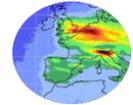




*Training & Education*



*Troposat-2*

## **AT2 e-learning: updating and extending the AT2 Module**

### **An introduction and training course**

#### **Course Report**

##### **Place and Time**

A short training course, intended for those interested in updating and extending the AT2 e-learning module, was conducted by Richard Law of PerModum at the IUP, Bremen (room U1050) from Monday to Wednesday, 17<sup>th</sup>- 19<sup>th</sup> November, 2008. The fifteen scientists participating (*see appendix 1*) were drawn from six laboratories throughout Europe (*see appendix 1*).

##### **Lexeos Authoring Toolkit**

Each student was provided with a CD-ROM containing the Lexeos Authoring Toolkit, which is required for writing and manipulating the presentation and exercise pages of the AT2 module. Participants downloaded two validation editors- Microsoft XML Notepad and the Liquid XML Studio. (*see appendices 2 & 3*)

##### **The Course**

The Programme (*see appendix 4*) started with an introduction to XML and HTML, in the context of the module. A practical session followed in which students learned how to modify and manipulate presentation pages within the module.

The next topic was the main exercise types and, in the practical, students manufactured their own exercises by modifying toolkit templates.

The structure of the module and the operation of the toolkit was the next topic. Students learned to modify the main module file, which determines the structure, and so to create their own e-learning modules. Several created simple modules in this way.

The final session was devoted to reviewing what had been learnt (*see appendix 5*) and a useful homily on the principles of e-learning, and the major pitfalls to avoid (*see appendix 6*).

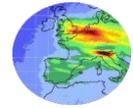
##### **Feedback and Conclusions**

The opinion of the students who attended the complete course was wholly favourable- everyone had found the instruction clear, useful and helpful. All went away able to modify the AT2 module, if required to do so, and several went away with the intention of creating their own e-learning projects using the Lexeos Authoring Tool Kit. They also went away with the assurance that Richard Law, would be prepared to help them by telephone and email as they developed their modules.

##### **Thanks**

The course concluded with thanks to ACCENT, E&T and AT2, for providing the opportunity and funding, to the Uni-Bremen for providing the excellent facilities, Annette Ladstätter-Weißenmayer for so ably making the local arrangements, and to Richard Law for providing such interesting and amusing instruction, for all the preparatory work and for providing the Lexeos Authoring Tool Kit.

Peter Borrell  
P&PMB Consultants  
Newcastle-under-Lyme, November 2008

**Appendix 1****Training & Education****Troposat-2****AT2 e-learning: updating and extending the AT2 Module****An introduction and training course****Participants**

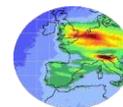
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Peter Borrell  
P&PMB Consultants  
Newcastle-under-Lyme  
October 2008

## Appendix 2



*Training & Education*



*Troposat-2*

### AT2 e-learning: updating and extending the AT2 Module

#### An introduction and training course

##### Date & Place

There is to be a short training course for those interested in updating and extending the AT2 e-learning module? The course, which will be conducted by Richard Law of PerModum, will be held at IUP, Bremen (room U1050) from Monday to Wednesday, 17<sup>th</sup> - 19<sup>th</sup> November 2008, starting at 14.00 on the 17<sup>th</sup> and finishing at 12.00 on the 19<sup>th</sup>.

##### The Course

The course and information will concentrate on the remote sensing module, but familiarity with the procedures and techniques should enable participants to develop e-learning modules to use in their own teaching and research. The course will be self-contained and no prior knowledge of web authoring or e-learning is necessary. Some familiarity with html and xml would of course be helpful.

Participants are encouraged to bring some teaching material to form the basis of a page, with exercises, which they can develop for themselves on the course. If suitable these could be added to the definitive version of the module.

##### Prior Reading (*download from [ftp://ftp.keele.ac.uk/pub/cha12/AT2/e\\_learning/](ftp://ftp.keele.ac.uk/pub/cha12/AT2/e_learning/)*)

A descriptive article: A. Ladstätter-Weißmayer, M. Kanakidou, A. Richter, T. Wagner, Peter Borrell R. J. Law and J. P. Burrows, *Remote Sensing from Space: A Master's Level e-Learning Tool*, J. Chem. Educ. (submitted)

E-Learning Exercise Types: Additional material for the On-Line Supplement, J. Chem. Educ. (submitted)

##### Prior Download of Templates, Editor *etc.*

It will be necessary, before attending, to download a zip package containing the module, the introductory instruction sheets and templates, and the processor. The package will also include the Microsoft xml editor, XML Notepad 2007. Information about the download will be circulated about a week before the meeting. Participants should provide themselves with a laptop.

