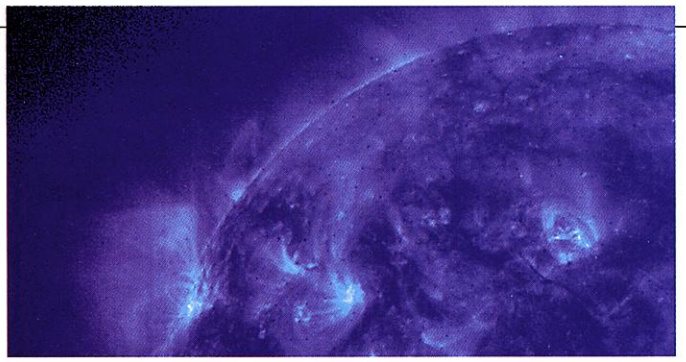


CREDIT: SOHO

COOL IMAGE

Sun Storms on the Horizon

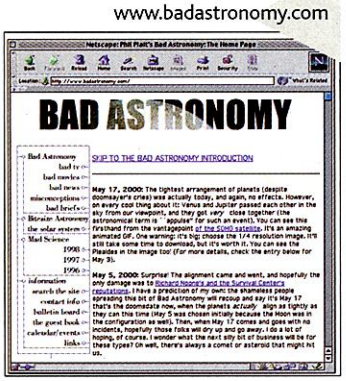
Magnetic field lines arc out of gigantic whorls on the surface of the sun in this picture taken with an ultraviolet telescope aboard the Solar and Heliospheric Observatory (SOHO) satellite. Launched in 1995, SOHO maintains an orbit that allows it to stare constantly at the sun, without Earth getting in the way. The satellite's 12 instruments probe the solar interior and atmosphere, as well as the solar wind, the stream of energetic particles that pours into space. The Best of SOHO gallery (sohowww.nascom.nasa.gov/gallery/bestofsoho) provides dozens of stunning images, and the pictures should soon get even better: The number of sunspots follows an 11-year cycle and will peak this summer.

SITE VISIT

Astronomically Correct

From the ceiling of New York City's Grand Central Station to backsides of disposable diapers, images of stars and other heavenly objects surround us. Unfortunately, popular depictions of the cosmos often part company with reality. Comets in movies roar through empty space where sound is impossible, meteors rise in spite of gravity's pull, and the spring equinox mysteriously enables eggs to balance on end for a day. But lovers of astronomical truth can take heart from the Web site Bad Astronomy, which tries to set the record straight.

www.badastronomy.com



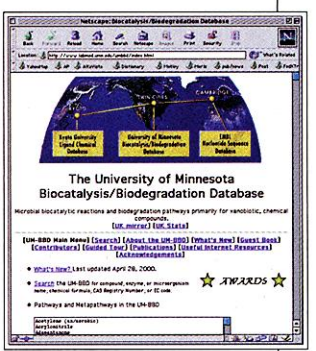
Bad Astronomy offers clear explanations for a wide variety of goofs, gaffes, and flights of fancy found in news stories, movies, television shows, and urban myths. (For example, it explains why you can balance an egg on end whenever you like.) The site reaches out to the lay reader, but the chatty essays and analyses provide enough detail to enthrall even the professional scientist. Annotated links lead to other sites that debunk bad science, as well as those that provide solid information, and a bulletin board lets readers contribute their own finds.

Holding it all together is Phil Plait, site author and professional astronomer. No mere curmudgeon, Plait goes out of his way to point out the good astronomy mixed in with the bad and graciously acknowledges his own occasional mistakes. A crusader for accuracy, he's also clearly gratified that astronomy makes it into popular culture in the first place. "I just want people to love and appreciate astronomy as much as I do," Plait says.

SITE VISIT

Munching on Strange Chemicals

Microbes that devour or otherwise help break down exotic chemicals are cleaning up the environment, spawning new technologies, and deepening our understanding of microbial life. While biodegradation and biocatalysis are young fields, much of what is known can be found in the University of Minnesota Biocatalysis/Biodegradation Database (www.labmed.umn.edu/umbbd).



The site provides detailed explanations of 99 "pathways"—chains of reactions that break down various chemicals—as well as data on hundreds of individual reactions, compounds, enzymes, and microorganisms. The site focuses on the reactions that begin to break down compounds not commonly found in nature, for example, those involving naphthalene, the stuff of mothballs. For information on the more common metabolic pathways that complete the breakdown, the site links to databases such as the Kyoto Encyclopedia of Genes and Genomes (www.genome.ad.jp/kegg). All data display their pedigrees, and a guided tour helps first-time visitors find their way around.

The site lacks only for style. Hyperlinked graphics accompany most pages of data; however, by default, reactions and pathways are rendered in old-fashioned diagrams made with text and keyboard symbols. "We made a conscious design decision to use text as much as possible," says computational biologist and site co-director Lynda Ellis, "and to have the graphics a click away for those whose computers are fast enough to use them."

HOT PICKS

Fiery numbers. Ever wonder how authorities estimate the risk of wildfire? The home page for the National Fire Danger Rating System lays out the three indices used to quantify the danger. The page glosses over the nitty-gritty details of the mathematical models used to generate the indices, but it nicely explains what the final numbers mean and describes the many inputs, such as the 20 "fuel models" that characterize different types of grass, brush, and timber. www.seawfo.noaa.gov/fire/olm/nfdrs.htm

The buzz on bees. If you're foraging for information on honeybees, CyberBee.Net offers a sweet starting point. Maintained by Zachary Huang, an entomologist at Michigan State University in East Lansing, the site provides links to daily news stories, the home pages of dozens of research groups, resources for beekeepers, scientific meetings, and other bee Web sites. www.cyberbee.net

Stretchy mathematics. Crudely speaking, topology is the study of shapes that can be stretched to look like one another without adding or subtracting holes. Anyone well-versed in this field, where a doughnut is equivalent to a coffee cup but not a tennis ball, will enjoy a visit to Topology Atlas. The well-organized site caters to professional mathematicians with links to conference abstracts, preprints, seminars, and researchers' personal Web pages, as well as invited contributions, commentary, and unsolved problems. Amateurs are invited to pose questions to the Topology Q&A bulletin board. at.yorku.ca/topology

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