CREDIT: (TOP) WARREN GRETZ/NREL/PIX

COOL IMAGES

On Ice

Sweltering in the summer heat? Cool off with a visit to the Web gallery at the National Snow and Ice Data Center in Boulder, Colorado.* Among its offerings are two dozen black-and-white photos of glaciers, such as curvy Barnard Glacier, Alaska, in July 1957, striped with lanes of ice and debris (above). The pictures, from an American Geographical Society collection of 10,000 images dating to the 1880s, are occasionally used by scientists to see how fast glaciers are growing or shrinking. Other images include satellite photos chronicling the dramatic breakup since 1995 of the Larsen B ice shelf in Antarctica—possibly a result of local climate warming—and nifty animations of sea ice waxing and waning at the two poles.

* www-nsidc.colorado.edu/NSIDC/gallery.html

HOT PICKS

In a flash. The glimmer of light that results when you crunch a WintOGreen Life Saver candy in a dark room has made for many a science fair project. This Web article explains the candy's "triboluminescence," which happens when photon emissions from cracked sugar trigger fluorescence from wintergreen oil. www.towson.edu/~sweeting/wg/candywww.htm

Vicarious eclipse. Can't be in Europe or Asia to see the 11 August solar eclipse, the last of the millennium? Then catch it on one of the live Web casts listed at: sunearth.gsfc.nasa.gov/eclipse/TSE1999/T99link.html#webcast99

Protein computing. Into modeling how proteins and other biomolecules fold, move, conform, and match up? Then check out these four new modeling software tools just released by the Cornell Theory Center.
www.tc.cornell.edu/reports/NIH/resource/CompBiologyTools

NET NEWS

Making Sense of a Tower of Babel

In a tour de force for translating languages by computer, six people in six countries speaking in six tongues have carried on a spontaneous conversation electronically, without any human interpreters. On 22 July, Carnegie Mellon University scientists and colleagues from five other countries in the Consortium for Speech Translation Advanced Research (C-STAR) held a video conference (via digital phone lines) to demonstrate new computer translation technology. Posing as travel agents and tourists, the scientists chatted about trips they planned to take to each other's countries—from Pittsburgh to Kyoto, for example—while computers instantly translated.

C-STAR's original translation system, developed 8 years ago, only worked if speakers used correct syntax—that is, if they didn't stutter or mumble. But the new system filters out these "ums" and "ers" and has a much bigger vocabulary of over 10,000 words. The system works by picking out keywords and concepts from a sentence—"Can you uhhmmm reserve a double room for two nights?" for example—and gleaning the meaning. It then puts the idea into an intermediate language called an "interlingua"—really a mathematical formula. Finally, a computer paraphrases this version in another language. While they talked, the six scientists also used a Web interface to send things like pictures of hotels.

"We want to make sure that people are communicating correctly to each other and not necessarily word by word," says Alex Waibel, director of C-STAR (www.c-star.org). Currently, the technology is limited to travel, as the world's huge travel industry will probably be the main market for it, Waibel says. The software to use the system, he says, should become available within 5 years.

SITE VISIT

Dipping Into DNA Chips

Many biologists are buzzing these days over gene microarrays: tiny chips a couple of centimeters across dotted with thousands of DNA snippets from the coding regions of genes. Pour on a sample containing bits of fluorescently labeled DNA that have been expressed in a cell, and the bits will stick to the genes that have matching sequences. The bright spots will then tell you which genes have been turned on. This pattern of expression offers clues to what makes a neuron a neuron, or a prostate cancer cell divide. The Gene-Chips home page offers a nuts-and-bolts description and links about this hot new technology.

Gene-Chips is run by computational chemist Leming Shi, "a fan" of DNA arrays who works as a contractor for the Food and Drug Administration. The site's design is simple yet effective: It's one long page of text sprinkled with hyperlinks. Shi describes how the chips work, the basic setup (robotics for making chips, labeled DNA probes, fluorescence reader, software), who sells them, and applications, which include drug discovery and toxicology. Links to review articles and scores of academic labs and companies provide more details. Patrick Brown's page at Stanford, for instance, has a manual on how to build your own microarray maker. A Cornell site offers a slew of online review articles, and a National Institutes of Health page describes its microarray project. And in one interesting application, a University of Arizona lab used the chips to see which genes are turned on in spermatogenesis in *C. elegans* worms.

www.gene-chips.com