GEOLOGICAL SURVEY
DEPARTMENT OF MINES AND ENERGY
GOVERNMENT OF NEWFOUNDLAND AND LABRADOR

CARBON-14 DATE LIST FOR NEWFOUNDLAND AND LABRADOR

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INTRODUCTION

The Carbon-14 geochronology date list of Newfoundland and Labrador provides a complete catalogue of carbon-14 age dates for the province. This compilation can be used by geoscientists for a variety of geological purposes, including studies in relative sea level fluctuations, reconstruction of ice margins, and as a guide for future age-dating work. Readers are encouraged to examine this document for accuracy with regard to dates they are familiar with, and to submit to the authors any other dates for inclusion. To date, 1339 dates are included. This compilation will be updated on a yearly basis as more dates become available.

Acknowledgements

Special thanks to Dr. Richard E. Morlan, Curator of Palaeoenvironmental Studies at the Canadian Museum of Civilization for permission to include many of the archaeological dates contained within this listing.

Data Presentation

Two tables are presented. The first table is in chronological order, from youngest to oldest (Appendix C), and the second table is ordered by map reference number (Appendix D). The tables contain 15 columns:

Reference Number (1:250, 1:50, #)

A reference number has been assigned to every site location on the map, which comprises of 3 parts. The first is the 1:250,000 map sheet on which the age-date occurs (eg., 2M). The second part is the 1:50,000 map number (eg., 12). The third part is the reference number assigned to each sample. These numbers follow sequentially, beginning at 1 (eg., 2M-12-1). In cases where there is more than one sample at a site each sample shares a common reference number, although they maintain a discrete laboratory number.
Laboratory Number (Lab #)

This represents the number assigned to the sample by the laboratory at which it was dated e.g., GSC-4211. A guide to abbreviations follows:

- AA  Arizona Accelerator Facility
- Beta Beta Analytical, Florida
- B  Bern, Switzerland
- BGS  Brock University, Geological Sciences
- CAMS  Center for Accelerator Mass Spectrometry, USA
- DAL  Dalhousie University, Halifax
- DIC  Dicarb Radioisotope Company, Florida
- GAK  Gakushuin University, Japan
- GSC  Geological Survey of Canada, Ottawa
- GX  Geochron Laboratories, Massachusetts
- I  Teledyne Isotopes, New Jersey
- L  Lamont, New York
- N  Nishina Memorial, Japan
- P  Pennsylvania
- Q  Godwin Laboratories, Cambridge
- S  Saskatchewan Research Council
- SI  Smithsonian Institution, Washington
- SM  Mobil Oil Corporation, Dallas, USA
- St  Stockholm, Sweden
- T  Trondheim, Norway
- TO  Isotrace Laboratory, University of Toronto
- UGa  University of Georgia, USA
- UQ  Université de Québec à Montréal
- WAT  University of Waterloo
- Y  Yale University

Date and Associated Error (Date, Pos, Neg)

The sample date is in years before present (BP). The age range of these dates is from modern to greater than 40,000 BP with most occurring between 1,000 and 14,000 BP. The limit of carbon-14 dating is currently about 60,000 years; the use of linear accelerators possibly extend this limit back to about 100,000 years. All dates have an associated error factor which results from the random nature of radioactive decay. The date is therefore given as a time interval (Pos and Neg) within which the true age will lie,
with a certain probability. Generally, the error refers to one standard deviation i.e., there is a 68% probability that the true age lies within the time interval given. However, dates from the GSC are reported within 2 standard deviations. Furthermore, GSC shell dates are normalised to $\delta^{13}C=0\%$ PDB, compared to $\delta^{13}C=-25\%$ PDB for other laboratories. This means that GSC dates are about 410 years younger than would be reported from the same sample by another laboratory. For comparative purposes it is recommended that 410 years be added to GSC ages and the error converted to 1 standard deviation (Miller et al., 1988).

Locality

Locality refers to the community, lake or pond closest to where the sample was taken.

Location

The location of the sample site is given by latitude and longitude, to the closest minute.

Elevation (Elev.)

This generally refers to metres above or below sea level at which the sample was taken. For lake sediment samples (e.g., gyttja) lake surface elevation is given. For dates below sea level depth is indicated by a minus sign.

Collector (Coll.)

This is the initials of the collector of the sample. Refer to Appendix A for names (where known).

Reference

This column represents the source from which the sample information was obtained. Most dates are from the Geological Survey of Canada (GSC) laboratory, and are listed in the radiocarbon date list published yearly by the GSC. However, if the dates are used in a publication, the source is listed in the reference column. Refer to Appendix B for complete citations.

Material

Seven different types of materials have been dated; wood, shells, peat, gyttja (total organics), whale bone, calcite crystals and charcoal. The reliability of ages varies
between the types of materials measured, depending on the amount of carbon present with charcoal and wood being the most reliable. Other material may be susceptible to contamination by older or younger carbon, commonly through the action of groundwater. This is especially true for total organic matter samples.

Comments

These are general comments with reference to the date of the sampled material. In most cases these are summarized from comments by the collector.
### APPENDIX A: INITIALS OF SAMPLE COLLECTORS

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APPENDIX B: REFERENCES FOR RADIOCARBON DATES

Alam, M., Piper, D.J.W. and Cooke, B.S.

Anderson, T.W.

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Bell, T.  


Bell, T., Rogerson R.J. and Mengel, F.  

Berry, J.C. and Drimmie, R.J.  

Blake, W.JR.  


Bonifay, D. and Piper, D.J.W.  

Brookes, I.A.  


Brookes, I.A. and Stevens, R.K.  

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Buckley, J.D., and Willis, E.H.  


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Grant, D.R.


Grayson, J.F.

Harington, C.R., Anderson, T.W. and Rodrigues, C.G.

Hood, B.C.


Henderson, E.P.

Henningsmoen, K.E.

Hesse, R., Sung Kwun Chough and Rakofsky, A.
Hodgson, D.A. and Fulton, R.J.

Johnson, R.H.

Jordan, R.


Josenhans, H.W., Zevenhuizen, J. and Klassen, R.A.

Kaplan, S.A.


Kennedy, B.V.

Kigoshi, K., Aizawa, H. and Suzuki, N.
Kigoshi, K., Suzuki, N., and Fukatsu, H.

King, G.A.

Krol, C.F.

Kuc, M.

Lamb, H.F.


Le Blanc, R.

Linnamae, U.

Liverman, D.G.E.
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Loring, S.  


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Lowden, J.A. and Blake, W. Jr.  


Lowden, J.A., Robertson, I.M. and Blake, W. Jr.


Macpherson, J.B.


Macpherson, J.B. and Anderson, T.W.
McGhee, R. and Tuck, J.A.

McNeely, R.

McNeely, R. and Atkinson, D.E.

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Pastore, R.T.


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Robbins, D.T.  

Rodrigues, C.G., Ceman, J.A. and Vilks, G.  

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Shaw, J. and Forbes, D.L.  

Short, S.K.

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Stopp, M.P.

Stuckenrath, R. and Mielke, J.E.

Stuckenrath, R.J., Coe, W.R. and Ralph, E.K.

Thomson, J.C.


Trautman, M.A. and Willis, E.H.

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Vilks, G., Hardy, I.A. and Josenhans, H.W.

Vilks, G. and Mudie, P.J.

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