

20TH INT. RADIOCARBON CONFERENCE PROCEEDINGS

Vol 52, Nr 2–3, 2010

CONTENTS

EDITORIAL BOARD	xi
LETTER FROM THE EDITOR	xiii
OBITUARY: AUSTIN LONG	
<i>Chris Eastoe, Steve Leavitt, Kimberley Tanner Elliott, David Sewell</i>	xvii
INVITED TALKS	
Submarines, Quarks, and Radioisotope Dating	
<i>Richard A Muller</i>	209
Personal Recollections of a Good Experiment	
<i>Erle Nelson</i>	219
ACCELERATOR MASS SPECTROMETRY	
A High-Performance ¹⁴ C Accelerator Mass Spectrometry System	
<i>M L Roberts, J R Burton, K L Elder, B E Longworth, C P McIntyre, K F von Reden, B X Han, B E Rosenheim, W J Jenkins, E Galutschek, A P McNichol</i>	228
The Low-Energy Isobar Separator for Anions: Progress Report	
<i>W E Kieser, John Eliades, A E Litherland, Xiaolei Zhao, Lisa Cousins, S J Ye</i>	236
A New 1MV AMS Facility at KIGAM	
<i>Wan Hong, Jung Hun Park, Ki Suk Sung, Hyung Joo Woo, Jun Kon Kim, Han Woo Choi, Gi Dong Kim</i>	243
MICADAS: Routine and High-Precision Radiocarbon Dating	
<i>L Wacker, G Bonani, M Friedrich, I Hajdas, B Kromer, M Němec, M Ruff, M Suter, H-A Synal, C Vockenhuber</i>	252
¹⁴ C AMS at SUERC: Improving QA Data with the 5MV Tandem and 250kV SSAMS	
<i>P Naysmith, G T Cook, S P H T Freeman, E M Scott, R Anderson, S Xu, E Dunbar, G K P Muir, A Dougans, K Wilcken, C Schnabel, N Russell, P L Ascough, C Maden</i>	263
A Beam Profile Monitor for Rare Isotopes in Accelerator Mass Spectrometry: Preliminary Measurements	
<i>F Taccetti, L Carraresi, M E Fedi, M Manetti, P Mariani, G Tobia, P A Mandò</i>	272
Measuring Submicron-Size Fractionated Particulate Matter on Aluminum Impactor Disks	
<i>Bruce A Buchholz, Paula Zermeño, Hyun-Min Hwang, Thomas M Young, Thomas P Guilderson</i>	278
Optimization of ²³⁶ U AMS at CIRCE	
<i>M De Cesare, Y Guan, F Quinto, C Sabbarese, N De Cesare, A D'Onofrio, L Gialanella, A Petraglia, V Roca, F Terrasi</i>	286
A Continuous-Flow Gas Chromatography ¹⁴ C Accelerator Mass Spectrometry System	
<i>Cameron P McIntyre, Ernst Galutschek, Mark L Roberts, Karl F von Reden, Ann P McNichol, William J Jenkins</i>	295
The Keck Carbon Cycle AMS Laboratory, University of California, Irvine: Status Report	
<i>Robert K Beverly, Will Beaumont, Denis Tautz, Kaelyn M Ormsby, Karl F von Reden, Guaciara M Santos, John R Southon</i>	301

Developing Ultra Small-Scale Radiocarbon Sample Measurement at the University of Tokyo <i>Yusuke Yokoyama, Mamito Koizumi, Hiroyuki Matsuzaki, Yosuke Miyairi, Naohiko Ohkouchi</i>	310
Are Compact AMS Facilities a Competitive Alternative to Larger Tandem Accelerators? <i>M Suter, A M Müller, V Alfimov, M Christl, T Schulze-König, P W Kubik, H-A Synal, C Vockenhuber, L Wacker</i>	319

