This and that

Stand and be Counted

At the end of October the terms for the President, 1st VP and two Members at Large will become vacant. Any members wishing to stand for council office are very welcome to apply. Please contact Scott Mair (scottmair@gmail.com) if you are interested in standing for office or would like more information about what sitting on our Centre's Council entails.

RASC to the Rescue

Joe Carr, Guy Walton, and John McDonald were setup at the old 16" site on August 1/2 and stayed until 12:30am. They were all imaging various celestial objects when they spotted a forest fire burning on the west shore of Prospect Lake and called it into 911 just before midnight. Saanich Fire Department appeared to have it well under control within a half hour of arriving at the scene.

Royal Astronomical Society of Canada ✦ Victoria Centre

skynews

this month

Victoria Centre - RASC
Summer Picnic

Saturday, August 19, 3 pm - whenever
Pearson College Observatory

Everyone's invited to the annual summer picnic at Pearson College August 19. Gates open at 3ish in the afternoon and, if it's clear, we'll star party into the night.

Bring something to share, something for yourself to BBQ, and maybe a folding chair. Mark Wheen (our Pearson College host) will supply the BBQ, but we welcome extra portable BBQs.

We like to be amused, so bring along any solar viewing equipment for the hot, sunny day and your telescope to view the spectacular southern sky later in the evening. The day-time view's not to shabby either, so bring along binoculars and/or your camera.

There's limited parking at the observatory and we like to keep it available for people who have difficulty walking. Plan on either parking at the gate and walking up, or driving up, dropping your stuff off and then parking at the gate--a buddy can drive you back. Car pooling is a definite option. If you're feeling really lively and all that stuff, you can park in the lower parking lot and walk up (be warned, you won't get much sympathy when you arrive exhausted at the top of the hill).

Call Sandy (250) 642-0205, or email her sbarta@shaw.ca if you want more information.

Everyday is Sun Day
August 9th, 11 am - 2 pm

Beaver Beach, Elk/Beaver Lake Regional Park

As part of his day job as a CRD Parks Naturalist, Scott Mair will be hosting a Sun observing event at the **Beaver Lake Regional Park from 11am - 2 pm, August 9th**. Any RASCals that would like to bring their solar filters and telescopes and join in are very welcome.

RASC victoria council

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

New Member Liaison
Sandy Barta
sbarta@shaw.ca

this month
monday nights

Astronomy Cafe
See you again in September

second wednesday of the month

Monthly Meeting
7:30 PM, Elliott Lecture Theatre, Rm 060, UVic
NOTE: no meetings in July and August

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.

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"This was probably the most challenging observation ever tried with the AO system at Keck," said de Pater, referring to use of the laser guide star system next to an object as bright as Jupiter. Adaptive optics can take the twinkle out of an object caused by thermal motion in the atmosphere, but to do this well, the target must be near another bright object that can serve as a reference. For some of the images, Jupiter's moon Io was used as the reference "star." But until Io got close enough for this, a laser guide star was created near Jupiter to serve this purpose.

"This was our first attempt using the laser to obtain AO-corrected images of Jupiter's surface," said Dr. Al Conrad, a support astronomer at the Keck Observatory. "The technique shows promise and, if we perfect it, will provide us with many more opportunities to observe this fascinating, ever-changing object."

The team also obtained a close-up of the two spots through a narrow-band filter centered on 5 microns, which samples thermal radiation from deep in the cloud layer. Both spots appear dark because the clouds completely block heat emanating from lower elevations, though narrow regions around the spots that are devoid of clouds show leakage of this heat out into space.

"These 5 micron images reveal details in the cloud opacity not seen at the other wavelengths and will help unravel the vertical structure of the spots," UC Berkeley team member Michael Wong added. "The smooth, narrow arcs visible to the south of each spot probably result from the interaction between the spots and high-speed winds that are deflected around them."

The resolution using both the narrow and wide views on the camera was about 0.1 arcseconds, or only half as good as can be obtained on a clear night with optimal seeing.

