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Searching for asteroids, extraterrestrial life a little more rocky: Budget cuts threaten to close Arecibo, world's largest radio telescope

After nearly 50 years and several major discoveries, the Arecibo Observatory, the largest and



most sensitive radio telescope in the world, faces closure due to severe

budget cuts. In this exclusive report, Wikinews examined how much the observatory's budget was at risk and what the possible outcomes could be for the programs currently relying on Arecibo as their main research tool.

Thousands flee Nigerian town to escape from militants

Thousands of people have fled an



oil town in the Niger Delta, Nigeria yesterday

after an unknown militant group said that all people not originally from the area who did not leave the town would be beheaded.

Egyptian train crash at level crossing leaves dozens dead



At least forty people are reported to have died and another fifty are injured after an

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accident at a level crossing in Egypt.

North America's oldest retailer sold to U.S. owners of Lord & Taylor

Canada's oldest retailer, the Hudson's Bay Company (HBC),



Credit: Montrealais - GFDL

will be transferred from one American owner to another. NRDC Equity

Partners, LLC, owners of U.S. department store Lord & Taylor, will purchase HBC from the estate of Jerry Zucker, who died in April.

Wikipedia Current Events

The European Court of Human Rights has ruled that an ethnic Tamil man denied asylum in Britain could not be sent back to his native Sri Lanka because he would be at risk of torture there.

•The U.S. Food and Drug Administration lifts a warning on tomatoes following a recent salmonellosis outbreak.

•Kuwait names Ali al-Momen as its first ambassador to Iraq since the Gulf War.

•Pope Benedict XVI speaks to 150,000 pilgrims in Sydney for World Youth Day 2008.

•The Chinese National People's Congress holds a press conference and releases mid-year financial statistics on the nation's

Wikipedia Current Events

gross domestic product.

•Hezbollah has acquired mustard and nerve gas from North Korea, to mount on its short-range missiles.

Searching for asteroids, extraterrestrial life a little more rocky: Budget cuts threaten to close Arecibo, world's largest radio telescope

For nearly half a century the world's largest telescope, the Arecibo Observatory in Arecibo, Puerto Rico, has been observing our solar system and the universe around it. Completed by Cornell University along with the National Science Foundation (NSF) in 1963, Arecibo's enormous size gives it the ability to collect more light than any other telescope, allowing it to observe objects that are too faint for other radio telescopes to see. Its main purposes are radio astronomy, aeronomy and radar astronomy, but is probably most famous for its continuing use to search for and attempt to communicate with extraterrestrial life outside our solar system and beyond.

Now Arecibo is facing severe budget cuts which could ultimately close the facility. In an in depth exclusive report, Wikinews examined how much of the observatory's budget was at risk, and what the possible outcomes could be for the programs currently relying on Arecibo as their main research tool. Wikinews spoke to several individuals closely

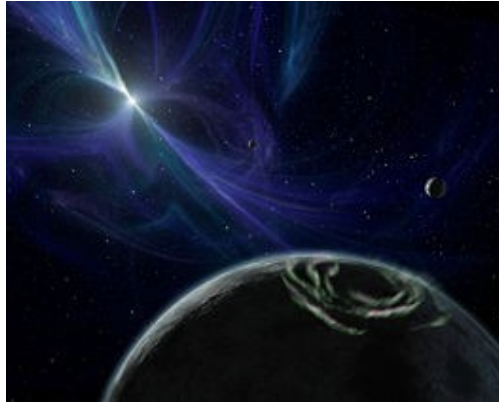
affiliated with projects and facilities who use significant time at the observatory.

Currently, the NSF funds the operations of Arecibo with just over US\$10 million every year. By 2011 they plan to drastically cut that funding to only \$4 million a year, nearly 65% less than the current budget. To counter that loss, the United States House of Representatives passed a bill that would authorize NASA to spend at least 2 million dollars of their nearly \$21 billion budget to fund portions of Arecibo until 2009. But that still leaves more than half of the loss to be recovered, and if something isn't done soon the facility will be closed by 2011 — or sooner if additional cuts are made.

Arecibo is 305 meters in diameter and 300 meters tall at its highest point. It also has an on-site remote sensing LIDAR (Light Detection and Ranging) system to detect light and range of a given object in space. Construction began in 1960 and the observatory officially opened on November 1, 1963. Since then, several projects, programs and discoveries were made possible because of the telescope.

