	PO	3253	2	3	1
3126	126	Lough Nadourcon	55	3	N	55.05	7	56	W	-7.93	63	.	18	T	PO	3307	4	1	1

TABLE 2. (continued)

3127	127	Redbog	53 58 N	53.97	6 25 W	-6.42		.	18	T	PO	3392	11	1	1
3129	129	Belle Lake	52 11 N	52.18	7 2 W	-7.03	33	.	18	L	PO	3008	8	1	1
3130	130	Littleton Bog	52 41 N	52.68	7 39 W	-7.65	140	.	18	T	PO	3118	0	3	10
3132	132	Muckross	52 1 N	52.02	9 31 W	-9.52	30	.	18	T	PO	3075	1	3	1
3133	133	Gortalecka	53 0 N	53.00	9 1 W	-9.02	30	.	18	L	PO	3392	0	3	10
3135	135	Flogeln	53 41 N	53.68	8 46 E	8.77	0	.	15	T	PO	3237	4	4	1
3136	136	Zwillbrocker Venn	52 3 N	52.05	6 42 E	6.70	<100	.	15	T	PO	3092	5	1	1
3137	137	Manderscheid	50 5 N	50.08	6 49 E	6.82	<500	.	15	T	PO	3173	0	3	10
3138	138	Schleinsee	47 38 N	47.63	9 38 E	9.63	474	.	15	L	PO	3168	0	1	10
3139	139	Horbacher Moor	47 44 N	47.73	8 5 E	8.08	950	.	15	T	PO	3123	0	3	10
3140	140	Schurmsee	48 35 N	48.58	8 23 E	8.38	795	.	15	O	PO	3124	0	3	10
3141	141	Stottener Filz	47 48 N	47.80	12 16 E	12.27	575	.	15	T	PO	3231	4	3	1
3144	144	Sluggan Moss	54 46 N	54.77	6 18 W	-6.30	52	.	18	T	PO	3180	21	1	1
3145	145	Steinhuder Meer	52 29 N	52.48	9 18 E	9.30	38	.	15	O	PO	3120	4	1	1
3147	147	Vogelsberg	50 31 N	50.52	9 16 E	9.27	720	.	15	T	PO	3159	1	3	1
3148	148	Gatersiebener See	51 49 N	51.82	11 23 E	11.38	110	.	13	T	PO	3169	0	3	10
3150	150	Kulzer Moos	49 21 N	49.35	12 23 E	12.38	<500	.	15	T	PO	3154	0	4	10
3151	151	Kirchseeon	48 4 N	48.07	11 54 E	11.90	550	.	15	T	PO	3231	0	3	10
3152	152	Lochan Doilead	56 59 N	56.98	5 48 W	-5.80	39	.	28	L	PO	3399	12	1	1
3153	153	Slieve Gallion	54 45 N	54.75	6 45 W	-6.75	430	.	18	T	PO	3202	12	1	1
3154	154	Vassijaure	68 25 N	68.42	18 17 E	18.28	480	.	31	L	PO	3283	5	1	1
3155	155	Leash Fen	53 16 N	53.27	1 33 W	-1.55	290	.	8	T	PO	3360	9	1	1
3156	156	Weelhead Moss	54 40 N	54.67	2 18 W	-2.30	472	.	8	T	PO	3204	9	1	1
3158	158	Remmeski	57 40 N	57.67	27 20 E	27.33	<200	.	9	T	PO	3071	12	1	1
3159	159	Bebrukas - Sees	54 44 N	54.73	24 18 E	24.30	120	.	21	T	PO	3276	10	1	1
3160	160	Bolota	60 8 N	60.13	30 55 E	30.92	25	.	34	T	PO	3310	7	2	1
3162	162	Giering	47 28 N	47.47	12 22 E	12.37	820	.	2	T	PO	3186	5	1	1
3163	163	Alperstedter Ried	51 7 N	51.12	10 59 E	10.98	155	.	13	T	PO	3073	1	3	1
3164	164	Zirbenwaldmoor	46 51 N	46.85	11 2 E	11.03	2150	.	2	T	PO	3227	7	1	1
3165	165	Rostocker Hutte	47 3 N	47.05	12 18 E	12.30	2270	.	2	T	PO	3346	6	1	1
3166	166	La Tourbiere	46 26 N	46.43	6 16 E	6.27	480	.	32	T	PO	3358	4	3	1
3167	167	Spielberg	48 27 N	48.45	15 10 E	15.17	830	.	2	T	PO	3331	4	1	1
3168	168	Haslau	48 49 N	48.82	15 7 E	15.12	565	.	2	T	PO	3332	5	1	1
3169	169	Wenigzell-Sommersgut	47 27 N	47.45	15 47 E	15.78	870	.	2	T	PO	3265	1	1	1
3170	170	Lengholz	46 46 N	46.77	13 16 E	13.27	570	.	2	T	PO	3014	5	1	1
3171	171	Sous Martel Dernier	46 59 N	46.98	6 43 E	6.72	1010	.	32	T	PO	3105	3	1	1
3173	173	Gola di Lago	46 7 N	46.12	8 58 E	8.97	970	.	32	T	PO	3146	3	3	1
3174	174	Campra	46 31 N	46.52	8 54 E	8.90	1420	.	32	T	PO	3152	5	3	1
3175	175	Bivio	46 29 N	46.48	9 40 E	9.67	2136	.	32	T	PO	3054	2	1	1
3177	177	Rotmoos	46 48 N	46.80	7 48 E	7.80	1190	.	32	T	PO	3230	0	3	10
3178	178	La Pile	46 26 N	46.43	6 6 E	6.10	1220	.	32	T	PO	3358	3	1	1
3180	180	Tourbiere de Saint-Michel-de-B	48 22 N	48.37	3 56 W	-3.93	300	.	12	T	PO	3397	2	3	1
3181	181	Marais de L'Erdre	47 23 N	47.38	1 30 W	-1.50	4	.	12	O	PO	3314	0	3	10
3182	182	Mur de Sologne	47 24 N	47.40	0 46 W	-0.77	102	.	12	T	PO	3315	0	3	10
3186	186	Bellengreville	49 7 N	49.12	0 9 W	-0.15	25	.	12	T	PO	3171	0	3	10
3187	187	Marais Vernier	49 26 N	49.43	0 32 E	0.53	3	.	12	O	PO	3171	0	3	10
3188	188	Beune Valley	44 55 N	44.92	1 4 E	1.07	<100	.	12	T	PO	3192	1	1	1
3189	189	Le Moura	43 28 N	43.47	1 32 W	-1.53	40	.	12	T	PO	3101	4	1	1
3190	190	Long	50 1 N	50.02	1 59 E	1.98	14	.	12	T	PO	3374	0	3	10
3191	191	La Tourbiere de Piogny	48 42 N	48.70	1 49 E	1.82	<200	.	12	T	PO	3133	1	3	1
3193	193	Marais de Vance	49 42 N	49.70	5 41 E	5.68	340	.	3	T	PO	3066	13	1	1
3194	194	Feigne d'Artimont	48 2 N	48.03	7 1 E	7.02	1100	.	12	T	PO	3048	8	1	1
3196	196	Petite Nethe	51 11 N	51.18	4 50 E	4.83	10	.	3	T	PO	3013	0	3	10
3198	198	Nethen	50 47 N	50.78	4 40 E	4.67	32	.	3	T	PO	3394	2	3	1
3201	201	Lago Di Biandronno	45 49 N	45.82	8 41 E	8.68	239	.	19	L	PO	3344	6	1	1

TABLE 2. (continued)

3202	202	Lago Viverone	45 25 N	45.42	8 2 E	8.03	220	.	19	T	PO	3344	0	3	10
3203	203	La Clapouse	44 22 N	44.37	6 47 E	6.78	2100	.	12	T	PO	3359	3	3	1
3205	205	Tourbiere des Forest	44 42 N	44.70	5 54 E	5.90	1460	.	12	T	PO	3359	5	1	1
3206	206	Col Luitel	45 5 N	45.08	5 51 E	5.85	1250	.	12	T	PO	3359	3	1	1
3207	207	Tourbiere de Chirens	45 25 N	45.42	5 34 E	5.57	460	.	12	T	PO	3359	4	1	1
3208	208	Laç Long Inferieur	44 3 N	44.05	7 27 E	7.45	2090	.	12	O	PO	3207	13	1	1
3209	209	Balssescure	43 34 N	43.57	2 44 E	2.73	1000	.	12	T	PO	3208	3	1	1
3210	210	Lozere	44 24 N	44.40	3 45 E	3.75	1400	.	12	T	PO	3208	3	1	1
3211	211	Lac des Esclauzes	45 35 N	45.58	2 48 E	2.80	1075	.	12	T	PO	3127	0	3	10
3213	213	Tourbiere du Pinet	42 52 N	42.87	1 58 E	1.97	880	.	12	T	PO	3135	5	1	1
3215	215	Lac de Balcere	42 35 N	42.58	2 3 E	2.05	1764	.	12	O	PO	3135	3	1	1
3216	216	Banos de Tredos	42 46 N	42.77	0 49 E	0.82	1750	.	29	T	PO	3063	0	3	10
3218	218	Leveaniemi	67 38 N	67.63	21 1 E	21.02	360	.	31	T	PO	3021	5	1	1
3220	220	Dunakeszi	47 35 N	47.58	19 7 E	19.12	<200	.	16	O	PO	3284	0	3	10
3223	223	Podhorany	49 12 N	49.20	20 25 E	20.42	620	.	6	T	PO	3387	0	3	10
3225	225	Vracov	48 58 N	48.97	17 17 E	17.28	192	.	6	L	PO	3082	6	2	1
3229	229	Blato	49 2 N	49.03	15 8 E	15.13	650	.	6	T	PO	3228	0	3	10
3232	232	Ylikiiminki	64 56 N	64.93	26 30 E	26.50	94	.	11	L	PO	3301	3	3	1
3235	235	Mikolajki	53 50 N	53.83	21 33 E	21.55	<200	.	26	L	PO	3287	0	3	10
3236	236	Porrasiampi	62 53 N	62.88	23 31 E	23.52	90	.	11	L	PO	3301	1	2	1
3237	237	Bialowieski	52 41 N	52.68	23 50 E	23.83	<200	.	26	T	PO	3278	0	3	10
3240	240	Wolbrom	50 23 N	50.38	19 46 E	19.77	375	.	26	T	PO	3296	0	3	10
3241	241	Na Grelu	49 27 N	49.45	19 57 E	19.95	600	.	26	T	PO	3402	0	3	10
3242	242	Tarnawa Wyzna	49 7 N	49.12	22 50 E	22.83	670	.	26	T	PO	3286	9	1	1
3243	243	Czajkow	50 33 N	50.55	21 7 E	21.12	206	.	26	O	PO	3244	1	3	1
3244	244	Isosuo	61 33 N	61.55	26 21 E	26.35	95	.	11	T	PO	3252	0	3	10
3245	245	Imielty Lug	50 35 N	50.58	22 11 E	22.18	180	.	26	T	PO	3243	0	3	10
3246	246	Saarijarvi	62 15 N	62.25	27 45 E	27.75	100	.	11	T	PO	3206	0	3	10
3247	247	Lapaneva	62 15 N	62.25	23 18 E	23.30	163	.	11	T	PO	3299	3	1	1
3248	248	Valkiajarvi	66 48 N	66.80	24 7 E	24.12	188	.	11	L	PO	3303	3	2	1
3249	249	Silmaslampi	66 40 N	66.67	25 58 E	25.97	207	.	11	L	PO	3303	3	1	1
3250	250	Vuorilampi	62 54 N	62.90	27 40 E	27.67	108	.	11	L	PO	3218	0	3	10
3251	251	Lidsjomyren	64 19 N	64.32	15 14 E	15.23	300	.	31	T	PO	3211	4	1	1
3252	252	Hallvikamyren	63 44 N	63.73	15 28 E	15.47	350	.	31	T	PO	3211	7	1	1
3253	253	Klockamyren	63 18 N	63.30	12 29 E	12.48	530	.	31	T	PO	3211	7	1	1
3254	254	Hallafloarna	63 6 N	63.10	14 56 E	14.93	350	.	31	T	PO	3211	6	1	1
3255	255	Vattenfloen	62 21 N	62.35	12 42 E	12.70	750	.	31	T	PO	3211	4	1	1
3256	256	Tranflon	62 10 N	62.17	15 17 E	15.28	320	.	31	T	PO	3211	3	1	1
3257	257	Stentjarnsmyren	60 37 N	60.62	12 44 E	12.73	430	.	31	T	PO	3212	1	3	1
3262	262	L.Kultjonn, Overhalla	64 27 N	64.45	11 47 E	11.78	159	.	25	T	PO	3044	3	1	1
3264	264	Bakkemyra	69 12 N	69.20	17 30 E	17.50	140	.	25	T	PO	3233	5	1	1
3265	265	Comarum So	61 8 N	61.13	45 32 W	-45.53	125	.	35	L	PO	3034	5	1	1
3266	266	Spongilla So	59 58 N	59.97	44 21 W	-44.35	6	.	35	L	PO	3034	5	1	1
3267	267	Morten So	70 52 N	70.87	22 27 W	-22.45	48	.	35	L	PO	3365	7	1	1
3268	268	Hugin So	70 46 N	70.77	24 7 W	-24.12	55	.	35	L	PO	3365	5	1	1
3269	269	Potamogetonso	70 57 N	70.95	27 44 W	-27.73	58	.	35	L	PO	3365	5	1	1
3607	607	Angmagssalik	65 36 N	65.60	37 39 W	-37.65	10	.	35	T	PO	3137	1	1	1
3651	651	Kamionka	49 39 N	49.65	21 0 E	21.00	465	.	26	T	PO	3069	5	1	1
3652	652	Weglewice	51 24 N	51.40	18 10 E	18.17	<200	.	26	T	PO	3247	2	2	1
3654	654	Jeziora Budzynskiego	52 14 N	52.23	16 46 E	16.77	<100	.	26	L	PO	3103	0	3	10
3655	655	Jezioro Mielno	52 56 N	52.93	19 15 E	19.25	100	.	26	T	PO	3254	0	3	10
3656	656	Siwe Bagno	53 41 N	53.68	18 0 E	18.00	<200	.	26	T	PO	3255	0	3	10
3657	657	Stazki	54 21 N	54.35	18 15 E	18.25	200	.	26	T	PO	3104	0	3	10
3658	658	Jezioro Jamno	54 13 N	54.22	16 9 E	16.15	<100	.	26	L	PO	3220	0	3	10
3659	659	Laguna de Las Sanguijuelas	42 8 N	42.13	6 45 W	-6.75	1000	.	29	L	PO	3196	7	1	1

TABLE 2. (continued)

3660	660	Puertos de Riofrio	43	3	N	43.05	4	42	W	-4.70	1700	.	29	T	PO	3098	6	1	1
3661	661	Padul	37	2	N	37.03	3	37	W	-3.62	1000	.	29	T	PO	3099	5	1	1
3662	662	Turbera de Torreblanca	40	12	N	40.20	0	13	E	0.22	0	.	29	T	PO	3196	3	1	1
3665	665	Ereta	39	6	N	39.10	0	42	W	-0.70	200	.	29	T	PO	3198	2	1	1
3668	668	Turbera de Los Montes del Buyp	43	36	N	43.60	7	31	W	-7.52	550	.	29	T	PO	3197	1	3	1
3672	672	Lago Di Ledro	45	52	N	45.87	10	45	E	10.75	655	.	19	L	PO	3155	0	3	10
3673	673	Lago Di Monterosi	42	12	N	42.20	12	18	E	12.30	237	.	19	L	PO	3090	8	1	1
3674	674	Lake of Vico	42	19	N	42.32	12	10	E	12.17	507	.	19	L	PO	3007	0	4	10
3675	675	Lac de Creno	42	11	N	42.18	9	0	E	9.00	1280	.	12	T	PO	3304	13	2	1
3688	688	Fos	43	26	N	43.43	4	56	E	4.93	0	.	12	T	PO	3145	1	2	1
3689	689	Vid	43	5	N	43.08	17	34	E	17.57	4	.	33	T	PO	3025	2	1	1
3690	690	Malo Jezero	42	47	N	42.78	17	21	E	17.35	0	.	33	O	PO	3156	3	3	1
3691	691	Palu	45	2	N	45.03	13	42	E	13.70	0	.	33	O	PO	3157	1	4	1
3693	693	Igu	45	58	N	45.97	14	31	E	14.52	<500	.	33	L	PO	3017	0	3	10
3699	699	Kopais	38	27	N	38.45	23	1	E	23.02	100	.	14	T	PO	3226	1	4	1
3701	701	Tenagi Phillipon	41	10	N	41.17	24	20	E	24.33	40	.	14	T	PO	3368	2	2	1
3702	702	Pertouli	39	33	N	39.55	21	32	E	21.53	1275	.	14	T	PO	3316	3	4	1
3704	704	Edessa	40	49	N	40.82	21	57	E	21.95	500	.	14	T	PO	3347	8	1	1
3705	705	Ioannina	39	43	N	39.72	20	46	E	20.77	470	.	14	T	PO	3347	2	2	1
3709	709	Bogdan	42	34	N	42.57	24	29	E	24.48	1550	.	4	T	PO	3266	2	3	1
3710	710	Sucho Ezero	42	4	N	42.07	23	36	E	23.60	1900	.	4	T	PO	3079	0	4	10
3713	713	Balaton	46	50	N	46.83	17	46	E	17.77	>100	.	16	L	PO	3032	0	4	10
3714	714	See Gabiauriskis	54	40	N	54.67	23	40	E	23.67	100	.	21	L	PO	3324	0	3	10
3715	715	Sarnate	56	16	N	56.27	21	0	E	21.00	0	.	20	T	PO	3003	0	3	10
3723	723	Melehovo	56	30	N	56.50	37	45	E	37.75	>100	.	34	T	PO	3311	2	3	1
3724	724	Dimofshina	55	16	N	55.27	30	10	E	30.17	>100	.	34	T	PO	3055	0	3	10
3725	725	Zmeiskoje	58	30	N	58.50	31	20	E	31.33	<100	.	34	T	PO	3055	0	3	10
3726	726	Polistovo	56	50	N	56.83	29	29	E	29.48	200	.	34	T	PO	3055	0	4	10
3728	728	Krem	57	46	N	57.77	40	59	E	40.98	100	.	34	T	PO	3055	0	4	10
3734	734	Tyotjarvi	60	59	N	60.98	25	28	E	25.47	143	.	11	L	PO	3217	17	1	1
3737	737	Bostad	68	15	N	68.25	13	45	E	13.75	30	.	25	T	PO	3236	7	1	1
3739	739	Norrmesunda A	63	30	N	63.50	18	12	E	18.20	121	.	31	T	PO	3382	1	2	1
3740	740	Redon	47	36	N	47.60	2	5	W	-2.08	6	.	12	O	PO	3297	0	3	10
3741	741	Vallon de Provence	44	23	N	44.38	6	25	E	6.42	1066	.	12	T	PO	3205	2	3	1
3743	743	Biscaye	43	7	N	43.12	0	4	W	-0.07	500	.	12	T	PO	3172	5	3	1
3745	745	Peyrebeille	44	45	N	44.75	4	0	E	4.00	1256	.	12	T	PO	3309	0	3	10
3746	746	Courthezon	44	6	N	44.10	4	52	E	4.87	32	.	12	T	PO	3165	7	1	1
3748	748	Meyranne	43	38	N	43.63	4	43	E	4.72	2	.	12	T	PO	3165	3	1	1
3750	750	Grosser Ploner See	54	9	N	54.15	10	25	E	10.42	<100	.	15	L	PO	3112	22	1	1
3751	751	Aussenalster 21	53	38	N	53.63	10	5	E	10.08	<100	.	15	L	PO	3113	7	1	1
3752	752	Kleiner Hafner 5	47	21	N	47.35	8	33	E	8.55	405	.	32	T	PO	3024	0	4	10
3753	753	Ballmoos	47	22	N	47.37	9	28	E	9.47	943	.	32	T	PO	3153	9	1	1
3754	754	Oberschan	47	4	N	47.07	9	27	E	9.45	660	.	32	T	PO	3153	6	1	1
3755	755	Fanin Pass	46	52	N	46.87	9	42	E	9.70	2212	.	32	T	PO	3153	7	1	1
3757	757	Glims Moss	59	5	N	59.08	3	12	W	-3.20	40	.	28	T	PO	3370	6	2	1
3759	759	The World's End	51	27	N	51.45	0	22	E	0.37	2	.	8	O	PO	3333	8	1	1
3760	760	C. 6932	45	24	N	45.40	5	9	W	-5.15		.	12	O	PO	3216	0	3	10
3765	765	Dun Moss	56	42	N	56.70	3	21	W	-3.35	380	.	28	T	PO	3189	5	2	1
3766	766	Hullsjon	58	21	N	58.35	12	23	E	12.38	38	.	31	L	PO	3117	6	2	1
3768	768	Uitgeest	52	32	N	52.53	4	43	E	4.72	-1	.	24	O	PO	3356	2	4	1
3769	769	Alphen Aan De Rijn	52	8	N	52.13	4	40	E	4.67	-2	.	24	O	PO	3356	3	1	1
3770	770	Bymyren	62	31	N	62.52	15	13	E	15.22	>200	.	31	T	PO	3340	7	1	1
3771	771	Rudetjarn	62	22	N	62.37	17	0	E	17.00	45	.	31	L	PO	3340	4	1	1
3772	772	Ostervatnet	70	9	N	70.15	29	28	E	29.47	148	.	25	L	PO	3178	0	3	10
3774	774	Sosu	56	58	N	56.97	26	47	E	26.78	<100	.	20	T	PO	3067	14	2	1

TABLE 2. (continued)

3775	775	By Seesjarvi	63 8 N	63.10	34 32 E	34.53	117	.	34	T	PO	3219	0	3 10
3776	776	Hiilisuo	61 45 N	61.75	34 31 E	34.52	147	.	34	T	PO	3219	0	3 10
3827	827	Taul Negru	47 36 N	47.60	24 0 E	24.00	1200	.	27	T	PO	3087	0	4 10
3829	829	Taul Sarat	46 29 N	46.48	22 45 E	22.75	1590	.	27	T	PO	3085	0	4 10
3830	830	Colacel	43 21 N	43.35	25 15 E	25.25	810	.	27	T	PO	3086	0	4 10
3831	831	Comandau II	45 57 N	45.95	26 21 E	26.35	1017	.	27	T	PO	3074	0	4 10
3832	832	Lacul Cu Muschi	45 34 N	45.57	26 13 E	26.22	850	.	27	T	PO	3074	0	4 10
3833	833	Sub Gozna I	45 11 N	45.18	21 45 E	21.75	1382	.	27	T	PO	3188	0	4 10
3834	834	Moryty	53 42 N	53.70	20 22 E	20.37	<200	.	26	L	PO	3288	6	3 1
3836	836	Lukcze Lake	51 26 N	51.43	23 14 E	23.23	<200	.	26	L	PO	3001	.	3 11
3837	837	Dzembronia	48 10 N	48.17	24 31 E	24.52	1110	.	34	T	PO	3012	0	4 10
3838	838	Taul Zanogutii	45 19 N	45.32	22 53 E	22.88	1840	.	27	T	PO	3089	0	4 10
3839	839	Valea Stinii	47 43 N	47.72	25 38 E	25.63	1100	.	27	T	PO	3030	0	4 10
5001	1	Niguia I	58 0 N	58.00	24 42 E	24.70	76		73	B	PO	5037	11	1 1
5002	3	SHuvalovskoe	60 3 N	60.05	30 20 E	30.33	76		73	B	PO	5024	7	1 1
5003	4	Bol Pershino	59 21 N	59.35	69 0 E	69.00	76		73	B	PO	5025	2	4 1
5004	5	Nizhne-Vartovsk	60 56 N	60.93	76 38 E	76.63	76		73	B	PO	5026	13	1 1
5005	7	Pit-Gorodok	59 18 N	59.30	93 50 E	93.83	457		73	B	PO	5013	1	5 1
5006	8	Vasiugane I	56 52 N	56.87	83 5 E	83.08	76		73	B	PO	5013	1	7 1
5007	10	Mys Karginskii	70 0 N	70.00	84 0 E	84.00	76		73	B	PO	5010	13	1 1
5008	12	Lukashin Iar	60 20 N	60.33	78 24 E	78.40	76		73	B	PO	5011	13	1 1
5009	13	Gorno-Slinkino	58 45 N	58.75	68 49 E	68.82	76		73	B	PO	5041	10	1 1
5010	15	Alatskoe	57 0 N	57.00	60 5 E	60.08	231		73	B	PO	5013	7	1 1
5011	16	Osechenskoe	57 31 N	57.52	34 50 E	34.83	231		73	B	PO	5024	6	1 1
5012	17	Tesovo-Netyl.	58 57 N	58.95	31 4 E	31.07	76		73	B	PO	5024	6	1 1
5013	18	Imnatskoe	42 5 N	42.08	41 43 E	41.72	457		73	B	PO	5024	4	1 1
5014	21	Somino	56 51 N	56.85	38 39 E	38.65	76		73	L	PO	5013	6	4 1
5015	22	Bezdonnoe	61 45 N	61.75	32 12 E	32.20	76		73	B	PO	5033	3	2 1
5016	23	No-Suo	64 35 N	64.58	31 5 E	31.08	231		73	B	PO	5033	1	4 1
5017	24	Vakharu	58 51 N	58.85	24 47 E	24.78	76		73	B	PO	5035	10	2 1
5018	25	Polovetsko-Kup	57 34 N	57.57	37 54 E	37.90	76		73	B	PO	5013	2	5 1
5019	27	Ivanovskoe 3	56 50 N	56.83	39 0 E	39.00	76		73	B	PO	5016	2	1 1
5020	29	Lakhtinskoe	60 0 N	60.00	30 10 E	30.17	76		73	B	PO	5014	3	4 1
5021	34	Saviku	58 26 N	58.43	27 15 E	27.25	76		73	B	PO	5036	14	1 1
5022	38	Kalina	59 16 N	59.27	27 21 E	27.35	76		73	B	PO	5012	12	1 1
5023	39	Markhida	67 10 N	67.17	52 33 E	52.55	76		73	B	PO	5030	2	2 1
5024	40	River Davshe	54 20 N	54.33	110 2 E	110.03	457		73	B	PO	5015	8	1 1
5025	41	Mulianka	57 47 N	57.78	56 19 E	56.32	231		73	B	PO	5028	1	5 1
5026	45	Tugiian Iugan	63 33 N	63.55	65 43 E	65.72	76		73	B	PO	5006	1	5 1
5027	46	River Entarnoe	60 2 N	60.03	79 1 E	79.02	76		73	B	PO	5006	8	1 1
5028	47	River Bol Romanikha	70 45 N	70.75	98 36 E	98.60	76		73	AP	PO	5031	5	2 1
5029	49	Orshinskii Mokh	56 57 N	56.95	35 57 E	35.95	76		73	B	PO	5032	6	2 1
5030	50	River Tom	56 50 N	56.83	84 27 E	84.45	76		73	B	PO	5005	6	1 1
5031	51	Mykai	58 9 N	58.15	24 58 E	24.97	76		73	B	PO	5037	6	1 1
5032	62	Balkashkinskii	53 2 N	53.03	35 22 E	35.37	76		73	AS	PO	5038	2	7 1
5033	67	Sakhtysh I	56 48 N	56.80	40 25 E	40.42	76		73	B	PO	5017	0	7 10
5034	69	River Surgut	61 14 N	61.23	73 20 E	73.33	457		73	B	PO	5027	0	7 10
5035	71	Sartynia	64 10 N	64.17	65 28 E	65.47	76		73	B	PO	5013	0	7 10
5036	73	Ubinskii Riam	55 19 N	55.32	80 0 E	80.00	76		73	B	PO	5013	0	7 10
5037	74	Begiianskii Riam	55 30 N	55.50	81 34 E	81.57	76		73	B	PO	5013	0	7 10
5038	78	Padeng	62 48 N	62.80	42 56 E	42.93	76		73	AS	PO	5029	3	1 1
5039	82	Glukharinde	66 0 N	66.00	69 0 E	69.00	76		73	B	PO	5021	0	7 10
5040	83	IUribei	69 0 N	69.00	70 0 E	70.00	76		73	AS	PO	5021	0	7 10
5041	86	Tiuliukskoe	54 40 N	54.67	59 10 E	59.17	457		73	B	PO	5023	0	7 10
5042	87	Tugiiany	63 33 N	63.55	65 43 E	65.72	76		73	B	PO	5020	0	7 10

TABLE 2. (continued)

5043	88	Iamsovei	65	40	N	65.67	78	15	E	78.25	76	73	B	PO	5020	0	7	10
5044	93	Aral Sea	46	40	N	46.67	61	30	E	61.50	76	73	L	PO	5040	0	7	10
5045	95	Ulanovo	55	33	N	55.55	48	43	E	48.72	76	73	B	PO	5039	0	7	10
5046	97	Helmiazevskoe	49	49	N	49.82	31	21	E	31.35	76	73	B	PO	5007	7	1	1
5047	98	Zalozhtsy II	49	40	N	49.67	25	30	E	25.50	231	73	B	PO	5007	15	1	1
5048	99	Stoianov II	50	22	N	50.37	24	39	E	24.65	231	73	B	PO	5007	5	2	1
5053	100	Uanda	51	24	N	51.40	142	5	E	142.08	231	73	B	PO	5013	4	4	1
5054	101	Ichi	55	34	N	55.57	155	59	E	155.98	229	73	B	PO	5013	3	2	1
5055	102	Ust-Khairiuzovo	57	8	N	57.13	156	47	E	156.78	76	73	B	PO	5013	4	1	1
5056	103	Kirganshala	54	48	N	54.80	158	48	E	158.80	76	73	B	PO	5013	0	7	10
5057	104	Ushkovskii	56	13	N	56.22	59	58	E	59.97	152	73	B	PO	5018	1	7	1
5058	105	Sort	68	50	N	68.83	148	0	E	148.00	150	73	L	PO	5009	2	2	1
5059	109	Belkachi	59	9	N	59.15	131	59	E	131.98	0	73	AS	PO	5034	0	7	10
5060	110	Ozero Kradenoe	62	0	N	62.00	129	35	E	129.58	457	73	AS	PO	5013	4	1	1
5061	115	CHunia	61	45	N	61.75	102	48	E	102.80	229	73	L	PO	5019	1	4	1
5062	118	Bol Kurapotochi	71	4	N	71.07	56	30	E	56.50	305	73	CT	PO	5022	4	1	1
5063	120	River CHernyi IAr	52	20	N	52.33	140	27	E	140.45	76	73	B	PO	5016	2	7	1
5064	121	Selerikan	64	18	N	64.30	141	52	E	141.87	76	73	AS	PO	5008	2	2	1
6001	1	Abhe	11	15	N	11.25	42	0	E	42.00	240	75	L	LL	6001	58	1	1
6002	2	Abu Ballas	24	14	N	24.23	27	25	E	27.42		49	L	LL	6002	7	2	1
6004	4	Afrera	13	25	N	13.42	40	50	E	40.83	-82	50	L	LL	6004	9	1	1
6005	5	Agadem	16	50	N	16.83	13	20	E	13.33	350	63	L	LL	6005	6	1	1
6008	8	Asal	11	36	N	11.60	42	30	E	42.50	-155	47	L	LL	6008	28	1	1
6014	14	Bilma	18	45	N	18.75	13	0	E	13.00		63	L	LL	6014	10	1	1
6016	16	Bogoria	0	18	N	0.30	36	6	E	36.10		55	L	LL	6016	4	2	1
6017	17	Bosumtwi	6	30	N	6.50	1	25	W	-1.42	100	51	L	LL	6017	28	1	1
6018	18	Bou Ali	27	10	N	27.17	0	15	E	0.25		39	L	LL	6018	2	2	1
6019	19	Bou Bernous	27	20	N	27.33	3	4	W	-3.07		39	L	LL	6019	1	2	1
6022	22	Chad-Megachad	13	0	N	13.00	14	0	E	14.00	282	77	L	LL	6022	59	3	1
6023	23	Chemchane-Aderg	21	0	N	21.00	12	7	W	-12.12	260	59	L	LL	6023	6	5	1
6024	24	Chew Bahir	4	45	N	4.75	37	0	E	37.00	500	74	L	LL	6024	1	2	1
6025	25	Chilwa	15	30	S	-15.50	35	30	E	35.50		57	L	LL	6025	2	2	1
6027	27	Dobi-Hanle	11	30	N	11.50	42	0	E	42.00	120	50	L	LL	6027	11	3	1
6028	28	Enneri Bardague	21	30	N	21.50	17	0	E	17.00		43	L	LL	6028	43	2	1
6030	30	Erg Ine Sakane	20	48	N	20.80	0	42	W	-0.70		58	L	LL	6030	2	0	1
6031	31	Erg Ine Sakane East	20	50	N	20.83	0	38	W	-0.63		58	L	LL	6031	4	1	1
6033	33	Erg Ine Sakane North-east	20	57	N	20.95	0	32	W	-0.53		58	L	LL	6033	1	1	1
6036	36	Fachi	18	7	N	18.12	11	40	E	11.67		63	L	LL	6036	9	2	1
6042	42	Great North Lake	21	2	N	21.03	0	45	W	-0.75		58	L	LL	6042	3	1	1
6044	44	Hassei Gaboun	18	18	N	18.30	15	49	W	-15.82		59	L	LL	6044	1	1	1
6045	45	Hassi Messouad	32	0	N	32.00	5	51	E	5.85		39	L	LL	6045	3	1	1
6047	47	Ichourad Well	20	48	N	20.50	0	42	W	-1.13		58	L	LL	6047	2	1	1
6050	50	Kadda	26	12	N	26.20	0	53	E	0.88		39	L	LL	6050	3	2	1
6054	54	Khat Depression	19	10	N	19.17	12	30	W	-12.50		59	L	LL	6054	4	0	1
6055	55	Kivu	2	0	S	-2.00	29	0	E	29.00	1462	78	L	LL	6055	3	7	1
6060	60	Magadi	1	53	S	-1.88	36	18	E	36.30	604	55	L	LL	6060	1	4	1
6061	61	Makgadikgadi	20	24	S	-20.40	24	25	E	24.42	900	42	L	LL	6061	15	7	1
6062	62	Manyara	3	37	S	-3.62	35	49	E	35.82		69	L	LL	6062	0	7	10
6065	65	Mobutu Sese Seko	1	30	N	1.50	31	0	E	31.00	619	80	L	LL	6065	0	7	10
6070	70	Nabta Playa	23	0	N	23.00	31	0	E	31.00		49	L	LL	6070	33	1	1
6072	72	Naivasha	1	15	S	-1.25	36	20	E	36.33	1890	55	L	LL	6072	0	2	10
6073	73	Nakuru-Elmenteita	0	25	N	0.42	36	10	E	36.17	1750	55	L	LL	6073	13	3	1
6074	74	Oum Arouaba	20	52	N	20.87	12	52	W	-12.87		59	L	LL	6074	3	1	1
6075	75	Ounianga Kebir	19	3	N	19.05	20	30	E	20.50		43	L	LL	6075	2	1	1
6078	78	Rukwa	8	0	S	-8.00	32	30	E	32.50	793	69	L	LL	6078	4	2	1

TABLE 2. (continued)

6080	80	Selima	21 19 N	21.32	29 20 E	29.34		67	L	LL	6080	2	1	1
6084	84	Siwa	29 13 N	29.22	25 21 E	25.35		49	L	LL	6084	4	6	1
6086	86	Taoudenni Sabkha	22 30 N	22.50	4 0 W	-4.00	120	58	L	LL	6086	1	2	1
6088	88	Termit Ouest/Kandel Bouzou	16 5 N	16.08	11 15 E	11.25		63	L	LL	6088	6	2	1
6090	90	Tirersioum	21 22 N	21.37	16 41 W	-16.68		59	L	LL	6090	4	6	1
6093	93	Turkana	5 0 N	5.00	36 0 E	36.00	375	55	L	LL	6093	22	1	1
6095	95	Victoria	1 0 S	-1.00	33 0 E	33.00	1134	79	L	LL	6095	1	4	1
6099	99	Wadi Oukechert	20 40 N	20.67	0 45 W	-0.75		58	L	LL	6099	5	3	1
6100	100	Wadi Saoura	30 0 N	30.00	2 0 W	-2.00		39	L	LL	6100	20	1	1
6103	103	Ziway-Shala	7 45 N	7.75	38 40 E	38.67	1558	50	L	LL	6103	43	1	1
6104	104	Beysehir	37 45 N	37.75	31 30 E	31.50	1120	70	L	LL	6104	0	2	10
6107	107	Didwana	27 20 N	27.33	74 35 E	74.58	350	52	L	LL	6107	0	7	10
6108	108	Gebel Maghara	30 45 N	30.75	33 24 E	33.40	400	65	L	LL	6108	11	7	1
6113	113	Konya	37 30 N	37.50	33 0 E	33.00	990	70	L	LL	6113	23	3	1
6114	114	Lisan-Dead Sea	31 30 N	31.50	35 30 E	35.50	-395	76	L	LL	6114	27	2	1
6115	115	Lunkaransar	28 30 N	28.50	73 45 E	73.75	200	52	L	LL	6115	0	2	10
6116	116	Mundafan,Rub'al Khali	18 33 N	18.55	45 18 E	45.30	900	64	L	LL	6116	23	1	1
6123	123	Sambhar	27 0 N	27.00	75 0 E	75.00	360	52	L	LL	6123	0	1	10
6129	129	Zeribar	35 32 N	35.53	46 7 E	46.12	1300	53	L	LL	6129	0	1	10
6131	131	Goshen Springs	31 43 N	31.72	86 8 W	-86.13	105	36	L	LL	6131	7	2	1
6132	132	Cochise	32 8 N	32.13	109 51 W	-109.85	1260	36	L	LL	6132	33	1	1
6134	134	Adobe	37 55 N	37.91	118 36 W	-118.60	1951	36	L	LL	6134	7	4	1
6136	136	Deep Spring	37 17 N	37.28	118 2 W	-118.03	1499	36	L	LL	6136	10	7	1
6137	137	Leconte	33 20 N	33.33	116 0 W	-116.00	-71	36	L	LL	6137	48	1	1
6143	143	Searles	35 36 N	35.60	117 42 W	-117.70	493	36	L	LL	6143	110	2	1
6145	145	White Pond	34 10 N	34.16	80 46 W	-80.76	90	36	L	LL	6145	3	4	1
6146	146	Annie	27 18 N	27.30	81 24 W	-81.40	36	36	L	LL	6146	8	2	1
6147	147	Little Salt Spring	27 0 N	27.00	82 10 W	-82.17	5	36	L	LL	6147	18	1	1
6148	148	Kettle Hole Lake	43 0 N	43.00	93 6 W	-93.10	350	36	L	LL	6148	4	2	1
6150	150	West Lake Okoboji	46 20 N	46.33	95 12 W	-95.20	425	36	L	LL	6150	14	1	1
6151	151	Duck Pond	41 56 N	41.93	70 0 W	-70.00	3	36	L	LL	6151	9	2	1
6152	152	Kirchner Marsh	44 50 N	44.83	92 46 W	-92.77	275	36	L	LL	6152	0	0	10
6153	153	Weber Lake	47 28 N	47.47	91 39 W	-91.65	559	36	L	LL	6153	4	2	1
6154	154	Old Field Swamp	37 7 N	37.12	89 50 W	-89.83	122	36	L	LL	6154	4	1	1
6156	156	Lahontan	40 0 N	40.00	119 30 W	-119.50	1054	36	L	LL	6156	169	1	1
6161	161	Blackwater Draw	34 15 N	34.25	103 20 W	-103.33	1250	36	L	LL	6161	17	1	1
6162	162	Estancia	34 36 N	34.60	105 36 W	-105.60	1842	36	L	LL	6162	4	2	1
6165	165	San Agustin	33 50 N	33.83	108 10 W	-108.17	1842	36	L	LL	6165	14	4	1
6167	167	Lake George	43 31 N	43.52	73 39 W	-73.65	96	36	L	LL	6167	2	2	1
6168	168	Chewaucan	64 40 N	42.67	120 30 W	-120.50	1296	36	L	LL	6168	6	5	1
6169	169	Fort Rock	43 10 N	43.17	120 45 W	-120.75	1311	36	L	LL	6169	4	7	1
6178	178	Bonneville	40 30 N	40.50	113 0 W	-113.00	1280	36	L	LL	6178	114	2	1
6179	179	Mendota	43 6 N	43.10	89 25 W	-89.42	259	36	L	LL	6179	14	1	1
6181	181	Lake Isle	52 37 N	52.62	114 26 W	-114.43	700	37	L	LL	6181	3	3	1
6182	182	Moore Lake	53 0 N	53.00	110 30 W	-110.50	500	37	L	LL	6182	6	2	1
6183	183	Smallboy Lake	53 35 N	53.58	114 6 W	-114.13	762	37	L	LL	6183	5	1	1
6184	184	Wabamun Lake	53 30 N	53.50	114 15 W	-114.25	732	37	L	LL	6184	3	2	1
6185	185	Wedge Lake	50 52 N	50.87	115 10 W	-115.17	1500	37	L	LL	6185	2	4	1
6186	186	Fiddler's Pond	56 15 N	56.25	120 45 W	-120.75	630	37	L	LL	6186	3	1	1
6187	187	Manitoba	51 0 N	51.00	98 0 W	-98.00	248	37	L	LL	6187	9	1	1
6189	189	Laguna Chichancanab	19 30 N	19.50	88 45 W	-88.75	38	60	L	LL	6189	4	2	1
6190	190	Mexico	19 30 N	19.50	99 0 W	-99.00	2240	60	L	LL	6190	26	1	1
6191	191	Patzcuaro	19 35 N	19.58	101 35 W	-101.58	2044	60	L	LL	6191	6	3	1
6193	193	Upper Lerma	19 8 N	19.13	99 40 W	-99.67	2575	60	L	LL	6193	4	1	1
6195	195	El Junco	0 52 N	0.87	89 27 W	-89.45	650	48	L	LL	6195	0	0	10