The W. M. Keck Observatory operates twin 10-meter telescopes located on the summit of Mauna Kea on the island of Hawaii and is managed by the California Association for Research in Astronomy, a non-profit corporation whose board of directors includes representatives from Caltech, the University of California and NASA. For more information, please visit: http://www.keckobservatory.org

on the cover

Deer Lick Group?

Bruno Quenneville

Not to be outdone by Joe Carr's Deer Lick Group, NGC7331. I offer a this sweet image, closer to home (my back yard).

1 single image, not stacked (too easy) ISO = auto (whatever !) Shutter Speed = Just long enough !
Processed in record time ! ENJOY..... Bruno.

The Real Deer Lick Group

Joe Carr

Observing from the old 16" site on Observatory Hill on July 20/21.
Deer Lick Group: In addition to the large galaxy NGC7331 which dominates this image, several satellite galaxies are also visible: NGC7335, NGC7336, NGC7337 and NGC7340. There was not much to see visually, but this group photographs quite well.

This astrophoto is a stack of 29 images out of a total of 50 originals, 30 seconds exposure time each, taken with my Canon 30D prime focus on my Meade LX-90 at f/10. ImagesPlus, NeatImage and Corel PhotoPaint were all used to process the image.

Keck telescope captures Jupiter's Red Spot Jr. as it zips past planet's Great Red Spot

Kamuela, Hawaii -- Astronomers at the W. M. Keck Observatory in Hawaii this month snapped high-resolution near-infrared images of the Great Red Spot, a persistent, high-pressure storm on Jupiter, as a smaller storm, Red Spot Jr., breezed by it on its race around the planet.

The spots are of interest to astronomers because Red Spot Jr. formed from the merger of three white spots only recently, between 1998 and 2000, and in December 2005 turned red like the much older Great Red Spot. While the new red spot is about the size of Earth, the Great Red Spot is nearly twice that diameter and has been circling the planet for at least 342 years.

Althought the two red spots are about the same color when seen in visible wavelengths (see Christopher Go's optical image from July 20 UT, http://redspotjr.christone.net/cg07200611-18c.jpg), they differ markedly at infrared wavelengths. When the astronomers viewed the planet through a narrow-band filter centered on the 1.58 micron, near-infrared wavelength, Red Spot Jr., which was called Oval BA before it changed from white to red, was a lot darker, indicating that the tops of the storm clouds may be lower than those of the Great Red Spot. With more atmosphere above its cloud tops, more infrared light is absorbed by molecules like methane in the atmosphere.

"Red Spot Jr. is either not as high as the Great Red Spot, or it's just not as reflective, that is, as dense," said lead astronomer Imke de Pater, professor of astronomy at UC Berkeley. "These images will put some constraints on the altitude of Red Spot Jr." The Great Red Spot is thought to tower about 8 kilometers (5 miles) above the surrounding cloud deck. The fact that Red Spot Jr. turned red may indicate its swirling storm clouds are rising higher also, though apparently they are not as high as those of its larger companion, or the clouds are thinner.

Why the spots are red is a subject of great debate. Some people think the hurricane-like winds in the Great Red Spot, which can reach 400 miles per hour, dredge up material from deeper in the planet's atmosphere that, when exposed to ultraviolet light, turns red. One candidate is phosphine gas, PH3, which has been detected on Jupiter.

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astrophotography

John McDonald - Lagoon Nebula
Cattle Point June 25 and 26, 2006
Telescope: Williams Optics 105 mm
Camera: Pentax ist-DS with 0.8x focal reducer/flattener
Mount: Skywatcher HEQ5 driven but unguided
Exposures: Total of 59 light, 10 flat, and 10 bias frames all of 30 sec.
Darks were done in the camera with the light for total of 59 darks of 30 sec.
Processing: Aligned, stacked, cropped and digitally developed in ImagesPlus followed by further processing using Photoshop, Neat Image

Charles Banville - Pelican Nebula
DAO's old 16" site, 21 July 2006.
Telescope: TeleVue NP-101 f/5.4 on Vixen GP-DX mount.
Camera: Canon 20Da
Exposures: 67 light frames, 60 sec @ISO 800
Processing: ImagesPlus and Neat Image. 15 darks, 15 flats and 15 bias frames used during processing.

