

Sky Quality in Greater Victoria John McDonald & Sid Sidhu

We have been taking readings with the Centre's Sky Quality Meter (The Meter is made by a Canadian Company, Unihedron - www.unihedron.com). The attached table gives readings taken on reasonably good nights. The brightness values are in Magnitudes/square arc second. To estimate the visual magnitude of stars the following is an approximate conversion.

Brightness value (Mag/sq arc sec) 18.5 19.5 20.5 21.5 22.5
 Magnitude - Approximate Visual 4 5 6 7 8

This is a work in progress and we will be making more measurements as sky conditions and time permit.

Sky Quality Meter Database/ Victoria Centre, RASC

Location address etc	Elevation meters	Long deg	Lat deg	Y/M/Date/Time(UT)	Conditions Clid cover etc	Zenith	Brightness Value	Observer
1642 Davies Rd Victoria	260	123.49W	48.51N	2006/07/08/06:30	Clear, 1/4 moon	Up	19.43	Sid Sidu
1642 Davies Rd Victoria	260	123.49W	48.51N	2006/07/21/07:00	Clear	Up	20.84	Sid Sidu
Victoria Fish and Game	345	123.56W	48.56N	2006/07/23/07:07	Clear	Up	21.1	John McD
1329 Franklin Terrace	14	123.30W	48.43N	2006/07/23/05:38	Clear	Up	18.9	John McD
Fairfield Comm League	21	123.30W	48.43N	2006/07/23/06:15	Clear	Up	19.41	John McD
Cattle Pt.	3	123.30W	48.43N	2006/07/23/06:45	Clear	Up	20.1	John McD
1329 Franklin Terrace	14	123.30W	48.43N	2006/07/24/07:03	Clear	Up	19.42	John McD
Cattle Pt.	3	123.30W	48.43N	2006/07/28/08:00	Clear	Up	20.14	John McD
DAO 16 inch site	168	123.41W	48.51N	2006/08/01/06:15	Clear, 17 Deg C	Up	20.35	John McD
DAO 16 inch site	168	123.41W	48.51N	2006/08/01/07:00	Clear, 13 Deg C	Up	20.45	John McD
SSSP, Cypress Hills Sk	980	109.52W	49.65N	2006/08/27/06:35	Clear, 12 Deg C	Up	21.64	John McD
DAO Upper Parking Lot	172	123.41W	48.51N	2006/09/24/07:03	Clear, 11 Deg C	Up	20.47	John McD

skynews



this month

Is This the Year 2006? Calendars and time Reckoning from Antiquity to the Present
Dr. Florin Diacu, University of Victoria

Wednesday, October 11, 7:30 pm

Elliot Lecture Theatre, Room 060, University of Victoria

To know what year this is, we must understand how calendars work. Civilizations have used various time-reckoning systems, all of which have been based on celestial motions. But measuring time over the centuries is far from easy. Consequently some contemporary scientists challenge our common beliefs about historical events and claim that this is not the year 2006. They think we could be wrong by as much as a millennium. Are they right? This talk will present some basic ideas about calendars and the difficulties they pose to the understanding of historical chronology.



Florin Diacu is a mathematics professor at the University of Victoria, an expert in celestial mechanics, and the author of "The Lost Millennium: History's Timetables Under Siege" a book recently published by Knopf Canada.

address change? information incorrect

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*this month
monday nights*

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Astronomy Cafe

Fairfield Community Centre,
1330 Fairfield, Victoria
7:30-11pm
Call 477-2257 for directions or
more information.
New comers are especially
welcome. Come and enjoy!

**ASTRONOMY
CAFÉ**



second wednesday of the month

Monthly Meeting

7:30 PM, Elliott Lecture The-
atre, Rm 060, UVic

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 impor-
tant, timely, member-related
news.

miles from its star, the planet is among the hottest ever detected - approximately 3,000 degrees Fahrenheit.

"This star-hugging planet must be at least 1.6 times the mass of Jupiter, otherwise the star's gravitational muscle would pull it apart," said SWEEPS team member Mario Livio. "The star's low temperature allows the planet to survive so near to the star."

"Ultra-Short-Period Planets seem to occur preferentially around normal red dwarf stars that are smaller and cooler than our sun," Sahu explained. "The apparent absence of USPPs around sun-like stars in our local neighborhood indicates that they might have evaporated away when they migrated too close to a hotter star."

