

# SMALL STEPS TO SPACE

ARTICLES INTERVIEWS ABOUT CONTACT

**You can explore space**, no spacesuit required. Amateurs around the world build satellites, study planets orbiting other stars, and take part in crowdsourced citizen science projects. Educators use hands-on space projects to inspire their students to study science and mathematics. And these are real projects - middle school students have experiments running on the International Space Station right now!

I created this website to share the many ways normal people like you and me join humanity's next great adventure. Take a look around. [Let me know what you think](#). What projects do you want to hear more about?

-Chris

[Africa](#) [Alabama](#)  
[algorithm limits](#)  
[amateur astronomer](#)  
[analog research](#)  
[archive](#) [Arizona](#)  
[asteroid](#)  
[astronomy](#)  
[astrophotography](#)

## The Week in Amateur Space Exploration - February 27

February 27, 2015

If you [follow me on Twitter](#), you get my tweets as soon as I get any amateur space news. Every week I summarize the reports to give you a single snapshot - in over 140 characters - of how many different ways people like you explore space.

### ENABLING AMATEUR SPACE EXPLORATION

Nasa will put an Arizona State University cubesat, the [Asteroid Origins Satellite](#), into orbit in 2017. "One of the great things about AOSAT," [professor Erik Asphaug told Yuma News Now](#), "is that its life cycle is comparable to the tour-of-duty of a student at ASU." Over the course of the project more than 30 undergraduate students will help design, build, and operate the satellite. The experiment places dust and rocks inside the satellite which spins, simulating conditions on the surface of an asteroid.

### CONNECT



[RSS Feed](#)

[Or Contact Me](#)

### TWITTER FEED

Who needs parachutes when your [#modelrocket](#) can land itself? [@RocketContest](#) may need to update next year's TARC rul...

<https://t.co/QbpWYWdAfC>

3 months ago

OK, there's nothing space related about this, but

[#DronesAndDinosaurs!!](#) 🐳 🐳

🐳 🐳 h/t [@InsideDrones](#)

<https://t.co/NpjUXSp2jb>

3 months ago

RT [@jasonrdavis](#): I wrote an article for Sky & Telescope about The Planetary Society's Shoemaker NEO Grants. Are you a serious astero...

<https://t.co/dqFjih3dv>

3 months ago

This year's UK rocketry champions have been crowned. In 10 days, America's teen rocketeers will compete to represent...

<https://t.co/bIEdGVYzoq>

aurora  
 Australia  
 balloon  
 California  
 Canada  
 cansat cause  
 citizen science  
 coding  
 Colorado comet  
 contest  
 cosmic ray  
 crowdfunding  
 crowdsourcing  
 cubesat  
 distributed  
 computing  
 earthquake  
 education  
 Europe  
 exoplanet  
 fireball Florida  
 France Georgia  
 Germany Hawaii  
 Idaho Illinois  
 India Ireland  
 Israel Italy  
 Jupiter maker

### What does it mean for

**amateurs?** The \$100,000 AOSAT project may seem far from amateur, but it reflects the new world of relatively low-cost space science that gives undergraduate students hands-on experience with space research. Past space missions cost hundreds of millions of dollars and took a decade or more to complete. A student could earn both undergraduate and doctoral degrees without ever seeing the mission launch. Projects like the AOSAT - which is the first of many satellite ASU plans to build - will send graduating engineers and scientists into the workforce with real world experience. Employers will soon expect their new hires to have the background that ASU's students already have.

### EXPLORING DEEP SPACE



THE HUBBLE DEEP FIELD AS SEEN IN THE WORLDWIDE TELESCOPE. SOURCE: [WORLDWIDE TELESCOPE](#)

Vietnamese high school student Dang Hoang San built a community of 300 student astronomers from the ground up, reported Tuoitnews. San built his first telescope in 7th grade, founded an astronomy club in 8th grade. Now in 10th grade, San has helped club members build a dozen telescopes for

3 months ago

RT @nova\_foresta: Bright meteor/fireball exploding over southern England caught on video from Hampshire this morning at 02:48 GMT.