TABLE 2. (continued)

6196	196	Fuquene	5	30	N	5.50	73	45	W	-73.75	2580		46	L	LL	6196	0	0	10
6198	198	Laguna de Tagua Tagua	34	30	S	-34.50	71	10	W	-71.17			44	L	LL	6198	8	1	1
6199	199	Tauca	19	30	S	-19.50	68	0	W	-68.00	3660		41	L	LL	6199	8	7	1
6200	200	Valencia	10	6	N	10.10	67	45	W	-67.75	402		72	L	LL	6200	13	1	1
6202	202	El Abra	5	0	N	5.00	74	0	W	-74.00	2570		46	L	LL	6202	8	6	1
6206	206	Bullenmerri	38	15	S	-38.25	143	3	E	143.05	145		40	L	LL	6206	6	3	1
6211	211	Euramoo	17	10	S	-17.17	145	38	E	145.63	730		40	L	LL	6211	7	1	1
6213	213	George	37	26	S	-37.43	140	0	E	140.00	673		40	L	LL	6213	37	1	1
6214	214	Gnotuk	38	13	S	-38.22	143	8	E	143.13	105		40	L	LL	6214	9	1	1
6215	215	Keilambete	38	2	S	-38.04	148	53	E	148.88			40	L	LL	6215	24	1	1
6217	217	Kow Swamp	36	12	S	-36.20	144	18	E	144.30			40	L	LL	6217	10	1	1
6218	218	Leake	37	35	S	-37.58	140	36	E	140.60			40	L	LL	6218	9	2	1
6219	219	Lynchs Crater	17	22	S	-17.37	145	42	E	145.70	760		40	L	LL	6219	13	2	1
6220	220	Marshes Swamp	37	37	S	-37.61	140	32	E	140.53			40	L	LL	6220	4	1	1
6221	221	Myalup Swamp	33	7	S	-33.12	115	42	E	115.70	10		40	L	LL	6221	1	4	1
6222	222	Pulbeena Swamp	40	57	S	-40.95	144	43	E	144.72	30		40	L	LL	6222	0	0	10
6223	223	Quincan Crater	17	18	S	-17.30	145	35	E	145.58			40	L	LL	6223	4	2	1
6226	226	Victoria	34	0	S	-34.00	141	17	E	141.28			40	L	LL	6226	7	2	1
6228	228	Willandra Lakes	33	30	S	-33.50	143	5	E	143.08			40	L	LL	6228	28	5	1
6229	229	Rotorua	38	6	S	-38.10	176	18	E	176.30	280		62	L	LL	6229	2	6	1
6231	231	Comarum So	61	8	N	61.13	45	32	W	-45.53	125		35	L	LL	6231	7	1	1
6234	234	Pityoulish	57	12	N	57.20	3	47	W	-3.78	210		28	L	LL	6234	8	1	1
6235	235	Tyotjarvi	60	59	N	60.98	25	28	E	25.47	143		11	L	LL	6235	17	1	1
6236	236	Wielke Gacno	53	44	N	53.73	17	12	E	17.20	130		26	L	LL	6236	23	1	1
6237	237	Chatyrkel	40	36	N	40.60	75	18	E	75.30	3530		73	L	LL	6237	21	1	1
6530	130	Cahaba Pond	33	30	N	33.50	86	32	W	-86.53	210		36	L	LL	6130	13	2	1
8001	1	A179 15	24	48	N	24.80	75	55	W	-75.92	-3109	.	81	OC	PL	8003	5	1	1
8002	2	K708 1	50	0	N	50.00	23	25	W	-23.42	-4053	.	81	OC	PL	8010	0	4	13
8003	3	K714 15	58	46	N	58.77	25	57	W	-25.95		.	81	OC	PL	8012	1	4	1
8004	4	RC 9 49	11	11	N	11.18	58	36	W	-58.60	-1851	.	81	OC	PL	8001	5	4	1
8005	5	RC 9225	54	59	N	54.98	15	24	W	-15.40	-2334	.	81	OC	PL	8007	0	4	13
8006	6	RC 9228	52	33	N	52.55	18	45	W	-18.75	-3981	.	81	OC	PL	8009	0	4	13
8007	7	V 15168	0	12	N	0.20	39	54	W	-39.90	-4219	.	81	OC	PL	8002	3	4	1
8008	8	V 18357	15	2	N	15.03	80	14	W	-80.23	-1818	.	81	OC	PL	8008	3	3	1
8009	9	V 23 23	56	5	N	56.08	44	33	W	-44.55	-3292	.	81	OC	PL	8012	0	4	13
8010	10	V 23 81	54	15	N	54.25	16	50	W	-16.83	-2393	.	81	OC	PL	8009	1	2	1
8011	11	V 23 82	52	35	N	52.58	21	56	W	-21.93	-3974	.	81	OC	PL	8008	2	5	1
8012	12	V 25 59	1	22	N	1.37	33	29	W	-33.48	-3824	.	81	OC	PL	8002	4	2	1
8013	13	V 27 20	54	0	N	54.00	46	12	W	-46.20	-3510	.	81	OC	PL	8013	0	4	13
8014	14	V 27114	55	3	N	55.05	33	4	W	-33.07	-2532	.	81	OC	PL	8012	3	1	1
8015	15	V 28 14	64	47	N	64.78	29	34	W	-29.57	-1855	.	81	OC	PL	8004	5	1	1
8016	16	V 28127	11	39	N	11.65	80	8	W	-80.13	-3227	.	81	OC	PL	8006	3	3	1
8017	17	V 29179	44	0	N	44.00	24	32	W	-24.53	-3331	.	81	OC	PL	8013	0	4	13
8018	18	V 29183	49	8	N	49.13	25	30	W	-25.50	-3643	.	81	OC	PL	8012	7	2	1
8019	19	V 29192	54	16	N	54.27	16	47	W	-16.78	-2365	.	81	OC	PL	8012	8	1	1
8020	20	V 30 36	5	21	N	5.35	27	19	W	-27.32	-4245	.	81	OC	PL	8005	1	4	1
8021	21	V 30 41	0	13	N	0.22	23	4	W	-23.07	-3874	.	81	OC	PL	8014	9	1	1
8022	22	V 30 51	19	52	N	19.87	19	55	W	-19.92	-3409	.	81	OC	PL	8005	4	4	1
8023	23	V 30 97	41	0	N	41.00	32	56	W	-32.93	-3371	.	81	OC	PL	8011	1	7	1
8024	24	V 30101	44	6	N	44.10	32	30	W	-32.50	-3504	.	81	OC	PL	8012	9	1	1
8025	25	RC13 205	2	17	S	2.28	5	11	E	5.18	-3731	.	87	OC	PL	8015	1	4	1
8026	26	V19 30	3	23	S	3.38	83	31	W	83.52	-3091	.	90	OC	PL	8016	2	1	1
8027	27	RC13 229	25	30	S	25.50	11	18	E	11.30	-4191	.	87	OC	PL	8017	0	7	13
8028	28	RC13 228	22	20	S	22.33	11	12	E	11.20	-3204	.	87	OC	PL	8018	3	2	1
8029	29	RC11 120	43	31	S	43.52	79	52	E	79.87	-3193	.	88	OC	PL	8019	1	6	1

TABLE 2. (continued)

8030	30	V19 29	3	35	S	3.58	83	56	W	83.93	-3157	.	90	OC	PL	8020	0	7	13
8031	31	RC14 103	44	2	N	44.03	152	56	E	152.93	-5365	.	89	OC	PL	8021	0	7	13
8032	32	V22 108	43	11	S	43.18	3	15	W	3.25	-4171	.	88	OC	PL	8022	1	6	1
8033	33	RC12 379	36	54	N	36.90	134	33	E	134.55	-1010	.	92	OC	PL	8023	3	3	1
8034	34	Y7110117	34	0	N	34.00	120	0	W	120.00	-827	.	89	OC	PL	8024	0	7	13
8101	1	V34-87	16	28	N	16.47	59	45	E	59.75	-2144		85	OC	PL	8106	0	2	8
8102	2	V34-88	16	31	N	16.52	59	32	E	59.53	-2171		85	OC	PL	8105	6	2	5
8103	3	V34-89	17	48	N	17.80	61	52	E	61.87	-3760		85	OC	PL	8107	0	4	8
8105	5	V34-91	20	56	N	20.93	64	2	E	64.03	-3393		85	OC	PL	8107	0	4	6
8106	6	V34-92	21	8	N	21.13	65	7	E	65.12	-3166		85	OC	PL	8107	0	4	6
8108	8	V34-94	18	36	N	18.60	65	11	E	65.18	-3373		85	OC	PL	8107	0	4	7
8111	11	V34-101	17	29	N	17.48	67	22	E	67.37	-3038		85	OC	PL	8104	4	1	5
8113	13	V34-109	19	44	N	19.73	66	5	E	66.08	-2742		85	OC	PL	8107	0	4	8
8114	14	V34-111	17	37	N	17.62	63	53	E	63.88	-3623		85	OC	PL	8107	0	4	6
8118	18	RC9-161	19	34	N	19.57	59	36	E	59.60	-3332		85	OC	PL	8101	5	4	5
8121	21	MD76-135	14	26	N	14.43	50	31	E	50.52	-1895		85	OC	PL	8102	0	2	11
8122	22	MD77-202	19	13	N	19.22	60	40	E	60.67	-2427		85	OC	PL	8107	0	2	6
8123	23	MD77-203	20	41	N	20.68	59	34	E	59.57	-2442		85	OC	PL	8104	0	2	11
9001	1	Isla Clarence	54	12	S	-54.20	71	14	W	-71.23	120		44	B	PO	9031	3	2	1
9002	2	Lake Valencia	10	16	N	10.27	67	45	W	-67.75	403		72	L	PO	9033	9	1	1
9004	4	Clenaga Visitador	6	8	N	6.13	72	47	W	-72.78	3300		46	B	PO	9007	2	4	1
9006	6	Laguna de Fuquene II	5	26	N	5.43	73	45	W	-73.75	2580		46	L	PO	9009	2	7	1
9010	10	Laguna de la America	4	46	N	4.77	73	51	W	-73.85	3500		46	L	PO	9012	1	4	1
9013	13	Sabana de Bogota	4	38	N	4.63	74	5	W	-74.08	2560		46	B	PO	9013	5	4	1
9014	14	El Junco 5	0	55	N	0.92	89	30	W	-89.50	500		48	L	PO	9014	9	2	1
9015	15	El Junco 1	0	55	N	0.92	89	30	W	-89.50	500		48	L	PO	9014	9	2	1
9016	16	El Junco 6	0	55	N	0.92	89	30	W	-89.50	500		48	L	PO	9014	5	1	1
9019	19	Lago Surara	4	9	S	-4.15	61	46	W	-61.77	76		84	L	PO	9015	1	7	1
9022	22	Lake Moriru (Moreiru)	4	0	N	4.00	59	0	W	-59.00	110		83	L	PO	9016	2	1	1
9023	23	Kwakwani	5	15	N	5.25	58	3	W	-58.05	150		83	DH	PO	9017	1	4	1
9025	25	Cotapampa	15	13	S	-15.22	69	6	W	-69.10	4450		41	B	PO	9018	5	2	1
9026	26	Laguna Katantica	14	48	S	-14.80	69	11	W	-69.18	4820		41	B	PO	9018	3	1	1
9027	27	E. Cumbre Undavi	16	21	S	-16.35	68	2	W	-68.03	4620		41	B	PO	9030	5	2	1
9029	29	Chacaltaya Profile C	16	22	S	-16.37	68	9	W	-68.15	4750		41	B	PO	9030	5	1	1
9030	30	Chacaltaya Profile B	16	22	S	-16.37	68	9	W	-68.15	4750		41	B	PO	9030	5	1	1
9031	31	Monte Blanco	17	1	S	-17.02	67	21	W	-67.35	4780		41	B	PO	9030	6	1	1
9032	32	Gruta del Indio	34	45	S	-34.75	68	22	W	-68.37	600		82	RS	PO	9020	7	4	1
9033	33	Salina 2	32	15	S	-32.25	69	20	W	-69.33	2000		82	PM	PO	9021	2	1	1
9035	35	Mallin Book	41	20	S	-41.33	71	35	W	-71.58	800		82	B	PO	9023	9	1	1
9036	36	Lago Mascardi-Gutierrez	41	15	S	-41.25	71	28	W	-71.47	800		82	B	PO	9024	3	2	1
9037	37	Alerce I	41	24	S	-41.40	72	54	W	-72.90	100		44	B	PO	9025	6	1	1
9038	38	Alerce III	41	25	S	-41.42	72	52	W	-72.87	100		44	B	PO	9025	5	4	1
9039	39	Calbuco	41	44	S	-41.73	73	12	W	-73.20	100		44	B	PO	9025	4	4	1
9042	42	Puerto Eden	4	0	S	-4.00	74	28	W	-74.47	10		44	B	PO	9027	2	2	1
9048	48	Paramo de la Culata	8	45	N	8.75	71	4	W	-71.07	3800		72	AP	PO	9005	9	1	1
9051	51	Gun Hut Valley Site 3	54	33	S	-54.55	36	28	W	-36.47	21		86	B	PO	9036	1	4	1
9055	55	La Mision	53	30	S	-53.50	67	50	W	-67.83	20		82	B	PO	9029	3	4	1
9056	56	Moreno Glacier Bog	50	27	S	-50.45	73	0	W	-73.00	213		82	B	PO	9028	2	3	1
9060	60	Sphagnum Valley Site 1	54	16	S	-54.27	36	35	W	-36.58	48		86	B	PO	9036	1	4	1
9063	63	Lago Yehuin	54	20	S	-54.33	67	45	W	-67.75	100		82	B	PO	9021	5	1	1
9066	66	West Falkland	51	38	S	-51.63	59	31	W	-59.57	100		86	B	PO	9032	2	3	1
9067	67	Gun Hut Valley Site 4	54	33	S	-54.55	36	28	W	-36.47	21		86	B	PO	9036	2	4	1
9071	71	Laguna de la America II	4	15	N	4.25	74	0	W	-74.00	3550		46	B	PO	9012	2	7	1
9501	1	Dew Lakes	41	20	S	-41.33	173	25	E	173.42	900		62	B	PO	9509	3	3	1
9502	2	Poukawa	39	47	S	-39.78	176	42	E	176.70	20		62	M	PO	9502	4	1	1

TABLE 2. (concluded)

9503	3	No Man's Bog	39 35 S	-39.58	176 15 E	176.25	1300	62	B	PO	9513	4	1	1
9505	5	Maratoto	37 53 S	-37.88	175 18 E	175.30	52	62	L	PO	9502	9	2	1
9506	6	Wairehu	39 3 S	-39.05	175 39 E	175.65	610	62	B	PO	9511	4	3	1
9507	7	Bell Hill	42 33 S	-42.55	171 32 E	171.53	166	62	B	PO	9510	3	3	1
9508	8	Crooked Mary Creek	42 25 S	-42.42	172 7 E	172.12	420	62	B	PO	9510	7	2	1
9509	9	Kaipo Lagoon	38 41 S	-38.68	177 12 E	177.20	1000	62	B	PO	9502	6	1	1
9510	10	Lady Lake	42 36 S	-42.60	171 35 E	171.58	110	62	B	PO	9508	3	3	1
9511	11	Merrivale	46 40 S	-46.67	167 52 E	167.87	60	62	B	PO	9507	4	2	1
9512	12	Ngaere	39 26 S	-39.43	174 20 E	174.33	240	62	M	PO	9506	3	4	1
9513	13	Swampy Hill	45 48 S	-45.80	170 29 E	170.48	740	62	B	PO	9501	7	1	1
9514	14	Stotts Bog	46 31 S	-46.52	169 22 E	169.37	30	62	B	PO	9502	2	1	1
9515	15	Pyramid Valley	42 58 S	-42.97	172 36 E	172.60	320	62	B	PO	9503	3	7	1
9516	16	Ohinewai	37 29 S	-37.48	175 13 E	175.22	30	62	B	PO	9504	3	2	1
9517	17	Pauatahanui	41 6 S	-41.10	174 54 E	174.90	0	62	E	PO	9505	5	1	1
9518	18	Woolshed Hill	42 59 S	-42.98	171 45 E	171.75	1000	62	B	PO	9515	4	4	1

TABLE 3. An example of the data files on the 6000 yr. B.P. tape.

```
 1   ALBION      LAT = 45.670  LONG = -71.320  ELEV =   320  METERS.
     1.23   0.78   7.05  57.95  19.81   1.56   1.03   1.37   1.25   0.48   4.21   0.28   0.0    0.0    0.75
     0.38   0.0    0.0    0.28   0.0    0.0    0.29   0.0    0.01   0.0    0.0    6.27   0.53   0.95   0.28
    19.8   +1.8
 2   ALDERDAL    LAT = 46.050  LONG = -79.200  ELEV =   240  METERS.
     0.23   1.94  77.52   8.29   1.09   1.09   1.09   1.09   0.0    1.09   1.55   1.09   0.0    0.0    0.0
     1.09   0.08   0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    1.02   0.0    2.09
    19.1   +0.4
 3   ALEXANDR    LAT = 53.333  LONG = -60.583  ELEV =   143  METERS.
     2.10   1.10   6.80  16.40   0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
    23.80  17.40   2.80   8.50  13.20   6.00   0.0    0.40   0.0    0.0    0.0    0.0    0.0    0.0    1.40
     7.7   -6.4
 4   ALEXISLK    LAT = 52.517  LONG = -57.033  ELEV =   200  METERS.
    70.21  12.98   1.70  10.19   0.0    0.0    0.0    0.0    0.0    0.0    0.32   0.0    0.0    0.0    0.0
     2.06   0.28   0.02   1.10   0.58   0.0    0.0    0.0    0.0    0.0    0.0    0.55   0.0    0.55   0.0
    13.3   +0.4
 5   ALFIES      LAT = 47.883  LONG = -84.867  ELEV =   288  METERS.
     2.32   1.11  64.92  20.37   0.90   0.0    0.90   0.0    0.10   1.11   2.88   0.0    0.0    0.10   0.0
     1.00   0.0    0.0    0.0    0.0    1.88   0.22   0.0    0.0    0.0    0.0   26.11   0.90   1.00   0.0
    18.5   +2.7
 6   ALIUK       LAT = 54.583  LONG = -57.367  ELEV =    25  METERS.
    10.20   4.05   0.80  24.42   0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
    57.25   0.45   1.02   0.71   0.80   0.05   0.0    0.35   0.0    0.0    0.0    0.0    0.0    0.0    0.0
    10.2   -2.0
 7   ALLENBRG    LAT = 42.250  LONG = -78.870  ELEV =   494  METERS.
     0.0    0.0    2.44   9.30  28.35  23.88   4.99   5.57   2.07   1.88  11.51   1.52   0.01   0.0    0.29
     0.48   0.0    0.0    0.34   0.29   0.30   0.77   0.29   0.20   0.0    0.0    1.94   5.33   0.30   0.0
    21.0   +0.6
 8   ANDERSON    LAT = 38.033  LONG = -85.500  ELEV =   305  METERS.
     1.20   0.0    0.74   1.21   0.14   0.39   0.78   0.75   4.25   1.48  21.92   3.64   0.55   0.0    1.91
    44.94   0.65   0.0    3.51   3.74   0.0    0.18   0.94   0.0    0.03   0.0    0.0    1.03   3.00   3.10
    25.8   +0.1
 9   ATTAWAPS    LAT = 53.000  LONG = -85.170  ELEV =   100  METERS.
    41.80   0.0   40.00  10.00   0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
     0.90   0.0    0.0    0.90   0.0    1.80   0.90   1.80   0.90   0.0    0.0    0.0    0.90   0.0    0.0
    16.6   +1.6
10   BAIESTPL    LAT = 47.482  LONG = -70.685  ELEV =   640  METERS.
     5.90   3.50  18.40  60.20   0.70   0.50   0.70   1.00   0.70   0.0    0.70   0.0    0.0    0.0    0.50
     5.00   0.0    0.30   0.70   0.20   0.20   0.0    0.0    0.0    0.0    0.0    8.30   0.50   0.0    0.20
    18.6   +0.7
11   BALYCROY    LAT = 43.954  LONG = -79.872  ELEV =   297  METERS.
     0.02   0.0   19.21   2.24  16.31  13.28   7.25   7.60   3.85   2.10  21.61   1.32   0.0    0.03   0.0
     0.05   0.0    0.0    3.28   0.38   0.03   0.02   0.0    0.38   0.0    0.0    0.0    0.80   0.02   0.02
    21.9   +2.0
12   BASEPASF    LAT = 46.792  LONG = -71.333  ELEV =    16  METERS.
     5.30   0.40  41.70  16.20   0.0    0.0    0.40   1.30   0.40   0.0    1.80   0.0    0.0    0.0    0.0
     3.90   0.40   0.0   17.10   7.50   0.40   0.0    2.20   0.0    0.0    0.0   35.10   0.40   0.0    0.40

13   BASSWOOD    LAT = 45.250  LONG = -67.333  ELEV =   106  METERS.
     1.53   0.42  37.26  20.65  28.77   0.76   0.73   0.54   1.11   0.12   5.76   0.0    0.0    0.23   0.18
     1.15   0.0    0.0    0.42   0.0    0.18   0.12   0.0    0.18   0.0    0.0    0.0    0.12   0.0    0.0
    20.6   +1.1
14   BELMONT     LAT = 42.250  LONG = -77.917  ELEV =   509  METERS.
     0.05   0.0    9.73   5.27  42.12   8.39   6.11   2.04   2.16   2.86   9.43   0.55   0.0    0.0    0.25
     1.03   0.30   0.81   0.35   0.30   0.25   0.55   0.0    0.05   0.35   0.0    4.49   6.15   0.68   0.55
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TABLE 3. (concluded)

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     21.1   +0.4
15   BEREZIUK   LAT = 54.050  LONG = -76.121  ELEV =   205  METERS.
     38.13  0.0   2.50  19.49  0.0    0.0    0.0   0.20  0.29  0.0   0.29   0.0    0.0   0.74   0.92
     33.79  0.48  0.49   0.25  0.01   0.51   0.21  0.0   0.48  0.0   0.0    0.29   0.48  0.57   0.29
     12.0   -1.0
16   BERRYPND   LAT = 42.500  LONG = -73.317  ELEV =   600  METERS.
     0.12   0.03  6.32  19.58  19.03  13.06  3.29  1.54  2.27  5.85  22.74  1.95   0.23  0.07   0.25
     0.29   0.0   0.0    0.74  0.0    0.17   0.0   0.50  0.20  0.0   0.0    0.0    1.00  0.76   0.0
     21.4   +1.4
17   BIGPOND    LAT = 39.767  LONG = -78.550  ELEV =   634  METERS.
     0.13   0.34  8.28   1.57  2.05   0.86   0.09  0.09  0.0   0.77  55.96  1.54   1.63  0.0    0.0
     2.53   0.26  0.0    2.78  1.87   0.0    0.81  0.56  0.0   5.58  0.0    0.0    0.0   0.86  11.57
     22.7   +0.6
18   BLACKNTN   LAT = 47.900  LONG = -84.867  ELEV =   261  METERS.
     7.13   0.71  62.20 17.59  1.00   0.0    0.0   0.29  0.0   0.71  3.10   0.0    0.0   2.20   0.0
     2.31   0.0   0.0    0.0   0.29   1.00   0.0   0.0   0.0   0.0   0.0    19.82  0.29  0.0    1.00
     18.0   +2.2
19   BOGD       LAT = 47.183  LONG = -95.167  ELEV =   457  METERS.
     0.17   0.0   6.38   2.43  0.0    0.0    0.0   1.10  0.77  0.89  25.26  0.0    0.0   0.47   0.43
     3.05   3.87  0.0    5.76  16.09  17.13  1.93  2.33  8.14  0.0   0.0    0.30   0.17  2.93   0.73
     22.4   +2.6
20   BOUNDARY   LAT = 45.570  LONG = -70.680  ELEV =   603  METERS.
     1.62   1.46  34.31 36.87  6.41   1.12   1.73  1.32  1.62  1.11  7.46   0.0    0.0   0.0    0.22
     1.52   0.09  0.0    0.20  0.0    0.0    0.09  0.0   0.09  0.0   0.0    22.33  1.62  0.68   0.49
     20.3   +2.5
21   BOUNDAR    LAT = 55.250  LONG = -67.400  ELEV =   525  METERS.
     8.41   0.0   1.54  28.82  0.0    0.0    0.0   0.0   0.0   0.0   0.0    0.0    0.0   0.0    0.0
     54.83  1.70  0.0    2.84  1.03   0.34   0.0   0.40  0.0   0.0   0.0    0.0    0.0   0.0    0.0
     10.0   -2.6
22   BRANDRET   LAT = 43.917  LONG = -74.683  ELEV =   563  METERS.
     0.09   0.0   17.81 17.39  39.24  4.71   3.42  2.88  0.50  1.17  6.06   0.46   0.0   0.0    0.0
     1.38   0.0   0.46   1.79  0.50   0.0    0.0   0.0   0.0   0.46  0.0    7.92   0.50  1.38   0.0
     20.0   +1.2
23   BROWNSLK   LAT = 40.683  LONG = -82.050  ELEV =   290  METERS.
     0.0    0.0   2.28   1.24  1.02   2.26   1.48  9.35  0.46  0.0   61.52  3.74   0.46  0.46   0.0
     0.46   1.63  0.08   0.46  3.43   0.0    3.51  0.0   0.0   0.0   0.0    0.0    2.65  0.45   2.50
     23.2   +1.0
24   BUGBEE     LAT = 44.367  LONG = -72.150  ELEV =   398  METERS.
     1.06   0.10  17.28 23.76  52.30  1.87   0.02  0.49  0.0   0.0   1.00   0.01   0.0   0.0    0.0
     0.01   1.00  0.0    0.10  0.49   0.0    0.50  0.0   0.0   0.0   0.0    0.0    0.20  0.0    0.0
     20.0   +0.4
25   BLBIGBEE   LAT = 33.563  LONG = -88.474  ELEV =    49  METERS.
     0.0    0.0   1.64   0.78  0.0    2.29   2.85  1.66  0.0   1.86  55.61  6.36   0.0   0.0    0.0
     11.88  2.26  0.0    0.0   1.35   0.0    1.35  0.56  0.0   0.59  0.0    0.0    4.50  4.42   0.0
     26.1   -1.5
26   CAHABA     LAT = 33.567  LONG = -86.529  ELEV =   204  METERS.
     0.0    0.0   11.96  0.24  0.0    0.24   0.90  0.90  1.38  0.24  30.05  1.95   0.36  0.36   0.0
     0.24   0.42  0.0    0.78  1.68   0.0    0.59  0.24  0.12  24.09 0.0    0.12   5.81  14.69  2.60
     27.0   -0.6
27   CAMP11LK   LAT = 46.667  LONG = -88.017  ELEV =   549  METERS.
     0.0    0.28  75.33  7.35  0.01   0.0    0.92  1.55  0.14  2.82  3.67   0.09   0.0   0.61   0.68
     2.13   0.09  0.09   1.14  0.0    0.42   0.38  0.37  0.31  0.0   0.0    32.51  0.93  0.28   0.0
     19.4   +1.2
28   CHARLES    LAT = 44.730  LONG = -81.020  ELEV =   219  METERS.
     0.36   0.13  18.87  3.64  10.66  1.44   9.93  8.72  4.56  4.46  10.76  0.0    0.0   15.97  0.13
```

TABLE 4. An example of the publication index files on the 6000 yr. B.P. tape.

2	Gruger, J. 1973
11	McAndrews, J.H. 1966
13	Fries, M. 1962
22	Webb, T. III 1974
24	Brubaker, L.B. 1975
26	Bailey, R.E. unpubl.
33	Terasmae, J. and Anderson, T.W. 1970
37	Livingstone, D.A. 1968
42	Terasmae, J. 1968
54	Ogden, J.G. III 1966
55	Craig, A.J. 1969
82	Watts, W.A. 1970
88	Walker, P.C. and Hartman, R.J. 1960
91	Gilliam, J.A., Kapp, R.O., and Bogue, R.D. 1967
99	Watts, W.A. 1971
101	Vincent, J.S. 1973
103	Miller, N.G. 1973
112	Davis, A.M. 1977
125	Spear, R.W. and Miller, N.G. 1976
133	Watts, W.A. 1980a
134	Delcourt, P.A. 1980
136	Sheehan, M.C. and Whitehead, D.R. 1983
137	Watts, W.A. 1975
145	Barclay, F.H. 1957
152	Whitehead, D.R. 1972
153	Whitehead, D.R. 1981
157	Ogden, J.G. III and Hay, R.J. 1967
158	Ogden, J.G. III unpubl.
160	Karrow, P. et al. 1975
161	Anderson, T.W. 1980
162	Anderson, S. and Davis, R.B. unpubl.
163	Manny, B.A., Wetzel, R.G., and Bailey, R.E. 1978
165	Bostwick, L.K. unpubl.
166	Comtois, P. 1982
168	Davis, P.T. 1980
169	Davis, R.B., Bradstreet, T.E., Stuckenrath, R., and Borns, H.W. 1975
170	Davis, M.B. 1969
174	Hadden, K.A. 1976
175	Heide, K.M. 1981
176	Jacobson, G.L. 1979
177	Janssen, C.R. 1968
178	Jordan, R.H. 1975
180	Kapp, R.O. unpubl.
181	King, J.E. 1981
182	Lamb, H.F. 1978
183	Larouche, A. and Richard, P. unpubl.
186	Mcandrews, J.H. 1981
189	McAndrews, J.H. 1970
190	McDowell, L.L. et al. 1971
191	Trent, K.M. unpubl.
192	Mott, R.J. 1975
193	Mott, R.J. 1977
194	Mott, R.J. and Farley-Gill, L.D. 1978
196	Mott, R.J. 1976
197	Overpeck, J.T. 1984

TABLE 4. (concluded)

198	Patterson, W. III unpubl.
199	Peters, A. and Webb, T. III 1979
200	Richard, P. 1977
201	Richard, P. 1979
202	Richard, P. unpubl.
204	Savoie, L. and Richard, P. 1979
205	Saarnisto, M. 1974
206	Saarnisto, M. 1975
207	Shane, L.C.K. 1976
208	Short, S.K. and Nichols, H. 1977
213	Richard, P., Larouche, A., and Bouchard, M. 1982
216	Van Zant, K.L. 1979
218	Waddington, J.C.B. 1969
219	Watts, W.A. 1980b
220	Wright, H.E. Jr. and Watts, W.A. 1969
221	Watts, W.A. and Bright, R.C. 1968
222	Whitehead, D.R. 1979
224	Whitehead, D.R. and Crisman, T. 1978
225	Williams, A.S. 1974
227	Whitehead, D.R. unpubl.
229	Mott, R.J. unpubl.
230	Labelle, C. and Richard, P. 1981
272	Kerfoot, W.C. 1974
273	Ritchie, J.C. and Lichti-Federovich, S. 1968
274	Ritchie, J.C. and Hadden, K.A. 1975
275	Ritchie, J.C. 1969
277	Swain, P.C. 1979
278	Wright, H.E. et al. 1963
280	Delcourt, H.R. 1979
281	Delcourt, H.R., Delcourt, P.A., Spiker, E.C., 1983
284	Bailey, R.E. and Ahearn, P.J. 1981
285	Bailey, R.E. 1972
286	King, J.E. and Allen, W.H. Jr. 1979
288	Lamb, H.F. 1980
289	Baker, R.G. 1970 (Webb & Bryson, 1972)
293	Short, S.K.
294	Gauthier, R. 1981
295	Durkee, L.H. 1971
296	McAndrews, J.H., Riley, J.L., and Davis, A.M., 1982
297	McAndrews, J.H. 1982.
298	Futyma, R.P. 1982
299	McAndrews, J.H. unpubl.
300	Bradshaw, R.H.W.
304	Craig, A.J. 1972
306	Mott, R.J. 1973
307	Mott, R.J. and Farley-Gill, L.D. 1981
309	Webb, T. III and R.A. Bryson 1972
311	Mott, R.J. and Camfield, M. 1969
314	Stravers, L.K.
315	Davis, M.B. 1976
316	Van Zant, K.L. unpubl.
317	Lawrenz, R. 1975
318	Spear, R.W. 1981
319	Mode, W.
320	Morasse, N., Jette, H., and Richard, P. unpubl.
321	Nelson, S. unpubl.
322	Nicholas, J. 1968
323	Nichols, H. 1967
361	Anderson, T.W., unpubl.

TABLE 5. An example of the reference files on the 6000 yr. B.P. tape.

161 Anderson, T.W., 1980.
Holocene vegetation and climatic history of Prince Edward Island, Canada. Canadian Journal of Earth Sciences 17:1152-1165.

162 Anderson, S. and R.B. Davis, unpublished data.

361 Anderson, T.W., unpublished data.

26 Bailey, R.E., unpublished data.

285 Bailey, R.E., 1972.
"Late- and postglacial environmental changes in northwestern Indiana." Ph.D. Thesis, Indiana University, Bloomington, 72 pp.

284 Bailey, R.E. and P.J. Ahearn, 1981.
A late- and postglacial pollen record from Chippewa Bog, Lapeer Co., MI: further examination of white pine and beech immigration into the central Great Lakes region. In "Geobotany II" (R.C. Romans, ed.), pp. 53-74. Plenum Press, New York. pp. 53-74.

289 Baker, R.G., 1970.
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24 Brubaker, L.B., 1975.
Postglacial forest patterns associated with till and outwash in northcentral upper Michigan. Quaternary Research 5:499-527.

166 Comtois, P., 1982.
Histoire holocene du climat et de la vegetation a Lanoraie (Quebec). Canadian Journal of Earth Sciences 19:1938-1952.

55 Craig, A.J., 1969.
Vegetational history of the Shenandosh Valley, Virginia. Geological Society of America Special Paper 123:283-296.

304 Craig, A.J., 1972.
Pollen influx to laminated sediments: a pollen diagram from northeastern Minnesota. Ecology 53:46-57.

112 Davis, A.M., 1977.
The prairie-deciduous forest ecotone in the upper Middle West.

TABLE 5. (concluded)

Annals of the American Association of American Geographers 67:204-213.

170 Davis, M.B., 1969.
Climatic changes in southern Connecticut recorded by pollen deposition at Rogers Lake. Ecology 50:409-422.

168 Davis, P.T., 1980. "Late Holocene glacial, vegetational, and climatic history of Pangnirtung and Kingnait Fiord area, Baffin Island, Canada." Ph.D. Thesis, University of Colorado, Boulder, 366 pp.

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Vegetation and associated environments during the past 14,000 years near Moulton Pond, Maine. Quaternary Research 5:435-465.

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Late Quaternary vegetation history of the eastern Highland Rim and adjacent Cumberland Plateau of Tennessee. Ecological Monographs 49: 255-280.

281 Delcourt, H.R., P.A. Delcourt, and E.C. Spiker, 1983.
A 12 000-year record of forest history from Cahaba Pond, St. Clair County, Alabama. Ecology 64:871-887.

134 Delcourt, P.A., 1980.
Goshen Springs: late Quaternary vegetation record for southern Alabama. Ecology 61:371-386.

295 Durkee, L.H., 1971.
A pollen profile from Woden Bog, Hancock County, Iowa. Ecology 52:835-844.

13 Fries, M., 1962.
Pollen profiles of late Pleistocene and recent sediments at Weber Lake, northeastern Minnesota. Ecology 43:295-308.

298 Futyma, R.P., 1982.
"Postglacial vegetation of eastern upper Michigan." Ph.D. Thesis, University of Michigan, Ann Arbor, 426 pp.

294 Gauthier, R., 1981.
"Histoire de la colonisation vegetale postglaciaire des Montereglennes: deux sites du mont Saint-Bruno. "Memoire M.Sc., Univ. Montreal, 107 pp.

91 Gilliam, J.A., R.O. Kapp, and R.D. Bogue, 1967.
A post-Wisconsin pollen sequence from Vestaberg Bog, Moncalm County, Michigan. Michigan Academy of Science, Arts and Letters 52:3-17.

2 Gruger, J., 1973.
Studies on the late Quaternary vegetation history of northeastern Kansas. Geological Society of America Bulletin

PERTINENT LITERATURE

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TR018

A Global Paleoclimatic Data Base for 6000 yr B.P.

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Under Contract No. DE-AC02-79EV10097

TABLE OF CONTENTS

ABSTRACT

Pollen, lake-level, and marine plankton data form a global data base with 797 stations for 6000 yr B.P. Sets of pollen samples are available from eastern North America, Alaska, Europe, the Soviet Union, South America, and New Zealand. Sites with lake-level data provide coverage in Australia, Africa, southwestern Asia, and western North America, as well as in eastern North America and South America. Marine plankton data are mainly available from the North Atlantic and northwestern Indian Oceans, but isolated samples exist in the Pacific and Southern Oceans. Estimated temperature values are available from eastern North America, Europe, and the ocean samples, and estimated precipitation values exist for central North America and for isolated sites in India and Africa. The data are displayed on maps, and the site locations and other descriptive information are listed in tables. The data set is available on tape or disk from Carbon Dioxide Information Center at Oak Ridge National Laboratory.

INTRODUCTION

The testing of climate-model simulations for past climates requires subcontinental to global maps of paleoclimatic data. Such maps reveal the magnitude and pattern of climatic variables at enough model grid-points that useful comparisons are possible. CLIMAP (1976) pioneered in quantitative paleoclimatic reconstruction at a global scale for 18,000 yr B.P., and presented a contoured map of estimated sea surface temperatures. Sarnthein (1978), Street and Grove (1979), Denton and Hughes (1981), and Peterson et al. (1979) complemented this effort with global maps of terrestrial data, and Gates (1976a,b) and Manabe and Hahn (1977) used the CLIMAP (1976) data in simulations of the full glacial climate with general circulation models (GCM). Recent GCM-modeling of Holocene climates requires comparable syntheses of Holocene data (Kutzbach, 1981: Kutzbach and Guetter, 1984: Webb, 1984). A global set of paleoclimatic data for 6000 yr B.P. has therefore been assembled as the initial phase of a long-term project to map the global-scale patterns in the climates of the past 20,000 years and to test climate model simulations for various dates during this time period (Webb, 1985: Webb et al., 1985).

The current data set consists of pollen, lake-level, and marine plankton data and, where possible, includes quantitative paleoclimatic values estimated from these data. Pollen data record the broad-scale vegetational patterns that are related to climate (Webb, 1985), and lake-level data record the relative water depth in lakes and thus provide records of past changes in moisture (Street-Perrott and Harrison, 1985). The marine plankton data contain information about the geographic distribution of plankton, which like the vegetation reflect climatic patterns. The two main reasons for choosing these three types of data were that 1) they are quantitative and can be calibrated in climatic terms and 2) they occur in networks of samples with good dating control and broad geographic coverage. As currently assembled, the data set provides a core of paleoclimatic information about 6000 yr B.P. to which information from other sources such as ice cores (Lorius et al., 1984: Neftel et al., 1982), paleodunes (Sarnthein, 1978), paleosols (Ruhe, 1983), and fluvial geomorphology (Knox, 1983) can be added.

This report provides a description of the current global data set for 6000 yr B.P. that is stored in computer files and available from Carbon Dioxide Information Center at Oak Ridge National Laboratory. A full climatic interpretation of the data will appear in "Global Climates 6000 and 9000 yr B.P." (COHMAP Members, in prep.), which will include chapters describing the regional data sets as well as chapters describing global maps of the data and climatic estimates derived from the data. Two of the Appendices (C and J) describe subsets of the global data set, and Bartlein et al. (1984), Bartlein and Webb (1985c), Huntley and Birks (1983), Kutzbach (1980), Smith and Street-Perrott (1983), Street-Perrott and Harrison (1985), Swain et al. (1983), Webb (1985), Webb et al. (1985), and Wright (1984) describe the data and their interpretation.

