Hamilton Amateur Astronomers

Event Horizon

October 2004 Volume 11 Issue 11

Photos from Italy *by John Gauvreau*

This summer I visited Florence, Italy, and had the opportunity to see some sites of astronomical interest. Florence was Galileo's home and it was wonderful to see the telescope that discovered the moons of Jupiter, and walk the street in front of his house.

Objective of Galileo's telescope

Eyepiece of Galileo's telescope

Galileo's house

SLATE	Present	Proposed
Chair	Glenn Muller	Glenn Muller
Second Chair	Doug Welch	Doug Welch
Secretary/Recorder	Margaret Walton	Margaret Walton
Treasurer	Cindy Bingham	Cindy Bingham
Membership Director	Ann Tekatch	Stewart Attlesey
Public Education Director	Gail Muller	Gail Muller
Observing Director	Stewart Attlesey	Greg Emery
EH Editor	Anthony Tekatch	Anthony Tekatch
Councilor At Large	Cathy Tekatch	Bob Christmas
Councilor At Large	Ray Badgerow	John Gauvreau
Councilor At Large	Bob Christmas	Ann Tekatch
Councilor At Large	Grant Dixon	Cathy Tekatch
Councilor At Large	John Gauvreau	Mike Spicer
Councilor At Large	Barb Wight	

Upcoming Events

Event: HAA meeting

Date: Friday November 12, 2004 7:30PM

Location: The Spectator building.

Admission: Free. Everyone is welcome!

Event: Astronomy talk with Phil Mozel of the Ontario Science Centre

Date: Saturday October 9 at 7:00 p.m.

Location: Mountsberg

Details: A twilight talk followed by observing, perhaps with a campfire thrown in.

Subscription Offer for Members

Members of the club are eligible for a discount on Sky & Telescope Magazine subscriptions.
The regular annual rate is $49.95 (U.S.). HAA members pay only $39.95 (U.S.).

Contact Ann Tekatch for information on how to sign up:

Ann Tekatch
tekatch@sympatico.ca
905-575-5433

Event Horizon is a publication of the Hamilton Amateur Astronomers (HAA).
The HAA is an amateur astronomy club dedicated to the promotion and enjoyment of astronomy for people of all ages and experience levels.
The cost of the subscription is included in the $25 individual or $30 family membership fee for the year. Event Horizon is published a minimum of 10 times a year.

HAA Council

Hon. Chair ..... Jim Winger
Chair ..... Glenn Muller
Second Chair ..... Doug Welch
Secretary ..... Margaret Walton
Treasurer ..... Cindy Bingham
Observing Dir. . . Stewart Attlesey
Publicity ..... Gail Muller
Editor/Web .... Anthony Tekatch
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Councillor ..... Barb Wight
Councillor..... Ray Badgerow
Councillor ..... Bob Christmas
Councillor ..... Cathy Tekatch
Councillor..... John Gauvreau

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Chair's Report

by Glenn Muller

Did you ever have to make up your mind
Pick up on one and leave the other behind
It's not often easy and not often kind
Did you ever have to make up your mind

We know The Lovin' Spoonful had girls in mind when they wrote these lyrics but, for the HAA councilors who could only select two Gemini/CFHT targets from a dozen great suggestions, the angst was just as great. However, those who participated will agree that it was an excellent astronomical exercise.

The finalist targets were:

A) NGC 520, the chaotic example of two galaxies merging, suggested by John Gauvreau, and

B) NGC 2403, a barred spiral galaxy containing recently-discovered supernova SN2004dj, suggested by Mike Spicer.

The complete proposals can be found elsewhere in this issue and while, hopefully, the HAA is granted this rare imaging opportunity, I'd like to thank all those who contributed their time and effort toward the submissions.

In last month's report I alluded that Fall could provide prime observing weather and September gave us exactly that. Binbrook keyholders, Greg Emery and Mike Spicer, hosted several sessions at the Conservation Area and, if you haven't yet attended one of these mini star parties, they are well worth the short drive. Keep an eye on the "Activities" link of the HAA website for times.

Another opportunity to bring the public out will occur October 27^{th} for 2004's last lunar eclipse. The Moon will encounter the Umbra at 9:14pm EDT and will complete it's exit just before 1am. The Media has been alerted to the HAA gathering at Bayfront Park for this event, and I hope you can join us.

And now for the Business report:

October marks the end of HAA's fiscal year, which means that we must review the Club's financials, and the slate of Councillors. Since all receipts won't be totalled until the 31^{st} of this month, Treasurer Cindy Bingham will present that report at November's meeting.

As far as the Council is concerned; most of the present volunteers have agreed to let their name stand for another year. The most notable changes are that Stewart Attlesey has offered to become Membership Director for Ann Tekatch, and Greg Emery has stepped forward to be the Observing Director. In the absence of objection, or further nominations, a current listing of present and proposed slates is in this issue. On behalf of the Club in general, I'd like to thank all the Councilors for their contributions and hard work over the past twelve months. Thanks a lot, everyone – your efforts are paying off!