<https://t.co/doUuPC8eex>

3 months ago

RT @RocketContest: 856ft in 42.42 seconds? @sg\_nasa\_sl is ready for the Final Fly-off! 🚀

<https://t.co/cpNl147ALM>

3 months ago

In the you-learn-something-New-every-day category: the small size of the #cubesat was inspired by the packaging of...

<https://t.co/GdaC76XMcm>

3 months ago

A Georgia high school is sending two teams of rocket-makers to this year's Team America Rocketry Challenge. The con...

<https://t.co/X1f6rH2Kbz>

3 months ago

An Inuit artist hopes his sealskin space suit inspires First Nations youth to pursue ambitious careers. Via @cbc

<https://t.co/moCP1N4nrU>

3 months ago

RT @JenLucPiquant: Netflix Stealth Dropped Chinese Sci-Fi Blockbuster The Wandering Earth This Weekend, and No One Noticed

<https://t.co/5oaUwH4UBC>

3 months ago

RT @DrJoVian: The free Introduction to Exoplanets course I co-wrote with

Mars

Mars One

Maryland

Massachusetts

meteor

Michigan

microgravity

Minnesota

Missouri

model  
rocket

Montana

Moon

near space

Netherlands

New Jersey

New Mexico

New York

New Zealand

Newsfeed

North Carolina

Ohio Oregon

Pennsylvania

Poland pro-am

pro-am benefits

radio astronomy

half the price of manufactured telescopes.

Boston-area public broadcaster WGBH reported on [the role of armchair astronomers in its many forms](#). It spoke with amateur astronomer Kevin Alton whose robotic telescope lets him search for asteroids and study variable stars. Yale University's Debra Fischer explained the role of citizen scientists in the search for exoplanets through the Planet Hunters crowdsourcing project.

Sky&Telescope featured another tool for armchair space explorers - the [WorldWide Telescope](#) project. The [feature article](#) is only available to subscribers, but an [online supplement](#) discusses how the WWT is used for outreach and scientific research.

## EXPLORING THE SOLAR SYSTEM



THE MOONRIDER PROJECT WILL SEND HAWAIIAN HIGH SCHOOL STUDENTS' RESEARCH TO THE MOON. *SOURCE: PISCES*

Two Hawaiian high schools are working with Nasa on an experiment that may go to the Moon, reported Hawaii News Now. Using technology developed at the Kennedy Space Center, the students experiment will use an electric field to clear lunar dust that falls on the experiment. The sharp dust grains in the

[@saltburnlass](#) is finally live on the [@OpenUniversity](#) web...  
<https://t.co/evOU3LM3o4>  
3 months ago

RT [@erfmufn](#): Well I think this may be the best deep space photo I've ever taken. NGC6188 "Fighting Dragons of Ara" in 2 hours wi...  
<https://t.co/Opl3okcHZ5>  
3 months ago

With [@ISSET\\_STEM](#)'s expansion Down Under, Australian teens will get a chance to send science projects to the Interna...  
<https://t.co/bfWin97q0r>  
3 months ago

Teens at an Oklahoma school district will spend the 2019-2020 school year designing microgravity experiments. Exper...  
<https://t.co/xxk08Qvm1P>  
3 months ago

A biology experiment designed by a 47-year-old community college student will head into space on this week's...  
<https://t.co/YeE2szRN12>  
3 months ago

Undergraduates with the [@SIUE](#) chapter of [@sedsusa](#) have set their caps on entering the [@Spaceport\\_Cup](#) high-performan...  
<https://t.co/nt8KwxC38W>  
3 months ago

Design firm [@AISpaceFactory](#) won [@NASAPrize](#)'s contest to 3D print a habitat for #Mars. A faculty-led team from...  
<https://t.co/QWcm4cWkrT>  
3 months ago

remote sensing  
 robotic telescope  
 robots rocket  
 Russia satellite  
 satellite imaging  
 satellite making  
 sensor-net  
 South Africa  
 South Carolina  
 space tourism  
 Spain  
 status-active  
 STEM  
 storm-spotting  
 suborbital  
 supernova  
 teachers learn  
 Texas UAE  
 United Kingdom  
 USA  
 variable star  
 Virginia  
 Washington

lunar regolith created problems for Nasa's Apollo astronauts and would pose a challenge for future explorers. The [Pacific International Space Center for Exploration Systems](#) will help the students develop their experiment which will ride on a Google Lunar XPrize lander in a few years.