ARCHAEOLOGY

New Dating Evidence for North Sea Trade between England, Scotland, and Norway in the 11th Century AD <i>D W Hall, G T Cook, W D Hamilton</i>	331
Is More Precise Dating of Paleoindian Expansion Feasible? <i>Stuart J Fiedel, Yaroslav V Kuzmin</i>	337
High-Precision Radiocarbon Dating of the Construction Phase of Oakbank Crannog, Loch Tay, Perthshire <i>G T Cook, T N Dixon, N Russell, P Naysmith, S Xu, B Andrian</i>	346
The Artemidorus Papyrus: Solving an Ancient Puzzle with Radiocarbon and Ion Beam Analysis Measurements <i>M E Fedi, L Carraresi, N Grassi, A Migliori, F Taccetti, F Terrasi, P A Mandò</i>	356
Upland Olive Domestication in the Chalcolithic Period: New ¹⁴ C Determinations from el-Khawarij (Ajlun), Jordan <i>Jaimie L Lovell, John Meadows, Geraldine E Jacobsen</i>	364
Alternative Explanations for Anomalous ¹⁴ C Ages on Human Skeletons Associated with the 612 BCE Destruction of Nineveh <i>R E Taylor, Will C Beaumont, John Southon, David Stronach, Diana Pickworth</i>	372
Early Bronze Age Strata at Tell Ghanem al-Ali along the Middle Euphrates in Syria: A Preliminary Report of ¹⁴ C Dating Results <i>Toshio Nakamura, Mitsuo Hoshino, Tsuyoshi Tanaka, Hidekazu Yoshida, Takeshi Saito, Kazuhiro Tsukada, Yusuke Katsurada, Yoshiyuki Aoki, Tomoko Ohta, Atsunori Hasegawa, Tomoyasu Kiuchi, Katsuhiko Ohnuma, Anas Al Khabour, Michel Al Maqdissi</i>	383
Archaeological Radiocarbon Dates for Studying the Population History in Eastern Fennoscandia <i>M Oinonen, P Pesonen, M Tallavaara</i>	393
Chronostratigraphic Sequence of Santuario della Madonna Cave (Calabria, Southern Italy): AMS Radiocarbon Data from a New Excavation Area <i>L Calcagnile, V Tinè, G Quarta, M D'Elia, G Fiorentino, F Scarciglia, G Robustelli, M Abate, M F La Russa, A Pezzino</i>	408

Eurasian Archaeology

The Origin of Pottery in East Asia and Its Relationship to Environmental Changes in the Late Glacial <i>Yaroslav V Kuzmin</i>	415
Radiocarbon and Archaeology in Japan and Korea: What Has Changed because of the Yayoi Dating Controversy? <i>Shin'ya Shoda</i>	421
The Chronology of Pleistocene Modern Humans in China, Korea, and Japan <i>S G Keates</i>	428
Establishing a Firm Chronological Framework for Neolithic and Early Dynastic Archaeology in the Shangluo Area, Central China <i>Yizhi Zhu, Peng Cheng, Shi-Yong Yu, Huagui Yu, Zhihai Kang, Yachang Yang, A J T Jull, T Lange, Weijian Zhou</i>	466

