

*Seismogram of the Market Rasen earthquake which occurred on 27<sup>th</sup> February 2008, provided by the British Geological Survey. Other earthquake-related data, including public perception surveys are available at <http://www.earthquakes.bgs.ac.uk/>*

## Contents

Contents.....	2
Reports from the Chair and Secretary.....	3
Chair's Report for AGM, 14 <sup>th</sup> May 2008.....	3
Group Meetings/Visits.....	3
Events in 2008.....	3
Other Proposed Events.....	4
Essay Competition.....	4
Other Activities & News.....	4
Thanks.....	5
Secretary's Report for AGM, 14 <sup>th</sup> May 2008.....	5
Membership.....	5
Committee composition.....	5
Thanks.....	6
News.....	7
One Year of Environmental Research Letters.....	7
Environmental Physics Teaching Resources.....	7
2007 Essay Competition.....	8
Annual General Meeting.....	10
Reports from previous events.....	11
Severe weather - origins and prediction (4th February 2008).....	11
Climate Change: The Physical Science Basis (28th February 2008).....	11
Condensation Processes (29th Feb 2008).....	12
Forthcoming Events.....	13
Environmental Physics Group Members' Meeting.....	13
The Windscale nuclear reactor accident - 50 years of investigations.....	15
Sustainable Energy: new solutions from Physics and Engineering.....	16
EPG Committee.....	18

## Reports from the Chair and Secretary

### ***Chair's Report for AGM, 14<sup>th</sup> May 2008***

Welcome to the Chair's report. The year behind us was perhaps the busiest in the recent history of the Group, with a very healthy number of meetings in a variety of locations, and a range of other activities, including the essay competition and the start of a process to develop educational resources in environmental physics. This year already looks to be another busy one and I hope that you will be able to get benefit from and support the Group in some way or other during the year.

### **Group Meetings/Visits**

Thanks to all who contributed to the programme of events in 2007, including speakers, organisers and those who supported with their attendance.

*Table 1: 2007 Meetings*

<b>Date</b>	<b>Title</b>	<b>Type</b>	<b>Venue</b>	<b>Joint with ...</b>
12/02/07	Extreme weather	Eve	York	Y&H Branch
24/04/07	Extreme weather	Eve	Middlesboro'	NE Branch
02/05/07	Members' Meeting	½ day	London	
02/05/07	Rainbows, Haloes & Glories	Eve	London	L&SE Branch
02/06/07	Environmental Physics day	Day	Dundee	Scottish Branch
13/06/07	Climate Change-the physical basis	Eve	London	L&SE Branch
17/10/07	Optical Environmental Sensing V	Day	NAC, Warwickshire	Optical Group
06/12/07	Windscale fire 50 <sup>th</sup> anniversary	Eve	Dublin	Irish Branch

### **Events in 2008**

The Group is continuing to plan events around the country, with the aim of making the activities of the Group accessible to a greater number of members and non-members alike. Already this year events have taken place in England and Ireland, whilst others are planned later for Scotland and Wales.

- Extreme weather, with South Central Branch, Southampton, January 2008
- Climate Change-the physical basis, Dublin, 28<sup>th</sup> February 2008.
- Condensation Physics, with Irish Branch & Aerosol Society, Dublin, 29<sup>th</sup> February 2008.
- Members meeting & evening lecture, London, 14<sup>th</sup> May 2008
- Optical Environmental Sensing VI, with Optical Group, Edinburgh, August 2008

The committee has for some time wanted to organise activities in quick response to major environmental physics news stories. The Market Rasen earthquake in February has provided a good opportunity to do so and we have started to plan for one or more meetings on that theme.

## **Other Proposed Events**

- Media reporting of environmental news stories.
- Meeting with Computational Physics Group.
- Meeting with Combustion Physics Group.

The Group has also contributed to the planning of a meeting on Sustainable Energy, organised by the Applied Physics & Technology Division, to be held on 29<sup>th</sup> October 2008, in London. Further details are given later in this Newsletter.

