



January 2007

Volume XXXVII, Issue 1

Executive Board

PRESIDENT

Chuck Cardona III '07
Programs & Publicity Chair
(631) 727-6769
chaz@owlnet.com

VICE PRESIDENT

Kurt Massey '07
Radio Astronomy Chair
(631) 325-2123
kamassey@verizon.net

TREASURER

Barbara Lebkuecher '07
(631)722-3850
barbaraleb@aol.com

SECRETARY

Donna L. McCormick '07
(631) 696-3333
mccormick@scientific-consultants.com

FINANCE CHAIR

Bill Bogardus '07
(631) 474-2723
wbogardu@optonline.net

DIRECTORS

Alarico Verticchio '07
(631) 477-2717
akam10@optonline.net

Dr. Jeffrey Katz '07
(631) 696-3333
katz@scientific-consultants.com

Rich Huber '08

(631) 598-4613
raflash99@aol.com

Brian Andrews, Esq '08
(631) 725-1515
bandrewsesq@optonline.net

Comet McNaught – A Comet Among Comets!



Comet Mc Naught 2006P1

ED80mm f2.8 5 mins Ektachrome E200 film tracked unguided
Saturday January 20 1200UT Photo : Joe Cali

Image, courtesy Joseph Cali of The Australian National University (<http://www.anu.edu.au>)

Highlights for January 2007

- Custer Winter Course Offerings; please see inside;
- 2007 Friday Night Lectures series begins at SUNY, Stony Brook

Table of Contents

January 2007	Volume XXXVII, Issue 1	1
Executive Board		1
PRESIDENT		1
VICE PRESIDENT		1
TREASURER		1
SECRETARY		1
FINANCE CHAIR		1
DIRECTORS		1
Comet McNaught – A Comet Among Comets!		1
Table of Contents		2
Errata		2
November 2006 Issue (http://tommadigan.net/custer/custercomment-november2006.pdf)		2
Editor's Column		3
My Trip out to Custer, David Gaynes and Saving The Hubble		4
The Ride out to Custer		4
David Gaynes and Saving Hubble		5
Custer Jamboree 2006 DVD Reservation Form		6
Gift Corner & Classifieds		7
Heavenly Events To Watch For January 2007		8
Winter 2007 Class Schedule		9
Introduction to Astronomy		9
The Sun And Stars, Saturday, January 27 th , 2007		9
The Planets, Saturday, February 3 rd , 2007		9
Galaxies & Deep Space Objects, Saturday, February 10 th , 2007		9
Cosmology, Saturday, February 17 th , 2007		9
Telescope Clinic		11
Registration Form For Winter '07 Events		11
Upcoming Events		11
Total Lunar Eclipse		11
St. Patrick's Day Party		11
Upcoming Friday Night Lectures at SUNY, Stony Brook		12
Geology Open Night: "Environmental Threats to Long Island's Central Pine Barrens"		12
Astronomy Open Night: "Astronomy from the South Pole"		12
The Worlds of Physics: "Medical Imaging - Using Physics to look at Drug Addiction"		13
Darwin Day Lecture: "The Making of the Fittest"		13
The Living World: "Faith and Science: Is There an Interface?"		14
Geology Open Night: "New Tools/Toys to Study the Earth's Deep Interior"		14
A Tale of Tails of Comets		15
Comet McNaught – The Brightest Comet in 40 Years		17
A concert entitled "The Evolution of Rhythm and Blues"		23

Errata

November 2006 Issue (<http://tommadigan.net/custer/custercomment-november2006.pdf>)

Page 7; "...he was born in 1918, after Einstein had already published his **Special Theory of Relativity** in 1915." should have read: "...he was born in 1918, after Einstein had already published his **General Theory of Relativity** in 1915." Einstein's **Special Theory of Relativity** was published in 1905.

Editor's Column

Tom Madigan, Editor

Tom Madigan
99 North Summit Ave.
Patchogue, NY 11772-2226
tmadigan@optonline.net
madigat@sunysuffolk.edu
tom@tommadigan.net
(631) 714-4388

Cutoff for submissions is the 15th of the month preceding publication

Visit the new Custer Website at
<http://www.custerobservatory.org>
Custer Comment Archive:
<http://www.tommadigan.net/custer>

The Custer Comment is published monthly by

Custer Institute
P.O. Box 1204
Main Bayview Road
Southold, NY 11971
(631) 765-2626

"I have loved the stars too fondly to be fearful of the night."

Sarah Williams

I've received many fantastic images of Comet McNaught and have published an assortment of them in this issue. I've been corresponding with a fellow of the Australian National University (<http://www.anu.edu.au>), Joseph Cali, who has sent me breathtaking images, one of which appears on the front page of this month's issue. More of Joe's images appear along with submissions from Bob Forrest of the University of Hertfordshire Observatory in the UK, Dr Mike Inglis of Suffolk Community College and from Phil Harrington. Due to inclement weather and an overloaded schedule, I wasn't able to actually observe the comet myself and am grateful to all the good folks who so generously shared their observations and images.

My apologies, again, for the extreme lateness of this month's issue. Hope to see you all this Saturday as I'm the instructor for the next in our winter lecture series.

Best,
Tom

Tom Madigan, Editor

"If the stars should appear one night in a thousand years, how would men believe and adore?"

Ralph Waldo Emerson
From his essay "Nature"

My Trip out to Custer, David Gaynes and Saving The Hubble

By Tom Madigan

The Ride out to Custer

Having mostly recovered from my injuries of almost a month ago and having repaired my motorcycle to within 98% of what it was a month ago on the 17th, I ventured out to Custer on my vintage Kawasaki KZ1000 (1979 MK-II Supersport) on the evening of January 6th to take part in “*Saving the Hubble*”!

Fortunately for me, while the bruises to my left side were significant and I still feel some mild discomfort there, my ego was bruised more than my body with the motorcycle sustaining



Image, Courtesy Tom Madigan

cosmetic damage only to the fairing and windscreen. All of you have been so patient with my long delays and seemingly endless list of excuses why the Custer Comment is so late every month. It is only fitting that this column conclude, on a positive note, what was, for me, a harrowing event.

