

Exploring Geology on the World-Wide Web – Geomorphology

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INTRODUCTION

Long before we collect and study in detail rocks in the field, we learn to observe and interpret the lay of the land. From the jagged peaks and sheer cliffs of a youthful mountain to the sinuous curves of a mature stream, the major landforms themselves tell us much of what we need to know about how a particular region has been molded by geological forces.

College-level courses in geomorphology often address both the physical descriptions of landforms, and the underlying processes that created them. If the latter were to be included in this particular column, there would be a significant overlap with environmental geology, glacial geology, sedimentology, volcanology, and a host of other fields of study that merit entire columns of their own. The primary purpose of this issue, therefore, is to identify those sites that present clear images and simple descriptions of the great variety of landforms at the Earth's surface.

Previous topics of this column and their corresponding hypertext links are available from the web page listed below. All of the URL addresses in the current article will be available on the publication date of the *next* issue of the journal. Please visit: <http://www.geol.utexas.edu/bexton/jge/jge.htm>

PROFESSIONAL ORGANIZATIONS

International Association of Geomorphologists
<http://www.ttu.edu/~geomorph>

Web site for one of the largest member organizations in geomorphology. Contains the IAG-GEOMORPHLIST, an e-mail distribution list for the international geomorphological community. If you have a technical question that is not answered by the web sites listed below, the directory of subscribers includes e-mail addresses and fields of expertise for several hundred members.

GSA Quaternary Geology & Geomorphology Resources

<http://www.ocean.odu.edu/~grw100f/quat/index.html>

Home page for the Quaternary Geology and Geomorphology Division of the Geological Society of America. You'll find a great list of links here, as well as directions for joining the Geomorphology List-server. Page maintained by Rich Whittecar, Division Newsletter Editor.

The Association of Polish Geomorphologists – Virtual Geomorphology

<http://hum.amu.edu.pl/~sgp/gw/gw1.htm>

Virtual Geomorphology is a great web site maintained by Zbigniew Zwolinski at Adam Mickiewicz University in Poland. With lots of great links, this site is a self-described "electronic textbook." It's also a bilingual site – you might even learn a little bit of Polish while you browse!-

British Geomorphological Research Group
<http://boris.qub.ac.uk/bgrg/>

Canadian Geomorphology Research Group
<http://office.geog.uvic.ca/dept/cgrg/cgrg.htm>

Fostering and promoting the research, teaching and application of geomorphology in Canada. Also includes an extensive bibliography and links.

Tropical Geomorphology Newsletter
<http://www.zikzak.net/tgn/>

A free biannual bulletin for scholars concerned with geomorphic processes and landscapes in the tropics. Also contains web links arranged by region and subject.

LANDFORM IMAGES

NASA – EarthRISE
<http://earthrise.sdsc.edu/earthrise/main.html>

This interesting NASA web site contains a collection of photos taken by astronauts aboard the Space Shuttle. Use different search strategies, including keywords and clickable maps, to explore for a particular type of landform or photos taken of a particular region!

Color Landform Atlas of the United States
<http://fermi.jhuapl.eddstates/states.html>

One of the best sources for topographic and landform maps on the web. Each state link brings up a menu of links to maps and other online information about the state. There are two main types of links on each state page: maps and images local to this site, and links to external web sites. Maintained by Ray Sterner at The Johns Hopkins University Applied Physics Laboratory.

Image Gallery of Landforms
<http://inspire.ospi.wednet.edu:8001/curric/land/landform/landform.html>

Landforms curriculum and lesson plans from the *Athena* program, which engages students in observing phenomena using remote-sensed data to construct knowledge about the world.

Geological Society of Canada – Terrain Sciences Division
<http://sts.gsc.nrcan.gc.ca/landf.htm>

This is a wonderful collection of Canadian landscape and landform photos taken by scientists of the Geological Survey of Canada over the past 30 years. Primarily for the eastern half of the country, the database will be expanding in the future to include western images. Brief geological explanations provide insight on how the features developed.

Canadian Geographic Online – Shapes of the Land
<http://www.cangeo.ca/Landforms/landforms.htm>

Nice text and images about how glaciers and water shape the land.

Images Illustrating Principles of Geomorphology
<http://geogweb.berkeley.edu/GeoImages/Wells/wells.html>

The Geo-Images Project attempts to make images (mostly photographs) that are useful in teaching

geography more widely available using computers and the Internet. This particular folder contains an impressive number of images amassed by Lisa Wells at Vanderbilt University.