## **Essay Competition**

The 3<sup>rd</sup> EPG essay competition was launched in the autumn of 2007. The number of entries was fewer than in previous years, perhaps due to the fact that we were unable to advertise the level of prize money at the time that entries were being sought. Nonetheless the essays were again of high quality, with two outstanding. Louise St. Germain, who considered the environmental physics in the design and siting of buildings, was declared the winner and awarded a £350 prize. Stephen Sheen, a physics undergraduate at the University of Leeds, wrote about renewable energy and was awarded a prize of £150 as runner-up. I would like to thank Gary Williams for the publication of last year's winning essays in Physics Education; publication of the latest winners is currently being sought.

## **Other Activities & News**

In December 2007, a workshop was held to explore the development of educational resources for environmental physics. Thanks to Peter Hughes for taking up the initiative on behalf of the EPG. A new bursary fund (RSCF) has been established for postgraduate researchers attending major conferences. Applicants must be members of a Group of the Institute and should approach the Institute in the first instance. Two Newsletters were published by the Group during

the year; this (along with the web-pages) is the key means by which the Group's activities are publicised and contributions from members are always welcome.

## **Thanks**

I must express my thanks to all members of the EPG committee, who are extremely dedicated and hard-working in the cause. It is no coincidence that the Group has been cited in several respects as demonstrating good practice within the IOP. Worthy of particular mention are the Newsletter & web editors, Karen Aplin & Paul Williams, the Treasurer & Vice-Chair, Giles Harrison and our Secretary, Pat Goodman.

Peter Hodgson (Chair)  
March 2008

## ***Secretary's Report for AGM, 14<sup>th</sup> May 2008***

### **Membership**

The Environmental Physics group membership has shown quite a significant growth. Currently there are 523 members (April 2008), up from 444 this time last year, up almost 20%. This increase in membership of the group is very important and we believe is partly due to the increased awareness of environmental issues and the role physicists can play. It is important that all our members participate and feel part of the group; we encourage people to consider being part of the committee.

The Environmental Physics Group Committee met on 2<sup>nd</sup> May 2007 (9 attendees), 26<sup>th</sup> September 2007 (11 attendees) and 28<sup>th</sup> February 2008 (held in Dublin, 11 attendees).

The AGM was held on 2<sup>nd</sup> May 2007 (24 attendees)

### **Committee composition**

The current committee, with the individuals' expiry dates, is listed in Table 2 below. (Officers serve 3 years, and Ordinary members 4 years.)

*Table 2: 2007-8 Committee Members*

<b>name</b>	<b>status</b>	<b>start</b>	<b>expiry</b>
Karen Aplin	elected	2007	2011
Alastair McCartney	Co-opted	June 2007	
Derek Rose	ordinary	Elected May 2005	2009
Edward Youngs	Co-opted	Co-opted 2007	
Giles Harrison (Hon Treasurer/ Vice Chair)	officer	Elected May 2006	2009
Ian Colbeck	ordinary	Elected May 2005	2009
John Garland	ordinary	Elected May 2005	2009
Peter Hodgson (Chairman)	officer	Elected May 2006	2009
Peter Hughes	ordinary	Elected May 2005	2009
Pat Goodman (Hon Secretary)	officer	Elected May 2006	2009
Paul Williams	ordinary	Elected May 2004	2008
Ian Rutt	ordinary	Elected May 2005	2009
Sally Brown	ordinary	Elected May 2007	2011
Keith De Blanger	Co-opted	Co-opted May 2007	

We have at least one vacancy for an ordinary member on the committee, nominations should be sent to the Hon. Secretary.

## Thanks

I am grateful to all of the committee members for their assistance over the past year.

Pat Goodman (Hon. Secretary)  
March 2008

## News

### ***One Year of Environmental Research Letters***

The beginning of 2008 marked the first complete year of *Environmental Research Letters* (ERL) (<http://www.iop.org/EJ/erl>). The entire ERL team would like to extend its warmest thanks to all those that helped us during the first year including the editorial board, authors, reviewers and of course all of the many readers that have visited ERL over the last year.

2007 was an excellent year for environmental research letters that saw several key landmarks for the journal. In addition to the regular content ERL launched 5 focus issues designed to showcase the latest research in the fields of the health effect of Environmental Justice, PM air pollution, High latitude climate change, Wind Energy and Greenhouse Gas emissions and Deforestation. As well as the excellent copy flow ERL has had outstanding readership with ERL articles having been downloaded over 50,000 times. Finally ERL has managed to achieve one of the primary goals of any new journal, by being listed in Thompson ISI and is due for its first impact factor in 2009.

