

# **The Earth Science Education Forum (England and Wales)**

## **Unconfirmed minutes of the twenty-first meeting**

Held at the Institute of Materials, Minerals and Mining, 1 Carlton House Terrace, London, at 1.30 p.m. on Tuesday 7 March 2006.

**Present:** Allan Rogers, Chairman  
Cally Oldershaw, ESEF(EW) Development Officer  
Liv Carroll (MIRO/Capita Symonds)  
Tim Parry (Quarry Products Association)  
Malcolm Walker (Royal Meteorological Society)  
Peter Warren  
Peter Davies (Institute of Materials, Minerals and Mining)  
Colin Osborne (Royal Society of Chemistry)  
Martyn Bradley (Geology Trusts)  
Ian Mercer (Gemmological Association)  
Roger Trend (Geographical Association)  
Alan Rhodes (Association for Science Education)  
Dale Johnston (Geological Curators' Group)

### **1 Apologies for absence**

Apologies for absence were received from representatives of the following member organisations: Earth Science Teachers' Association; Geologists' Association/Rockwatch; National Museum of Wales; National Stone Centre; British Geological Survey; UKRIGS; Earth Science Education Unit/Geological Society of London; Royal Geographical Society (with Institute of British Geographers); Higher Education Academy Subject Centre for Geography, Earth and Environmental Science (GEES); The Science, Engineering, Technology and Mathematics Network (SETNET); Open University; Health and Safety Executive; Committee of Heads of University Geosciences Departments; National Museum of Wales.

### **2 Chairman's introduction**

2.1 The Chairman welcomed everyone to the meeting and gave a report on the launch of ESEF-Cymru, which took place at the National Museum of Wales in Cardiff. Rt Hon Rhodri Morgan AM, the First Minister, gave the formal launch. The new ESEF leaflets, funded by the Curry Fund of the Geologists' Association, were made available at the launch. Copies of the leaflets will be distributed to all ESEF members.

2.2 The Chairman also gave a report of the meeting of the ESEF Earth Science Workforce Group who met at the IOM<sup>3</sup> on 7 February. Organisations represented at the meeting:

- British Geological Survey (BGS)
- Environment Agency (EA)
- ESEF and ESEF-Cymru
- Institute of Materials, Minerals and Mining (IOM3)
- Office of the Deputy Prime Minister (ODPM)
- Quarry Products Association (QPA)
- Rio Tinto
- UK Offshore Operators Association (UKOOA)

### **3 Minutes of the twentieth meeting, 6 December 2005**

The minutes of the twentieth meeting were accepted as a true record. D Bailey to upload a copy to the ESEF(EW) website. **Action: D Bailey**

#### 4 Matters arising

[Numbers in square brackets are paragraph numbers from the minutes of the previous meeting.]

- [4] [4.2.4] Cally Oldershaw reported that the application made to the Curry Fund to sponsor an ESEF(EW) leaflet had been successful and the leaflets had been available for the ESEF-Cymru launch. Leaflets will be distributed to all ESEF members.

**Action: C Oldershaw**

- [4] [5.2] *Advisory Committee:* The Chairman and Development Officer had met with Bill Rammell MP, the Minister for Higher Education, and had handed him a copy of the ESEF report. The Minister is considering what action to take.

#### 5 Forum Workshop in Reading

- 5.1 M Walker had prepared an introductory paper which had been sent to all ESEF members. The meeting will take place at the University of Reading on 28 March 2006. The Royal Meteorological Society will provide refreshments and name badges. The University of Reading will provide the room and equipment. Car parking will be available. A map would be sent with the invitation

**Action: M Walker and C Oldershaw**

- 5.2 The following programme was agreed:

Session One		
Introduction		
2.00 – 2.10	Introduction and welcome Malcolm Walker Royal Meteorological Society	
2.10 – 2.20	Earth science in the science curriculum Chris King Earth Science Education Unit	
2.20 – 2.30	Earth science in the geography curriculum ? ?	
Session Two		
Break-out workshop – participants allocated group A or B		
	Discussion led by Chris King	Discussion led by ?
2.30 – 3.00	Group A	Group B
3.00 – 3.30	Group B	Group A
3.30 – 4.00	Refreshments	
Session Three		
Plenary		
4.00 – 4.45	Plenary Session	
4.45 – 5.00	Summing up and thanks	

- 5.3 Aims and objectives were discussed. Malcolm Walker, Chris King and the third presenter (tbc) would draw up a strategy paper after the meeting. Alan Rhodes suggested Pat Wilson be invited to give a presentation. Roger Trend suggested a representative from the Geographical Association.