AMS Radiocarbon Dating of an Ancient Pottery Workshop in Hepu County, China <i>Xiangdong Ruan, Yongjing Guan, Zhaoming Xiong, Weiming Wu, Huijuan Wang, Shan Jiang, Ming He, Kexin Liu, Filippo Terrassi, Manuela Capano</i>	479
Radiocarbon Dates Documenting the Neolithic-Bronze Age Transition in Korea <i>Jong Chan Kim, Christopher J Bae</i>	483
The Late Paleolithic-Neolithic Transition in Korea: Current Archaeological and Radiocarbon Perspectives <i>Christopher J Bae, Jong Chan Kim</i>	493
Radiocarbon Chronology for Early Caves of the Mogao Grottoes at Dunhuang, China <i>Guo Qinglin, Hiromi Takabayashi, Toshio Nakamura, Chen Gangquan, Ken Okada, Su Bomin, Fan Yuquan, Hiroshi Nishimoto</i>	500
Paleoenvironment of Medieval Archaeological Sites in Central Japan: Assemblage Analysis and ¹⁴ C Dating of Insect Fossils <i>Emi Okuno, Yuichi Mori, Toshio Nakamura</i>	511
Radiocarbon Dating of <i>Kohitsugire</i> Calligraphies Attributed to Asukai Masatsune and the Periods of Origin of <i>Genji Monogatari Emaki</i> and <i>Ban-dainagon Ekotoba</i> <i>Hirota Oda, Kazuomi Ikeda</i>	520
Radionuclides in Ancient Relics Obtained from the Matsusaki Site and the Hirohata Shellmound on the Pacific Coast of Japan <i>Tomoko Ohta, Yasunori Mahara, Takumi Kubota, Yu Saito, Satoshi Fukutani, Toshiyuki Fujii, Atsushi Ando, Eiji Nakata, Takanori Nakano, Yoshiro Abe, Akira Tatematsu</i>	526
Calibrated ¹⁴ C Ages of Jomon Sites, NE Japan, and Their Significance <i>Kunio Omoto, Kenji Takeishi, Shigeru Nishida, Junichi Fukui</i>	534
Chronology of the Obi-Rakhmat Grotto (Uzbekistan): First Results on the Dating and Problems of the Paleolithic Key Site in Central Asia <i>Andrei I Krivoshapkin, Yaroslav V Kuzmin, A J Timothy Jull</i>	549
Environmental Changes of the Aral Sea (Central Asia) in the Holocene: Major Trends <i>Sergey K Krivonogov, Yaroslav V Kuzmin, George S Burr, Sergei A Gusskov, Leonid B Khazin, Eugeny Y Zhakov, Aijaryk N Nurgizarinov, Rakhat Kh Kurmanbaev, Temirbolat I Kenshinbay</i>	555
BONE DATING AND PALEODIET STUDIES	
¹⁴ C Ages of Bone Fractions from Armenian Prehistoric Sites <i>Alexander Cherkinsky, Christine Chataigner</i>	569
The Carbon Origin of Structural Carbonate in Bone Apatite of Cremated Bones <i>Mark Van Strydonck, Mathieu Boudin, Guy De Mulder</i>	578
Experimental Study on the Origin of Cremated Bone Apatite Carbon <i>C M Hüls, H Erlenkeuser, M-J Nadeau, P M Grootes, N Andersen</i>	587
Refining Background Corrections for Radiocarbon Dating of Bone Collagen at ORAU <i>R E Wood, C Bronk Ramsey, T F G Higham</i>	600
A Nondestructive Prescreening Method for Bone Collagen Content Using Micro-Computed Tomography <i>Jennifer A Tripp, Maria E Squire, Julie Hamilton, Robert E M Hedges</i>	612
Radiocarbon Dating of Individual Amino Acids from Archaeological Bone Collagen <i>James S O McCullagh, Anat Marom, Robert E M Hedges</i>	620
Dietary Habits and Freshwater Reservoir Effects in Bones from a Neolithic NE German Cemetery <i>Jesper Olsen, Jan Heinemeier, Harald Lübke, Friedrich Lüth, Thomas Terberger</i>	635
Paleodiet Reconstruction of Human Remains from the Archaeological Site of Natfieh, Northern Jordan <i>Khaled Al-Bashaireh, Abdullah Al-Shorman, Jerome Rose, A J Timothy Jull, Gregory Hodgins</i>	645

Radiocarbon Dating, Stable Isotope Analysis, and Diet-Derived Offsets in ¹⁴ C Ages from the Klin-Yar Site, Russian North Caucasus <i>Thomas Higham, Rebecca Warren, Andrej Belinskij, Heinrich Härke, Rachel Wood</i>	653
Dietary Reconstruction of the Okhotsk Culture of Hokkaido, Japan, Based on Nitrogen Composition of Amino Acids: Implications for Correction of ¹⁴ C Marine Reservoir Effects on Human Bones <i>Yuichi I Naito, Yoshito Chikaraishi, Naohiko Ohkouchi, Hitoshi Mukai, Yasuyuki Shibata, Noah V Honch, Yukio Dodo, Hajime Ishida, Tetsuya Amano, Hiroko Ono, Minoru Yoneda</i> . . .	671
Dietary Reconstruction and Reservoir Correction of ¹⁴ C Dates on Bones from Pagan and Early Christian Graves in Iceland <i>Árný E Sveinbjörnsdóttir, Jan Heinemeier, Jette Arneborg, Niels Lynnerup, Gudmundur Ólafsson, Gudný Zoëga</i>	682
Fish Reservoir Effect on Charred Food Residue ¹⁴ C Dates: Are Stable Isotope Analyses the Solution? <i>Mathieu Boudin, Mark Van Strydonck, Philippe Crombé, Wim De Clercq, Robert M van Dierendonck, Hans Jongepier, Anton Erynck, An Lentacker</i>	697

