

# Radiocarbon



3 9001 04141 0922

An International Journal of Cosmogenic Isotope Research



**Editor**  
AUSTIN LONG

**Consulting Editor**  
A. J. T. JULL

**Managing Editor**  
RENEE S. KRA

**Acting Managing Editor**  
DAVID R. SEWELL

**Assistant Editor**  
KIMBERLEY TANNER ELLIOTT

C  
98  
3  
48  
39  
3  
997

Department of Geosciences  
The University of Arizona  
17 East Ft. Lowell Road  
Tucson, Arizona 85712-1201 USA

ISSN: 0033-8222

**RADIOCARBON**  
An International Journal of Cosmogenic Isotope Research

*Editor:* AUSTIN LONG  
*Consulting Editor:* A. J. T. JULL  
*Managing Editor:* RENEE S. KRA  
*Acting Managing Editor:* DAVID R. SEWELL  
*Assistant Editor:* KIMBERLEY TANNER ELLIOTT  
Published by  
Department of Geosciences  
The University of Arizona

Published three times a year at The University of Arizona, Tucson, AZ 85712-1201 USA.

© 1997 by the Arizona Board of Regents on behalf of the University of Arizona.  
All rights reserved.

Subscription rate (1998): \$115.00 (for institutions), \$55.00 (for individuals). Foreign postage is extra. A complete price list, including Proceedings of International Conferences, special publications and 1998 subscription categories, appears in the back of this issue. Back issues may be obtained by contacting *RADIOCARBON*.

All correspondence and manuscripts should be addressed to the Managing Editor, *RADIOCARBON*, Department of Geosciences, The University of Arizona, 4717 East Fl. Lowell Road, Tucson, AZ 85712-1201 USA. Tel: (520) 881-0857; Fax: (520) 881-0554; Internet: [c14@packrat.aml.arizona.edu](mailto:c14@packrat.aml.arizona.edu)

*Offprints.* The minimum offprint order for each article will be 50 copies without covers. *No offprints will be furnished free of charge unless page charges are paid (see below).* Covers are also available.

*Page charges.* For 1998, each institution sponsoring research reported in a technical paper or a date list will be asked to pay a charge of \$50.00 per printed page. Institutions or authors paying such charges will be entitled to 50 free offprints without covers. *No charges will be made if the author indicates that the author's institution is unable to pay, and payment of page charges for an article will, in no case, be a condition for its acceptance.*

*Missing issues* will be replaced without charge only if claim is made within three months (six months for India, New Zealand and Australia) after the publication date. Claims for missing issues will not be honored if non-delivery results from failure by the subscriber to notify the Journal of an address change.

*Illustrations* should include explanation of symbols used. Copy that cannot be reproduced cannot be accepted. Whenever possible, reduce figures for direct publication. Line drawings should be in black India ink on white drawing board, tracing cloth, or coordinate paper printed in blue and should be accompanied by clear ozalids or reduced photographs for use by the reviewers. Photographs should be positive prints. We can also print from many computer graphics file formats; please request our guide to graphics files for details. Figures (photographs and line drawings) should be numbered consecutively through each article, using Arabic numerals. Tables may be accepted as camera-ready copy.

*Citations.* A number of radiocarbon dates appear in publications without laboratory citation or reference to published date lists. We ask authors of research articles and date lists to include proper citation (laboratory number and date-list citation) in all publications in which radiocarbon dates appear.

*List of laboratories.* Our comprehensive list of laboratories is published in the third issue of each volume, and is also available on the WWW at <http://packrat.aml.arizona.edu/Info/lablist.txt>. We are expanding the list to include additional laboratories and scientific agencies with whom we have established contacts. The editors welcome information on these or other scientific organizations. We ask all laboratory directors to provide their laboratory code designation, as well as current telephone and fax numbers, and e-mail addresses. Changes in names or addresses, additions or deletions should be reported to the Managing Editor. Conventional and AMS laboratories are now arranged in alphabetical order by country and we include laboratories listed by code designation.