##### A note on the approach

The module itself is a series of normal html web pages with scripts to handle the exercises. It is thus self contained, does not user any server-side facilities, and thus can be run from a browser, either on line or from a memory device.

The html pages are generated from a set of xml files using a processor. There are a set of templates for the xml files which enable one to revise and extend the present module.

Anyone mastering the techniques should be able to create further modules by modifying the xml templates and the html CSS style sheets.

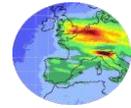
You can see a similar approach on [www.LexEOS.com](http://www.LexEOS.com).

Peter Borrell (Deputy Coordinator, AT2)  
P&PMB Consultants  
Newcastle-under-Lyme  
31st October 2008

## Appendix 3



*Training & Education*



*Troposat-2*

**AT2 e-learning: updating and extending the AT2 Module**

**An introduction and training course - 17<sup>th</sup> -19<sup>th</sup> November 2008**

### **Prior Preparation for Participants**

#### **The authoring task**

You will gain most from the training course if you have a specific e-learning task or project that you want to develop. My goal in this course is that at its completion you will be well on the way to developing a concrete example of your own 'real world' material.

#### **AT2 Authors**

Please work your way through the AT2 module.

<http://www.iup.uni-bremen.de/deu/lehre/toelearning.html>

Allowing for the fact that the aim of the module is not to give a comprehensive introduction to the physics and chemistry of the atmosphere, please assess the various sections critically:

- 1- What is good, not so good (or worse); what is superfluous and what is missing?
- 2- Where can you make a contribution to the module, either with new material or by editing the existing sections?

My own opinion is that there should be more interactive exercises, and particularly much more numerical work in the module. Do you agree or disagree with this opinion?

- 3- What material could YOU provide and where should it be located in the module?

Note that one of the main didactic principles behind the module is that the material in it must be self-contained. This means that we should explain material fully before confronting learners with exercises on it. New exercises- whether numerical or not- will therefore certainly require additional presentational material.

- 4- In such cases you will need to develop some presentational material that is suitable for learners who are not in your courses or at your institution and who probably have different backgrounds and knowledge.

5- The 'assets' for your material- that is the text and images you will require- must be properly sourced and of an appropriate standard. Simply surfing around the internet and 'borrowing' assets (unless attributed direct presentations of data such as graphs) is generally not a good idea. Avoid, too, simply presenting links to other internet locations. Not only is the module then no longer self-contained, learners easily become lost or distracted. Once you have sent them to an external link for essential information, they have passed beyond your didactic control.

- 6- The preparation of complex presentational material (with complex graphics, tables etc.) may need specialist knowledge and/or an XHTML editor. In the first instance, therefore: **KEEP IT SIMPLE!**

### ***Other authors***

If you planning to develop e-learning material outside the immediate context of the AT2 module most of the above still applies. You should try to come to the course with a clearly formulated practical section on which you could begin work immediately.

There is some background material on the LexEOS e-learning system here:

<http://www.lexeos.com/index.htm>

### **XML Editor**

I don't expect those attending the workshop to have any knowledge of XML. XML technology is a huge field, a large part of which is completely irrelevant for our purposes, so my advice is not to dive into this deep water but to wait for the lightweight treatment I shall provide as part of the workshop.

If you already have a validating xml editor or use a code editor (e.g. a development environment such as Visual Studio) you can also use this with the LexEOS system.

For the purposes of introducing the system at the AT2 E-Learning seminar I recommend using the free 'XML Notepad' tool from Microsoft. This tool is free, very small and easy to use. If your machine also has Internet Explorer v.7 or greater and a recent version of .Net, you will not need to install any further software. The installation process will tell you if any additional software is required.

