Vent City

While investigating a 3600-meter-high mountain on the floor of the Atlantic Ocean last week, scientists aboard the research vessel *Atlantis* made a serendipitous discovery: a field of 60-meter-high columns releasing heated water into the ocean—the largest ocean hydrothermal vents ever discovered. The crew had not expected to find anything of the sort on 1-million-year-old crust, but suddenly "amazing white structures" began looming on the video screen, according to the expedition's online journal (at earthguide.ucsd.edu/mar).

Deborah Kelley, a geologist at the University of Washington, Seattle, and co–principal investigator, says that, unlike most hydrothermal vents, what scientists are now calling the "Lost City Field" did not form during a volcanic eruption. The columns are also relatively devoid of marine life, she says, although they do support microbes. Other vents found in the Pacific, known as "black smokers," spew clouds of sulfur and iron-containing materials and host large communities of clams, shrimps, and other marine life.

New undersea wonder.

Researchers are puzzling over the Lost City Field's origin. The vents are "not very hot, but there still must be a mechanism for how they are formed" in an area not affected by volcanic eruptions, says Susan Humphris, a geologist at the Woods Hole Oceanographic Institution in Massachusetts. She notes that the field seems to be associated with mantle, rather than volcanic rock, and probably contains large amounts of carbonate and silica, as well as methane and hydrogen. The fluid escaping from the vents, she believes, is seawater heated by rocks under the ocean floor.

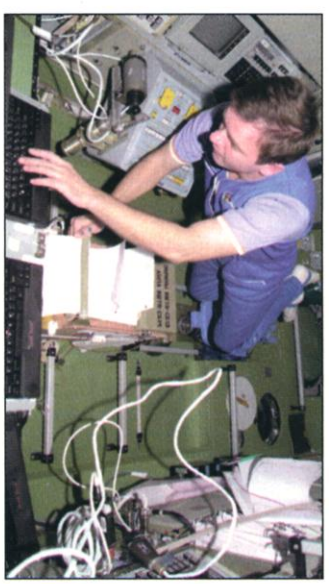
Noisy Days Aboard the Space Station

In the international space station, no one can hear you scream. Or whisper. It's even noisier than it was on Russia's Mir spacecraft, a NASA official reported at the 140th meeting of the Acoustical Society of America held in Newport Beach, California, earlier this month.

NASA has long been aware that certain elements of the station—particularly the Russian elements—are much noisier than they were supposed to be, thanks to a host of valves, pumps, and fans. Although not as bad as spending 24 hours a day in an MRI machine, sustained exposure can do damage, as many Mir veterans can attest.

NASA's Jerry Goodman, who's in charge of acoustics for the $100 billion project, reported at the conference that readings taken shortly after Russia's service module was attached in July show that noise levels average more than 70 decibels. That would make it as noisy as a machine room or a rattling air conditioner. What's more, said Goodman, "it's 85 near the compressor, and 80 near the workstation. ... It's [acoustically] hot."

NASA has managed to get the noise levels in the first Russian module, the FGB, down to "acceptable" levels with the help of sound-absorbent padding, Goodman reported. But the solution is far from optimal. "There's so much hardware trying to quiet the FGB that you could fill this [conference] room with what I call 'Band-Aids.' "



Cacophony at the office.

Futurology Corner

As a result of genome mapping, "we will be able to increase the complexity of our ... DNA without having to wait for the slow process of biological evolution. It is likely that we will be able to completely redesign [the human genome] in the next 1000 [years]."

—Physicist Stephen Hawking, addressing the eyeforpharma 2000 meeting in Basel, Switzerland, last month.

"The real goal is to keep people alive forever."

—William Haseltine, head of Human Genome Sciences in Rockville, Maryland, at a conference in Washington, D.C., on 4 December, marking the creation of the Society of Regenerative Medicine to promote research on "the human body's natural ability to build, repair and maintain itself."

Molecule Manipulator Wins Big

University of Ottawa chemist Howard Alper has won Canada's biggest research jackpot: the Gerhard Herzberg Canada Gold Medal for Science and Engineering. The annual award, given this month, has been retooled to include a cash component of $670,000 over 5 years.

"Alper is one of the big hitters in Canadian chemistry," says chemist Donald Weaver of Queen's University in Kingston. His forte is developing methods to synthesize and modify organic and inorganic molecules—tools widely used in developing new drugs and materials. He has devised new forms of synthesis that are highly "atom efficient," building new molecules with little or no waste, according to Tom Brzustowski, president of the Natural Sciences and Engineering Research Council, which gives the award.

Howard Alper

Alper, 59, plans to use his windfall to take on more grad students and postdocs. "The role of a faculty member is to nurture creativity," he says. He should know about that. He's authored more than 430 scientific papers and holds some 30 patents.

CREDITS: (TOP) VENT CITY; (BOTTOM) NASA