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May 2008

NEXT MTG: Sat 14 Jun 2008
TIME: 7:30pm
SPEAKER: Dr. Harold Williams
WHERE: UM Observatory

Dr. Harold Williams is a long time member of NCA: from August 1994 through 1996 he was vice president and program chair, and then president from 1996 through 1998 and again in 2005 through August 2007. He is currently NCA’s webmaster and has been doing this since November 1996, when NCA went on the net. He gets paid money for working at the Takoma Park/Silver Spring campus of Montgomery College as planetarium coordinator and physics and geology lab coordinator (full time staff position) and adjunct professor, who usually teaches astronomy in the planetarium, but has also taught physics, mathematics, geology, and physical oceanography. He is a labor union member of AFSCME (American Federation of State and Municipal Employees) local 2380, Montgomery College Staff Union. He has previously been on the executive board, vice president, president, vice president, and now back on the executive board of this labor union. As the adjunct professors at Montgomery College are now forming a labor union he has joined SEIU (Service Employee International Union) local 500. He is a union steward and union organizer participating in several successful organizational campaigns for public employees. He grew up in Jacksonville, Florida; and is educated beyond his intelligence with a B.S. in physics and mathematics from Florida State University in Tallahassee, an M.S. in physics from the State University of New York at Stony Brook, (where he imprudently tried to solve the problem of quantum gravity, before it was generally appreciated how hard of a problem this is), and finally a Ph.D. in astrophysics from Louisiana State University in Baton Rouge with a dissertation on “Star Formation, Using 3-D Explicit Eulerian Hydrodynamics.” So he used to be a computing scientist and still has some ambition.

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OZONE, THE GREENHOUSE GAS
BY SPACE PLACE

We all know that ozone in the stratosphere blocks harmful ultraviolet sunlight, and perhaps some people know that ozone at the Earth’s surface is itself harmful, damaging people’s lungs and contributing to smog.

But did you know that ozone also acts as a potent greenhouse gas? At middle altitudes between the ground and the stratosphere, ozone captures heat much as carbon dioxide does.

In fact, pound for pound, ozone is about 3000 times stronger as a greenhouse gas than CO₂. So even though there's much less ozone at middle altitudes than CO₂, it still packs a considerable punch. Ozone traps up to one-third as much heat as the better known culprit in climate change.

Scientists now have an unprecedented view of this mid-altitude ozone thanks to an instrument aboard NASA's Aura satellite called the Tropospheric Emission Spectrometer—"TES" for short. Most satellites can measure only the total amount of ozone in a vertical column of air. They can't distinguish between helpful ozone in the stratosphere, harmful ozone at the ground, and heat-trapping ozone in between. By
CALENDAR OF EVENTS

NOMINEES

NCA Mirror- and Telescope-making Classes: Fridays, June 6, 13, 20, and 27, 6:30 to 9:30pm at the Chevy Chase Community Center, at the northeast corner of the intersection of McKinely Street and Connecticut Avenue, N.W. Contact instructor Guy Brandenburg at 202-635-1860 or email him at gbbrandenburg@yahoo.com. In case there is snow, call (202) 282-2204 to see if the CCC is open.

Open house talks and observing at the University of Maryland Observatory on Park the 5th and 20th of every month at 8:00pm. (Nov.-Apr.) or 9:00pm (May-Oct.). There is telescope viewing afterward if the sky is clear.

Dinner; Saturday, June 14 at 5:30pm, preceding the meeting, at the Garden Restaurant in the University of Maryland University College Inn and Conference Center. There will also be a pizza dinner at the Observatory. Details will be emailed to the group.

NCA members able to receive Star Dust, the newsletter of the NCA, via e-mail as a PDF file attachment, instead of hardcopy via U.S. Mail, can save NCA a considerable amount of money on the printing and postage in the production of Star Dust (the NCA’s single largest expense) and also save some trees.

If you can switch from paper to digital, please contact Michael L. Brabanski, the NCA Sec-Treasurer, at mlbrabanski@verizon.net or 301-649-4328 (h).

Meeting Videos

Those who attend the meetings have probably noticed that Jay Miller records the talks. While the main purpose is to produce a DVD to assist the reviewer of the talk, he also makes several extra copies. While he claims not to be Spielberg, if there is a lecture you’ve missed or one you want to look at again, members can contact Jay to borrow a copy.

DO YOU NEED A RIDE? Please contact Jay Miller, 240-481-8669, if you need a ride from the metro to dinner or to the meeting at the observatory. Please try to let him know in advance by e-mail at rigel1@starpower.net.

DIRECTIONS TO DINNER/MEETING

Members and guests are invited to join us for dinner at the Garden Restaurant, located in the University College Inn & Conference Center, 3501 University Blvd E.

The meeting is held at the UM Astronomy Observatory on Metzerott Rd about halfway between Adelphi and University Blvd.

