Skynews

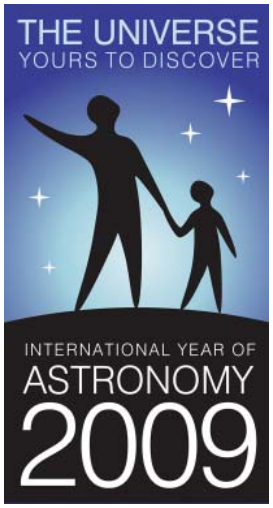
Royal Astronomical Society of Canada ✦ Victoria Centre

scheduele of events

IYA And Beyond

Jim Hesser - Director, DAO

February 10th, 7:30 PM, Elliott Lecture Theatre, Rm 061, UVic



The International Year of Astronomy 2009 was the largest education and public outreach effort ever mounted. Now officially over, it's fun to see what the world's, and Canada's, astronomers achieved, and to look towards legacies in education and public understanding of science.

Bio: A Victoria Centre and Life Member since Comet Halley's last return, Jim is Director of NRC-HIA's Dominion Astrophysical Observatory. Since 2002 he's been one of four North American Board of Director members for the Atacama Large Millimeter Array, the largest ground-based astronomy project ever undertaken. In late November, 2009, the first three 12-m diameter antennas were in place at 5,000 m altitude and, for the first time, ALMA was operated as an astronomical interferometer. This critical milestone was achieved using receivers supplied by NRC-HIA. ALMA will start scientific observations at millimeter and submillimeter wavelengths in 2011, eventually comprising 66 12-meter and 7-meter diameter antennas, all of which will be equipped with receivers built at HIA. Since early 2007 Jim been the national chair for IYA in Canada. In 2009 he was honoured by selection as Honorary President of the RASC

March 10th **7:30 PM, Elliott Lecture Theatre, Rm 061, UVic**André-Nicolas Chené, HIA Post Doctorate with Gemini Program: Wolf-Rayet Stars

April 14th, **7:30 PM, Elliott Lecture Theatre, Rm 061, UVic**
Lauren MacArthur, HIA - Post Doctorate with Laura Ferrarese: Title to be announced

May 12, **7:30 PM, Elliott Lecture Theatre, Rm 061, UVic**
Scott Schnee, HIA- Plaskett Fellow: New Star Formation

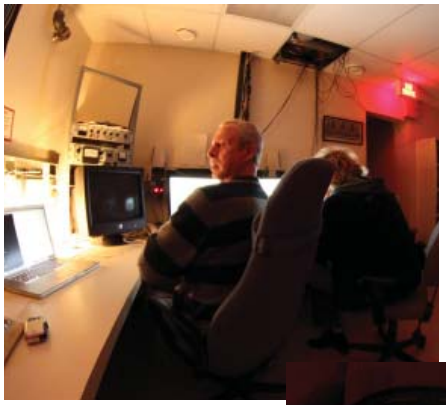
on the cover

Crab Nebula

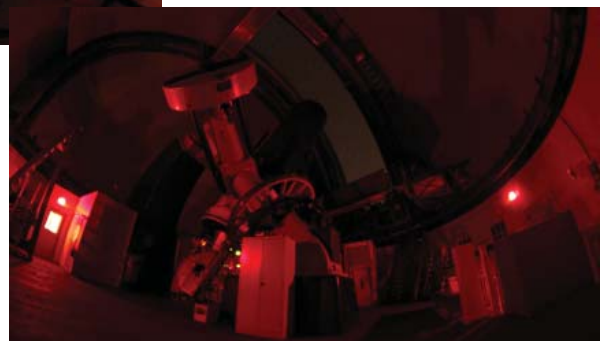
by Joe Carr

Plaskett Telescope, DAO Victoria, BC
January 15, 2010 8:45 PM PST

Equipment: Plaskett 1.8m, DAO
Dave Balam, telescope operator
Sensor: E2V operating at -110°C with a 2x2 bin yielding 2302x1009 pixels
Exposures: 1 each at 1 minute for r', g' & LPS
Conditions: Temperature 5°C, no dew, LVM 5.0, Transparency 4/5, Steadiness 4/5, some high haze
Processing:
Preprocessing at DAO: Flat frame applied
ImagesPlus 3.75 - r' used for Red, g' used for Green, LPS used for Blue & Luminance. Aggressive contrast stretch for R, G & B; 3 colours aligned then combined, crop.
ACDSee Pro 2.5: 2 noise streaks removed, colour depth reduction to 24 bit, save as jpg.