Kellogg (1978) and Butzer (1980) first published global maps of mid-Holocene climatic conditions as possible analogs for future warm climates induced by doubling the concentration of atmospheric carbon dioxide. As pioneering studies, their work highlighted the need for global paleoclimatic maps, but their maps were qualitative, showed no sites, mixed data from a 3000- to 4000-year interval, and contained no detailed documentation or reference lists. A critical review of their work suggested a need for well documented data sets with quantitative paleoclimatic estimates from as narrow a time range as possible. The data set described in this report represents an effort to meet this goal for data from the mid-Holocene. Problems can arise when data from 6000 yr B.P. are used to provide climatic scenarios for possible CO_2-induced climate, because the seasonal radiational heating at 6000 yr B.P. was significantly different from today (Berger, 1978: Kutzbach and Guetter, 1984: Webb and Wigley, 1985), and no clear evidence exists that the global mean temperature was higher than it is now (Webb and Wigley, 1985). These points are further discussed in the Discussion section of this report.

THE DATA SET

The Global Data Set

1. Computer Files of 6000 yr B.P. Data

The global data set is stored in a series of computer files. Appendix A contains the Master Format File that lists all the files and shows how they are organized. Appendix A also contains several tables with descriptive information about codes (e.g., country code or state code) used in describing the sites with data for 6000 yr B.P.

The total data set is subdivided into nine groups of computer files by data type (pollen, lake level, and marine plankton) and, for pollen and marine plankton data, by geographic regions. The pollen data are subdivided into groups of files for eastern North America, Alaska, and northwest Canada, Europe, the Soviet Union, South America, and New Zealand, and the marine plankton data are divided into two groups, one for data from the Atlantic, Pacific and Southern Oceans and the other for data from the Indian Ocean. Each of the nine groups of files includes 1) a FORMAT file that describes the format and contents of each of the other files, 2) an INDEX file that contains in tabular form descriptive information about each site and its data, 3) a DATA6K file that contains the data and available climatic estimates, 4) a PUBINDEX file that contains an index number for locating the bibliographiic references associated with each site, and 5) a REFERENC(E) file that contains the bibliographic references. Some of the key information within INDEX files are listed in Tables 1-4, 6-8, 10, and 12, and the contents of the PUBINDEX and REFERENC(E) files appear in Appendices B, D-I, K, and L.

2. The Global Distribution of Sites with Data

On a global scale (Fig. 1), the majority of the sites contain pollen data (622 sites) with lake level samples next most abundant (119 sites) and marine plankton data least abundant (56 sites). Among the data compiled so far, coverage for pollen data is densest in eastern North America, Europe, the western Soviet Union, and New Zealand. Sparse networks of sites also exist in Alaska, South America, and the eastern Soviet Union. Coverage for sites with lake level data is densest in Africa, southwestern Asia, the southwestern United States, and southern Australia. These sites provide coverage in many of the terrestrial areas where pollen sites are sparse. The slow sedimentation rates in marine cores precludes there being many Holocene samples, and some areas such as the central Pacific Ocean contain none. The densest coverage for marine data is in the North Atlantic Ocean and northwestern Indian Ocean (Fig. 1).

Pollen Data

1. Eastern North America

The pollen data were obtained from computer files of the pollen counts that are stored in the data base of pollen data at Brown University. At each site, radiocarbon dates provided the main information used to estimate the age of each pollen sample. Webb et al. (1983a,b) have described the series of procedures followed in obtaining interpolated values for the pollen percentages at 6000 yr B.P. The data for 6000 yr B.P. are stored as pollen percentages, and a sum of all tree shrub and herb pollen was used in calculating the pollen percentages.

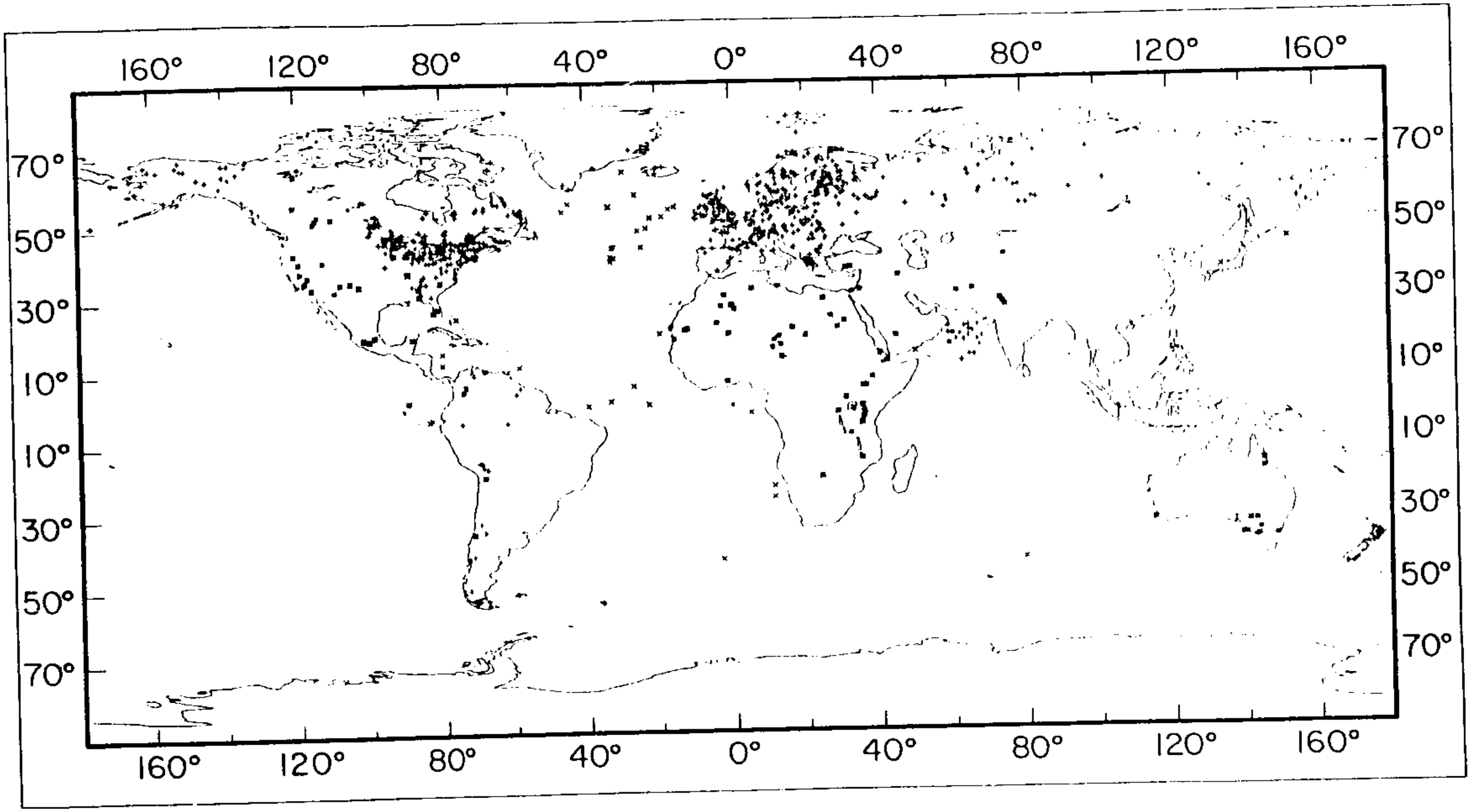

Figure 1. Location of sites with paleoclimatic data for 6000 yr B.P. Pluses indicate sites with pollen data, asterisks indicate sites with lake level data, and x's indicate sites with marine plankton data. This version of this figure updates those published in Webb (1985) and Webb et al. (1985).

The coverage of the 211 samples in eastern North America is fairly uniform with the densest coverage in the northern United States and southeastern Canada (Fig. 2; Table 1). Appendix B lists the bibliographic references for the pollen data. Webb et al. (1983a,b) and Webb and Bartlein (in prep.) have mapped and described many of the changes in the pollen data between 6000 yr B.P. and today. They have also interpreted these changes in vegetational terms. The changes include the westward movement of the prairie forest border, the southward movement of the southern edge of the boreal forest, the slight southward retreat of oak *(Quercus)* populations along their northern border, and the expansion of southern pine *(Pinus)* populations in the Southeast (Fig. 3). The northern edge of the boreal forest as indicated by spruce *(Picea)* pollen also expanded northward in northern Canada (Fig. 3). Appendix C describes specific work to add new data in eastern Canada to study this expansion of spruce populations.

Bartlein and Webb (1985c) have recently used the climatic calibration methods of Howe and Webb (1983) and Bartlein and Webb (1985a,b) to produce estimates of mean July temperature for the 6000 yr B.P. pollen data (Fig. 4). Bartlein et al. (1984) have also provided precipitation estimates for the pollen data in the northern Midwest (Fig. 5).

2. Alaska and Northwestern Canada

Anderson (1982) compiled the initial set of pollen data for 6000 yr B.P. for Alaska and northwestern Canada. Anderson and Brubaker (in prep.) and Ritchie (in prep.) have recently described the data and the methods of data compilation. At each site radiocarbon dates provided the main information used to estimate the age of each pollen sample. Interpolation of the data for 6000 yr B.P. was often done from the published pollen diagrams (Anderson, 1982). The data for 6000 yr B.P. are stored as pollen percentages, and a sum of all tree, shrub, and herb pollen was used to calculate the percentages.

The data coverage is sparse but fairly uniform in northwest Canada, but it is patchy in Alaska with dense coverage in the central and northwestern regions (Fig. 6; Table 2; Appendix D for bibliographic references). The mapping and climatic calibration of the pollen data are in progress and are described in Anderson and Brubaker (1985; in prep.) and Ritchie (in prep.). Ritchie (1984) has provided a recent summary of paleoecological research in the Mackenzie Delta area.

3. Europe

Huntley and Birks (1983) compiled the pollen data for 6000 yr B.P. for Europe. Their atlas provides a thorough description of the data and the methods used in compiling the data. Radiocarbon dates were used at most sites in assigning ages to the pollen samples. The pollen percentages for 6000 yr B.P. were often read off published pollen diagrams. The data for 6000 yr B.P. are stored as pollen percentages, and a sum of all tree, shrub, and herb pollen were used to calculate the percentages.

The data coverage is fairly uniform in northern and central Europe, France, and the Alps but is sparse in the southeast and southwest (Fig. 7; Table 3; see Appendix E for bibliographic references). Maps of the pollen data show that spruce *(Picea)* and beech *(Fagus)* populations expanded westward (Fig. 8), hazel *(Corylus)* populations decreased, and oak *(Quercus)* populations moved southward slightly (Fig. 9).

Huntley and Prentice (in prep.) have used the methods of Howe and Webb (1983) and Bartlein and Webb (1985a,b) to estimate mean July temperatures for 6000 yr B.P. (Fig. 10). In most of Europe, July temperatures have decreased since 6000 yr B.P. with the largest decrease of 4°C in the Alps. Only in the southeast did the mean July temperature increase (Fig. 10). Other

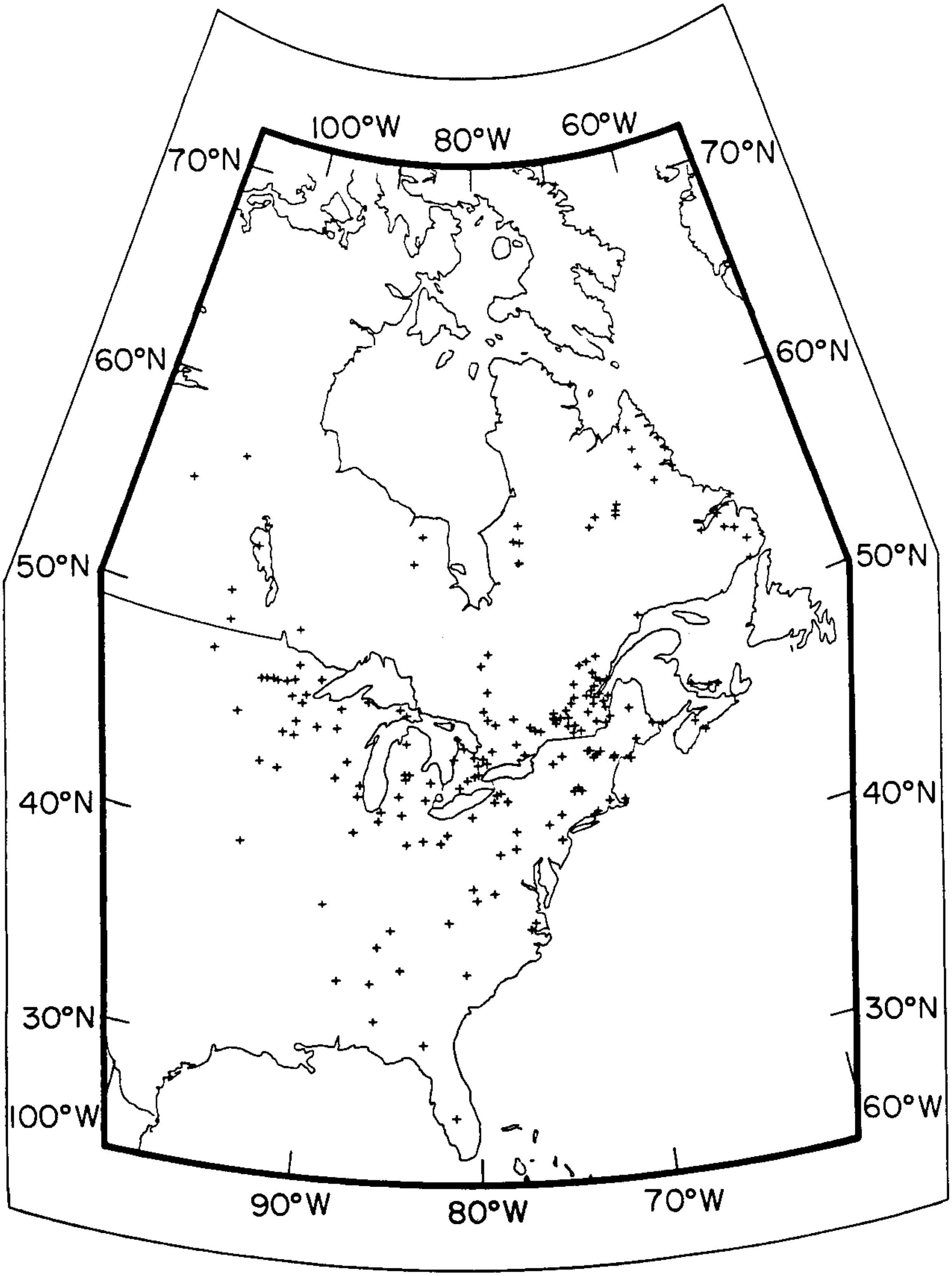

Figure 2. Location of sites with pollen data for 6000 yr B.P. in eastern North America.

Table 1. Site Information for Pollen Data from Eastern North America.

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Elevation (m)	Country	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
Allenberg	42 15 N	78 52 W	494	United States	Bog	Pollen	10	0	7	103
Belmont Bog	42 15 N	77 55 W	497	United States	Bog	Pollen	1	6	4	125
Blue Mound	43 5 N	89 52 W	335	United States	Bog	Pollen	1	4	1	112
Brandreth Lake	43 55 N	74 41 W	583	United States	Bog	Pollen	1	5	1	197
Brown's Lake Bog	40 41 N	82 3 W	290	United States	Bog	Pollen	1	11	2	158
Bugbee Bog	44 22 N	72 9 W	398	United States	Bog	Pollen	1	4	2	190
Chippewa Bog	43 7 N	83 15 W	262	United States	Bog	Pollen	1	4	2	284
Chatsworth Bog	40 40 N	88 20 W	219	United States	Bog	Pollen	1	8	1	181
Cranberry Glades	38 12 N	80 17 W	1029	United States	Bog	Pollen	1	3	1	219
Deer Lake Bog	44 2 N	71 50 W	1325	United States	Bog	Pollen	1	6	2	318
Dismal Swamp (core no. 1)	36 23 N	76 30 W	6	United States	Bog	Pollen	1	2	3	152
Disterhaft Farm Bog	43 55 N	89 10 W	329	United States	Bog	Pollen	1	6	2	289
Eagle Lake Bog	44 10 N	71 40 W	1275	United States	Bog	Pollen	1	3	2	318
Helmetta Bog	40 23 N	74 26 W	15	United States	Bog	Pollen	1	1	4	219
Lima Bog	42 48 N	88 5 W	238	United States	Bog	Pollen	1	8	2	316
Monhegan Island Meadow	43 46 N	69 18 W	3	United States	Bog	Pollen	1	17	1	165
Old Field	37 7 N	89 50 W	98	United States	Bog	Pollen	1	4	1	286
Pamet Cranberry Bog	42 0 N	70 2 W	3	United States	Bog	Pollen	1	3	2	198
Protection Bog	42 37 N	78 28 W	430	United States	Bog	Pollen	1	3	2	103
Rockyhock Bay	36 10 N	76 41 W	6	United States	Bog	Pollen	1	13	4	153
Rossburg Bog	46 35 N	93 36 W	372	United States	Bog	Pollen	1	4	2	220
Shady Valley Peat	36 31 N	81 56 W	383	United States	Bog	Pollen	1	1	4	145
Stotzel-Leis Site	40 13 N	84 41 W	320	United States	Bog	Pollen	1	11	1	207
Tannersville Bog	41 2 N	75 16 W	277	United States	Bog	Pollen	1	5	2	219
Titicut Swamp-1	41 57 N	71 2 W	18	United States	Bog	Pollen	1	3	1	321
Torrens Bog	40 21 N	82 28 W	302	United States	Bog	Pollen	1	13	1	157
Volo Bog	42 21 N	88 11 W	229	United States	Bog	Pollen	1	6	1	181
Woden Bog	43 14 N	93 55 W	381	United States	Bog	Pollen	1	6	1	295
Alderdale	46 3 N	79 12 W	240	Canada	Bog	Pollen	1	1	1	42
Attawapisket	53 0 N	85 10 W	100	Canada	Bog	Pollen	1	1	4	42
Ballycroy Bog	43 57 N	79 52 W	297	Canada	Bog	Pollen	1	2	4	160
Base de Plein Air de St.Foy	46 47 N	71 20 W	16	Canada	Bog	Pollen	1	2	5	183
Cookstown Bog	44 13 N	79 37 W	234	Canada	Bog	Pollen	1	1	5	160
Crawford Bog	43 28 N	79 57 W	279	Canada	Bog	Pollen	10	0	7	299
Dosquet	46 27 N	71 30 W	140	Canada	Bog	Pollen	1	1	4	200
East Baltic Bog	46 26 N	62 7 W	45	Canada	Bog	Pollen	1	3	1	161
Farnham Bog	45 17 N	72 59 W	55	Canada	Bog	Pollen	1	4	1	320
Grieff Kettle Bog	43 25 N	80 11 W	268	Canada	Bog	Pollen	1	1	4	42
Harrowsmith	44 25 N	76 42 W	145	Canada	Bog	Pollen	1	1	5	42
Joncas Bog	47 16 N	71 10 W	747	Canada	Bog	Pollen	1	2	1	200
Kenogami	48 22 N	71 34 W	166	Canada	Bog	Pollen	1	2	1	200
Kincardine Bog	44 9 N	81 39 W	198	Canada	Bog	Pollen	1	4	4	160
Lanoraie, St. Henri Bog	45 59 N	73 18 W	18	Canada	Bog	Pollen	1	6	1	166
Lynn Lake	56 50 N	101 3 W	340	Canada	Bog	Pollen	1	6	1	323
Malbaie	47 36 N	70 58 W	800	Canada	Bog	Pollen	1	2	3	200
Mer Bleue	45 24 N	75 30 W	69	Canada	Bog	Pollen	1	1	4	311
Montagnais	47 54 N	71 10 W	800	Canada	Bog	Pollen	1	4	4	200

Table 1 (continued)

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Elevation (m)	Country	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
Mont Shefford	45 21 N	72 35 W	282	Canada	Bog	Pollen	1	10	1	200
North Bay	46 27 N	79 28 W	369	Canada	Bog	Pollen	1	1	4	42
Portage Bog	46 40 N	64 6 W	8	Canada	Bog	Pollen	1	3	3	161
Qivituq Cliffs Peat	68 2 N	65 4 W	20	Canada	Bog	Pollen	1	2	1	319
Shaw's Bog	45 1 N	64 11 W	30	Canada	Bog	Pollen	1	4	1	174
St. Jean, Ile d'Orleans	46 56 N	70 56 W	68	Canada	Bog	Pollen	1	3	1	200
St. Raymond	46 53 N	71 48 W	160	Canada	Bog	Pollen	1	2	2	200
Victoria Road Bog	44 37 N	78 57 W	274	Canada	Bog	Pollen	1	1	4	42
Val St. Gilles Bog	49 1 N	79 5 W	290	Canada	Bog	Pollen	1	2	1	33
Anderson Pond	36 2 N	85 30 W	305	United States	Lake	Pollen	1	10	2	280
Berry Pond	42 30 N	73 19 W	600	United States	Lake	Pollen	1	16	2	222
Big Pond	39 46 N	78 33 W	634	United States	Lake	Pollen	1	1	5	219
BL-Tombigbee	33 33 N	88 28 W	49	United States	Lake	Pollen	1	5	3	136
Bog D	47 11 N	95 10 W	457	United States	Lake	Pollen	1	4	3	11
Boundary	45 34 N	70 41 W	603	United States	Lake	Pollen	1	5	3	193
Cahaba Pond	33 34 N	86 31 W	204	United States	Lake	Pollen	1	13	2	281
Camp 11 Lake	46 40 N	88 1 W	549	United States	Lake	Pollen	1	11	1	24
Clear Lake	41 39 N	86 32 W	244	United States	Lake	Pollen	1	5	3	285
Crider's Pond	39 58 N	77 33 W	290	United States	Lake	Pollen	1	4	5	219
Crystal Lake	41 33 N	80 22 W	313	United States	Lake	Pollen	1	1	4	88
Crystal Lake	43 15 N	84 55 W	260	United States	Lake	Pollen	1	2	7	226
Demont Lake	43 29 N	85 0 W	248	United States	Lake	Pollen	1	5	2	180
Devils Lake	48 5 N	99 55 W	448	United States	Lake	Pollen	1	1	2	299
Frains Lake	42 20 N	83 38 W	271	United States	Lake	Pollen	1	9	1	272
Goshen Springs	31 43 N	86 8 W	105	United States	Lake	Pollen	1	4	2	134
Green Lake	44 53 N	85 7 W	305	United States	Lake	Pollen	1	3	4	317
Hack Pond	37 59 N	79 0 W	451	United States	Lake	Pollen	1	2	4	55
Hawley Bog Pond	42 34 N	72 53 W	549	United States	Lake	Pollen	1	5	1	198
Heart Lake	44 11 N	73 58 W	664	United States	Lake	Pollen	1	8	1	227
Horseshoe Lake	45 27 N	93 3 W	331	United States	Lake	Pollen	1	12	1	307
Houghton Bog	42 32 N	78 40 W	428	United States	Lake	Pollen	1	1	5	103
Hudson Lake	41 40 N	86 32 W	239	United States	Lake	Pollen	1	6	3	285
Jacobson Lake	46 25 N	92 43 W	324	United States	Lake	Pollen	1	4	2	220
Kinsman Pond	44 8 N	71 44 W	1140	United States	Lake	Pollen	1	3	4	318
Kotiranta	46 43 N	92 37 W	386	United States	Lake	Pollen	1	3	5	220
Lake of the Clouds	48 9 N	91 7 W	453	United States	Lake	Pollen	1	30	1	304
Lake Mary	46 15 N	89 54 W	488	United States	Lake	Pollen	1	3	3	22
Lantern Hill Pond	41 27 N	71 57 W	36	United States	Lake	Pollen	1	5	1	191
Little Bass Lake	47 17 N	93 36 W	391	United States	Lake	Pollen	1	5	1	277
Lake Annie	27 12 N	81 21 W	37	United States	Lake	Pollen	1	8	4	137
Lake of the Clouds	44 16 N	71 19 W	1542	United States	Lake	Pollen	1	5	4	318
Lake Louise	30 43 N	83 15 W	61	United States	Lake	Pollen	1	3	4	99
Lost Lake	46 43 N	87 58 W	500	United States	Lake	Pollen	1	9	7	24
Martin Pond	47 11 N	94 56 W	429	United States	Lake	Pollen	10	0	7	11
Mingo Pond	35 9 N	86 12 W	300	United States	Lake	Pollen	10	0	7	280
Moulton Pond	44 37 N	68 38 W	143	United States	Lake	Pollen	1	16	1	169
Myrtle Lake	47 59 N	93 23 W	393	United States	Lake	Pollen	1	5	1	177

Table 1 (continued)

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Elevation (m)	Country	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
Nelson Pond	46 24 N	92 41 W	335	United States	Lake	Pollen	1	2	1	176
North Pond	42 39 N	73 3 W	586	United States	Lake	Pollen	1	13	1	224
Nunkets Pond	41 58 N	71 3 W	18	United States	Lake	Pollen	1	4	2	300
Lake West Okoboji	43 22 N	95 11 W	415	United States	Lake	Pollen	1	10	1	216
Panther Run Pond	40 48 N	77 25 W	634	United States	Lake	Pollen	1	2	4	219
Pickerel Lake	45 30 N	97 20 W	395	United States	Lake	Pollen	1	3	2	221
Poland Spring Pond	44 2 N	70 21 W	94	United States	Lake	Pollen	1	11	1	315
Portage	47 12 N	94 9 W	396	United States	Lake	Pollen	1	3	2	299
Potts Mountain Pond	37 36 N	80 8 W	840	United States	Lake	Pollen	1	2	4	219
Pretty Lake	41 35 N	85 15 W	294	United States	Lake	Pollen	1	16	1	225
Quicksand	34 19 N	84 52 W	285	United States	Lake	Pollen	1	2	6	82
Lake Rogerine	41 30 N	74 20 W	137	United States	Lake	Pollen	1	2	5	322
Rogers Lake	41 22 N	72 7 W	91	United States	Lake	Pollen	1	53	2	170
Round Lake	41 14 N	86 38 W	216	United States	Lake	Pollen	1	5	5	26
Rutz Lake	44 52 N	93 52 W	314	United States	Lake	Pollen	1	8	1	218
Ryerse Lake	46 7 N	85 10 W	259	United States	Lake	Pollen	1	6	1	298
Silver Lake	40 26 N	83 40 W	341	United States	Lake	Pollen	1	15	1	54
Sinkhole Pond	43 58 N	70 21 W	95	United States	Lake	Pollen	1	12	1	315
Stewart's Dark Lake	45 18 N	91 27 W	335	United States	Lake	Pollen	1	6	1	199
Szabo Pond	40 24 N	74 29 W	29	United States	Lake	Pollen	1	3	4	219
Terhell Pond	47 12 N	95 47 W	442	United States	Lake	Pollen	1	1	7	11
Thompson	47 12 N	96 5 W	370	United States	Lake	Pollen	10	0	7	11
Unknown Lake	45 37 N	70 38 W	489	United States	Lake	Pollen	1	4	7	193
Upper South Branch Pond	46 5 N	68 54 W	300	United States	Lake	Pollen	1	7	2	162
Upper Wallface Pond	44 9 N	74 3 W	945	United States	Lake	Pollen	1	6	2	227
Vestaburg	43 25 N	84 53 W	255	United States	Lake	Pollen	1	4	2	91
Weber Lake	47 28 N	91 40 W	567	United States	Lake	Pollen	1	4	4	13
White Pond	34 10 N	80 46 W	90	United States	Lake	Pollen	1	3	4	133
Willow River Pond	46 20 N	92 47 W	314	United States	Lake	Pollen	1	2	1	176
Wintergreen Lake	42 24 N	85 23 W	283	United States	Lake	Pollen	1	8	2	163
Wolverine Lake	46 25 N	85 39 W	259	United States	Lake	Pollen	1	5	1	298
Wood Lake	45 20 N	90 5 W	464	United States	Lake	Pollen	1	6	1	175
Yellow Dog Lake	46 45 N	87 57 W	445	United States	Lake	Pollen	1	9	1	24
Albion	45 40 N	71 19 W	320	Canada	Lake	Pollen	1	4	1	200
Alexander Lake	53 20 N	60 35 W	143	Canada	Lake	Pollen	1	3	1	178
Alexis Lake	52 31 N	57 2 W	200	Canada	Lake	Pollen	1	4	2	182
Alfies Lake	47 53 N	84 52 W	288	Canada	Lake	Pollen	1	3	4	205
Aliuk Pond	54 35 N	57 22 W	25	Canada	Lake	Pollen	1	2	2	178
Lac des Atocas	45 32 N	73 18 W	120	Canada	Lake	Pollen	1	4	1	294
Baie St. Paul -- Ange	47 28 N	70 41 W	640	Canada	Lake	Pollen	1	7	1	230
Basswood Road Lake	45 15 N	67 20 W	106	Canada	Lake	Pollen	1	3	1	192
St. Benjamin	46 17 N	70 36 W	330	Canada	Lake	Pollen	1	1	4	200
Bereziuk	54 3 N	76 7 W	205	Canada	Lake	Pollen	1	3	1	201
Blackington Lake	47 54 N	84 52 W	261	Canada	Lake	Pollen	1	2	4	206
Lac Bouleaux	45 33 N	73 19 W	126	Canada	Lake	Pollen	1	2	6	229
Boundary Lake	55 15 N	67 24 W	525	Canada	Lake	Pollen	1	6	1	314
Lac Castor	46 36 N	72 59 W	220	Canada	Lake	Pollen	1	6	1	202

Table 1 (continued)

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Elevation (m)	Country	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
Charles Lake	44 44 N	81 1 W	219	Canada	Lake	Pollen	1	1	4	26
Chism-I	54 48 N	76 9 W	340	Canada	Lake	Pollen	1	1	6	201
Chism-II	53 5 N	76 19 W	273	Canada	Lake	Pollen	1	1	4	201
Cycloid Lake	55 16 N	105 16 W	369	Canada	Lake	Pollen	1	2	1	306
Daumont Lake	54 52 N	69 24 W	600	Canada	Lake	Pollen	1	4	3	213
Lac Delorme II	54 25 N	69 55 W	538	Canada	Lake	Pollen	1	4	1	213
Diana Island	60 59 N	69 57 W	110	Canada	Lake	Pollen	1	3	1	200
Dufresne	45 51 N	70 21 W	650	Canada	Lake	Pollen	1	6	2	193
Eagle Lake	53 14 N	58 33 W	400	Canada	Lake	Pollen	1	5	1	288
Edward Lake	44 22 N	80 15 W	518	Canada	Lake	Pollen	1	3	1	186
Found Lake	45 48 N	78 38 W	488	Canada	Lake	Pollen	1	7	1	186
Hayes Lake	49 35 N	93 45 W	391	Canada	Lake	Pollen	1	3	1	297
Gabriel	46 16 N	73 28 W	250	Canada	Lake	Pollen	1	5	2	200
Gea-I-- St. Hippolyte	45 59 N	73 59 W	365	Canada	Lake	Pollen	1	1	5	202
Glenboro Lake	49 26 N	99 17 W	450	Canada	Lake	Pollen	1	5	6	273
Grand Rapids	53 0 N	98 15 W	350	Canada	Lake	Pollen	1	3	1	274
Iglutalik Lake	66 8 N	66 5 W	90	Canada	Lake	Pollen	1	5	1	168
Jock Lake	48 41 N	86 27 W	290	Canada	Lake	Pollen	1	9	1	206
Kanaaupscow	54 1 N	76 38 W	200	Canada	Lake	Pollen	1	1	4	201
Kogaluk Plateau Lake	56 4 N	63 45 W	530	Canada	Lake	Pollen	1	5	2	208
Lac Colin	46 43 N	70 18 W	658	Canada	Lake	Pollen	1	8	1	193
Lac Hamard	54 48 N	67 30 W	564	Canada	Lake	Pollen	1	4	1	314
Joncas Lake	47 15 N	71 10 W	780	Canada	Lake	Pollen	1	1	4	202
Lac Louis	47 17 N	79 7 W	300	Canada	Lake	Pollen	1	3	1	101
Lac Mimi	47 30 N	70 22 W	411	Canada	Lake	Pollen	1	6	4	200
Lac Romer	45 58 N	73 20 W	20	Canada	Lake	Pollen	1	4	1	166
Lac Yelle	48 30 N	79 38 W	355	Canada	Lake	Pollen	1	3	2	202
Little Lake	45 9 N	66 43 W	64	Canada	Lake	Pollen	1	4	1	192
Maclaughlin Pond	46 23 N	62 47 W	24	Canada	Lake	Pollen	1	5	2	361
Maplehurst	43 13 N	80 39 W	300	Canada	Lake	Pollen	1	6	2	194
Marcotte	47 4 N	71 25 W	503	Canada	Lake	Pollen	1	5	1	230
Lac Martini	47 28 N	72 45 W	242	Canada	Lake	Pollen	1	4	2	202
Lac Martyne	56 47 N	64 50 W	365	Canada	Lake	Pollen	1	3	1	299
Mauricie	46 47 N	72 50 W	270	Canada	Lake	Pollen	1	5	2	200
Mont Valin	48 36 N	70 50 W	891	Canada	Lake	Pollen	1	4	1	202
Nain Pond	56 32 N	61 49 W	80	Canada	Lake	Pollen	1	8	2	208
Napaktok Lake	57 55 N	62 34 W	143	Canada	Lake	Pollen	1	5	2	293
Palsa Lake	58 28 N	65 10 W	143	Canada	Lake	Pollen	1	6	1	293
Paradise Lake	53 3 N	57 45 W	180	Canada	Lake	Pollen	1	3	1	288
Patricia Bay Lake	70 28 N	68 30 W	11	Canada	Lake	Pollen	1	1	1	319
Perch Lake	46 2 N	77 22 W	160	Canada	Lake	Pollen	1	1	4	299
Pink Lake	45 28 N	75 49 W	162	Canada	Lake	Pollen	1	3	2	307
Pond Mills Pond	42 55 N	81 15 W	274	Canada	Lake	Pollen	1	1	4	186
Princeville	46 8 N	71 56 W	135	Canada	Lake	Pollen	10	0	7	200
Pyramid Hills Lake	57 38 N	65 10 W	381	Canada	Lake	Pollen	1	7	1	208
Ramsay Lake	45 36 N	76 6 W	200	Canada	Lake	Pollen	1	5	2	307
Lake E	50 43 N	99 39 W	724	Canada	Lake	Pollen	1	8	1	275

Table 1 (continued)

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Elevation (m)	Country	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
Riley Lake	54 19 N	84 33 W	142	Canada	Lake	Pollen	1	2	2	296
Sam	46 39 N	72 58 W	240	Canada	Lake	Pollen	1	6	2	202
Sav-I -- Ste. Agathe	46 3 N	74 28 W	454	Canada	Lake	Pollen	1	3	3	204
Sav-II -- Lac aux Quenoilles	46 10 N	74 23 W	403	Canada	Lake	Pollen	1	3	4	204
Second Lake	44 50 N	79 59 W	196	Canada	Lake	Pollen	1	1	7	299
"LD" Lake	50 8 N	67 7 W	122	Canada	Lake	Pollen	1	2	2	196
Shouldice Lake	45 9 N	81 25 W	177	Canada	Lake	Pollen	1	2	4	299
Silver Lake	44 33 N	63 38 W	69	Canada	Lake	Pollen	1	3	1	37
St. Calixte	45 57 N	73 52 W	261	Canada	Lake	Pollen	1	4	2	202
St. Francois de Sales	48 17 N	72 8 W	358	Canada	Lake	Pollen	1	4	2	202
St. Germain	45 56 N	74 22 W	473	Canada	Lake	Pollen	1	5	3	204
St. John's Island Pond	53 57 N	58 55 W	137	Canada	Lake	Pollen	1	2	1	178
Lac Tania	45 46 N	74 18 W	305	Canada	Lake	Pollen	1	6	2	202
Petit Lac Terrien	46 35 N	70 37 W	404	Canada	Lake	Pollen	1	1	6	193
Tonawa Lake	44 51 N	77 10 W	305	Canada	Lake	Pollen	1	2	2	299
Lac a la Tortue	45 32 N	73 19 W	137	Canada	Lake	Pollen	1	4	2	294
Tunturi Lake	55 1 N	67 30 W	610	Canada	Lake	Pollen	1	3	1	314
Ublik Lake	57 23 N	62 3 W	122	Canada	Lake	Pollen	1	4	1	208
Van Nostrand Lake	44 0 N	79 23 W	297	Canada	Lake	Pollen	1	2	3	189
Whitney's Gulch	51 31 N	57 18 W	98	Canada	Lake	Pollen	1	5	2	288
Yamaska	45 28 N	72 52 W	265	Canada	Lake	Pollen	1	7	1	202
Kirchner Marsh	44 50 N	93 7 W	254	United States	Marsh	Pollen	1	6	1	278
Muscotah Marsh	39 32 N	95 31 W	320	United States	Marsh	Pollen	1	4	2	2

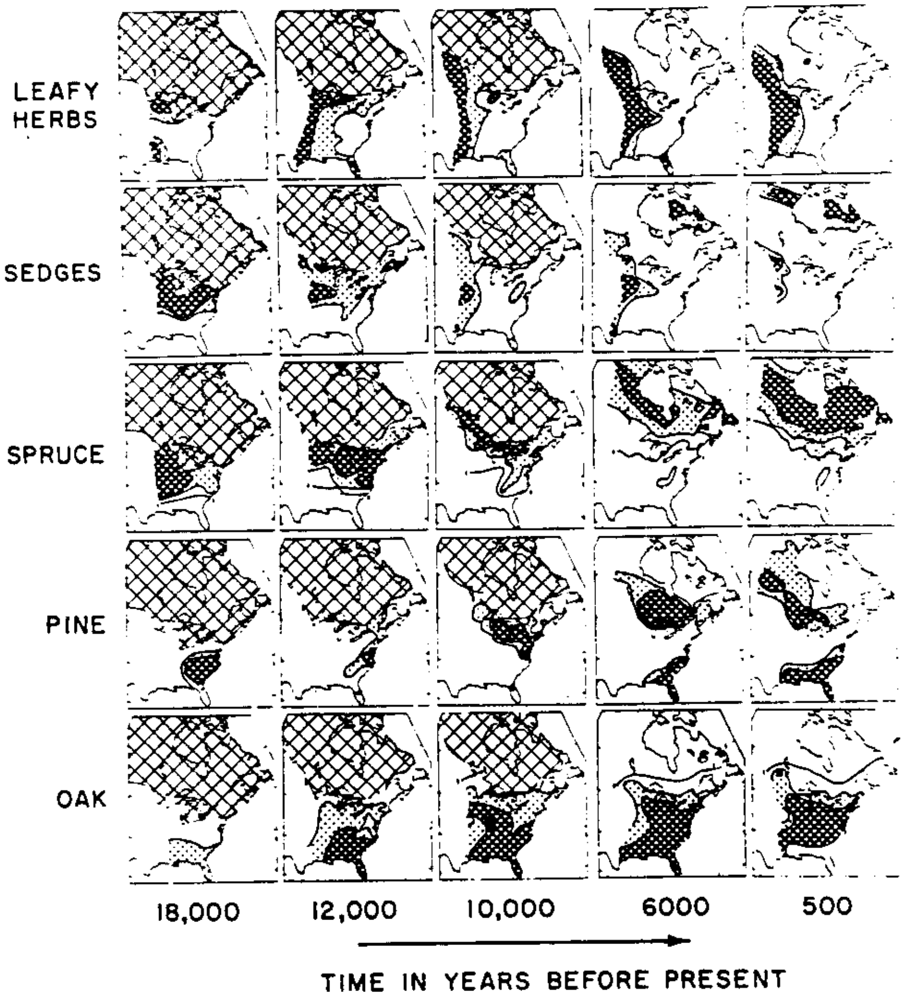

Figure 3. Vegetation change in eastern North America during the past 18,000 years from full glacial conditions (18,000 years ago) until just before European settlement (500 years ago). These maps provide a context for judging the changes since 6000 yr B.P. Crosshatched area is the ice sheet. Areas with heavy stippling (HS) and light stippling (LS) show regions with different concentrations of pollen types, expressed in percent of the total pollen rain observed at 14 sites for 18,000 yr B.P., 50 sites for 12,000 yr B.P., and over 200 sites at younger times. The distribution of leafy herb and sedge pollen (>5%, LS; >10%, HS) represents various types of prairie, tundra, and open woodland vegetation. The distribution of spruce pollen (>5%, LS; >20%, HS) indicates the development of spruce woodlands and (since 6000 B.P.) the boreal forest. The changing distribution of pine pollen (>20%, LS; >40% HS) represents the northward movement of northern pine forests from South Carolina and Georgia to the Midwest, and the recent development of the southern pine forests. The distibution of oak pollen (>5%, LS; >20% HS) reflects the extent of deciduous forest. Note that the regional vegetation pattern is always changing in response to natural changes in radiative and climatic boundary conditions. A particularly rapid change in vegetation, ice volume, and climate occurred between 12,000 and 10,000 years ago (coinciding with a maximum in Northern Hemisphere summer insolation), whereas the major change in the area of the North American ice sheet occurred later (ice margins derived from Denton and Hughes, 1981).

