UKESCC Earth Science Courseware Goes on the Web

W. T. C. Sowerbutts
UK Earth Science Courseware Consortium, Department of Earth Sciences, University of Manchester, Manchester M13 9PL, United Kingdom

http://www.man.ac.uk/~ukescc/

Introduction

During the last six years, courseware developed by the UK Earth Science Courseware Consortium (UKESCC) has been distributed in application style format to institutions and individuals in over 40 different countries[4,5,7-9]. The last of the scheduled 21 Earth Science courseware modules was completed in 1999. Since that time, further development of the software has focused on providing easier access to the large amount of material available. This has been achieved by adding a front-page with entry points to all the modules, and by adding indexes.

The latest development, designed both to aid access and to help tutors integrate this resource into their teaching, has been the conversion of the original stand-alone application style version into a Web version.

This article outlines these recent developments, describes how the courseware content extends into subject areas beyond the confines of geology, and outlines the range of educational levels of its users.

Indexes

Additions to the UKESCC courseware at the start of the year 2000 included a single front-page and indexes. Both features are designed primarily for use when all 21 modules are available and were introduced to allow easier access to specific pages of material, and to specific terms and topics.

The indexes are used in a similar way to a book index and enable users to quickly find and access specific topics. Two types of index are provided: subject indexes for individual modules; and a global index to all the modules. Both are accessible from all areas of the modules.

The subject indexes have been compiled from menu entries, page titles and by manually scanning all the material for terms, and topics not otherwise covered. The global index has been produced by merging subject index entries for all the modules, sorting them alphabetically, then storing them under separate letters of the alphabet.

The global index makes only minor reference to individual courseware modules and allows the courseware content to be accessed and used in a completely different way to that originally envisaged. Originally, it was anticipated that users would only wish to work steadily through the material in individual modules. While they can still do this, the global index provides the means to quickly find, then jump to, very specific terms and topics, often buried deep within individual modules. In this respect it makes the suite of modules appear like a giant geological encyclopaedia.
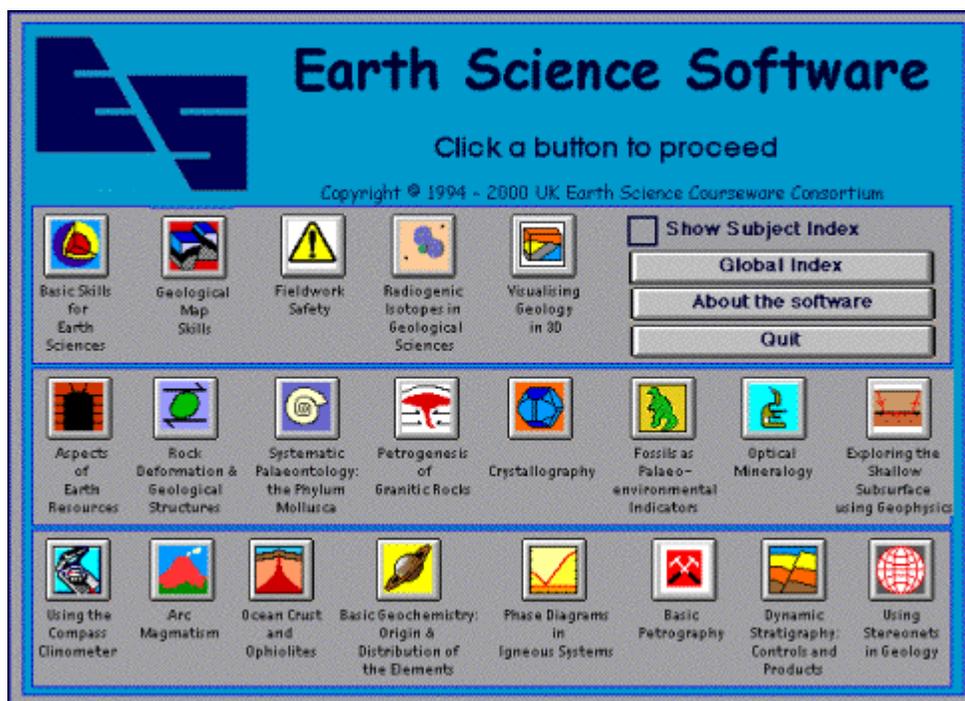

Figure 1. Front-page providing access to the 21 modules, their indexes, and to a global index

Web version

The UKESCC courseware was developed using *Authorware*; an authoring software application ideally suited to the production of multimedia style CAL packages. Most of the UKESCC courseware was developed at the time when the Internet was in its infancy, and the only type of output from *Authorware* was a stand-alone application-style format. It is only comparatively recently that *Authorware* has been extended to generate output that will run over the Web, in addition to the stand-alone format.