Prior to my departure, I had decided that this trip out to Custer was going to be a combination of “getting back in the saddle”, so to speak and an opportunity to simply enjoy the ride, something that isn’t often experienced. The route I take out to Custer is, by design, one that attempts to avoid as much traffic as possible. From Patchogue, to points east, that would be Route 27, Sunrise highway, to the appropriate exit. In this case, where my destination is Custer Institute, the exit would be Exit 63, Suffolk County Route 31, north to CR104, then to CR105. Following that, I either follow CR105 all the way up to CR43, make a right and another right onto Sound Ave or simply make a right onto Route 25 from CR105 and take that all the way out to Custer. This later choice is what I chose for this trip.

The conditions for what was a memorable visit to Custer, all came together in a confluence of all the best possible. The weather was a sheer gift! The air was dry; the sky was clear and the temperature mild. Having spent the afternoon working on the motorcycle, getting it road worthy and engaging in some minor engine tuning, the big Kawasaki was running as good as, if not better, than it ever did. Back in its day, this motorcycle was untouchable and, in fact, from a performance standpoint, Detroit still hasn’t produced anything with the possible exception of their new Chevrolet Corvette or HP Ford Mustang that could even come close to the performance profile of this **1979** motorcycle. The 4 cylinder, 1 liter (1015 cc) engine is based on Kawasaki’s legendary 900 cc Z1 engine, introduced in 1973. Being the original owner of the motorcycle, I have grown accustomed to the engine, how it sounds and how well its running based on that sound. The engine has had some customization that includes reworking the carburetors, the installation of a high-performance exhaust system among other items that are beyond the scope of this piece. The tuned hum of the engine, a

hum where you can actually hear each cylinder fire, quietly muffled by the custom exhaust, lets you know the engine is in tune and running well; it never sounded better!

East of exit 59 on Sunrise highway, the traffic was very light to non-existent. The sweet smell of the early evening air, with Orion to my right and Sirius to the east and lower to the horizon reminded me of an open air bi-plane. With the quiet, strong hum of the engine below me, the occasional counter-steer to correct for the crosswind and the onrush of the broken, white line over 60 Mph, it could have been a ride in a bi-plane! I was saying to myself, it doesn't get any better than this!

David Gaynes and Saving Hubble

Often it is the trip that one remembers, with the occasional pit stop or the sights and scenes that are recorded along the way, not the destination. For me, on this occasion, both the trip and the destination were memorable. The reason for the trip, of course, was to hear David speak and to participate in, whatever small way I can, "saving the Hubble". Although the Hubble mission has been saved from the bean counter's ax and, apparently, will have a happy ending, an ending that by all expectations will be through 2013, there are other missions of great scientific value that have been curtailed or outright cancelled. It is for those missions, as well as to



Image, courtesy Tom Madigan
David Gaynes makes a point during the discussion of his film "Saving Hubble"

raise public awareness of what a tremendous asset to the world community the HST is and how close we came to loosing it, that "Saving the Hubble" was produced. David spoke of the road traveled to produce the film: from the halls of congress to cab drivers out on the beltway, to the vaunted lecture halls of some of our nation's leading institutions of higher learning, to the offices of Hubble mission planners and project leaders, to the Kennedy Space Center, Goddard Space Flight Center and JPL to the NASA engineers that work tirelessly without recognition to keep HST operational, to the cubicles of software engineers and programmers who write and update the flight software that keeps Hubble running and in contact with the worldwide user community. As David is, by profession, a producer and director, one would expect only a cursory knowledge of astronomy and his subject, the HST, but to my surprise and delight, he was very conversant in both, able to field any and all questions put to him. He spoke as an impassioned orator, committed to his subject, delivering a powerful and compelling message of how important authentic education is and how we must always, each of us, reach for the stars as the Hubble Space Telescope continues to do. **Thank you, David**, for sharing your important work with us. Your project is, indeed, a noble endeavor and may it exceed beyond all of our expectations! Dear reader, please support "**Saving the Hubble**" at <http://www.savinghubble.com>, produced by David Gaynes and Eric Budney of <http://www.outoftheboxtv.com>. "**Saving the Hubble**" is scheduled for release in the Spring of '07, so please contact your local theater and let them know of your interest. As well, why not sign up for alerts and email notifications from the "**Saving the Hubble**" campaign at <http://www.outoftheboxtv.com/email.html>.

Custer Jamboree 2006 DVD Reservation Form

Name: _____

Address: _____

Phone: _____

Email address: _____

Number of sets desired: _____

Please remit \$10.00 for each set requested. Each set consists of 5 DVDs of each of the featured speakers:

- Dr. Ken Lanzetta, "Dark Energy, Dark Matter";
- Dr. David Helfand, "Intelligent Life in the Universe?";
- George Lomaga, "Shadow Across the Sun: 2006 Total Solar Eclipse";
- Robert Gendler, MD, "The Hybrid Image: A New Philosophy of Aesthetic Astroimaging";
- Tony Hoffmann, "On the Trail of Sungrazing Comets";

In addition to these 5 lectures, a 6th bonus, multi-media DVD of all the best images obtained at the jamboree will be included.

Please send this completed Reservation form with a check in the amount of \$10.00 for each set requested as a deposit, payable to **Custer Institute** to:

Custer Jamboree DVD Set
c/o Tom Madigan
99 North Summit Ave
Patchogue, NY 11772

Electronic recipients will receive an email confirmation that their DVD set(s) have been reserved. All others will receive a telephone call.

Note: all proceeds go directly to Custer Institute in order to continue our outstanding programs, lecture series and service to our membership, to science and to the community at large. A portion of these proceeds are used to cover the cost of production and shipping.

Gift Corner & Classifieds

We Have Meteorites!

Great sets mounted in beautiful display cases. Perfect for gifts.

Custer coffee mugs, only \$4.
Do you have yours yet?