METHODS, APPLICATIONS, AND DEVELOPMENTS

Improved Application of Bomb Carbon in Teeth for Forensic Investigation <i>N Wang, C D Shen, P Ding, W X Yi, W D Sun, K X Liu, X F Ding, D P Fu, J Yuan, X Y Yang, L P Zhou</i>	706
Fire History of a Giant African Baobab Evinced by Radiocarbon Dating <i>Adrian Patrut, Diana H Mayne, Karl F von Reden, Daniel A Lowy, Robert van Pelt, Ann P McNichol, Mark L Roberts, Dragos Margineanu</i>	717
Age and Growth Rate Dynamics of an Old African Baobab Determined by Radiocarbon Dating <i>Adrian Patrut, Diana H Mayne, Karl F von Reden, Daniel A Lowy, Sarah Venter, Ann P McNichol, Mark L Roberts, Dragos Margineanu</i>	727
Improved AMS ¹⁴ C Dating of Shell Carbonates Using High-Precision X-Ray Diffraction and a Novel Density Separation Protocol (CarDS) <i>Katerina Douka, Robert E M Hedges, Thomas F G Higham</i>	735
A Preparative 2D-Chromatography Method for Compound-Specific Radiocarbon Analysis of Dicarboxylic Acids in Aerosols <i>S M Fahrni, M Ruff, L Wacker, N Perron, H W Gäggeler, S Szidat</i>	752
Towards On-Line ¹⁴ C Analysis of Carbonaceous Aerosol Fractions <i>Nolwenn Perron, Sönke Szidat, Simon Fahrni, Matthias Ruff, Lukas Wacker, André SH Prévôt, Urs Baltensperger</i>	761
Laser-Heated Microfurnace: Gas Analysis and Graphite Morphology <i>A M Smith, Bin Yang, Quan Hua, Michael Mann</i>	769
Radiocarbon and Tritium Levels along the Romanian Lower Danube River <i>Carmen Varlam, Ioan Stefanescu, Stela Cuna, Irina Vagner, Ionut Faurescu, Denisa Faurescu</i> . .	783
Direct Absorption Method and Liquid Scintillation Counting for Radiocarbon Measurements in Organic Carbon from Sediments <i>Ionut Faurescu, Carmen Varlam, Ioan Stefanescu, Stela Cuna, Irina Vagner, Denisa Faurescu, Diana Bogdan</i>	794
Bomb-Pulse Dating of Human Material: Modeling the Influence of Diet <i>Elisavet Georgiadou, Kristina Stenström</i>	800
The Effects of Rainfall on Carbon Isotopes of POC in the Teshio River, Northern Japan <i>Takafumi Aramaki, Seiya Nagao, Yo-hei Nakamura, Masao Uchida, Yasuyuki Shibata</i>	808
Estimation of Long-Term Trends in the Tropospheric ¹⁴ CO ₂ Activity Concentration <i>I Svetlik, P P Povinec, M Molnár, F Meinhardt, V Michálek, J Simon, É Svingor</i>	815

Radiocarbon in the Air of Central Europe: Long-Term Investigations <i>I Svetlik, P P Povinec, M Molnár, M Vána, A Šivo, T Bujtás</i>	823
Atmospheric Fossil Fuel CO ₂ Measurement Using a Field Unit in a Central European City during the Winter of 2008/09 <i>M Molnár, L Haszpra, É Svingor, I Major, I Svetlik</i>	835