A demonstration version of the courseware is available without restriction on the Web at http://www.man.ac.uk/~ukescc/demo.html. The complete version is available to licensed users, and can either be accessed from the UKESCC web server or mounted on a user's web server. All versions require the *Authorware* Web Player plug-in to be installed where it can be accessed by your browser. The plug-in is available free from the *Authorware* web site.

One reason for providing the courseware in Web form is so tutors can include in HTML documents they produce for their students hypertext links to specific pages of the courseware. Where the aim is to start at the beginning of a courseware module, hypertext links between a HTML document and the Web version of a module are made in a conventional way. Making hypertext links to take the user directly to specific topics or subjects located on a particular page of a module, is slightly more complicated.

Indexes provide users with a facility to jump directly to a specific page of a module. This is achieved using variables (that form part of each index entry), and passing them from one *Authorware* file to another. The current version of *Authorware* does not have built-in facilities for accepting variables passed from HTML coded web material. A work-around has been devised to do this, and while it works satisfactorily, links from a HTML document can be made in only a limited number of ways.

Usage

The UKESCC courseware is being used well beyond its original brief; geology students at undergraduate level. About a third of the modules are widely used in schools and colleges where geology is studied at pre-university level. The courseware is also being used increasingly by interested amateurs, and people attending continuing education courses.

Parts of the courseware are used by students studying subjects like Geography, Environmental Sciences, Physics, Chemistry and Civil Engineering. To help users locate material relevant to such subjects, publications[8] and additions to the UKESCC web site giving details have been made. Reviews of some of the courseware are available[1,3] as well as evaluations[2,7].

Discussion

The UKESCC courseware has been converted to Web format mainly for the benefit of users in educational institutes. The courseware is therefore now available in two formats; web and application format. The application format, normally supplied to users on CD-ROM, does not rely on Internet access and is popular with students working at home.

Content in several modules is beginning to become out-of-date, although this is not yet a serious problem. This is because much of the content is basic geological information which changes little with time, rather than the results of current research. Also, some of the early UKESCC modules are starting to show their age, with the layout, buttons, etc. starting to look old-fashioned. It is hoped the next upgrade of the courseware will address these issues.

References

1. Barclay, J. (1966) Review of UKESCC Arc Magmatism module. *Terra Nova*, **8**, 486-488.
2. Boyle, A. P., Bryon, D. N. and Paul, C. R. P. (1997) Computer-based learning and assessment: a palaenotological case study with outcomes and implications. *Computers and Geosciences*, **23**, 573-580.
3. Browning, P. (1996) Review of UKESCC Optical Mineralogy module. *Terra Nova*, **8**, 386-389.
4. Bryon, D. N. and Sowerbutts, W. T. C. (1996) CAL Packages from UKESCC. *Terra Nova*, **8**, 293-295.
5. Edwards, D., Bryon, D. N. and Sowerbutts, W. T. C. (1996) Recent Advances in the Development and Use of Courseware within Earth Science Teaching. *Journal of Geoscience Education*, **44**, 309-314.
6. James, P., Clark, I., Hillis, R. and Peterson, R. (1995) Evaluation of interactive multimedia in Tertiary Geoscience, in *ASCILITE '95-Learning With Technology*, eds J. M. Pearce and A. Ellis, 272-280.
7. Sowerbutts, W. T. C and Byron, D. N. (1996) Courseware for Earth Science teaching and learning. *Episodes*, **19**, 7-10.
8. Sowerbutts, W. T. C. (1998) Teaching Geophysics using UKESCC Courseware. *Teaching Earth Sciences*, **23**, 168-173.
9. Sowerbutts, W. T. C. (1998) The consortium approach to producing Earth Science courseware. *Computers and Geosciences*, **25**, 467-473.

W. T. C. Sowerbutts
UK Earth Science Courseware Consortium
Department of Earth Sciences
University of Manchester
Manchester M13 9PL
United Kingdom
ukescc@man.ac.uk
http://www.man.ac.uk/~ukescc/