Last year IOP Publishing launched two companion environmental products to widen the service provided by ERL. February 2007 saw the arrival of *environmentalresearchweb* (<http://environmentalresearchweb.org/cws/home>), a community website dedicated to providing news and analysis on all aspects of environmental change, as well as resources such as jobs, events and company listings, and a free weekly email newswire. Over the last year *environmentalresearchweb* has gone from strength to strength and now boasts over 3000 members with many more regular readers. Following this in November IOP Publishing launched *IOP Conference Series: Earth and Environmental Science* (EES) (<http://www.iop.org/ej/journal/ees>), an open access proceedings service based on our hugely successful proceedings in physics. In its short lifetime EES has already been commissioned to provide proceedings for several high profile events.

Keith de Blanger

### ***Environmental Physics Teaching Resources***

The Group has begun to work with the IOP in developing environmental physics resources in support of teachers. In the first instance, a couple of commentaries are being sought, to see how they might work out and to act as an exemplar for

others. The commentaries should be focused on providing information for (non-physics specialist) teachers at A level / 1st year university standard and be around 1500 – 2000 words in length. These commentaries are to help teachers and not necessarily for them to use directly with their students. They could be accompanied by some PowerPoint slides that would have images/ diagrams/ graphs to illustrate the commentaries and might be used by teachers in their teaching. Thus the commentaries should be fairly focused on some particular aspect, rather than aiming for a too ambitious overarching view of a whole area of environmental physics.

If you might be interested in producing a commentary and are able to do this in a fairly short time frame (ideally by the end of May), please contact Clare Thomson, details below, who will be able to provide more information on potential topics and content.

Clare Thomson FInstP  
Curriculum Support Manager  
Institute of Physics  
Tel: 020 7470 4981  
email:[clare.thomson@iop.org](mailto:clare.thomson@iop.org)

## ***2007 Essay Competition***

There were only 7 entries for the Essay Competition this year. This number compares with 16 entries last year and 21 in the previous year, when the competition was launched. However, the judges were pleased that the quality of the entries remained high. Even with fewer entries, the topics covered a whole range of topics, including earthquake prediction, the salinity of waters in the Antarctic, surveying for groundwater, renewable energy, environmental physics considerations of urban development, and the intriguingly titled “Can iPods grow on trees?”.

The judges, Peter Hodgson, Keith de Blanger, Alastair McCartney, Derek Rose and Edward Youngs, decided to award two prizes this year. The first prize of £350 was awarded to Louise St Germain from Ottawa, for her essay entitled “Suburbia 1, Kyoto 0 – Why Canadians must link home to environment to achieve Canada’s Kyoto targets”. She argued the need for environmental physics in the design and layout of housing developments in order to reduce greenhouse gas emissions. The second prize of £150 was awarded to Stephen Sheen from the University of Leeds for his essay “It’s not easy being green! - A look at the limitations of some renewable energies”.

Publication of both these winning essays is now being sought (last year's winners appeared in Physics Education) and they will also be available on the EPG web site in due course. The winners will also be invited to present their essays at the Members' Day on Wednesday 14 May where they will be presented with their prizes accompanied by a certificate from the Institute of Physics.

The committee thanks all those who entered the competition, congratulates the winners, and looks forward to receiving entries for the 2008 competition.

Edward Youngs

## Annual General Meeting

Wednesday 14<sup>th</sup> May 2008, 5.45pm, Institute of Physics

The 17<sup>th</sup> Annual General Meeting of the Institute of Physics' Environmental Physics Group will be held on **Wednesday 14<sup>th</sup> May 2008 at 5:45pm**. The meeting will be held in the Lovelace room at the Institute of Physics.

This year there are several vacancies for Ordinary Committee members.

Please send nominations for the above vacancies to the Secretary of the EPG, to arrive not later than twenty-eight days before the AGM. The nominations should be proposed by at least two members of the Group and should be accompanied by the written consent of the nominee.

This is YOUR chance to become more involved with the Group and to make a difference. If you would like to know more about what might be involved, please contact Pat Goodman or Peter Hodgson (contact details at the end of this Newsletter) for an informal discussion.