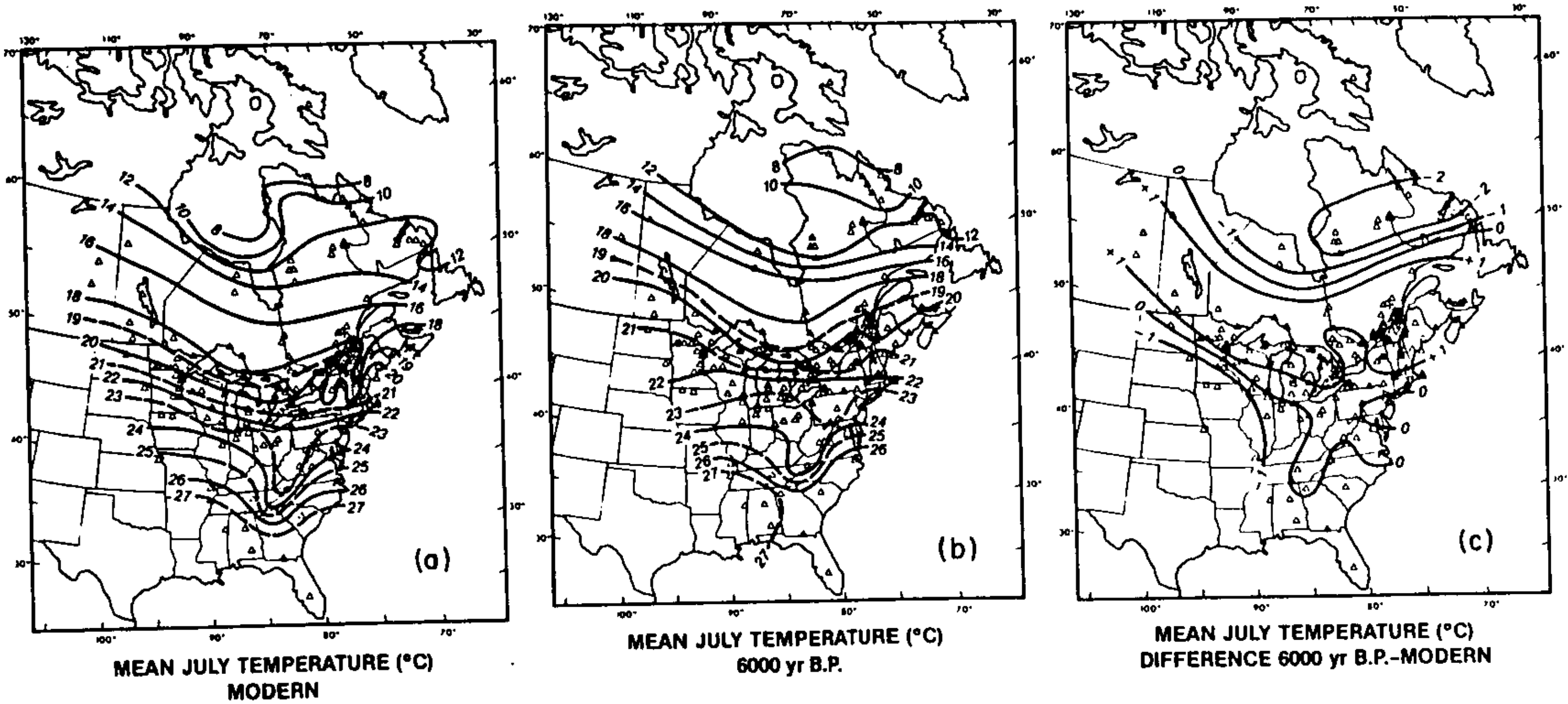

Figure 4. Isotherm maps for mean July temperature a) today and b) 6000 yr B.P. The map on the right (c) shows the estimated temperature differences between today and 6000 yr B.P. with positive values indicating estimated temperatures higher than today at 6000 yr B.P. Bartlein et al. (1984) and Bartlein and Webb (1985c) describe how the temperatures for 6000 yr B.P. were estimated from the pollen data.

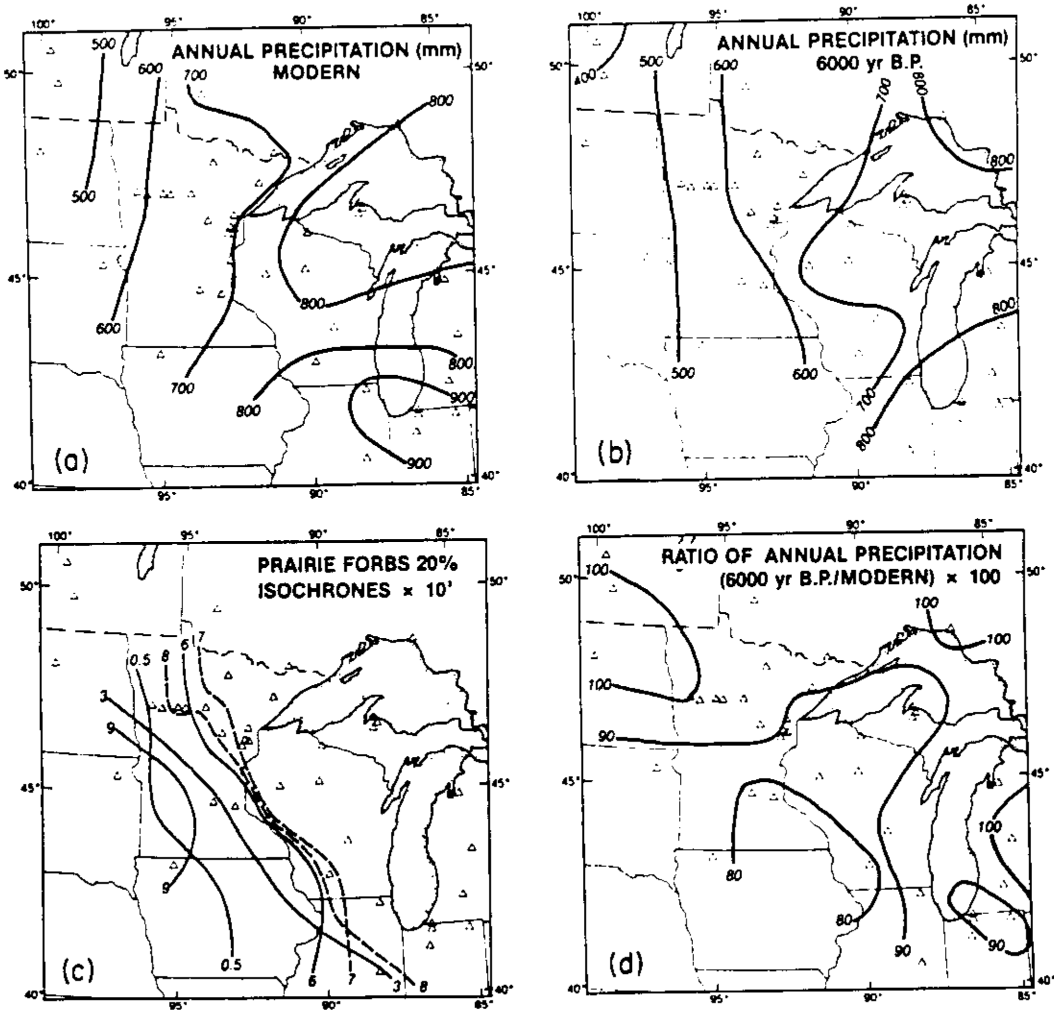

Figure 5. Maps from the northern Midwest that show a) the distribution of annual precipitation today (1941-70), b) estimates of annual precipitation derived from pollen data by Bartlein et al. (1984), c) isochrones (in thousands of years B.P.) for the 20% isofrequency contour for prairie forb (sum of sage, ragweed, pigweed family, and daisy family) pollen, and d) the ratio between annual precipitation values for 6000 yr B.P. and those observed today.

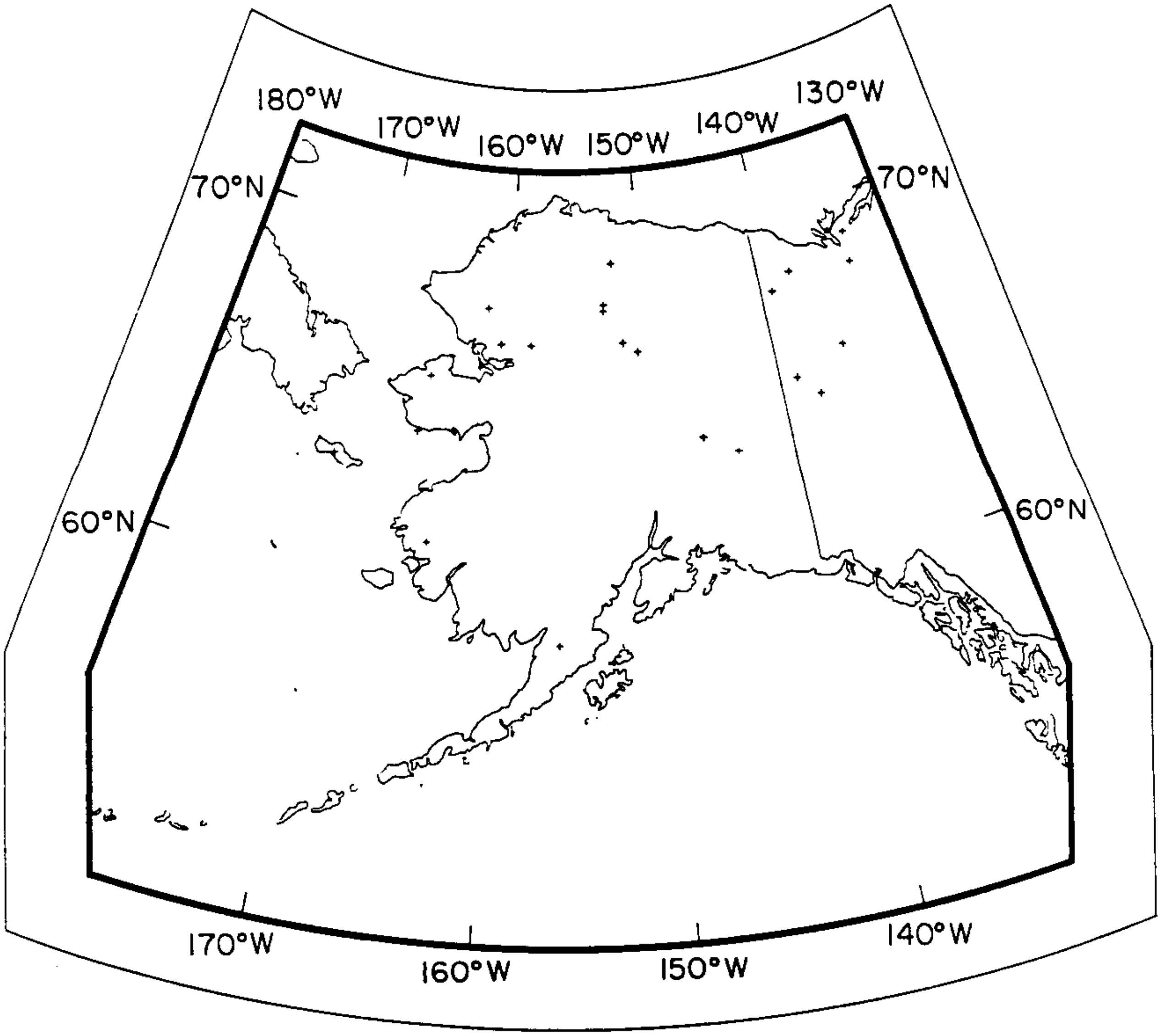

Figure 6. Location of sites with pollen data for 6000 yr B.P. in Alaska and northwest Canada (modified from Anderson, 1982).

Table 2. Site Information for Pollen Data from Alaska and Northwestern Canada.

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Elevation (m)	Country	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
Epiguruk I	67 5 N	158 10 W	91	United States	Colluvium	Pollen	1	2	3	2062
Umiat	69 24 N	152 6 W	107	United States	Colluvium	Pollen	1	3	1	2034
Old Crow Flats	68 0 N	140 0 W	381	Canada	Colluvium	Pollen	1	4	4	2032
Birch Lake	64 19 N	146 40 W	275	United States	Lake	Pollen	1	6	2	2001
Chandler Lake	68 15 N	152 42 W	950	United States	Lake	Pollen	10	0	7	2033
Death Valley Lake	67 10 N	151 25 W	300	United States	Lake	Pollen	10	0	7	2033
Eight Lake	68 8 N	152 50 W	900	United States	Lake	Pollen	10	0	7	2033
Flora Lake	63 30 N	170 30 W	15	United States	Lake	Pollen	1	1	4	2018
George Lake	63 47 N	144 35 W	389	United States	Lake	Pollen	1	5	3	2002
Grayling Lake III	66 57 N	150 25 W	385	United States	Lake	Pollen	1	6	2	2009
Kaiyak Lake	68 7 N	161 25 W	190	United States	Lake	Pollen	1	6	2	2008
Squirrel Lake	67 6 N	160 23 W	91	United States	Lake	Pollen	1	5	7	2008
Puyuk Lake (St. Michael)	63 30 N	162 12 W	25	United States	Lake	Pollen	1	2	4	2001
Tungak Lake (Ingakslugwat)	61 23 N	164 1 W	60	United States	Lake	Pollen	1	4	2	2001
Whitefish Lake	66 4 N	165 3 W	12	United States	Lake	Pollen	1	3	1	2046
Antifreeze Pond	62 21 N	140 50 W	610	Canada	Lake	Pollen	1	4	2	2039
Hanging Lake	68 23 N	138 23 W	500	Canada	Lake	Pollen	1	21	1	2054
Lake M	68 8 N	133 38 W	105	Canada	Lake	Pollen	1	5	2	2042
Lateral Pond	66 0 N	136 0 W	500	Canada	Lake	Pollen	1	5	4	2054
Tuktoyaktuk 5	69 3 N	133 27 W	60	Canada	Lake	Pollen	1	5	2	2061
Adak Island	51 54 N	176 38 W	60	United States	Peat	Pollen	10	0	1	2030
Brooks River	58 43 N	156 0 W	10	United States	Peat	Pollen	1	2	5	2028
Nome	64 30 N	165 25 W	4	United States	Peat	Pollen	1	2	7	2031
Chapman	64 52 N	138 19 W		Canada	Peat	Pollen	1	3	4	2048
Gill Lake	65 26 N	139 42 W	122	Canada	Peat	Pollen	1	1	6	2048

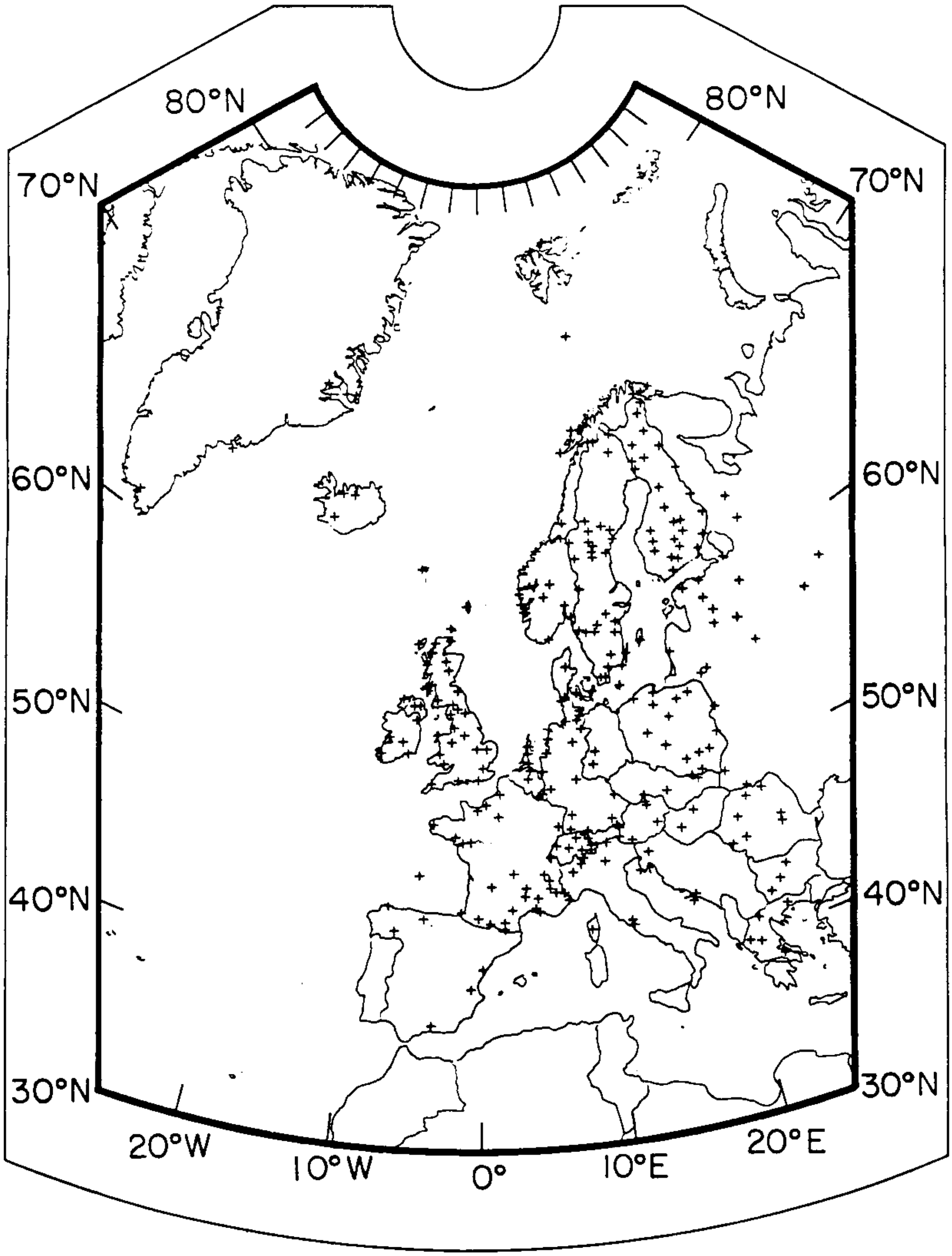

Figure 7. Location of sites with pollen data for 6000 yr B.P. in Europe (modified from Huntley and Birks, 1983).

Table 3. Site Information for Pollen Data from Europe.

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Elevation (m)	Country	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
Nant Ffrancon	53 11 N	4 3 W	198	Wales	Lake	Pollen	1	20	1	3096
Vracov	48 58 N	17 17 E	192	Czechoslovakia	Lake	Pollen	1	6	2	3082
Tinglev	54 57 N	9 15 E	<50	Denmark	Lake	Pollen	10	0	3	3016
Lake Even	55 8 N	12 1 E	0.2	Denmark	Lake	Pollen	10	0	3	3384
Blelham Tarn	54 23 N	2 58 W	42	England	Lake	Pollen	1	5	1	3405
Crosemere	52 52'N	2 51 W	87	England	Lake	Pollen	1	11	1	3323
Lewes II	50 52 N	0 0 0	3	England	Lake	Pollen	1	2	2	3023
Suovalampi	69 35 N	28 50 E	104	Finland	Lake	Pollen	1	5	1	3148
Akuvaara	69 8 N	27 41 E	170	Finland	Lake	Pollen	1	5	1	3148
Sompiojarvi	68 5 N	27 30 E	242	Finland	Lake	Pollen	10	0	3	3298
Lake Sarkkilanjarvi	61 45 N	23 6 E	87	Finland	Lake	Pollen	1	4	1	3326
Lake Vakojarvi	60 20 N	24 36 E	82	Finland	Lake	Pollen	1	7	1	3190
Lovojarvi	61 5 N	25 2 E	108	Finland	Lake	Pollen	1	5	1	3322
Sippurilampi	61 44 N	29 42 E	120	Finland	Lake	Pollen	10	0	3	3335
Joutenlampi	64 0 N	30 15 E	239	Finland	Lake	Pollen	1	1	1	3149
Lohvanjarvi	63 47 N	26 12 E	155	Finland	Lake	Pollen	10	0	3	3302
Ylikiiminki	64 56 N	26 30 E	94	Finland	Lake	Pollen	1	3	3	3301
Porraslampi	62 53 N	23 31 E	90	Finland	Lake	Pollen	1	1	2	3301
Valkiajarvi	66 48 N	24 7 E	188	Finland	Lake	Pollen	1	3	2	3303
Siimaslampi	66 40 N	25 58 E	207	Finland	Lake	Pollen	1	3	1	3303
Vuorilampi	62 54 N	27 40 E	108	Finland	Lake	Pollen	10	0	3	3218
Tyotjarvi	60 59 N	25 28 E	143	Finland	Lake	Pollen	1	17	1	3217
Grosser Segeberger See	53 56 N	10 19 E	29	West Germany	Lake	Pollen	1	38	1	3111
Schleinsee	47 38 N	9 38 E	474	West Germany	Lake	Pollen	10	0	1	3168
Grosser Ploner See	54 9 N	10 25 E	<100	West Germany	Lake	Pollen	1	22	1	3112
Aussenalster 21	53 38 N	10 5 E	<100	West Germany	Lake	Pollen	1	7	1	3113
Balaton	46 50 N	17 46 E	>100	Hungary	Lake	Pollen	10	0	4	3032
Hafratjorn	65 35 N	20 4 W	97	Iceland	Lake	Pollen	1	2	3	3410
Lomatjorn	64 15 N	20 27 W	100	Iceland	Lake	Pollen	10	0	3	3410
Belle Lake	52 11 N	7 2 W	33	Ireland	Lake	Pollen	1	8	1	3008
Gortalecka	53 0 N	9 1 W	30	Ireland	Lake	Pollen	10	0	3	3392
Lago Di Biandronno	45 49 N	8 41 E	239	Italy	Lake	Pollen	1	6	1	3344
Lago Di Ledro	45 52 N	10 45 E	655	Italy	Lake	Pollen	10	0	3	3155
Lago Di Monterosi	42 12 N	12 18 E	237	Italy	Lake	Pollen	1	8	1	3090
Lake of Vico	42 19 N	12 10 E	507	Italy	Lake	Pollen	10	0	4	3007
See Gabiauriskis	54 40 N	23 40 E	100	Lithuania	Lake	Pollen	10	0	3	3324
Domsvatnet	70 19 N	31 2 E	120	Norway	Lake	Pollen	1	5	1	3147
Bruvatnet	70 11 N	28 25 E	119	Norway	Lake	Pollen	1	5	1	3148
Longstjorn	60 48 N	5 1 E	<100	Norway	Lake	Pollen	1	3	3	3321
Tveitavatn	59 46 N	5 30 E	38	Norway	Lake	Pollen	1	1	3	3377
Lille Krysstjern	59 15 N	11 16 E	142	Norway	Lake	Pollen	10	0	3	3018
Ostervatnet	70 9 N	29 28 E	148	Norway	Lake	Pollen	10	0	3	3178
Mikolajki	53 50 N	21 33 E	<200	Poland	Lake	Pollen	10	0	3	3287
Jeziora Budzynskiego	52 14 N	16 46 E	<100	Poland	Lake	Pollen	10	0	3	3103
Jezioro Jamno	54 13 N	16 9 E	<100	Poland	Lake	Pollen	10	0	3	3220
Woryty	53 42 N	20 22 E	<200	Poland	Lake	Pollen	1	6	3	3288
Lukcze Lake	51 26 N	23 14 E	<200	Poland	Lake	Pollen	11	.	3	3001

Table 3 (continued)

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Elevation (m)	Country	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
Loch Maree	57 41 N	5 29 W	10	Scotland	Lake	Pollen	1	6	1	3174
Loch Dungeon	55 8 N	4 19 W	305	Scotland	Lake	Pollen	10	0	3	3177
Lochan Doilead	56 59 N	5 48 W	39	Scotland	Lake	Pollen	1	12	1	3399
Laguna de Las Sanguijuelas	42 8 N	6 45 W	1000	Spain	Lake	Pollen	1	7	1	3196
Trullvatnet	80 11 N	19 30 E	1	Svalbard	Lake	Pollen	1	5	2	3150
Stroen	79 49 N	15 48 E	14	Svalbard	Lake	Pollen	1	2	2	3150
Skinkevatna	74 29 N	18 55 E	19	Svalbard	Lake	Pollen	1	3	2	3150
Lake Trummen	56 52 N	14 50 E	161	Sweden	Lake	Pollen	1	30	1	3129
Lake Striern	58 5 N	15 47 E	87	Sweden	Lake	Pollen	1	15	1	3141
Farskesjon	56 10 N	15 52 E	14	Sweden	Lake	Pollen	10	0	3	3037
Vuolep Njakajaure	68 20 N	18 45 E	408	Sweden	Lake	Pollen	1	5	1	3300
Ranviken Bay	56 16 N	14 18 E	81	Sweden	Lake	Pollen	1	25	1	3130
Kroppsjon	58 22 N	13 30 E	<200	Sweden	Lake	Pollen	10	0	3	3292
Lake Flarken	58 36 N	13 43 E	<100	Sweden	Lake	Pollen	1	13	1	3115
Langa Getsjon	58 40 N	16 2 E	120	Sweden	Lake	Pollen	1	5	1	3295
Brotrask	57 19 N	18 27 E	40	Sweden	Lake	Pollen	10	0	3	3187
Vassijaure	68 25 N	18 17 E	480	Sweden	Lake	Pollen	1	5	1	3283
Hullsjon	58 21 N	12 23 E	38	Sweden	Lake	Pollen	1	6	2	3117
Rudetjarn	62 22 N	17 0 E	45	Sweden	Lake	Pollen	1	4	1	3340
Igu	45 58 N	14 31 E	<500	Yugoslavia	Lake	Pollen	10	0	3	3017
Comarum So	61 8 N	45 32 W	125	Greenland	Lake	Pollen	1	5	1	3034
Spongilla So	59 58 N	44 21 W	6	Greenland	Lake	Pollen	1	5	1	3034
Morten So	70 52 N	22 27 W	48	Greenland	Lake	Pollen	1	7	1	3365
Hugin So	70 46 N	24 7 W	55	Greenland	Lake	Pollen	1	5	1	3365
Potamogetonso	70 57 N	27 44 W	58	Greenland	Lake	Pollen	1	5	1	3365
Hockham Mere	52 30 N	0 50 E		England	Other	Pollen	10	0	3	3128
The World's End	51 27 N	0 22 E	2	England	Other	Pollen	1	8	1	3333
Marais de L'Erdre	47 23 N	1 30 W	4	France	Other	Pollen	10	0	3	3314
Marais Vernier	49 26 N	0 32 E	3	France	Other	Pollen	10	0	3	3171
Lac Long Inferieur	44 3 N	7 27 E	2090	France	Other	Pollen	1	13	1	3207
Lac de Balcere	42 35 N	2 3 E	1764	France	Other	Pollen	1	3	1	3135
Redon	47 36 N	2 5 W	6	France	Other	Pollen	10	0	3	3297
C. 6932	45 24 N	5 9 W		France	Other	Pollen	10	0	3	3216
Schurmsee	48 35 N	8 23 E	795	West Germany	Other	Pollen	10	0	3	3124
Steinhuder Meer	52 29 N	9 18 E	38	West Germany	Other	Pollen	1	4	1	3120
Dunakeszi	47 35 N	19 7 E	<200	Hungary	Other	Pollen	10	0	3	3284
Uitgeest	52 32 N	4 43 E	-1	Netherlands	Other	Pollen	1	2	4	3356
Alphen Aan De Rijn	52 8 N	4 40 E	-2	Netherlands	Other	Pollen	1	3	1	3356
Czajkow	50 33 N	21 7 E	206	Poland	Other	Pollen	1	1	3	3244
Loch Cill An Aonghais	55 47 N	5 32 W	30	Scotland	Other	Pollen	1	8	1	3366
Loch Of Winless	58 28 N	3 12 W	9	Scotland	Other	Pollen	1	10	1	3366
Malo Jezero	42 47 N	17 21 E	0	Yugoslavia	Other	Pollen	1	3	3	3156
Palu	45 2 N	13 42 E	0	Yugoslavia	Other	Pollen	1	1	4	3157
Giering	47 28 N	12 22 E	820	Austria	Bog	Pollen	1	5	1	3186
Zirbenwaldmoor	46 51 N	11 2 E	2150	Austria	Bog	Pollen	1	7	1	3227
Rostocker Hutte	47 3 N	12 18 E	2270	Austria	Bog	Pollen	1	6	1	3346
Spielberg	48 27 N	15 10 E	830	Austria	Bog	Pollen	1	4	1	3331

Table 3 (continued)

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Elevation (m)	Country	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
Haslau	48 49 N	15 7 E	565	Austria	Bog	Pollen	1	5	1	3332
Wenigzell-Sommersgut	47 27 N	15 47 E	870	Austria	Bog	Pollen	1	1	1	3265
Lengholz	46 46 N	13 16 E	570	Austria	Bog	Pollen	1	5	1	3014
Marais de Vance	49 42 N	5 41 E	340	Belgium	Bog	Pollen	1	13	1	3066
Petite Nethe	51 11 N	4 50 E	10	Belgium	Bog	Pollen	10	0	3	3013
Nethen	50 47 N	4 40 E	32	Belgium	Bog	Pollen	1	2	3	3394
Bogdan	42 34 N	24 29 E	1550	Bulgaria	Bog	Pollen	1	2	3	3266
Sucho Ezero	42 4 N	23 36 E	1900	Bulgaria	Bog	Pollen	10	0	4	3079
Tregaron Bog	52 13 N	3 55 W	165	Wales	Bog	Pollen	1	18	1	3096
Craig-Y-Llyn	51 43 N	3 34 W	488	Wales	Bog	Pollen	10	0	3	3136
Podhorany	49 12 N	20 25 E	620	Czechoslovakia	Bog	Pollen	10	0	3	3387
Blato	49 2 N	15 8 E	650	Czechoslovakia	Bog	Pollen	10	0	3	3228
Brondum Bog	56 37 N	9 43 E	<50	Denmark	Bog	Pollen	10	0	3	3256
Graessoen	55 7 N	14 56 E	100	Denmark	Bog	Pollen	10	0	3	3383
Stevningen	55 9 N	10 27 E	57	Denmark	Bog	Pollen	10	0	3	3373
Red Moss	53 37 N	2 33 W	107	England	Bog	Pollen	1	16	1	3097
Scaleby Moss	54 58 N	2 54 W	30	England	Bog	Pollen	1	19	1	3401
Neasham Fen	54 29 N	1 29 W	46	England	Bog	Pollen	1	11	1	3057
Holme Fen	52 29 N	0 14 W	1	England	Bog	Pollen	1	4	2	3140
Hawks Tor	50 32 N	4 36 W	229	England	Bog	Pollen	1	11	3	3010
Dozmary Pool	50 32 N	4 32 W	265	England	Bog	Pollen	1	5	2	3010
Wareham	50 42 N	2 6 W	4	England	Bog	Pollen	10	0	4	3351
Leash Fen	53 16 N	1 33 W	290	England	Bog	Pollen	1	9	1	3360
Weelhead Moss	54 40 N	2 18 W	472	England	Bog	Pollen	1	9	1	3204
Ulila	58 24 N	26 45 E	<100	Estonia	Bog	Pollen	1	13	1	3184
Kalina	59 19 N	27 0 E	<100	Estonia	Bog	Pollen	1	12	1	3185
Vaharu	59 13 N	25 0 E	<100	Estonia	Bog	Pollen	1	10	1	3002
Remmeski	57 40 N	27 20 E	<200	Estonia	Bog	Pollen	1	12	1	3071
Hoydalar	62 0 N	6 47 W	14	Faeroes	Bog	Pollen	1	3	1	3222
Klovinmyren	62 5 N	7 14 W	50	Faeroes	Bog	Pollen	1	5	1	3052
Kelottijanka	68 34 N	22 0 E	360	Finland	Bog	Pollen	1	5	1	3282
Parvavuoma	67 35 N	25 0 E	178	Finland	Bog	Pollen	10	0	3	3077
Kaakkurilampi	67 3 N	28 56 E	180	Finland	Bog	Pollen	1	3	1	3327
Maanselansuo	65 38 N	29 37 E	257	Finland	Bog	Pollen	10	0	3	3411
Kapusta	66 20 N	24 20 E	105	Finland	Bog	Pollen	10	0	3	3093
Petronneva	62 55 N	27 0 E	105	Finland	Bog	Pollen	10	0	3	3250
Kytopellonsuo	61 59 N	26 0 E	84	Finland	Bog	Pollen	1	1	1	3338
Piitsonsuo	62 50 N	30 54 E	147	Finland	Bog	Pollen	1	2	3	3251
Varrassuo	60 59 N	25 28 E	143	Finland	Bog	Pollen	1	6	1	3191
Polttimosuo	61 5 N	28 20 E	72	Finland	Bog	Pollen	10	0	3	3385
Isosuo	61 33 N	26 21 E	95	Finland	Bog	Pollen	10	0	3	3252
Saarijarvi	62 15 N	27 45 E	100	Finland	Bog	Pollen	10	0	3	3206
Lapaneva	62 15 N	23 18 E	163	Finland	Bog	Pollen	1	3	1	3299
Tourbiere de Saint-Michel-de-B	48 22 N	3 56 W	300	France	Bog	Pollen	1	2	3	3397
Mur de Sologne	47 24 N	0 46 W	102	France	Bog	Pollen	10	0	3	3315
Bellengreville	49 7 N	0 9 W	25	France	Bog	Pollen	10	0	3	3171
Beune Valley	44 55 N	1 4 E	<100	France	Bog	Pollen	1	1	1	3192

Table 3 (continued)

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Elevation (m)	Country	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
Le Moura	43 28 N	1 32 W	40	France	Bog	Pollen	1	4	1	3101
Long	50 1 N	1 59 E	14	France	Bog	Pollen	10	0	3	3374
La Tourbiere de Piogny	48 42 N	1 49 E	<200	France	Bog	Pollen	1	1	3	3133
Feigne d'Artimont	48 2 N	7 1 E	1100	France	Bog	Pollen	1	8	1	3048
La Clapouse	44 22 N	6 47 E	2100	France	Bog	Pollen	1	3	3	3359
Tourbiere des Forest	44 42 N	5 54 E	1460	France	Bog	Pollen	1	5	1	3359
Col Luitel	45 5 N	5 51 E	1250	France	Bog	Pollen	1	3	1	3359
Tourbiere de Chirens	45 25 N	5 34 E	460	France	Bog	Pollen	1	4	1	3359
Baissescure	43 34 N	2 44 E	1000	France	Bog	Pollen	1	3	1	3208
Lozere	44 24 N	3 45 E	1400	France	Bog	Pollen	1	3	1	3208
Lac des Esclauzes	45 35 N	2 48 E	1075	France	Bog	Pollen	10	0	3	3127
Tourbiere du Pinet	42 52 N	1 58 E	880	France	Bog	Pollen	1	5	1	3135
Lac de Creno	42 11 N	9 0 E	1280	France	Bog	Pollen	1	13	2	3304
Fos	43 26 N	4 56 E	0	France	Bog	Pollen	1	1	2	3145
Vallon de Provence	44 23 N	6 25 E	1066	France	Bog	Pollen	1	2	3	3205
Biscaye	43 7 N	0 4 W	500	France	Bog	Pollen	1	5	3	3172
Peyrebeille	44 45 N	4 0 E	1256	France	Bog	Pollen	10	0	3	3309
Courthezon	44 6 N	4 52 E	32	France	Bog	Pollen	1	7	1	3165
Meyranne	43 38 N	4 43 E	2	France	Bog	Pollen	1	3	1	3165
Gaterslebener See	51 49 N	11 23 E	110	East Germany	Bog	Pollen	10	0	3	3169
Alperstedter Ried	51 7 N	10 59 E	155	East Germany	Bog	Pollen	1	1	3	3073
Kopais	38 27 N	23 1 E	100	Greece	Bog	Pollen	1	1	4	3226
Tenagi Phillipon	41 10 N	24 20 E	40	Greece	Bog	Pollen	1	2	2	3368
Pertouli	39 33 N	21 32 E	1275	Greece	Bog	Pollen	1	3	4	3316
Edessa	40 49 N	21 57 E	500	Greece	Bog	Pollen	1	8	1	3347
Ioannina	39 43 N	20 46 E	470	Greece	Bog	Pollen	1	2	2	3347
Leiffenderven	50 59 N	5 59 E	<100	West Germany	Bog	Pollen	10	0	3	3045
Suderlugum	54 52 N	8 55 E	<100	West Germany	Bog	Pollen	1	7	1	3253
Melbecker Moor	53 10 N	10 24 E	<100	West Germany	Bog	Pollen	1	2	3	3253
Flogeln	53 41 N	8 46 E	0	West Germany	Bog	Pollen	1	4	4	3237
Zwillbrocker Venn	52 3 N	6 42 E	<100	West Germany	Bog	Pollen	1	5	1	3092
Manderscheid	50 5 N	6 49 E	<500	West Germany	Bog	Pollen	10	0	3	3173
Horbacher Moor	47 44 N	8 5 E	950	West Germany	Bog	Pollen	10	0	3	3123
Stottener Filz	47 48 N	12 16 E	575	West Germany	Bog	Pollen	1	4	3	3231
Vogelsberg	50 31 N	9 16 E	720	West Germany	Bog	Pollen	1	1	3	3159
Kulzer Moos	49 21 N	12 23 E	<500	West Germany	Bog	Pollen	10	0	4	3154
Kirchseeon	48 4 N	11 54 E	550	West Germany	Bog	Pollen	10	0	3	3231
Ytri Baegisa	65 41 N	18 24 W	<200	Iceland	Bog	Pollen	1	3	3	3056
Lough Nadourcon	55 3 N	7 56 W	63	Ireland	Bog	Pollen	1	4	1	3307
Redbog	53 58 N	6 25 W		Ireland	Bog	Pollen	1	11	1	3392
Littleton Bog	52 41 N	7 39 W	140	Ireland	Bog	Pollen	10	0	3	3118
Muckross	52 1 N	9 31 W	30	Ireland	Bog	Pollen	1	1	3	3075
Sluggan Moss	54 46 N	6 18 W	52	Ireland	Bog	Pollen	1	21	1	3180
Slieve Gallion	54 45 N	6 45 W	430	Ireland	Bog	Pollen	1	12	1	3202
Lago Viverone	45 25 N	8 2 E	220	Italy	Bog	Pollen	10	0	3	3344
Sarnate	56 16 N	21 0 E	0	Latvia	Bog	Pollen	10	0	3	3003
Sosu	56 58 N	26 47 E	<100	Latvia	Bog	Pollen	1	14	2	3067

Table 3 (continued)