There is an alternative reason why Jupiter-like planets around cooler stars may migrate in closer to the star than such planets around hotter stars. The circumstellar disk of gas and dust out of which they formed extends in closer to a cooler star. Since the discovery of the first "hot Jupiter" around another star in 1995, astronomers have realized this unusual type of massive planet must have spiraled in close to its parent star from a more distant location where it must have formed. The inner edge of a circumstellar disk halts the migration.

Hubble monitored 180,000 stars for periodic, brief dimming in a star's brightness. The star field was observed over a continuous seven-day period from Feb. 23-29, 2004. To ensure the dimming was caused by an object orbiting a star, the team used Hubble to detect from two to 15 consecutive transits for each of the 16 planet candidates.

Two stars in the field are bright enough that the SWEEPS team could make an independent confirmation of a planet's presence by spectroscopically measuring a slight wobble in the star's motion due to the gravitational pull of an unseen companion using the VLT in Chile.

One of the planetary candidates has a mass below the detection limit of 3.8 Jupiter masses. The other candidate is 9.7 Jupiter masses, which is below the minimum mass of 13 Jupiter masses for a brown dwarf.

Since the stars are so faint and the field of view is so densely packed with stars, measuring the slight wobble in the star's motion using spectroscopy to confirm most of the planet candidates is not feasible.

The Hubble SWEEPS program is an important proof-of-concept for NASA's future Kepler Mission, scheduled for launch in 2007. The Kepler observatory will continuously monitor a region of the Milky Way galaxy to detect transiting planets around mostly distant stars. Kepler will be sensitive enough to detect possibly hundreds of Earth-size planet candidates in or near the habitable zone, the distance from a star where liquid water could feasibly exist on a planet's surface.

on the cover

M45, the Pleiades **Joe Carr**

Taken from Cattle Point. Despite the heavy moisture content in the air, Guy, Charles and I continued to take images, fighting off the dewing as best we could. This is my first image of the Pleiades where I have captured some nebulosity surrounding this well-known cluster. Image taken with a Canon 30D & 400mm telephoto piggybacked on a Meade LX-200R with autoguiding enabled using Meade LPI and Envisage.

Processing: ImagesPlus: raw development, apply dark, bias and flat frames, align and stack using Adaptive Addition 3.0, aggressive digital development. Corel Photopaint: cropping, resizing, midtone increase, translate 48 bit to 24 bit RGB.

coming up

Astronomy in Canada's High Arctic - Long nights and clear skies **Dr. Eric Steinbring, HIA/DAO**

Wednesday, December 13 - Elliot Lecture Hall, Rm 060, UVic

Victoria Centre RASC- AGM and Dinner Meeting

Saturday, November 4, 2006

Gorge Vale Golf Club, 1005 Craigflower Road, Victoria

The cost will be \$30.00 per person (Those who wish to attend the Business Meeting, ONLY, can do so - FREE !)

Purchase tickets (by cash or cheque) either by mail or at the October regular meeting, or order by phone or email - with payment at the door. Let David Griffiths know by Monday, October 30th, so he can reserve you a spot. PHONE: (250) 595-7494. EMAIL: treasurer@victoria.rasc.ca
2007 RASC Calendars will also be available – for \$10.

For more info see: <http://victoria.rasc.ca/events/2006/2006agm.htm>

Plumbing Pipe Telescope John McDonald

Several of you attended the workshop on telescope making at the Island Star Party. For those of you that have a lens and want to assemble a telescope here is one option.

I used the copier lens that I got at the workshop. It has a 30 mm clear aperture and a focal length of about 22 cm for an f/d of about 7.

I also got a nice prism from Charles Banville for the diagonal and mounted it with modelling clay which allows for easy collimation.

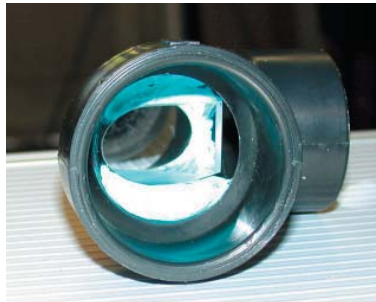
The rest of the parts are standard ABS plumbing fittings and some 2 in. ABS pipe. The focusing is done at the lens end using a plumbing screw fitting and the eyepiece fits beautifully into a 1 1/4 inch coupler, also a plumbing fitting.

The accompanying images show the finder and the bits. The only thing not shown is flat paint on the inner surfaces and some foam strip baffles in the straight tube section that effectively reduced glare.

The optics are surprisingly good for a small scope and the price was right. Next, I think I will see if I can find a larger lens to get more aperture.