This year's AGM will be held during the EPG Members' meeting, at which attendees will get the chance to hear a range of talks on environmental physics topics. Following the AGM, there will be a lecture on 'The Windscale nuclear reactor accident - 50 years of investigations', by Professor Richard Wakeford of Manchester University. Separate notices in this Newsletter give further details.

A limited number of EPG travel grants may be available to assist members of the EPG attending the Members' meeting; contact the Secretary or Chair for further details.

We look forward to seeing you at the AGM.

Pat Goodman (Hon. Secretary)  
Peter Hodgson (Chair).

## Reports from previous events

### ***Severe weather - origins and prediction (4th February 2008).***

It's a dangerous world out there, according to Ross Reynolds of Reading University. That's if you happen to be the wrong place at the wrong time, coming across 1kg hailstones travelling at 48m/s, and up to 318mph wind speeds associated with tornadoes.

Fortunately, these are not common occurrences as Ross went on to explain during an evening seminar on Severe Weather at Southampton University held jointly with the South Central Branch. In his talk he discussed what conditions are required and how thunderstorms and tornadoes form and he gave some particularly good examples from Oklahoma. Knowledge of formation conditions for tornadoes is well-known and can be predicted in advance but predicting exactly when and where they form and touchdown is another matter. He also explained the risks associated with thunderstorms and severe weather and the damage they cause.

By the end of the seminar, I found it hard to believe the English author and art critic, John Ruskin's phrase of 'there is really no such thing as bad weather, only different kinds of good weather,' with the destructive forces, high winds and the great damage these phenomena cause. Accompanied by satellite imagery, photographs and video footage (filmed by some rather daring students), this enlightening talk showed how to be frightened and thrilled by these natural phenomena and created a whirlwind of discussion and questions at the end.

Sally Brown

### ***Climate Change: The Physical Science Basis (28th February 2008).***

Around 30 people came to the Dublin Institute of Technology to hear Professor Jonathan Gregory's talk about climate change.

Jonathan was a lead author of the IPCC's (Intergovernmental Panel on Climate Change) recent fourth assessment report. He is a Professor at the University of Reading. He talked about how glaciers, ice sheets, forests, vegetation, water

vapour and precipitation are influenced by climate change and also contribute to it. He discussed state-of-the-art climate models and their uncertainties.

He said that although models (and scientists) disagree over the exact details of climate change, overall there is agreement between the various models that the climate is changing and that this is due to human activity and industrialisation over the past 250 years.

Paul Williams

## ***Condensation Processes (29th February 2008)***

In keeping with the policy of holding some of the group events outside of London, to try and bring talks to our members in the branches, a half-day meeting on “condensation processes” in environmental physics was held in Dublin on 29<sup>th</sup> Feb. 2008. This meeting was organised in conjunction with the Aerosol Society and with assistance from the Irish Branch of IOP, and chaired by Dr Frank McGovern of the Irish EPA. There were 5 excellent speakers who spoke on diverse aspects of condensation in the atmospheric environment.

The first speaker was Dr. Darius Ceburnis from the National University of Ireland Galway, who presented work on Condensation, Atmospheric Aerosol Growth, and Climate Impacts, conducted by him and colleagues including Prof. Colin O’Dowd at the Mace Head site in Galway. Darius showed that a significant amount of the natural marine aerosol detected at Mace Head could be linked to Iodine from seaweed and that this was an important source of natural aerosol, with a significant role in atmospheric processes.

This was followed by a talk from Dr Tony Scott, UCD, Dublin, (former treasurer of the IOP), Tony spoke on the development and evolution of the condensation nucleus counter. Tony worked with PJ Nolan (of the Nolan Pollak Nucleus counter fame). He showed original photos of the early nucleus counters, and spoke of how Nolan and Pollak differed on their views as to developing the counter, each taking quite different approaches. He presented data on how the Nolan counter was evaluated, with them testing various lengths and diameter of the sample tube, only to find that the original tube was the most efficient. It had initially been chosen as it was the only metal tubing available in the workshop during the shortages of the second world war!