OBSERVING AFTER THE MEETING

Following the meeting, members and guests are welcome to tour through the Observatory. Weather permitting, several of the telescopes will also be set up for viewing.

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Rigel1@starpower.net

Contact"/e-mail at rigel1@starpower.net.

Membership Categories and Annual Dues Rates

All members receive Star Dust, the monthly newsletter announcing NCA activities. As an added optional benefit to extend your knowledge of astronomy, you may also choose Sky and Telescope magazine at the discounted rate of $33.

Standard Individual or Family Membership: $5 with Sky and Telescope...$38

Student Membership: $5 with Sky and Telescope...$38

MEMBERSHIP CATEGORIES AND ANNUAL DUES RATES

You are welcome to make contributions in any amount in addition to the dues shown above. Contribution amount:

Please mail this form with your check payable to National Capital Astronomers, to:

Mr. Michael L. Brabanski, NCA Treasurer; 10610 Bucknell Drive, Silver Spring, MD 20902-4254

SEPTEMBER 2008

By Dava Sobel, you know that the “bad guy” in that story was Astronomer Royal Nevil Maskelyne, but when Banneker was part of the team that decided where the boundaries of the District of Columbia would go, his job was to tend to the chronometer and to use that and their transit telescope to figure out exactly where they were and which way the cardinal directions went.

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rigel1@starpower.net

Thank you!

PIZZA PARTY

The 14 June meeting will be preceded by a Pizza Party dinner at the observatory. Details will be sent out several days before the meeting. But basically, we’ll collect preferences and order the pizza from Papa Johns. It usually runs about 2-3 slices + drink for about $5. We will likely start at about 6pm with the pizza and socialize with Miles King, a Mont. County Science Fair winner, while we eat. The meeting will start at 7:30pm.

Many members may still opt to go to the Garden Restaurant at 9:30pm.

Yes, I’d like to join NATIONAL CAPITAL ASTRONOMERS!

NAME: ___________________________ DATE: ___ / ____ / ____

Street address: ___________________________

City/State/ZIP: ___________________________

Telephone: ___________________________ E-mail: ___________________________

Other family members who should receive a membership card:

Contribution amount:_________________________  Please mail this form with your check payable to National Capital Astronomers, to:

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A FEW GOOD BOOKS...  
by Guy Brandenburg

- Death By Black Hole by Neal DeGrasse Tyson. Astrophysicist Tyson is a great science writer, and this is a collection of about forty of his columns previously published in *Natural History* magazine.
- The Mapmaker's Wife by Robert Whitaker is a fascinating true story of French astronomers risking their lives to measure the size of the Earth by traveling to Ecuador and Columbia in the 1730's. A good part of the book follows the story of the Spanish-speaking wife of one of the members of the expedition making an absolutely harrowing trek to rejoin her husband by descending the Andes to the headwaters of the Amazon river, evading tribes of hostile Indians, snakes, alligators, and so on, to emerge as the lone survivor of the expedition.
- The Measure of All Things by Ken Alder describes how a different team of French astronomers risked both their lives and their sanity to come up with the metric system by measuring the distance from Dunkirk to Barcelona, passing through Paris. They did this while the Ancien Régime fell and was replaced by the French Revolution, the Napoleonic Empire, and later by the Bourbon Restoration. You may recall that the meter was supposed to be exactly one ten-millionth of the distance from the North Pole to the Equator. (But they didn't quite get it right!) The meter was then used to define just about every other unit, such as liters, and so on. The author shows the many disadvantages of the old system where nearly every town, province, market, or profession had its own system of measurements. But he also asks whether, today, having a universal measuring system really matters any more.

- Parables by Alan W. Hirschfeld is subtitled, "The Race to Measure the Cosmos." I had to get my copy from a used book distributor. I'm glad I did. This book outlines the many steps by which humans have progressed in their understanding and measurement of the size of the Earth, the distance to the Moon, the size of the Solar System, and finally, the distances to the stars.
- Chesapeake Invader by Wiley Poag is another book I really had to hunt for. It's a very readable description of the detective work that went into discovering that a very large asteroid hit what is now the mouth of the Chesapeake Bay between Cape Charles and Newport News. It didn't cause any mass extinctions (that we know of) but blasted a big hole in the subterranean rocks, changed the course of the glacial Susquehanna river and made the Chesapeake Bay make that funny turn to the east at its very mouth. Oh, and the tidal wave probably went up the entire Bay, too!
- Roving Mars by Steve Squyres, Squyres, of Cornell University, is the lead scientist behind the rovers Spirit and Opportunity that are continuing to operate and send back lots of scientific information on Mars, at least 3 years after their warranty expiration date of 90 days. It's a very conversational account of the process of trying to plan for a NASA mission, getting turned down repeatedly, finally getting it approved, seeing it through, and then success beyond anybody's expectation. (Note: a very large fraction of all missions to Mars have ended in failure, for most NCA members, the only affordable edition is in French; the English version lists at $96.00. The French version, which was aimed at a mass audience, is the one I have.)