[High school students at Trinity Christian Academy](#) are searching for asteroids, reported the Dallas Morning News. They use data collected by professional observatories in Hawaii to trace the path of asteroids through the Solar System. The International Astronomical Union gave one of the asteroids they spotted provisional status as a discovery. Should it be confirmed, the IAU will list the students as the discoverers.

Meteors and falling rocket parts streaked across the United States this week, spawning hundreds of reports the American Meteor Society. [More than 230 people reported a large meteor passing over Georgia and Florida](#) early in the week. The Suwanee Democrat cited experts who think [meteorites may have landed in southern Georgia](#). Later in the week [more than 140 people reported the fireball created by a Chinese rocket](#) as it re-entered the atmosphere and disintegrated over the western United States and Canada.

## EXPLORING THE PLANET EARTH



As [@uaespaceagency](#) ramps up its ambitious exploration plans, it is playing the long game by engaging Emirati youth...  
<https://t.co/ecUEhf9msM>  
 3 months ago

More fallout from last year's government shutdown. This is why we can't have shiny things in space... Via...  
<https://t.co/nnzWilv3Dj>  
 3 months ago

Wednesday is the United Kingdom Youth Rocketry Challenge. Teens across Britain will gather to launch the...  
<https://t.co/OXu5wvAmNj>  
 3 months ago

# weather weather- spotting

EVEN WITH ALL OF THE TECHNOLOGY AT NOAA'S DISPOSAL, SOMETIMES YOU NEED THE HUMAN EYE TO FILL IN THE GAPS. DURING SEVERE WEATHER, STORM-SPOTTERS IN NOAA'S SKYWARN PROGRAM REPORT THE GROUND TRUTH OF WHAT'S HAPPENING WHERE RADARS CAN'T SEE. *CREDIT: NOAA/NASA*

[ArduSat](#) is a science education program that lets students program satellites in orbit to gather data about Earth. Beehive Startups reported that [ArduSat received \\$1,000,000M in financing](#) to expand its operations. The money will help ArduSat [to create an online platform so schools can share the data from their experiments](#), reported EdSurge.

[Digital Globe](#) is the power behind many non-profit organizations that use satellite imaging to make the world a better place, from fighting atrocities in Sudan to tracking oil spills in the Gulf of Mexico. [NetHope will conduct a webinar March 3 to teach non-profits and NGO's how to use satellite imaging to support their causes.](#)

In preparation for the summer thunderstorm season the National Weather Service is conducting [Skywarn](#) training sessions across the country. Skywarn coordinates more than 200,000 volunteer storm-spotters who help the NWS overcome the limits of radar technology through the power of the human eye. Meteorologist Brandi Hughes explained to TV station KETK that [weather radar only lets them see what's happening 8,000 feet above eastern Texas](#). Michigan's Daily Telegram spoke with meteorologist Richard Pollman who explained that [the NWS needs storm-spotters "to see what is going on below the cloud line](#). Spotters can tell us hail size, and when we can

see wind, we need to know how strong it is.”

## AMATEURS IN MICROGRAVITY



Nasa picked [19 undergraduate students to design tools for astronauts](#) to use on an asteroid mission. The contest is part of Nasa's [Microgravity University](#) program that gives undergraduates hands-on experience doing work for the space agency. The students will get to see their work tested by astronauts in Johnson Space Center's [Neutral Buoyancy Laboratory](#). [Boise State University](#) reported that its team would design a tool to grab samples from the surface of an asteroid.