Joe Carr - Dumbell Nebula
Cattle Point , 26 July, 2006.
Meade LX-200R 8"
Ritchy-Chrétien mount
Stack of only 6 images out of 30. By increasing exposer from 45 seconds to 60 seconds and increasing ISO from 1600 to 3200 gave me a bit more colour saturation than my previous photo Dumbell photo despite only using 6 images.

observers group

RASC Victoria Centre and the National Research Council have signed a License to Use Land Agreement which gives members of Victoria Centre expanded access to NRC property on Observatory Hill, including access outside normal operating hours of the Centre of the Universe.

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 indicating your interest. More information on this program is available on our web site: http://victoria.rasc.ca

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address change? information incorrect

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Podcasts: Space Place To Go!

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Ultraviolet light might catalyze its conversion to red phosphorus, P4, according to one of the leading theories. Other, more complicated theories have phosphine interacting in the atmosphere with chemicals such as methane or ammonia to form complex compounds such as methylphosphane or phosphaethyne.

Recent studies suggest that the red color also may be attributed to sulfur allotropes, that is, different molecular configurations, including chains and rings, of pure sulfur, such as S3-S20. The new work hypothesizes that ammonium hydrosulfide particles are carried upwards inthe Great Red Spot and are broken up by ultraviolet light. Subsequent chemical reactions ultimately lead to long-chained sulfur allotropes , which can vary in color from red to yellow.

Christopher Go, an amateur astronomer who first noticed the coloration change of Red Spot Jr., joined de Pater’s team earlier this year. He noted that during the close encounter between the two spots, Red Spot Jr. was squashed slightly, stretching in its direction of motion. The same thing happened in 2002 and 2004 when the Great Red Spot and Red Spot Jr. passed one another, though then Junior was white.

The Great Red Spot rotates westward, opposite to the eastward rotation of the planet. Because alternating bands on the Jovian surface move in opposite directions, the adjacent Red Spot Jr. moves eastward. The planet rotates about once every 10 hours.

Another of de Pater’s colleagues, UC Berkeley mechanical engineering professor Philip Marcus, predicted several years ago that Jupiter’s climate was changing, based on the disappearance of the cyclonic stormsor spots within the bands. The mixing of the atmosphere by these cyclones keeps the temperature about the same over the entire planet, he argued, so loss of this mixing will cause the equator to heat up and the poles to cool.

Earlier this year, on April 16, de Pater and her team captured near-infrared, ultraviolet and visible light photos of the planet using the Hubble Space Telescope to look more closely at the two red spots.The observations with the Keck Telescope were a follow-up study to try to measure the speeds of the swirling winds in the spots. Jupiter’s brightness, however, confused the adaptive optics system, forcing the astronomers to miss some good shots of the planet as the guide star was being positioned optimally relative to Jupiter.