And that leaves us with just one year-end item to deal with – DUES!

For the price of a single, or family, membership there is no better entertainment value in town. The Club may not have a lot of expenses, but it still has them so, if you haven't thought about it already – there's one decision that's easy to make! Clear Skies.

Glenn invites your comments on these topics or any aspect of the club. He can be reached via `chair@amateurastronomy.org`

Email Reminder notice

We send email reminders before each meeting which describes the location, time and topic of the general meeting.

If you're not on the list, make sure that you receive your reminder by sending a note to: `publicity@amateurastronomy.org`

Picture Me! Art contest

The IGES is sponsoring an art contest for children in grades 2-4. This year's theme is "Picture Me: What Kind of Earth Scientist Would I Be?" Entries are due by November 8, 2004.

For more information, see the "Picture Me! What kind of Earth Scientist would I be? 2004 Art Contest Announcement" link at : `strategies.org`

NASA's Space Place

Hunting Gravitational Waves: Space Technology 7

by Patrick L. Barry and Dr. Tony Phillips

Among the mind-blowing implications of Einstein's general theory of relativity, direct verification is still missing for at least one: gravitational waves. When massive objects like black holes move, they ought to create distortions in space-time, and these distortions should spread and propagate as waves–waves in the fabric of space-time itself.

If these waves do exist, they would offer astronomers a penetrating view of events such as the birth of the Universe and the spiraling collisions of giant black holes. The trick is building a gravitational wave detector, and that's not easy.

Ironically, the gravitational waves spawned by these exceedingly violent events are vanishingly feeble. Gravitational waves exert a varying tug on objects, but this tug is so weak that detecting it requires a device of extraordinary sensitivity and a way to shield that device from all other disturbances.

Enter Space Technology 7 (ST-7). This mission, a partnership between NASA's New Millennium Program and the European Space Agency (ESA), will place a satellite into a special orbit around the Sun where the pull of the Earth's and Sun's gravities balance. But even the minute outside forces that remain – such as pressure from sunlight – could interfere with a search for gravitational waves.

To make the satellite virtually disturbance-free, ST-7 will test an experimental technology that counteracts outside forces. This system, called the Disturbance Reduction System (DRS), is so exquisitely sensitive that it can maintain the satellite's path within about a nanometer (millionth of a millimeter) of an undisturbed elliptical orbit.

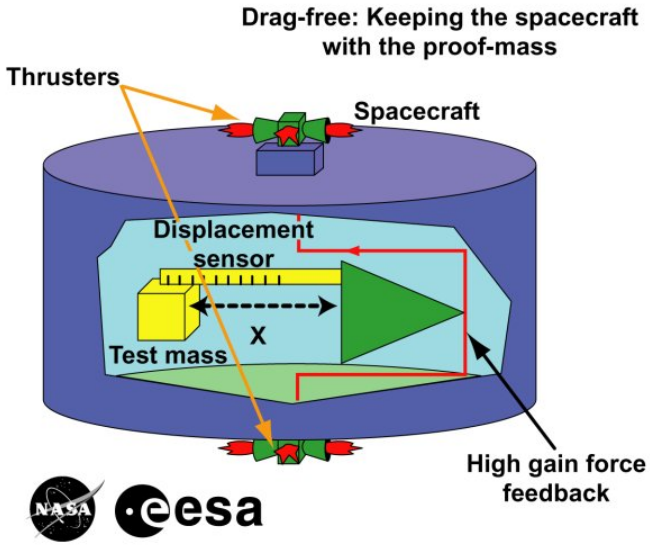
DRS works by letting two small (4 cm) cubes float freely in the belly of the satellite. The satellite itself shields the cubes from outside forces, so the cubes will naturally follow an undisturbed orbit. The satellite can then adjust its own flight path to match that of the cubes using high-precision ion thrusters. Making the masses cube-shaped lets DRS sense deviations in all 6 directions (3 linear, 3 angular).

ST-7 is scheduled to fly in 2008, but it's a test mission; it won't search for gravitational waves. That final goal will be achieved by the NASA/ESA LISA mission (Laser Interferometer Space Antenna), which is expected to launch in 2011. LISA will use the DRS technology tested by ST-7 to create the ultra-stable satellite platforms it needs to successfully detect gravitational waves.

If ST-7 and LISA succeed, they'll confirm Einstein (again) and delight astronomers with a new tool for exploring the Universe.

Read more about ST-7 at http://nmp.jpl.nasa.gov/st7 . For kids in a classroom setting, check out the Dampen that Drift! article at `http://spaceplace.nasa.gov/en/educators/teachers_page2.shtml` .

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



Space Technology 7 will test a technology to be used in detecting gravitational waves in space.

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

Council meetings

All club members are welcome to attend the council meetings. Contact `info@amateurastronomy.org` for details.