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Elevation (m)	Country	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
Bebrukas - Sees	54 44 N	24 18 E	120	Lithuania	Bog	Pollen	1	10	1	3276
Pratz	49 48 N	5 56 E	190	Luxembourg	Bog	Pollen	1	2	1	3318
Emmen	52 47 N	6 55 E	<50	Netherlands	Bog	Pollen	1	9	1	3396
Weerjix Valley	51 34 N	4 44 E	3	Netherlands	Bog	Pollen	10	0	3	3317
Forramyrene	63 35 N	11 30 E	450	Norway	Bog	Pollen	1	10	1	3381
Kristiansundsmyren	63 3 N	7 51 E	<100	Norway	Bog	Pollen	1	4	1	3053
Flotmyr	59 59 N	10 35 E	192	Norway	Bog	Pollen	1	2	1	3376
Ustetind	60 29 N	8 5 E	1310	Norway	Bog	Pollen	1	2	1	3062
Leroy	60 14 N	5 12 E	12	Norway	Bog	Pollen	10	0	3	3242
Fluetjonn	58 9 N	8 3 E	70	Norway	Bog	Pollen	10	0	4	3377
Tvengemyren	61 7 N	9 1 E	900	Norway	Bog	Pollen	1	5	1	3142
Lake Endletvatn	69 14 N	16 5 E	35	Norway	Bog	Pollen	1	14	3	3232
L.Kultjonn, Overhalla	64 27 N	11 47 E	159	Norway	Bog	Pollen	1	3	1	3044
Bakkemyra	69 12 N	17 30 E	140	Norway	Bog	Pollen	1	5	1	3233
Bostad	68 15 N	13 45 E	30	Norway	Bog	Pollen	1	7	1	3236
Bialowieski	52 41 N	23 50 E	<200	Poland	Bog	Pollen	10	0	3	3278
Wolbrom	50 23 N	19 46 E	375	Poland	Bog	Pollen	10	0	3	3296
Na Grelu	49 27 N	19 57 E	600	Poland	Bog	Pollen	10	0	3	3402
Tarnawa Wyzna	49 7 N	22 50 E	670	Poland	Bog	Pollen	1	9	1	3286
Imielty Lug	50 35 N	22 11 E	180	Poland	Bog	Pollen	10	0	3	3243
Kamionka	49 39 N	21 0 E	465	Poland	Bog	Pollen	1	5	1	3069
Weglewice	51 24 N	18 10 E	<200	Poland	Bog	Pollen	1	2	2	3247
Jezioro Mielno	52 56 N	19 15 E	100	Poland	Bog	Pollen	10	0	3	3254
Siwe Bagno	53 41 N	18 0 E	<200	Poland	Bog	Pollen	10	0	3	3255
Stazki	54 21 N	18 15 E	200	Poland	Bog	Pollen	10	0	3	3104
Taul Negru	47 36 N	24 0 E	1200	Romania	Bog	Pollen	10	0	4	3087
Taul Sarat	46 29 N	22 45 E	1590	Romania	Bog	Pollen	10	0	4	3085
Colacel	43 21 N	25 15 E	810	Romania	Bog	Pollen	10	0	4	3086
Comandau II	45 57 N	26 21 E	1017	Romania	Bog	Pollen	10	0	4	3074
Lacul Cu Muschi	45 34 N	26 13 E	850	Romania	Bog	Pollen	10	0	4	3074
Sub Gozna I	45 11 N	21 45 E	1382	Romania	Bog	Pollen	10	0	4	3188
Taul Zanogutii	45 19 N	22 53 E	1840	Romania	Bog	Pollen	10	0	4	3089
Valea Stinii	47 43 N	25 38 E	1100	Romania	Bog	Pollen	10	0	4	3030
Din Moss	55 35 N	2 20 W	170	Scotland	Bog	Pollen	1	18	1	3096
Abernethy Forest	57 14 N	3 43 W	221	Scotland	Bog	Pollen	1	7	1	3175
By Loch Assynt	58 10 N	5 3 W	70	Scotland	Bog	Pollen	1	9	1	3176
Murraster	60 15 N	1 29 W	15	Scotland	Bog	Pollen	1	4	2	3222
Little Loch Roag	58 7 N	6 53 W	30	Scotland	Bog	Pollen	1	6	1	3033
Glims Moss	59 5 N	3 12 W	40	Scotland	Bog	Pollen	1	6	2	3370
Dun Moss	56 42 N	3 21 W	380	Scotland	Bog	Pollen	1	5	2	3189
Banos de Tredos	42 46 N	0 49 E	1750	Spain	Bog	Pollen	10	0	3	3063
Puertos de Riofrio	43 3 N	4 42 W	1700	Spain	Bog	Pollen	1	6	1	3098
Padul	37 2 N	3 37 W	1000	Spain	Bog	Pollen	1	5	1	3099
Turbera de Torreblanca	40 12 N	0 13 E	0	Spain	Bog	Pollen	1	3	1	3196
Ereta	39 6 N	0 42 W	200	Spain	Bog	Pollen	1	2	1	3198
Turbera de Los Montes del Buyp	43 36 N	7 31 W	550	Spain	Bog	Pollen	1	1	3	3197
Edanger	63 3 N	18 17 E	95	Sweden	Bog	Pollen	1	4	1	3329

Table 3 (continued)

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Elevation (m)	Country	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
Halla	63 52 N	17 12 E	288	Sweden	Bog	Pollen	1	6	1	3329
Agerods Mosse	55 50 N	13 25 E	58	Sweden	Bog	Pollen	1	33	1	3372
Gladvattnet	56 47 N	16 36 E	<50	Sweden	Bog	Pollen	10	0	3	3269
Bracke	62 44 N	15 30 E	475	Sweden	Bog	Pollen	10	0	4	3290
Smorsjoarna	58 33 N	11 52 E	141	Sweden	Bog	Pollen	10	0	3	3291
Mossbymossen	59 8 N	15 9 E	54	Sweden	Bog	Pollen	10	0	4	3362
Leveaniemi	67 38 N	21 1 E	360	Sweden	Bog	Pollen	1	5	1	3021
Lidsjomyren	64 19 N	15 14 E	300	Sweden	Bog	Pollen	1	4	1	3211
Hallviksmyren	63 44 N	15 28 E	350	Sweden	Bog	Pollen	1	7	1	3211
Klockamyren	63 18 N	12 29 E	530	Sweden	Bog	Pollen	1	7	1	3211
Hallafloarna	63 6 N	14 56 E	350	Sweden	Bog	Pollen	1	6	1	3211
Vattenfloen	62 21 N	12 42 E	750	Sweden	Bog	Pollen	1	4	1	3211
Tranflon	62 10 N	15 17 E	320	Sweden	Bog	Pollen	1	3	1	3211
Stentjarnsmyren	60 37 N	12 44 E	430	Sweden	Bog	Pollen	1	1	3	3212
Norrmesunda A	63 30 N	18 12 E	121	Sweden	Bog	Pollen	1	1	2	3382
Bymyren	62 31 N	15 13 E	>200	Sweden	Bog	Pollen	1	7	1	3340
La Tourbiere	46 26 N	6 16 E	480	Switzerland	Bog	Pollen	1	4	3	3358
Sous Martel Dernier	46 59 N	6 43 E	1010	Switzerland	Bog	Pollen	1	3	1	3105
Gola di Lago	46 7 N	8 58 E	970	Switzerland	Bog	Pollen	1	3	3	3146
Campra	46 31 N	8 54 E	1420	Switzerland	Bog	Pollen	1	5	3	3152
Bivio	46 29 N	9 40 E	2136	Switzerland	Bog	Pollen	1	2	1	3054
Rotmoos	46 48 N	7 48 E	1190	Switzerland	Bog	Pollen	10	0	3	3230
La Pile	46 26 N	6 6 E	1220	Switzerland	Bog	Pollen	1	3	1	3358
Kleiner Hafner 5	47 21 N	8 33 E	405	Switzerland	Bog	Pollen	10	0	4	3024
Ballmoos	47 22 N	9 28 E	943	Switzerland	Bog	Pollen	1	9	1	3153
Oberschan	47 4 N	9 27 E	660	Switzerland	Bog	Pollen	1	6	1	3153
Fanin Pass	46 52 N	9 42 E	2212	Switzerland	Bog	Pollen	1	7	1	3153
Vid	43 5 N	17 34 E	4	Yugoslavia	Bog	Pollen	1	2	1	3025
Bolota	60 8 N	30 55 E	25	Russia	Bog	Pollen	1	7	2	3310
Melehovo	56 30 N	37 45 E	>100	Russia	Bog	Pollen	1	2	3	3311
Dimofshina	55 16 N	30 10 E	>100	Russia	Bog	Pollen	10	0	3	3055
Zmeiskoje	58 30 N	31 20 E	<100	Russia	Bog	Pollen	10	0	3	3055
Polistovo	56 50 N	29 29 E	200	Russia	Bog	Pollen	10	0	4	3055
Krem	57 46 N	40 59 E	100	Russia	Bog	Pollen	10	0	4	3055
By Seesjarvi	63 6 N	34 32 E	117	Russia	Bog	Pollen	10	0	3	3219
Hiilisuo	61 45 N	34 31 E	147	Russia	Bog	Pollen	10	0	3	3219
Dzembronia	48 10 N	24 31 E	1110	Russia	Bog	Pollen	10	0	4	3012
Angmagssalik	65 36 N	37 39 W	10	Greenland	Bog	Pollen	1	1	1	3137

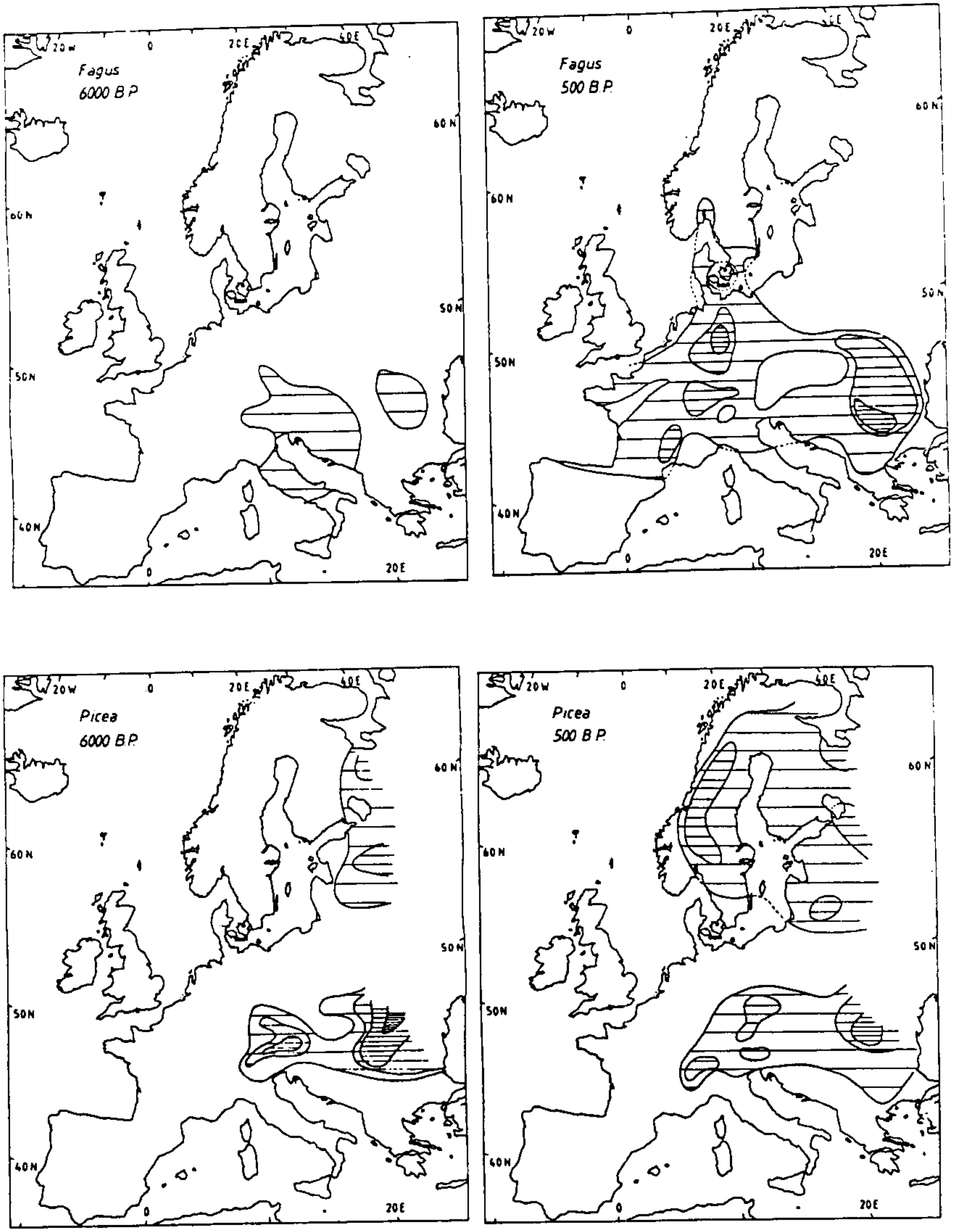

Figure 8. Maps showing the distribution of beech *(Fagus)* and spruce *(Picea)* pollen at 6000 and 500 yr B.P. Contours indicate regions with 5%, 20%, 40%, and 60% of each pollen type. Maps modified from Huntley and Birks (1983).

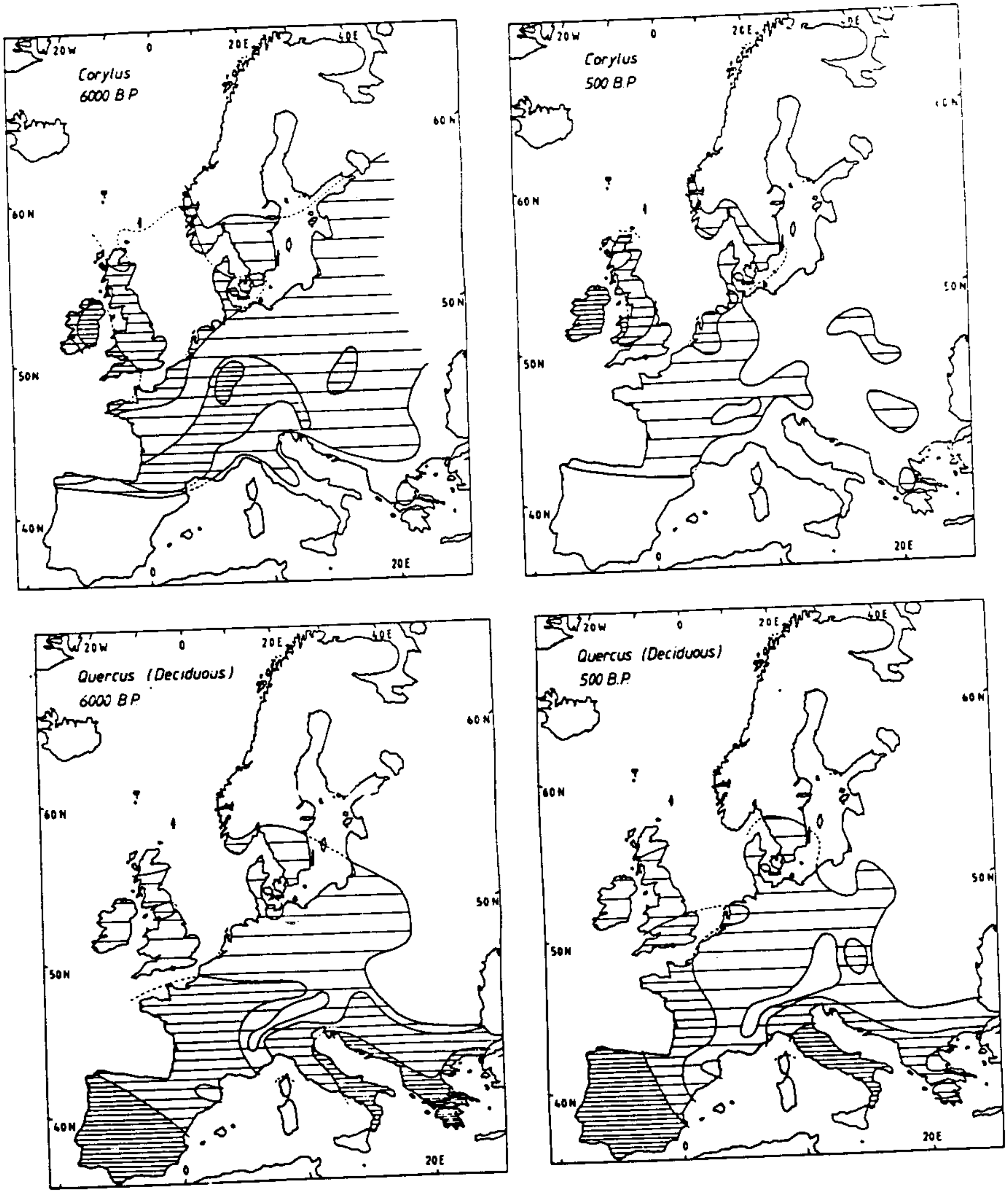

Figure 9. Maps showing the distribution of hazel *(Corylus)* and deciduous oak *(Quercus)* pollen at 6000 and 500 yr B.P. Contours indicate regions with 5%, 20%, 40%, and 60% of each pollen type. Maps modified from Huntley and Birks (1983).

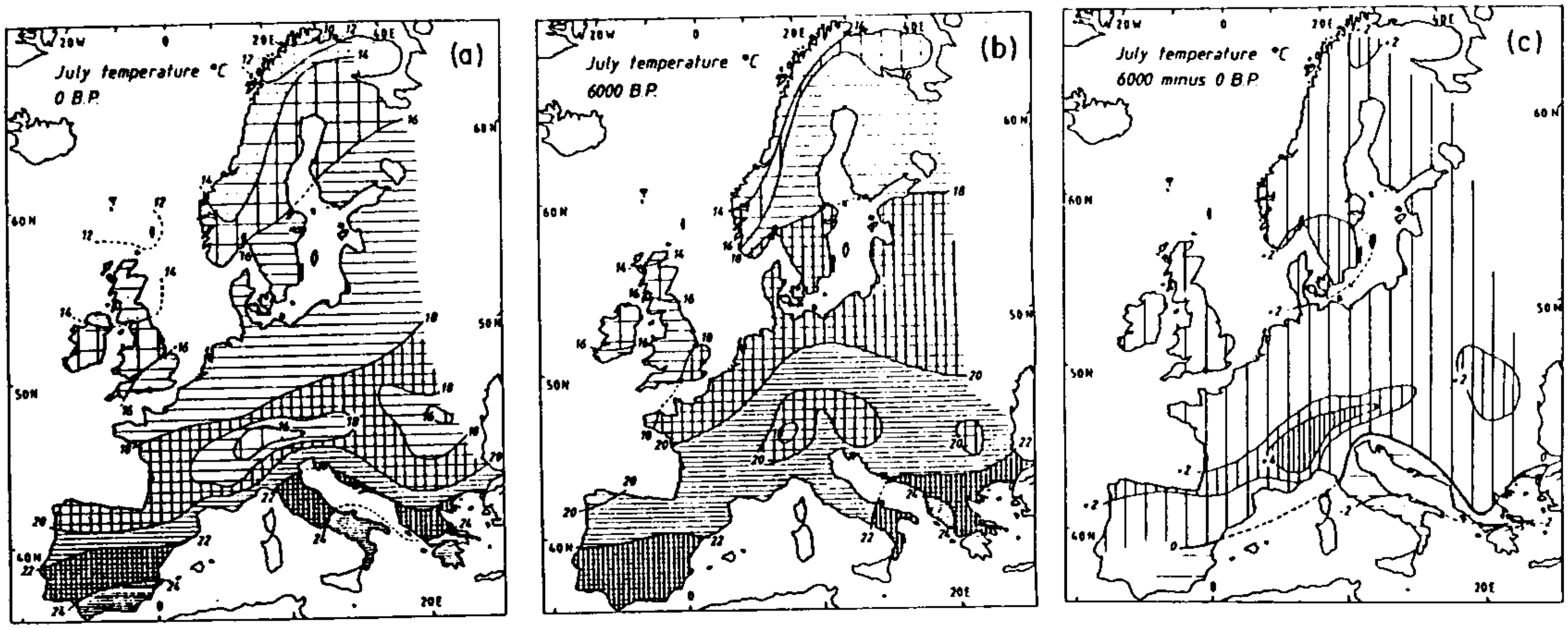

Figure 10. Isotherm maps for mean July temperature a) today and b) 6000 yr B.P. The map on the right (c) shows the estimated temperature differences between today and 6000 yr B.P. with positive values indicating estimated temperatures higher than today at 6000 yr B.P. Huntley and Prentice (in prep.) describe how the temperatures for 6000 yr B.P. were estimated from the pollen data.

calibration work in Europe has recently been described by Guiot (1985).

4. *The Soviet Union*

Peterson (1983, 1984) compiled the pollen data for the Soviet Union and has described the data and the methods used in obtaining the estimates for 6000 yr B.P. All the data were read from published pollen diagrams, and the pollen percentages were recalculated using a sum of tree, shrub, and herb pollen. Radiocarbon dates were used to estimate the age of the pollen samples at most of the sites.

The data coverage is densest in the northwestern Soviet Union and sparse in the southcentral and eastern regions (Fig. 11; Table 4; see Appendix F for bibliographic references). Peterson (1983) has described the patterns of pollen for 6000 yr B.P. and their changes since then. Populations of spruce trees have moved eastward in the western Soviet Union, and the values of deciduous forest trees have decreased.

Peterson (1983) used the methods of Howe and Webb (1983) and Bartlein and Webb (1985a,b) to estimate mean July temperatures from the pollen data at four sites near Moscow (Table 5). The estimates indicate a decrease in temperatures of about 2°C since 6000 yr B.P. and are in good agreement with those of Huntley and Prentice (in prep.). Grichuk (1969), Khotinskii (1984) and Kliminov (1984) have also provided climatic interpretations of pollen data from the Soviet Union. They are in generally good agreement with those of Peterson (1983) for 6000 yr B.P.

5. *South America*

Markgraf (in prep.) compiled the pollen data for 6000 yr B.P. from South America. Most of the data were obtained by interpolation from published pollen diagrams, and the pollen percentages were recalculated using a sum of all tree, shrub, and herb pollen. Radiocarbon dates were used to estimate the age of the pollen samples at all of the sites.

The data coverage is generally sparse in South America with most of the sites located in or near the Andes Mountains (Fig. 12; Table 6; see Appendix G for the bibliographic references). The data are not dense enough for producing contour maps. Markgraf (in prep.) has described the patterns in the pollen data. Heusser and Streeter (1980) have produced some initial temperature and precipitation estimates from one site in Chile. An increased number of modern pollen data are needed before more work of this type can be attempted.

6. *New Zealand*

McGlone et al. (in prep.) and Salinger (1984) have compiled the pollen data for 6000 yr B.P. from New Zealand. Most of the data were obtained by interpolation from published pollen diagrams or from the pollen counts, and the pollen percentages were recalculated as a sum of tree, shrub, and herb pollen. Radiocarbon dates were used to estimate the age of the pollen samples at all of the sites.

The data coverage is fairly uniform, but no sites with data exist in the far north of the North Island or along the southwest side of the South Island (Fig. 13; Table 7; see Appendix H for bibliographic references). McGlone et al. (in prep.) have described the main patterns in the pollen data and noted an expansion in *Nothofagus* dominated forests about 6000 yr B.P. This change may reflect changes in both temperature and precipitation as westerly and southerly winds increased. Climatic calibration work awaits completion of a network of modern pollen samples.

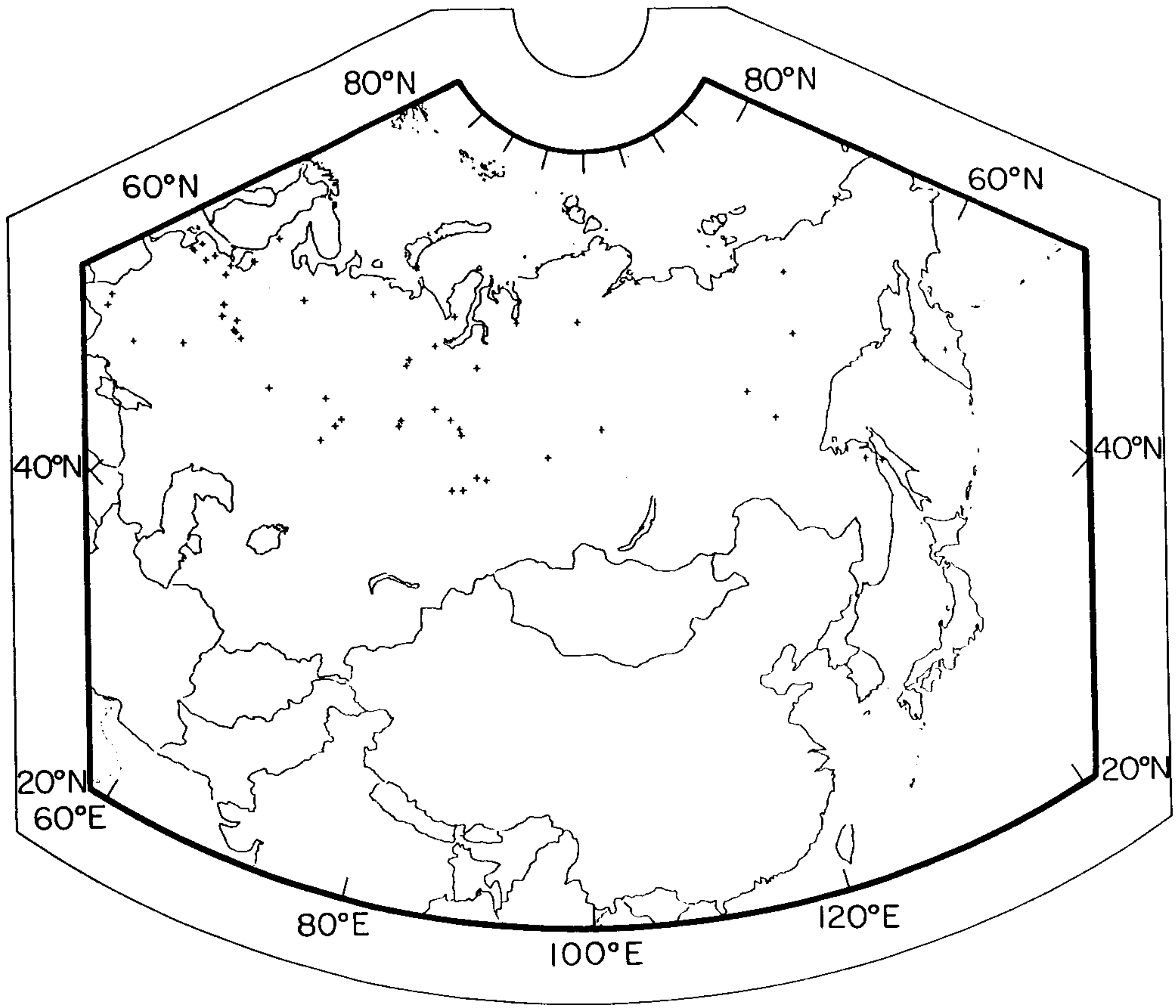

Figure 11. Location of sites with pollen data for 6000 yr B.P. in the Soviet Union. The data are from Peterson (1983).

Table 4. Site Information for Pollen Data from the Soviet Union.

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Elevation (m)	Country	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
River Bol Romanikha	70 45 N	98 36 E	76	Soviet Union	Alluvium	Pollen	1	5	2	5031
Balkashkinskii	53 2 N	35 22 E	76	Soviet Union	Alluvium	Pollen	1	2	7	5038
Padeng	62 48 N	42 56 E	76	Soviet Union	Alluvium	Pollen	1	3	1	5029
Iuribei	69 0 N	70 0 E	76	Soviet Union	Alluvium	Pollen	10	0	7	5021
Belkachi	59 9 N	131 59 E	0	Soviet Union	Alluvium	Pollen	10	0	7	5034
Ozero Kradenoe	62 0 N	129 35 E	457	Soviet Union	Alluvium	Pollen	1	4	1	5013
Selerikan	64 18 N	141 52 E	76	Soviet Union	Alluvium	Pollen	1	2	2	5008
Nigula 1	58 0 N	24 42 E	76	Soviet Union	Bog	Pollen	1	11	1	5037
SHuvalovskoe	60 3 N	30 20 E	76	Soviet Union	Bog	Pollen	1	7	1	5024
Bol Pershino	59 21 N	69 0 E	76	Soviet Union	Bog	Pollen	1	2	4	5025
Nizhne-Vartovsk	60 56 N	76 38 E	76	Soviet Union	Bog	Pollen	1	13	1	5026
Pit-Gorodok	59 18 N	93 50 E	457	Soviet Union	Bog	Pollen	1	1	5	5013
Vasiugane I	56 52 N	83 5 E	76	Soviet Union	Bog	Pollen	1	1	7	5013
Mys Karginskii	70 0 N	84 0 E	76	Soviet Union	Bog	Pollen	1	13	1	5010
Lukashin Iar	60 20 N	78 24 E	76	Soviet Union	Bog	Pollen	1	13	1	5011
Gorno-Slinkino	58 45 N	68 49 E	76	Soviet Union	Bog	Pollen	1	10	1	5041
Aiatskoe	57 0 N	60 5 E	231	Soviet Union	Bog	Pollen	1	7	1	5013
Osechenskoe	57 31 N	34 50 E	231	Soviet Union	Bog	Pollen	1	6	1	5024
Tesovo-Netyl.	58 57 N	31 4 E	76	Soviet Union	Bog	Pollen	1	6	1	5024
Imnatskoe	42 5 N	41 43 E	457	Soviet Union	Bog	Pollen	1	4	1	5024
Bezdonnoe	61 45 N	32 12 E	76	Soviet Union	Bog	Pollen	1	3	2	5033
No-Suo	64 35 N	31 5 E	231	Soviet Union	Bog	Pollen	1	1	4	5033
Vakharu	58 51 N	24 47 E	76	Soviet Union	Bog	Pollen	1	10	2	5035
Polovetsko-Kup	57 34 N	37 54 E	76	Soviet Union	Bog	Pollen	1	2	5	5013
Ivanovskoe 3	56 50 N	39 0 E	76	Soviet Union	Bog	Pollen	1	2	1	5016
Lakhtinskoe	60 0 N	30 10 E	76	Soviet Union	Bog	Pollen	1	3	4	5014
Saviku	58 26 N	27 15 E	76	Soviet Union	Bog	Pollen	1	14	1	5036
Kalina	59 16 N	27 21 E	76	Soviet Union	Bog	Pollen	1	12	1	5012
Markhida	67 10 N	52 33 E	76	Soviet Union	Bog	Pollen	1	2	2	5030
River Davshe	54 20 N	110 2 E	457	Soviet Union	Bog	Pollen	1	8	1	5015
Mulianka	57 47 N	56 19 E	231	Soviet Union	Bog	Pollen	1	1	5	5028
Tugiian Iugan	63 33 N	65 43 E	76	Soviet Union	Bog	Pollen	1	1	5	5006
River Entarnoe	60 2 N	79 1 E	76	Soviet Union	Bog	Pollen	1	8	1	5006
Orshinskii Mokh	56 57 N	35 57 E	76	Soviet Union	Bog	Pollen	1	6	2	5032
River Tom	56 50 N	84 27 E	76	Soviet Union	Bog	Pollen	1	6	1	5005
Myksi	58 9 N	24 58 E	76	Soviet Union	Bog	Pollen	1	6	1	5037
Sakhtysh 1	56 48 N	40 25 E	76	Soviet Union	Bog	Pollen	10	0	7	5017
River Surgut	61 14 N	73 20 E	457	Soviet Union	Bog	Pollen	10	0	7	5027
Sartynia	64 10 N	65 28 E	76	Soviet Union	Bog	Pollen	10	0	7	5013
Ubinskii Riam	55 19 N	80 0 E	76	Soviet Union	Bog	Pollen	10	0	7	5013
Beglianskii Riam	55 30 N	81 34 E	76	Soviet Union	Bog	Pollen	10	0	7	5013
Glukharinde	66 0 N	69 0 E	76	Soviet Union	Bog	Pollen	10	0	7	5021
Tiuliukskoe	54 40 N	59 10 E	457	Soviet Union	Bog	Pollen	10	0	7	5023
Tugiiany	63 33 N	65 43 E	76	Soviet Union	Bog	Pollen	10	0	7	5020
Iamsovei	65 40 N	78 15 E	76	Soviet Union	Bog	Pollen	10	0	7	5020
Ulanovo	55 33 N	48 43 E	76	Soviet Union	Bog	Pollen	10	0	7	5039
Helmiazevskoe	49 49 N	31 21 E	76	Soviet Union	Bog	Pollen	1	7	1	5007

Table 4 (continued)

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Elevation (m)	Country	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
Zalozhtsy II	49 40 N	25 30 E	231	Soviet Union	Bog	Pollen	1	15	1	5007
Stoianov II	50 22 N	24 39 E	231	Soviet Union	Bog	Pollen	1	5	2	5007
Uanda	51 24 N	142 5 E	231	Soviet Union	Bog	Pollen	1	4	4	5013
Ichi	55 34 N	155 59 E	229	Soviet Union	Bog	Pollen	1	3	2	5013
Ust-Khairiuzovo	57 8 N	156 47 E	76	Soviet Union	Bog	Pollen	1	4	1	5013
Kirganshaia	54 48 N	158 48 E	76	Soviet Union	Bog	Pollen	10	0	7	5013
Ushkovskii	56 13 N	59 58 E	152	Soviet Union	Bog	Pollen	1	1	7	5018
River CHernyi IAr	52 20 N	140 27 E	76	Soviet Union	Bog	Pollen	1	2	7	5016
Bol Kurapotochi	71 4 N	56 30 E	305	Soviet Union	Cattle tank	Pollen	1	4	1	5022
Somino	56 51 N	38 39 E	76	Soviet Union	Lake	Pollen	1	6	4	5013
Aral Sea	46 40 N	61 30 E	76	Soviet Union	Lake	Pollen	10	0	7	5040
Sort	68 50 N	148 0 E	150	Soviet Union	Lake	Pollen	1	2	2	5009
CHunia	61 45 N	102 48 E	229	Soviet Union	Lake	Pollen	1	1	4	5019

Table 5. Estimates for Mean July Temperature from the Western Soviet Union (from Peterson, 1983).

Site	Latitude	Longitude	Temperature (°C) Today	Temperature (°C) 6000 yr B.P.
Orshinskii Mokh	56°57'N	36°20'E	18.2°C	19.8°C
Osechenskoe	57°31'N	34°50'E	18.0°C	19.4°C
Ivanovskoe	56°50'N	39°00'E	18.4°C	19.8°C
Polovetsko-Kupanskoe	57°34'N	37°54'E	18.2°C	20.2°C

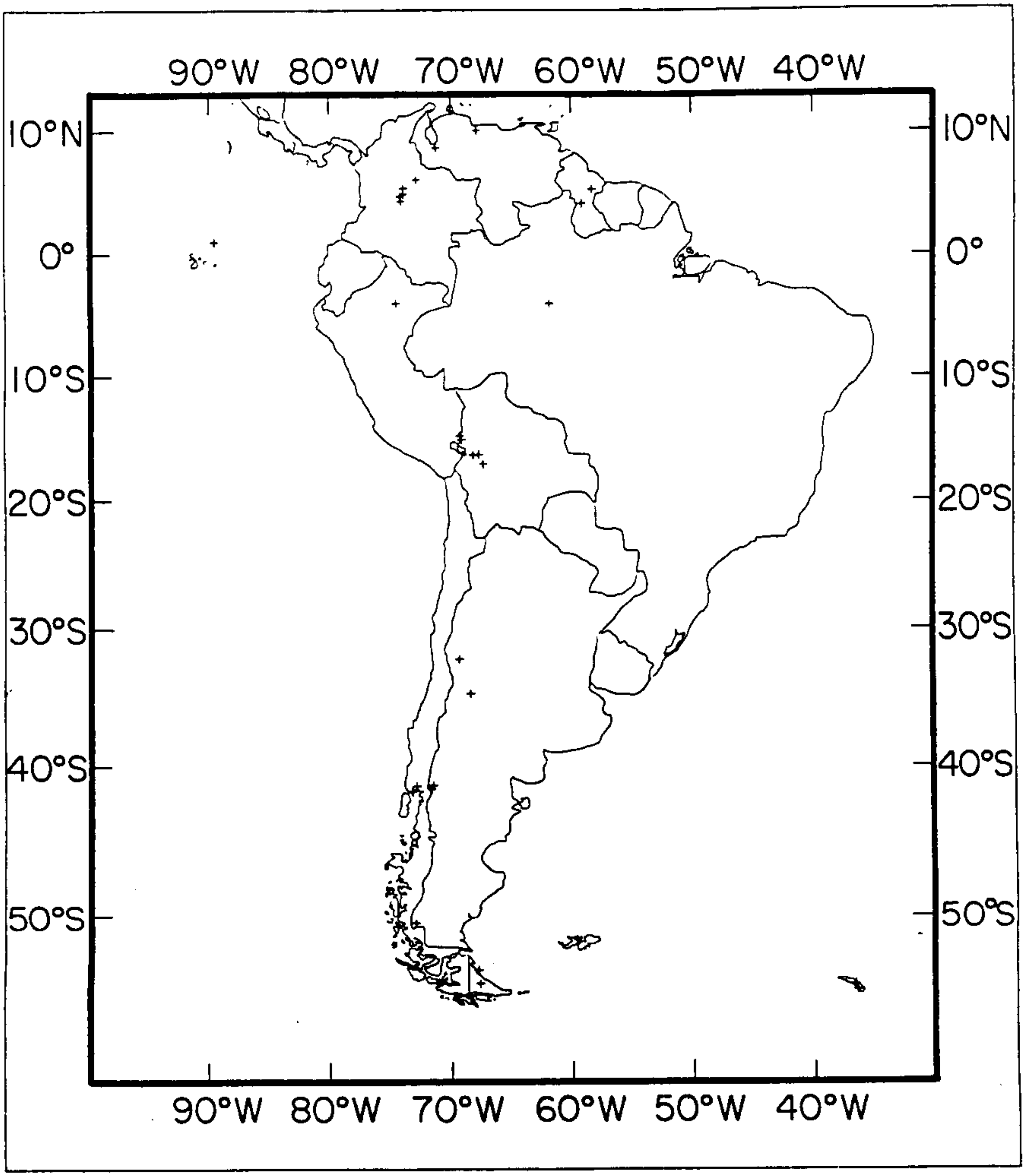

Figure 12. Location of sites with pollen data for 6000 yr B.P. in South America. Data from Markgraf (in prep.)

Table 6. Site Information for Pollen Data from South America.

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Elevation (m)	Country	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
Paramo de la Culata	8 45 N	71 4 W	3800	Venezuela	Alluvium	Pollen	1	9	1	9005
Chacaltaya Profile B	16 22 S	68 9 W	4750	Bolivia	Bog	Pollen	1	5	1	9030
Chacaltaya Profile C	16 22 S	68 9 W	4750	Bolivia	Bog	Pollen	1	5	1	9030
Cotapampa	15 13 S	69 6 W	4450	Bolivia	Bog	Pollen	1	5	2	9018
E. Cumbre Undavi	16 21 S	68 2 W	4620	Bolivia	Bog	Pollen	1	5	2	9030
Laguna Katantica	14 48 S	69 11 W	4820	Bolivia	Bog	Pollen	1	3	1	9018
Monte Blanco	17 1 S	67 21 W	4780	Bolivia	Bog	Pollen	1	6	1	9030
Alerce I	41 24 S	72 54 W	100	Chile	Bog	Pollen	1	6	1	9025
Alerce III	41 25 S	72 52 W	100	Chile	Bog	Pollen	1	5	4	9025
Calbuco	41 44 S	73 12 W	100	Chile	Bog	Pollen	1	4	4	9025
Isla Clarence	54 12 S	71 14 W	120	Chile	Bog	Pollen	1	3	2	9031
Puerto Eden	4 0 S	74 28 W	10	Chile	Bog	Pollen	1	2	2	9027
Laguna de la America II	4 15 N	74 0 W	3550	Colombia	Bog	Pollen	1	2	7	9012
Sabana de Bogota	4 38 N	74 5 W	2560	Colombia	Bog	Pollen	1	5	4	9013
Cienaga Visitador	6 8 N	72 47 W	3300	Colombia	Bog	Pollen	1	2	4	9007
Mallin Book	41 20 S	71 35 W	800	Argentina	Bog	Pollen	1	9	1	9023
Lago Mascardi-Gutierrez	41 15 S	71 28 W	800	Argentina	Bog	Pollen	1	3	2	9024
La Mision	53 30 S	67 50 W	20	Argentina	Bog	Pollen	1	3	4	9029
Moreno Glacier Bog	50 27 S	73 0 W	213	Argentina	Bog	Pollen	1	2	3	9028
Lago Yehuin	54 20 S	67 45 W	100	Argentina	Bog	Pollen	1	5	1	9021
West Falkland	51 38 S	59 34 W	100	Falkland Islands	Bog	Pollen	1	2	3	9032
Gun Hut Valley Site 3	54 33 S	36 28 W	21	Falkland Islands	Bog	Pollen	1	1	4	9036
Gun Hut Valley Site 4	54 33 S	36 28 W	21	Falkland Islands	Bog	Pollen	1	2	4	9036
Sphagnum Valley Site 1	54 16 S	36 35 W	48	Falkland Islands	Bog	Pollen	1	1	4	9036
Kwakwani	5 15 N	58 3 W	150	Guiana	Drill Hole	Pollen	1	1	4	9017
Laguna de la America	4 46 N	73 51 W	3500	Colombia	Lake	Pollen	1	1	4	9012
Laguna de Fuquene II	5 26 N	73 45 W	2580	Colombia	Lake	Pollen	1	2	7	9009
El Junco 1	0 55 N	89 30 W	500	Ecuador	Lake	Pollen	1	9	2	9014
El Junco 5	0 55 N	89 30 W	500	Ecuador	Lake	Pollen	1	9	2	9014
El Junco 6	0 55 N	89 30 W	500	Ecuador	Lake	Pollen	1	5	1	9014
Lake Valencia	10 16 N	67 45 W	403	Venezuela	Lake	Pollen	1	9	1	9033
Lake Moriru (Moreiru)	4 0 N	59 0 W	110	Guiana	Lake	Pollen	1	2	1	9016
Lago Surara	4 9 S	61 46 W	76	Brazil	Lake	Pollen	1	1	7	9015
Salina 2	32 15 S	69 20 W	2000	Argentina	Peat mound	Pollen	1	2	1	9021
Gruta del Indio	34 45 S	68 22 W	600	Argentina	Rock shelter	Pollen	1	7	4	9020

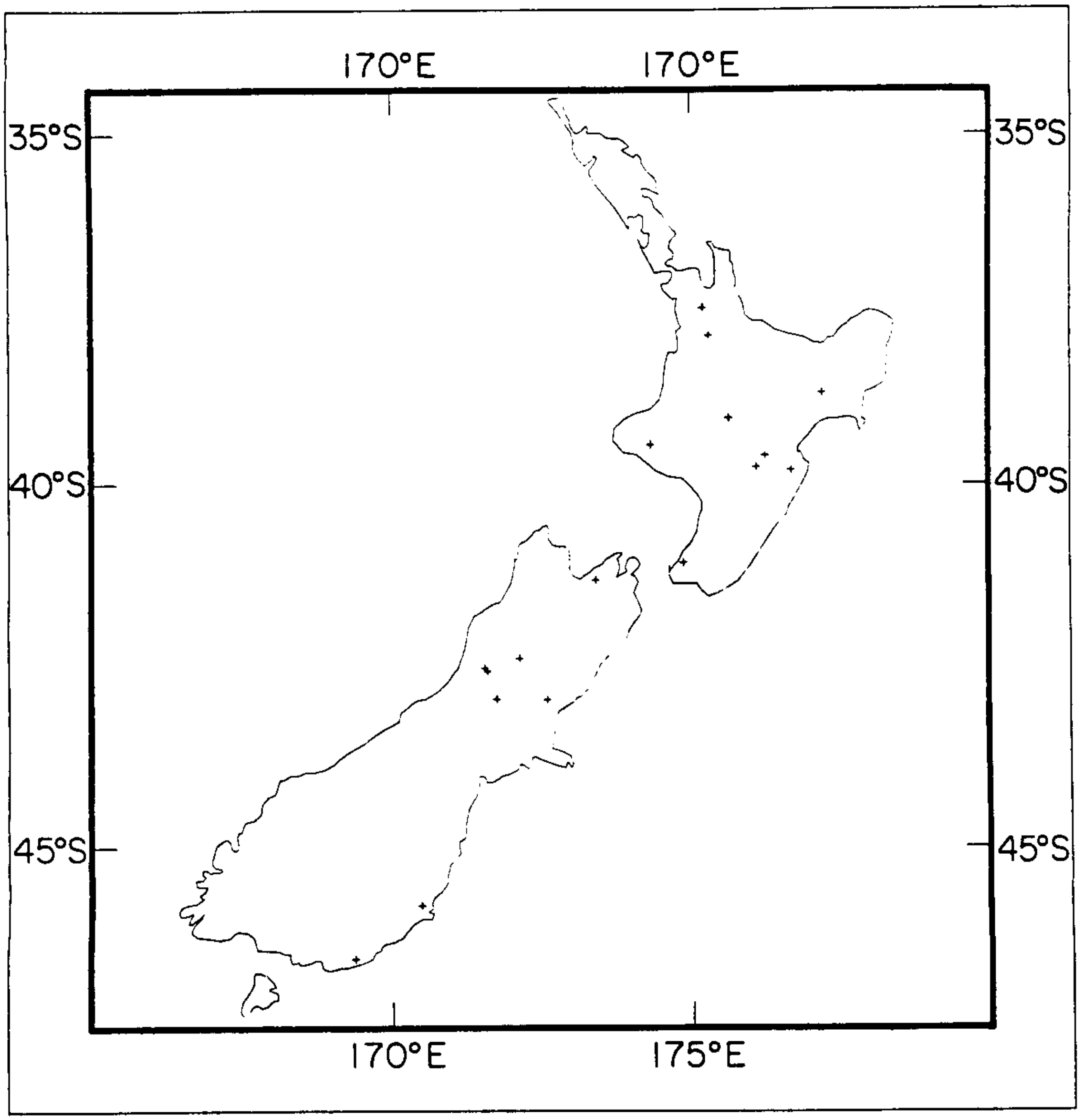

Figure 13. Location of sites with pollen data for 6000 yr B.P. in New Zealand. Data from McGlone et al. (in prep.).