Custer Dome Assembly and Raising DVD \$10.00

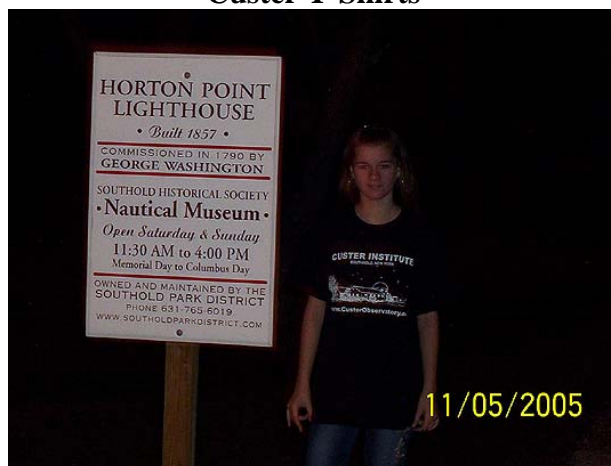
2 Payment Options:
1) Mail a check or money order, payable to Custer Institute, to this editor's address with a note indicating how many copies you would like; 2) Paypal to CusterPaypal@yahoo.com followed by an email to this editor indicating the number of copies ordered and shipment instructions. Before shipment, I will confirm with Barbara that payment has been made. All my contact info is always published on page 3.

An Evening With John Dobson

VHS or DVD format, \$10.00, \$3.75 S & H

On September 17, 2005, noted sidewalk astronomer and cosmologist, John Dobson, visited Custer. He presented his classic cosmic slide show, packed with information and delivered with inimitable wit; he shared stories about his life as a monk, secretly grinding mirrors, making telescopes and introducing the public to the wonders of the night sky. Board member, Rich Huber, filmed this memorable event and has made copies on VHS and DVD. Running time is approx. 90 minutes. The cost: \$10 with 25% of the proceeds going to John Dobson's San Francisco Sidewalk Astronomers Association and a nominal \$3.75 for shipping and handling. You can pay for your tape using Paypal by sending \$13.75 to CusterPaypal@yahoo.com or by sending a check or money order (made payable to *Custer Institute*) to: Dobson at Custer, P.O. Box 1204, Southold, New York 11971. Please specify whether you would like VHS or DVD. If you have any questions, please contact Donna McCormick at mccormick@scientific-consultants.com.

Custer T-Shirts



Image, courtesy Tom Madigan

The editor's daughter, Kaitlin, sporting a Custer T-Shirt at Horton Point Lighthouse on Jamboree '05 night! The shirts are 100% heavy-weight cotton, machine-washable, and are available in adult sizes S-M-L-XL-XXL. The cost is \$12 plus \$3.75 S & H and the shirts are available only while supplies last. Custer would also like to *thank the East End Shirt Company* in Port Jefferson for their generosity and for having done an excellent job in producing such fine quality shirts on such short notice.

We have Susan Harder's patented & dark sky friendly **PARSHIELD®**

Outdoor Floodlight Shields

for PAR 38 type bulbs. Controls glare, reduces light trespass & allows you to direct the light where you need it.

Two shields per box in your choice of Off White or Bronze finish. \$20.00, tax incl.

ASTRONOMY FOR ALL AGES

By
Phil Harrington
&
Ed Pascuzzi

The Gift Shop still has a number of copies of this latest volume by Phil Harrington with co-author Ed Pascuzzi. Get your copy while supplies last. At just \$20, this is a real bargain! As an added bonus, copies are signed by Ed.

PARALLAX

By
Alan W. Hirshfeld

We also have a limited number of copies of this excellent volume by 2003-Jamboree guest speaker Alan Hirshfeld. Quantities are limited so hurry and add this well-written and informative volume to your collection while supplies last.

Heavenly Events To Watch For January 2007

“Darkness is everywhere.
I peer through the long Fingers of
the night; Into that shadowless land
Of tomorrow;

Wood And pasture sleep Side by
side. Far In the distance a dog Has
treed the silence. Hills Are wholly
dissolved except In memory.

I scan The sky: a star Is riveted
against The emptiness ... one bolt
Holding the world in place.

- John Robert Quinn

Our “evening star” (until July, anyway) VENUS begins the year low in the west-southwest after sunset, setting before nightfall. By the end of January -3.8 magnitude Venus not only will outlast the twilight but will hover over MERCURY, just 7° below. Around daybreak MARS struggles to clear the southeast horizon, and this annoying bone-idle behavior will continue, unfortunately, all winter and well into the spring. JUPITER is not so lazy, up in the southeast by 5 AM this month among the southern stars of Ophiuchus, our resident “morning star” glowing at -1.8 magnitude. By month’s end 0.0 magnitude SATURN is low in the east by nightfall, reaching due south (transiting) at 1 AM, just ahead of the star Regulus in Leo. Notice how Saturn’s rings have gone more edgewise than they were last year; (a telescope will help you do this - squinting doesn’t cut it.)

3 Full Cold Moon sets after sunrise & rises around sunset today. (Not a good time to watch for tonight’s annual Quadrantid meteor display.) Also today, the Earth is at perihelion, its closest approach to the Sun - about 91,366,000 miles away.

- 5 Latest sunrise occurs around this date, at about 7:20 AM.
 - 6 The waning gibbous Moon rises beneath Saturn around 8 PM. And close beneath the Moon is Regulus, α Leonis. By daybreak tomorrow Regulus will be directly between the Moon and Saturn.
 - 9 An iris in January? If you’re looking for something out of the ordinary this evening, how about finding the 8.5 magnitude asteroid (7) Iris? (It was first seen in 1847 by the British astronomer J. R. Hind. To find Iris tonight start at the Pleiades and slide southwest about 13° to the 6.1 magnitude star 51 Arietis, or UW Arietis, (about 2° southwest of 4.3 magnitude δ (Delta) in Aries.) About ¼° north of 51 is Iris. Sketch its position, then return in a few nights to note its eastward movement.
 - 10 Algol, β Persei, is in mid-eclipse at 9:07 PM, and again at 5:57 PM on the 13th.
 - 15 Before daybreak this morning, around 5 AM, enjoy the red star Antares, α Scorpii, perched atop the upper horn of the waning crescent Moon, with Jupiter only about 6° above and to the left of them both.
 - 16 After daybreak this morning the slender crescent Moon rises over the southeast horizon with Mars also rising only about 7° to its left.
 - 16 Clyde Tombaugh, discoverer of Pluto, died January 16, 1997, ten years ago. The world he discovered was given the brevet rank of Planet for barely 0.3 Plutonian years.
 - 20 The thin waxing crescent Moon chases Venus down to the horizon after sunset. Binoculars could show two prominent stars between them - γ and δ Capricorni, the Sea-Goat’s tail.
 - 30 Algol is in mid-eclipse at 10:52 PM, and again at 7:42 PM on February 2.
 - 31 Mercury is 7° beneath Venus this evening. Check between 6 and 6:30 PM.
- Feb.1 Full Snow Moon tonight.