Looking sideways toward Earth's horizon, a few satellites have managed to probe the vertical distribution of ozone, but only to the bottom of the stratosphere.

Unlike the others, TES can measure the distribution of ozone all the way down to the heat-trapping middle altitudes. "We see vertical information in ozone that nobody else has measured before from space," says Ammara Eldering, Deputy Principal Investigator for TES. The global perspective offered by an orbiting satellite is especially important for ozone. Ozone is highly reactive. It is constantly being created and destroyed by photochemical reactions in the atmosphere and by lightning. So its concentration varies from region to region, from season to season, and as the wind blows. Data from TES show that ozone's heat-trapping effect is greatest in the Spring, when intensifying sunlight and warm temperatures fuel the reactions that generate ozone. Most of ozone's contribution to the greenhouse effect occurs within 45 degrees latitude from the equator.

Increasing industrialization, particularly in the developing world, could lead to an increase in mid-altitude ozone, Eldering says. Cars and coal-fired power plants release air pollutants that later react to produce more ozone.

"There's concern that overall background levels are slowly increasing over time," Eldering says. TES will continue to monitor these trends, she says, keeping a careful eye on ozone, the greenhouse gas.

Learn more about TES and the science of ozone at tes.jpl.nasa.gov. Kids can get a great introduction to good ozone and bad ozone at spaceplace.nasa.gov/en/kids/tes/gases.

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

The UM Observatory website maintains a more complete list of links to local astronomy clubs and space places.

CAPTION: Ozone behaves differently at different altitudes in the atmosphere. High in the stratosphere and at mid-troposphere it has positive effects on life at the surface. At the top of the troposphere ozone is a greenhouse gas and at the surface it makes smog.

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SCIENCE FAIR WINNERS

Jay Miller

NCA members were able to attend only two science fairs this year, Prince George's County and Montgomery County. The Prince George's County fair was judged by Martha and Wayne Warren. The winning project was What a M.E.S.: Martian Environmental Simulator II by Julie Emily Walker from Hollywood, MD and a student at Leonardtown Regional High School. The Montgomery County Science Fair was judged by Alan Bromborsky and Jay Miller. The junior project chosen was Geomagnetic Field Fluctuations by Miles King of Potomac, MD. Miles will be joining us at the June meeting to talk about his project and be presented with his award.

Congratulations to both!
Irv Price, longtime member of the National Capital Astronomers, died at home in the Maryland area. He was the oldest of four siblings, a sister and three brothers. He is survived by his brother, Leon G. Price, and by four nephews. He never married.

Irv Price was trained in the US Air Force and later at the Milwaukee School of Engineering. When he was in Brooklyn he joined the Amateur Astronomers Inc. of N. Y. He is remembered by many friends in the AAI and the NCA. Irv chased solar eclipses, traveling to Puerto Vallarta, Curacao, Canada and NY state. He attended many of the summer meetings at Stellafane. He joined an NCA tour of the radio telescope site at Green Bank.

Irv read a lot, and kept current with many advances in electronic technology. He put together a refracting telescope, and was an early user of CCD photography. He had the patience and dedication to use early versions of LINUX on desk top computers. He had a sunny personality with a winning smile. Many friends remember conversations with Irv about technical subjects.

Sent in by Norman Peterson

PROPOSED DUES CHANGES FOR NCA MEMBERS

by Jeff Norman, Assistant Secretary/Secretary

In the summer of 2006, the NCA Board of Directors lowered the basic dues for regular members from $27 to $10, as an experiment to see if that reduction would bring in new members, and to return to current members some money from our reserve fund (which some Board members felt was too large). At the time, we knew that the lower dues would result in a deficit, but we had enough charges in the bank so that we could safely run the deficit for a few years if dues decrease was a modest success because we did get about 20 new members, for a current total of about 145.

However, as expected, NCA is now running a deficit, and our reserve fund is dwindling. Rather than wait until our funds get so low that we won’t be able to cover unexpected costs, we are considering raising dues for only those members who get paper copies of Star Dust, our newsletter. At the present time, our annual budget approximately $10 per member per year (printing and postage) to produce the paper copies of Star Dust. It costs NCA nothing to send out electronic copies.

All of NCA’s other expenses put together also cost about $10 per member per year. The largest other expense is $5 per member per year for membership in the Astronomical League. Other large expenses include insurance and speakers’ dinners. (For more details, look at NCA’s annual Treasurer’s Report, which is published every September in Star Dust.)

Therefore, I am proposing a new standard dues of $20 per year starting in September, for those members who wish to get paper copies of Star Dust, while leaving the standard dues at $10 for those members who agree to receive electronic copies.

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