The final speaker in the first session was Dr Charles Clement who spoke on Fluctuations and Condensation in Clouds. Charles emphasised the importance of this work in relation to representing cloud in climate models, where the cloud

formation aspects are not parameterised in terms of fluctuations. He demonstrated that this is a weakness in current models, and presented interesting data on condensation process within clouds illustrating the fluctuations that are observed in the atmosphere.

After lunch there were two further speakers, the first being Dr Giles Harrison (Reading, and Vice-Chair of the EPG). Giles spoke on Surface observations of cloud changes associated with cosmic rays. His talk was based on observations at ground stations around the UK over 50 years, where both direct and diffuse solar radiation measurements were made at the same locations. Giles presented a statistical analysis comparing cloud amount, inferred from solar radiation data, with measurements of cosmic rays. Statistical tests show evidence for a small electrical effect on clouds, by detecting a weak signature characteristic of galactic cosmic rays.

The final speaker was Dr Tom O'Connor from the National University of Ireland Galway. Tom spoke on the Mace Head site and other condensation stories. His talk was a history of the Mace Head site, which celebrates 50 years this year. Mace Head, on the western coast of Ireland, has some of the cleanest air in Europe. It is one of the main global atmospheric monitoring sites, and is frequently used as a background site for many European studies. Tom was one of the original staff involved with the acquisition of the Mace Head site, and he presented some excellent photographs of events held there, and quite literally a who's who of atmospheric condensation through the past 50 years. If you missed this fascinating piece of oral history, Dr O'Connor is scheduled to repeat his lecture at the Members' Day to be held on 14<sup>th</sup> May 2008 in London.

Pat Goodman

## **Forthcoming Events**

### ***Environmental Physics Group Members' Meeting***

2.15pm Wednesday 14<sup>th</sup> May: Lovelace Room, Institute of Physics

The fifth EPG Members' Meeting promises to provide an excellent opportunity for the community to get together and discuss the diversity and depth of environmental physics. The Members' Meeting will include a variety of talks from EPG members, and the EPG essay winners will also be announced. A keynote lecture will be given by Dr Tom O'Connor. The meeting will be held in the Lovelace Room, Institute of Physics.

This year we have especially sought to encourage early career environmental physicists (students and all those who have been in employment for less than 10 years) to present research, and likewise we encourage them to attend the meeting. Travel grants are available. The meeting will also incorporate the Group's AGM and will be followed by an evening lecture. Following the successful talk to the IOP in Dublin last year on the 50th anniversary of the Windscale nuclear reactor incident, Professor Wakeford will present his talk as the evening lecture. Further details of Professor Wakeford's talk are advertised separately within the newsletter.

Confirmed speakers for the Members' Meeting include:

- "The Mace Head site and other condensation stories", Dr Tom O'Connor, National University of Ireland, Galway.
- "Trapping aerosols with light", Dr David McGloin, University of Dundee.
- "Observing and modelling insect migration in the atmospheric boundary layer", Dr Curtis Wood, Reading University.
- "Desert Challenges: Towards better prediction of gaseous fluxes from Kalahari soils", Dr Stephen R Hoon & Dr A D Thomas, Manchester Metropolitan University.
- "Why renewable energy? How the reasons for wanting renewables are changing." Dr Donald T Swift-Hook, World Renewable Energy Network.

The Members' Meeting commences at 2.15pm, with Professor Wakeford's evening lecture at 6.30pm. The programme is being finalised - please look on the EPG website, [www.iop.org/activity/groups/subject/env/](http://www.iop.org/activity/groups/subject/env/) under 'Forthcoming events' for updated information.

There will be no charge to group members attending the meeting. Non-members will also be very welcome to attend (limited number of places available) subject to a registration fee of £10. The EPG will be allocating a number of *travel grants* for this meeting to assist with travel costs (apply to Peter Hodgson, at the address below).

If you intend to come to the meeting, please return the form on the next page to: Dr. Peter Hodgson, Corus RD&T, Swinden Technology Centre, Moorgate, Rotherham, S60 3AR or send an email with same details to: [Peter.Hodgson@corusgroup.com](mailto:Peter.Hodgson@corusgroup.com) to assist with catering requirements.

