CU, NAIC search for funding to keep Arecibo's radar alive [1]

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By Melissa Rice Chronicle Online [2] The planetary radar system at the Arecibo Observatory, which Cornell manages for the National Science Foundation (NSF) through its National Astronomy and Ionosphere Center (NAIC), is the most powerful in the world and is considered the best tool for tracking asteroids that may be on a collision course with the Earth. But since the Arecibo radar system may lose all its funding from NSF as soon as next year, Cornell astronomer Joseph Burns quips, "Let's hope that we find all the dangerous asteroids in the next few months." Last November, the Senior Review, an advisory committee to the NSF Division of Astronomical Sciences, recommended that Arecibo's total funding from that division be scaled back by 25 percent over the next three years. These cuts only allow operation of the planetary radar to continue into 2008; if the NAIC cannot find outside partners to cover half of the observatory's total operating costs by 2011, the telescope risks being shut down entirely. Many planetary scientists say that the Senior Review's recommendations completely overlooked the radar system. No planetary scientists sat on the committee, and only one reference was made to radar in the 78-page report (and no mention of asteroids). The chair of the American Astronomical Society's Division for Planetary Sciences and numerous other astronomers have urged NSF to reconsider

the funding cuts, with radar in mind. "Asteroid impacts are the only known natural disaster that can cause ecological disaster and mass extinction. They can be prevented, though, and it is simply irresponsible to neglect a unique warning and mitigation device like the Arecibo radar," said Jean-Luc Margot, Cornell assistant professor of astronomy. The radar system also has led to important recent discoveries in planetary science, including the detection of ice at Mercury's poles and the discovery of binary asteroids. In the past year, Cornell astronomers and colleagues have published three articles in the prestigious journals Science and Nature based on Arecibo radar experiments, reporting the discovery of Mercury's molten core, a lack of evidence for ice reserves on the moon and on the detection of the YORP Effect. Although the radar system is not expensive -- its operating costs are roughly $1 million a year -- it is not clear who should pick up the tab. The NSF and NASA have both supported the radar in the past, but neither agency feels responsible for saving the radar now. The NSF feels that solar system science is not one of its high priorities, and should be NASA's responsibility, said Don Campbell, Cornell professor of astronomy and former associate director of the NAIC. But NASA focuses on space programs, not ground-based observatories. "Plus, they feel that it's not their responsibility to pick up programs previously funded by the NSF," he said. Robert Brown, director of the NAIC; Burns, Cornell vice provost of physical sciences and engineering; and Campbell recently met with NASA, NSF, the National Research Council and congressional staff to stress the importance of the Arecibo radar. Brown, Burns and Arecibo Observatory staff members are attending a town meeting in Arecibo, Puerto Rico, this week "to seek new partnerships to help fund and expand the observatory's role [in Puerto Rico]," said Burns. If neither agency agrees to foot the bill, the Arecibo radar will start operating with reduced hours in October 2007, and will likely be inactivated after September 30, 2008. "It would be a tremendous loss if the Arecibo radar gets shut down," said Campbell. "Then we'd only have the Goldstone radar system in California, which is 20 times less sensitive, and is used mainly for spacecraft telemetry. Many solar system studies would be seriously affected." Graduate student Melissa Rice is a writer intern with the Cornell Chronicle.

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