7th grade students at Colleton County Middle School were part of the [Student Spaceflight Experiment Program's Mission 6](#). The students' research studied microgravity's effect on spoiled milk, but their experience was more challenging than they expected. The explosion of Orbital Science's Antares launch vehicle destroyed all of the Mission 6 experiments last year. Last minute scrambling by the students, SpaceX, Nanoracks, and Nasa sent replacement experiments to the space station in January and brought them back this month. ["It's been an amazing adventure and an experience we will](#)

[never forget](#)," Megan DeWitt told Colleton Today.

The SSEP's Mission 7 will launch more experiments this spring. [High school students in Minnesota are preparing to study the effect of microgravity on frog embryos' development](#), reported the Northland News Center. Radio station WDDE reported that more than 1,300 students in Delaware participated in the SSEP. [The Caravel Academy will study the effect of microgravity on fruit fly larvae](#) while [Caesar Rodney High School will investigate how well an enzyme breaks down hydrogen peroxide](#).

Nasa will put an Arizona State University cubesat, the [Asteroid Origins Satellite](#), into orbit in 2017. "One of the great things about AOSAT," [professor Erik Asphaug told Yuma News Now](#), "is that its life cycle is comparable to the tour-of-duty of a student at ASU." Over the course of the project more than 30 undergraduate students will help design, build, and operate the satellite. The experiment places dust and rocks inside the satellite which spins, simulating conditions on the surface of an asteroid.

## MAKING SPACESHIPS



WORLD VIEW PREPARES FOR A RECORD-BREAKING TEST FLIGHT THAT CARRIED STUDENT-BUILT EXPERIMENTS INTO NEAR SPACE: *SOURCE: WORLD VIEW*

World View, the company that plans to offer tourist balloon flights into near space, conducted the [first-ever test of a wing-shaped parachute from 30 kilometers](#). Tagging along for the ride were experiments built by students at Montana State University. [The students tested high-definition video links and a radiation-resistant computer](#), reported the Fairfield Sun-Times.

The volunteers at California Near Space Program launched their [22nd high-altitude balloon mission on Monday](#). By Friday it had crossed the Atlantic, passed over the UK and France, and crossed into Spain before powering down for the night. Forecasts expect the balloon to shift direction over North Africa and head towards Greece and Turkey. Amateur radio enthusiasts help the CNSP track the balloon during its round-the-world journey.



**Mark Conner**  
@N9XTN

[#CNSP22](#) now over western FR, perhaps in range of srn Italy/Greece [#hamradio](#) ops tomorrow? [@K6RPT](#)



2 7:32 AM - Feb 27, 2015

[See Mark Conner's other Tweets](#)

[Two lads from Essex read about near space ballooning and decided “to give it a go”](#), reported the Brentwood Gazette. With a little Raspberry Pi, a few GoPro cameras, the Essex Space Agency will send its Project Helium Tears into the stratosphere this spring. “It is good fun. It beats just going to a pub all the time.”

[Southern rocketeers will gather for Grits - Georgia Rockets In The Sky](#) - this weekend. The FAA granted a waiver for model rocket launches as high as 20,000 feet. The Valdosta Daily Times reported that [schools from across Berrien County have built more than 140 rockets](#) to launch at the event.

The Register highlighted a more [ambitious rocket project](#) - the Boston University Rocket Propulsion Group’s [Starscraper](#). BurpG hit the amateur space headlines earlier this year when they [crowdfunded \\$17,000 for their suborbital rocket project](#). It will be the first amateur hybrid rocket to climb past the Kármán line 100 kilometers above Earth’s surface. Monthly tests of its engine will lead up to the planned July launch from Nevada’s Black Rock Desert.

---

 Chris Casper  Comment

 Newsletter

◆ Newsfeed, Cubesat, Virtual Observatory,  
Vietnam, Telescope Making, STEM, Hawaii, Texas,  
Microgravity, Meteor, Weather-Spotting, Cause,  
Remote Sensing, Idaho, South Carolina,  
Minnesota, Delaware, Arizona, Montana, Near  
Space, Model Rocket

◀ MARS ONE MOI MARS ONE CAN PI'

---

Powered by [Squarespace](#)