## ***The Windscale nuclear reactor accident - 50 years of investigations***

Prof Richard Wakeford, University of Manchester  
6.30pm Wednesday 14th May: Franklin Room, Institute of Physics

Although it happened half a century ago, the nuclear reactor fire during October 1957 at Windscale Works, Sellafield, England, remains the largest accidental release of radioactive material into the environment that has occurred in the West. Extensive investigations into the causes and consequences of the Windscale accident have been carried out over the past fifty years, including a recent re-evaluation of the quantities of radionuclides released to atmosphere and their subsequent travels over northern Europe. The presentation will provide a background to the accident, what happened during the fire, the environmental monitoring that took place, and our current understanding of the aerial emissions and the movement of the plume, including the recent work on this subject.

A further introduction to the Windscale disaster was presented in our November 2007 newsletter, and this can be found online at:

[http://www.iop.org/activity/groups/subject/env/Newsletter/file\\_26811.pdf](http://www.iop.org/activity/groups/subject/env/Newsletter/file_26811.pdf)

This talk will follow the Environmental Physics Group AGM (see separate notice in this Newsletter), to which members are warmly invited. If you intend to come to the meeting, please return the Members' Day form to: Dr. Peter Hodgson, Corus RD&T, Swinden Technology Centre, Moorgate, Rotherham, S60 3AR or send an email with same details to: [Peter.Hodgson@corusgroup.com](mailto:Peter.Hodgson@corusgroup.com), in order to assist with catering requirements.

✂-----

I intend to come to the Environmental Physics Group Members' Meeting and/or evening lecture at the Institute of Physics, Wednesday 14<sup>th</sup> May 2008.

Members' Meeting     Evening lecture     Both (please tick)

Name: -----

Address: -----

-----

Tel.: -----

Email: -----

## ***Sustainable Energy: new solutions from Physics and Engineering***

The Institute of Physics, London. 29<sup>th</sup> October 2008: Franklin Theatre

Organised by the Applied Physics and Technology Division

Many meetings on sustainable energy are organised simply to outline the problems faced by mankind in changing our approach to energy production and conservation so that carbon emission is reduced. This meeting aims to offer a more practical approach where new scientific ventures are beginning to give some solutions to those problems. The meeting is aimed at university and industrial scientists and engineers working in the sustainable energy field. Sustainable energy is one of the main areas identified by research councils for support and the meeting will give an opportunity for academics and industrialists to seek new collaborations for fundamental and applied research in this area. For this reason, speakers will all give a non-specialist level overview of their work and outline areas where further work is urgently required. A long luncheon break, a poster display and short 5 minute talks by representatives from energy-based companies will be included in the day's events.

### **Provisional Programme**

- 0945 Registration and Coffee
- 1015 Introduction
- 1020 Wind turbine blades: design and performance  
Ole Thomsen (Denmark)
- 1045 Digital displacement and its application to the delivery of energy from wave-power  
Jamie Taylor (Edinburgh)
- 1110 Energy-efficient Glazing Design  
John Ridealgh (Pilkingtons)
- 1135 Short Contributions
  
- 1230 LUNCH, NETWORKING POSTERS
  
- 1400 Energy-efficient Buildings  
TBC
- 1425 Fuel Cells  
Vladimir Vishnyakov  
(MMU)
- 1450 The contribution of low friction coatings to energy efficiency  
Mark Gee (NPL)

- 1515 TEA  
1545 Materials challenges for the next generation of photovoltaic solar energy  
Modules  
Stuart Irvine (Bangor)  
1610 TBC  
1635 Tea break  
1700 Plenary lecture (open to all)  
Professor Steven Cowley (UCLA and Imperial College)  
Title relating to Fusion, TBC  
1800 Close of meeting







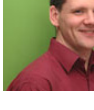

Prof John Colligon  
Department of Chemistry and Materials  
Manchester Metropolitan University  
Chester Street  
Manchester  
M1 5GD

Tel: (0161)-247 1452

Fax: (0161)-247 1438

email: [J.Colligon@mmu.ac.uk](mailto:J.Colligon@mmu.ac.uk)