Prepared by Robert Chapin

Winter 2007 Class Schedule

Introduction to Astronomy

The Sun And Stars, Saturday, January 27th, 2007

Time: 6:00 PM;

Location: Custer Institute, Main Bayview Road, Southold;

Instructor: **Tom Madigan**, Custer Comment Editor, former staff astronomer and lecturer at the Vanderbilt Planetarium, Fellow of the Royal Astronomical Society and member of the Adjunct Faculty at Suffolk County Community College.

Topics will include the nature and dynamics of the sun leading into a discussion of stellar evolution, the H-R diagram, Supernovae, Neutron Stars and Black Holes.

The Planets, Saturday, February 3rd, 2007

Time: 6:00 PM;

Location: Custer Institute, Main Bayview Road, Southold;

Instructor: **David Cohn**, Director, Tupper Planetarium

Topics will include the kinds of planets and their formation, solar systems, extra-solar planets, asteroids, comets, current space missions and findings.

Galaxies & Deep Space Objects, Saturday, February 10th, 2007

Time: 6:00 PM;

Location: Custer Institute, Main Bayview Road, Southold;

Instructor: **Mike Inglis, PhD**, associate professor of astronomy, Suffolk County Community College and Fellow of the Royal Astronomical Society

Topics will include types of galaxies, black holes, star clusters, nebulae, magnetars, pulsars, and more.

Cosmology, Saturday, February 17th, 2007

Time: 6:00 PM;

Location: Custer Institute, Main Bayview Road, Southold;

Instructor: **Jeffrey Katz, PhD**, Custer Observatory Director

Topics will include the Big bang theory, the expanding universe, dark energy & matter, relativity, cosmic string theory, exobiology and quantum phenomena.

Registration for Custer's 2006-2007 Winter Course Offering is Required.

Cost schedule is as follows:

Custer members: \$45 for the entire class or \$10 per session;

Non-members: \$60 for the entire class or \$13 per session.

Payment via check or money order (made payable to Custer Institute) or through Paypal (to the account of CusterPaypal@yahoo.com).

Send the form below to: Custer Institute, P.O. Box 1204, Southold, NY 11971. For additional information please contact Donna McCormick at CusterDonna@yahoo.com or call 631-765-2626.

If you're not already, please consider becoming a member of Custer, a 501(c)(3) Not-For-Profit Corporation in New York State (est. 1927). We are staffed by volunteers, and rely on dues, proceeds from events, and the generosity of the community for our survival. Your membership will not only help us continue to provide educational, cultural, and research programs, but will support our current efforts to expand our facility and services.

Name _____
Email Address _____
Street Address _____
City _____ State _____ Zip _____ Phone _____

I am a Custer Member: ; I wish to enroll in the full class at \$45, or the following sessions at \$10 each: 1/13, 1/20, 1/27, 2/3, 2/10, 2/17;

I am not a Member: ; I wish to enroll in the full class at \$60, or the following sessions at \$13 each: 1/13, 1/20, 1/27, 2/3, 2/10, 2/17;

I would like to join Custer: \$45 Individual; \$60 Family; \$25 Senior (65+); \$25 Junior (12-18); \$25 Full-time Student

I have made payment via Paypal or enclosed my check/money order (payable to Custer Inst.) for \$ _____.

Note: Confirmation of registration will only be sent by email. Please mail your completed form to: Custer Institute, PO Box 1204, Southold, NY 11971.

New members please note: the *full edition* of the Custer Comment, Custer's monthly Journal, is *only* available to those who have the ability to receive it electronically. If you did not include your email address or do not have access to a computer, email or the Internet, then you will receive a single page, highlights edition. ***By submitting your membership application with payment, you're eligible to receive the discounted membership price at all Custer events!***

Telescope Clinic

Whether you just received the gift of a telescope, or have had one that you've been trying to get to work optimally, this event is for you. Bring your telescope to Custer and you'll receive personalized instruction on how to use it. Custer Board and Observatory Committee Member, Rich Huber, will lead the training team.

When: Saturday, February 3rd, 2007, 8:00 – 10:00 PM;
Where: Custer Institute, Main Bayview Road, Southold;

Minimum suggested donation:

- \$5 Custer Members;
- \$10 Non-Members.

Registration Form For Winter '07 Events

Name _____ Email _____

Street Address _____

City _____ State _____ Zip _____ Phone _____

2/3 Telescope Clinic

I am a Custer Member: Please reserve _____ tickets at \$5 each TOTAL \$ _____

I am not a Member: Please reserve _____ tickets at \$10 each TOTAL \$ _____

Join Now And Save On Ticket Prices

If you're not already a member, please consider joining. Custer Institute is a 501(c)(3) Not-For-Profit Corporation in New York State (est. 1927). We are staffed by volunteers, and rely on dues, proceeds from events, and the generosity of the community for our survival. Your membership will not only help us continue to provide educational, cultural, and research programs, but will support our current efforts to expand our facility and services. By submitting your membership application with payment, you're **eligible to receive the discounted membership price** at all Custer events! Please review the membership application on the previous page.

Upcoming Events

Total Lunar Eclipse.