In 1989, the first images of an asteroid named 4769 Castalia were captured using Arecibo. In 1992 Aleksander Wolszczan, an astronomer from Poland used Arecibo to discover pulsar PSR B1257+12 which then led him to discover the first three extrasolar planets in history, and possibly a comet. Scientists with the Near Earth Object Program also use the observatory to track possible meteors and asteroids that have the potential to strike the Earth. Arecibo is also part of the Express Production Real-time e-VLBI Service (EXPReS) project which is

aimed at connecting telescopes from Africa, Europe and North and South America to create a 6,000 mile wide telescope. This allows all connected telescopes to observe the exact same spot in the sky giving scientists images 100 times better than any single telescope on Earth. A successful test of this system was completed on May 22.



Artist's impression of the three extrasolar planets discovered in 1992.

Image: NASA/JPL-Caltech/R. Hurt (SSC).

Perhaps the most well known use of Arecibo is its ongoing attempt to find and or communicate with extraterrestrial life. The popular distributed computing SETI@home project launched in 1999 (started by scientists at the University of California, Berkeley), uses Arecibo on a daily basis to record radio data. SETI@home users from around the world can then donate computer time to analyze the data for potential artificial signals, and maybe some day find a message from another intelligent civilization.

"If this occurs [budget cuts], all projects using Arecibo would stop, including uncompleted surveys looking for pulsars, mapping Galactic hydrogen and of course our SETI surveys (SETI@home and SERENDIP V)," stated Eric Korpela, the project scientist for

SETI@home, to Wikinews. This would also include the NEO Program. Currently the NEO is mandated by Congress to keep a record of all near-Earth objects that are more than 1 kilometer in diameter.

According to Korpela, the cuts began several years ago when United States senators earmarked funds for other observatories located in West Virginia and New Mexico. He says that those actions "diverted money away from the rest of astronomy" causing the NSF to take the shortfall from the Arecibo budget.

"About two years ago, NSF decided that because of additional funding problems Arecibo would have to close in 2011 with substantial budget cuts before then," added Korpela who also said the he is sure that SETI@home and SERNDIP V could find an alternative science source, but nothing as powerful and as sensitive as Arecibo. Korpela also adds that there is not yet any planned move of SETI@home, and no agreements between them and other observatories.

"I'm certain the both SETI@home and SERENDIP V would find another telescope to use. But no other telescope comes close to the sensitivity of Arecibo, with the next largest telescopes having a factor of 10 less collecting area and therefore a factor of 10 less sensitivity. The same is true for the pulsar searches. For the hydrogen mapping Arecibo has 3 times the angular resolution of the nearest competitors," added Korpela but also stated that "there currently aren't any plans" to move SETI@home and that they don't "have any agreements from any of the telescopes" to host SETI@home; there are several

possible telescopes SETI@home could use adds Korpela.



SETI@home logo.

Image: SETI@home.

"Of course we'd like the largest telescopes available if we could get them. Parkes (a 64m telescope in Australia) would be a good candidate. Effelsberg (a 100m dish in Germany) or the 100m Green Bank Telescope in the U.S. would also be good candidates, but as I said much discussion would need to take place before a change could happen," said Korpela.

In June, former U.S. President Bill Clinton and his daughter Chelsea visited the observatory in an effort to bring awareness to the importance of Arecibo; he called the funding for the facility "gravely inadequate." He also stated that his wife, and former 2008 U.S. presidential candidate Hillary Clinton, supports the need for "basic science", and notes Hillary's continued support for a defeated congressional bill that would have given Arecibo the funding it needed.

The bill, named H.R. 2862 'Departments of Commerce and Justice, Science, and Related Agencies Appropriations Bill', was rejected by the House of Representatives because "it exceed[ed] the President's request by \$1.4 billion." The House stated that the need for more funding for the aftermath of Hurricane Katrina was more important.

"The Administration shares the priority the Senate Committee affords basic research and

fundamental science and education at NSF, but is concerned that the bill does not fully support the President's request," stated the bill which also added that "the Committee has identified areas, such as facilities oversight, that need increased investment to maintain NSF's efficient operations" and that the NSF didn't "provide [a] full request for salaries and expenses that would allow NSF to continue to perform to high standards."



Bill Clinton and daughter Chelsea at Arecibo.

Image: NAIC - Arecibo

Observatory, a facility of the NSF. Photo by Tony Acevedo.

A new bill was then resubmitted and reintroduced as H.R. 3737 on October 3, 2007. It is specifically aimed at providing the "National Science Foundation and National Aeronautics and Space Administration (NASA) utilization of the Arecibo Observatory."

"[This bill will] ensure that the Arecibo Observatory is fully funded to continue its research on Earth's ionosphere, continue its research in radio astronomy, and continue research on the solar system; and coordinate with the Administrator of the National Aeronautics and Space Administration to ensure that the capabilities of the Arecibo Observatory continue to be available for National Aeronautics and Space Administration research in characterizing and mitigating

Near Earth Objects, and other research as needed," states the Bill.