## EPG Committee

<b>Chair:</b> Dr. Peter Hodgson		Environment Department, Corus RD&T, Swinden Technology Centre, Rotherham S60 3AR <b>Tel:</b> 01709 825478, <b>Fax:</b> 01709 825400 <b>e-mail:</b> peter.hodgson@corusgroup.com
<b>Vice-Chair:</b> Dr. R. Giles Harrison		Dept. of Meteorology, University of Reading, PO Box 243, Earley Gate, Reading, RG6 6BB. <b>Tel:</b> 01189 316690, <b>Fax:</b> 0118 378 8316 <b>e-mail:</b> r.g.harrison@reading.ac.uk
<b>Hon. Secretary:</b> Dr. Pat Goodman		Physics Department, Dublin Institute of Technology, Kevin Street, Dublin 8, Ireland <b>Tel:</b> + 353 1 4024782, <b>Fax:</b> + 353 1 4024988 <b>e-mail:</b> pat.goodman@dit.ie
<b>Editor:</b> Dr. Karen Aplin		Space Science and Technology Department, Rutherford Appleton Laboratory, Chilton, Didcot, Oxon, OX11 0QX. <b>Tel:</b> 01235 445844, <b>Fax:</b> 01235 445848 <b>e-mail:</b> K.L.Aplin@rl.ac.uk
Ms Sally Brown		School of Civil Engineering & the Environment, University of Southampton, Highfield, Southampton, SO17 1BJ. <b>Tel:</b> 023 8059 4652, <b>Fax:</b> 023 8067 7519 <b>e-mail:</b> sb20@soton.ac.uk
Prof. Ian Colbeck		Institute for Environmental Research, Dept. of Biological and Chemical Sciences, University of Essex, Wivenhoe Park, Colchester CO4 3SQ. <b>Tel:</b> 01206 872 203, <b>Fax:</b> 01206 872592, <b>e-mail:</b> colbi@essex.ac.uk
Dr. Keith de Blanger		IOP Publishing, Dirac House, Temple Back, Bristol BS1 6BE. <b>Tel:</b> 0117 930 1143, <b>Fax:</b> 0117 920 0787, <b>e-mail:</b> keith.deblanger@iop.org
Dr. John Garland	?	48 Priory Orchard, Wantage, Oxon., OX12 9EL. <b>Tel:</b> 01235 762361, <b>Fax:</b> 01235 770059, <b>e-mail:</b> john_garland@online.rednet.co.uk
Mr. Peter Hughes		Westminster Kingsway College, Sidmouth Street, London WC1H 8JB <b>Tel:</b> 0207 306 5786, <b>Fax:</b> 0207 306 5800 <b>e-mail:</b> peter.hughes@westking.ac.uk

Dr. Alastair McCartney		Abbey Cottage, Main Street, Chilthorne Domer, Yeovil, Somerset, BA22 8RD <b>Tel:</b> 01582 763133 x 2246, <b>Fax:</b> 01582 760981 <b>e-mail:</b> zen96619@zen.co.uk
Dr. Derek Rose		School of Agriculture, Food and Rural Development, University of Newcastle upon Tyne, Newcastle upon Tyne, NE1 7RU. <b>Tel:</b> 0191 222 6975, <b>Fax:</b> 0191 222 6720
Dr. Ian Rutt		Department of Geography, University of Wales, Swansea, Singleton Park, Swansea, SA2 8PP <b>Tel:</b> 01792 602685, <b>Fax:</b> 01792 295955 <b>e-mail:</b> i.c.rutt@swansea.ac.uk
Dr. Paul Williams		NERC Centre for Global Atmospheric Modelling, Dept. of Meteorology, University of Reading, PO Box 243, Earley Gate, Reading, RG6 6BB. <b>Tel:</b> 0118 987 5123 x7901, <b>Fax:</b> 0118 378 8316, <b>e-mail:</b> p.d.williams@reading.ac.uk
Prof. Edward Youngs		9 Roundwood Park, Harpenden, Herts AL5 3AB. <b>Tel:</b> 01582 460859 or 01525 863330, <b>Fax:</b> 01525 863344, <b>e-mail:</b> e.g.youngs@ukgateway.net

This newsletter is also available on the web and in larger print sizes

The contents of this newsletter do not necessarily represent the views or policies of the Institute of Physics, except where explicitly stated.

The Institute of Physics, 76 Portland Place, W1B 1NT, UK.

Tel: 020 7470 4800

Fax: 020 7470 4848