Sat., March 3, 2007, 5:00-7:00 PM. Join us as we observe (weather permitting) a most impressive sky show. The eclipse is expected to begin at about 5:15, reach totality at 6:20, then conclude by 7PM. Normal Saturday night observing will follow. As always, refreshments will be available. Admission: FREE (but donations are always appreciated).

St. Patrick's Day Party

Sat., March 17, 2007, 6:00 PM. A corned beef and cabbage feast prepared by Chef Chuck O'Cardona. Feel free to add to the table by bringing your favorite dish or dessert. Live music will follow. Suggested Donation: \$10 Custer Members, \$15 Non-Members, FREE for all children 13 and under.

Upcoming Friday Night Lectures at SUNY, Stony Brook

Geology Open Night: "Environmental Threats to Long Island's Central Pine Barrens"

Friday, January 26, 2007

7:30 pm Room 001 ESS Bldg.

Instructor: Prof. Gil Hanson, Dept. of Geosciences, Stony Brook University

Global warming, sea level rise, acid rain, and ground level ozone are environmental threats to the sustainability of Long Island's Central Pine Barrens. As a result of global warming the climate of Long Island may be more like that of eastern Georgia by the end of this century. This will of course have a huge effect on ecological communities that are adapted to cooler climates.

With the expected sea level rise the water table will also rise. Since the shallow streams and ponds in the Pine Barrens are dominantly groundwater fed, changes in the level of the water table may have dramatic effects on the ecology of these bodies.

Acid rain is allowing aluminum in the soil to mobilize and replace other base cations on the soil. Highly mobile aluminum in acidic soils is toxic to plant growth, and hence can have a deleterious effect on overall ecosystem health.

Ground level ozone is known to cause foliar damage and reduced rate of growth in plants. There were more than thirty days in 2005 when there was acute exposure for plants in Suffolk County. Ground level ozone is mainly a result of sunlight interacting with motor vehicle exhaust.

In this presentation Professor Hanson will discuss these environmental threats and suggest monitoring programs that are necessary to evaluate them. Also, little is known about microclimates in the Pine Barrens, as no detailed study of the climates has been conducted. Monitoring will enable us to understand the differences between the microclimates of each distinct ecosystem in the Pine Barrens region and which factors are critical to sustainability.

Following the lecture there will be refreshments and a chance for discussion.

Astronomy Open Night: "Astronomy from the South Pole"

Friday, February 2, 2007

7:30 pm Room 001 ESS Bldg.

Instructor: Dr. Kathleen Flint, Dept. of Physics & Astronomy Stony Brook University.

With an altitude of over 9000 feet, winter temperatures reaching -76degF, and six months of darkness, the South Pole is one of the most hostile environments on the Earth. Yet, these very conditions that make it inhospitable to life also make it one of the best places to do astronomy. The extremely dry, dark, and high-altitude conditions approach those found in space allowing astronomers to study some of the most difficult and fundamental questions. Science programs there range from searching for planets outside our solar system to searching for clues to how the Universe formed in the energy left over from the Big Bang.

In the next of the popular series Astronomy Open Night, Dr. Kathleen Flint will give a brief tour of the frozen continent of Antarctica and the unique opportunities it offers to astronomers. She will present an

overview of the South Pole and the science that takes place there. She will also look to the future and describe some exciting projects on the horizon, such as a brand new South Pole Station, the groundbreaking neutrino detector IceCube, and possibilities for astronomy beyond the South Pole.

Dr. Flint is the assistant director of the Reinvention Center and an adjunct professor in Physics & Astronomy at Stony Brook's Southampton campus. She received her Ph.D. in astronomy and astrophysics from UC Santa Cruz and was a Carnegie Fellow at the Carnegie Institution of Washington. Dr. Flint came to Stony Brook in 2005 from the National Science Foundation where she was an AAAS Science and Technology Policy Fellow in the Office of Polar Programs. She lives in Port Jefferson Station.

Following the lecture, weather permitting, there will be a viewing session with the University's telescopes.

The Worlds of Physics: "Medical Imaging - Using Physics to look at Drug Addiction"

Friday, February 9, 2007

7:30 pm Room 001 ESS Bldg.

Instructor: Dr. David Schlyer, Brookhaven National Laboratory

Positron Emission Tomography (PET) is an imaging technique which is gaining wide acceptance in the clinic for the evaluation of cancer. It is also being widely used in research to understand how the brain functions and how the brain changes when exposed to drugs.

Brookhaven National Laboratory has an ongoing program in trying to understand drug addiction. Brain imaging using PET has resulted in some understanding of brain function during drug addiction and recovery. PET is based on using radioactive tracers at such low concentrations that they have no effect on the body, but they can be used to see how the brain is working.

Following the lecture there will be refreshments and a chance for discussion.

Darwin Day Lecture: "The Making of the Fittest"

Thursday, February 15, 2007

7:30 pm STUDENT ACTIVITIES CENTER AUDITORIUM

Instructor: Prof. Sean Carroll, Howard Hughes Investigator/Professor of Genetics University of Wisconsin.

This year's distinguished Darwin Day guest lecturer Sean Carroll will talk about the many ways that evolutionary biology permeates our thinking and everyday practices, and discusses DNA evidence as it might reveal what happened at a crime scene and long-past moments in the history of life.

Carroll is one of the founders of the

research area devoted to Development and Evolution but also is a noted public lecturer and author. His latest book is "The Making of the Fittest," and you can find an interview at:

<http://www.discover.com/web-exclusives/carrollinterview/>

Cosponsored by the Department of Ecology and Evolution, and the Office of the Provost

The Living World: "Faith and Science: Is There an Interface?"

Friday, February 16, 2007
7:30 pm room 001 ESS Bldg.
Panel Discussion

A talk and panel discussion. Participants include Dr. Katy Hinman, Director of Georgia Light and Power, Dr. Robert Crease, philosopher, Rev. Richard Edwards, Stony Brook Community Church, Dr. Jeffrey Levinton, Stony Brook Professor, Rev. Catherine Schuyler, Stony Brook Pastor, Rabbi Joseph Topek, Director of Stony Brook Interfaith Center and Hillel Foundation for Jewish Life.

