



GeoReM: Further Developments of the Geochemical Database for Reference Materials and Isotopic Standards

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Jochum et al. (2005) developed a geochemical database GeoReM (<http://georem.mpch-mainz.gwdg.de>) for reference materials and isotopic standards. Reference samples include rock powders, glasses, minerals, isotopic standards, river water, and seawater. GeoReM is a relational database and contains published analytical and compilation data (major and trace element concentrations, radiogenic and stable isotope ratios), important metadata about the analytical values, such as uncertainty, uncertainty type, method and laboratory. Sample information and references are also included.

Four different queries are now possible: (1) Sample names or material types, (2) Chemical criteria, (3) Bibliography, and (4) Methods and institutions.

Querying by sample names, the database provides ranges of published data for concentrations and isotope ratios. To get more detailed information, all primary data and metadata can be shown and downloaded. It is also possible to query by material type (powder, glass, solution, mineral, gas, metal) and material (e.g., basalt, komatiite, seawater).

To query by chemistry, element concentrations and isotope ratios can be selected. As a result, a list of suitable reference materials fulfilling all selected chemical criteria is shown. At this point it is possible to choose one or more samples. The database provides tables with all analytical data for these samples or data only for the selected items. The number of analytical data can be reduced by selecting one or more materials, material types and/or methods.

Four bibliographic queries are possible, by author or coauthor(s), journal, keywords, and by GeoReM number. The GeoReM number, which unambiguously assigns to the reference, may be useful for citation purposes.

The new query by methods and institutions provides lists of methods used in selected institutions, and lists of institutions using certain techniques. For example, it is possible to list all LA-ICPMS, SIMS or MC-ICPMS laboratories stored in GeoReM, and to find out analytical techniques used in selected institutions including detailed information about the elements, the isotope ratios measured and the reference materials analyzed.

GeoReM now (state January 2006) contains more than 870 geological reference materials and isotopic standards, 7000 analyses, 91000 analytical data and 770 publications.

Jochum et al. (2005), *Geostandards and Geoanalytical Research*, 29, 333-338.