Educational Images, Ltd. – Geomorphology Computer Programs
<http://www.educationalimages.com/fx170005.htm>

Commercial site with several software programs for sale that can be used to illustrate geomorphological processes.

BOOKS ON-LINE

Geomorphology From Space
http://eostest2.gsfc.nasa.gov/DAAC_DOCS/geomorphology/GEO_HOME_PAGE.html

This book by Nicholas Short and Robert Blair is one of my most prized possessions, and now it is available online! Over 200 space images, each treating a geographic region where a particular landform theme is exemplified.

COURSE INFORMATION

Okanagan University College
<http://www.arts.ouc.bc.ca/geog/G121/12loutline.html>

Skip down to the bottom of the page for the geomorphology lecture notes. The text is conveniently linked to a comprehensive glossary. Site designed by Michael Pidwirny for the course *Geography 121: Introduction to Physical Geography II* at Okanagan University College.

Indiana University – Purdue University at Indianapolis
<http://www.geology.iupui.edu/classes/G415/Geomorphology.htm>

Course information and lecture slides in Powerpoint format for *Geology 415: Principles of Geomorphology*, taught by Robert D. Hall and Jerry R. Miller at Indiana University – Purdue University at Indianapolis.

San Francisco State University
<http://gissun1.sfsu.eddcourse/geog312/lectures/lectures.htm>

Powerpoint files of lecture notes and images for the course *Geography 312: Geography of Landforms*, taught by Jerry Davis at San Francisco State University.

Smith College
<http://www.science.smith.edu/geology/geomorph/default.html>

Course notes and several interactive tutorials for *Geology 252: Geomorphology* taught by Bob Newton at Smith College in Massachusetts.

University of British Columbia
http://www.science.ubc.ca/~geol351/351_home.html

Course outline and image set for *Geology 351: Principles of Geomorphology*, taught by Michael Church and Oldrich Hungr at the University of British Columbia.

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University of Regina

<http://www.uregina.ca/~sauchyn/geog323/outline.html>

Very nice lecture notes and images for the course *Geography 323: Geomorphology*, taught by Dave Sauchyn at the University of Regina.

University of Virginia

<http://erode.evsc.virginia.edu/DEFAULT.HTM>

Interesting Geomorphology page maintained by Alan D. Howard, Department of Environmental Sciences, University of Virginia. Includes several simulations and modeling of geomorphic processes, as well as slide shows of regional landforms. Don't miss the computer simulations of landform evolution on Mars!

SUMMARY

While many students find geomorphology intuitive, some lack the basic geological background to make the connection between process and structure. The landform images included in the sites above represent the best the web currently has to offer. Look at each image as a detailed story to be told, and ask yourself or your students *what, where, when, why, and how*. As they consider these questions, and seek out the answers, they will come away with an even greater understanding of geology.

Because most of these sites are image intensive, they may take longer to load than usual. Of course, it beats the alternative of watching and waiting for the real changes to take place! And while some of these images are for public release, many represent the personal efforts of individuals. Please be kind and cite authors and photographers whenever possible!

WEB TIP OF THE MONTH

So you've found a great web site and go to print the pages you like. Two very common problems that often occur are 1) nothing happens, and 2) your printout is a blank page. Don't panic. These may not be printer problems at all.

The first scenario may have occurred because the page in question is divided into frames, which can be a bit troublesome at times. Be sure to click on the frame you want to print with the left mouse button and try printing again. If you are still having problems, click on the frame that you wish to print with the right mouse button, select "Open Frame in New Window," and then try printing again. Trying to print frames as they appear is like trying to print several pages all at once. If you must have all of the frames printed as they appear, your only option is to press the "Print Screen" key on your keyboard, and then "Paste" the selection into a graphics program for printing. Of course, if you use this option you will only be able to print the area of the frames as they appeared on your monitor.

The second problem occurs when a web page contains white or light-colored text on a dark background. Because the default setting for printing from a web browser is usually set to *not print backgrounds*, you will end up with a blank sheet of paper (or one with very faint text). To change this, select "File" and "Print Setup" and then check the "Black Text" box. If you really want to print the background, there is a "Print Background" box on this same menu that can be checked. Consider this last option *very carefully* – you check this box, your print time for most web sites will increase significantly, and the life of your toner cartridges – not a trivial expense – will decrease drastically.