We are at a time when mistrust between faith and science is at a peak and we wonder where the interfaces between the two spheres might be and how trust might be improved. Katy Hinman will talk of her work on environmental issues from a faith perspective and the panel will talk about the possible interfaces between faith and science.

Cosponsored by the Department of Ecology and Evolution, Freshman College of Science and Society, and SBU-Templeton Trust Institute.

Geology Open Night: "New Tools/Toys to Study the Earth's Deep Interior"

Friday, February 23, 2007
7:30 pm Room 001 ESS Bldg.
Instructor: Prof. Robert Liebermann, Dept. of Geosciences, Stony Brook University

Many of the phenomena on the surface of the Earth, such as earthquakes and volcanic eruptions, are produced by processes deep within the Earth's interior. In the past, mineral physicists, who study the properties of rocks and minerals at high pressures and temperatures, used equipment in their own laboratories to perform these studies. However, with the advent of specialized synchrotron and neutron facilities of the U.S. Department of Energy, many of these experiments are now being conducted at national laboratories, such as the National Synchrotron Light Source at Brookhaven National Laboratory. Within the past two years, mineral physicists using these national facilities have discovered a new phase of pyroxene which only exists at depths below 2700 kilometers; this discovery helps to explain the unusual properties of the mantle just above the molten core.

Prof. Liebermann, an internationally renowned mineral physicist, is President of the Consortium for Materials Properties Research in Earth Sciences (COMPRES). This consortium consists of mineral physicists from 50 US and 28 international institutions. COMPRES is funded by the National Science Foundation to provide access and training for geologists to work at national facilities and has its administrative headquarters in the Mineral Physics Institute of Stony Brook University.

Following the lecture there will be refreshments and a chance for discussion.

A Tale of Tails of Comets

**Chiaki Yanagisawa and Urszula Golebiewska
January 15, 2007**

Ever since we started to do astronomy together, it has been our desire to see and take beautiful photos of comets with tail. Our desire was inspired by awesome photos of comets with a long tail we have seen in astronomy magazines and on the web.

Year 2006 was a great year for comets. We saw Comet Schwassmann-Wachmann and took some reasonable photos of it in May, 2006. This comet was spectacular in that it split into pieces. Then in August, 2006, Comet Barnard 2 had returned for the first time since 1989 when it was discovered by Barnard at Lick Observatory. This was very difficult comet to spot even by a telescope, as its peak brightness was magnitude 8 and it had a rather diffused nucleus and did not have any tail. We only found it by taking wide-field photo with Canon EOS Digital Rebel XT piggy-backed on our 8" Meade LX200GPS and then by processing the photos with Photoshop. Nevertheless it was a memorable encounter as in our photos this comet posed itself with one of the best globular clusters in the Constellation Hercules, M13. Then came Comet SWAN in October, 2006. It was expected to be a magnitude 6 comet at its peak. Fortunately it split into two pieces and consequently brightened up to a magnitude 4. Probably it could be observed by naked eyes but we did not try. Right after we heard about the split, we managed to find it and take a series of beautiful photos with a long tail with the piggy-backed EOS armed with 300 mm telephoto lens just before it was obscured by trees in our yard.

Year 2007 started with Comet McNaught that was discovered in fact in August 2006. It has so far attained a magnitude -3 which put it at the third place in terms of brightness (since 1935). The only comet that beats McNaught is Comet Ikeya-Seki in 1965 (magnitude -7) in "recent" memory. Of course we still remember the spectacular appearance of Comet Hale-Bopp that entertained us for a while as a naked-eye comet in 1997. Admittedly Hale-Bopp was more impressive than McNaught but it attained only magnitude -0.8.

On January 13, 2007 McNaught was expected to reach the closest point to the Sun (perihelion). That means that it was expected to be brightest on that day and to position itself very near the horizon right after the sunset. Knowing our luck with the weather on Long Island, we did not wait for the perihelion and tried to locate it at Stony Brook Harbor on January 8 – no luck. It was good weather just after the sunset, so the comet must have been visible but for some reason we did not see it. Probably we were looking for it in wrong direction.

On January 10 the weather was supposed to be good around 5 pm. We went to Stony Brook Harbor again. We were blessed with the gorgeous weather. The Sun had already set but its powerful rays were still keeping the sky bright. We saw bands of clouds moving from west to east. At 5:15 pm finally we saw the comet with our own eyes without any optical aid. What a magnificent view it was! It had a bright head with a long tail. We kept taking photos with varying exposure time as we did not know what the right exposure was. The comet was moving so fast that by 5:30 pm it was behind the hill – it's only a 15-minutes of glorious view but what a view it was.

Hoping to see yet brighter Comet McNaught , we returned to Stony Brook Harbor for the last

time to see it on the following day, January 11. It was getting cloudy at 5pm. When we arrived there, we saw bands of clouds with some gaps between them. Knowing the rough position of the comet from the previous day helped us locate it among clouds. Its nucleus was so bright that it was visible even through the cloud – so was the tail. Of course we managed to take a bunch of photos. It was a great experience you might have once every three decades or so. To share our wonderful experience with you, here we post a photo of Comet McNaught we took on January 10 during our observation.



Editor: Chiaki Yanagisawa and Urszula Golebiewska are both Custer members. Chiaki is an associate professor of Physics at SUNY, Stony Brook; Urszula is a Physics adjunct at Stony Brook.

Comet McNaught – The Brightest Comet in 40 Years

Low in the west from Patchogue, 8 January, 2007



Images on this page submitted by Dr Mike Inglis, 8 January, 2007 and were obtained with a Canon XT, ISO 100, 1.6 sec exposure, 300mm telephoto.

