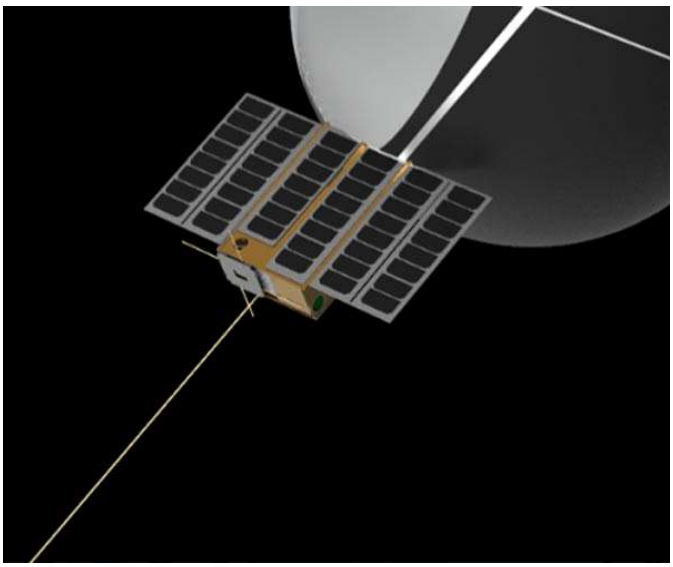
MICROSAT BLITZ

Arizona: Student-Led CatSat Mission Selected for Flight by NASA

by Daniel Stolte for UA News
Tucson AZ (SPX) Mar 19, 2019

An inflatable space antenna designed by University of Arizona students is one of 16 small research satellites from 10 states NASA has selected to fly as auxiliary payloads aboard space missions planned to launch in 2020, 2021 and 2022.



UA students will get hands-on spacecraft hardware development experience thanks to NASA's CubeSat Launch Initiative, which recently selected CatSat to fly as auxiliary payload aboard future space missions.

The selections are part of the 10th round of NASA's CubeSat Launch Initiative.

CubeSats are a type of spacecraft called nanosatellites, often measuring about four inches on each side and weighing less than three pounds, with a volume of about one quart. CubeSats are built using these standard dimensions as Units or "U," and are classified as 1U, 2U, 3U, or 6U in total size.

CatSat is a 6U CubeSat led by UA students from the Lunar and Planetary Laboratory and various departments including aerospace and mechanical engineering, astronomy, computer science, and systems and industrial engineering.

"This is a great opportunity for students to get hands on experience building a spacecraft and running a space mission," said Tanner Campbell, an aerospace and mechanical engineering doctoral student who is serving as project manager for CatSat. In the end, this a team effort involving more than a dozen students spread across campus, he added.

The spacecraft selected under the CubeSat Launch Initiative are eligible for placement on a launch manifest at no cost, depending on the availability of a flight opportunity.

Launch opportunities include planned spaceflight missions led by NASA, other U.S. government agencies or commercial organizations, as well as deployments from the International Space Station. After launch, satellites will perform technology demonstrations, conduct scientific investigations or provide educational benefits.

"Let's say you are flying a space probe across the solar system and you want to beam a lot of data back to the Earth," says Vishnu Reddy, the principal investigator of the mission and an associate professor at the Lunar and Planetary Laboratory.

"To do that, you need a large antenna, but those are too bulky to be carried on small spacecraft such as CubeSats. To overcome the problem of getting large antennas into small spacecraft, our group of students proposed a bold mission that would test a novel inflatable antenna system in space."

CatSat is the size of a large cereal box. When fully deployed, the inflatable expands in a bubble gum fashion, forming a sphere three feet across that sticks out from one side of the box. An aluminized spot inside the inflated sphere is used as the communication antenna to beam data back to the Earth. Since CatSat will be in low Earth orbit, the data can be downloaded using a ground station located at the UA.

CatSat is mainly a technology demonstration mission to mature this inflatable concept in Earth orbit. The ultimate goal is to fly such an antenna on an interplanetary mission that Reddy wants to lead to explore small bodies in the solar system.