Jan 15, 2010 - The weather finally cooperated for Victoria Centre members, so they could use the 1.8m Plaskett telescope at the Dominion Astrophysical Observatory to acquire photos of a wide variety of objects. Thanks to Dave Balam, our very capable telescope operator, it appears everyone had their chance to image some of the objects from their lists before the high haze took its toll on the seeing.



address change? information incorrect

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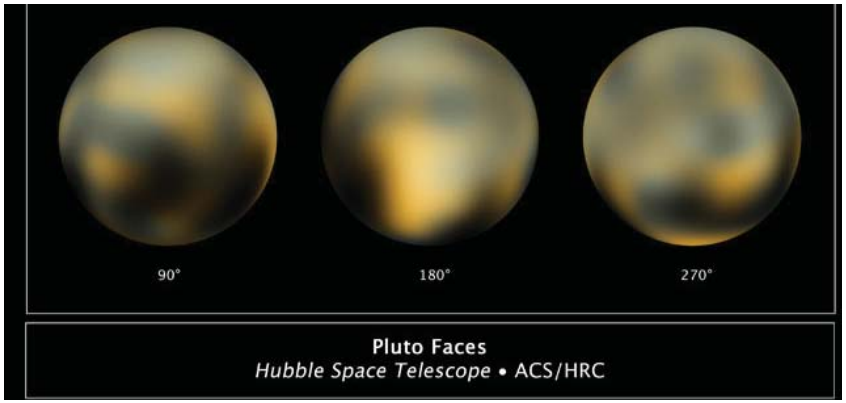
New Views of Pluto Reveal Weird Bright Spot

By Clara Moskowitz

The Hubble Space Telescope has returned the most detailed images of Pluto ever taken. The new photos reveal the strange mini-world in near true-life color, close to what the dwarf planet would look like to an observer traveling toward it in a spacecraft, scientists said. The surface appears reddish, yellowish, grayish in places, with a mysterious bright spot that is particularly puzzling to scientists.



Some of the colors revealed in the new pictures of Pluto are thought to result from ultraviolet radiation from the sun interacting with methane in the tenuous atmosphere of the dwarf planet. The bright spot apparent near the equator has been found in other observations to be unusually rich in carbon monoxide frost.

“This is our best candidate, that it’s carbon related,” Marc Buie of the Southwest Research Institute, Boulder, Colo. said during a Thursday teleconference.

The new images should provide “a real treasure trove of information in understanding the nature of Pluto and how it evolved and changes with time,” Buie said.

Pluto is a world on the fringe of the solar system with three small moons called Charon, Nix and Hydra. It was discovered in 1930 by astronomer Clyde Tombaugh, and was long considered a full-fledged planet. But

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Building a Case Against Ozone

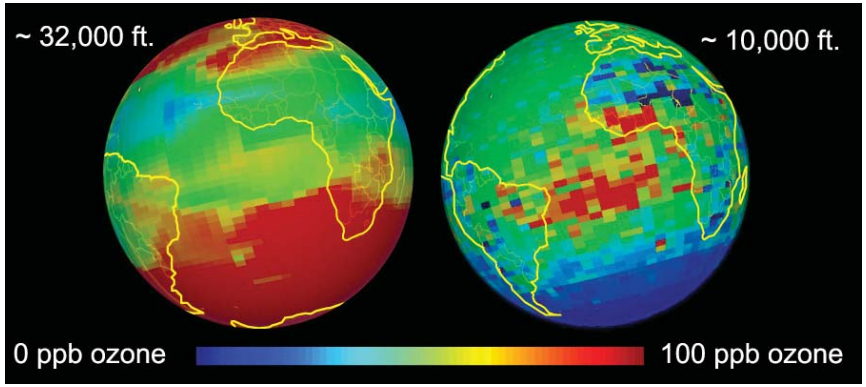
by Patrick Barry

When it comes to notorious greenhouse gases, carbon dioxide is like Al Capone—always in the headlines. Meanwhile, ozone is more like Carlo Gambino—not as famous or as powerful, but still a big player.

After tracking this lesser-known climate culprit for years, NASA’s Tropospheric Emission Spectrometer (TES) has found that ozone is indeed a shifty character. Data from TES show that the amount of ozone—and thus its contribution to the greenhouse effect—varies greatly from place to place and over time.