Looking west from Custer Institute showing the comet's tail, 20 January, 2007



From Cape Cod, Massachusetts, 19 January, 2007



Images on this page submitted by Phil Harrington

Looking West and South from Bayfordbury, UK, 11 January, 2007



Image submitted by Robert Forrest, Principal Technical Officer, University of Hertfordshire Observatory (<http://perseus.herts.ac.uk/uhinfo/index.cfm?AD5BD754-D95B-125F-99D3-BBB79A7E465D>). The image was obtained at 17:07 UT with a 135 mm telephoto lens working at f/2.5. In the foreground is one of the member domes of the observatory complex, the principal astronomical observing facility for the University of Hertfordshire and one of the finest teaching observatories in all of England. With the exception of the 2 images submitted by Custer member, Phil Harrington, on the preceding page, this image and all images on the preceding pages were obtained while comet McNaught was east and north of the sun and still an evening object. During the ensuing days, the comet became a daylight object with a visual magnitude exceeding -4, moving south and west. Space limitations preclude me from including any of those images, many of which can be readily viewed or downloaded from all the major science and astronomy portals. The remainder of the images included here were obtained after the comet had moved around to the west and south of the sun, becoming a spectacular southern hemisphere object.



Comet McNaught's tail emerges from a layer of cloud

Photograph by Joseph Cali

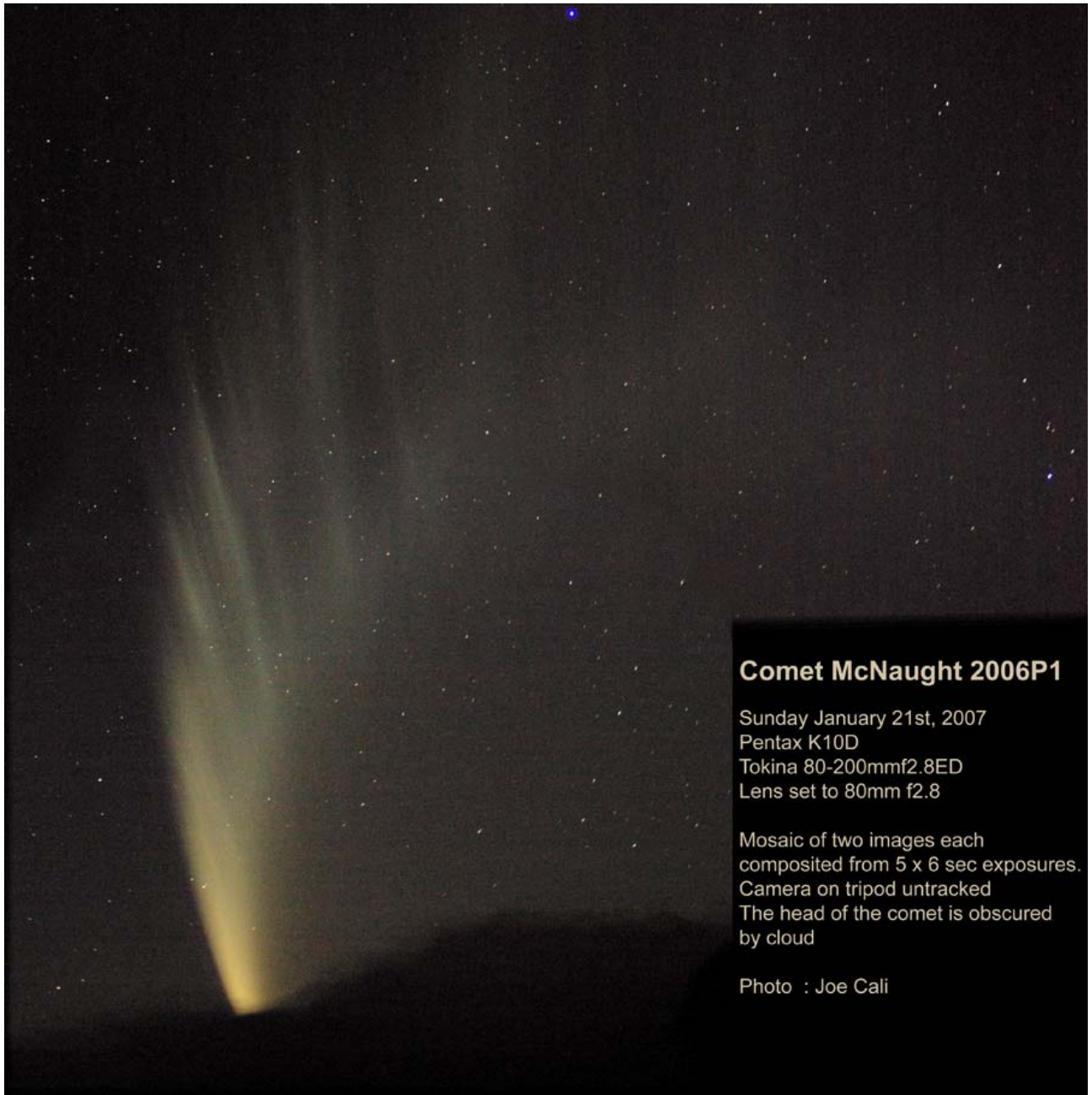
Composite of three 20s exposures with 35mm lens at $f2$. The compositing made the cloud appear more noctilucant than it was. It is just reflecting distant sodium vapour street lamps. Taken : January 21st, 2007, 12:00 UT (approx).
Location : Uriarra Rd, west of Canberra - not far from Mt Stromolo Observatory



