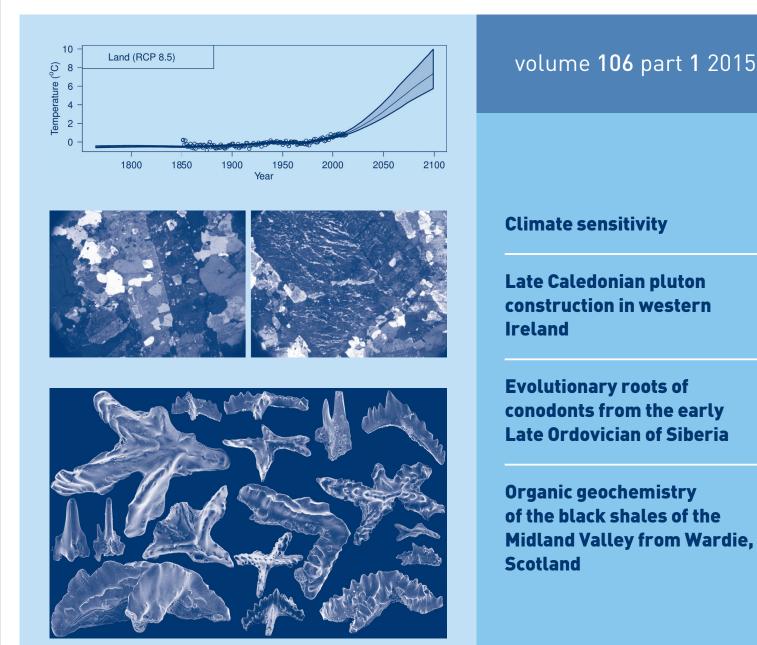
Earth and Environmental Science

Transactions of the Royal Society of Edinburgh





The Royal Society of Edinburgh is committed to the widespread dissemination of scientific knowledge and has published the *Transactions of the Royal Society of Edinburgh* since 1785, when James Hutton's 'Theory of the Earth' was published in volume 1. The journal evolved to the *Transactions of the Royal Society of Edinburgh: Earth Sciences* in 1980 and is now (as from 2007) the *Earth and Environmental Science Transactions of the Royal Society of Edinburgh.* Through this journal, the Society continues to encourage and support the international Earth and Environmental Science communities by:

- publishing a journal of international standing and authorship;
- publishing substantial papers on all scientific aspects of the Earth and its surface environments;
- publishing without page or colour charges;
- reproducing photographs and artwork to the highest standard, where appropriate at a size larger than is customary; and
- aiming to have papers reviewed within three months by at least two referees of international standing; and usually publishing within six months
 of acceptance.

The Editorial Board welcomes original manuscripts in the Earth and Environmental Sciences. It also welcomes proposals for Special Issues in these areas.

Editorial Board (as at December 2015)

v of Stirling John GORDON (Editor), University of St Andrews ils; soil Geodiversity; geoconservation; Quaternary research
Alistair MCGOWAN (<i>Editor</i>), BioGeoD, Edinburgh Palaeobiology; biodiversity; invertebrate palaeontology; the Fossil record
Andrew ROSS (<i>Editor</i>), National Museums Scotland, Edinburgh Invertebrate palaeontology; palaeobiology; palaeoecology; palaeoenvironment; palaeoclimate
Phil STONE (<i>Editor</i>), British Geological Survey, Edinburgh Scottish and South Atlantic regional geology and tectonics
Susan WALDRON (<i>Editor</i>), University of Glasgow Carbon cycling; stable isotope analysis of biogeochemical cycles; stoichiometry of natural systems
Alan WERRITTY (<i>Editor</i>), University of Dundee Water resources & climatic change; flood hydrology & geomorphology; river sediments; geomorphic sensitivity; history of geography
Consulting Editors
J. F. DEWEY, University College, Oxford, UK
P. DONOGHUE, University of Bristol, UK
J. DOWDESWELL, Scott Polar Research Institute, University of Cambridge, UK
J. C. KNOX, University of Wisconsin, Madison, USA
D. WALOSZEK, Universität Ülm, Germany

Journals & Archive Officer: Royal Society of Edinburgh: Mrs Vicki M. Hammond

C. T. WILLIAMS, Natural History Museum, London, UK

COPYRIGHT: It is the policy of the Royal Society of Edinburgh not to charge any royalty for the production of a single copy of any one article made for private study or research. Specific permission will not be required for photocopying multiple copies of copyright material, to be used for *bona fide* educational purposes, provided this is done by a member of the staff of the university, school or other comparable institution, for distribution without profit to student members of that institution, and provided the copies are made from the original journal. Requests for the copying or reprinting of any article for any other purpose should be sent to the Journals & Archive Officer at the Royal Society of Edinburgh. (publications@royalsoced.org.uk).

Earth and Environmental Science Transactions of the Royal Society of Edinburgh is published as one volume of four parts per year, usually in a combination of single and double issues.

Volume 106 (2015) will be published in three parts – one double issue and two single issues. [Volume 107 (2016) will be provisionally published in three parts – one double issue and two single issues.]

An annual subscription to EESTRSE costs GBP318/ USD601 (Print plus Online); or GBP285/ USD528 (Online only).

Orders should be placed with Cambridge University Press, Journals Fulfilment Department, UPH, Shaftesbury Road, Cambridge CB2 8BS, UK. Telephone: +44 (0)1223 326070; Fax: +44 (0)1223 325150; email: journals@cambridge.org

EESTRSE is indexed/abstracted in the following: Current Contents/Physical, Chemical & Earth Sciences; Biosciences Information Service; Geoabstracts; GEOBASE; Mineralogical Abstracts; Science Citation Index; SciSearch; VINITI (All-Russian Institute of Scientific and Technical Information); *Zoological Record*.

© 2015 The Royal Society of Edinburgh.

The Royal Society of Edinburgh, Scotland's National Academy, is Scottish Charity No. SC000470

Cover images: top – historical land temperature records and forecast to 2100. See Thompson, pp 1-10 (Fig. 6); middle – characteristic petrographic features of the G3 facies of the Omey Pluton. See McCarthy *et al.*, pp 11-28 (Fig. 4); bottom – elements of *Moskalenkodus* conodonts. See Dzik, pp 29-53 (Fig. 2).

I. W. D. DALZIEL, University of Texas at Austin, USA