September 28, 2004

To:
Canadian Gemini Office
National Research Council of Canada
Herzberg Institute of Astrophysics
Gemini@nrc-cnrc.gc.ca

From:
Hamilton Amateur Astronomers
Hamilton, Ontario
www.amateurastronomy.org
chair@amateurastronomy.org

Cover:
Please find attached 2 proposals for the Gemini/CFHT Amateur Astronomy Contest as chosen by the members of the Hamilton Amateur Astronomers.

We found the selection process to be an excellent exercise and, no matter who wins, we hope you have as much fun with the difficult task of picking your winners as we did picking ours.

Clear Skies!

Glenn Muller
Chair, HAA

Hamilton Amateur Astronomers – Gemini / CFHT Contest Submission

Proposal 1

Target:
NGC 520 (ARP 157) Galaxy type Pec
R.A. 01h 24m 34.7s Dec. +34d 47' 49" Epoch 2000
Ø 4.6' x 1.9'

Equipment requested:
Gemini GMOS-N

Abstract:
Does NGC 520 foreshadow the fate of our own Milky Way? In three billion years when our galaxy collides with M31, the resultant chaos could well be that of the merging pair in Pisces also known as ARP 157.

From our perspective, the greatest forces of nature are exhibited with all the visual tension of a French Apache (*A-Posh-Ay)* Dance. It's a tumultuous union in which entire star regions are tossed away while others form amidst the shredded remnants of the dark dust lanes that lace this pair together.

Sized at 4.6' x 1.9', it is our hope that a Gemini Multi-Object Spectrograph (GMOS) could resolve the conspicuous trailing tidal tail to the very edge of the frame and, through the use of various filters, take full advantage of the aesthetic potential of this target.

From a Scientific Perspective, it could also:

a) Improve the estimate of the relative distance to NGC 520, which has been pegged anywhere from 11 million to 120 million light years away.
b) Reveal new star formations
c) Reveal the ignition of new nebulae
d) Reveal new supernovae and/or
e) Update data of known item types noted in (b), (c), and (d)
f) Provide further data for galactic motion models

Finally, for Public Education, with the above factors not-withstanding, instructors know well that in order to teach someone - first you must get their attention. At the HAA, we are in agreement that a GMOS image of NGC 520 will do exactly that.

Proposal 2 follows…

Proposal 2

Equipment requested:
CFHT-MegaPrime

Target:
NGC 2403 Galaxy Type SAB(s)cd III
Ø17.8' x 11.0' m8.5v, SB 14.6
R.A. 07h 36.9m Dec. +65°36' Epoch 2000

Abstract:
Star cluster Sandage 96, part of Galaxy NGC 2403, was catalogued in 1984. Twenty years later in July of 2004, SN2004dj, the supernova collapse of a massive star within that cluster has brought the spiral galaxy in Camelopardalis into the celestial spotlight.

At approximately 11 million light years from Earth, NGC 2403 was the first galaxy beyond the Local Group in which Cepheid variable stars were detected. As for SN2004dj, at one time 15 times larger than our own sun, it now shines 200 million times brighter!

Due to this timely opportunity for data collection of the supernova's transition, and the closeness and apparent size of the host galaxy, we feel this combination would make an ideal target for the MegaPrime imager. While a few Milky Way stars will no doubt inhabit the foreground, they could serve as simple magnitude comparatives for SN2004dj.

This galaxy's nearly face-on orientation displays several star-forming regions, any of which could be home to new supernovae. Also some interesting dust lanes appear to bisect the arms as well as the bright, condense, central core.

Recently imaged by Hubble; follow-up images by MegaPrime could not only add valuable data to the file on NGC 2403 and, in particular, SN2004dj but also effectively display the capabilities of cutting-edge Earth-based equipment.

Hamilton Amateur Astronomers Membership Renewal November 1, 2004 - October 31, 2005

Name:	
Address:	
City:	
Postal Code:	
Phone:	
E-mail:	

Type of Membership:

Individual ($25 Cdn/year)	
Family ($30 Cdn/year)	
Royal ($50 Cdn/year)*	
Friend ($100 Cdn/year)*	
Patron ($250 Cdn/year)*	
Voluntary Donation $	

* These levels of membership confer the same rights and privileges as a Family membership. We greatly appreciate the additional financial support our members provide by signing up as a Royal, Friend or Patron.

All membership dues are eligible for tax receipts.

Total:	$

Please make cheque payable to:

Hamilton Amateur Astronomers
P.O. Box 65578
Dundas, Ontario
L9H 6Y6
CANADA

Membership renewals are due November 1.

November 2004

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	10	11 Rememberance Day	12 **HAA General Meeting**	13
14	15	16	17 Leonid meteor shower	18 Leonid meteor shower	19	20
21	22	23	24	25	26	27
28	29	30				

For observing info, Rob Roy 692-3245, Greg Emery greg.emery@mohawkcollege.ca, or Mike Spicer at DeBeneEsse2001@aol.com http://amateurastronomy.org/events.php

October 2004

					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

December 2004

			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	