PART II

CALIBRATION, DATA ANALYSIS, AND STATISTICAL METHODS

A Report on Phase 2 of the Fifth International Radiocarbon Intercomparison (VIRI) <i>E Marian Scott, Gordon T Cook, Philip Naysmith</i>	846
The Fifth International Radiocarbon Intercomparison (VIRI): An Assessment of Laboratory Performance in Stage 3 <i>E Marian Scott, Gordon T Cook, Philip Naysmith</i>	859
Is the Consensus Value of ANU Sucrose (IAEA C-6) Too High? <i>Xiaomei Xu, Matthew S Khosh, Kevin C Druffel-Rodriguez, Susan E Trumbore, John R Southon</i>	866
¹⁴ C Calibration in the 2nd and 1st Millennia BC—Eastern Mediterranean Radiocarbon Comparison Project (EMRCP) <i>Bernd Kromer, Sturt W Manning, Michael Friedrich, Sahra Talamo, Nicole Trano</i>	875
Extension of the Southern Hemisphere Atmospheric Radiocarbon Curve, 2120–850 Years BP: Results from Tasmanian Huon Pine <i>Susan Zimmerman, Thomas Guilderson, Brendan Buckley, Edward Cook</i>	887
Comparison of ¹⁴ C Ages between LSC and AMS Measurements of Choukai Jindai Cedar Tree Rings at 2600 cal BP <i>Yui Takahashi, Hirohisa Sakurai, Kayo Suzuki, Taiichi Sato, Shuichi Gunji, Fuyuki Tokanai, Hiroyuki Matsuzaki, Yoko Sunohara</i>	895
¹⁴ C Age Measurements of Single-Year Tree Rings of Old Wood Samples 22,000 ¹⁴ C Years BP <i>Taiichi Sato, Hirohisa Sakurai, Kayo Suzuki, Yui Takahashi</i>	901
Modern Radiocarbon Levels for Northwestern Mexico Derived from Tree Rings: A Comparison with Northern Hemisphere Zones 2 and 3 Curves <i>Laura E Beramendi-Orosco, Galia Gonzalez-Hernandez, Jose Villanueva-Diaz, Francisco J Santos-Arevalo, Isabel Gómez-Martinez, Edith Cienfuegos-Alvarado, Pedro Morales-Puente, Jamie Urrutia-Fucugauchi</i>	907
Wiggle-Match Dating of Wooden Samples from Iron Age Sites in Northern Italy <i>G Quarta, M I Pezzo, S Marconi, U Tecchiati, M D'Elia, L Calcagnile</i>	915
Tree-Ring Dating and AMS Wiggle-Matching of Wooden Statues at Neunggasa Temple in South Korea <i>Won-Kyu Park, Yojung Kim, Ah-Reum Jeong, Sang-Kyu Kim, Jung-Ae Oh, Suh-Young Park, Sunil Choi, Gyujun Park, Jeong-Wook Seo</i>	924
¹⁴ C Wiggle-Matching of the B-Tm Tephra, Baitoushan Volcano, China/North Korea <i>Shinya Yatsuzuka, Mitsuru Okuno, Toshio Nakamura, Katsuhiko Kimura, Yohei Setoma, Tsuyoshi Miyamoto, Kyu Han Kim, Hiroshi Moriwaki, Toshiro Nagase, Xu Jin, Bo Lu Jin, Toshihiko Takahashi, Hiromitsu Taniguchi</i>	933
ZAGRADA—The New Zagreb Radiocarbon Database <i>Antun Portner, Bogomil Obelić, Ines Krajcicar Bronić</i>	941
Using car4ams, the Bayesian AMS Data Analysis Code <i>V Palonen, P Tikkanen, J Keinonen</i>	948

Developments in the Calibration and Modeling of Radiocarbon Dates <i>Christopher Bronk Ramsey, Michael Dee, Sharen Lee, Takeshi Nakagawa, Richard A Staff . . .</i>	953
Robust Bayesian Analysis, an Attempt to Improve Bayesian Sequencing <i>Franz Weninger, Peter Steier, Walter Kutschera, Eva Maria Wild</i>	962
A Wiggle-Matched Date for the Copper Age Cemetery at Manerba del Garda, Northern Italy <i>Lawrence H Barfield, Sturt W Manning, Erio Valzolgher, Thomas F G Higham.</i>	984
Scandinavian Models: Radiocarbon Dates and the Origin and Spreading of Passage Graves in Sweden and Denmark <i>Bettina Schulz Paulsson</i>	1002
Paleoearthquakes as Anchor Points in Bayesian Radiocarbon Deposition Models: A Case Study from the Dead Sea <i>Elisa J Kagan, Mordechai Stein, Amotz Agnon, Christopher Bronk Ramsey.</i>	1018
Age-Depth Model of Lake Soppensee (Switzerland) Based on the High-Resolution ¹⁴ C Chronology Compared with Varve Chronology <i>Irka Hajdas, Adam Michczyński.</i>	1027
Frequency Distribution of ¹⁴ C Ages for Chronostratigraphic Reconstructions: Alaska Region Study Case <i>Danuta J Michczyńska, Irka Hajdas.</i>	1041

