

Newsletter January 2018

Welcome to the January 2018 newsletter from the Environmental Physics Group. In this edition we describe our activities during 2017, set out our proposed programme for 2018, introduce our new committee members and invite you to contribute to our activities over the coming 12 months.

1 EVENTS HELD IN 2017

Annual EPG day at Edinburgh University – 16 May 2017

As usual, we held our annual event to illustrate our chosen theme for 2017, which was the EU Sentinel Remote Sensing satellite programme. We were hosted by the University of Edinburgh and were privileged to hear a varied selection of talks, all related to the ways in which Remote Sensing improves our understanding of the climate and environment. Here is a list of the talks, which can be viewed in more detail at http://www.iop.org/activity/groups/subject/env/annual-conference/page_69850.html.

- Welcome and Introduction to the IOP – Dr Hugh Mortimer, *Science and Technology Facilities Council*
- Key note talk: The Importance of Data from Space for Environmental Monitoring– Professor Paul Palmer, *University of Edinburgh*
- Sentinel-3, Sea and Land Surface Temperature Radiometer (SLSTR) – Dr Mireya Etxaluze Azkonaga, *RAL Space*
- The NERC Field Spectroscopy Facility – Andrew Gray, *University of Edinburgh*
- Monitoring deforestation and forest degradation using Sentinel-1 – Dr Murray Collins, *University of Edinburgh*
- Carbon Monitoring – Andy Vick, *UKATC*
- Results of the Essay Competition Winners (see also below)
- Ground based Calibration of Sea Surface Temperature – Eleanor Barber, *RAL Space*
- Classifying and Mapping Niger Delta Mangroves using Sentinel – Ebuka Nwobi, *University of Edinburgh*

Essay Competition 2017

We had some strong entries this year at both school and degree level, covering a range of topics ranging from the environmental impact of electric vehicles to the chaotic nature of weather systems. Whilst the winners and runner-up in each category were unable to attend the EPG day and prize giving, we were able to present three excellent supporting videos provided by three of the four prize winners. The category winners and essay titles are given below.

Secondary School Category

- **Winner:** Charlotte Ghali, year 12 – Earthquakes, volcanos and how we can minimise their risks.
- **Runner-up:** Mac Bingham, year 7 – Hybrid Buses in Birmingham.

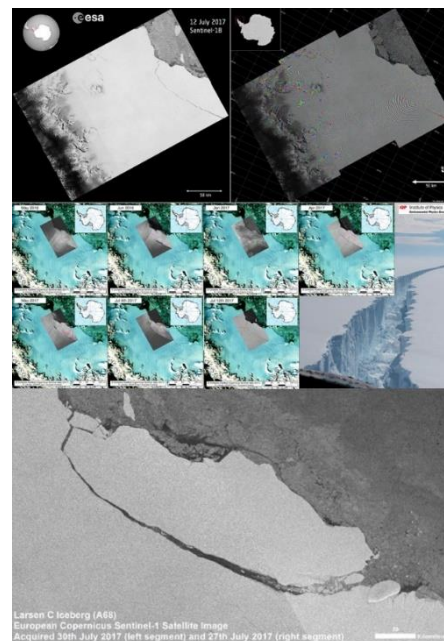
Degree+ Category

- **Winner:** Hayley Whelan, undergraduate – The methane catastrophe: could global warming be accelerated?
- **Runner-up:** Maria Violaris, undergraduate – The tempest and the butterfly.

We would like to encourage entrants for the 2018 competition, for which details can be found below.

Midlothian Science Festival 2017

The EPG regularly supports events at the Midlothian Science Festival, which takes place across the region, bringing a wide variety of science to the public and schools. In 2017 an exhibition of ten posters was displayed in the Penicuik Community Arts Association (PCAA, penicuikarts.org) on the theme of the Sentinel satellites. The exhibition was open Monday to Saturday for the whole of October and attracted about 5 visitors per day, often from the Gallery Café which is part of the PCAA. The posters described each part of the Sentinel program, giving examples of observations from satellites already launched, technology in production, data acquisition and processing techniques as well as some spectacular photographs of launches.