Inflatable antenna technology is the brain child of UA astronomy professor Christopher Walker, who is also the science principal investigator of the mission. FreeFall Aerospace, a local small business co-founded by Walker to advance inflatable antenna technology, helped the project as an industrial affiliate.

Two engineering principal investigators - Roberto Furfaro, a professor in the Department of Systems and Industrial Engineering, and assistant professor Jekan Thanga, an assistant professor in the Department of Aerospace and Mechanical Engineering - are leading the student teams who are building the actual spacecraft hardware on campus.

+ NASA's CubeSat Launch Initiative.

Related Links
Lunar and Planetary Laboratory at the University Of Arizona
Microsat News and Nanosat News at SpaceMart.com

MICROSAT BLITZ

Ready for Launch, NASA: UVA Space Satellite is A-OK

Charlottesville VA (SPX) Mar 04, 2019
A project built by a team of University of Virginia engineering students took a giant leap toward outer space Tuesday when they and student colleagues from Old Dominion University and Virginia Tech delivered small satellites, called "CubeSats," to NanoRacks, an aerospace company in Houston. NanoRocks will integrate the CubeSats into a deployer aboard a rocket set for launch next month to the International Space Station. The satellites are part of the Virginia CubeSat Constellation mission, a ... read more

Investment round

1 comment • 8 days ago

Kristianna Thomas — Space in Africa, and odd name to begin with, in principle sounds like a great idea. That there is movement-a-foot in relations to advancement of technologies and space exploration, but as I went to the site I found that their subscriptions is $99/ 6 months, $163/year, and corporate subs are in the stratosphere. With these prices who could afford them; especially when there are only eleven reporters who have to cover all of Africa. How could the Average African pay for this new outlet? If you are part of the rising Upwardly Mobile African Middle-class (UMAM), as compared to the Downwardly Plunging Impoverished African Working-class (DPIAW). The middle-class snobs from India thumb their noses at the lower classes, saying that their Space classes are not meant for the average son of a "Richet Shaw driver. Elitist. Is the African "Middle class looking down upon the African Working class? Will the Average Working Class black be allowed to be part of the Space in Africa; although Africa has plenty of space; not a lot of available drinking water.

Mystery of Universe's ...

1 comment • 8 days ago

Kristianna Thomas — Is our model of this universe complete? We measure celestial objects in order to quantify the structure of the universe therefore having a complete understanding of the expansion of the universe. My first thought is how is the universe expanding. Saying that the universe is expanding, the distance between galaxies, does not say how it is expanding. Is it expanding in an outward direction, or is it collapsing onto itself. The primal universe was a sea of dust and matter that provided the necessary building material for the development of the early galaxies; there was room to groove. As the universe aged more galaxies were born, and the dust and materials of the primal universe was consumed. Unfortunately, we know of the structures of the galaxies, but we don't have a clue of the structure of the universe. Is the universe a spiral, barrel or what ever. We know that large galaxies are consuming smaller galaxies, consolidating the matter of the universe; fewer and fewer galaxies more space. Is the universe consolidating into definitive arms that spiral out of the universal center? How many arms does the universe have, and how many will it be left with? In 400 billion years from now will there be only two counter-posing arms left in the universe; causing it to implode and consolidate into one giant super mass?

US slaps sanctions on Al-Qaeda affiliate in Mali

1 comment • 8 days ago

joanofark06 — "The sanctions freeze all US assets owned by the group or its leaders, and block US citizens and institutions from having financial dealings with them."What were they doing with "ALL" of the US assets to BEGIN WITH?? So all this time, the US has been their buddies, giving them "things"?? Oh well, I shouldn't be surprised at this news.

India to make new bid to launch Moon rocket on ...

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schmoe — "helium fuel leak." Just wanted to point out that helium is not a fuel.Since the GSLV rocket is powered by hypergolics, I'm guessing the helium pressurizes the hydrazine and N2O4 fuel tanks.

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