Comet McNaught Tuesday January 23rd

Photograph : Joseph Cali

Pentax K10D ISO 400 50mm lens 3x20s@ f4 + 30s @ f1.7

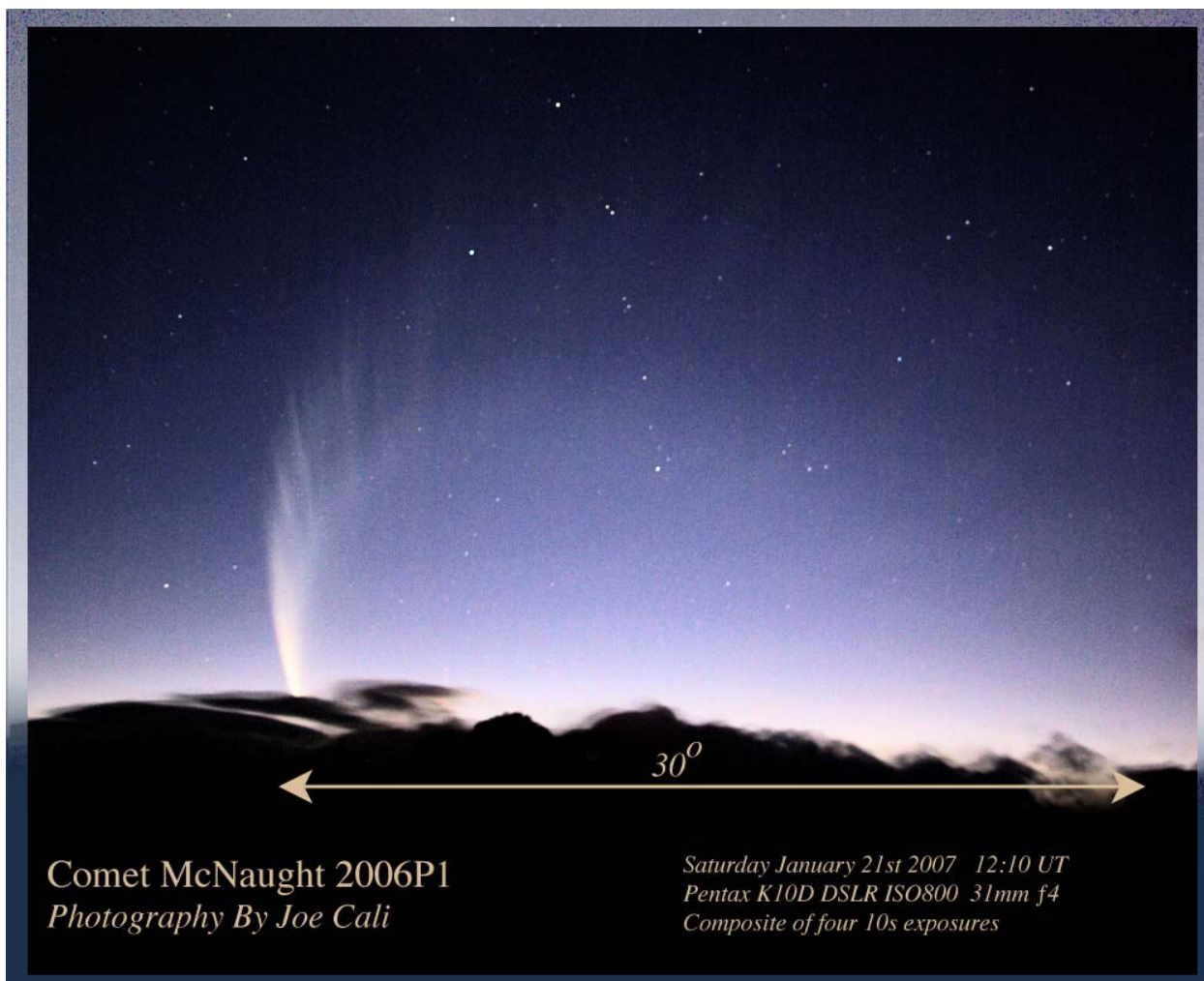


Comet McNaught 2006P1

Sunday January 21st, 2007
Pentax K10D
Tokina 80-200mmf2.8ED
Lens set to 80mm f2.8

Mosaic of two images each
composed from 5 x 6 sec exposures.
Camera on tripod untracked
The head of the comet is obscured
by cloud

Photo : Joe Cali



This image and all the images on the preceding 3 pages are courtesy of Joe Cali of the Australian National University, <http://www.anu.edu.au>. Thank you, Joe!

A concert entitled “The Evolution of Rhythm and Blues”

On Sunday, February 11th at 2 pm in Central Islip, local blues musician Ahmad Ali will give a presentation on "The Evolution of Rhythm and Blues."

Singer/Guitarist Ahmad Ali and his band will perform soulful renditions of classics from blues to Motown, funk and more. Ali will also discuss the history of African-American music in America, its development, and its influence on popular culture.

This program is free and open to the public. It will be held at the Central Islip Public Library on 33 Hawthorne Avenue. For information and directions, please contact the library at (631) 234-9333. For more information on Ahmad Ali:

www.ahmadalimusic.com

www.myspace.com/ali7music

www.myspace.com/ahmadalijams

More information on WBAI 99.5 FM, Pacifica Radio: www.wbai.org

Editor: Ahmad Ali has performed many times for us at Custer and has donated any proceeds received back to Custer. Please come out and support him, as he has supported us.

PATCHOGUE PRINTING
"Your Image Is Our Business"
 Stationery • Forms • Invitations • Newsletters
 Business Cards • Brochures • Menus • Tickets

DIGITAL COLOR COPIES

23 Havens Avenue • Patchogue, New York 11772
 (1 block west of N. Ocean Avenue)
 (631) 447-1506 • Fax (631) 447-1508



RADIO ASTRONOMY SUPPLIES

Your International Supplier of Quality Radio Astronomy Products Since 1994
 Radio Telescopes, LNA's, Noise Calibration Sources, Books, Videos, and
All Associated Items for Radio Astronomy Researchers and Government Applications. Appraisal Services
Contact:
 Jeffrey M. Lichtman
 Phone: 954-722-5243
jmlras@mindspring.com
<http://www.nitehawk.com/rasmit/ras.html>
 P.O. Box 450546, Sunrise, FL 33345-054

ROBERT A. VANSON



VANSON FINANCIAL
 REGISTERED INVESTMENT ADVISOR
"Your Life Planner"

37 Valley Forge Dr., Bohemia, NY 11716 631-218-2350
 homepage <http://www.vansonfinancial.com> E-mail bvanson@aol.com

**** Astrotec ****
Telescopes and Accessories
 Celestron Meade TeleVue JMI SBIG
 Orion Lumicon Kendrick Stellarvue
EXPERT TECHNICAL HELP
Astro-photography Specialist

631-563-9009 **Frank**