



RESOURCES

Crust of Life

Anyone who's made a mind-numbing drive across Wyoming or Mongolia probably thinks of rangelands as barren places. But looks can be deceiving. The first few inches of soil in such stark landscapes actually harbor a teeming ecological community of lichens, mosses, fungi, bacteria, worms, and arthropods, among other organisms.

Scientists have only recently recognized the importance of these so-called biological crusts, which occur in arid and semiarid regions from Israel to Antarctica. Among other roles, they add carbon to soils, fix nitrogen for plants, hold soil in place, and keep out invading weeds. Learn more about soil ecology at two Web sites from the U.S. Department of the Interior. A 10-page popular introduction* describes "the unsung, unheralded and unrecognized heroes of the rangeland ecosystem"—from bacteria that build soils to insects that aerate the soil. Another site† offers similar information, but in greater depth: Scientists and land managers can download a 40-page technical reference with background and management tips—on how fires affect crust species, for example—or browse a list of 3000 references.

*www.id.blm.gov/soils

†www.soilcrust.org

TUTORIALS

Navigating Diffraction

To decipher the atomic structures of materials, scientists often blast them with x-rays or neutrons and study the scattering patterns that result. Students of diffraction physics may find useful this "pictorial guide to crystal structures and their Fourier transforms," or what scattering data look like after they've been processed by a computer. Aimed mainly at graduate students, the site includes eight interactive simulations that allow users to tweak an atomic structure and see its Fourier transform.

www.uni-wuerzburg.de/mineralogie/crystal/teaching/teaching.html

CATALOGS

Who's Riding the Next Net

Neuroscientists are using speedy lines to build banks of brain images, while Arizona archaeologists digitize artifacts and plant pathologists exchange genomic maps. Those are among over 1200 projects listed at The Advanced Applications Database, a catalog of research and education projects that rely on high-speed networks such as vBNS and Internet2. Set up partly to link

potential collaborators and partly to help administrators track who's using the system, the list runs the gamut from atomic physics to fine arts. Browsers can sift the offerings by category, including discipline and institution.

dast.nlanr.net/Clearinghouse

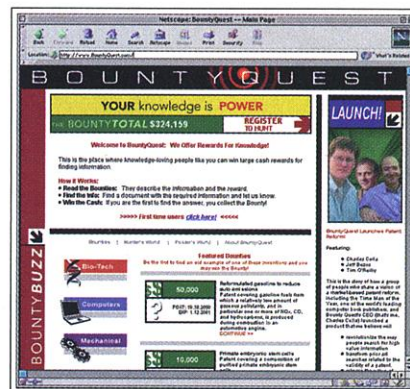
NET NEWS

Win Cash for Patent Busting

Fact-hoarding scientists and engineers, take note: Now there's a potential way to cash in on your headfuls of arcane knowledge. A new Web site hopes to "strengthen the patent system" by offering a bounty to anyone who can provide obscure documents to support or shoot down high-stakes patents.

The U.S. Patent Office (USPTO) has come under fire in recent years for granting patents too readily, especially for software and biotechnology. One reason is that patent examiners don't have time to go beyond online databases in their search for evidence that an invention isn't original. This new site, BountyQuest (www.bountyquest.com), is aimed mainly at helping companies knock down competing patents by locating this "prior art"—such as journal articles in foreign languages or technical manuals. For example, you can win \$10,000 for rustling up a document "describing a purified preparation of primate embryonic stem cells" from before 1994. Cash is also available for information that undermines Amazon.com's one-click purchasing patent or a gasoline additive.

The idea is "interesting," says Internet Patent News Service editor Greg Aharonian, but he argues that it would cost companies less to hire veteran patent consultants to find the same documents. Besides, Aharonian believes that the real problem is the glut of bad patents issued by the USPTO. BountyQuest, he says, is "treating the symptoms, not the disease."



TIPS

Scrolling for Diseases

Looking for stats on gun-related injuries or for a photo of the tick that spreads Rocky Mountain spotted fever? Find it with a click at the Centers for Disease Control and Prevention's site index, Health Topics A to Z. This handy page has links to the *Morbidity and Mortality Weekly Report* and fact sheets on everything from botulism to bicycle helmets. It also leads to entire sites on hot topics such as biological weapons, vaccine safety, and the West Nile virus.

www.cdc.gov/health/diseases.htm

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