**Action: M Walker, C King, A Rhodes and R Trend**

- 5.4 C Osborne referred to the report by Alan Smithers which noted that there were enough science graduates and that the UK does well compared with the rest of the world. More people are doing science in schools that ever before.
- 5.5 It was suggested that representatives from the Royal Society and from the Department for Education and Skills (DfES) be invited once the programme is finalised. ESEF members and ESEF-Cymru members will be invited via email.

**Action: C Oldershaw**

## **6 GEES student perceptions survey**

Roger Trend noted that he is doing research as part of the GEES student perceptions survey, with Helen King at Plymouth. The report is due to be published in May 2007. The survey will look at the A level / University interface. He also mentioned the ESRC Research Studentship in Geoscience Education. See report appended to these minutes as Annexe A.

## **7 Finance report**

- 7.1 Discussion took place on the finance of the Forum. The Chairman raised the point of whether we ought to ask organisations for an affiliation fee to help with the basic administrative costs of the Forum. There was unanimous support for this proposition and it was agreed that member organisations be asked to pay a subscription.
- 7.2 Because of the wide range of membership, it was agreed that the subscription levels be set between £75 and £150 according to member's ability to pay. It was further agreed that organisations that are largely voluntary or of a charitable nature with very little funds be offered honorary membership of the Forum.

## **8 Development Officer's report**

Cally Oldershaw reported that arrangements for the next meeting of ESEF-Cymru were in hand. The meeting would be a showcase for geotourism in Wales, with presentations and posters showing 'Wales from the land, sea and air'.

## **9 ESEF(EW) website ([www.esef.org.uk](http://www.esef.org.uk))**

Nothing to report.

## **10 SESEF update**

Cally Oldershaw reported that Clare Britton had now taken up her position as SESEF Development Officer in Edinburgh.

## **11 Government policy issues**

Nothing to report.

## **12 Annual Conference**

Nothing to report.

## **13 Potential collaborative projects**

- 13.1 C Oldershaw read out an email from I Thomas, reporting that the National Stone Centre was seeking the support of Forum members for a lottery bid for an enhanced Epicentre-UK project involving Derbyshire Wildlife Trust. The Chairman said that he was sure members would support this bid in principle. Details will be circulated to ESEF members.

**Action: D Bailey and C Oldershaw**

- 13.2 L Carroll reported that there was a small amount of money left in the MIRO/ALSF budget and calls for expressions of interest had been published on the relevant websites. The deadline for submission of proposals via MIST is 7<sup>th</sup> April. The deadline for submissions via SAMP is the 14<sup>th</sup> April. The project that had been submitted to connect schools with geological educational sites will be resubmitted by Capita and will include ESEF as a partner organisation.

**Action: L Carroll and C Oldershaw**

#### **14 AOB**

- 14.1 Gemmological Association; Ian Mercer reported that Gem-A is an Accredited Awarding Body. He submitted the following outline of Gem-A course and qualification equivalence and academic value. See report appended to these minutes as Annexe B.
- 14.2 Alan Rhodes distributed copies of the ASE publication SSR (Secondary Science Review), a special issue focussing on outdoor science. One article has been written by Chris King.

#### **15 Dates of future meetings**

- 15.1 The next meeting will be at **1.30 p.m. on Tuesday 27 June 2006** at IOM<sup>3</sup> in 1 Carlton House Terrace.
- 15.2 The next meeting of ESEF-Cymru will be at **4 p.m. on Tuesday 2 May 2006** in the National Museum of Wales. Provisional date for the following meeting is **11 July 2006**.

Cally Oldershaw 14 March 2006

## Report from Roger Trend (Geographical Association)

The research will be carried out in the context of the UNESCO World Heritage Site (Jurassic Coast) and will be of interest to teachers and other educationalists in the fields of geography or geoscience education, depending on the project's agreed focus. The student will work alongside myself, local schools and other organisations in formal, non-formal and informal education (notably the Jurassic Coast Education Working Group, Science Working Group and the various schools and field study centres along the Jurassic Coast) to carry out the investigation, to be selected from the list below. As necessary, the student may also liaise with UK and international colleagues, for example, in the International Geoscience Education Organisation.

