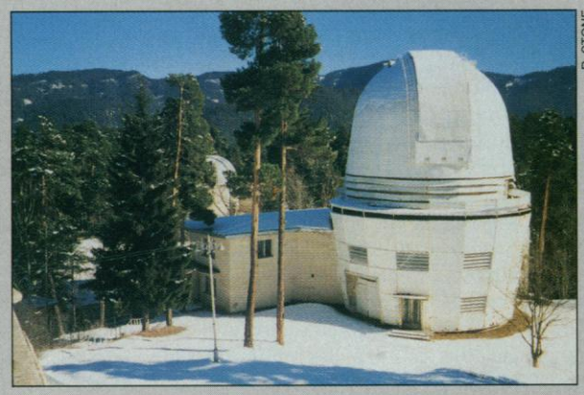
Observatory Fades Away in Splendid Isolation

ABASTUMANI, GEORGIA—In 1994, astronomers around the world prepared themselves for the grandest event in planetary science in decades—comet Shoemaker-Levy 9's fiery impact with Jupiter. But their colleagues at the Abastumani Observatory in southwestern Georgia nearly missed the show altogether. This was not because of cloudy skies or equipment failure, but because electricity is in such short supply in the region. Astronomers here did, however, manage to scrape together enough money to buy two extra hours of electricity to view the event.

Like many other scientific institutions in Georgia (see main text), Abastumani—the former Soviet Union's first mountaintop observatory—is fighting for survival. During the winter months, with just 4 hours of electricity a day, room temperatures approach freezing and Abastumani's scientists analyze old data in front of gas stoves in their apartments. Telescopes and support equipment are turned on only for maintenance. The staff members "are heroes for working under such conditions," says observatory director Jumber Lominadze, who is based in the capital, Tbilisi.



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Out in the cold. Abastumani observatory, which did pioneering studies of the Crab Nebula, is now barely functioning.

The observatory today is a pale reminder of its post–World War II heyday, when astronomers did pioneering studies on the Crab Nebula and, with an array of telescopes that includes a 40-centimeter refractor and a 70-centimeter meniscus telescope, discovered more than a dozen supernovas. Following the breakup of the Soviet Union and the Georgian civil war, the observatory's decline was swift. Its 1995 budget of $30,000 had to cover a 180-person staff and escalating operating costs. The budget is expected to increase fourfold this year, Lominadze says, but such a jump will only pay for salaries and utilities.

Lominadze faces a formidable task in keeping the observatory going. Since becoming director in 1992, he has tried to strengthen ties with Western scientists. He held an international plasma astrophysics workshop here the same year, but for the last 2 years he has been unable to persuade Western scientists to visit Abastumani. The observatory has almost no money to upgrade its equipment. It did get a shot in the arm last May, when it received the first installment of a 2-year grant from the Russian State Committee of Science for a collaboration between Georgia, Kazakhstan, Russia, Ukraine, and Uzbekistan to study optical relativistic objects. In addition, the observatory has received grants from the International Science Foundation, the European Union's INTAS program, and the European Southern Observatory. Such grants have helped the astronomers buy computers, charge-coupled device detectors, and other equipment.

Lominadze hopes Western interest will pick up—especially in the summer and fall, when the weather is pleasant and Georgia's hydroelectric plants have sufficiently high water levels to provide constant power. He and his deputies are even considering launching a tourism business to raise money. "Astrotourism may be our only way out," says astrophysicist and deputy director George Melikidze. Nevertheless, Lominadze recognizes that, like most directors of Georgian laboratories, he will have to cut the observatory's payroll if Abastumani is to have any hope of surviving.

Few of Abastumani's aging staff—only six people are under 35 years old—are willing to leave on their own. Perched atop 1700-meter Mount Kanobili, the observatory and the surrounding resort region are a tranquil retreat from Tbilisi, and many of the scientists have lived and worked in the area for decades. "The winters may be extremely hard now," says astronomer Victor Japiashvili, a veteran of 50 years at Abastumani, "but I still prefer to stay."

–R.S.

"There is no possibility to see all the necessary literature—we are in complete isolation," says TSU mathematician Khvedri Inassaridze.

Part of the problem, according to many researchers interviewed by *Science*, is that having been suddenly cut off from Soviet science, Georgia lacks its own scientific identity. "Traditionally, the strong fundamental science has been in Moscow," says Agladze. "The academy must develop basic research," says Giorgi Kharadze, director of the Institute of Physics.

But scientists also realize that they must help rebuild the country and shore up applied research that fits Georgia's industrial strengths. The Institute of Physics is negotiating with Danish concerns to establish a wind farm in the Caucasus Mountains capable of generating several hundred megawatts of power. And Agladze's institute is trying to persuade several German firms to invest $40 million in a plant to process the country's rich deposits of manganese ore. "The only possibility to escape from our situation is to get money from industry," Agladze says. Indeed, the government has given institutes free rein to explore such ties. "They say, 'Go and do what you like, but just don't sell any government property,' " says botanist Tamaz Gamkrelidze.

Most researchers now acknowledge, however, that survival will require some bloodletting. "We have to reduce the number of scientists drastically," says Mamradze. Last year, the International Monetary Fund recommended that Georgia ax 60% of its 400,000 public-sector jobs, which include scientists. "Most applied scientists," Mamradze says, "need to find jobs in industry." The academy did order institutes to cut 25% of their staff, but many positions eliminated had already been vacated by emigrants or former scientists.

Patience with the academy is running thin, and it is looking increasingly likely that the government will have to force the issue. "Academy reform will be much discussed by all relevant government structures this year," says Mamradze. "We have to understand that the old life is finished forever." Presidium member Jumber Lominadze, director of the Abastumani observatory, says the academy has reached a crossroads and must be reorganized. However, he says, scientists must be aware of the costs: "In my opinion it would be better to cut. But we have a big problem: People have to eat. What would they do if they weren't employed?"

–Richard Stone