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ROYAL ASTRONOMICAL SOCIETY OF CANADA ✦ VICTORIA CENTRE

Skynews

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Skynews - FEBRUARY 2006 NUMBER 271

this month

Dr. David Andersen, NRC-HIA

Galaxy Structures, ground layered optics and new instrumentation developments

February 8th, 7:30 PM, Elliott Lecture Theatre, Rm 060, UVic

David will present an overview of astronomical adaptive optics and the exciting astronomy that will result from this developing technology. He will update us on the on-going adaptive optics program at HIA: the new Laser Guide Star installed at Gemini last summer; and the extreme adaptive optics instrument being developed for Gemini; and the adaptive optics instruments being developed for the Thirty Meter Telescope.

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next month

Speaker to be announced

February 8th, 7:30 p.m., Elliot Lecture Theatre, Room 060, UVic

Checkout out web-site for further details as they become available.

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Bill Almond, Jim Hesser, Ed Maxfield, Frank Ogonoski, Blaire Pellatt, Colin Scarfe, Rich Willis

New Member Liaison
Sandy Barta
sbarta@shaw.ca

this month

monday nights

Astronomy Cafe
Hosted by Bruno Quenneville
2019 Casa Marcia Crescent
Victoria, BC

Call 477-2257 for directions or more information.

New comers are especially welcome. Come and enjoy!

second wednesday of the month

Monthly Meeting
7:30 PM, Elliott Lecture Theatre, Rm 060, UVic

third wednesday of the month

Astro Imaging
Hosted by Bill Almond
354 Benhomer Drive
Only if the sky is clear.
Call Bill to confirm: 478-6718

as sky and interest dictate

New Observers Group
Hosted by Sid Sidhu
1642 Davies Road, Highlands
Call 391-0540 for information and directions.

by email

Observer/CU Volunteers/ Members email lists
Contact Joe Carr to subscribe to these email lists for important, timely, member-related news.

featured web-site

http://pluto.jhuapl.edu/

on the cover

Stardust Capsule: Safe Landing, Now The Science

By Leonard David
Space.com

Scientists and engineers are ecstatic with the landing and overall condition of the Stardust sample return capsule recovered today in Utah after a 2.9 billion mile round-trip space voyage.

"This thing went like clockwork," said Tom Duxbury, Stardust project manager at NASA's Jet Propulsion Laboratory (JPL) in Pasadena, California at a post-landing press briefing held today at a command conference room at the U.S. Army's Dugway Proving Ground in Utah.

Duxbury said that the capsule's Utah Test and Training Range (UTTR) touch down involved some element of luck. The area was experiencing a big storm as the capsule raced toward its pre-determined, pre-dawn desert landing zone.

"There was a window in that storm…we came right through that window," Duxbury said.

While still within a large landing ellipse, storm winds caused the parachute-dangling capsule to drift more north than had been predicted. The capsule was on its main parachute for some six minutes before touching ground.

"It took a bit of time to go find it," said Joe Vellinga, Deputy Recovery Operations Manager for Lockheed Martin Space Systems, Denver. He said that the sample return capsule tumbled across the desert landscape on landing, represented by five marks on the ground.

"There's a little bit of mud on the [capsule's] nose…it looks to be in absolutely excellent condition," Vellinga told reporters.

Recovery teams found the detached parachute a few feet away. Sitting on its side, the apparently none the worse for wear capsule "didn't even work up a sweat," Duxbury noted.

The small capsule was double-bagged by ground teams and moved to a special clean room within the UTTR.

Work is now underway to remove a canister from within the landed capsule, said Don Brownlee, Stardust principal investigator from the University of Washington, Seattle.

Stardust's collected works—miniscule specimens of interstellar dust and comet particles snagged during its seven-year trek—are contained within that canister.

Once the canister is removed it will be shipped to a special laboratory at NASA's Johnson Space Center (JSC) in Houston, Texas. At JSC, the canister will be opened and a collector grid will be removed to begin surveying how many cometary and interstellar samples have been caught and brought back to Earth.

Brownlee said "opening day" for the canister at JSC is this coming Tuesday. Some 150 researchers from around the world are ready to carry out preliminary looks at the returned samples, he said.

"Over the coming weeks, months and years, I hope you'll be hearing a lot about this…a lot of new information from the samples," Brownlee added.

Meanwhile, still up in space, is the Stardust "mother craft" that successfully ejected the sample return capsule.

"Our mighty little spacecraft is still out there," said JPL's Duxbury. "This thing is still alive and well. It may have a future life as well," and is capable of further exploration of comets and asteroids, he said.

Mission controllers have placed the spacecraft into a "divert maneuver"—to keep the hardware from hitting Earth. It has been put on an orbit around the Sun.

After nearly seven years of space travel, the solar-powered Stardust and onboard gear—including an operational navigation camera—have weathered well. An expected 44 pounds (20 kilograms) of fuel should be left onboard after the divert maneuver.