The research focus will be negotiated with the successful applicant and will be selected from the following, although there is scope for combining several of these into a single topic. Each is given as a research field, with one example of an appropriate research question.

1. Perceptions and misconceptions of geological (deep) time, linking with my current research within and beyond the Jurassic Coast.
  - What are the perceptions of deep time held by Jurassic Coast visitors, of all ages, and how can Jurassic Coast phenomena be used to enhance an understanding of deep time?
2. Visitors' perceptions of Jurassic Coast natural phenomena: going well beyond geological time.
  - How do visitors and potential Jurassic Coast visitors perceive the range of natural phenomena in relation to their own lives?
3. Public/children's understanding of the Jurassic Coast designation, its natural features and geological and geomorphological history.
  - What is the current level of scientific understanding held by Jurassic Coast visitors in relation to its geological and geomorphological histories and what are the implications of this for Jurassic Coast managers and educators?
4. Efficacy of interpretation strategies on the Jurassic Coast: a major opportunity to work on some rapidly-developing strategies.
  - How effective are current Jurassic Coast interpretation strategies in achieving their stated aims and how can those strategies be improved?
5. The impact of visitors - including possible increases in visitor numbers - on the Jurassic Coast and the implications that these have for sustainable development.
  - What have been the major impacts of UNESCO designation and what are the likely future impacts if visitor numbers increase?
6. The nature and meaning of children's interests, within or beyond geoscience, and their relevance for teaching and learning.
  - How can children's individual and situational interests be enhanced through activities based on Jurassic Coast phenomena and what can we learn about interest theory by developing and evaluating such activities?

It is likely that geological time or children's geoscience interests will figure in the research focus, building on work done at Exeter and elsewhere in these two fields in recent years, within and beyond Jurassic Coast schools. This research is set to expand after an international workshop to be held in Exeter in June 2006. This will lead to a 3-year international study of geological time perception, with the UK element including the Jurassic Coast as a key context. The student would have the benefits of participating in a large international project investigating the nature and implications of existing deep time perceptions for a range of sectors of society, with potential implications for educators and policy-makers.

All details are on the website at:

- [www.education.ex.ac.uk/pages.php?id=94](http://www.education.ex.ac.uk/pages.php?id=94) for all projects, and
- [www.education.ex.ac.uk/pages.php?id=181](http://www.education.ex.ac.uk/pages.php?id=181) for geoscience

For further details of this ESRC Research Studentship in geography or geoscience education, please contact Roger Trend [R.D.Trend@exeter.ac.uk](mailto:R.D.Trend@exeter.ac.uk)

## Report from Ian Mercer (Gemmological Association)

The Gem-A *Foundation Certificate*, *Diploma in Gemmology* and *Gem Diamond Diploma* are qualifications **accredited** with the UK Government Qualifications and Curriculum Authority (QCA).

The Association is recognized as an official **Awarding Body** for Vocationally-Related Qualifications (VRQ).

Details of all Gem-A courses, exams, syllabuses and teaching centres worldwide are at [www.gem-a.info](http://www.gem-a.info) or contact the Education Office in London at [edu@gem-a.info](mailto:edu@gem-a.info) tel: +44-20-7404 3334 fax: -7404 8843.

### Academic value and Levels:

The *Diploma in Gemmology* is accredited at National Qualifications Framework (NQF) **Level 5**;  
the *Gem Diamond Diploma* is at **Level 4**;  
the *Foundation Certificate* is accredited at **Level 3**.

These are new Levels for the Gem-A qualifications following re-levelling, plus re-assessment of the Gem-A Diploma qualification academic values within the QCA's new **Higher-Levels** classification scheme, which aligns Further Education academic levels with those of Higher Education.

To check on the accreditation status of UK qualifications, view the official website at:

- <http://www.openquals.org.uk/openquals/> and specifically at:
- <http://www.openquals.org.uk/openquals/SSAList.aspx> — just enter the word 'gem' in the search box.