Table 7. Site Information for Pollen Data from New Zealand.

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Elevation (m)	Country	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
Bell Hill	42 33 S	171 32 E	166	New Zealand	Bog	Pollen	1	3	3	9510
Crooked Mary Creek	42 25 S	172 7 E	420	New Zealand	Bog	Pollen	1	7	2	9510
Dew Lakes	41 20 S	173 25 E	900	New Zealand	Bog	Pollen	1	3	3	9509
Kaipo Lagoon	38 41 S	177 12 E	1000	New Zealand	Bog	Pollen	1	6	1	9502
Lady Lake	42 36 S	171 35 E	110	New Zealand	Bog	Pollen	1	3	3	9508
Merrivale	46 40 S	167 52 E	60	New Zealand	Bog	Pollen	1	4	2	9507
Mokai Patea	39 45 S	176 5 E	1500	New Zealand	Bog	Pollen	1	3	7	9512
No Man's Bog	39 35 S	176 15 E	1300	New Zealand	Bog	Pollen	1	4	1	9513
Ohinewai	37 29 S	175 13 E	30	New Zealand	Bog	Pollen	1	3	2	9504
Pyramid Valley	42 58 S	172 36 E	320	New Zealand	Bog	Pollen	1	3	7	9503
Stotts Bog	46 31 S	169 22 E	30	New Zealand	Bog	Pollen	1	2	1	9502
Swampy Hill	45 48 S	170 29 E	740	New Zealand	Bog	Pollen	1	7	1	9501
Wairehu	39 3 S	175 39 E	610	New Zealand	Bog	Pollen	1	4	3	9511
Woolshed Hill	42 59 S	171 45 E	1000	New Zealand	Bog	Pollen	1	4	4	9515
Pauatahanui	41 6 S	174 54 E	0	New Zealand	Estuary	Pollen	1	5	1	9505
Maratoto	37 53 S	175 18 E	52	New Zealand	Lake	Pollen	1	9	2	9502
Ngaere	39 26 S	174 20 E	240	New Zealand	Marsh	Pollen	1	3	4	9506
Poukawa	39 47 S	176 42 E	20	New Zealand	Marsh	Pollen	1	4	1	9502

Lake-Level Data

Street and Grove (1979), Street-Perrott and Harrison (1985), Street-Perrott and Roberts (1983), and Smith and Street-Perrott (1983) have described the methods used in compiling and developing the global set of lake-level data. Radiocarbon dates and dated tephras were used to assign ages to the sample depths in cores or in sedimentary exposures. Data from the latter exposures were the most common. For selected dates, the depth of water in each basin was recorded to be in one of three categories (high, intermediate, or low status) that are defined relative to the total range of fluctuation in each basin in order to provide comparable results among basins of various sizes and depths. The lake level is considered 1) high if the water level is higher than 70% of its maximum height, 2) low if the water level is lower than 15% of its maximum height, and 3) intermediate if in between.

The initial data were assembled from closed-basin lakes in arid regions (Street and Grove, 1976, 1979: Smith and Street-Perrott, 1983). Recent efforts have concentrated on adding data from lakes in currently moist areas (Appendix J). Data are available from most continental areas with densest coverage in Africa and southwestern North America and sparse coverage in eastern Asia and South America (Fig. 14; Table 8; see Appendix I for bibliographic references).

At 6000 yr B.P., lake levels were high in many lakes in Africa, northwest Indian, and Australia (see Appendix J). Steppe and savanna vegetation grew where the Sahara and Rjasthan Deserts are today. Conditions in these areas were much moister at 6000 yr B.P. than they are today. For high water levels in several basins in Africa and northwest India, Kutzbach (1980), Swain et al. (1983), and Hastenrath and Kutzbach (1983) have used an energy-budget hydrological model to estimate that the mean annual precipitation was 30 to 300 mm higher at 6000 yr B.P. than it is today (Table 9). Work is in progress to use the hydrological model on other basins and to improve it for use on lake level data from temperate regions.

Marine Plankton Data

1. Atlantic, Pacific, and Southern Oceans

Ruddiman and McIntyre (1981), Ruddiman (in prep.), and Morley (in prep.) compiled the plankton data available from radiocarbon-dated marine cores with high enough sedimentation rates and closely spaced samples to record Holocene climatic variations. The methods of data preparation are well described in Ruddiman and McIntyre (1981). Radiocarbon dates were available for all cores used, but other stratigraphic information, e.g., ash layers, % calcium carbonate, and oxygen-18 to oxygen-16 ratios, was used to supplement the dates in estimating the ages for each sample depth in a core. Percentage data from foraminifera were used for the first 24 samples listed in Table 10 and the percentages for radiolaria were used in the remaining 10 samples.

The coverage of sites is sparse with most of the samples located in the North Atlantic Ocean (Fig. 14; Table 10; see Appendix K for bibliographic references). Appropriate transfer functions (CLIMAP, 1981; Kipp, 1976) were applied to the data to obtain estimates for both February and August sea-surface temperatures (Fig. 15; Table 11). These estimates show no marked patterns.

2. Indian Ocean

Prell (1984) and Marvil and Prell (in prep.) complied the plankton data from marine cores in the northwestern Indian Ocean. Sedimentation rates were high enough to yeild several Holocene

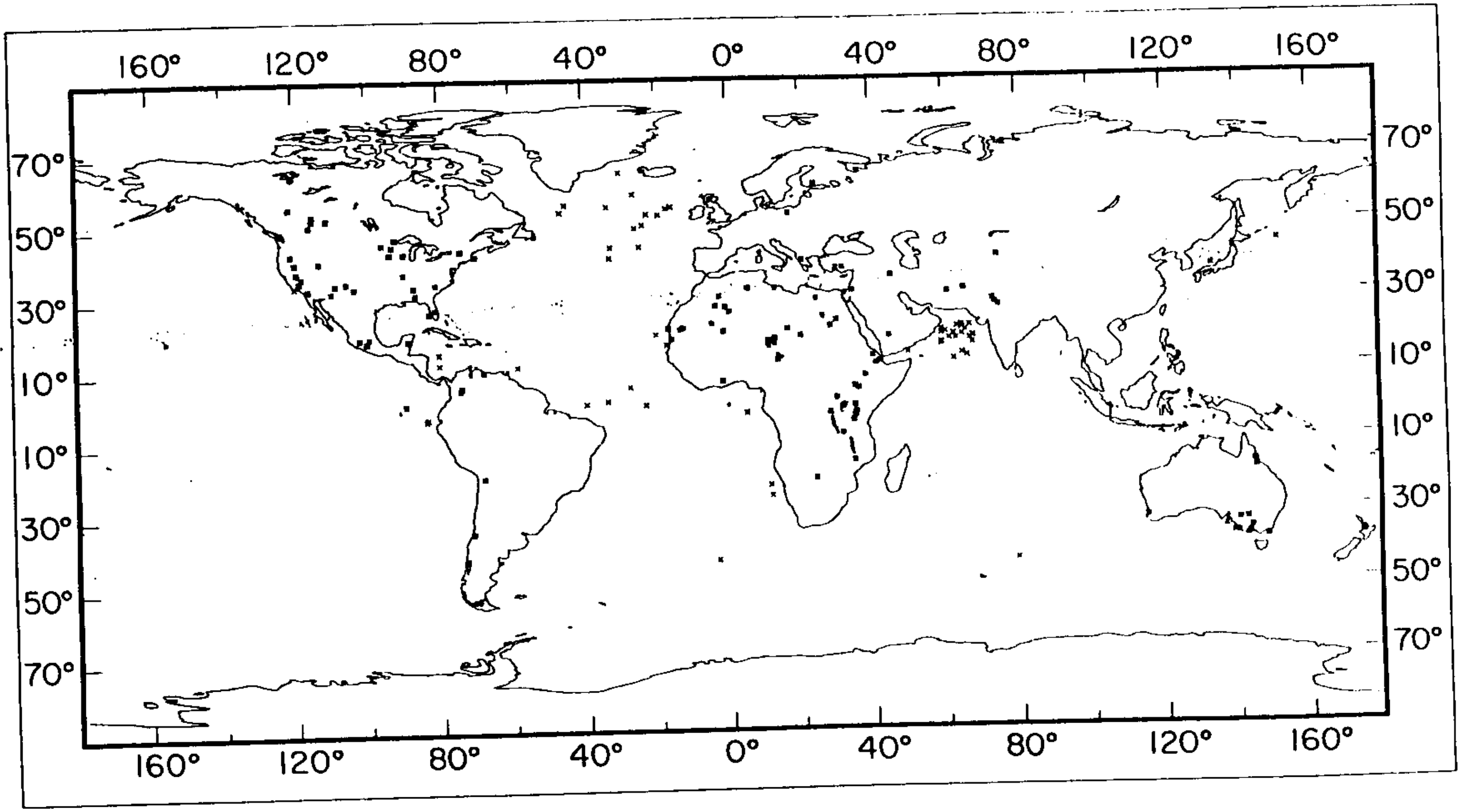

Figure 14. Location of sites with lake-level data (asterisks) and marine plankton data (x's). The lake-level data are described in Appendix J and Street-Perrott and Harrison (1985), and the marine plankton data are from Ruddiman and Mix (in prep.), Morley (in prep.), and Marvil and Prell (in prep.).

Table 8. Site Information for Lake Level Data.

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Elevation (m)	Country	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
Tyotjarvi	60 59 N	25 28 E	143	Finland	Lake	Lake Level	1	17	1	6235
Wielke Gacno	53 44 N	17 12 E	130	Poland	Lake	Lake Level	1	23	1	6236
Pityoulish	57 12 N	3 47 W	210	Scotland	Lake	Lake Level	1	8	1	6234
Comarum So	61 8 N	45 32 W	125	Greenland	Lake	Lake Level	1	7	1	6231
Cahaba Pond	33 30 N	86 32 W	210	United States	Lake	Lake Level	1	13	2	6130
Goshen Springs	31 43 N	86 8 W	105	United States	Lake	Lake Level	1	7	2	6131
Cochise	32 8 N	109 51 W	1260	United States	Lake	Lake Level	1	33	1	6132
Adobe	37 55 N	118 36 W	1951	United States	Lake	Lake Level	1	7	4	6134
Deep Spring	37 17 N	118 2 W	1499	United States	Lake	Lake Level	1	10	7	6136
Leconte	33 20 N	116 0 W	-71	United States	Lake	Lake Level	1	48	1	6137
Searles	35 36 N	117 42 W	493	United States	Lake	Lake Level	1	110	2	6143
White Pond	34 10 N	80 46 W	90	United States	Lake	Lake Level	1	3	4	6145
Annie	27 18 N	81 24 W	36	United States	Lake	Lake Level	1	8	2	6146
Little Salt Spring	27 0 N	82 10 W	5	United States	Lake	Lake Level	1	18	1	6147
Kettle Hole Lake	43 0 N	93 6 W	350	United States	Lake	Lake Level	1	4	2	6148
West Lake Okoboji	46 20 N	95 12 W	425	United States	Lake	Lake Level	1	14	1	6150
Duck Pond	41 56 N	70 0 W	3	United States	Lake	Lake Level	1	9	2	6151
Kirchner Marsh	44 50 N	92 46 W	275	United States	Lake	Lake Level	10	0	0	6152
Weber Lake	47 28 N	91 39 W	559	United States	Lake	Lake Level	1	4	2	6153
Old Field Swamp	37 7 N	89 50 W	122	United States	Lake	Lake Level	1	4	1	6154
Lahontan	40 0 N	119 30 W	1054	United States	Lake	Lake Level	1	169	1	6156
Blackwater Draw	34 15 N	103 20 W	1250	United States	Lake	Lake Level	1	17	1	6161
Estancia	34 36 N	105 36 W	1842	United States	Lake	Lake Level	1	4	2	6162
San Agustin	33 50 N	108 10 W	1842	United States	Lake	Lake Level	1	14	4	6165
Lake George	43 31 N	73 39 W	96	United States	Lake	Lake Level	1	2	2	6167
Chewaucan	64 40 N	120 30 W	1296	United States	Lake	Lake Level	1	6	5	6168
Fort Rock	43 10 N	120 45 W	1311	United States	Lake	Lake Level	1	4	7	6169
Bonneville	40 30 N	113 0 W	1280	United States	Lake	Lake Level	1	114	2	6178
Mound	33 5 N	102 5 W	960	United States	Lake	Lake Level	1	8	0	6175
Mendota	43 6 N	89 25 W	259	United States	Lake	Lake Level	1	14	1	6179
Lake Isle	52 37 N	114 26 W	700	Canada	Lake	Lake Level	1	3	3	6181
Moore Lake	53 0 N	110 30 W	500	Canada	Lake	Lake Level	1	6	2	6182
Smallboy Lake	53 35 N	114 8 W	762	Canada	Lake	Lake Level	1	5	1	6183
Wabamun Lake	53 30 N	114 15 W	732	Canada	Lake	Lake Level	1	3	2	6184
Wedge Lake	50 52 N	115 10 W	1500	Canada	Lake	Lake Level	1	2	4	6185
Fiddler's Pond	56 15 N	120 45 W	630	Canada	Lake	Lake Level	1	3	1	6186
Manitoba	51 0 N	98 0 W	248	Canada	Lake	Lake Level	1	9	1	6187
Bou Ali	27 10 N	0 15 E		Algeria	Lake	Lake Level	1	2	2	6018
Bou Bernous	27 20 N	3 4 W		Algeria	Lake	Lake Level	1	1	2	6019
Hassi Messouad	32 0 N	5 51 E		Algeria	Lake	Lake Level	1	3	1	6045
Kadda	26 12 N	0 53 E		Algeria	Lake	Lake Level	1	3	2	6050
Wadi Saoura	30 0 N	2 0 W		Algeria	Lake	Lake Level	1	20	1	6100
Bullenmerri	38 15 S	143 3 E	145	Australia	Lake	Lake Level	1	6	3	6206
Euramoo	17 10 S	145 38 E	730	Australia	Lake	Lake Level	1	7	1	6211
George	37 26 S	140 0 E	673	Australia	Lake	Lake Level	1	37	1	6213
Gnotuk	38 13 S	143 8 E	105	Australia	Lake	Lake Level	1	9	1	6214
Keilambete	38 2 S	148 53 E		Australia	Lake	Lake Level	1	24	1	6215

Table 8 (continued)

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Elevation (m)	Country	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
Kow Swamp	36 12 S	144 18 E		Australia	Lake	Lake Level	1	10	1	6217
Leake	37 35 S	140 36 E		Australia	Lake	Lake Level	1	9	2	6218
Lynchs Crater	17 22 S	145 42 E	760	Australia	Lake	Lake Level	1	13	2	6219
Marshes Swamp	37 37 S	140 32 E		Australia	Lake	Lake Level	1	4	1	6220
Myalup Swamp	33 7 S	115 42 E	10	Australia	Lake	Lake Level	1	1	4	6221
Pulbeena Swamp	40 57 S	144 43 E	30	Australia	Lake	Lake Level	10	0	0	6222
Quincan Crater	17 18 S	145 35 E		Australia	Lake	Lake Level	1	4	2	6223
Victoria	34 0 S	141 17 E		Australia	Lake	Lake Level	1	7	2	6226
Willandra Lakes	33 30 S	143 5 E		Australia	Lake	Lake Level	1	28	5	6228
Tauca	19 30 S	68 0 W	3660	Bolivia	Lake	Lake Level	1	8	7	6199
Makgadikgadi	20 24 S	24 25 E	900	Botswana	Lake	Lake Level	1	15	7	6061
Enneri Bardague	21 30 N	17 0 E		Chad	Lake	Lake Level	1	43	2	6028
Ounianga Kebir	19 3 N	20 30 E		Chad	Lake	Lake Level	1	2	1	6075
Laguna de Tagua Tagua	34 30 S	71 10 W		Chile	Lake	Lake Level	1	8	1	6198
Fuquene	5 30 N	73 45 W	2580	Colombia	Lake	Lake Level	10	0	0	6196
El Abra	5 0 N	74 0 W	2570	Colombia	Lake	Lake Level	1	8	6	6202
Asal	11 36 N	42 30 E	-155	Djibouti	Lake	Lake Level	1	28	1	6008
El Junco	0 52 N	89 27 W	650	Ecuador	Lake	Lake Level	10	0	0	6195
Abu Ballas	24 14 N	27 25 E		Egypt	Lake	Lake Level	1	7	2	6002
Nabta Playa	23 0 N	31 0 E		Egypt	Lake	Lake Level	1	33	1	6070
Siwa	29 13 N	25 21 E		Egypt	Lake	Lake Level	1	4	6	6084
Afrera	13 25 N	40 50 E	-82	Ethiopia	Lake	Lake Level	1	9	1	6004
Dobi-Hanle	11 30 N	42 0 E	120	Ethiopia	Lake	Lake Level	1	11	3	6027
Ziway-Shala	7 45 N	38 40 E	1558	Ethiopia	Lake	Lake Level	1	43	1	6103
Bosumtwi	6 30 N	1 25 W	100	Ghana	Lake	Lake Level	1	28	1	6017
Didwana	27 20 N	74 35 E	350	India	Lake	Lake Level	10	0	7	6107
Lunkaransar	28 30 N	73 45 E	200	India	Lake	Lake Level	10	0	2	6115
Sambhar	27 0 N	75 0 E	360	India	Lake	Lake Level	10	0	1	6123
Zeribar	35 32 N	46 7 E	1300	Iran	Lake	Lake Level	10	0	1	6129
Bogoria	0 18 N	36 6 E		Kenya	Lake	Lake Level	1	4	2	6016
Magadi	1 53 S	36 18 E	604	Kenya	Lake	Lake Level	1	1	4	6060
Naivasha	1 15 S	36 20 E	1890	Kenya	Lake	Lake Level	10	0	2	6072
Nakuru-Elmenteita	0 25 N	36 10 E	1750	Kenya	Lake	Lake Level	1	13	3	6073
Turkana	5 0 N	36 0 E	375	Kenya	Lake	Lake Level	1	22	1	6093
Chilwa	15 30 S	35 30 E		Malawi	Lake	Lake Level	1	2	2	6025
Erg Ine Sakane	20 48 N	0 42 W		Mali	Lake	Lake Level	1	2	0	6030
Erg Ine Sakane East	20 50 N	0 38 W		Mali	Lake	Lake Level	1	4	1	6031
Erg Ine Sakane North-east	20 57 N	0 32 W		Mali	Lake	Lake Level	1	1	1	6033
Great North Lake	21 2 N	0 45 W		Mali	Lake	Lake Level	1	3	1	6042
Ichourad Well	20 48 N	0 42 W		Mali	Lake	Lake Level	1	2	1	6047
Taoudenni Sabkha	22 30 N	4 0 W	120	Mali	Lake	Lake Level	1	1	2	6086
Wadi Oukechert	20 40 N	0 45 W		Mali	Lake	Lake Level	1	5	3	6099
Chemchane-Aderg	21 0 N	12 7 W	260	Mauritania	Lake	Lake Level	1	6	5	6023
Hassei Gaboun	18 18 N	15 49 W		Mauritania	Lake	Lake Level	1	1	1	6044
Khat Depression	19 10 N	12 30 W		Mauritania	Lake	Lake Level	1	4	0	6054
Oum Arouaba	20 52 N	12 52 W		Mauritania	Lake	Lake Level	1	3	1	6074
Tirersioum	21 22 N	16 41 W		Mauritania	Lake	Lake Level	1	4	6	6090

Table 8 (continued)

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Elevation (m)	Country	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
Laguna Chichancanab	19 30 N	88 45 W	38	Mexico	Lake	Lake Level	1	4	2	6189
Mexico	19 30 N	99 0 W	2240	Mexico	Lake	Lake Level	1	26	1	6190
Patzcuaro	19 35 N	101 35 W	2044	Mexico	Lake	Lake Level	1	6	3	6191
Upper Lerma	19 8 N	99 40 W	2575	Mexico	Lake	Lake Level	1	4	1	6193
Rotorua	38 6 S	176 18 E	280	New Zealand	Lake	Lake Level	1	2	6	6229
Agadem	16 50 N	13 20 E	350	Niger	Lake	Lake Level	1	6	1	6005
Bilma	18 45 N	13 0 E		Niger	Lake	Lake Level	1	10	1	6014
Fachi	18 7 N	11 40 E		Niger	Lake	Lake Level	1	9	2	6036
Termit Ouest/Kandel Bouzou	16 5 N	11 15 E		Niger	Lake	Lake Level	1	6	2	6088
Mundafan,Rub'al Khali	18 33 N	45 18 E	900	Saudi Arabia	Lake	Lake Level	1	23	1	6116
Gebel Maghara	30 45 N	33 24 E	400	Sinai	Lake	Lake Level	1	11	7	6108
Selima	21 19 N	29 20 E		Sudan	Lake	Lake Level	1	2	1	6080
Manyara	3 37 S	35 49 E		Tanzania	Lake	Lake Level	10	0	7	6062
Rukwa	8 0 S	32 30 E	793	Tanzania	Lake	Lake Level	1	4	2	6078
Beysehir	37 45 N	31 30 E	1120	Turkey	Lake	Lake Level	10	0	2	6104
Konya	37 30 N	33 0 E	990	Turkey	Lake	Lake Level	1	23	3	6113
Valencia	10 6 N	67 45 W	402	Venezuela	Lake	Lake Level	1	13	1	6200
Chatyrkel	40 36 N	75 18 E	3530	Soviet Union	Lake	Lake Level	1	21	1	6237
Chew Bahir	4 45 N	37 0 E	500	Ethiopia	Lake	Lake Level	1	1	2	6024
Abhe	11 15 N	42 0 E	240	Ethiopia	Lake	Lake Level	1	58	1	6001
Lisan-Dead Sea	31 30 N	35 30 E	-395	Jordan	Lake	Lake Level	1	27	2	6114
Chad-Megachad	13 0 N	14 0 E	282	Nigeria	Lake	Lake Level	1	59	3	6022
Kivu	2 0 S	29 0 E	1462	Rwanda	Lake	Lake Level	1	3	7	6055
Victoria	1 0 S	33 0 E	1134	Uganda	Lake	Lake Level	1	1	4	6095
Mobutu Sese Seko	1 30 N	31 0 E	619	Uganda	Lake	Lake Level	10	0	7	6065

Table 9. Precipitation Estimates for East Africa and India for 6000 yr B.P. Precipitation

Site	Today	6000 yr B.P.	Data Type	Reference
Lake Naivasha	900 mm	990-1055 mm[a]	Water Level	Hastenrath and Kutzbach, 1983
Sambhar Lake	470 mm	500-670 mm[b]	Water Level	Swain et al., 1983
Lunkaransar Lake	340 mm	519 mm[b]	Pollen	Swain et al., 1983
Lake Chad	350 mm	650 mm[c]	Water Level	Kutzbach, 1980

a. Estimates apply to 5650 to 9200 yr B.P.
b. Estimates apply to 3500 to 10,500 yr B.P.
c. Estimates apply to 5000 to 10,000 yr B.P.

Table 10. Site Information for Marine Plankton Data from the Atlantic, Pacific, and Southern Oceans.

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Depth (m)	Ocean	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
A179-15	24 48 N	75 55 W	3109	North Atlantic	Ocean	Plankton	1	5	1	8003
K708-1	50 0 N	23 25 W	4053	North Atlantic	Ocean	Plankton	13	0	4	8010
K714-15	58 46 N	25 57 W		North Atlantic	Ocean	Plankton	1	1	4	8012
RC9-49	11 11 N	58 36 W	1851	North Atlantic	Ocean	Plankton	1	5	4	8001
RC9-225	54 59 N	15 24 W	2334	North Atlantic	Ocean	Plankton	13	0	4	8007
RC9-228	52 33 N	18 45 W	3981	North Atlantic	Ocean	Plankton	13	0	4	8009
V15-168	0 12 N	39 54 W	4219	North Atlantic	Ocean	Plankton	1	3	4	8002
V18-357	15 2 N	80 14 W	1818	North Atlantic	Ocean	Plankton	1	3	3	8008
V23-23	56 5 N	44 33 W	3292	North Atlantic	Ocean	Plankton	13	0	4	8012
V23-81	54 15 N	16 50 W	2393	North Atlantic	Ocean	Plankton	1	1	2	8009
V23-82	52 35 N	21 56 W	3974	North Atlantic	Ocean	Plankton	1	2	5	8008
V25-59	1 22 N	33 29 W	3824	North Atlantic	Ocean	Plankton	1	4	2	8002
V27-20	54 0 N	46 12 W	3510	North Atlantic	Ocean	Plankton	13	0	4	8013
V27-114	55 3 N	33 4 W	2532	North Atlantic	Ocean	Plankton	1	3	1	8012
V28-14	64 47 N	29 34 W	1855	North Atlantic	Ocean	Plankton	1	5	1	8004
V28-127	11 39 N	80 8 W	3227	North Atlantic	Ocean	Plankton	1	3	3	8006
V29-179	44 0 N	24 32 W	3331	North Atlantic	Ocean	Plankton	13	0	4	8013
V29-183	49 8 N	25 30 W	3643	North Atlantic	Ocean	Plankton	1	7	2	8012
V29-192	54 16 N	16 47 W	2365	North Atlantic	Ocean	Plankton	1	8	1	8012
V30-36	5 21 N	27 19 W	4245	North Atlantic	Ocean	Plankton	1	1	4	8005
V30-41	0 13 N	23 4 W	3874	North Atlantic	Ocean	Plankton	1	9	1	8014
V30-51	19 52 N	19 55 W	3409	North Atlantic	Ocean	Plankton	1	4	4	8005
V30-97	41 0 N	32 56 W	3371	North Atlantic	Ocean	Plankton	1	1	7	8011
V30-101	44 6 N	32 30 W	3504	North Atlantic	Ocean	Plankton	1	9	1	8012
RC11-120	43 31 S	79 52 E	3193	Southern Ocean	Ocean	Plankton	1	1	6	8019
RC13-205	2 17 S	5 11 E	3731	South Atlantic	Ocean	Plankton	1	1	4	8015
RC13-228	22 20 S	11 12 E	3204	South Atlantic	Ocean	Plankton	1	3	2	8018
RC13-229	25 30 S	11 18 E	4191	South Atlantic	Ocean	Plankton	13	0	7	8017
RC14-103	44 2 N	152 56 E	5365	North Pacific	Ocean	Plankton	13	0	7	8021
V19-29	3 35 S	83 56 W	3157	South Pacific	Ocean	Plankton	13	0	7	8020
V19-30	3 23 S	83 31 W	3091	South Pacific	Ocean	Plankton	1	2	1	8016
V22-108	43 11 S	3 15 W	4171	Southern Ocean	Ocean	Plankton	1	1	6	8022
Y7110117-P	34 0 N	120 0 W	627	North Pacific	Ocean	Plankton	13	0	7	8024
RC12-379	36 54 N	134 33 E	1010	Sea of Japan	Ocean	Plankton	1	3	3	8023

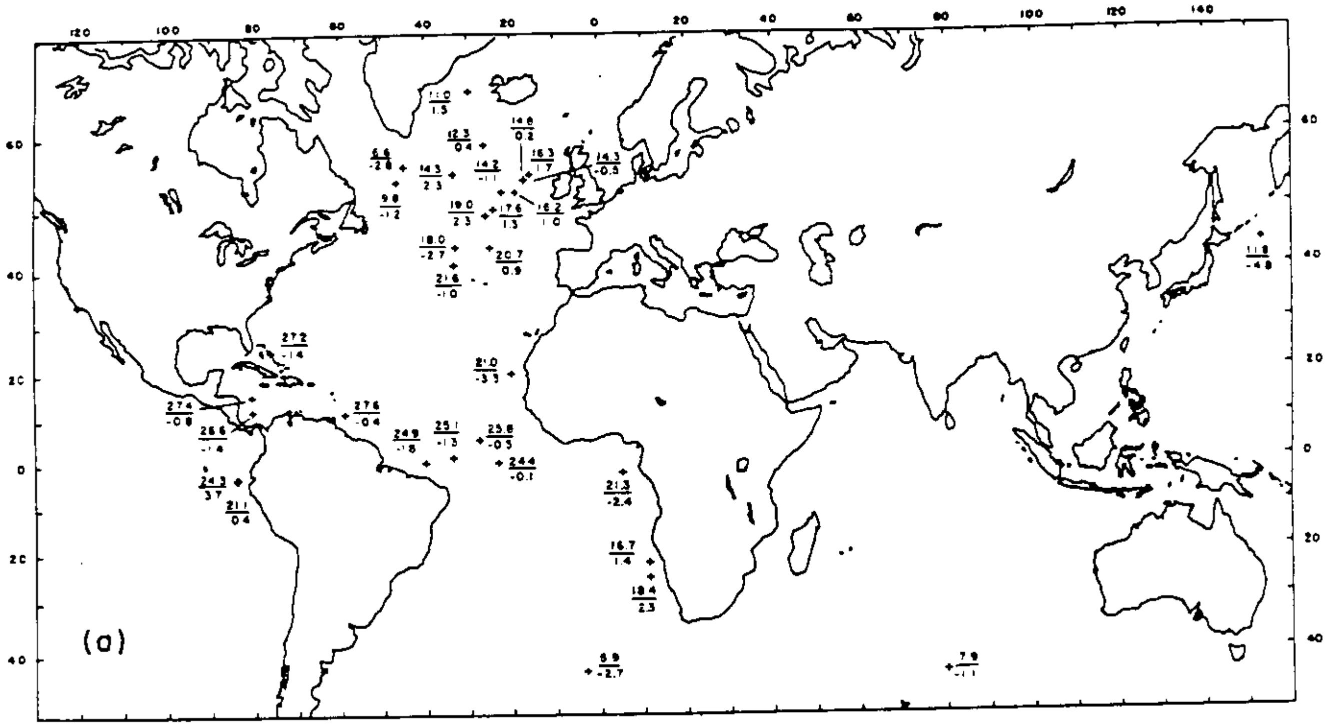

Figure 15. a) August sea-surface temperature in °C and SST anomaly (below line) relative to modern atlas value. Positive anomaly indicates warmer ocean at 6000 yr B.P. Credibility of SST estimates and anomalies discussed in Ruddiman and Mix (in prep.).

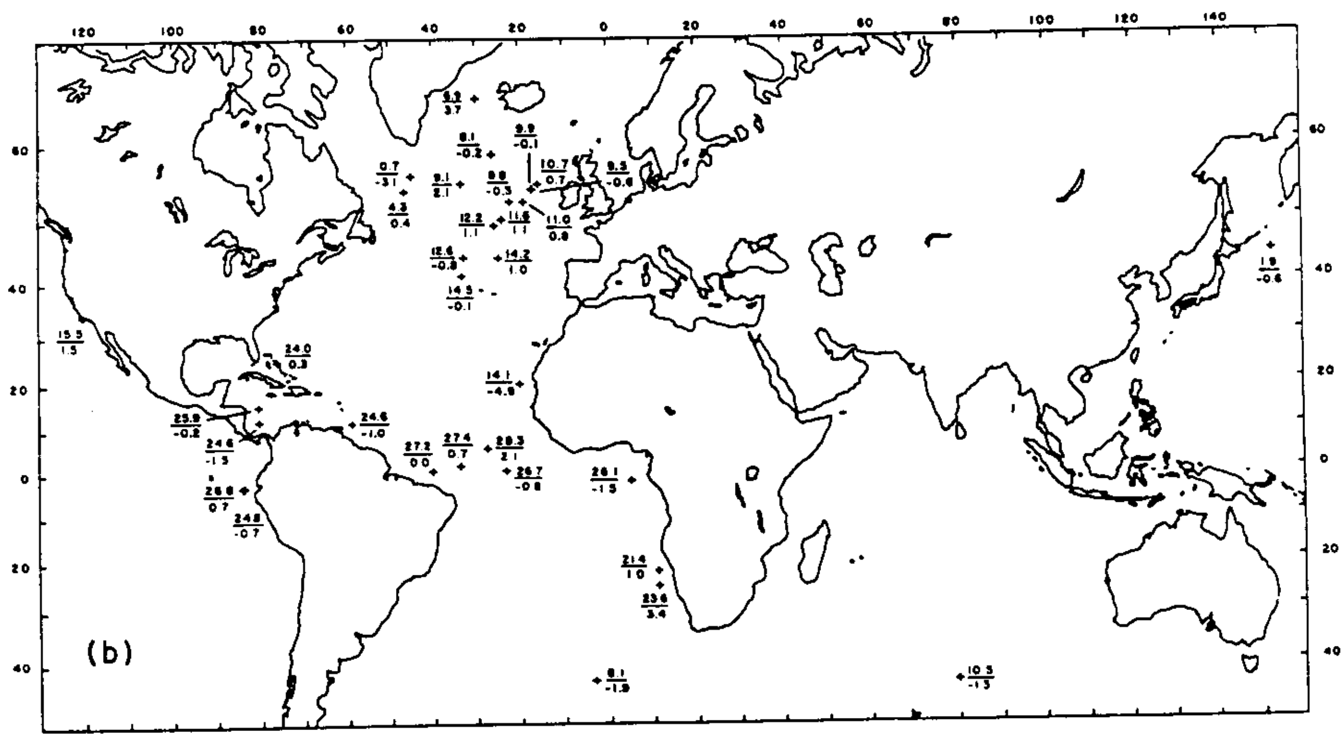

Figure 15. b) February sea-surface temperature in °C and SST anomaly (below line) relative to modern atlas value. Positive anomaly indicates warmer ocean at 6000 yr B.P. Credibility of SST estimates and anomalies discussed in Ruddiman and Mix (in prep).

Table 11. Sea-Surface Temperature (in °C) Anomaly: 6000 yr BP vs. Today (Modern Atlas Temperature).

	6000 yr BP		6000 yr BP-Today	
Core	Aug.SST	Feb.SST	Aug.SST	Feb.SST
A179-15	27.2	24.0	-1.4	0.3
K708-1	17.6	11.6	1.3	1.1
K714-15	12.3	8.1	0.4	-0.2
RC9-49	27.6	24.6	-0.4	-1.0
RC9-225	16.3	10.7	1.7	0.7
RC9-228	16.2	11.0	1.0	0.8
V15-168	24.9	27.2	-1.8	0.0
V18-357	27.4	25.9	-0.8	-0.2
V23-23	6.6	0.7	-2.8	-3.1
V23-81	14.3	9.5	-0.5	-0.6
V23-82	14.2	9.8	-1.1	-0.3
V25-59	25.1	27.4	-1.3	0.7
V27-20	9.8	4.3	-1.2	0.4
V27-114	14.3	9.1	2.3	2.1
V28-14	11.0	6.9	1.5	3.7
V28-127	26.6	24.6	-1.4	-1.5
V29-179	20.7	14.2	0.9	1.0
V29-183	19.0	12.2	2.3	1.1
V29-192	14.8	9.9	0.2	-0.1
V30-36	25.8	28.3	-0.5	2.1
V30-41	24.4	26.7	-0.1	-0.8
V30-51	21.0	14.1	-3.3	-4.9
V30-97	21.6	14.5	-1.0	-0.1
V30-101	18.0	12.6	-2.7	-0.8
RC11-120	7.9	10.5	-1.1	-1.3
RC13-205	21.3	26.1	-2.4	-1.5
RC13-228	16.7	21.4	1.4	1.0
RC13-229	18.4	23.6	2.3	3.4
RC14-103	1.8	1.9	-4.8	-0.6
V19-29	21.1	24.8	0.4	-0.7
V19-30	24.3	26.8	3.7	0.7
V22-108	5.9	8.1	-2.7	-1.9
Y7110117-P	----	15.5	----	1.5

Table 12. Site Information for Marine Plankton Data from the Indian Ocean.

Site Name	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Depth (m)	Ocean	Site Type	Data Type	Dating Control Methods	Number of C-14 Dates	Rank	Publication Index Number
V34-87	16 28 N	59 45 E	2144	Indian Ocean	Ocean	Plankton	6	0	2	8106
V34-88	16 31 N	59 32 E	2171	Indian Ocean	Ocean	Plankton	5	6	2	8105
V34-89	17 48 N	61 52 E	3760	Indian Ocean	Ocean	Plankton	8	0	4	8107
V34-90	19 4 N	62 51 E	3495	Indian Ocean	Ocean	Plankton	6	0	4	8107
V34-91	20 56 N	64 2 E	3393	Indian Ocean	Ocean	Plankton	6	0	4	8107
V34-92	21 8 N	65 7 E	3166	Indian Ocean	Ocean	Plankton	6	0	4	8107
V34-93	20 38 N	65 3 E	2808	Indian Ocean	Ocean	Plankton	6	0	4	8107
V34-94	18 36 N	65 11 E	3373	Indian Ocean	Ocean	Plankton	7	0	4	8107
V34-95	13 39 N	65 13 E	4031	Indian Ocean	Ocean	Plankton	6	0	4	8107
V34-100	16 22 N	67 59 E	2970	Indian Ocean	Ocean	Plankton	6	0	4	8107
V34-101	17 29 N	67 22 E	3038	Indian Ocean	Ocean	Plankton	5	4	1	8104
V34-102	18 1 N	68 17 E	3442	Indian Ocean	Ocean	Plankton	6	0	4	8107
V34-109	19 44 N	66 5 E	2742	Indian Ocean	Ocean	Plankton	6	0	4	8107
V34-111	17 37 N	63 53 E	3623	Indian Ocean	Ocean	Plankton	6	0	4	8107
V34-118	13 7 N	66 16 E	4075	Indian Ocean	Ocean	Plankton	6	0	4	8107
V34-119	13 7 N	66 15 E	4070	Indian Ocean	Ocean	Plankton	6	0	4	8107
RC9-160	12 3 N	63 8 E	4268	Indian Ocean	Ocean	Plankton	6	0	4	8103
RC9-161	19 34 N	59 36 E	3332	Indian Ocean	Ocean	Plankton	5	5	4	8101
RC9-162	19 4 N	60 25 E	3092	Indian Ocean	Ocean	Plankton	8	0	4	8103
MD76-135	14 26 N	50 31 E	1895	Indian Ocean	Ocean	Plankton	11	0	2	8102
MD77-202	19 13 N	60 40 E	2427	Indian Ocean	Ocean	Plankton	6	0	2	8107
MD77-203	20 41 N	59 34 E	2442	Indian Ocean	Ocean	Plankton	11	0	2	8104

samples in each core. Only 3 cores had radiocarbon dates,(Table 12) but biostratigraphic data along with oxygen isotope and calcium carbonate data were used to assign dates in the cores without radiocarbon dates. The data set includes percentages for the major species of foraminifera in each sample.

