Wuchterl and Klessen hope to test their results by observing very young binary protostars that eclipse each other as they orbit. In such systems, temperatures, luminosities, masses, and sizes could be determined observationally and compared with the new models. "So far," says Wuchterl, "such systems are not known. But the search is going on."

–GOVERT SCHILLING

Govert Schilling is an astronomy writer in Utrecht, the Netherlands.

CANADA

Inuit Claims Hinder NASA Mars Project

OTTAWA, CANADA—The past, present, and future have come together to create a controversy on the Arctic's largest uninhabited island. Hanging in the balance is a research project to explore whether an ancient crater might help to prepare U.S. astronauts training for a landing on Mars.

Some 23 million years ago, a meteorite tore out a 20-kilometer-wide chunk of barren land in what is now Nunavut Territory in northwestern Canada. In 1997, a 60-member team of researchers began spending their summers at the site on Devon Island, testing the idea that the apparent similarity between the Haughton crater and the martian surface might be scientifically important. In particular, the team hopes that studying what happens when meteorites strike Earth might tell them more about the evolution of geological formations on Mars. NASA provides slightly more than half of the project's $500,000 annual budget, with the rest split among some 50 universities, corporations, and private organizations.

For 3 years the researchers roamed the crater freely. They mapped formations such as hydrothermal vents and pipelike rock formations—warm and wet enough to allow for microbial growth—to learn more about how life arises in extreme conditions and environments. They even built a mock habitat, a stand-in for a landed spacecraft from which they carried out field studies in a sort of dry run of field science on Mars.

That work was carried out with the necessary permits from the Nunavut government. But 2 years ago the local Inuit people denied the researchers access to 70% of the crater, citing a 1993 land claim agreement with the federal government that allowed them to erect "no trespassing" signs if they felt that their interests were being compromised. The crater is located within the hunting grounds of residents of Grise Fiord, a hamlet 200 kilometers across the Jones Sound from the island.

"There was a change of mayor, [and] things became political," says Mary Ellen Thomas, manager of research liaison at the Nunavut Research Institute, which administers research licenses. Marty Kuluguqtuq, a hamlet administrator, says that officials merely wanted to ensure that the 170 residents derive some benefit from the research and that the scientists protect the environment. "There is air traffic and people going by land on four-wheelers," he says. "We harvest animals out in that area: fish, caribou, and musk ox."

The hamlet has asked for a formal Inuit Impact and Benefits Agreement (IIBA), something normally struck only for large development projects or national parks. Stephen Foulds, legal counsel for the Inuit land claims organization in the Nunavut, says that the 1993 law allows for packages ranging from financial compensation to training, preferential hiring, and even housing. Kuluguqtuq says that the hamlet's demands are likely to include "some sort of tariffs" or similar compensatory package.

The next step is a meeting in November between Grise Fiord officials and Pascal Lee, a planetary scientist at the California-based SETI Institute and scientific leader of the Haughton-Mars project. Lee says he's eager to reach an agreement with Inuit leaders, provided it's affordable and falls within the law: "I'm told that an IIBA is a bit of an overkill, but perhaps we should still have something that spells out our responsibilities at the site."

Temporary thaw. Researchers welcome Grise Fiord officials to their outpost on Canada's Devon Island.

CREDIT: PASCAL LEE/NASA HAUGHTON-MARS PROJECT

Lee has already tried to diffuse the tension by hosting eight representatives from Grise Fiord this summer. He showed them the urine-filled drums that scientists ship out each season to avoid fostering the unnatural growth of mosses and other plants. "We also want to keep the site in this pristine, Mars-like state," he says. –WAYNE KONDRO

Wayne Kondro writes from Ottawa.

ENVIRONMENTAL HEALTH

Second Look at Arsenic Finds Higher Risk

A National Academy of Sciences (NAS) panel, after being asked to update an earlier report on arsenic in drinking water, has found that the cancer risks are even greater than had been thought. The panel's report* comes 6 months after the Bush Administration shelved the Environmental Protection Agency's (EPA's) proposal to clamp down on arsenic, sparking an outcry from environmentalists and some members of Congress (*Science*, 30 March, p. 2533). EPA Administrator Christie Whitman, who requested the NAS review, now appears to have little choice but to adopt a standard at least as tough as the one she had delayed.

Studies of people exposed to high levels of arsenic in water have linked the metal to elevated rates of internal cancers. After a 1999 NAS review found that the current standard of 50 parts per billion (ppb) wasn't sufficiently protective, the outgoing Clinton Administration proposed tightening it to 10 ppb, based on a study of arsenic and cancer in southwestern Taiwan. But officials from Western states with high natural arsenic levels protested that the cost of cleaning up the water would be overwhelming. In April, EPA asked the academy to review the latest science supporting levels between 3 ppb and 20 ppb.

This new panel concluded that the analysis on which EPA based the 10-ppb proposal had actually underestimated the risks. "Four new epidemiological studies were key," says panel chair Robert Goyer, a pathologist retired from the University of Western Ontario who also headed the panel that produced the 1999 report. New studies from Chile and Taiwan supported results from the earlier Taiwan study, countering the suggestion that those results had been skewed by malnutrition. The panel recalculated the risks in a slightly different way from an analysis EPA used and concluded that the resulting risks for lung and bladder cancer were higher than EPA had assumed. For example, at 10 ppb, the study that EPA relied on estimated up to 0.8 extra cases per 1000 people, while the panel found a risk of 1.3 to 3.7 extra cases depending on whether it used the background cancer rate in Taiwan or in the U.S. population.

An EPA spokesperson declined to speculate on whether the new standard would be 10 ppb or lower but said Whitman is now "more concerned, not less" about arsenic risks. Her decision is due out by February.

–JOCELYN KAISER

* Arsenic in Drinking Water: 2001 Update, National Research Council, September 2001.