“Ozone tends to be localized near cities where ozone precursors, such as car exhaust and power plant exhaust, are emitted,” says Kevin Bowman, a senior member of the TES technical staff at the Jet Propulsion Laboratory. But the ozone doesn’t necessarily stay in one place. Winds can stretch the ozone into long plumes. “Looking out over the ocean we can see ozone being transported long distances over open water.”

Unlike CO2, ozone is highly reactive. It survives in the atmosphere for only a few hours or a few days before it degrades and effectively disappears. So ozone doesn’t have time to spread out evenly in the atmosphere the way that CO2 does. The amount of ozone in one place



These images are TES ozone plots viewed with Google Earth. Colors map to tropospheric ozone concentrations. The image on the left shows ozone concentrations at an altitude of approximately 32,000 feet, while the one on the right shows ozone at approximately 10,000 feet. The measurements are monthly averages over each grid segment for December 2004.

depends on where ozone-creating chemicals, such as the nitrogen oxides in car exhaust. are being released and which way the wind blows.

This short lifespan also means that ozone could be easier than CO2 to knock off.

“If you reduce emissions of things that generate ozone, then you can have a quicker climate effect than you would with CO2,” Bowman says. “From a policy standpoint, there’s been a lot of conversation lately about regulating short-lived species like ozone.”

To be clear, Bowman isn’t talking about the famous “ozone layer.” Ozone in this high-altitude layer shields us from harmful ultraviolet light, so protecting that layer is crucial. Bowman is talking about ozone closer to the ground, so-called tropospheric ozone. This “other” ozone at lower altitudes poses health risks for people and acts as a potent greenhouse gas.

TES is helping scientists track the creation and movement of low-altitude ozone over the whole planet each day. “We can see it clearly in our data,” Bowman says. Countries will need this kind of data if they decide to go after the heat-trapping gas.

Ozone has been caught red-handed, and TES is giving authorities the hard evidence they need to prosecute the case.

Learn more about TES and its atmospheric science mission at tes.jpl.nasa.gov. The Space Place has a fun “Gummy Greenhouse Gases” activity for kids that will introduce them to the idea of atoms and molecules. Check it out at spaceplace.nasa.gov/en/kids/tes/gumdrops.

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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Presidents Message

February 2010

This is the time of year that we can start to think about the possibility of clear skies in the months ahead and that cannot come too soon for me. We have lots to look forward to. The Messier Marathon season is coming and thanks to the generosity of the DAO, we have more sessions to look forward at the historic Plaskett telescope. The next sessions are on February 12 and 13. Note that you must be on the Active Observers list to take part. Contact Lori Roche if you want to be added.

Good news appears to be in the wind for the summer RASCALS STAR PARTY. Arrangements to hold the event in Metchosin are well underway thanks to the efforts of Bill Weir, Sherry Buttnor and Nelson Walker. The opportunity to have our star party in a lovely site that is easily accessible by the public in the greater Victoria area is welcome news and I for one am really looking forward to it.

Public outreach is ongoing having had a great boost during the International Year of Astronomy. As I write this some of our great volunteers are at the Hobby Show letting even more of the public know why we think our hobby is special. The school program is also continuing so if you have not yet had the pleasure of volunteering, there is lots to get involved with and enjoy.

observers group

RASC Victoria Centre and the NRC have signed a License to Use Land Agreement which gives members of Victoria Centre expanded access to NRC property on Observatory Hill.

If you are a member in good standing of Victoria Centre RASC, consider yourself an “active observer”, and wish to take advantage of this opportunity, please send an email to the 1st or 2nd Vice President. More information on this program see: http://victoria.rasc.ca

GETTING ON THE MAIN SEQUENCE

By Bill Almond

Some of the best things that happen often start off in a small way and grow to greatness: think of a tiny seed that grows into a forest giant. That just about says it all for the Victoria Centre.

After a faltering beginning in 1907 we suddenly found ourselves jumpstarted into existence in 1914 by a fortuitous set of circumstances that decided on Vancouver Island, and Little Saanich Mountain in particular, being chosen as the location for a great 72" telescope—for one year the largest in the world. Many sites across Canada had been examined for suitability and the lower Island offered the best seeing.

The other circumstance brought in the man chosen to lead the observatory and telescope to completion, Dr. J. S. Plaskett, who happened to be President of the RASC in 1914.

Dr. J. S. Plaskett, President of the RASC and Honorary President of the newly established Victoria Centre in 1914.