Proxy - Disposition of Library Resources

Vote - March 8, 2006 - Elliot Lecture Theatre 060, University of Victoria

If you are not able to vote in person please send this ballot to S. Mair, 3860 Grange Rd, Victoria, BC V8Z 4T5, or express your vote by email to: president@victoria.rasc.ca

❑ I am in favour of selling Library Resources

❑ I am not in favour of selling Library Resources

Member Name - _____

Address - _____

library report

In the January issues of *skynews*, our librarian, Sid Sidhu, mentioned that thanks to an article in the December issue of *Sky and Telescope* magazine he discovered that one of the books in our library was very valuable indeed. Only 700 copies of **A Photographical Atlas of Selected Regions of the Milky Way** were published in 1927 and thanks to the generosity of one of our members in the 1940s a copy was donated to the Centre's library.

How valuable is it? The two volume set recently sold at auction for $20,000 US.

A problem this creates for our Centre is how to care for such a valuable book? Our current library is not secure from theft, potential insect damage or from the deleterious effects of variable humidity and temperature and off-gassing from the wood glue that are part of the storage cabinet.

Add to that the fact that the book hasn't been used by our members for decades and now (considering its value) couldn't be handled on a regular basis regardless, perhaps the book would be more valuable to the Centre if it was sold.

At a recent meeting of the Victoria Centre Council the merits of selling the book were discussed. The Council consensus was that the revenue from the sale of this book could be used to help finance major projects of the Centre - i.e. establishing a formal observing facility for the Victoria Centre.

The Council also felt that considering this was a gift from one of our members to the Centre, all members should have a say in the disposition of this book. With that in mind, at our next regular meeting (February 8th) we will host a forum to discuss the pros and cons of selling, and at the following meeting (March 8th) a vote will be held. For those members that are not able to attend the March meeting a proxy form can be found on page 9. If you have an opinion on this issue please be present for the vote on March 8th, send in the proxy to the editor (3860 Grange Rd, Victoria, BC V8Z 1T5), or email president@victoria.rasc.ca.

"NASA has no current plans for an extended mission," said Tom Morgan, Stardust Program Scientist and Executive at NASA Headquarters in Washington, D.C. However, individuals who wish to propose post-return uses for the spacecraft to NASA may submit a proposal for the use of the spacecraft in response to the current Discovery Announcement of Opportunity, a document released on January 3, 2006, Morgan told SPACE.com via email.

"If NASA declines to accept any of these proposals—or if none are submitted—the spacecraft will be decommissioned," Morgan said.

Snowstorm on Pluto

by Dr. Tony Phillips

There's a nip in the air. Outside it's beginning to snow, the first fall of winter. A few delicate flakes tumble from the sky, innocently enough, but this is no mere flurry.

Soon the air is choked with snow, falling so fast and hard it seems to pull the sky down with it. Indeed, that's what happens. Weeks later when the storm finally ends the entire atmosphere is gone. Every molecule of air on your planet has frozen and fallen to the ground.

That was a snowstorm—on Pluto.

Once every year on Pluto (1 Pluto-year = 248 Earth-years), around the beginning of winter, it gets so cold that the atmosphere freezes. Air on Pluto is made mainly of nitrogen with a smattering of methane and other compounds. When the temperature dips to about 32 K (-240 C), these molecules crystallize and the atmosphere comes down.

"The collapse can happen quite suddenly," says Alan Stern of the Southwest Research Institute. "Snow begins to fall, the surface reflects more sunlight, forcing quicker cooling, accelerating the snowfall. It can all be over in a few weeks or months."

Researchers believe this will happen sometime during the next 10 to 20 years. Pluto is receding from the warmth of the Sun, carried outward by its 25% elliptical orbit. Winter is coming.

So is New Horizons. Stern is lead scientist for the robotic probe, which left Earth in January bound for Pluto. In 2015 New Horizons will become the first spacecraft to visit that distant planet. The question is, will it arrive before the snowstorm?

"We hope so," says Stern. The spacecraft is bristling with instruments designed to study Pluto's atmosphere and surface. "But we can't study the atmosphere if it's not there." Furthermore, a layer of snow on the ground ("probably a few centimeters deep," estimates Stern) could hide the underlying surface from New Horizon's remote sensors.

Stern isn't too concerned: "Pluto's atmosphere was discovered in 1988 when astronomers watched the planet pass in front of a distant star—a

stellar occultation." The star, instead of vanishing abruptly at Pluto's solid edge, faded slowly. Pluto was "fuzzy;" it had air. "Similar occultations observed since then (most recently in 2002) reveal no sign of [impending] collapse," says Stern. On the contrary, the atmosphere appears to be expanding, puffed up by lingering heat from Pluto's waning summer.

Nevertheless, it's a good thing New Horizons is fast, hurtling toward Pluto at 30,000 mph. Winter. New Horizons. Only one can be first. The race is on….

Find out more about the New Horizons mission at http://pluto.jhvapl.edu . Kids can learn amazing facts about Pluto at spaceplace.nasa.gov/en/kids/pluto.

The New Horizons Spacecraft takes of on January 19 and will arrive at Pluto in July of 2015

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

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address change? information incorrect

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