If Arecibo were to close, Korpela states that it would take only a short time for SETI@home to move its project elsewhere, but that any agreements made with other observatories will take a much longer time to work out. "Setting up the equipment at a new telescope would be a matter of days, arranging an agreement to do so would take much longer. If we can't find an alternative telescope after an Arecibo shutdown, the project would end once the existing data was analyzed. We're still hoping that Arecibo will be spared," added Korpela. He calls for more support of bill H.R. 3737 to continue Arecibo's science, and SETI@home urges individuals to write to Congress to show support for the bill.

As for the NEO Program, packing up and moving to another location is not possible. There are no other observatories sensitive or large enough to perform the task of tracking near-Earth objects, especially ones at great distances. If Arecibo were to close, the NEO Program, despite a U.S. Congressional mandate and recognition from the Astronomical Science Senior Review Committee, would come to a screeching halt. Wikinews contacted the NSF for a statement, but a Dan MacMillan directed us to the Committee's report.

"The SR endorses its future discovery potential and archival value. The SR recognizes the significant and unique scientific contributions that the Arecibo Observatory has made to astronomy and astrophysics and it congratulates NAIC and Cornell on

operating the facility so effectively," said the Committee in a 94 page report on the NSF's budget.

"However, the committee was not persuaded of the primacy of the science program beyond the end of the decade and found that the case for long term support at the present level was not as strong as that for other facilities. The SR recommends that NAIC plan either to close Arecibo or to operate it with a much smaller AST budget. The SR recommends closure after 2011 if the necessary support is not forthcoming. It recommends that operation of the Angel Ramos Visitor Center continue," added the Committee which also said that "that there were no reliable decommissioning estimates and recommends that AST engage an independent study to advise on the viability and cost of decommissioning the telescope."

In an attempt to cover the budget shortfall Arecibo faces, Don Campbell, Professor of Astronomy at Cornell's Department of Astronomy, who specializes in radio and radar astronomy, tells Wikinews that the university is looking at all possible sources of funding to keep Arecibo open.

"Cornell/NAIC is looking at all possibilities for raising the funds needed to keep the Observatory operating as a forefront institution for research in astronomy and atmospheric sciences. This includes funding from federal agencies, from within Puerto Rico, via international agreements and from private sources," said Campbell who added that "the NSF's Division of the Senior Review (SR) panel recommended that NAIC's budget - NAIC is headquartered at Cornell University and manages the Arecibo - from

NSF/AST be reduced from about \$10.5M to \$8M in FY 2010. It also recommended that there be a further 50% reduction in FY 2011 and that Cornell must find the additional funds needed to operate Arecibo from other sources."

Campbell also adds that Arecibo is so unique and sensitive, closing it makes no sense.

"Closing Arecibo would be closing the world's largest and most sensitive single dish radio telescope. It is 4 to 5 times more sensitive, and has a higher resolving power at the same frequencies, than the next largest single dish radio telescope, the 100 m Robert C. Byrd Green Bank Telescope," said Campbell.

"Arecibo is also, of course, the source of the data that is processed by all the volunteers working with the SETI@home project. Given its relatively small operating budget, closing Arecibo makes no sense," added Campbell.

US FAA to make airliner fuel tank inertion mandatory over 1996 air disaster



The wreckage of TWA 800, reconstructed for the investigation

tanks are to be made mandatory. The move, in conjunction with the U.S. Department of Transportation (DOT), is in response to a recommendation made by the country's National Transportation Safety Board (NTSB) as part of its investigation into a 1996 air disaster.

TWA Flight 800 was a Boeing 747 that exploded in mid-air twelve years ago today, on July 17, 1996, above the Atlantic Ocean. All 230 people on board the New York to Paris flight were killed as the aircraft disintegrated shortly after takeoff from John F. Kennedy International Airport. It was ultimately determined that center wing fuel tank had exploded after sparking faulty wiring ignited a volatile fuel-air mix in the tank.

After the investigation was completed the NTSB requested that the FAA enforce the requirement of inerting systems to prevent dangerous fuel-air mixes from being ignited. One of the most feasible ways of doing this is with nitrogen pumped into the tank, reducing the amount of oxygen available and making ignition difficult or impossible. The NTSB has a 'Most Wanted List of Transportation Safety Improvements' and inerting systems for airliners have been on the list since 2002.

Since TWA 800 there have also been similar explosions in Thailand and India, but both occurred on the ground and resulted in no fatalities.

The FAA's new directive requires all new aircraft from August 20 to have the equipment fitted. It also requires all carriers to retrofit their fleets, with half of their airliners to be compliant within six years and every jetliner in the US to have the technology fitted in nine years.

The FAA's announcement was made at the Virginia hanger where the remains of Flight 800 are stored.