People living in the Greater Victoria area reveled in the worldwide acclaim that this favourable decision bestowed on the southern Island. In fact, Victoria became the centre of the universe with newspapers worldwide following every development in the new observatory's progress. Dr. Plaskett's influence was also instrumental in a different direction: he brought together and motivated the same group of amateur astronomers who had earlier tried to establish a Centre in Victoria but whose efforts were doomed to failure. This time they were successful and the Victoria Centre found itself on the main sequence!

The saying "birds of a feather flock together" was especially true from that moment on. The up-and-coming observatory and Dr. Plaskett's enthusiasm for all the new RASC Centres that were springing up across the country ensured that Victoria members would have a "home." And for decades the observatory was the place where everything happened and where everyone gravitated to, like dust and gas to a prepubescent star.

Many professional astronomers visited the observatory, some of them well known and renowned in their field, which gave the local membership many good reasons to travel up the "hill" to meet them or to attend lectures wherever they might be held. Picnics were held at the observatory on those occasions, lectures were given and visitor attended "At Home's"--which was in keeping with the times.

Finally, in 1916 Dr. Plaskett issued an invitation for everyone to visit the nearly completed telescope and members flocked there to inspect it. Although the optics were not yet in place they marveled at the ease with which 45 tons of steel could be moved on its polar and declination axes.

Later in the year, Dr. Denison gave a lecture on Planets, Comets and Meteors during which he read a letter from Dr. Percival Lowell regarding the existence of the much-disputed Martian canals. Dr. Lowell's statement was published in the Daily Colonist of Sunday, April 2, 1916.

In October, Dr. John A. Brashear, whose firm figured the new telescope's mirrors, and Mr. Ambrose Swasey, of the firm of Warner & Swasey, who built the telescope's mountings, visited Victoria to inspect the telescope's engineering and construction. The Centre's president, Mr. McCurdy, and other members of the Victoria Centre were invited to entertain them; such was the close relationship Dr. Plaskett fostered.

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in 2006, after much debate in the astronomical community, Pluto was downgraded to “dwarf planet” status, along with other cosmic bodies such as Ceres and Eris.

Scientist Mike Brown, professor of planetary astronomy at Caltech in Pasadena, Calif., who as discoverer of Eris was partly responsible for this demotion, says not to feel too bad for Pluto. “Pluto is a fascinating world and it doesn’t really care what we call it,” Brown said. “I think this is an exciting thing to see and an exciting thing to try to understand how the entire solar system works.”

Pluto is the destination for NASA’s New Horizons probe, a spacecraft currently on a course to fly by Pluto and its moons in 2015.

“It’s about halfway there already and when its gets there we’re going to get all sorts of great pictures and great data,” Buie said. “But these [Hubble] maps have been used already to help plan the encounter.

When compared to older data from 1994, the new photos – taken by Hubble’s Advanced Camera for Surveys – reveal a surprising amount of change in the appearance of Pluto. Over that period, Pluto has gotten redder, while its northern polar region has gotten brighter and its southern hemisphere has gotten darker.

One reason for the variability, scientists say, is Pluto’s highly eccentric – or oblong – orbit, which causes strong variations in temperature. Pluto takes 248 years to make a full orbit around the sun.

“Right now it’s close to being springtime on Pluto,” Brown said. “In the fall things will freeze out. It’s just a ridiculously extreme place to be.”

Since the dwarf planet is so small and so far away, it has been difficult to gather detailed data before. When New Horizons arrives, that probe should reveal even higher quality data. But until then, Hubble’s vision is by far the best view we’ve ever gotten.

“This has taken four years and 20 computers operating continuously and simultaneously to accomplish,” says Buie, who developed a special computer program to sharpen the Hubble data.

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Members at Large
Bill Almond, Sandy Barta, Dave Bennett, Jim Hesser, David Lee, Steve Pacholk, Colin Scarfe,

this month

monday nights

Astronomy Cafe
Fairfield Community Centre,
1330 Fairfield, Victoria
7:30-11pm

Call Geoff at 250.592-2264 for directions and information. New comers are especially welcome. Come and enjoy!

second wednesday of the month

Monthly Meeting
7:30 PM, Elliott Lecture Theatre, Rm 061, UVic.

as sky and interest dictate

New Observers Group
Hosted by Sid Sidhu.
1642 Davies Road, Highlands.
Call 250.391-0540 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.