FRESHWATER AND GROUNDWATER

Spatial Radiocarbon and Stable Carbon Isotope Variability of Mineral and Thermal Waters in Slovakia <i>P P Povinec, O Franko, A Šivo, M Richtáriková, R Breier, P K Aggarwal, L Araguás-Araguás. . .</i>	1056
Spatial Distribution of $\Delta^{14}\text{C}$ Values of Organic Matter in Surface Sediments off Saru River in Northern Japan, One Year after a Flood Event in 2006 <i>Seiya Nagao, Tomohisa Irino, Takafumi Aramaki, Ken Ikehara, Hajime Katayama, Shigeyoshi Otsuka, Masao Uchida, Yasuyuki Shibata</i>	1068
High Contribution of Recalcitrant Organic Matter to DOC in a Japanese Oligotrophic Lake Revealed by ¹⁴ C Measurements <i>Fumiko Watanabe Nara, Akio Imai, Masao Uchida, Kazuo Matsushige, Kazuhiro Komatsu, Nobuyuki Kawasaki, Yasuyuki Shibata, Kunihiro Amano, Hajime Mikami, Ryuji Hanaishi. . .</i>	1078
Assessing the Potential for Radiocarbon Dating the Scales of Australian Lungfish (<i>Neoceratodus forsteri</i>) <i>Kelly M James, Stewart J Fallon, Andrew McDougall, Tom Espinoza, Craig Broadfoot</i>	1084
Timing of the Landslide-Dammed Lake Triggered by Earthquake, at Toyama River, Central Japan <i>Akiko S Goto, Takeshi Muramatsu, Yoshiji Teraoka.</i>	1090
Temporal and Spatial Variations in Freshwater ¹⁴ C Reservoir Effects: Lake Mývatn, Northern Iceland <i>P L Ascough, G T Cook, M J Church, E Dunbar, Á Einarsson, T H McGovern, A J Dugmore, S Perdikaris, H Hastie, A Friðriksson, H Gestsdóttir.</i>	1098
The Effect of Storage on the Radiocarbon, Stable Carbon and Nitrogen Isotopic Signatures and Concentrations of Riverine DOM <i>P Gulliver, S Waldron, E M Scott, C L Bryant</i>	1113
Characterization and Dating of Saline Groundwater in the Dead Sea Area <i>Naama Avrahamov, Yoseph Yechieli, Boaz Lazar, Omer Lewenberg, Elisabetta Boaretto, Orit Sivan</i>	1123
Development of an Automatic Sampling Unit for Measuring Radiocarbon Content of Groundwater <i>R Janovics, M Molnár, I Futó, L Rinyu, É Svingor, M Veres, I Somogyi, I Barnabás</i>	1141

MARINE

Variability of Dissolved Inorganic Radiocarbon at a Surface Site in the Northeast Pacific Ocean <i>Ellen R M Druffel, Steven Beaupré, Sheila Griffin, Jeomshik Hwang</i>	1150
Pre-Bomb Marine Reservoir Variability in the Kimberley Region, Western Australia <i>Sue O'Connor, Sean Ulm, Stewart J Fallon, Anthony Barham, Ian Loch</i>	1158
Spatial Variation in the Marine Radiocarbon Reservoir Effect throughout the Scottish Post-Roman to Late Medieval Period: North Sea Values (500–1350 BP) <i>N Russell, G T Cook, P L Ascough, A J Dugmore</i>	1166
The Passage of the Bomb Radiocarbon Pulse into the Pacific Ocean <i>William J Jenkins, Kathryn L Elder, Ann P McNichol, Karl von Reden</i>	1182
Decadal Changes of Radiocarbon in the Surface Bay of Bengal: Three Decades after GEOSECS and One Decade after WOCE <i>Koushik Dutta, G V Ravi Prasad, Dinesh K Ray, Sanjeev Raghav</i>	1191
Pre-Bomb Marine Reservoir Ages in the Western Pacific <i>Kunio Yoshida, Tatsuaki Hara, Dai Kunikita, Yumiko Miyazaki, Takenori Sasaki, Minoru Yoneda, Hiroyuki Matsuzaki</i>	1197
Centuries of Marine Radiocarbon Reservoir Age Variation within Archaeological <i>Mesodesma donacium</i> Shells from Southern Peru <i>Kevin B Jones, Gregory W L Hodgins, Miguel F Etayo-Cadavid, C Fred T Andrus, Daniel H Sandweiss</i>	1207
Compound-Specific Radiocarbon Analyses of Phospholipid Fatty Acids and <i>n</i> -Alkanes in Ocean Sediments <i>Ellen R M Druffel, Dachun Zhang, Xiaomei Xu, Lori A Ziolkowski, John R Southon, Guaciara M dos Santos, Susan E Trumbore</i>	1215
An Alternate Method of Diluting Dissolved Organic Carbon Seawater Samples for ¹⁴ C Analysis <i>Sheila Griffin, Steven R Beaupré, Ellen R M Druffel</i>	1224