The coverage of sites is fairly uniform in the northwestern Indian Ocean (Fig. 16; Table 12; see Appendix L for bibliographic references). Appropriate transfer functions (CLIMAP, 1981; Prell, 1984) were applied to the data to obtain estimates for August sea-surface temperatures (Fig. 17). These estimates indicate an east-west temperature gradient with lower temperatures in the area of upwelling along the African-Arabian coast.

DISCUSSION

Data Coverage

The current data set provides coverage for most regions of the world (Fig. 1), but additions can still be made in several areas. Published pollen data are available from Australia, Africa, China, Japan, and southwest. North America, and Tsukada (1983) and Baker (1983) have provided recent summaries for the latter two areas. Paleobotanical data are also available from packrat middens in the southwest (Spaulding et al., 1983). Lake-level data have recently been added from eastern North America and Europe, but more sites with lake-level information can probably be found in both regions. Additional sites with marine plankton data are also available from such areas as the Gulf of Mexico and the Mediterranean Sea. Work is in progress to compile and to add these data to the global data set.

The Global Mean Temperature at 6000 yr B.P.

The mid-Holocene (ca. 4000 to 8000 yr B.P.) has long been considered a time when the global mean temperature was higher than it is today (Deevey and Flint, 1957). This time period is often termed the "altithermal" (Antevs, 1948) or "hypsithermal" (Deevey and Flint, 1957). Kellogg and Schware (1981, p. 157) have recently claimed that "...during the Altithermal the Earth was generally several degress warmer than the present...." One goal in assembling the data from 6000 yr B.P. was to try to gain a wide enough distrubution of temperature estimates that an estimate for the global mean temperature might be calculated. The coverage of sites with temperatures in the current data set, however, is not yet sufficient for producing such an estimate. Most of the sites are in mid-to-high latitudes of the Northern Hemisphere, and too few are located in the tropics, Asia, or the Pacific Ocean to allow a relaible calculation of the global mean temperature.

This conclusion raises the question as to whether any geological evidence exists that the global mean temperature at 6000 yr B.P. was high than it is today. A search of the literature shows that most claims for a warm mid-Holocene period were based on local or regional data (Iversen, 1944; Deevey and Flint, 1957) from northern mid-latitudes where July mean temperatures may have been 1 to 3°C higher than today (Fig. 4 and 10). Deevey and Flint (1957) assumed that this information was representative of the global mean temperature, but studies in synopic climatology (Berry and Perry, 1975) show that this assumption is probably invalid, even for the time scale of thousands of years. Webb and Wigley (1985) have recently discussed this point and reached a similar conclusion, that no direct evidence exists that the global mean temperature was higher at 6000 yr B.P. than it is today.

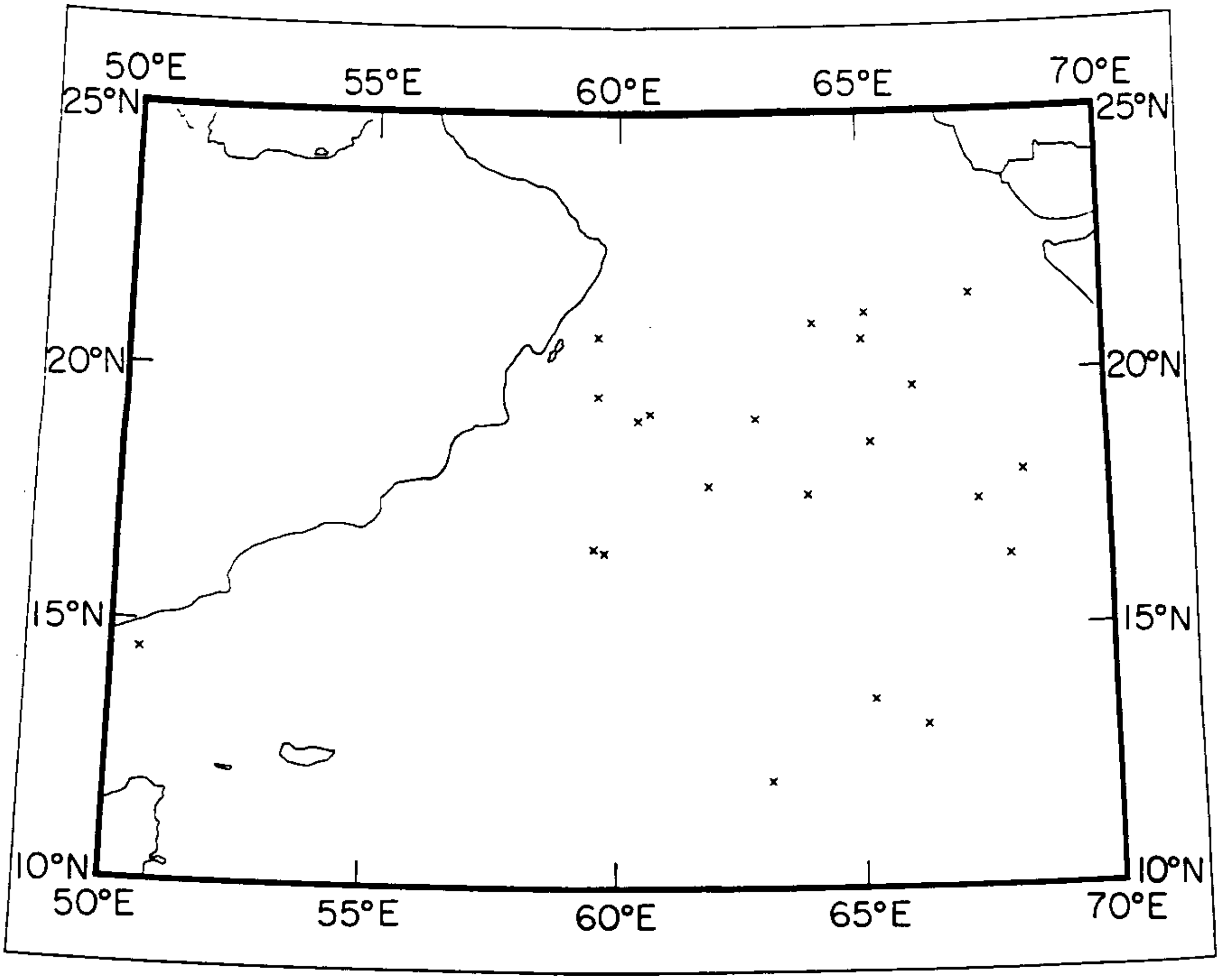

Figure 16. Location of sites with marine plankton data in the northwestern Indian Ocean (from Marvil and Prell, in prep.).

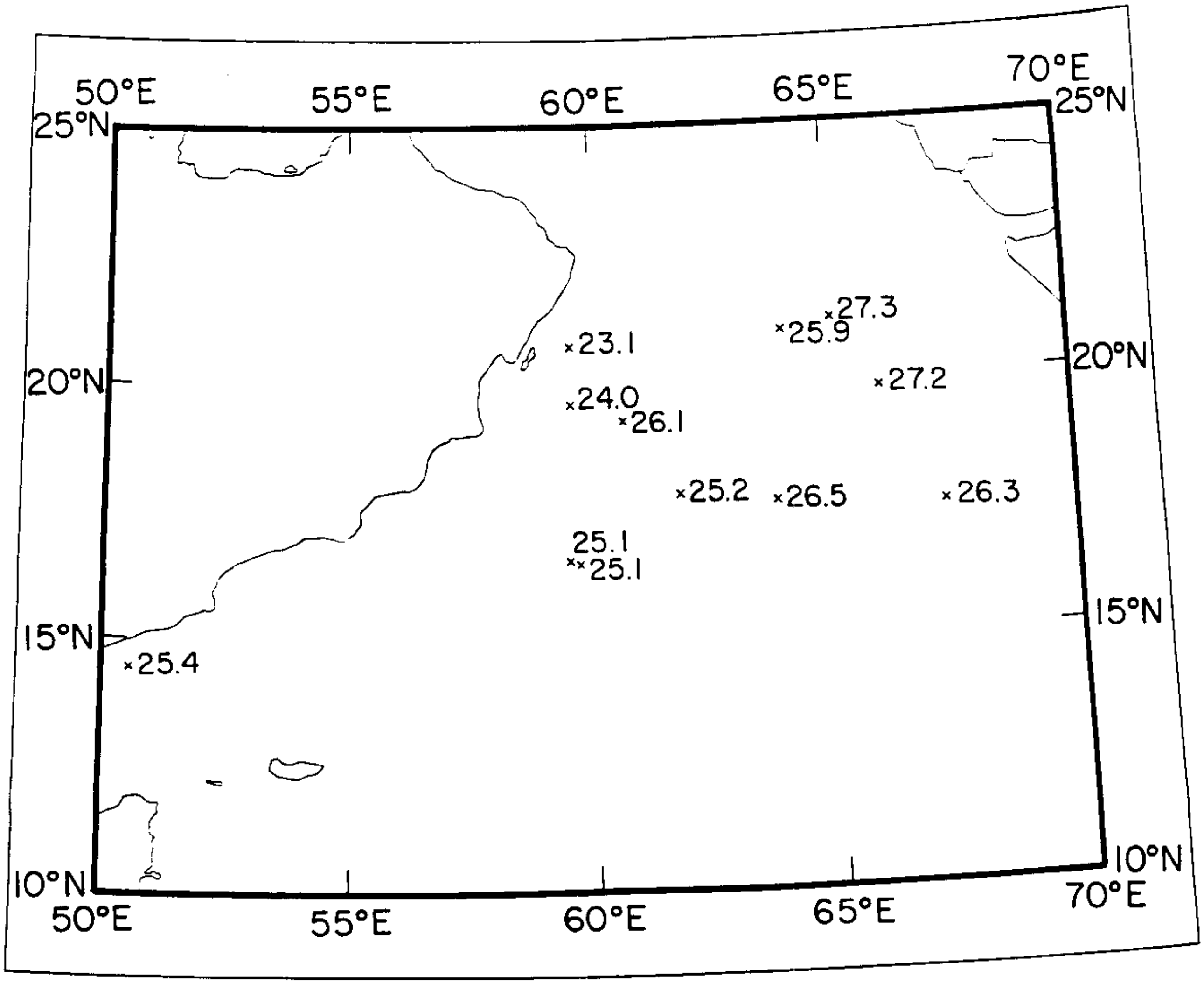

Figure 17. Sea surface temperature estimates for August derived from marine plankton data for 6000 yr B.P. (from Marvil and Prell, in prep.).

Potential for Comparison with Climate Model Results

An important use for the global paleoclimatic data set from 6000 yr B.P. will be the testing of results from climate model situations. This work is critical for understanding the climatic effects of increased atmospheric carbon dioxide concentrations. Because of the maineffects of increased carbon dioxide concentrations is to change the radiative forcing and energy balance of the global climate system, tests of the models are needed that show how well the models can simulate climate patterns when the radiative forcing is changed. Model simulations for 6000 yr B.P. provide such a test. For example, Kutzbach (1981) and Kutzbach and Guetter (1984) have already shown that the seasonal variation in solar radiation between today and 6000 yr B.P. can lead to systematic and significant changes in the climatic patterns simulated by general circulation models. Research is now in progress to use the paleoclimatic data from 6000 yr B.P. to show which of the simulated patterns are accurate.

CONCLUSIONS

The global data base for 6000 yr B.P. provides adequate coverage of sites in most continents. Eastern Asia and Antarctica are poorly sampled and much of Australia and South America are sparsely sampled. Sites with marine plankton data are much less numerous than terrestrial sites because of slow sedimentation rates in the ocean. The best coverage is in the North Atlantic Ocean and the Eastern Indian Ocean. The climate around 6000 yr B.P. differed significantly from today, and maps of estimated July mean temperatures show patterns with regions of higher as well as lower temperatures in northern middle and high latitudes. The current estimates for the global mean temperature at 6000 yr B.P. are uncertain, but it may have been only within 1°C of today's temperature (Webb and Wigley, 1985). If this estimate is correct, then the data for moisture conditions at 6000 yr B.P. (Appendix J) are impressive because they show that large changes in both precipitation and the extent of deserts and grass lands can be associated with relatively small variations in the global mean temperature.

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APPENDIX A

Descriptive Files for the 6000 yr B.P. Data Set

This appendix contains the Master Format File and six other tables with descriptive information such as a key to the country codes and site type codes. The Master Format File is the first file among the computer files within which the set of global paleoclimatic data for 6000 yr B.P. is stored. It lists all the descriptive files and data files and provides a brief description of each file. The data were stored in several subsets either by data type (pollen, lake level, and plankton) or for pollen and plankton data by geographic region. Each subset and the files in each subset are described in the Master Format File.

The other tables in this appendix provide keys to codes used in describing the data and the sites (Tables A-2 to A-7). Codes were used for country names, data types, site types, U.S. states and Canadian provinces, dating control (ranks), and dating methods. These categories appear in Tables 1-4, 6-8, 10, 12 in the main text that list and describe the sites. The codes are mostly self explanatory. The ranking of the dating control depends upon the nearest radiocarbon dates, and the numbers from 1 (best) to 7 (worst) rank the degree of dating control (Table A-7). These ranks are used for all data sets but the European pollen data, to which the ranks described in Huntley and Birks (1983) are assigned, and the Indian ocean plankton data, for which other stratigraphic information was often used in assigning the dates. For certain Indian Ocean cores, no radiocarbon dates were available, but standard stratigraphic indicators such as percent calcium carbonate or oxygen isotope ratios were used. The dating methods code was created to allow for this difference in dating methods among the different data sets and indicates what dating methods were used (Table A-4). Within the dating methods code, some numbers refer to methods listed under other numbers, e.g., dating method 7 refers to methods 2 and 3 and indicates that for code 7 methods 2 (calcium carbonate stratigraphy) and 3 (oxygen isotope stratigraphy) were used.

Table A-1. Master Format File: List of All File Names and Description Files.

Label 1: MASTER.FORMAT

This file contains a description of the layout of the 6K data tape. The tape includes documenation as well as data files.

The tape contains pollen, lake level, and marine plankton data from 6000 yr. B.P. and was prepared by T. Webb and R. Arigo at Brown University, Spring, 1984.

The data appears in files subdivided by region and data type. Pollen data are in the subdivisions: ENA (Eastern North America), ALASKA (Northwest Canada and Alaska), EUROPE, USSR, and SAMERICA (South America), and NEWZEAL (New Zealand). The subdivision LAKELEVL (Lake Level) contains a global set of data on lake levels (i.e. the scaled height of water levels in lakes). The subdivisions ATLANTIC (Atlantic Ocean) and INDIAN (Indian Ocean) contain planktonic foraminifera data from these oceans, and data from isolated cores in the Pacific and Southern Oceans are also included in the subdivision ATLANTIC. Within each region, files with the filetype of FORMAT (e.g. ENA.FORMAT) contain documentation pertaining to the data files for that particular region.

Label 2: COUNTRY.CODES

This file contains a list of country names along with its associated index number. The country codes appear in all *.INDEX files (where * is MASTER, ENA, ALASKA,

EUROPE, USSR, LAKELEVL, ATLANTIC, INDIAN, SAMERICA, or NEWZEAL).

Field Name	Beginning Column	Ending Column	Field Description
Country code	3	4	
Country name	7	30	

Label 3: STATE.CODES

This file contains a list of state names, Canadian provinces, and U.S. territories along with their postal abbreviations. The state codes appear in all *.INDEX files.

Field Name	Beginning Column	Ending Column	Field Description
Postal abbreviation	2	3	
State name	7	35	

Label 4: DATING.METHODS

This file contains a list of dating methods used along with its associated index number. Some dating methods are a combination of 2 or more dating methods previously listed. The combinations are listed by dating method number. This code appears for each site in all *.INDEX files.

Field Name	Beginning Column	Ending Column	Field Description
Dating method number	1	2	
Dating method	5	55	

Label 5: SITETYPE.CODES

This file contains a list of site type codes along with a description of the code. The sitetype code character is left justified in its field. This code is used in describing the sites in all *.INDEX files.

Field Name	Beginning Column	Ending Column	Field Description
Site type code	1	2	
Site type	6	30	

Label 6: DATATYPE.CODES

This file contains a list of data type codes along with a description of the code. The data type codes appear in all *.INDEX files

Field Name	Beginning Column	Ending Column	Field Description
Data type code	1	2	
Data type	6	30	

Label 7: DATING.CONTROL

This file contains a list of codes (1 to 7) that rank the degree of dating control for the data at a selected date, e.g. 6000 yr. B.P. These codes appear in all *.INDEX files.

Field Name	Beginning Column	Ending Column	Field Description
Dating control code	1	1	
Dating control	5	50	

Label 8: MASTER.INDEX

This file contains information about each site in each subdivision of the global data set. There is one line of information per site.

Field Name	Beginning Column	Ending Column	Field Description
TAPE ID number	2	6	
Dataset ID number	10	12	
Site name	15	44	
Latitude in degrees	47	48	
Latitude in minutes	50	51	
Latitude character	53	53	
Latitude in decimal	55	60	
Longitude in degrees	63	65	
Longitude in minutes	67	68	
Longitude character	70	70	
Longitude in decimal	72	78	
Elevation in meters	81	86	
Postal code	89	90	
Country code	93	94	
Sitetype code	97	98	
Type of data	101	102	
Publication number	105	109	
Number of C-14 dates	112	115	
Dating control code	120	121	
Dating method code	124	125	

Label 9: ENA.FORMAT

Describes the information and its format in each of the other ENA files.

Label 10: ENA.INDEX

Provides descriptive information about each site in ENA and its data.

Label 11: ENA.DATA6K

Contains the pollen data and available climatic estimates from each site in ENA for 6000 yr. B.P. Data compiled by T. Webb and P.J. Bartlein.

Label 12: ENA.PUBINDEX

Lists the index number for each publication along with the author and date.

Label 13: ENA.REFERENC

Lists the reference number along with the full bibliographic references.

Label 14: ALASKA.FORMAT

Describes the information and its format in each of the other ALASKA files.

Label 15: ALASKA.INDEX

Provides descriptive information about each site in ALASKA and its data.

Label 16: ALASKA.DATA6K

Contains pollen data from each site in ALASKA for 6000 yr. B.P. Data suppled by P.M. Anderson.

Label 17: ALASKA.PUBINDEX

Lists the index number for each publication along with the author and date.

Label 18: ALASKA.REFERENC

Lists the reference number along with full bibliographic references for the data.

Label 19: EUROPE.FORMAT

Describes the information and its format in each of the other EUROPE files.

Label 20: EUROPE.INDEX

Provides descriptive information about each site in EUROPE and its data.

Label 21: EUROPE.DATA6K

Contains pollen data and available temperature estimates from each site in EUROPE for 6000 yr. B.P. Data supplied by B. Huntley and I.C. Prentice.

Label 22: EUROPE.PUBINDEX

Lists the index number for each publication and an abbreviated reference.

Label 23: EUROPE.REFERENC

See Label 22: EUROPE.PUBINDEX for abbreviated references.

Label 24: USSR.FORMAT

Describes the information and its format in each of the other USSR files.

Label 25: USSR.INDEX

Provides descriptive information about each site in the USSR and its data.

Label 26: USSR.DATA6K

Contains pollen data from each site in the USSR for 6000 yr. B.P. Data supplied by G.M. Peterson.

Label 27: USSR.PUBINDEX

Lists the index number for each publication along with the author and date.

Label 28: USSR.REFERENC

Lists the reference number along with the full bibliographic references for the data.

Label 29: LAKELEVL.FORMAT

Describes the information and its format in each of the other LAKELEVL files.

Label 30: LAKELEVL.INDEX

Provides descriptive information about each LAKELEVL site and its data.

Label 31: LAKELEVL.DATA6K

Contains information about the relative water level (high, intermediate, low) at each site for 6000 yr. B.P. Data supplied by F.A. Street-Perrott, S. Harrison, and N. Roberts.

Label 32: LAKELEVL.PUBINDEX

Lists the index number for each publication along with its associated reference numbers.

Label 33: LAKELEVL.REFERENC

Lists the reference number for each reference along with the author(s), date and full reference for the data.

Label 34: ATLANTIC.FORMAT

Describes the information and its format in each of the other ATLANTIC files.

Label 35: ATLANTIC.INDEX

Provides descriptive information about each site in the ATLANTIC Ocean and its data.

Label 36: ATLANTIC.DATA6K

Contains foraminifera data and sea-surface temperature estimates for 6000 yr. B.P. Data supplied by W.F. Ruddiman and J. Morley.

Label 37: ATLANTIC.PUBINDEX

Lists the index number for each publication along with its associated reference numbers.

Label 38: ATLANTIC.REFERENC

Lists the reference number along with the full bibliographic references for the data.

Label 39: INDIAN.FORMAT

Describes the information and its format in each of the other INDIAN files.

Label 40: INDIAN.INDEX

Provides descriptive information about each site in the INDIAN Ocean and its data.

Label 41: INDIAN.DATA6K

Contains foraminifera data and sea-surface temperature estimates for 6000 yr. B.P. Data supplied by W.L. Prell and R. Marvil.

Label 42: INDIAN.PUBINDEX

Lists the index number for each publication along with its associated reference numbers.

Label 43: INDIAN.REFERENC

Lists the reference number along with the full bibliographic references for the data.

Label 44: SAMERICA.FORMAT

Describes the information and its format in each of the other SAMERICA files.

Label 45: SAMERICA.INDEX

Provides descriptive information about each site in SAMERICA and its data.

Label 46: SAMERICA.DATA6K

Contains pollen data from each site in SAMERICA for 6000 yr. B.P. Data supplied by V. Markgraf.

Label 47: SAMERICA.PUBINDEX

Lists the index number for each publication along with the reference numbers, author(s), and date for SAMERICA.

Label 48: SAMERICA.REFERENC

Lists the reference number along with the full bibliographic references for the data.

Label 49: NEWZEAL.FORMAT

Describes the information and its format in each of the other NEWZEAL files.

Label 50: NEWZEAL.INDEX

Provides descriptive information about each site in NEWZEAL and its data.

Label 51: NEWZEAL.DATA6K

Contains pollen data from each site in NEWZEAL for 6000 yr. B.P. Data supplied by M.S. McGlone.

Label 52: NEWZEAL.PUBINDEX

Lists the index number for each publication along with the reference numbers, author(s), and date for the data.

Label 53: NEWZEAL.REFERENC

Lists the reference number along with the full bibliographic references for NEWZEAL.

	FORMAT	INDEX	DATA6K	PUBINDEX	REFERENC
ENA	Label 9	Label 10	Label 11	Label 12	Label 13
ALASKA	Label 14	Label 15	Label 16	Label 17	Label 18
EUROPE	Label 19	Label 20	Label 21	Label 22	Label 23
USSR	Label 24	Label 25	Label 26	Label 27	Label 28
LAKELEVL	Label 29	Label 30	Label 31	Label 32	Label 33
ATLANTIC	Label 34	Label 35	Label 36	Label 37	Label 38
INDIAN	Label 39	Label 40	Label 41	Label 42	Label 43
SAMERICA	Label 44	Label 45	Label 46	Label 47	Label 48
NEWZEAL	Label 49	Label 50	Label 51	Label 52	Label 53

Table A-2. COUNTRY CODES: Country and Ocean Codes

1	Albania
2	Austria
3	Belgium
4	Bulgaria
5	Wales
6	Czechoslovakia
7	Denmark
8	England
9	Estonia
10	Faeroes
11	Finland
12	France
13	East Germany
14	Greece
15	West Germany
16	Hungary
17	Iceland
18	Ireland
19	Italy
20	Latvia
21	Lithuania
22	Portugal
23	Luxembourg
24	Netherlands
25	Norway
26	Poland
27	Romania
28	Scotland
29	Spain
30	Svalbard
31	Sweden
32	Switzerland
33	Yugoslavia
34	Russia
35	Greenland
36	United States
37	Canada
38	Afghanistan
39	Algeria
40	Australia
41	Bolivia
42	Botswana
43	Chad
44	Chile
45	China
46	Colombia
47	Djibouti
48	Ecuador
49	Egypt
50	Ethiopia

51	Ghana
52	India
53	Iran
54	Jordan
55	Kenya
56	Libya
57	Malawi
58	Mali
59	Mauritania
60	Mexico
61	Namibia
62	New Zealand
63	Niger
64	Saudi Arabia
65	Sinai
66	South Africa
67	Sudan
68	Syria
69	Tanzania
70	Turkey
71	Uganda
72	Venezuela
73	Soviet Union
74	Ethiopia-Kenya
75	Ethiopia-Djibouti
76	Jordan-Israel
77	Nigeria/Niger
78	Rwanda-Burundi-Zaire
79	Uganda-Tanzania-Kenya
80	Uganda-Zaire
81	North Atlantic
82	Argentina
83	Guiana
84	Brazil
85	Indian Ocean
86	Falkland Islands
87	South Atlantic
88	Southern Ocean
89	North Pacific
90	South Pacific
91	Carribean Sea
92	Sea of Japan

Table A-3. STATE CODES: Postal Codes for U.S. States and Canadian Provinces

AL	Alabama
AK	Alaska
AZ	Arizona
AR	Arkansas
CA	California
CO	Colorado
CT	Connecticut
DE	Delaware

FL	Florida
GA	Georgia
HI	Hawaii
ID	Idaho
IL	Illinois
IN	Indiana
IA	Iowa
KS	Kansas
KY	Kentucky
LA	Louisiana
ME	Maine
MD	Maryland
MA	Massachusetts
MI	Michigan
MN	Minnesota
MS	Mississippi
MO	Missouri
MT	Montana
NE	Nebraska
NV	Nevada
NH	New Hampshire
NJ	New Jersey
NM	New Mexico
NY	New York
NC	North Carolina
ND	North Dakota
OH	Ohio
OK	Oklahoma
OR	Oregon
PA	Pennsylvania
RI	Rhode Island
SC	South Carolina
SD	South Dakota
TN	Tennessee
TX	Texas
UT	Utah
VT	Vermont
VA	Virginia
WA	Washington
WV	West Virginia
WI	Wisconsin
WY	Wyoming
CM	Northern Mariana Islands
TT	Trust Territories
AS	American Samoa
CZ	Canal Zone
DC	District of Columbia
GU	Guam
PR	Puerto Rico
VI	Virgin Islands
AB	Alberta
BC	British Columbia
LB	Labrador
MB	Manitoba

NB	New Brunswick
NF	Newfoundland
NS	Nova Scotia
ON	Ontario
PE	Prince Edward Island
PQ	Quebec
SK	Saskatchewan
YT	Yukon Territory
FR	Baffin Island (Franklin)
KE	District of Keewatin
MK	District of Mackenzie

Table A-4. DATING METHODS: Key to the Methods Used to Date the Sediments.

1	C-14 Dates
2	Calcium Carbonate Stratigraphy
3	O-18 Stratigraphy
4	Biostratigraphy
5	1,2,3,4
6	2,3,4
7	2,3
8	2,4
9	Varves
10	Pollen Stratigraphic Dates
11	3,4

Table A-5. SITETYPE CODES: Key to Codes Used for Site Types

A	Atmospheric
B	Bog
CT	Cattle tank
E	Estuary
F	Fen
L	Lake
LD	Lake - Ekman dredge
M	Marsh
P	Moss polster
PP	Pitcher plant
R	River deposit, oxbow lake
S	Soil
SA	Sand
SC	Soil and cattle tank
SN	Snow
BW	Wooded bog
LW	Lake - small hollow
AP	Alluvial peat
AS	Alluvial sediments
DH	Drill Hole
RS	Rock shelter
PM	Peat mound
BS	Beach sediment
O	Other site type

OC	Ocean core
Z	Bog over lake sediments
T	Terrestrial
PT	Peat
BP	Buried Peat
CO	Colluvium
BL	Buried lake deposit
MS	Marine sediments

Table A-6. DATATYPE CODES: Key to Codes Used for Types of DATA

PL	Plankton:	Marine Planktonic Data
PO	Pollen:	Pollen Data
LL	Lake Level:	Lake Level Data

Table 7. DATING CONTROL: Definition of Numbers Used to Rank Degree of Dating Control.

A) The following 7 categories provide ranks for the dating control in cores with continuous sedimentation.

1 Bracketing dates (mainly radiocarbon) within 2000 yrs of selected date, i.e. 6000 yr B.P.

2 Bracketing dates, both within 2000 years and the other within 4000 years of the selected date.

3 Bracketing dates, one within 4000 years of of selected date.

4 Bracketing dates, one within 4000 years and the other within 6000 years of the selected date. The second date can be the top of the core with an assigned date of 0 yr B.P.

5 Bracketing dates within 6000 years of the selected date.

6 Bracketing dates, one within 6000 years and the other within 8000 yers of the selected date.

7 Undated at selected date (i.e. 6000 yr B.P.): either no dates in core, no bracketing dates, or no top to core and no date within 8000 years of the selected date.

B) The ranking of the dating control for the European pollen data was done by B. Huntley before the above system was established. The ranks for the European data include 4 categories that are approximately similar to the above categories in the following way: 1=1 above, 2=2 above, 3=3 above , and 4=7 above.

C) For ranking the dating control in sites with discontinuous samples (e.g. shoreline samples for lakes, isolated peats, packrat middens), the categories used require single radiocarbon dates within 1) 250 years, 2) 500 years, 3) 750 years, 4) 1000 years, 5) 1250 years, 6) 2000 years, and 7) greater than 2000 years of the date being mapped (e.g. 6000 yr B.P.)

APPENDIX B

References for the 6000 yr B.P. Pollen Data
from Eastern North America

This appendix contains a table of publication index numbers that appear in Table B-1 in the main text and the references for pollen data from eastern North America. The table lists the publication index numbers along with the authors and dates of publication that can be used to find the full bibliographic reference in the reference list. The publication index numbers appear in numerical order, but the references are listed alphabetically by the last name of the first author in the reference list. The publication index numbers are part of a general code for references to all paleoclimatic data stored on the computer at Brown University. Only those reference numbers are listed that refer to data for 6000 yr B.P.

Table B-1. Key to the Reference Numbers in Table 1 of the Main Text.

2	Gruger, J. 1973
11	McAndrews, J.H. 1966
13	Fries, M. 1962
22	Webb, T. III 1974
24	Brubaker, L.B. 1975
26	Bailey, R.E. unpubl.
33	Terasmae, J. and Anderson, T.W. 1970
37	Livingstone, D.A. 1968
42	Terasmae, J. 1968
54	Ogden, J.G. III 1966
55	Craig, A.J. 1969
82	Watts, W.A. 1970
88	Walker, P.C. and Hartman, R.J. 1960
91	Gilliam, J.A., Kapp, R.O., and Bogue, R.D. 1967
99	Watts, W.A. 1971
101	Vincent, J.S. 1973
103	Miller, N.G. 1973
112	Davis, A.M. 1977
125	Spear, R.W. and Miller, N.G. 1976
133	Watts, W.A. 1980a
134	Delcourt, P.A. 1980
136	Sheehan, M.C. and Whitehead, D.R. 1983
137	Watts, W.A. 1975
145	Barclay, F.H. 1957
152	Whitehead, D.R. 1972
153	Whitehead, D.R. 1981
157	Ogden, J.G. III and Hay, R.J. 1967
158	Ogden, J.G. III unpubl.
160	Karrow, P. et al. 1975
161	Anderson, T.W. 1980
162	Anderson, S. and Davis, R.B. unpubl.
163	Manny, B.A., Wetzel, R.G., and Bailey, R.E. 1978
165	Bostwick, L.K. unpubl.
166	Comtois, P. 1982
168	Davis, P.T. 1980
169	Davis, R.B., Bradstreet, T.E., Stuckenrath, R., and Borns, H.W. 1975

170	Davis, M.B. 1969
174	Hadden, K.A. 1976
175	Heide, K.M. 1981
176	Jacobson, G.L. 1979
177	Janssen, C.R. 1968
178	Jordan, R.H. 1975
180	Kapp, R.O. unpubl.
181	King, J.E. 1981
182	Lamb, H.F. 1978
183	Larouche, A. and Richard, P. unpubl.
186	Mcandrews, J.H. 1981
189	McAndrews, J.H. 1970
190	McDowell, L.L. et al. 1971
191	Trent, K.M. unpubl.
192	Mott, R.J. 1975
193	Mott, R.J. 1977
194	Mott, R.J. and Farley-Gill, L.D. 1978
196	Mott, R.J. 1976
197	Overpeck, J.T. 1984
198	Patterson, W. III unpubl.
199	Peters, A. and Webb, T. III 1979
200	Richard, P. 1977
201	Richard, P. 1979
202	Richard, P. unpubl.
204	Savoie, L. and Richard, P. 1979
205	Saarnisto, M. 1974
206	Saarnisto, M. 1975
207	Shane, L.C.K. 1976
208	Short, S.K. and Nichols, H. 1977
213	Richard, P., Larouche, A., and Bouchard, M. 1982
216	Van Zant, K.L. 1979
218	Waddington, J.C.B. 1969
219	Watts, W.A. 1980b
220	Wright, H.E. Jr. and Watts, W.A. 1969
221	Watts, W.A. and Bright, R.C. 1968
222	Whitehead, D.R. 1979
224	Whitehead, D.R. and Crisman, T. 1978
225	Williams, A.S. 1974
227	Whitehead, D.R. unpubl.
229	Mott, R.J. unpubl.
230	Labelle, C. and Richard, P. 1981
272	Kerfoot, W.C. 1974
273	Ritchie, J.C. and Lichti-Federovich, S. 1968
274	Ritchie, J.C. and Hadden, K.A. 1975
275	Ritchie, J.C. 1969
277	Swain, P.C. 1979
278	Wright, H.E. et al. 1963
280	Delcourt, H.R. 1979
281	Delcourt, H.R., Delcourt, P.A., Spiker, E.C., 1983
284	Bailey, R.E. and Ahearn, P.J. 1981
285	Bailey, R.E. 1972
286	King, J.E. and Allen, W.H. Jr. 1979
288	Lamb, H.F. 1980
289	Baker, R.G. 1970 (Webb & Bryson, 1972)

293 Short, S.K.
294 Gauthier, R. 1981
295 Durkee, L.H. 1971
296 McAndrews, J.H., Riley, J.L., and Davis, A.M., 1982
297 McAndrews, J.H. 1982.
298 Futyma, R.P. 1982
299 McAndrews, J.H. unpubl.
300 Bradshaw, R.H.W.
304 Craig, A.J. 1972
306 Mott, R.J. 1973
307 Mott, R.J. and Farley-Gill, L.D. 1981
309 Webb, T. III and R.A. Bryson 1972
311 Mott, R.J. and Camfield, M. 1969
314 Stravers, L.K.
315 Davis, M.B. 1976
316 Van Zant, K.L. unpubl.
317 Lawrenz, R. 1975
318 Spear, R.W. 1981
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APPENDIX C

Pollen Studies in Eastern Canada
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Over the past six years, several researchers at the University of Minnesota have studied the deglaciation chronology, vegetation succession, and climatic history of southern Labrador and adjacent Quebec (Lamb 1978, 1980, 1982, 1984: Engstrom, 1983: Engstrom and Hansen, in press: King, 1985). Field and laboratory work has concentrated on obtaining and analyzing lake-sediment cores from throughout the region and thus filling in a gap in the pollen record from eastern North America (Table C-1, Fig. C-1). This brief summary indicates several of the vegetational and climatic changes in this region before and after 6000 yr B.P. The new sites lie in a critical location for assessing a large region in which the estimated temperatures at 6000 yr B.P. were lower than they are today.

Radiocarbon dates of basal lake sediments and marine shells were used to construct a deglaciation chronology for the southeastern part of the Labrador-Ungava peninsula. Deglaciation in the region began in southeastern Labrador by 11,000 yr B.P., while ice did not begin retreating from the Sept-Iles region in eastern Quebec until about 9500 yr B.P. Extensive ice still persisted in eastern Quebec and western Labrador at 7000 yr B.P., and it may have affected the regional climate. Final wastage of the ice sheet occurred about 6000 yr B.P. near Schefferville in the center of the Labrador-Ungava peninsula (Ives, 1960: King, 1985).

Pollen analysis of lake sediment cores from lakes throughout the region (Table C-1, Fig. C-1) provided a data base from which the regional vegetation history can be summarized. The deglaciated landscape in southeastern Labrador was colonized by sedges, grasses (Cyperaceae), other herbs, and dwarf willows *(Salix* sp.), which formed a tundra vegetation (Fig. C-2, Engstrom, 1983: Engstrom and Hansen, in press). After 9500 yr B.P. the tundra was colonized by shrubs, primarily dwarf birch *(Betula glandulosa)* and green alder *(Alnus crispa)*. In contrast, in western Labrador and adjacent Quebec, the earliest vegetation following deglaciation was not herb tundra but was shrub tundra, similar to the type present in southeastern Labrador between 9500 and 8000 yr B.P. (King, 1985).

The pattern of tree colonization of the shrub tundra varied from south to north in the study region. White spruce *(Picea glauca)* was the first tree to invade the shrub tundra in southeastern Labrador, forming an open forest at about 8000 yr B.P. Spruce, probably white spruce, was also the first tree to colonize the Sept-Iles area at 7700 yr B.P. At 7000 yr B.P. balsam fir *(Abies balsamea)* replaced white spruce as the most common tree in both southeastern Labrador and the Sept-Iles region, forming a closed forest until 6000 yr B.P., when fir populations decreased and black spruce *(Picea mariana)* became the dominant tree, as it is today (Engstrom, 1983: King, 1985).

North of Sept-Iles the pattern and chronology of tree colonization is different from that to the south and southeast. At Lac Au Sable (Fig. C-3), 100 km north of Sept-Iles, balsam fir rather than spruce was the first tree to colonize the shrub tundra, at 6700 yr B.P. Spruce populations increased there at 6300 yr B.P. Still another 100 km north, the pattern is reversed, with spruce populations increasing at 5500 yr B.P. and fir populations at 5300 yr B.P. Finally, north of Wabush/Labrador City, spruce populations increased at 5500 yr B.P. and fir populations have never been significant.

Table C-1. Location of Sites with Pollen Data in Labrador and Adjacent Quebec.

