Geophysical Research Abstracts
Vol. 17, EGU2015-7283, 2015
EGU General Assembly 2015

Tephrabase: A tephrochronological data

Anthony Newton
United Kingdom (anthony.newton@ed.ac.uk)

Development of Tephrabase, a tephrochronological database,, began over 20 years ago and was it launched in June 1995 as one of the earliest scientific databases on the web. Tephrabase was designed from the start to include a wide range of tephrochronological data including location, depth of the layer, geochemical composition (major to trace elements), physical properties (colour, grainsize, and mineral components), dating (both absolute/historical and radiometric), details of eruptions and the history of volcanic centres, as well as a reference database. Currently, Tephrabase contains details of over 1000 sites where tephra layers have been found, 3500 tephra layers, 3500 geochemical analyses and 2500 references. Tephrabase was originally developed to include tephra layers in Iceland and those of Icelandic origin found in NW Europe, it also now includes data on tephra layers from central Mexico and from the Laacher See eruption. The latter was developed as a supplement to the Iceland-centric nature of the rest of Tephrabase. A further extension to Tephrabase has seen the development of an automated method of producing tephra stratigraphic columns, calculating sediment accumulation rates between dated tephra layers in multiple profiles and mapping tephra layers across the landscape.

Whilst Tephrabase has been successful and continues to be developed and updated, there are several issues which need to be. More tephrochronological databases need to be developed and these should allow connected/shared searches. This would provide worldwide coverage, but also the flexibility to develop spin off small-scale extensions, such as those described above. Data uploading needs to be improved and simplified. This includes the need to clarify issues of quality control. Again, a common standards led approach to this seems appropriate. Researchers also need to be encouraged to contribute data to these databases. Tephrabase was designed to include a variety of data, including physical properties and trace element compositions of the tephra layers. However, Tephrabase is conspicuous by not containing these data. Tephrabase and other databases need to include these.

Tephra databases need to not only record details about tephra layers, but should also be tools to understand environmental change and understand volcanic histories. These can be achieved through development of databases themselves and through the creations of portals which draw data from multiple data sources.