Thanks to Norm Willey for the good star party and workshop.

John McDonald



astrophotography

Guy Walton - M31, et.al.

Telescope: Antares 102mm, f5 achromatic refractor.

Mount: HEQ5.

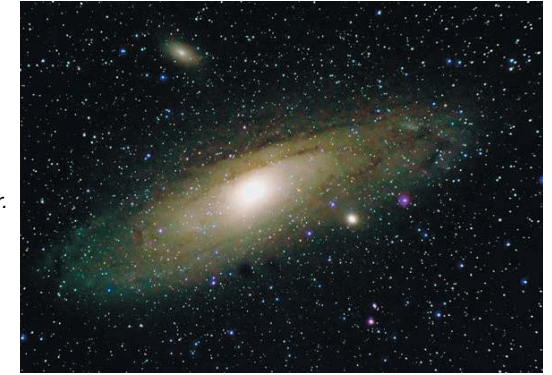
Camera: Nikon D50 at prime focus.

Exposure: 61 Light Frames and

10 Dark Frames controlled by ImagesPlus on my laptop computer.

All frames were exposed at 30 sec. at ISO 800.

Processing: ImagesPlus, Photoshop CS2 and Noise Ninja.



John McDonald - Orion Nebula

Telescope- Williams Optics 105mm. Camera- Pentax ist-DS with 0.8x focal reducer.

Mount- Skywatcher HEQ5

Exposures - 14- 1 sec., 10.- 4.5 sec., 12- 12.2 sec., and 23- 27.5 sec.

Light frames with equal dark exposures done in the camera. Also used 12 flat and 10 bias frames.

Processing in ImagesPlus, Photoshop, Astronomy tools and Neat Image.

Les Disher - M27 Dumbbell Nebula

Taken June 29, 2006, in Courtenay, BC. Imaged with a 155mm refractor at F14.

SBIG ST-8i camera with a color filter wheel: Red 30 minutes, Green 30 minutes, Blue 50 minutes.

All images with dark frame subtracted Contrast enhanced in Photoshop Elements.



Hubble Finds Extrasolar Planets Far Across Galaxy

NASA's Hubble Space Telescope has discovered 16 extrasolar planet candidates orbiting a variety of distant stars in the central region of our galaxy. The planet bonanza was uncovered during a Hubble survey, called the Sagittarius Window Eclipsing Extrasolar Planet Search (SWEEPS). Hubble looked farther than has ever successfully been searched for extrasolar planets, at 180,000 stars in the crowded central bulge of our galaxy 26,000 light-years away.

This tally is consistent with the number of planets expected to be uncovered from such a distant survey, based on previous exoplanet detections made in our local solar neighborhood. Hubble's narrow view covered a swath of sky no bigger in angular size than two percent the area of the full moon. When extrapolated to the entire galaxy, Hubble's data provides strong evidence for the existence of approximately 6 billion Jupiter-sized planets in the Milky Way.

Five of the newly discovered planets represent a new extreme type of planet not found in any nearby searches. Dubbed Ultra-Short-Period Planets (USPPs), these worlds whirl around their stars in less than one Earth day.

Hubble could not view directly the 16 newly found planet candidates: measuring the slight dimming of a star due to the passage of a planet in front of it. The planet would have to be about the size of Jupiter to block enough starlight (1-10%) to be viewed by Hubble.

The finding could more than double the number of planets spied with the transit technique to date.

There is a tendency for the planet candidates to revolve around stars more abundant in elements heavier than hydrogen and helium, such as carbon. This supports theories that stars rich in heavy elements have the necessary ingredients to form planets. The planet candidate with the shortest orbital period, named SWEEPS-10, swings around its star in 10 hours. Located only 740,000



continued on page 10

web page of the month

Stardust@Home



ABOUT NEWS GET STARTED COMMUNITY CLASSROOM HELP



An interactive Internet-based search for interstellar dust in the Stardust aerogel collector

Get Started

Sep 25, 2006

How do you work with a \$200 million collector? An update.

Step 1 Read [Finding Stardust](#)

On September 18, the Stardust@home project director, Andrew Westphal, presented the current status of the Stardust@home search to the [CAPTEM Stardust Oversight Committee](#) at the Lunar and Planetary Institute near NASA Johnson Space Center in Houston. Dr. Westphal is also the chair of the committee, but he set aside that role when making this presentation. The question at issue was: how do we further investigate the candidate interstellar tracks that Stardust@home collaborators -- you!! -- have identified, with minimal risk to the collector?
[Read More...](#)

Step 2 Take [Tutorial session](#)

Step 3 Take [Test & Register](#)

Step 4 [Login](#) and start searching for stardust!

