PIMMS provides institutions with tools to capture information about the workflow of running simulations to the implementation of experiments via simulations running models. PIMMS uses the Metafor methodology for simulation documentation which consists of a common information model (CIM), a set of controlled vocabularies (CV) and software tools. PIMMS software tools provide for the creation and consumption of CIM content via web infrastructure and portal. PIMMS will:

- Refactor the Metafor questionnaire for CMIP5 for use in university departments.
- Create a new tool for defining experiments.
- Engage with university community on usage (and CIM content).
- Connect data holdings at Bristol University and Reading University to Metafor metadata.
- Promulgate the Metafor approach elsewhere in UK.

Python Parser

A python parser processes the XML files generated by the mind maps.

UML overview of the Metafor Common Information Model (CIM). CIM XML documents are used to support CMIP5, PIMMS will be able to achieve significant leverage on previous R&D funding to provide a

CMIP5 Questionnaire

http://q.cmip5.ceda.ac.uk

Django is used to generate the dynamic structure and content of the web based questionnaire from processed xml and the METAOFOR Common Information Model (CIM).

Django is a high-level Python Web framework which makes it possible to build web applications with minimal code.

The CMIP5 questionnaire, on which PIMMS is based, makes much use of Django templates. The templates allow us to separate design, content and Python code.

The initial PIMMS deployment will be based on the controlled vocabularies collected by the Metafor project in support of CMIP5 (5th Climate Model Intercomparison Project). The CMIP5 controlled vocabularies will be extended to cover paleoclimate simulations by PIMMS partners at the University of Bristol.

PIMMS controlled vocabularies are recorded using mind maps. Mind maps not only collate lists of controlled vocabulary, but also provide a structure for the way the information is collected in the PIMMS web interface.

PIMMS will provide a local portal so that research groups can view and search their own content, as well as publish their metadata content to institutional, national and international services. PIMMS will also include data node software so that data documented with PIMMS can be published to the web, both locally, and to national and international services.

The key to the customisation of PIMMS is in the modularity of its tools and the clear separation of structure (CIM) from content (CV). The PIMMS project will extend the CMIP5 controlled vocabulary to encompass descriptions of paleoclimate models and will also demonstrate how the CIM can be used to document an Integrated Assessment Model (IAM). This proof of concept prototype will create a new controlled vocabulary in collaboration with the Enmitage project and use it to reconfigure PIMMS to collect metadata in a different discipline. PIMMS will further explore how the CV that is used to configure PIMMS may be of further use to our stake holders and the wider JISC community through the development of the University of Cambridge chemicatagger tool.

PIMMS will provide a local portal so that research groups can view and search their own content, as well as publish their metadata content to institutional, national and international services. In addition PIMMS will also include data node software so that data documented with PIMMS can also be published to the web, both locally, and to national and international services.

PIMMS will deploy a system for documenting the provenance of computer simulations of real world earth system processes into two university departments: at the University of Bristol and the University of Reading. This system will be a key part of the data management ecosystem for simulation data – without "PIMMS class" information simulation data can become effectively useless very soon after it is created. By extending and repackaging a prototype infrastructure developed by METAFOR and originally deployed to support CMIPS, PIMMS will be able to achieve significant leverage on previous R&D funding to provide a relatively mature system targeted at the university community.

Beyond PIMMS

Beyond the PIMMS project itself, the eventual goal of the work will be to see the PIMMS system implemented across multiple institutions and extended to support other scientific domains. With PIMMS in place, community based federated data infrastructures which support simulation data reuse, yet are based on institutional data holdings, can become a reality.

If you have any comments or questions about PIMMS or the CIM we’d love to hear from you!
Further information about the PIMMS project can be found at http://proj.badc.rl.ac.uk/pimms/wiki
Information about Metafor and the CIM can be found at http://metaforclimate.eu

http://www.djangoproject.com

http://proj.badc.rl.ac.uk/pimms/wiki

Information about Metafor and the CIM can be found at http://metaforclimate.eu

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