



## The Mission



**Rocket:** Atlas 5 (AV-010)

**Payload:** New Horizons

**Date:** January 19, 2006

**Time:** 1:08-3:07 p.m. EST (1808-2007 GMT)

**Site:** Complex 41, Cape Canaveral, Florida

**Broadcast:** AMC 6, Transponder 17, 72° West

- [Video coverage](#)
- [Overview of the mission](#)
- [Mission Status Center](#)
- [Daily launch windows](#)
- [Launch ground track](#)
- [New Horizons trajectory](#)
- [The science goals](#)
- [Craft/instrument details](#)
- [Student Dust Counter](#)
- [Illustrations of the probe](#)
- [Atlas 5 rocket info](#)
- [Cape's Complex](#)

## Instrument to search for dust clumps en route to Pluto

### UNIVERSITY OF COLORADO-BOULDER NEWS RELEASE

Posted: December 31, 2005

The University of Colorado at Boulder's long heritage with NASA planetary missions will continue Jan. 17 with the launch of a student space dust instrument on the New Horizons Mission to Pluto from Florida's Kennedy Space Center.

As the first student-built instrument ever selected by the space agency to fly on a planetary mission, the CU-Boulder Student Dust Counter, or SDC, will monitor the density of dust grains in space as New Horizons buzzes to Pluto and beyond. The dust grains are of high interest to researchers because they are the building blocks of the solar system's planets, said Research Associate Mihaly Horanyi of the Laboratory for Atmospheric and Space Physics, principal investigator for the student instrument.

The student team hopes to identify as-yet-undetected clumps of dust in the dust disk of the solar system caused by the gravity of the outer planets, said Horanyi, who is also a professor in the physics department. "This will help us to understand the formation of our own planets, as well as those seen in dust disks around other stars," he said.

"Just as importantly, this effort will provide students with an important role in a pioneering space mission for years to come," said Horanyi.

Instruments and experiments designed and built for NASA missions by CU-Boulder's LASP since the 1970s have visited Venus, Mars, Jupiter, Saturn, Uranus and Neptune. In addition, NASA's MESSENGER spacecraft, now en route to Mercury, is carrying a \$7 million device designed and built by CU-Boulder's LASP.

The SDC detector is a thin, plastic film resting on a honeycombed aluminum structure the size of a cake pan mounted on the outside of the spacecraft, said Horanyi. A small electronic box inside the spacecraft will function as the

## Analytical Graphics, Inc.

A whole new approach to STK launches this October. Lock in your STK 8

upgrade and save big today: [www.agi.com/BestDealEver](http://www.agi.com/BestDealEver).



## Telescopes.com

Largest selection and the best prices anywhere in the world. Free shipping on select items.

[Telescopes.com](http://Telescopes.com) is the largest dealer of both Meade and Celestron Telescopes. Visit [Telescopes.com](http://Telescopes.com) or call toll free 1-800-303-5873.



## SFN+Plus

### Video clip of the day



**STS-115:** Canadian Space Agency astronaut Steve MacLean will serve as mission specialist No. 4 aboard space shuttle

- [Cape's Complex 41](#)
- [New Horizons stories](#)
- [Atlas archive](#)

### NewsAlert

Sign up for our *NewsAlert* service and have the latest news in astronomy and space e-mailed direct to your desktop.

Enter your e-mail address:

Subscribe

Privacy note: your e-mail address will not be used for any other purpose.

### Spaceflight Now +

Premium video content for our Spaceflight Now Plus [subscribers](#).

### Science of New Horizons

The first robotic space mission to visit the distant planet Pluto and frozen objects in the Kuiper Belt is explained by the project's managers and scientists in this NASA news conference from the agency's Washington headquarters on Dec. 19.



■ [Dial-up](#) | [Broadband](#)

### Pluto spacecraft

The Pluto New



instrument's "brain" to assess each individual dust particle that strikes the detector during the mission.

The researchers are particularly interested in the dust that New Horizons will encounter in the Kuiper Belt, a vast region beyond the orbit of Neptune that contains thousands of ancient, icy objects, said Horanyi. Kuiper Belt objects are thought to contain samples of ancient material formed in the solar system billions of years ago.

Microscopic-sized dust grains hitting the SDC will create unique electrical signals, allowing the CU-Boulder students to infer the mass of each particle, said CU-Boulder doctoral student David James, who has been working on the electronics of the dust detection system on SDC for the past two years. While the spacecraft will be in "sleep mode" for much of the cruise to Pluto, CU-Boulder's dust detector will remain turned on to catch space dust during the journey, James said.

The SDC team is comprised of CU-Boulder students from electrical and computer engineering, mechanical engineering, computer science, journalism and business who designed and fabricated the instrument under the supervision of LASP faculty and staff. The students will share their findings and mission experiences with students and the public around the world via the Internet and public presentations.

"I never dreamed I would get the chance to actually work on a space mission as an undergraduate student," said Elizabeth Grogan, who began working on the SDC as software engineer while a senior at CU-Boulder. She now works at LASP as a research assistant on the New Horizons effort. "I got much more hands-on experience on this project than I could have ever gotten in a classroom," Grogan said.

The National Academy of Sciences has ranked the exploration of Pluto, its moon, Charon, and the Kuiper Belt among the highest priorities for space exploration, citing their importance in advancing the understanding of the solar system.

