Editorial

Missing the boat

Sue Bowler, Editor

At a time of economic doom and gloom, and hard times for many industries and individuals, it seems a shame if large, commercially viable and even booming sectors are short of skilled staff. But that is exactly what is happening. The shortage of geophysicists noted two years ago in the British Geophysical Association report on education in the subject is, if anything, even more acute today. Employers in companies based on hydrocarbons, mining and resources generally are crying out for recruits with the very geophysical skills that university courses teach, yet neither the companies nor many of the geophysics degrees can easily recruit the people they need. And these skills become more valuable as oil companies exploit more complex reservoir structures, in more extreme environments, and seek ever-higher yields from existing and emptying fields. The 2006 British Geophysical Association report highlighted the lack of awareness of geophysics in schools as a major barrier to students taking the subject at university. Anecdotal information reinforces this view, with physics students unaware of the existence of, and opportunities in, this field. This is where the Institute of Physics initiative should really help. If school students associate the study of the Earth with the humanities, potential students will not appreciate that there is a lively scientific field comprising the quantitative study of our planet, from core to crust, and out into space. Providing geophysics examples in physics classes, as well as across the curriculum, should go a long way to remedy this problem. Any geophysicists taking the time to write some guidance notes for the IoP initiative are taking a step towards a better future for this exciting subject. And we’ll all benefit if we can continue to support successful UK industries and train skilled geophysicists for demanding and rewarding careers.

Wanted: geophysics for teachers

The Institute of Physics is seeking short summaries of geophysics topics to support school teachers, in a move aimed at boosting the teaching and awareness of geophysics in schools.

In 2006 the British Geophysical Association produced a report on geophysics education that highlighted the lack of awareness among teachers – and hence among their pupils – of the opportunities for university study and careers in geophysics. The fundamental problem that the BGA report was addressing was the lack of qualified geophysicists in industry, with employers in hydrocarbons and mining unable to find the skilled staff they required. Now the Environmental Physics group of the IoP is asking for 2000-word commentaries on areas of geophysics relevant to the physics curriculum. They should provide background information for teachers at around A-level/first-year university standard. These would be for teachers to inform themselves and not necessarily use directly with their students. Although this IoP initiative does not stem directly from the BGA report, it does address one of the fundamental points presented there, that ignorance among teachers is a barrier to students taking up geophysics at university level.

The Earth Science Education Unit at Keele University has a collection of comparable materials aimed at the teaching of geology in schools, some of which is relevant, so the IoP is not seeking to duplicate those areas. However, these materials do not tackle many topics of especial relevance to geophysics. Clare Thomson at the IoP has suggested a list of topics covered in the national curriculum at various levels that might benefit from geophysics input:
- Magnetism; Earth’s magnetic field
- Reflection, refraction
- Optical properties of materials
- Radiation
- Evaporation
- Conduction, Convection
- Thermal properties of materials
- Sound
- Waves
- EM Spectrum
- Radioactivity
- Fundamental particles
- Hooke’s law
- Mechanical properties of materials (stiffness etc)
- Newton’s laws of motion
- Simple harmonic motion
- Electric circuits and Ohm’s law
- Electromagnetic induction
- Electric and magnetic fields
- Gas laws
- Phases of the Moon
- Motion of Earth round Sun
- Artificial satellites
- Processes in the Sun
- The planets.

This is also an opportunity to introduce teachers to other geophysical initiatives, such as the British Geological Survey and the Science Enhancement Programme’s joint seismology project for schools. Paul Denton of BGS says: “We have produced a set of resources for teachers using seismology as a hook and unifying theme for both a set of classroom activities (published in the SEP booklet Seismology: Innovations in Practical Work) and a working classroom seismometer system. These resources complement those developed by the ESEU in Keele and have a more physics-based slant. We are working with ESEU to develop resources for A-level Physics and also with education providers in Scotland to develop interdisciplinary resources for the new Scottish curriculum for excellence.”

If you think you might be able to help and would like more detailed information about further topics and style, please contact Clare Thomson, Curriculum Support Manager, Institute of Physics: 020 7470 4981, clare.thomson@iop.org.

http://www.bgs.ac.uk/schools/seismology/supportdocs.html
http://www.geophysics.org.uk

Government seeks geo-engineering information

The UK government Department of Innovation, Universities, Science and Skills is seeking information on geo-engineering as a case study within its major enquiry into engineering. The field described by the DIUSS is broad and covers areas in which geophysicists may be working and in a position to supply useful information.

The British Geophysical Association, with the Institute of Physics, wishes to respond jointly to this call for information, and to do so the bodies need input from people in the industry. There is a definite environmental and climate-change slant to the field to be considered by the DIUSS. The terms of reference for the case study are as follows:
- current and potential roles of engineering and engineers in geo-engineering solutions to climate change;
- national and international research activity, and research funding, related to geo-engineering, and the relationship between, and interface with, this field and research conducted to reduce greenhouse-gas emissions;
- the provision of university courses and other forms of training relevant to geo-engineering in the UK;
- the status of geo-engineering technologies in government, industry and academia;
- geo-engineering and engaging young people in the engineering profession;
- the role of engineers in informing policy-makers and the public regarding the potential costs, benefits and research status of different geo-engineering schemes.

Information should be sent to Sheila Peacock (sheila@blacknest.gov.uk) in good time for the deadline for submissions to the DIUSS of 19 September. Dr Peacock can also give further information about the form and scope of submissions.

http://www.parliament.uk/parliamentary_committees/ius/ius_040208a.cfm