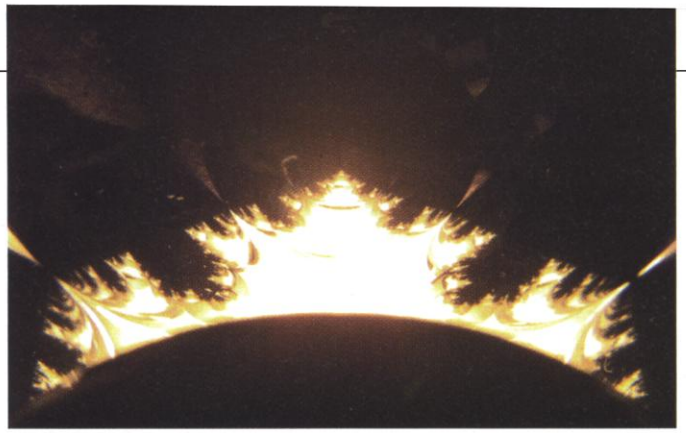


CREDIT: (TOP) D. SWEET/CHAOS GROUP/UNIV. OF MARYLAND

COOL IMAGES

Chaos on a Lab Bench

It may look like flames leaping in the air, but this fiery shape is actually a fractal pattern made by shining a bright light on four mirrored spheres placed roughly at the corners of a tetrahedron. Observing this type of fractal (a basin boundary) in the physical world, rather than creating it on a computer, is rare. The image is part of the "Chaos Gallery," a site packed with both fractal photos and computer-generated swirly psychedelic pictures put together by the Chaos Group at the University of Maryland. Computer animations of chaotic physical phenomena (which include systems such as a forced damped pendulum) are accompanied by a description and a play-by-play breakdown of the math. Visitors can even generate their own animations by using equations and computer code provided at the site.
www-chaos.umd.edu/gallery.html

HOT PICKS

Transport hub. This site from a lab studying the proteins that shuttle molecules and ions across the cell membrane offers two useful references. The Transport Classification Page describes over 200 families of membrane transport systems sorted by a new classification scheme. And at the Genomic Transport Analysis Page, you can pull up lists of membrane transporters for each of 18 sequenced genomes.
www-biology.ucsd.edu/~msaier/transport/titlepage.html

Hot rock risks. Ionizing radiation comes from many natural sources such as cosmic rays and rocks, so how harmful are tiny amounts of radiation from humanmade sources such as nuclear waste dumps? A funding program on the much-debated topic of low-dose radiation risks includes on its Web site many handy features: a bibliography, meetings calendar, news articles, a timeline of radiation, and a glossary. lowdose.org

Tried and true. A K-12 education Web directory from AAAS (*Science*'s publisher) lists scores of great science and math links, from astronomy to aquariums, all screened for quality by an expert review board. www.sciencenetlinks.com/index.html

NET NEWS

Calling All Microarray Data

Researchers who've joined the stampede to use glass chips dotted with specks of genes to study how cells work now have a place to share their growing piles of data. Last week, the National Center for Biotechnology Information (NCBI) rolled out a new Web database that will archive results from DNA microarrays and other hot lab tools for seeing the expression of thousands of genes at once.

The Gene Expression Omnibus, or GEO,* will store data from any type of gene expression test, including both manufactured and homemade chips, for free. Scientists log in, describe the test type, and post results—tables showing gene expression levels—and reference images of their arrays. GEO will also archive results from a series of tests, such as the dose-response relationship of a toxin. You can't do much of a search just yet, as the first stage is simply to build a stash of data. But within a few months, "you'll be able to query in different ways," says NCBI's Alex Lash. He hopes that, as with the GenBank gene database, people will eventually submit even data they don't necessarily plan to publish.

Several other public microarray databases are also in the works, for example at the U.K.'s European Bioinformatics Institute (EBI) and the National Center for Genome Resources in Santa Fe, New Mexico. For links to these efforts and many other microarray resources, see this EBI page.†

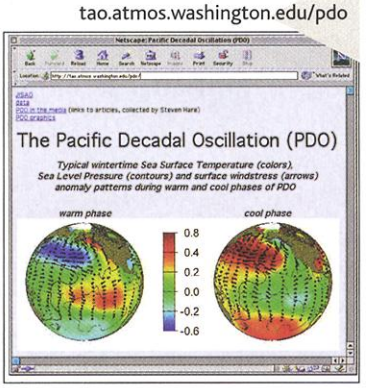
* www.ncbi.nlm.nih.gov/geo
† industry.ebi.ac.uk/~alan/MicroArray

SITE VISIT

Pacific Climate's Slow Swing

In 1977 the climate of the north Pacific Ocean suddenly changed, and people noticed. California surfers began riding unusually big waves, fishers off Alaska hauled in record catches, and Seattle residents got a break from the rain. Two decades later, scientists dubbed the phenomenon the Pacific Decadal Oscillation or PDO, an El Niño–like variation of ocean temperatures that is centered in the North Pacific but influences climate across North America. Now, climate researchers are watching to see if the mid-1998 appearance of cooler ocean waters will mark the beginning of a new 20- to 30-year swing in the PDO's cycle. You can follow the unfolding story along with the experts at the Pacific Decadal Oscillation Web site.

tao.atmos.washington.edu/pdo



The site, developed by climatologists Nathan Mantua and Steven Hare of the University of Washington, Seattle, shows and tells readers what the PDO is and provides a bibliography. A page of news article links leads to coverage that is less frequent than that of the better known and faster paced El Niño. A plot of Mantua's PDO Index—a summation of North Pacific sea surface temperatures—and links to other data tied to North Pacific climate, such as fishery catches, provide a front-row seat to the climate show that could be influencing your weather for the next 30 years.

Science ONLINE

As health care budgets around the world get stretched thinner, health care providers are demanding proof that new drugs and medical technologies are cost effective. This week, *Science*'s Next Wave investigates the resulting growth in the field of pharmacoeconomics and finds out what it takes for a scientist to move into a career in costing health. nextwave.sciencemag.org

Send Internet news and great Web site suggestions to netwatch@aaas.org