"We expect that several generations of CU-Boulder students will be involved in the mission during the next two decades," Horanyi said.

The New Horizons mission is led by the Southwest Research Institute's Department of Space Studies in Boulder under the direction of Alan Stern. New Horizons was designed and built at Johns Hopkins University's Applied Physics Laboratory in Laurel, Md., which will operate the spacecraft for NASA. The piano-sized probe will launch on a Lockheed Martin Atlas 5 rocket from Cape Kennedy to begin its 10-year

Atlantis' space station construction mission. Making his second flight in space, MacLean will perform a spacewalk during STS-115 to activate the new solar array truss attached to the station. MacLean talks about his life, the rewards of spaceflight and details of STS-115 during this pre-flight interview.

- [PLAY VIDEO](#)
- [HOW DO I SIGN UP?](#)

## Spaceflight Now Video Podcast

Spaceflight Now is pleased to present our new **Mission Report Minute**



video podcast, a free service to bring you the latest news from the space program in a short one-minute bulletin!

■ [SUBSCRIBE ON ITUNES](#) (free)

## Columbia Report

A reproduction of the official accident investigation report into the loss of the space shuttle Columbia and its crew of seven.



■ Choose your store: [U.S.](#) - [U.K.](#) - [E.U.](#) - [Worldwide](#)

## Mars Panorama



.....  
 Horizons spacecraft, destined to become the first robotic probe to visit Pluto and its moon Charon, arrives at NASA's Kennedy Space Center in advance of its January blastoff.



■ [Play video](#)

### Mars probe leaves Earth

The Mars



Reconnaissance Orbiter lifts off aboard a Lockheed Martin Atlas 5 rocket from Cape Canaveral's Complex 41.

■ [Full coverage](#)

### Launch of Atlas 5!

The fifth Lockheed Martin Atlas 5 rocket blasts off to deploy the Inmarsat 4-F1 mobile communications spacecraft into orbit. (2min 35sec file)



■ [Play video](#)

### Extended launch movie

An extended length clip follows the Atlas 5 launch from T-minus 1 minute through ignition of the Centaur upper stage and jettison of the nose cone. (6min 43sec file)



■ [Play video](#)

### Onboard camera

journey to Pluto.

The 1,000-pound probe, which will be the fastest spacecraft ever launched, will approach Pluto and Charon as early as summer 2015. In addition to the dust counter, the instrument suite includes two cameras, two imaging spectrometers and two particle spectrometers to gather data on the surfaces, atmospheres and temperatures of Pluto, Charon and the Kuiper Belt objects.

Horanyi said a group of current and former CU-Boulder students who worked on SDC are going to the Florida launch, many paying their own way from around the world. "Many of these students have moved on to other institutions and careers, but they are excited to see this mission finally launch," he said. "If all goes well, we will be having another reunion in 10 years when the spacecraft reaches Pluto."



**DISCOUNTED!** This 360 degree image was taken by the Mars Pathfinder, which landed on the Red Planet in July 1997. The Sojourner Rover is visible in the image.

■ Choose your store:  
[U.S.](#)

### Apollo 11 Mission Report

Apollo 11 - The NASA Mission Reports Vol. 3 is the first comprehensive study of man's first mission to another world is revealed in all of its startling complexity. Includes DVD!



■ Choose your store:  
[U.S.](#) - [U.K.](#) - [E.U.](#) - [Worldwide](#)

### Rocket DVD

If you've ever watched a launch from Kennedy Space Center, Cape Canaveral, Vandenberg Air Force Base or even Kodiak Island Alaska, there's no better way to describe what you witnessed than with this DVD.



■ Choose your store:  
[U.S.](#) - [U.K.](#) - [E.U.](#) - [Worldwide](#)

An onboard video camera mounted to the Atlas 5 rocket's first stage captures this view of the spent solid-fuel boosters separating.



■ [Play video](#)

#### **Press site view**

This view of the Atlas 5 launch was recorded from the Kennedy Space Center Press Site. (1min 27sec file)



■ [Play video](#)

#### **Atlas 5 preview**

Preview the launch of Lockheed Martin's Atlas 5 rocket carrying the Inmarsat 4-F1 communications spacecraft with this narrated animation package. (3min 47sec file)



■ [Play video](#)

#### **Launch of Atlas 5**

The Lockheed Martin Atlas 5 rocket launches at 7:07 a.m. EST from Cape Canaveral carrying the AMERICOM 16 communications spacecraft. (6min 22sec file)



■ [Play video](#)

#### **Press site view**

The sunrise launch of Atlas 5 is shown in this view from the Kennedy Space Center press



site at Complex 39.  
(QuickTime file)

■ [Play video](#)

### **Rocket rollout**

Riding on its mobile launching platform, the Atlas 5 rocket is rolled from its assembly building to the launch pad at Complex 41 just hours before the scheduled liftoff time carrying AMC 16. (4min 41sec file)



■ [Play video](#)

■ [Become a subscriber](#)

■ [More video](#)

## [MISSION STATUS CENTER](#)

[INDEX](#) | [PLUS](#) | [NEWS ARCHIVE](#) | [LAUNCH SCHEDULE](#)  
[MISSION REPORT](#) | [ASTRONOMY NOW](#) | [STORE](#)  
[ADVERTISE](#)

© 2006 Pole Star Publications Ltd