2 PROGRAMME FOR 2018

Every year IOP funds each of its groups to hold events, talks, conferences and prizes. We are delighted that for 2018 our funding has been increased by IOP to £5450, and we are now planning our programme in detail. For the coming year we have chosen “the Physics of the Built Environment” as our theme, which fits well with the move of IOP to its new building in King’s Cross in the Autumn.

A key principle with the new HQ is for it to be as energy efficient and environmentally friendly as possible, and a number of innovative features will be incorporated into its structure, such as:

- Mixed-mode ventilation system
- Novel ground-source heat-pump for cooling and heating
- Green roof for improving biodiversity to the built environment
- Roof mounted photovoltaic solar array
- Rain-water harvesting for grey-water systems.

Another important design aspiration is an HQ building that can provide a range of spaces to enable physics research and outreach activity. These flexible spaces will continue to support members, but are also designed to encourage greater outreach and involvement with other communities. Therefore, the building will house instruments that help to demonstrate both energy concerns of buildings and key aspects of physics in the built environment. As a result, members of the EPG group have been providing advice on instrumenting the building to help highlight key environmental issues.

Early developments of the 2018 EPG Programme are given below and we welcome involvement from members on suggested additional events, venues, and speakers.

1. Complexities of People and the Built Environment (Spring/early summer 2018)
2. Physics of Environmental Control Systems - measurement and modelling (date tbc)
3. Urban green infrastructure – physics informing its value (July 2018)
4. Physics and the Built Environment – IOP HQ becoming a living Lab (Autumn 2018).

Essay Competition 2018

The annual Institute of Physics Environmental Physics Group essay competition is now open. Entries can cover any aspect of environmental physics, but we particularly encourage essays aligning with this year's focus on "Physics of the Built Environment". The competition is open to all (IOP members or non-members, individuals or groups) with prizes in two categories; entrants in secondary education and entrants studying for, or with, a degree. Entries should be accompanied with a short biography of the author(s). Prizes: Cash prizes of up to £200 plus a certificate, an invitation to present at the group's annual meeting and consideration for publication. All entrants will receive free IOP membership for three months. Entries must be original and will be judged on writing quality and content. Entries and enquiries should be e-mailed to env.essay@physics.org. Further details can be found at <http://env.iop.org>.

Closing date: 31 May 2018

Other events for 2018

Although we already have a theme for 2018 we always welcome suggestions from members of EPG for events which would be of interest to all members, not necessarily related to the year's theme. If you have an idea for a talk or for a seminar within the overall subject of Environmental Physics (see <http://env.iop.org> for a statement of purpose for EPG) then the committee would be very pleased to hear from you and to help you organise the event. Contact details for the committee are given in the next section.

3 EPG COMMITTEE

As with all IOP groups the Environmental Physics Group committee has three officers (chair, secretary and treasurer) along with a number of ordinary members, some of whom are co-opted because of their other affiliations or specialist skills. There is a list below of the current committee members and their roles. We can be contacted either through the general IOP Groups email address (groups@iop.org) or through our dedicated physics.org address (env@physics.org). We welcome enquiries from our members and we encourage all members to participate in the activities of the group.

Current committee members:

- Chair: Dr Hugh Deighton
- Secretary: Ms Eleanor Barber
- Honorary Treasurer: Dr Paul Green
- Ordinary Members: Dr Stefán Smith, Dr Mhairi Coyle, Dr Hugh Mortimer, Dr Tim Lee, Dr Natalie Harvey, Mr Owen Stevens and Ms Ally Williams.
- Co-opted members: Dr Liz Kalaugher, Dr Matt Wright and Mr Gui Wright.

We are allowed to have up to 9 ordinary members and **so there are currently two vacancies. If you are interested in joining the committee please contact us at one of the email addresses above.**

(Further details for the group and its committee can be seen at <http://env.iop.org>.)

4 OTHER NOTICES

IOP have asked groups to remind members that travel bursaries are available to help with costs associated with attending conferences. These are called the Research Student Conference Fund and the Early Career Researchers Fund and details can be found at http://www.iop.org/about/grants/travel-bursaries/page_69141.html.

The committee look forward to meeting as many of the group's members as possible in the coming year and we cordially invite members to contact us with suggestions for events. As planning is completed for each event we will announce details via emails to members.

With best wishes for the New Year

Hugh Deighton