The QCA web pages for Adult Learning are at:

- <http://www.qca.org.uk/8.html>

Information on Levels, including the new higher levels classification, is given at:

- [http://www.qca.org.uk/493\\_15774.html](http://www.qca.org.uk/493_15774.html)
- [http://www.qca.org.uk/493\\_15772.html](http://www.qca.org.uk/493_15772.html)
- [http://www.qca.org.uk/493\\_15773.html](http://www.qca.org.uk/493_15773.html)
- and <http://www.qca.org.uk/15627.html>

Gem-A is also registered as a Learning Provider on the UK Government Department for Education and Skills website at <http://www.dfes.gov.uk/providersregister/>

### Qualification equivalence

The notional hours (Guided Learning Hours) total for the Foundation plus Diploma course has been given to QCA as 288 hours. This has yet to be finalized.

Currently there is no UK- or EU-wide course credit-rating or credit-transfer system, and Gem-A qualifications therefore have no official credit rating. The information given here, on notional hours plus academic levels, should together give a general idea of the relative 'weight' of the course. Such factors may be used eventually to calculate the future credit transfer values of courses throughout Europe.

Within the English, Welsh and N Ireland National Qualifications Framework (NQF) and the Framework for Higher Education Qualifications (FHEQ), the following are listed:

Level 3 is equivalent to NQF school certificate at Advanced Level (an "A-Level");

Level 4 is equivalent to FHEQ Certificate of Higher Education;

Level 5 is equivalent to an HND (NQF) or Ordinary Bachelor's Degree, or Foundation Degree (FHEQ).

For the Diploma in Gemmology, a provisional suggestion is that a pass with Distinction in the Diploma is approximately equivalent in 'weight' to examinations after at least a full course unit in an English university honours degree in Earth Sciences, given a similar length of study time. This suggested equivalence is not official.

### **Some relevant QCA issues from the Gemmological Association (Gem-A)**

The Qualifications and Curriculum Authority acts within England and Wales to accredit a variety of Awarding Bodies (A/Bs) that produce exams for schools and Further Education.

Currently 115 A/Bs are recognised by the QCA, leaving an estimated 900 that are not. Why do these remain unrecognised? QCA is asking PricewaterhouseCoopers to investigate.

Based on my own experience, I believe that there may be a number of small A/Bs in the UK which have so far avoided QCA accreditation because their resources are unlikely to cope with QCA demands, and/or because they are unwilling or unable to restructure courses and exams in order to accommodate each new government drive, notably those towards Unitisation, e-Assessment and Credit-transfer initiatives, to name but three.

Gem-A is a small, specialist, higher-level A/B accredited with the QCA. We have had to fight off efforts to apply inappropriate strictures, structures and systems and have eventually managed to obtain proper assignment of academic levels for our qualifications, following a protracted struggle over five years (see attached Levels information).

Our accredited subjects (Gemmology and Gem Diamond) have been set within only one search heading in each agency's web search, such as 'Science and Mathematics' for QCA and 'Jewellery' for DfES, and not Earth Science, Materials Science, Jewellery Design or Retail Jewellery, etc., all of which ought to be searchable by prospective students – but only one is arbitrarily chosen by each bureaucrat through some uncertainty principle, which only serves to illustrate the many shortcomings in the whole system.

The major Government drives, through QCA, are now: *e-Assessment for all A/Bs* by 2009, and the *Framework for Achievement (FfA)* by the end of 2010.

A report from Thomson Biometrics for QCA, received 7<sup>th</sup> March, shows that many existing A/Bs feel that the 2009 date for *e-Assessment* will not be achievable. The 900 'other' A/Bs might include those without either the resources or the perceived requirement to enter into wholesale e-assessment. The term 'e-Assessment' includes the whole of electronic education delivery and electronic assessment or examination, together with 'e-portfolios' (student achievement) and electronic administration.

The *FfA* is a discussion document aimed to achieve a credit-transfer system which will eventually be Europe-wide, to involve both FE and HE. It will be *unit*-based, and *not* qualification-based. In the current *FfA* plan, each eventually-achieved qualification will be that of the A/B first approached by the prospective student (even if it will be the qualification issued by your rival institution!). In the UK, this unit credit transfer system will measure *credit value* in terms of Level + Time (conditioned hours) but not in terms of subject 'learning density' as originally envisaged in the European run-up. Thus, the subject itself will be ignored. The QCA has no interest in such considerations within its accreditation structure other than in an initial affirmation from a subject specialist consultant – any further consideration appears to be incompatible with their control systems for accreditation evaluation.

Ian Mercer, Director of Education, Gem-A