Air carriers, who until now have fought against the changes, say that there will be a cost running

into millions of dollars. If the nitrogen system is installed, the cost of retrofitting an airliner is at US\$92,000 for mid-range jets such as the Boeing 737 and Airbus A320, and costs \$311,000 for a Boeing 777 or other similar long-range widebodied airliner. The 747, which has a large centre wing fuel tank, is especially vulnerable to such explosions.

Thousands flee Nigerian town to escape from militants

Thousands of people have fled an oil town in the Niger Delta, Nigeria yesterday after an unknown militant group said that all people not originally from the area who did not leave the town would be beheaded.

The militants first visited Bonny Island, the town involved, two weeks ago, killing nine people. According to newspaper reports, they said that they would return yesterday to carry out the beheading. They did not return as promised, but many in the city of 100,000 took the threat seriously and left.

Kingsley Adonis Pepple, a local resident and youth leader, described the panic on Bonny Island. "They were handing out copies of this article to people in the street. There was panic. People packed up their entire family into a boat and fled," he said.

Pepple also said that all known militant groups in the area had denied issuing any threats

Gordon Brown, the Prime Minister of the United Kingdom, recently offered the United Kingdom's support to help combat the spread of incidents like this. He said that "the security training force [provided by the UK] ... will be support for the Nigerians to be

able to have trainers and others who can build up this capacity locally to deal with the problems of lawlessness that exists in the area."

North America's oldest retailer sold to U.S. owners of Lord & Taylor

Canada's oldest retailer, the Hudson's Bay Company (HBC), will be transferred from one American owner to another. NRDC Equity Partners, LLC, owners of U.S.

department store Lord & Taylor, will purchase HBC from the estate of Jerry Zucker, who died in April.

In 2006, the fate of HBC was first in doubt when Zucker bought it for \$1.1 billion from another American owner. The businessman wanted to convert The Bay into a more upscale department-store chain.

Zucker had also begun remodeling the company's Zellers chain to imitate the Target Corporation, creating wider aisles, expanding outlets, and selling at prices that matched those of the Wal-Mart Canada Corporation.

NRDC plans to introduce up to 15 Lord & Taylor stores in Canada by converting some of HBC's existing properties, which include stores such as The Bay, Zellers and Home Outfitters. Under the deal announced on Wednesday, NRDC will support a newly-established holding corporation, the Hudson's Bay Trading Company, with \$500 million in funding.

The Hudson's Bay Company was established in 1670 to support trade and development throughout

the northern North American territory that is now Canada.

Broward County Sheriff's police dog killed in shootout in Florida

A man shot and killed a Broward County Sheriff's Office police dog in Miami Beach after a two-county chase in Florida early Thursday morning.

The shooter, Delvin Lewis, 27, was firing shots at his girlfriend during a domestic dispute in Oakland Park. When police arrived the suspect got into his car and fled engaging roughly 20 cruisers in a 30 mile chase which ended near Mount Sinai Medical Center's emergency room in Miami Beach. An exchange of gunfire followed in which Lewis reportedly killed the dog. ER doctors tried to save the animal but it was too late.

The shooter was also struck and has been taken to Jackson Memorial Hospital where he remains with no life threatening injuries.

According to a Mount Sinai spokeswoman hospital facilities are now accessible after the authorities locked down the area for three hours following the shooting. Lewis is now facing serious charges since the K-9 is considered an officer.

Miami-Dade Police Department is handling the investigation which involves Broward Sheriff Office and Miami Beach police.

Today in History

64 – The Great Fire of Rome started among the shops around the Circus Maximus, eventually destroying four of fourteen Roman districts and severely damaging seven others.

1863 – American Civil War: Led by



A Hudson's Bay store in Montrea

Credit: Montrealais - GFDL

Union Army Colonel Robert Gould Shaw, the 54th Massachusetts Volunteer Infantry, the first formal African American military unit, spearheaded an assault on Fort Wagner near Charleston, South Carolina.

1925 – The first volume of Adolf Hitler's personal manifesto Mein Kampf was published.

1969 – After a party on Chappaquiddick Island in Massachusetts, United States Senator Ted Kennedy drove his car off a wooden bridge into a tidal channel, killing his passenger Mary Jo Kopechne, a former campaign worker.

1982 – Guatemalan military forces and their paramilitary allies slaughtered over 250 Mayans in the village of Plan de Sánchez, Baja Verapaz.

July 18 is Constitution Day in Uruguay (1830)

Quote of the Day

When I die, my money's not gonna come with me. My movies will live on for people to judge what I was as a person. I just want to stay curious. ~ Heath Ledger

Word of the Day

anhedonia n

1. (medicine, psychiatry) The inability to feel pleasure.

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