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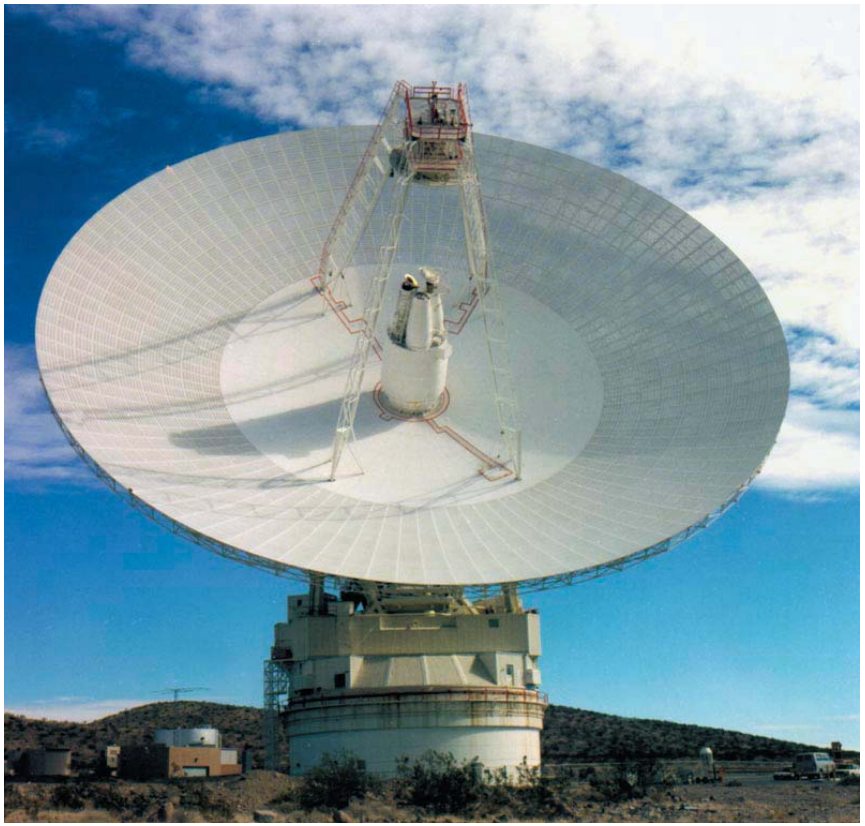
Celebrating 40 Years of Intent Listening

By Diane K. Fisher

In nature, adjacent animals on the food chain tend to evolve together. As coyotes get sneakier, rabbits get bigger ears. Hearing impaired rabbits die young. Clumsy coyotes starve. So each species pushes the other to "improve."



The technologies pushing robotic space exploration have been like that. Improvements in the supporting communications and data processing infrastructure on the ground (the "ears" of the scientists) have allowed spacecraft to go farther, be smaller and smarter, and send increasingly faint signals back to Earth—and with a fire hose instead of a squirt gun. Since 1960, improvements in NASA's Deep Space Network (DSN) of radio wave antennas have made possible the improvements and ad-

vances in the robotic spacecraft they support.

"In 1964, when Mariner IV flew past Mars and took a few photographs, the limitation of the communication link meant that it took eight hours to return to Earth a single photograph from the Red Planet. By 1989, when Voyager observed Neptune, the DSN capability had increased so much that almost real-time video could be received from the much more distant Planet, Neptune," writes William H. Pickering, Director of JPL from 1954 to 1976, in his Foreword to the book, Uplink-Downlink: A History of the Deep Space Network, 1957-1997, by Douglas J. Mudgway.

Mudgway, an engineer from Australia, was involved in the planning and construction of the first 64-m DSN antenna, which began operating in the Mojave Desert in Goldstone, California, in 1966. This antenna, dubbed "Mars," was so successful from the start, that identical 64-m antennas were constructed at the other two DSN complexes in Canberra, Australia, and Madrid, Spain.

As Mudgway noted in remarks made during the recent observance of the Mars antenna's 40 years of service, "In no time at all, the flight projects were competing with radio astronomy, radio science, radar astronomy, SETI [Search for Extra-terrestrial Intelligence], geodynamics, and VLBI [Very Long Baseline Interferometry] for time on the antenna . . . It was like a scientific gold rush."

In 1986 began an ambitious upgrade program to improve the antenna's performance even further. Engineering studies had shown that if the antenna's diameter were increased to 70 m and other improvements were made, the antenna's performance could be improved by a factor of 1.6. Thus it was that all three 64-m DSN antennas around the world became 70-m antennas. Improvements have continued throughout the years.

"This antenna has played a key role in almost every United States planetary mission since 1966 and quite a few international space missions as well. Together with its twins in Spain and Australia, it has been a key element in asserting America's pre-eminence in the scientific exploration of the solar system," remarks Mudgway.

Find out more about the DSN and the history of the Mars antenna at http://deepspace.jpl.nasa.gov/dsn/features/40years.html .

Kids (and grownups) can learn how pictures are sent through space at http://spaceplace.nasa.gov/en/kids/phonedrmarc/2003_august.shtml .

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