Finding and citing relevant publications.

For this exercise, you will be researching peer reviewed publications on a topic related to geochemistry. All scientists, whether high end researchers with a Ph.D. or workers for an environmental consulting company with a B.S., must know how to find information about a topic or research area. You are either a leader in your chosen field and are responsible for placing your research in the context of work done previously or your boss needs you to find information that pertains to a project your company is currently working on (and everything in between). Being able to find relevant publications from the scientific literature is often crucial for your career advancement and is an integral part of being a scientist.

What is a peer reviewed publication? A peer reviewed publication is one where the submitted manuscript has been evaluated by scientists that work directly in the field that the manuscript addresses. The peer reviewers read the manuscript and decide whether the paper is appropriate to be published in the specific journal; help edit the manuscript to assure that it is written clearly; make critical comments on aspects that are unclear or need further work; ultimately, the reviewers make recommendations to the associate editor as to the worthiness of publication. If your manuscript is written poorly, your conclusions are not supported by your data or address an inappropriate topic for that particular journal; it may be rejected for publication. At that time, most scientists re-write the manuscript based on the reviewers comments and re-submits it and the review process begins again. If it doesn’t pass the review process, it may never be published. The process of peer review is a powerful and important mechanism to assure the quality of scientific research.

Most peer reviewed articles are published in scientific journals (examples include Geology, Journal of Geophysical Research, Chemical Geology, Earth and Planetary Science Letters, Science, and Nature…there are literally hundreds of scientific journals covering all disciplines). You may also find monographs or books that are composed of a series of peer reviewed papers that make up each chapter. These books are also valid sources of peer reviewed articles. Note that most web sites, popular magazine articles, books (including text books) and other forms of written information are not peer reviewed. Non peer reviewed material should only be used under extreme circumstances. In general, try and never use non peer reviewed material for a paper or report. Data taken from government agencies (EPA, USGS, DOE) may not be peer reviewed but are on public record and can be used. Keep in mind, however, that much of the information written in textbooks is taken from peer reviewed journals. If there is information in a textbook that is useful, go to the original peer reviewed article that is referenced in the textbook.
Your assignment:

1) Go to the SSC library site by clicking “library” on the top of the main SSC web page; this brings you to the library page. Click on “Find articles and more”. This is a link to all of the information databases at SSC. Click on the “G” under “databases by name” and find the “Geobase” and “Georef” links. Note that they both say geology, sciences in the subject box. These databases are the two most popular databases of geologically related scientific journal articles and abstracts.

2) Use Georef or Geobase to search for journal articles on the following topic: The geological consequences of increased carbon dioxide concentrations in the atmosphere. Note that you may have to try searching under different phrases such as “climate change”, “carbon sequestration”, “effects of anthropogenic carbon”, “weathering rates due to carbon dioxide”, “changes to water chemistry due to increased carbon dioxide”, “anthropogenic carbon and ocean chemistry” etc…you may have to try many phrases to find what you are looking for. You MAY NOT use Google Scholar. You MUST use Geobase or Georef for this assignment.

3) Find 5 journal articles that are relevant to the topic. You must choose articles that address a similar issue. Avoid having a hodge-podge of topics. If I simply take the first 5 articles of a search, I have a very eclectic list of articles that do not relate to each other. This is not acceptable…you will most likely need to read the abstract (at a minimum) to be sure the article is appropriate.

4) Create citations for all 5 of the articles. To learn how to list citations correctly, go to the “Suggestions to Authors” link on your course web site and go to the chapter on citations… “Preparing References for Survey Reports”. Use the guidelines outlined in this chapter to properly cite your papers. In fact, you should use this guide when creating any scientific report in this department unless otherwise instructed.

This assignment is due on Wednesday 2/24/2010.

The process of finding articles in the scientific literature is a very important one. Please take this assignment seriously.

Thanks!