Please download XML Notepad 2007 here:

<http://www.microsoft.com/downloads/details.aspx?familyid=72d6aa49-787d-4118-ba5f-4f30fe913628&displaylang=en>

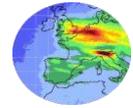
If this link does not work (it may have been corrupted during e-mail transmission, for example) simply go to <http://www.microsoft.com> and type XML Notepad into the live search box.

You don't need to read it before coming to the course, but a quick overview of using XML Notepad is available in several languages here: "How to use XML Notepad to create an XML document" <http://support.microsoft.com/kb/296560>

### **Templates and Source Files**

The AT2 source files and the templates for creating new material will be made available at beginning of the course.

Richard Law  
PerModum, Ladir  
November 2008

**Appendix 4***Training & Education**Troposat-2***AT2 e-learning: updating and extending the AT2 Module****An introduction and training course - 17<sup>th</sup> -19<sup>th</sup> November 2008****Proposed Programme**

IUP Bremen, room U1050

**Monday, 17.11.2008**

- 14:00- The E-learning context- The creation and delivery of complex, interactive content- The use of XML for storing content in the AT2 e-learning module (AT2-NO2)
- 14:30- Writing 'well-formed' XML- Standards- Writing 'valid' XML- Using XML editors
- 15:30- Break
- 15:45- The structure of AT2-NO2 content- Exercise types- HTML islands- Editing existing materials: practical work
- 18:00- End

**Tuesday, 18.11.2008**

- 09:00- Creating new material- Using page templates- Assembling assets
- 10:00- Break
- 10:15- Defining module structure- The project list- Processing pages- Changing the project list
- 12:00- Lunch
- 13:30- Practical workshop- Creating new pages- Adding pages to the AT2-NO2 module
- 18:00- End

**Wednesday, 19.11.2008**

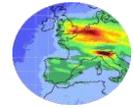
- 09:00- Practical workshop- Developing e-learning exercises from conventional source materials- Creating new modules
- 10:00- Break
- 10:15- Delivery paths for e-learning- File-system distribution- Server-based e-learning
- 12:00- End of course

Richard Law  
PerModum, Ladir  
November 2008

## Appendix 5



*Training & Education*



*Troposat-2*

**AT2 e-learning: updating and extending the AT2 Module**

**An introduction and training course - 17<sup>th</sup> -19<sup>th</sup> November 2008**

**What have we done?**

Where are we?

- authoring task
- XML as organizer of content

XML & editing

- Basic principles of XML
- Reasonable validating editor

Structure of the LexEOS page

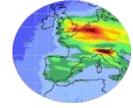
- Static pages (embedding XHTML)
- Interactive pages
- Exercise types

Structure of the project file

- Organize pages -> modules (automatic navigation, scoring etc.)
- Special pages
  - score lists
  - menus
  - document maps

Advice on e-learning

Richard Law  
PerModum, Ladir  
November 2008

**Appendix 6***Training & Education**Troposat-2***AT2 e-learning: updating and extending the AT2 Module****An introduction and training course - 17<sup>th</sup> -19<sup>th</sup> November 2008****E-Learning Authoring Guideline Headings**

- User (Homer)
  - Distance learning
  - Support of learners
    - preparation
    - reinforcement
    - revision
  
- Sources of material
  - lecture notes
  - textbooks
  - websites
  
- Consider the situation of the learner
  - Assume the worst case
  - Initial level (one level lower than expected)
  - No teacher support
  - Access to other material is unknown
  
- Influence of this situation on the course
  - Self-contained: do not assume
    - access to a particular textbook
    - particular approach
    - links
    - supplementary material
  - Step-by-step approach
    - small steps (short pages)
    - don't overdo it
    - presentation material

- exercises
- series of exercises (easy to difficult)
  
- Consistent terminology
  - in language
  - in symbols
  - in images/graphics
  
- Clear statement of learning goals
  - Short-term goals
  - Overview
  - Progress is not linear
  - Not Computer Based Training (rats in maze/Skinner)
  - Offer exits
  
- The learning process
  - Cognitive and functional knowledge, motor skills
  
- Document comprehension
  - slow down reading
  - high information density materials
    - mathematics
    - chemical notation
    - images
  - successful learners do this already
  - supporting the learning process
  
- Humans are visual creatures
  - Images are important
  - Few sizes
  - Standardize styles
    - image caption
    - credits
  - Create or credit images or text