Site Name	Site	Latitude (degrees) (minutes)	Longitude (degrees) (minutes)	Reference	Available Data
Alexis Lake	Al	52 31 N	57 02 W	Lamb 1978	1,2
Battery Lake	Ba	52 18 N	62 07 W	King 1985	1,2
Border Beacon	BB	52 20 N	63 12 W	Lamb 1982	1,2
Bruce Lake	Br	53 17 N	66 50 W	King 1985	1
Caribou Hill	CH	55 40 N	63 15 W	Lamb 1982	1,2
Coghill Lake	Cl	53 54 N	66 46 W	King 1985	1,2
Cove Lake	Co	50 21 N	70 28 W	King 1985	1,2
Lac de la Crete	Cr	50 59 N	69 53 W	King 1985	1
Eagle Lake	Ea	53 14 N	58 33 W	Lamb 1978, 1980	1,2
Gravel Ridge	GR	55 02 N	62 38 W	Lamb 1982	1,2
Gras Lake	Gr	52 15 N	67 04 W	King 1985	1,2
Harrie Lake	Ha	52 56 N	66 57 W	King 1985	1,2
Hebron Lake	He	58 12 N	63 02 W	Lamb 1982	1,2
Lake Hope Simpson	HS	52 27 N	56 20 W	Engstrom and Hansen (in press)	1,2
Horseshoe Lake	Ho	53 17 N	67 42 W	King 1985	1
Independence	In	52 33 N	56 54 W	Engstrom and Hansen (in press)	2
Leaky Lake	Ly	52 34 N	63 36 W	King 1985	1,2
Moraine Lake	Mo	52 16 N	58 03 W	Engstrom and Hansen (in press)	1,2
Paradise Lake	Pa	53 03 N	57 45 W	Lamb 1978, 1980	1,2
Lac Petel	Pe	50 33 N	66 16 W	King 1985	1,2
Pine Lake	Pi	51 08 N	69 16 W	King 1985	1,2
Pinware Lake	Pw	51 50 N	56 35 W	King 1985	1
Lac Ridge	Ri	54 51 N	66 55 W	King 1985	1
Lac au Sable	PS	51 24 N	66 13 W	King 1985	1,2
Shovel Lake	Sh	52 42 N	65 55 W	King 1985	1
Snow Lake	Sn	56 38 N	63 53 W	Lamb 1982	1,2
Starkel Lake	St	52 41 N	67 37 W	King 1985	1
Whitney's Gulch	WG	51 31 N	57 18 W	Lamb 1978, 1980	1,2
Yellow Barrel	YB	51 51 N	68 51 W	King 1985	1

Available Data Codes:
1. Basal radiocarbon date only
2. Pollen diagram

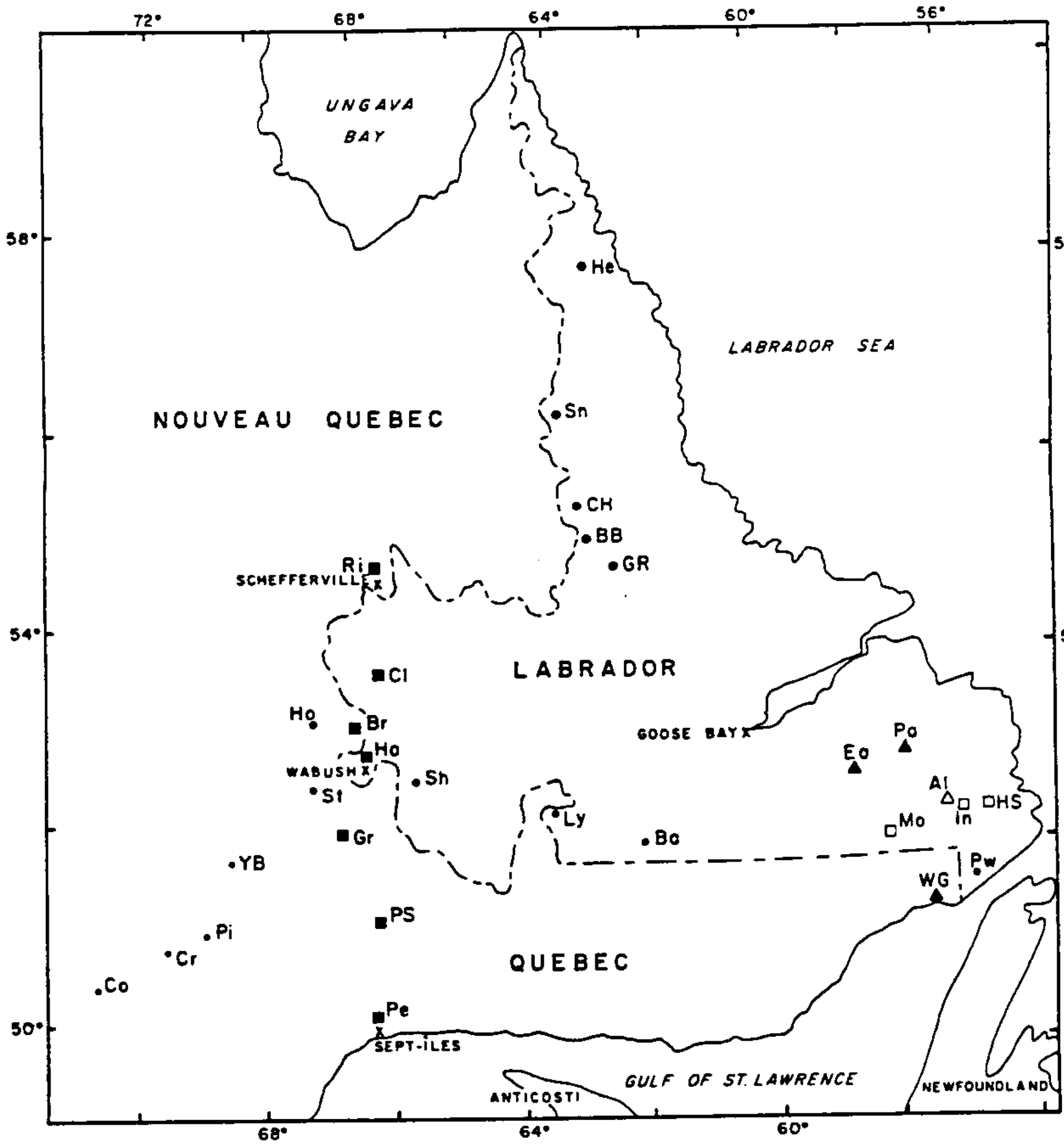

Figure C-1. Location of sites with pollen data in Labrador and Quebec. Key to the site names is in Table C-1.

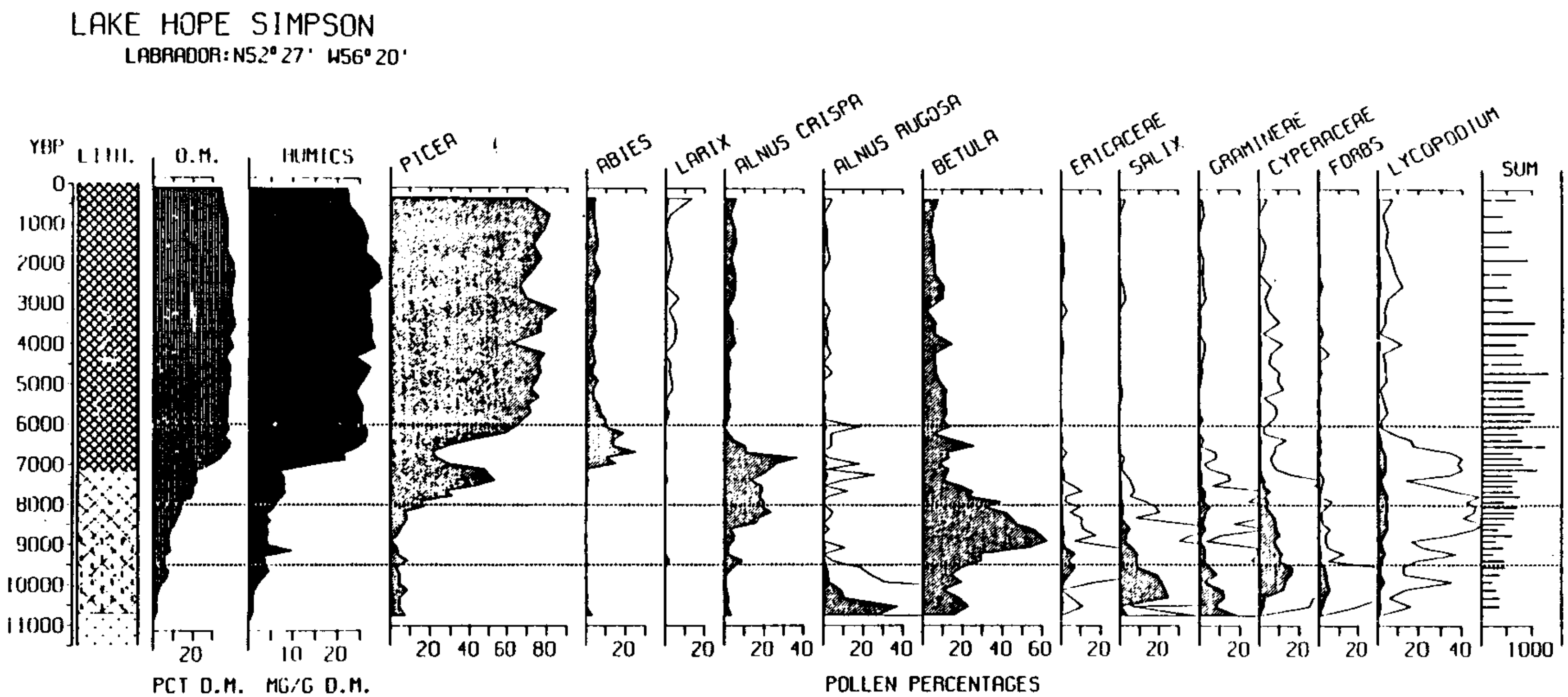

Figure C-2. Pollen diagram from Lake Hope Simpson showing the percentages for the major pollen types as well as the lithology (LITH.), organic matter (O.M. as percent of dry matter), humics (in milligrams per gram of dry matter), and the pollen sum, which is the number of pollen grains counted per sample.

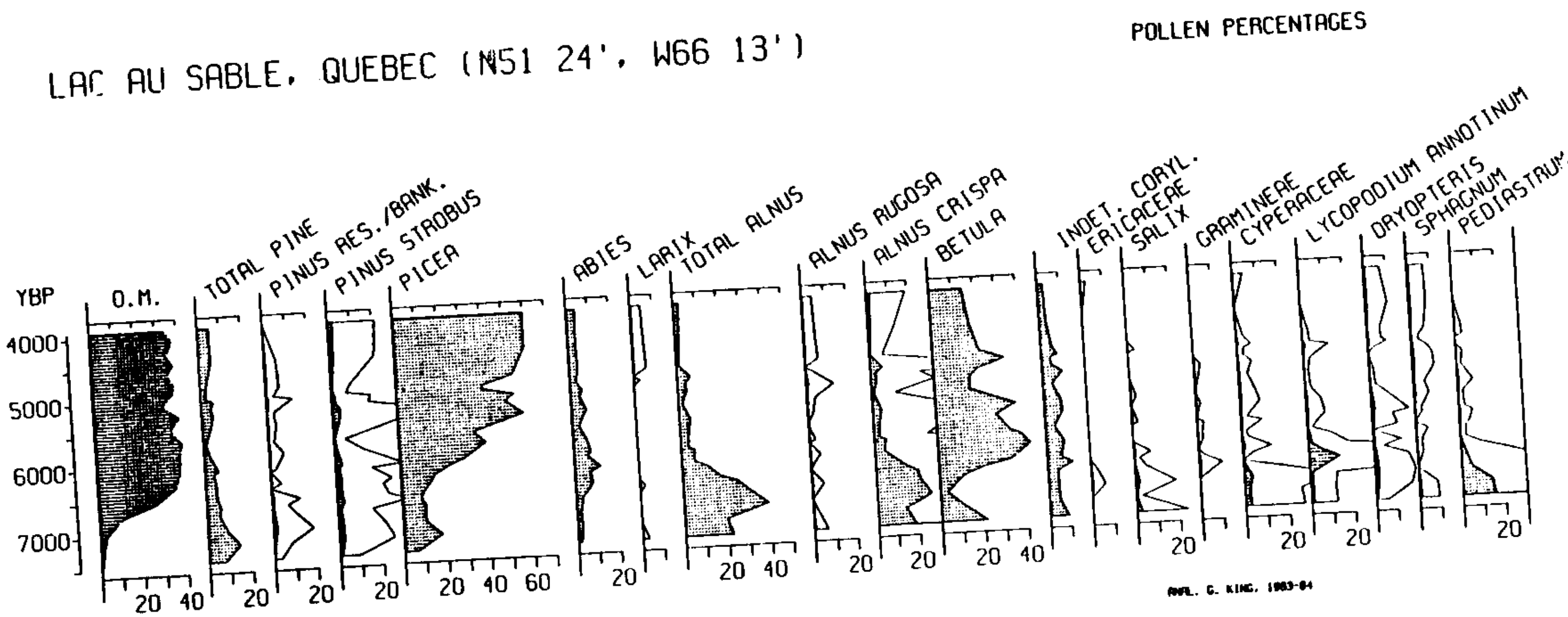

Figure C-3. Pollen diagram from Lac au Sable showing the percentages for the major pollen and spore types. The organic matter (O.M.) content of the sediments is given as percent dry matter.

Where fir populations did increase in the south, they also decreased within a few hundred years, and spruce, probably black spruce, remained as the dominant tree. The regional vegetation has not changed much after 5000 yr B.P. and the establishment of the closed black spruce forest (King, 1985).

The climate south and southeast of the retreating ice sheet was much different than the climate in the region today, as inferred from the vegetation history of the region. Certainly the herb tundra present after deglaciation indicates that colder temperatures, similar to those in northern Labrador-Ungava today, persisted in the southern part of the peninsula until 9500 yr B.P. The colonization of the region by shrubs at that time indicates a progressive warming of the region as the ice retreated northwards. By 8000 yr B.P. southeastern Labrador and the Sept-Iles region had warmed sufficiently to support white spruce trees. However, since the trees initially formed an open forest, the climate may have been cool and moist, similar to that present east of James Bay where white spruce grows today in an open forest-tundra (King, 1985).

The colonization of the region by fir and its relative dominance in a closed forest in the south between 7000 and 6000 yr B.P. suggests that the climate was as warm as it is today in the region or perhaps warmer. Additionally, the climate was probably moister than today's, since fir today grows most abundantly in the maritime climates of Newfoundland and Nova Scotia. Fir subsequently decreased in abundance at 6000 yr B.P. and black spruce became the dominant tree, perhaps indicating the cessation of maritime conditions in the south. Thus the modern climate in the south did not become established until the ice sheet had wasted away. In the Schefferville region a closed forest did not form until 5000 yr B.P., indicating that the climate was still warming there after peak warmth was reached to the south (King, 1985).

The extent to which the ice sheet modified the regional climate is still a matter of conjecture. The expansion of trees into southeastern Labrador was earlier than it was in western Labrador, which is at a comparable latitude but was closer to the ice margin than southeastern Labrador. This fact suggests that the wasting ice sheet did affect the regional climate (King,1985).

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APPENDIX D

References for the 6000 yr B.P. Pollen Data from
Alaska and Northwestern Canada

This appendix contains a table of the publication index numbers from Table 2 in the main text and the full bibliographic reference for each publication. The table lists the publication index numbers along with a second set of one or more reference numbers that can be used to find references in the reference list. The references are listed in numerical order by the reference number. P. M. Anderson compiled the references (see Anderson, 1981, in the reference list for the main text).

Table C-1. Key to Publication Index Numbers for the 6000 yr B.P. Pollen Data from Alaska and Northwestern Canada.

2002	2	Ager, T.A., 1975
2003	2,50	Ager, T.A., 1975 & J.H.Anderson, 1975
2004	4	Ager, T.A., 1981a
2006	6	Ager, T.A., 1983
2007	50,49,6	Anderson, J.H., 1975; Ager and Sims 1981b, Ager 1983
2008	8	Anderson, P.M., 1982
2010	10	Bowman, P.W., 1934
2012	12	Brubaker, L.B., H.Garfinkel & M.Edwards, 1983
2014	52,51	Colinvaux, P.A., 1964a; Colbaugh 1968
2015	52,17	Colinvaux, P.A., 1964a, 1967a
2016	16	Colinvaux, P.A., 1964b
2017	17	Colinvaux, P.A., 1967a
2018	17,20	Colinvaux, P.A., 1967a, 1967b
2019	17,53	Colinvaux, P.A., 1967a, 1967c
2020	20	Colinvaux, P.A., 1967b
2021	54,59	Cwynar, L.C. & J.C.Ritchie, 1980; Ritchie 1982
2022	22	Cwynar, L.C., 1982
2023	23	Edwards, M.E., P Anderson, H.Garfinkel, & L.Brubaker (in review))
2024	24	Giddings, L., unanalyzed
2025	5	Giterman, R.E. & D.M.Hopkins - in Ager 1982
2026	26	Heusser, C.J., 1955
2027	55,56	Heusser, C.J., 1960, 1966
2028	28	Heusser, C.J., 1963
2029	29	Heusser, C.J., 1973
2030	30	Heusser, C.J., 1978
2031	31	Hopkins, D.M. et al., 1960
2032	37,58	Lichti-Federovich, S., 1973, 1974
2033	33	Livingstone, D.A., 1955
2034	34	Livingstone, D.A., 1957
2035	35	Mackay, J.R. & J.Terasmae, 1963
2036	36	Matthews, J.V., 1974a
2037	37	Matthews, J.V., 1974b
2038	38	Parrish, L.L., 1979
2039	39	Rampton, V., 1971
2040	61,41	Ritchie, J.C. & F.K.Hare, 1971; Ritchie, 1972
2041	41	Ritchie, J.C., 1972

2042	42	Ritchie, J.C., 1977
2043	62,45	Schweger, C.E., 1976, 1982
2045	45	Schweger, C.E., 1982
2046	46	Shackleton, J., 1979
2048	48	Terasmae, J. & O.L.Hughes, 1966
2049	49	Ager, T.A., & J.D.Sims, 1981b
2050	50	Anderson, J.H., 1975
2051	51	Colbaugh, P.R., 1968
2052	52	Colinvaux, P.A., 1964a
2053	53	Colinvaux, P.A., 1967c
2054	54	Cwynar, L.C. & J.C.Ritchie, 1980
2055	55	Heusser, C.J., 1960
2056	56	Heusser, C.J., 1966
2057	57	Lichti-Federovich, S., 1973
2058	58	Lichti-Federovich, S., 1974
2059	59	Ritchie, J.C., 1982
2060	60	Matthews, J.V., Jr., 1970
2061	61	Ritchie, J.C. & F.H.Hare, 1971
2062	62	Schweger, C.E., 1976

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APPENDIX E

References for the 6000 yr B.P. Pollen Data from Europe

This appendix contains a table with both the publication index numbers that appear in Table 3 in the main text and the references. B. Huntley and H. J. B. Birks compiled the references (see Huntley and Birks, 1983, in the reference list for the main text).

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APPENDIX F

References for the 6000 yr B.P. Pollen Data from the Soviet Union

This appendix contains the table of publication index numbers that appear in Table 4 of the main text and the references for the pollen data from the Soviet Union. The table lists the publication index numbers along with the author and date of publication, which can be used to find the full bibliographic reference in the reference list. The references appear in alphabetical order in the reference list along with their publication index number. G. M. Peterson compiled the references (see Peterson, 1983, in the reference list for the main text).

Table F-1. Key to the Publication Index Numbers for the 6000 yr B.P. Pollen Data from the Soviet Union.

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5006	Arkhipov,S.A., T.P. Levina, V.A. Panychev, 1980.
5007	Artiushenko, A.T. et al, 1982.
5008	Belorusova,ZH.M., N.V. Lovekius,V.V. Ukrainsteva, 1977.
5009	Boiarskaia,T.D. and T.N. Kaplina, 1979.
5010	Firsov,L.V.,S.L. Troitskii,T.P. Levina et al, 1974.
5011	Glebov,F.Z.,L.S. Toleiko et al, 1974.
5012	Ilves,E.O. and A.A. Sarv, 1969.
5013	KHotinskii, N.A., 1977.
5014	Kleimenova, G.I., 1975.
5015	Kol'tsova,V.G., E.V.Starikov,V.A.ZHidovlenko, 1979.
5016	Korotkii,A.M., L.P.Karaulova,V.S.Pushkar', 1976.
5017	Krainov,D.A. and N.A.KHotinskii, 1977.
5018	Kuprina,N.P., 1970
5019	Kutaf'eva, T.K., 1973.
5020	Levkovskaia, G.M., 1965.
5021	Levkovskaia, G.M., 1971.
5022	Lozhkin,A.V., T.P.Prokhorova,V.P.Parii, 1975.
5023	Makovskii,V.I. and N.K.Panova, 1977.
5024	Neishtadt, M.I., 1965.
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5029	Nikiforova, L.D., 1979.
5030	Nikiforova,L.D., O.B.Parunin et al, 1975.
5031	Nikol'skaia, M.V., 1980.
5032	Peterson, G.M., 1979.
5033	P'iavchenko,N.L., G.A.Elina,V.N.CHachkhiani, 1976.
5034	Popova, A.L., 1969.
5035	Sarv,A.A. and E.O.Ilves, 1971.
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APPENDIX G

References for the 6000 yr B.P. Pollen Data from South America

This appendix contains a table of the publication index numbers from Table 6 in the main text and the references for the pollen data from South America. The table lists the publication index numbers along with one or more reference numbers that can be used to find the full bibliographic reference in the reference list. The references are listed in numerical order by reference number. V. Markgraf compiled the references.

Table G-1. Key to the Publication Index Numbers for the 6000 yr B.P. Pollen Data from South America.

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9002	2	Salgado-Labouriau, M.L., 1980
9003	3	Salgado-Labouriau, M.L., 1976
9004	4	Salgado-Labouriau, C.Schubert & S.Valastro, 1977.
9005	5	Salgado-Labouriau, M.L. & C.Schubert, 1976
9006	6	Van der Hammen, 1962
9007	7	Van der Hammen, Th. & A.E.Gonzalez, 1965
9008	8	Gonzalez, E.A., Th.Van der Hammen & R.F.Flint, 1965
9009	9	Van Geel & Van der Hammen, 1973
9010	10	Schreve-Brinkman, E.J., 1978
9011	11	Van der Hammen, T., J.Barelds & A.A. de Veer, 1981
9012	12	Van der Hammen, T. & A.E.Gonzalez, 1960
9013	13	Van der Hammen, T. & A.E.Gonzalez, 1960
9014	14	Colinvaux, P.A. & E.K.Schofield, 1976
9015	15	Absy, M.L., 1979
9016	16	Wijmstra, T.A. & T. Van der Hammen, 1966
9017	17	Van der Hammen, 1963
9018	18	Graf, K. 1981
9019	19	Villaroel, C. & K.Graf, 1979
9020	20	D'Antoni, H.L. 1980
9021	21	Markgraf, V., 1982
9022	22	Harkness, D.D. & H.W. Wilson, 1979
9023	23	Markgraf, V., 1980.
9024	24	Auer V., 1958
9025	25	Heusser, C.J., 1960
9026	26	Heusser, C.J., 1966
9027	27	Heusser, C.J., 1973
9028	28	Mercer, J.H. & T.Ager, 1978
9029	29	Markgraf, V., 1980
9030	30	Graf, K., 1979
9031	31	Auer V., 1974
9032	32	Barrow, C.J., 1978
9033	1,2	
9034	3,4	
9035	19,30	
9036	22,32	

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APPENDIX H

References for the 6000 yr B.P. Pollen Data from New Zealand

This appendix contains a table of the publication index numbers in Table 7 of the main text and the reference list for the pollen data from New Zealand. The table lists the publication index numbers along with a second set of one or more reference numbers that can be used to find the full bibliographic reference in the reference list. The references are listed in numerical order by reference number. M. S. McGlone compiled the references.

Table H-1. Key to the Publication Index Numbers for the 6000 yr B.P. Pollen Data from New Zealand.

9501	1
9502	2
9503	3
9504	4
9505	5
9506	6
9507	7
9508	8
9509	9
9510	10
9511	11
9512	12
9513	13
9514	14
9515	10,15,16

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Holocene pollen diagrams, Lake Rotorua, North Island, New Zealand. Journal of the Royal Society of New Zealand 13:53-65.

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APPENDIX I

References for the 6000 yr B.P. Lake Level Data

This appendix contains a table of the publication index numbers from Table 8 in the main text and the reference list for the lake level data. The table lists the publication index numbers along with one or more reference numbers that can be used to find the full bibliographic reference in the reference list. The references are listed in numerical order by reference number. F. A. Street-Perrott, S. Harrison, and N. Roberts compiled the references.

Table I-1. Key to the Publication Index Numbers from the 6000 yr B.P. Lake Level Data

6001	119,120,291,312
6002	252
6004	13,96,130
6005	68,96,112,293,294
6008	107,120,128,130
6014	96,113,294
6016	318,371
6017	313,314,315,316
6018	70
6019	69,70
6022	46,74,133,134,142,227,293,294,361
6023	54,56
6024	143
6025	213,214
6027	120,130
6028	31,133,134,194,253
6030	175
6031	175,257
6033	175
6036	94,112,113,293,294
6042	175
6044	68,161
6045	95
6047	175
6050	70
6054	68,319
6055	90,162,248,265
6060	50
6061	71,72,145,163,164,165
6062	177
6065	149,303
6070	353,354,355
6072	9,50,270
6073	50,62,191,271,345
6074	55,56
6075	133,134
6078	59,144,156
6080	157
6084	150

6086	75
6088	112.293.294
6090	97
6093	50,52.262,343.370,373
6095	202.308
6099	175
6100	5,70.94
6103	136,140,143,153.304
6104	274
6107	299
6108	14
6113	108.272,274
6114	22,180,188.201.242,243,340,341
6115	299
6116	230
6123	2.299
6129	189,233,334.335.336.346
6130	92
6131	91
6132	84,85,155,222,223,234,284
6134	17
6136	181,184,186,198.255
6137	79,115,116,181,183,184,186,187,302,328,375.377
6143	117,192,193,217,229,275,277.306,309
6145	352
6146	349.350,352
6147	60
6148	67
6150	98,332
6151	367,368
6152	45,118
6153	123
6154	209
6156	23,30,42,43,114,155,217,219,238,247,276,337
6161	154,159,166,356
6162	10,11
6165	61,85,222,228.307
6167	190,282
6168	6,7.8,48,192.217.261.311,329
6169	8,20,21,48
6175	18,148,167,267.268
6178	41,42,43,83,105,196,200,229,238,289.302,310,322,323,324,325,326,328
6179	369
6181	171,172
6182	287
6183	327
6184	124,171,178
6185	224
6186	358
6187	215,317
6189	78
6190	40,146,220,221,235,244.245,348,376
6191	264,305,357
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APPENDIX J

Lake Level Data for 6000 yr B.P.
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The 1984 version of the Oxford Lake-Level Data Bank includes 238 basins. Information about lake status (i.e., the relative height of the water level) at 6000 yr B.P. is available for 118 of these sites. The data from 74 sites also yielded information on the lake-level trend (the direction of change in lake level, which is coded in 4 categories: up, down, stable, or uncodable/no data).

Africa

Data from African sites make up nearly half (43%) of the total data set. Most of the 46 sites with data for 6000 yr B.P. are located north of the Equator (Fig. J-1). The majority of lakes stood at high levels, indicating that the climate was much moister than today over large areas of the continent, especially between the Equator and the Tropic of Cancer (Fig. J-1). This lacustral phase began shortly before 12,000 yr B.P. and intensified after 10,000 yr B.P. It reached its maximum around 9000 to 8000 yr B.P. Many basins, however, experienced a pronounced drop in lake levels between 8000 and 7000 yr B.P. (Street-Perrott and Roberts, 1983). The recovery to high or intermediate levels took place just before 6000 yr B.P.

Estimates of the increase in precipitation required to sustain the enlarged African lakes in the Northern Hemisphere tropics at 6000 yr B.P. range from less than 130 to over 500 mm (Street, 1979: Kutzbach, 1980: Hastenrath and Kutzbach, 1983). Street-Perrott and Roberts (1983) have interpreted the distribution of high lake levels in terms of a greatly enhanced summer-monsoon circulation, possibly accompanied by a slight northwards displacement of the Equatorial trough. Their conclusions have received support from general-circulation modeling experiments by Kutzbach (1981), Kutzbach and Otto-Bliesner (1982), and Kutzbach and Guetter (1984a,b).

From the Equator southwards, the contrast between 6000 yr B.P. and the present situation becomes progressively less marked, as seen by the occurrence of sites with intermediate or low lake levels (Fig. J-1). A second cluster of lakes with intermediate or low status can be identified in the northeastern Sahara, extending into the Near East. Kutzbach (1983) has suggested that this "cusp" of low lake levels reflects a region of dry, subsiding air on the northwestern flank of an intensified summer-monsoon low over southern Asia.

The information on lake-level trend reveals that 6000 yr B.P. was a time of transition and not a period of stable hydrological conditions (Table J-1). In a significant number of basins (7), lake levels were beginning to fall, marking the close of the early- to mid-Holocene lacustral phase in the Sahara and the East African Rift. This drying trend accelerated around 5000 yr B.P. and has continued, with only minor oscillations, during the last 4000 years.

Southwest, Central, and South Asia

The lakes in this region, which extends from Turkey in the west to western China in the east, and from tropical Saudi Arabia in the south (18.5°N) to the Central Asian deserts (42.5°N) formed two spatially separate clusters at 6000 yr B.P. (Fig. J-1) (Roberts, 1984). The first group consisted

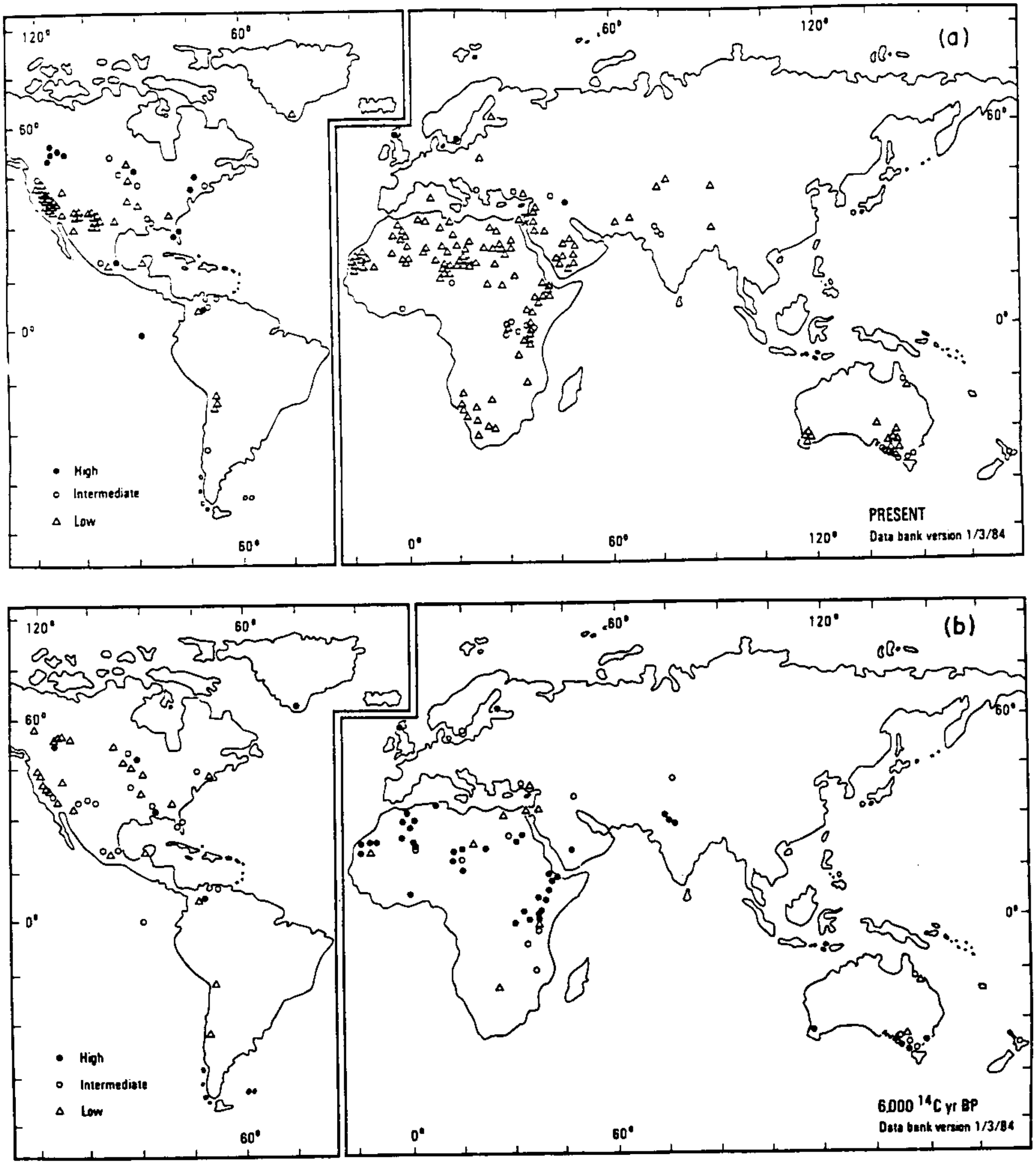

Figure J-1. Water levels in lakes a) today and b) 6000 yr B.P.. Black circles indicate high water levels (above 70% of the maximum height recorded for the basin), open circles indicate intermediate levels, and open triangles indicate low water levels (below 15% of the maximum height).

Table J-1: Distribution of Status/Trend Classes at 6000 yr BP in the African Lake-Level Data Set.

LAKE STATUS

TREND		High	Intermediate	Low	No Data	Subtotals
T	Rising	1	0	1	0	2
R	Stable	13	1	4	0	18
E	Falling	6	1	0	0	7
N D	Uncodable/ No Data	12	7	0	57	76
	Subtotals	32	9	5	57	103

Table J-2: Distribution of Status/Trend Classes at 6000 yr BP in the Asian Lake-Level Data Set.

LAKE STATUS

TREND		High	Intermediate	Low	No Data	Subtotals
T	Rising	0	1	1	0	2
R	Stable	3	1	2	0	6
E	Falling	1	0	0	0	1
N D	Uncodable/ No Data	1	1	0	20	22
	Subtotals	5	3	3	20	31

of lakes with high status, all of which lay equatorward of 29°N in southern Saudi Arabia, India (Rajasthan), and Tibet. These areas, which are influenced today by the Indian Ocean monsoon system, were moister than at the present day (Swain et al., 1983). The second group, of low or intermediate lakes, stretched from the Near East through northern Saudi Arabia and Iran into Soviet Central Asia (28 to 42.5°N). This more northerly belt formed part of the "cusp" area discussed above. Most of these lakes have remained stable or even risen over the last 6000 years (Table J-2).

North America (excluding tropical Mexico and Greenland)

The present version of the data bank includes 59 lake basins in North America. Thirty two of these have provided information about 6000 yr B.P. (Table J-3). The distribution of data points spans the latitude range 27 to 57°N. No data were found for Alaska or the Canadian Arctic.

At 6000 yr B.P., many lakes stood at levels lower than today's, or were dry (Fig. J-1). Uncertainty exists about some of the water-level fluctuations, because many were inferred from aquatic pollen types, which are a less precise indicator than, for example, diatoms, ostracodes or sediment chemistry (Dean et al., 1984). Moreover, many paleolimnologists in the eastern United States have been reluctant to consider the possibility of significant changes in water level during the Holocene. This conservatism has been a significant barrier to wider use of their data in paleohydrological and paleoclimatological studies.

Since the last glacial maximum, the North American lakes have shown a general tendency to vary in the opposite direction to those in northern intertropical Africa. At 6000 yr B.P., 91% of the documented sites were experiencing low or intermediate water levels, a pattern that remained relatively stable until 5000 yr B.P. (Table 3).

In comparison with the present day, conditions at 6000 yr B.P. were broadly similar, or somewhat drier, north of approximately 40°N. Winkler and Kutzbach (pers. comm.) have estimated that the annual precipitation in southern Wisconsin (43°N) was about 12% less than the precipitation today, based on a water- and energy-budget model for Lake Mendota. Mid-Holocene aridity was most prono in the Canadian Prairies (Alberta, 52 to 54°N), where water levels were much lower at 6000 yr B.P. than today. In contrast, to the south of 40°N, Figure J-1 suggests that the climate was similar to, or slightly moister than, today's, with the possible exception of Florida, where the lakes appear to have stood at slightly lower levels than they do now.

Central and South America (including tropical Mexico)

Only ten sites have provided lake-level information for 6000 yr B.P., and several of these are of doubtful quality (Fig. J-1). Uncertainties exist because of the possible influence of sea-level fluctuations on some records, the widespread use of aquatic pollen as an indicator, and the existence of numerous minor oscillations superimposed on the major trends. Most of the lakes stood at low or intermediate levels and showed a stable or falling trend (Table J-4). In comparison to the present day, conditions at 6000 yr B.P. appear to have been similar or slightly drier. Not enough data exist for the identification of spatial patterns in South America. The tropical lakes in this region, however, were generally much lower than today at 18,000 yr B.P. As in tropical Africa, water levels rose rapidly at the beginning of the Holocene. The main difference between the two areas lies in the prevalence of high and intermediate lake levels in the New World tropics at the present day (Fig. J-1).

Table J-3: Distribution of Status/Trend Classes at 6000 yr BP in the North American Lake-Level Data Set.

LAKE STATUS

TREND		High	Intermediate	Low	No Data	Subtotals
T	Rising	0	1	2	0	3
R	Stable	1	0	11	0	12
E	Falling	0	3	1	0	4
N D	Uncodable/ No Data	2	5	6	27	40
	Subtotals	2	9	20	27	59

Table J-4: Distribution of Status/Trend Classes at 6000 yr BP in the Central and South American Lake-Level Data Set.

LAKE STATUS

TREND		High	Intermediate	Low	No Data	Subtotals
T	Rising	0	0	0	0	0
R	Stable	1	1	2	0	4
E	Falling	0	2	0	0	2
N D	Uncodable/ No Data	0	1	3	3	7
	Subtotals	1	4	5	3	13

Australia and New Zealand

Of a total of 25 sites in this region, 15 provide information about 6000 yr B.P. With a few exceptions, lake levels were high or intermediate, and stable or falling (Fig. J-1, Table J-5). The majority of sites in tropical and temperate Australia, as well as Lake Rotorua in New Zealand, indicate that climatic conditions at 6000 yr B.P. were similar to, or moister than, today's (Fig. J-1). The distribution of data points, however, is highly clustered. There is little information about the arid core of Australia and none at all from the South Island of New Zealand.

Europe (including Greenland)

The data set from Europe is still extremely limited, due to many of the same problems that have beset research in eastern North America. The potential for future work is enormous, however, particularly if better methods can be derived for the interpretation of aquatic pollen assemblages.

Four lakes have so far yielded data for 6000 yr B.P. (Table J-6). These are all situated between 53 and 62°N. Lake Wielke Gacno (Poland) exhibited intermediate status at this time, whereas the other three lakes were all high (Fig. J-1). If Figures J-1a and J-1b are compared, it appears that the climate at 6000 yr B.P. was drier than today in Poland, fairly similar to today in Scotland and much moister than today in northern Finland and Greenland (60 to 62°N).

Summary

Data are now available for 6000 yr B.P. from a total of 118 lake basins. Coherent paleohydrological anomalies are indicated in certain regions. Northern intertropical Africa, southern Arabia, and the monsoon region of southern Asia appear to have been wetter or much wetter than today. Conditions in North America south of approximately 40°N, and in temperate and tropical Australasia, were similar to today's or slightly wetter. The data from the tropical Americas are conflicting but suggest that lake levels were generally comparable to the present day or slightly lower. There are indications of greater wetness along the Arctic Circle.

In contrast, the mid-latitudes of North America and probably Central Europe appear to have been relatively dry. Conditions were similar to the present day or even drier in the Near East, Iran, and possibly Central Asia. There are also signs of greater dryness in South America and Africa (19 to 35°S), but more information from these data-poor regions is needed to check this possibility.

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Table J-5: Distribution of Status/Trend Classes at 6000 yr BP in the Australasian Lake-Level Data Set.

LAKE STATUS

TREND		High	Intermediate	Low	No Data	Subtotals
T	Rising	0	0	0	0	0
R	Stable	4	3	2	0	9
E	Falling	1	1	0	0	2
N D	Uncodable/ No Data	1	2	1	10	14
	Subtotals	6	6	3	10	25

Table J-6: Distribution of Status/Trend Classes at 6000 yr BP in the European Lake-Level Data Set.

LAKE STATUS

TREND		High	Intermediate	Low	No Data	Subtotals
T	Rising	0	0	0	0	0
R	Stable	2	0	0	0	2
E	Falling	0	0	0	0	0
N D	Uncodable/ No Data	1	1	0	3	5
	Subtotals	3	1	0	3	7

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APPENDIX K

References for the 6000 yr B.P. Marine Plankton Data from
the Atlantic, Pacific, and Southern Oceans

This appendix contains a table of publication index numbers from Table 10 in the main text and the reference list. The table lists the publication index numbers along with a second set of one or more reference numbers that can be used to find the full bibliographic reference in the reference list. The references are listed in numerical order by reference number. W. F. Ruddiman and J. J. Morley compiled the references.

Table K-1. Key to the Publication Index Numbers for the 6000 yr B.P. Marine Plankton Data from the Atlantic, Pacific, and Southern Oceans.

8001	1
8002	1,7
8003	2,3,6
8004	4,5,12
8005	7
8006	8,9
8007	10,11,13
8008	10,12
8009	10,12,13
8010	10,12,14
8011	11,12,14
8012	12,13
8013	12,14
8014	13
8015	21
8016	20,28
8017	15,21,26
8018	21,24
8019	16,17
8020	19,26
8021	18,23
8022	17,27
8023	22
8024	25

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APPENDIX L

References for the 6000 yr B.P. Marine Plankton Data from the Indian Ocean

This appendix contains a table of publication index numbers from Table 12 in the main text and the reference list for the marine plankton data from the Indian Ocean. The table lists the publication index numbers along with a second set of one or more reference numbers that can be used to find the full bibliographic reference in the reference list. The references are listed in numerical order by reference number. W. F. Prell and R. Marvel compiled the references.

Table L-1. Key to the Publication Index Numbers for the 6000 yr B.P. Marine Plankton Data for the Indian Ocean.

8101	1,3,5,7,8
8102	2,4
8103	3
8104	5
8105	5,6,7,8
8106	5,7,8
8107	9

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