

ANTARCTIC science



VOLUME 21 NO 6
DECEMBER 2009

ISSN 0954 1020

CAMBRIDGE
UNIVERSITY PRESS

- ANTARCTIC CLIMATE CHANGE REVIEW
- AMPHIPODS IN SPONGES
- PHYLOGENY OF *TREMATOMUS*
- ZIRCON DATING OF ANTARCTIC PENINSULA
- QUANTIFYING PLIOCENE ICE SHEET DYNAMICS
- CO₂ FLUX IN SOUTHERN OCEAN

ANTARCTIC science

EDITORS

David W.H. Walton
Life Sciences

Christina L. Hulbe
Physical Sciences

Alan P.M. Vaughan
Earth Sciences

MANAGING EDITOR

Sharon Cooke

EDITORIAL OFFICE

British Antarctic Survey (NERC)
High Cross,
Madingley Road,
Cambridge CB3 0ET, UK.
antarctic.science@bas.ac.uk

EDITORIAL ADVISORY BOARD

D. Barnes, *British Antarctic Survey, UK*
M. Brix, *Ruhr-Universität Bochum, Germany*
D. Cantrill, *National Herbarium of Victoria, Australia*
J. Cassano, *University of Colorado, USA*
Y. Cherel, *Centre d'Études Biologiques de Chizé, France*
S.L. Chown, *University of Stellenbosch, South Africa*
J.T. Eastman, *Ohio University, USA*
F. Florindo, *Istituto Nazionale di Geofisica e Vulcanologia, Italy*
C. Fogwill, *University of Exeter, UK*
L. Gimeno, *Universidad de Vigo, Spain*
D. Gore, *Macquarie University, Australia*
K. Hall, *University of North British Columbia, Canada*
E. Hofmann, *Old Dominion University, USA*
C. Howard-Williams, *NIWAR, New Zealand*
D.R. Marchant, *Boston University, USA*
S.D. Matheos, *Universidad Nacional de La Plata, Argentina*
R. Muench, *Earth & Space Research, USA*
B. Njåstad, *Norwegian Polar Institute, Norway*
F. Pattyn, *Vrije University Brussels, Belgium*
A.S. Rodger, *British Antarctic Survey, UK*
P. Ryan, *University of Cape Town, South Africa*
E. Surinach, *Universitat de Barcelona, Spain*

COVER

Waste still to be removed at the abandoned US/Australian Wilkes Station, East Antarctica. Part of the legacy of waste that remains in Antarctica from past activities when environmental protocols were not as stringent as they are today
Photo: I Snape, Australian Antarctic Division

Editorial Policy. *Antarctic Science* provides a focus for many of the interdisciplinary interests that characterize Antarctic studies. The journal includes both review and data papers, opinion papers, short notes on technical developments and field work, an editorial and book reviews. *Antarctic Science* is a journal that is interesting, original and topical yet rigorous in its treatment of primary scientific data. There is no maximum page length for scientific papers. Authors are required to follow the style set out in 'Instructions for Contributors' accessible either as a pdf at journals.cambridge.org/ans or through <http://mc.manuscriptcentral.com/cup/antsci> where all manuscripts must be submitted.

Ownership. *Antarctic Science* is owned by the charitable company Antarctic Science Ltd (Directors: J.R. Dudeney, J.E. Francis, T. Jickells, D.B. Nedwell, M.R.A. Thomson, A.P.M. Vaughan, D.W.H. Walton) Registered Charity no: 1090581. Registered Office: Antarctic Science Ltd, Mills & Reeve, 112 Hills Road, Cambridge CB2 1BH.

Subscriptions. *Antarctic Science* ISSN 0954-1020, is published bimonthly in February, April, June, August, October and December, six parts form a volume, by Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge, CB2 8RU, UK/Cambridge University Press, 32 Avenue of the Americas, New York, N.Y. 10013-2473. The subscription price of volume 21 (2009) (which includes postage) is £462 net (USA, Canada and Mexico US\$920) for institutions print and electronic; institutions electronic only £380/\$755, and £120

(USA, Canada and Mexico US\$240) for individuals print. Single parts cost £77 (USA, Canada and Mexico US\$153) plus postage, unless purchased in bulk. Orders, which must be accompanied by payment, may be sent to the bookseller, subscription agent or direct to the publisher: Cambridge University Press, The Edinburgh Building, Shaftesbury Rd, Cambridge CB2 8RU; or in the USA, Canada and Mexico: Cambridge University Press, Journals Fulfillment Department, 100 Brook Hill Drive, West Nyack, New York 10994-2133. EU subscribers (outside the UK) who are not registered for VAT should add VAT at their country's rate. VAT registered subscribers should provide their VAT registration number. Japanese prices for institutions are available from: Kinokuniya Company Ltd., PO Box 55, Chitose, Tokyo 156, Japan.

Prices include delivery by air where appropriate. Copies of the journal for subscribers in the USA, Canada and Mexico are sent by air to New York. Periodicals Postage paid at New York, NY and additional mailing offices.

POSTMASTER: Send address changes to Antarctic Science, Cambridge University Press, 100 Brook Hill Drive, West Nyack, N.Y. 10004-2133.

For further information on *Antarctic Science* or other Press titles access journals.cambridge.org
© Antarctic Science Ltd 2009

continued on inside backcover