*RADIOCARBON* on the World Wide Web: <http://packrat.aml.arizona.edu/>

## CONTENTS

## FROM THE EDITOR

- Austin Long* ..... iii

## OBITUARY

- Harold W. Krueger  
*Alexander Cherkinsky and Richard Reesman* ..... v

## ARTICLES

- Study of the Parameters Affecting the Correlation of Background *versus* Cosmic Radiation in CO<sub>2</sub> Counters:  
Reliability of Dating Results  
*Yorgos Facorellis, Yannis Maniatis and Bernd Kromer* ..... 225
- Burnt and Unburnt Carbon: Dating Charcoal and Burnt Bone from the Willandra Lakes, Australia  
*Richard Gillespie* ..... 239
- On the Isotopic Composition of Dissolved Inorganic Carbon in Rivers and Shallow Groundwater: A  
Diagrammatic Approach to Process Identification and a More Realistic Model of the Open System  
*C. B. Taylor* ..... 251
- Iron-Manganese System for Preparation of Radiocarbon AMS Targets: Characterization of Procedural  
Chemical-Isotopic Blanks and Fractionation  
*R. Michael Verkouteren, Donna B. Klinedinst and Lloyd A. Currie* ..... 269
- Radiocarbon Releases at the Krško Nuclear Power Plant  
*Barbara Vokal and Ivan Kobal* ..... 285
- Histone Adduction with Nicotine: A Bio-AMS Study  
*X. H. Wu, H. F. Wang, Y. F. Liu, X. Y. Lu, J. J. Wang and K. Li* ..... 293

## DATE LISTS

- UGRA University of Granada Radiocarbon Dates VIII  
*Cecilio González-Gómez and Elena Villafranca-Sánchez* ..... 299
- A Compendium of Radiocarbon and Oxidizable Carbon Ratio Dates from Archaeological Sites in East  
Texas, With a Discussion of the Age and Dating of Select Components and Phases  
*Timothy K. Pertulla* ..... 305

## NOTES AND COMMENTS

- The <sup>14</sup>C Content of Lithium Metal Used in Benzene Synthesis  
*C. J. Eastoe, Austin Long, Charles S. Tucek and A. J. T. Jull* ..... 343
- Analytical Protocol and Quality Assurance for <sup>14</sup>C Analyses: Proposal for a Further Intercomparison  
*E. M. Scott, D. D. Harkness and G. T. Cook* ..... 347
- Estimating Settlement Time  
*Andrew R. Solow* ..... 351

## BOOK REVIEW

- Nuclear Techniques in Soil-Plant Studies for Sustainable Agriculture and Environmental Preservation*  
Reviewed by Steven W. Leavitt ..... 355

RADIOCARBON UPDATES ..... 357

LABORATORIES ..... 361

AUTHOR INDEX ..... 387

SUBJECT INDEX ..... 389

## ASSOCIATE EDITORS

EDOUARD BARD	<i>Aix-en-Provence, France</i>
J. WARREN BECK	<i>Tucson, Arizona, USA</i>
OWEN K. DAVIS	<i>Tucson, Arizona, USA</i>
ELLEN R. M. DRUFFEL	<i>Irvine, California, USA</i>
DOUGLAS D. HARKNESS	<i>East Kilbride, Scotland</i>
CALVIN J. HEUSSER	<i>Tuxedo, New York, USA</i>
SHEELA KUSUMGAR	<i>Ahmedabad, India</i>
STEVEN W. LEAVITT	<i>Tucson, Arizona, USA</i>
ANN P. McNICHOL	<i>Woods Hole, Massachusetts, USA</i>
ANDREW M. T. MOORE	<i>New Haven, Connecticut, USA</i>
PAVEL POVINEC	<i>Bratislava, Slovakia</i> <i>Monaco</i>
MICHAEL B. SCHIFFER	<i>Tucson, Arizona, USA</i>
E. MARIAN SCOTT	<i>Glasgow, Scotland</i>
JOHANNES VAN DER PLICHT	<i>Groningen, The Netherlands</i>
JOHN S. VOGEL	<i>Livermore, California, USA</i>
WEIJIAN ZHOU	<i>Xi'an, China</i>