SAMPLE PREPARATION

Report on the 20th International Radiocarbon Conference Graphitization Workshop <i>Jocelyn Turnbull, Christine Prior, Graphitization Workshop Participants</i>	1230
A Simplified <i>In Situ</i> Cosmogenic ¹⁴ C Extraction System <i>Jeffrey S Pigati, Nathaniel A Lifton, A J Timothy Jull, Jay Quade</i>	1236
Extraction of <i>In Situ</i> Cosmogenic ¹⁴ C from Olivine <i>Jeffrey S Pigati, Nathaniel A Lifton, A J Timothy Jull, Jay Quade</i>	1244
A New Automated Extraction System for ¹⁴ C Measurement for Atmospheric CO ₂ <i>Jocelyn C Turnbull, Scott J Lehman, Stephen Morgan, Chad Wolak</i>	1261
Development of Graphitization of µg-Sized Samples at Lund University <i>J Genberg, K Stenström, M Elfman, M Olsson</i>	1270
Establishment of Chemical Preparation Methods and Development of an Automated Reduction System for AMS Sample Preparation at KIGAM <i>Wan Hong, Jung Hun Park, Kyeong J Kim, Hyung Joo Woo, Jun Kon Kim, Han Woo Choi, Gi Dong Kim</i>	1277
Update on the Performance of the SUERC <i>In Situ</i> Cosmogenic ¹⁴ C Extraction Line <i>R H Fülöp, P Naysmith, G T Cook, D Fabel, S Xu, P Bishop</i>	1288
Simple Pretreatment Method Development for Iron and Calcium Carbonate Samples <i>Junghun Park, Wan Hong, H J Woo, Han Woo Choi, Joonkon Kim, Gi Dong Kim</i>	1295

A New Radiocarbon Pretreatment Method for Molluscan Shell Using Density Fractionation of Carbonates in Bromoform <i>Christopher M Russo, Jennifer A Tripp, Katerina Douka, Thomas F G Higham</i>	1301
A Thermal and Acid Treatment for Carbon Extraction from Cast Iron and Its Application to AMS Dating of Cast Iron Objects from Ancient Korea <i>J S Park, G S Burr, A J T Jull</i>	1312
Blank Assessment for Ultra-Small Radiocarbon Samples: Chemical Extraction and Separation Versus AMS <i>Guaciara M Santos, John R Southon, Nicholas J Drenzek, Lori A Ziolkowski, Ellen Druffel, Xiaomei Xu, Dachun Zhang, Susan Trumbore, Timothy I Eglinton, Konrad A Hughen</i>	1322
Hydropyrolysis: Implications for Radiocarbon Pretreatment and Characterization of Black Carbon <i>P L Ascough, M I Bird, W Meredith, R E Wood, C E Snape, F Brock, T F G Higham, D J Large, D C Apperley</i>	1336
Experiences of Production and Homogeneity Analysis of an AMS ¹⁴ C Sucrose Standard for High-Activity Measurements <i>Marie Sydoff, Kristina Stenström</i>	1351
Alternative Methods for Cellulose Preparation for AMS Measurement <i>Mojmír Němec, Lukas Wacker, Irka Hajdas, Heinz Gäggeler</i>	1358
A Comparison of Cellulose Extraction and ABA Pretreatment Methods for AMS ¹⁴ C Dating of Ancient Wood <i>J R Southon, A L Magana</i>	1371
Optimization of the Graphitization Process at AGE-1 <i>Mojmír Němec, Lukas Wacker, Heinz Gäggeler</i>	1380
Studies on the Preparation of Small ¹⁴ C Samples with an RGA and ¹³ C-Enriched Material <i>Jakob Liebl, Roswitha Avalos Ortiz, Robin Golser, Florian Handle, Walter Kutschera, Peter Steier, Eva Maria Wild</i>	1394