Sep 6, 2006

The Stardust@home collaboration has now identified several candidate features in the aerogel that may be the tracks of the first contemporary interstellar dust particles ever brought back to Earth for study (or, they may be something else).

[I forgot my password](#)

[Here's what's next...](#)

[For more news...](#)

More Information

[Mission](#) of Stardust, goals, scientific contribution, etc.

[Stardust@Home Overview](#) from The Planetary Society

[Why Interstellar Dust?](#) An article from The Planetary Society

[For more info about Stardust](#)

Frequently Asked Questions

Q. What is Stardust@Home?
A. Stardust@home is a space science project in which volunteers [from...](#)

Q. What is Stardust@home looking for?
A. We are looking for interstellar dust grains -- particles [from...](#)

[For More Project FAQ](#)

In The Spotlight!

1. Cerealkiller	50043
2. mrxxmas	44444
3. irene	42715
4. nilium	32437
5. Bready2	28409

[For More Rankings](#)

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>

Staggering Distance Dr. Tony Phillips

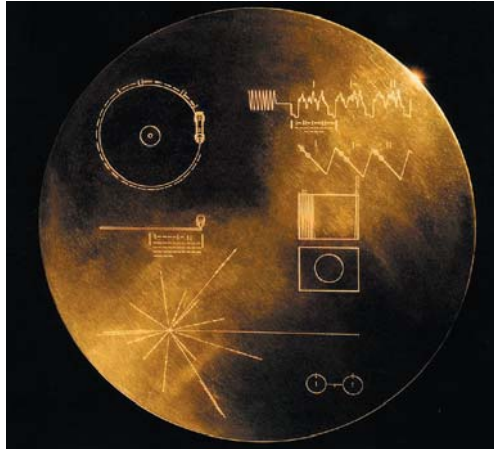
Tonight, when the sun sets and the twilight fades to black, go outside and look southwest. There's mighty Jupiter, gleaming brightly. It looks so nearby, yet Jupiter is 830 million km away. Light from the sun takes 43 minutes to reach the giant planet, and for Earth's fastest spaceship, New Horizons, it's a trip of 13 months.

That's nothing.

Not far to the left of Jupiter is Pluto. Oh, you won't be able to see it. Tiny Pluto is almost 5 billion km away. Sunlight takes more than 4 hours to get there, and New Horizons 9 years. From Pluto, the sun is merely the brightest star in a cold, jet-black sky.

That's nothing.

A smidgen to the right of Pluto, among the stars of the constellation Ophiuchus, is Voyager 1. Launched from Florida 29 years ago, the spacecraft is a staggering 15 billion km away. It has traveled beyond all the known planets, beyond the warmth of the sun, almost beyond the edge of the solar system itself.



In case it is ever found by intelligent beings elsewhere in the galaxy, Voyager carries a recording of images and sounds of Earth and its inhabitants. The diagrams on the cover of the recording symbolize Earth's location in the galaxy and how to play the record.

Now that's something.

"On August 15, 2006, Voyager 1 reached the 100 AU mark—in other words, it is 100 times farther from the Sun than Earth," says Ed Stone,

Voyager project scientist and the former director of NASA's Jet Propulsion Laboratory. "This is an important milestone in our exploration of the Solar System. No other spacecraft has gone so far."

At 100 AU (astronomical units), Voyager 1 is in a strange realm called "the heliosheath." As Stone explains, our entire solar system—planets and all—sits inside a giant bubble of gas called the heliosphere. The sun

is responsible; it blows the bubble by means of the solar wind. Voyager 1 has traveled all the way from the bubble's heart to its outer edge, a gassy membrane dividing the solar system from interstellar space. This "membrane" is the heliosheath.

Before Voyager 1 reached its present location, researchers had calculated what the heliosheath might be like. "Many of our predictions were wrong," says Stone. In situ, Voyager 1 has encountered unexpected magnetic anomalies and a surprising increase in low-energy cosmic rays, among other things. It's all very strange—"and we're not even out of the Solar System yet."

To report new developments, Voyager radios Earth almost every day. At the speed of light, the messages take 14 hours to arrive. Says Stone, "it's worth the wait." Keep up with the Voyager mission at voyager.jpl.nasa.gov. To learn the language of Voyager's messages, kids (of all ages) can check out spaceplace.nasa.gov/en/kids/vgr_fact1.shtml.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the NASA.

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