SOILS AND SEDIMENTS

A New Attempt to Establish the International Radiocarbon Soils Database (IRSDB) <i>Peter Becker-Heidmann, Pascal Heidmann</i>	1405
Buried Ancient Forest and Implications for Paleoclimate since the Mid-Holocene in South China <i>C D Shen, P Ding, N Wang, W X Yi, X F Ding, D P Fu, K X Liu, L P Zhou</i>	1411
Turnover Rate of Soil Organic Matter and Origin of Soil ¹⁴ CO ₂ in Deep Soil from a Subtropical Forest in Dinghushan Biosphere Reserve, South China <i>P Ding, C D Shen, N Wang, W X Yi, X F Ding, D P Fu, K X Liu, L P Zhou</i>	1422
A New ¹⁴ C Data Set of the PY608W-PC Sediment Core from Lake Pumoyum Co (Southeastern Tibetan Plateau) over the Last 19 kyr <i>Takahiro Watanabe, Tetsuya Matsunaka, Toshio Nakamura, Mitsugu Nishimura, Yasuhiro Izutsu, Motoyasu Minami, Fumiko Watanabe Nara, Takeshi Kakegawa, Liping Zhu</i>	1435
¹⁴ C Dating of Holocene Soils from an Island in Lake Pumoyum Co (Southeastern Tibetan Plateau) <i>Takahiro Watanabe, Tetsuya Matsunaka, Toshio Nakamura, Mitsugu Nishimura, Takahiro Sakai, Xiao Lin, Kazuho Horiuchi, Fumiko Watanabe Nara, Takeshi Kakegawa, Liping Zhu</i>	1443
Radiocarbon and Stable Carbon Isotope Ratio Data from a 4.7-m-long Sediment Core of Lake Baikal (Southern Siberia, Russia) <i>Fumiko Watanabe Nara, Takahiro Watanabe, Toshio Nakamura, Takeshi Kakegawa, Fumitaka Katamura, Koji Shichi, Hikaru Takahara, Akio Imai, Takayoshi Kawai</i>	1449

New Radiocarbon Dates from the Late Neolithic Tell Settlement of Hódmezővásárhely-Gorzsa, SE Hungary <i>Sándor Gulyás, Pál Sümegi, Mihály Molnár</i>	1458
AMS Radiocarbon Dating of Holocene Tephra Layers on Ulleung Island, South Korea <i>Mitsuru Okuno, Miki Shiihara, Masayuki Torii, Toshio Nakamura, Kyu Han Kim, Hanako Domitsu, Hiroshi Moriwaki, Motoyoshi Oda</i>	1465
Effects of Vegetation Switch and Subsequent Change in Soil Invertebrate Composition on Soil Carbon Accumulation Patterns, Revealed by Radiocarbon Concentrations <i>Ayu Toyota, Ichiro Tayasu, Reiji Fujimaki, Nobuhiro Kaneko, Masao Uchida, Yasuyuki Shibata, Tsutom Hiura</i>	1471
Comparison of Depth Profiles of ¹²⁹ I and ¹⁴ C Concentration in the Surface Layer of Soils Collected from Northeastern Japan <i>Hiroyuki Matsuzaki, Yoko Sunohara Tsuchiya, Yasuyuki Muramatsu, Yuji Maejima, Yosuke Miyairi, Kazuhiro Kato</i>	1487
Radiocarbon Dating of the Last Volcanic Eruptions of Ciomadul Volcano, Southeast Carpathians, Eastern-Central Europe <i>Sz Harangi, M Molnár, A P Vinkler, B Kiss, A J T Jull, A G Leonard</i>	1498
BOOK REVIEW	
Claudio Tuniz, Richard Gillespie, Cheryl Jones. <i>The Bone Readers—Atoms, Genes and the Politics of Australia's Deep Past</i> Reviewed by <i>Irka Hajdas</i>	1508
AUTHOR INDEX	1513

